

Odessa I.I.Mechnikov National University, Ukraine
Research Institute “Astronomical observatory”
Department of space research

ATLAS
of light curves of space objects

Part 5
(2016-2018)

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Compiled by E.A.Korobeynikova

2018

1963-014A	574	1988-005B	18821	1998-051E	25471	2008-049C	33398
1965-073F	1589	1988-021A	18960	1998-071A	25560	2008-054A	33412
1967-045B	2802	1988-021B	18961	1998-074A	25577	2009-055A	35946
1968-040B	3230	1988-078A	19460	1998-074B	25578	2009-059A	36036
1968-091A	3504	1989-009G	19791	1999-019D	25679	2009-059B	36037
1968-097A	3530	1990-005A	20436	1999-025C	25732	2009-063A	36095
1970-008A	4320	1990-017B	20509	1999-032B	25778	2010-013A	36508
1970-106A	4793	1990-050C	20691	1999-034A	25789	2010-028C	36600
1971-010A	4922	1990-081A	20788	1999-049C	25909	2010-028E	36602
1971-028B	5118	1991-076C	21799	1999-051A	25919	2010-060A	37216
1971-067E	5398	1991-076D	21808	1999-068A	25994	2011-005B	37363
1972-018A	5903	1991-076E	21809	2000-055A	26536	2011-015A	37387
1972-089A	6275	1991-082A	21798	2000-057F	26550	2011-015D	37390
1973-005A	6350	1992-023A	21949	2001-032B	26874	2011-043A	37781
1973-064B	6826	1992-052A	22076	2001-040C	26907	2011-044B	37789
1974-063A	7411	1992-052D	22079	2001-055A	26997	2011-044C	37790
1976-061B	8924	1993-050A	22739	2002-005D	27375	2011-044G	37794
1976-091A	9415	1994-046A	23191	2002-005E	27376	2011-044H	37795
1977-002B	9662	1994-078A	23411	2002-009A	27386	2011-044J	37796
1977-079J	10293	1994-085B	23440	2002-012A	27391	2012-001A	38046
1978-018B	10675	1994-089A	23455	2002-021A	27421	2012-044A	38744
1978-042A	10820	1995-021A	23560	2002-036C	27466	2012-044B	38745
1978-096A	11060	1995-033A	23605	2003-046A	28051	2012-044C	38746
1978-121B	11166	1995-046A	23657	2003-054A	28095	2012-044D	38747
1978-122B	11170	1996-029C	23908	2003-054C	28097	2013-008A	39084
1979-011B	11267	1996-029D	23862	2004-014A	28230	2013-009A	39086
1981-087B	12804	1996-029E	23936	2004-018A	28254	2013-009J	39094
1981-098B	12848	1997-020B	24793	2004-021A	28352	2013-028A	39177
1981-116J	12983	1997-020D	24795	2005-004A	28537	2013-030A	39186
1981-120G	13003	1997-020E	24796	2005-004C	28541	2013-032A	39194
1982-039B	13154	1997-043A	24903	2005-016A	28646	2013-033A	39197
1982-040J	13168	1997-043B	24904	2005-017A	28649	2013-033B	39198
1982-096B	13590	1997-043C	24905	2005-018A	28654	2013-042A	39227
1982-118A	13736	1997-051A	24944	2005-031A	28809	2013-043A	39232
1983-002J	13769	1997-051B	24945	2005-032A	28822	2013-067A	39451
1983-003B	13771	1997-051C	24946	2005-042A	28888	2013-067B	39452
1983-004A	13777	1997-051E	24948	2006-002A	28931	2013-067C	39453
1983-069J	14179	1997-051F	24949	2006-021A	29228	2014-009C	39574
1984-084B	15172	1997-051G	24950	2006-029A	29252	2014-015A	39630
1985-003G	15475	1997-056A	24965	2006-031A	29268	2014-021A	39678
1985-020B	15593	1997-056B	24966	2007-010A	31113	2014-021B	39679
1985-023J	15821	1997-056C	24967	2007-012D	31120	2014-024A	39731
1985-047A	15821	1997-056D	24968	2007-012G	31123	2014-029A	39766
1985-047B	15822	1997-069A	25039	2007-023A	31598	2014-037A	40069
1985-094G	16144	1997-069B	25040	2007-027C	31708	2014-037B	40070
1985-100B	16194	1997-082C	25106	2007-028A	31789	2014-048A	40115
1986-002J	16457	1998-017A	25260	2007-028C	31791	2014-084A	40353
1986-015B	16594	1998-018A	25262	2007-029A	31792	2014-086A	40358
1986-019C	16615	1998-018B	25263	2007-029B	31793	2014-087A	40360
1986-061A	16908	1998-019B	25273	2007-042A	32062	2015-014C	40541
1986-061C	16910	1998-019C	25274	2007-059A	32376	2015-029A	40699
1986-092J	17146	1998-019E	25276	2007-061A	32382	2016-002A	41240
1987-053A	18123	1998-020B	25281	2008-032A	33105	2016-026B	41465
1987-060A	18187	1998-021A	25285	2008-037A	33272	2017-037D	42919
1987-074G	18340	1998-048B	25432	2008-042A	33331		

MIDAS 6 (FTV 1169)

NORAD ID: 574

Int'l Code: 1963-014A

Dimensions: cylinder 9m long 1.5m dia

Initial orbit:

Perigee: 3604 km

Apogee: 3680 km

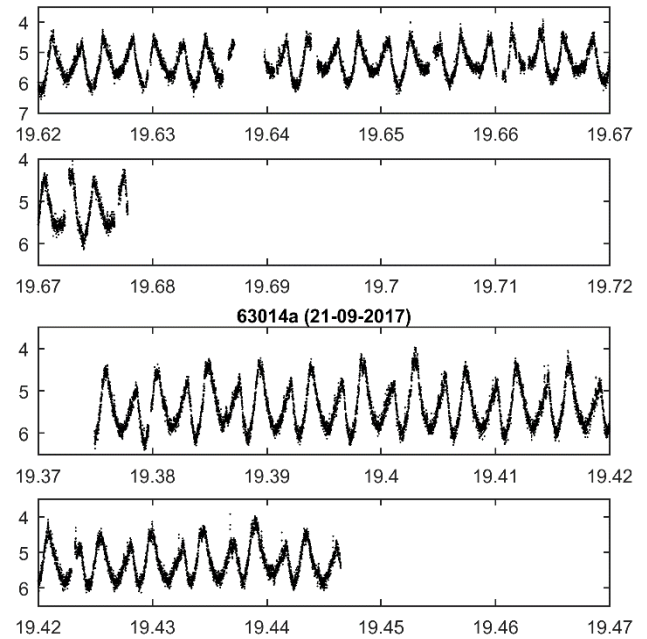
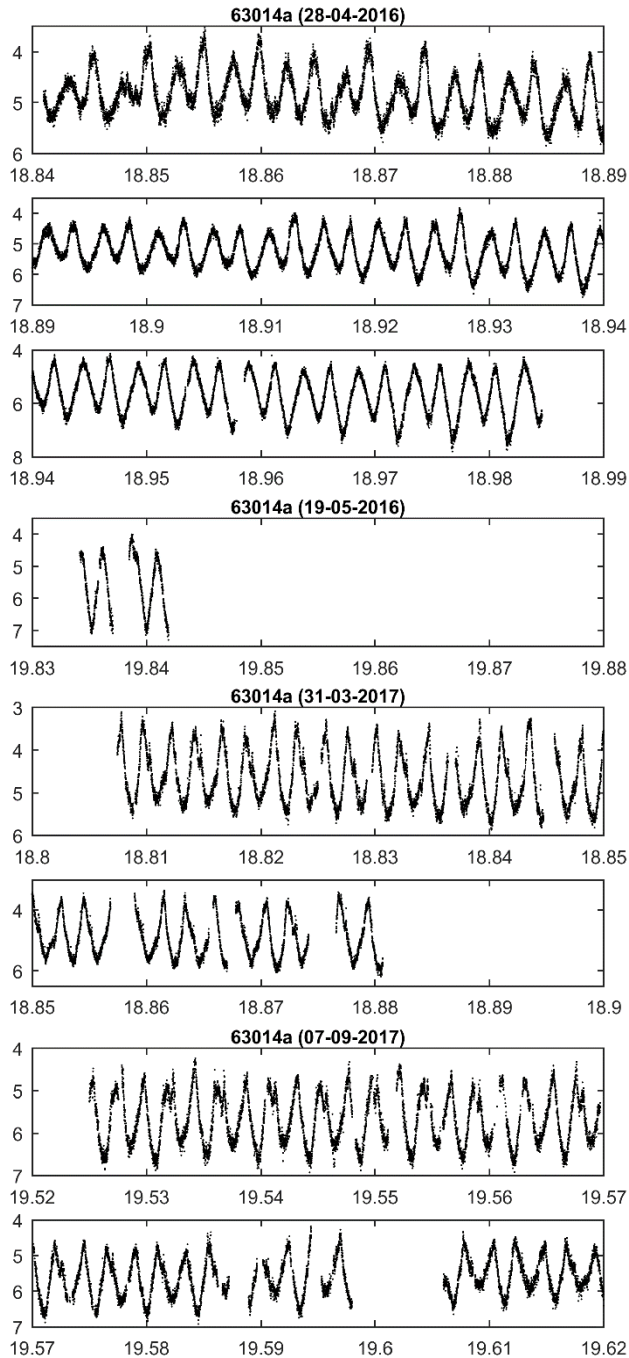
Inclination: 87.42°

Period: 166.48 min

Eccentricity: 0.004

Launch date: 1963-05-09

Source: United States (US)



SL-8 R/B

NORAD ID: 01589

Int'l Code: 1965-073F

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1379 km

Apogee: 1695 km

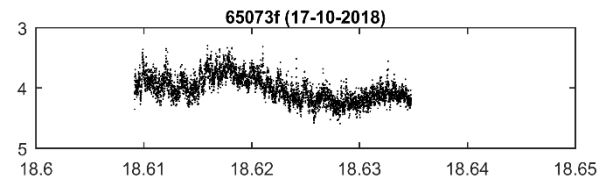
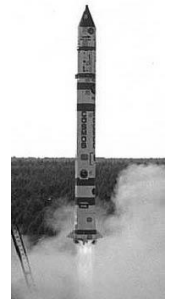
Inclination: 56.03°

Period: 116.75 min

Eccentricity: 0.02

Launch date: 1965-09-18

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-8 R/B

(Kosmos 11K65M 2nd stage)

NORAD ID: 02802

Int'l Code: 1967-045B

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 732 km

Apogee: 847 km

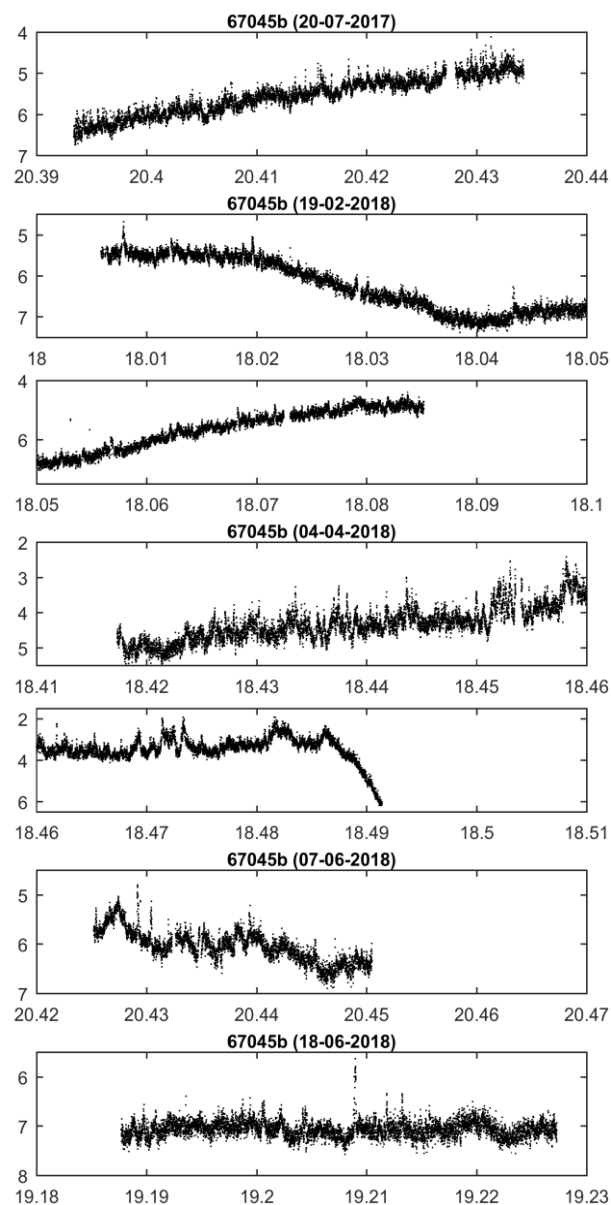
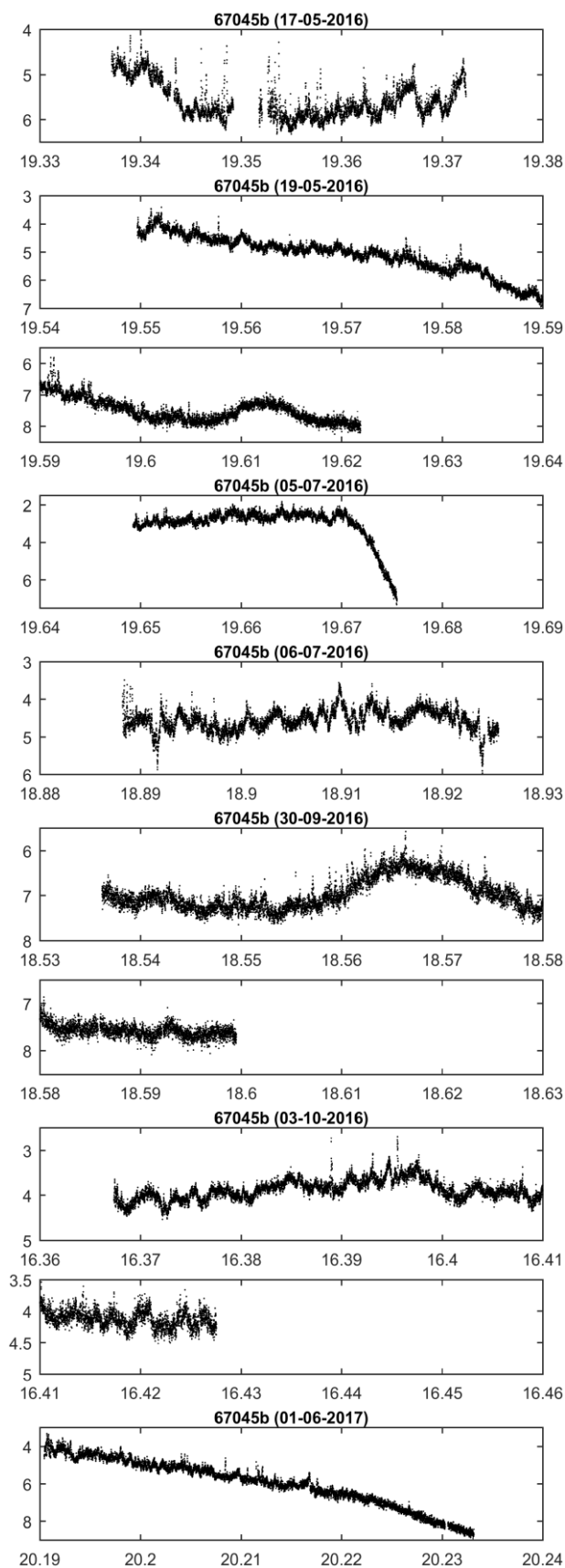
Inclination: 74.01°

Period: 100.59 min

Eccentricity: 0.008

Launch date: 1967-05-15

Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-8 R/B (S3M) (11K65M) (2nd stage)
(COSMOS 220 ROCKET)**

NORAD ID: 03230

Int'l Code: 1968-040B

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 678 km

Apogee: 759 km

Inclination: 74.05°

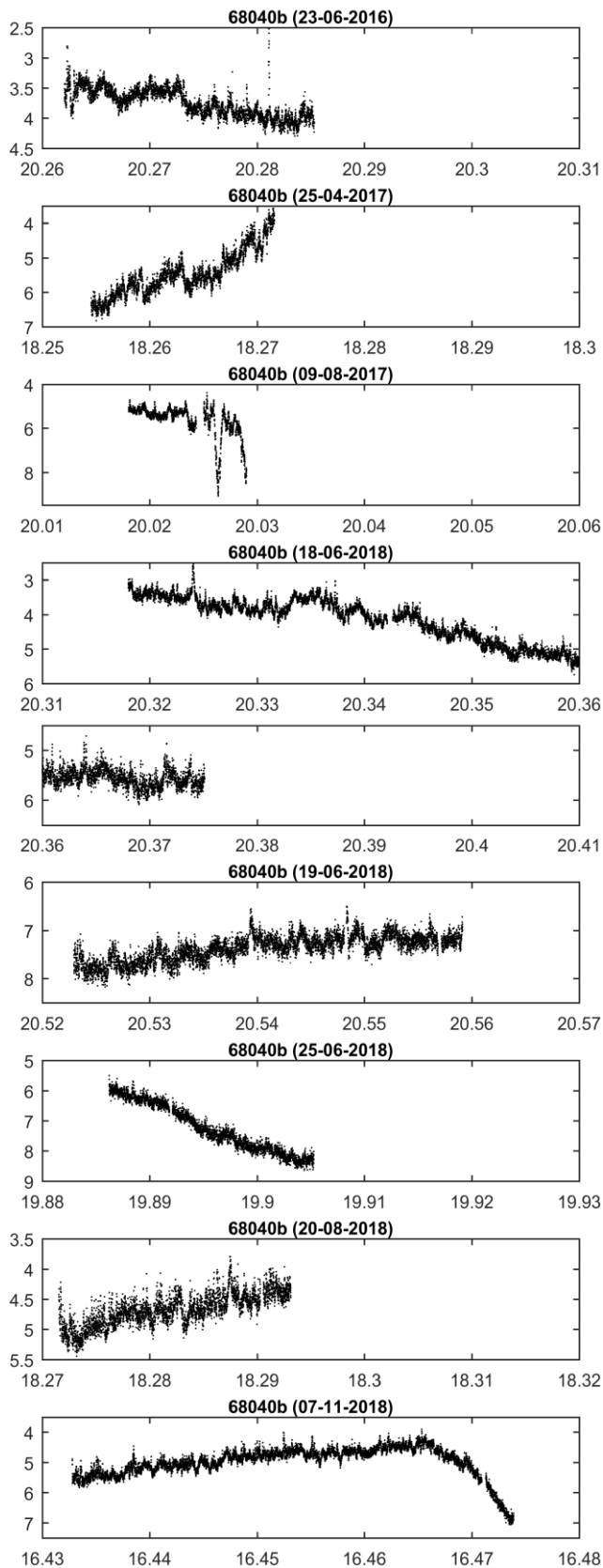
Period: 99.17 min

Eccentricity: 0.006

Launch date: 1968-05-07

Source: Commonwealth of Independent States (former USSR) (CIS)





COSMOS 249

NORAD ID: 3504

Int'l Code: 1968-091A

Dimensions: cylinder? 4m long? 1.5m dia?

Initial orbit:

Perigee: 493 km

Apogee: 2157 km

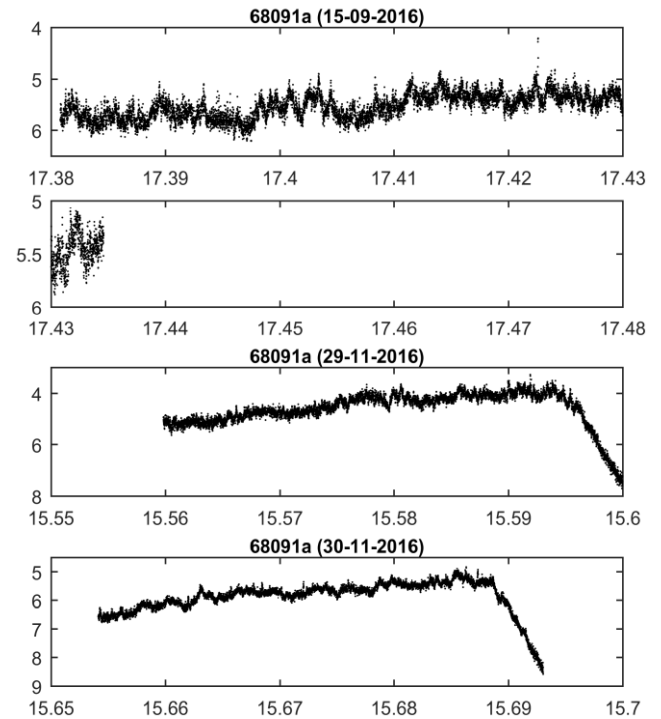
Inclination: 62.35°

Period: 112.13 min

Eccentricity: 0.108

Launch date: 1968-10-20

Source: Commonwealth of Independent States (former USSR) (CIS)



COSMOS 252

NORAD ID: 3530

Int'l Code: 1968-097A

Dimensions: cylinder? 4m long? 2m dia?

Initial orbit:

Perigee: 531 km

Apogee: 2149 km

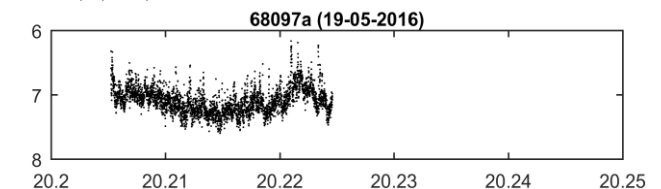
Inclination: 62.32°

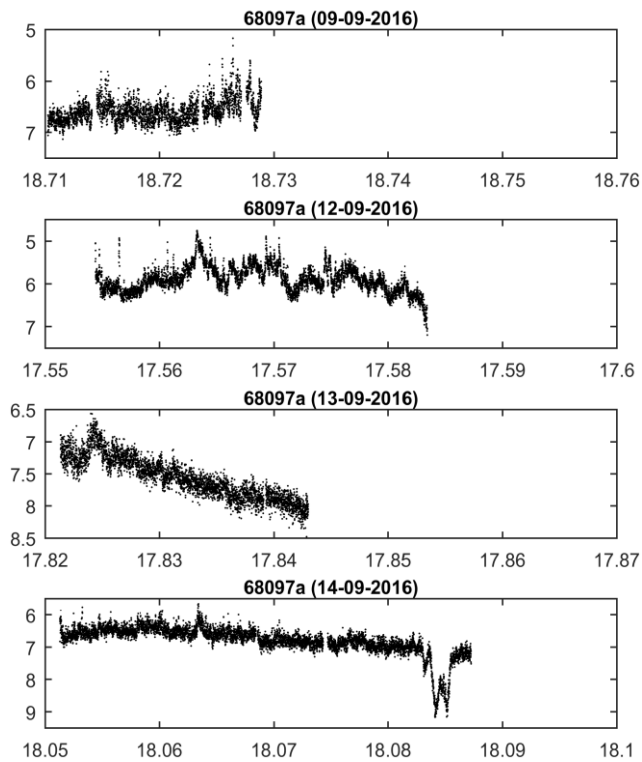
Period: 112.45 min

Eccentricity: 0.105

Launch date: 1968-11-01

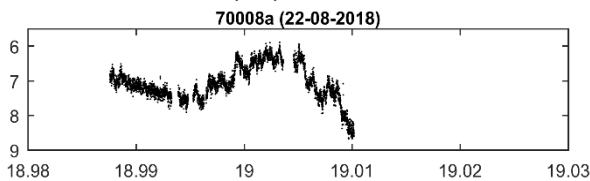
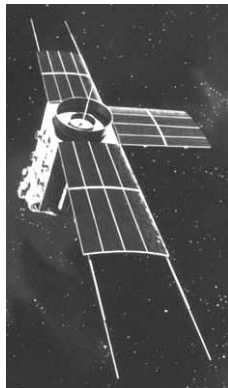
Source: Commonwealth of Independent States (former USSR) (CIS)





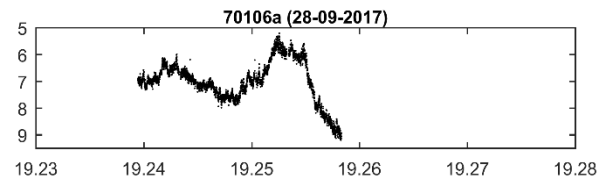
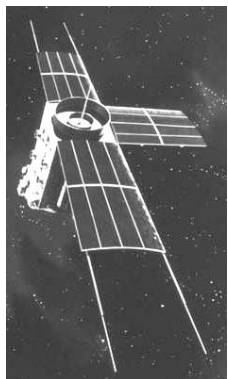
ITOS 1 (TIROS-M, NOAA 1)

NORAD ID: 04320
 Int'l Code: 1970-008A
 Dimensions: box + 3 panels
 1.02m square x 1.22m long
 Initial orbit:
 Perigee: 1436 km
 Apogee: 1482 km
 Inclination: 102°
 Period: 115.1 min
 Eccentricity: 0.003
 Launch date: 1970-01-23
 Source: United States (US)



NOAA 1 (ITOS, TIROS-M)

NORAD ID: 04793
 Int'l Code: 1970-106A
 Dimensions: box
 1.02m square x 1.25m long
 Initial orbit:
 Perigee: 1429 km
 Apogee: 1473 km
 Inclination: 101.94°
 Period: 114.93 min
 Eccentricity: 0.003
 Launch date: 1970-12-11
 Source: United States (US)



COSMOS 394

DS-P1-M (TYULPAN, LIRA, 11F631)

NORAD ID: 04922

Int'l Code: 1971-010A

Dimensions: cylinder? 4m long?
 2m dia?

Initial orbit:

Perigee: 572 km

Apogee: 614 km

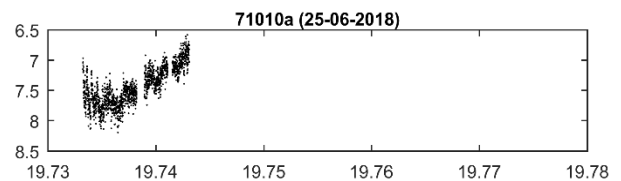
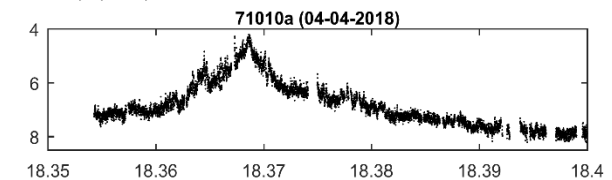
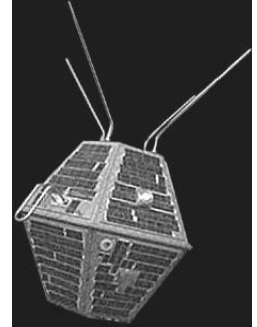
Inclination: 65.84°

Period: 96.54 min

Eccentricity: 0.003

Launch date: 1971-02-09

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-3 R/B (VOSTOK-2M (8A92M))

(Block E 3rd stag)

NORAD ID: 5118

Int'l Code: 1971-028B

Dimensions: cylinder 3.8m long,
 2.6m dia

Initial orbit:

Perigee: 616 km

Apogee: 749 km

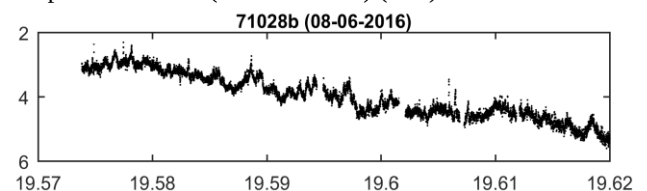
Inclination: 81.25°

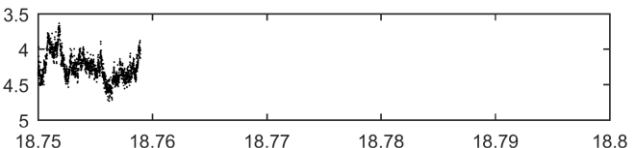
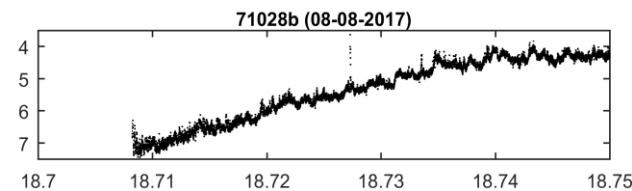
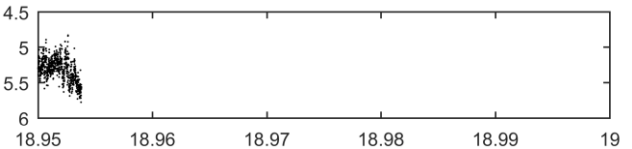
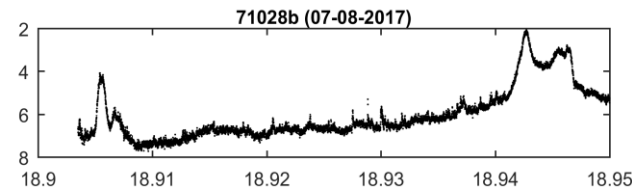
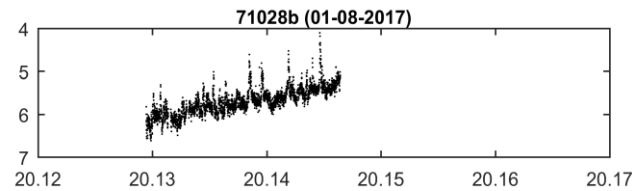
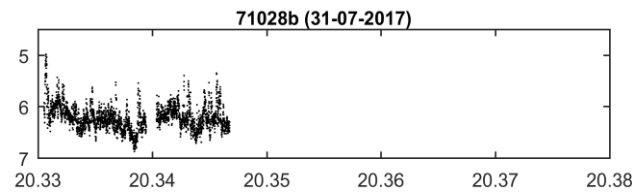
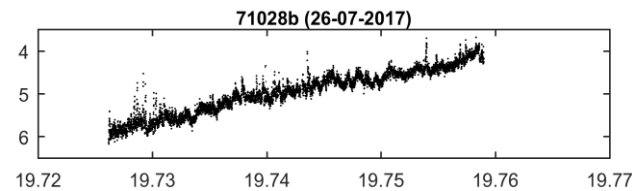
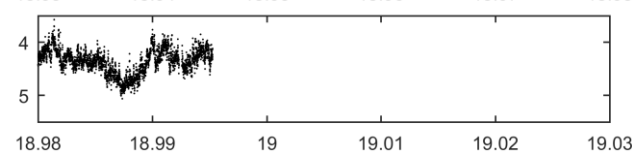
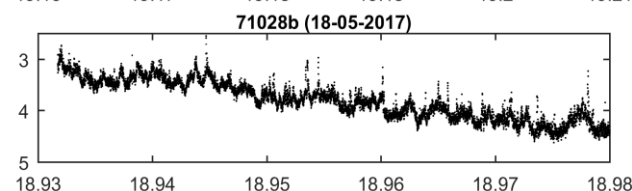
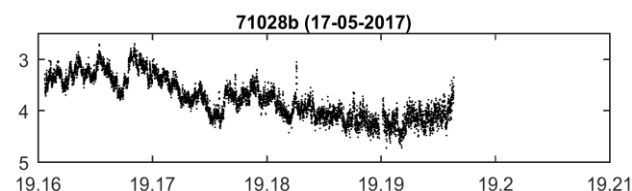
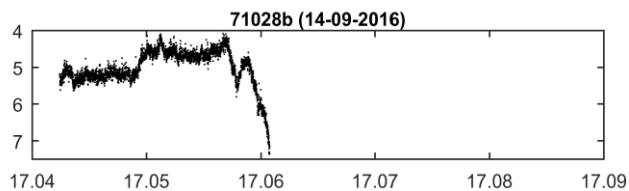
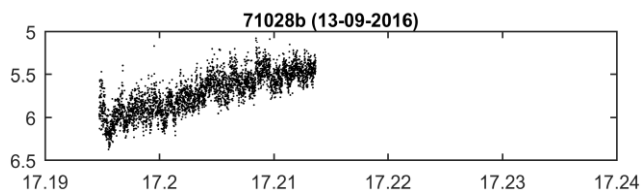
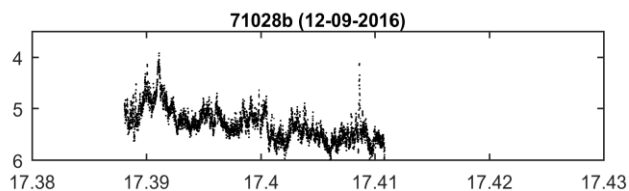
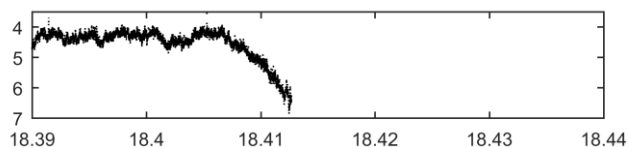
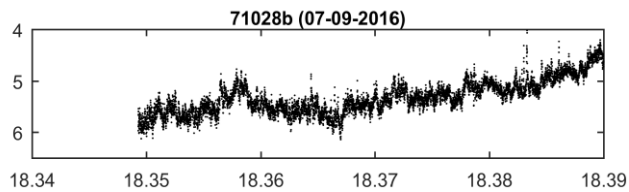
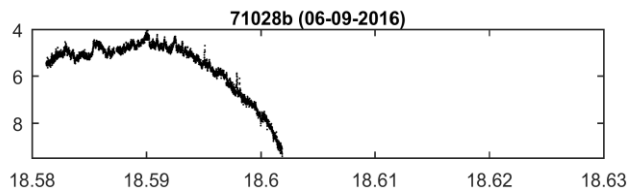
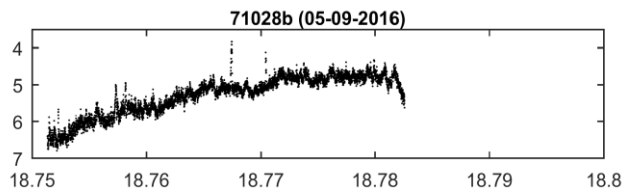
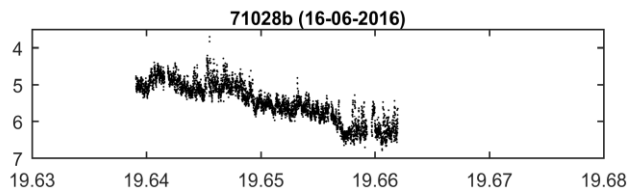
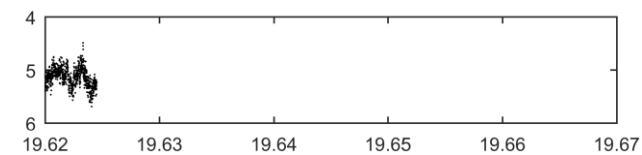
Period: 98.43 min

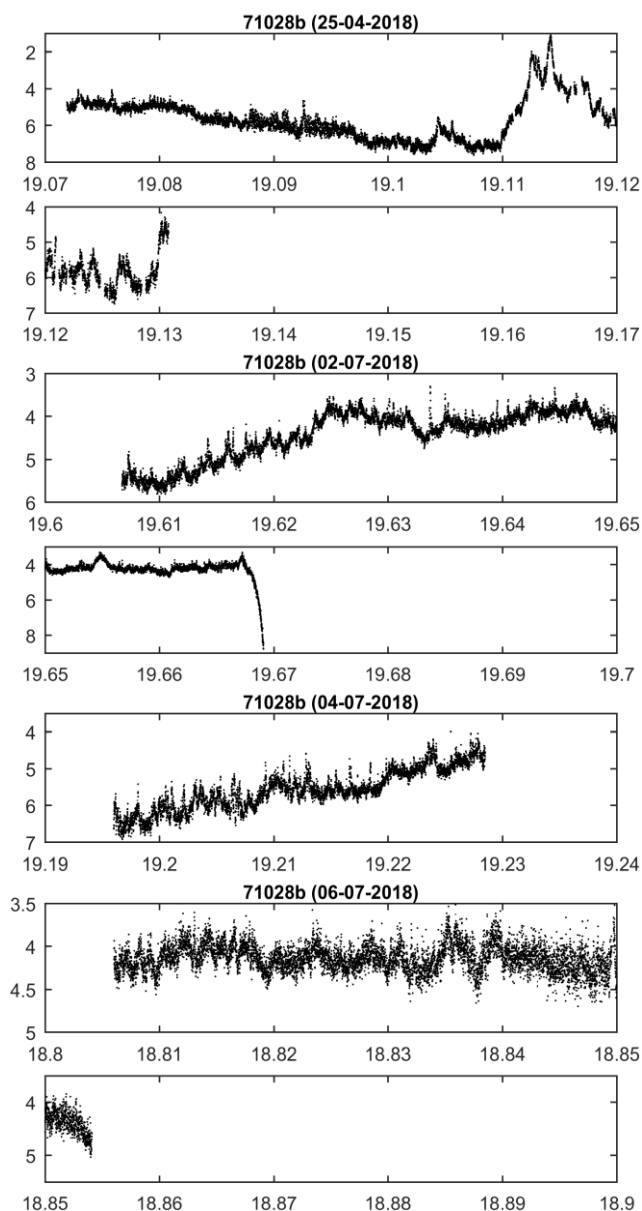
Eccentricity: 0.009

Launch date: 1971-04-07

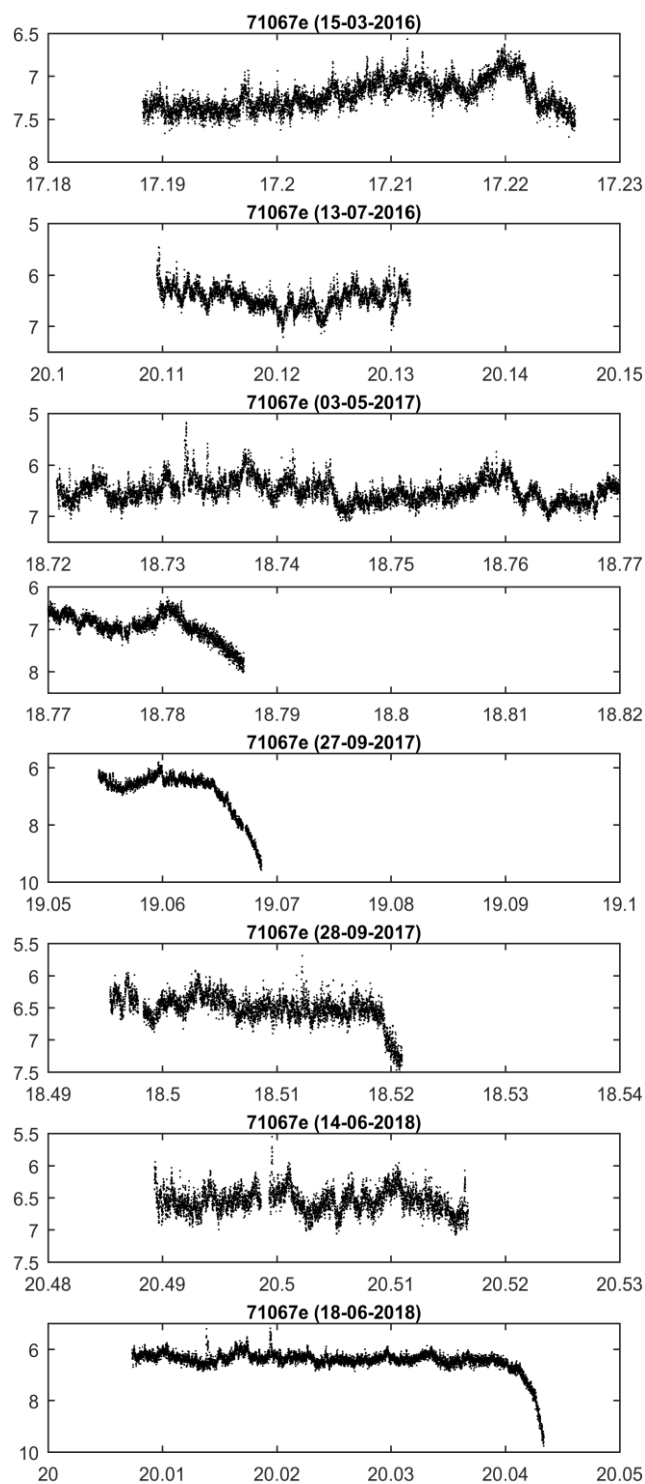
Source: Commonwealth of Independent States (former USSR) (CIS)



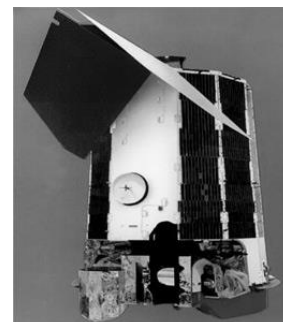




RIGIDSPHERE 2
(LCS 4) (Grid Sphere 1)
 NORAD ID: 05398
 Int'l Code: 1971-067E
 Dimensions: sphere
 (magnesium) 1.12m dia
 Initial orbit:
 Perigee: 795 km
 Apogee: 913 km
 Inclination: 87.62°
 Period: 102.03 min
 Eccentricity: 0.008
 Launch date: 1971-08-07
 Source: United States (US)

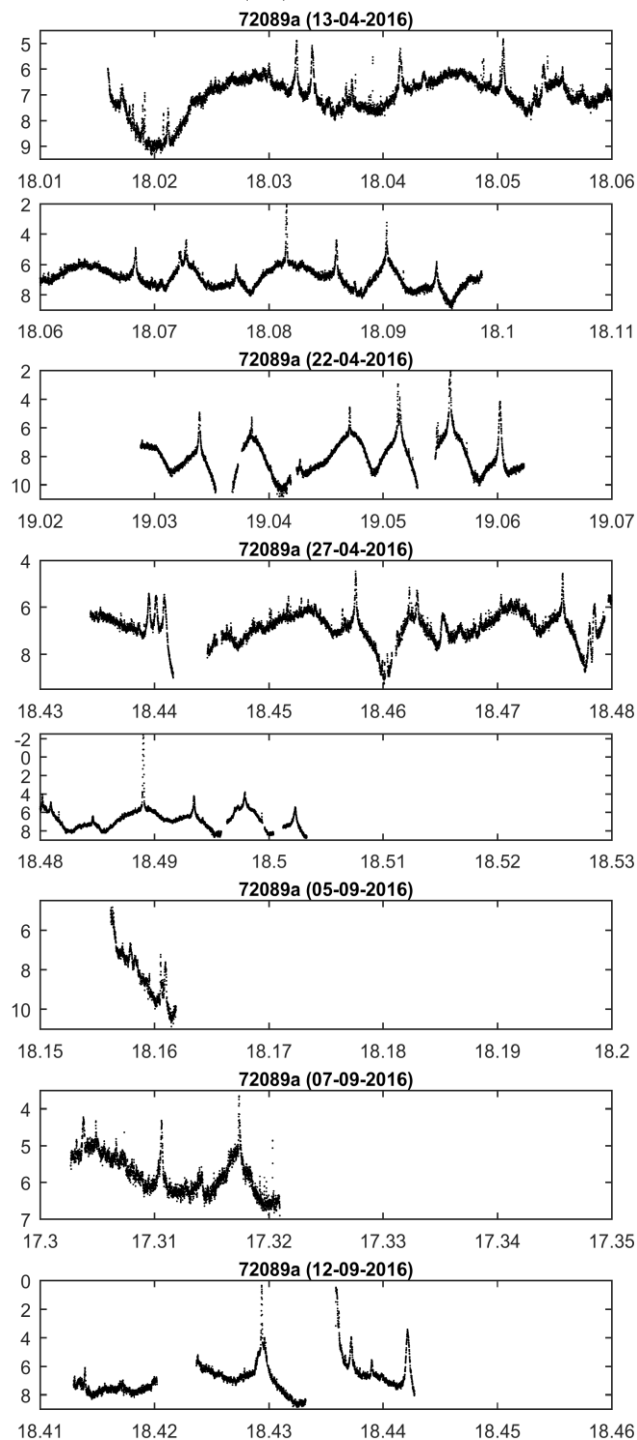
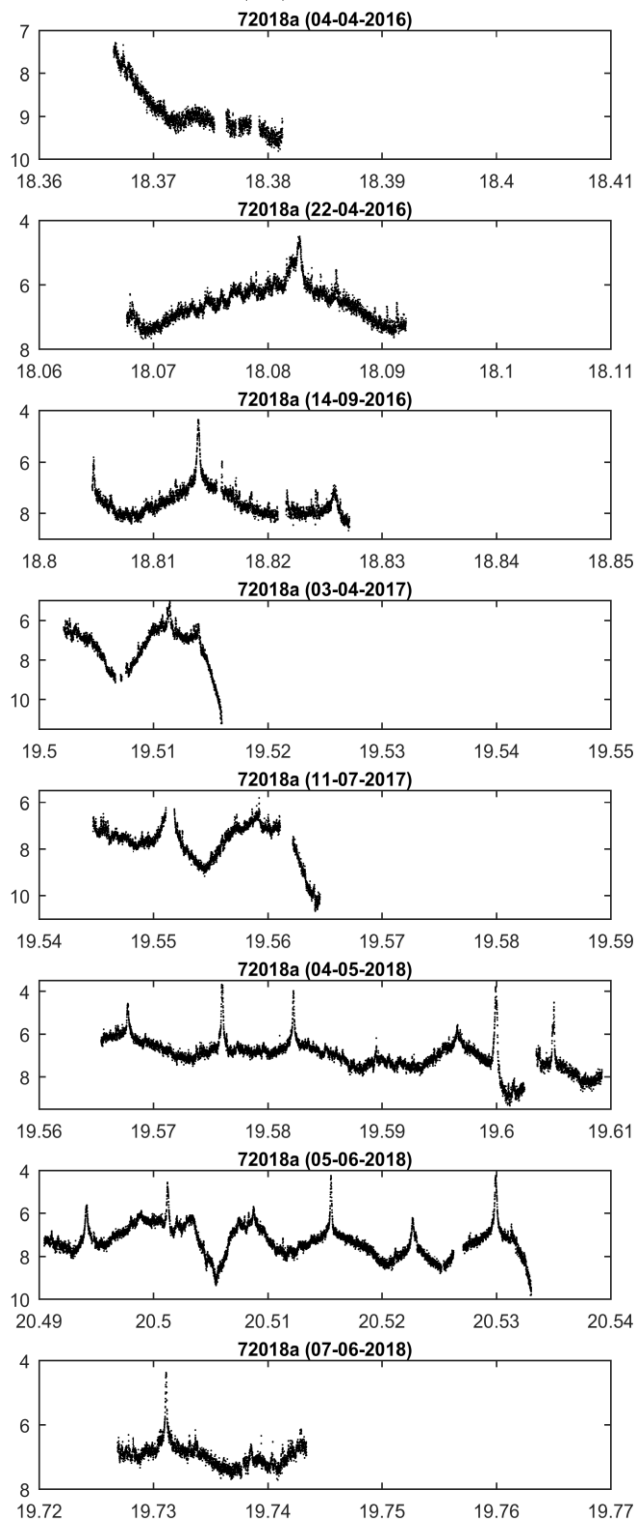


OPS 5058 (DMSP 5B F2)
(DSAP-5B F2)
 NORAD ID: 05903
 Int'l Code: 1972-018A
 Dimensions: 12-sided
 frustum 1.64m long
 1.31m to 1.10m dia
 Initial orbit:
 Perigee: 803 km

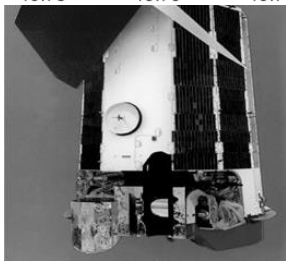


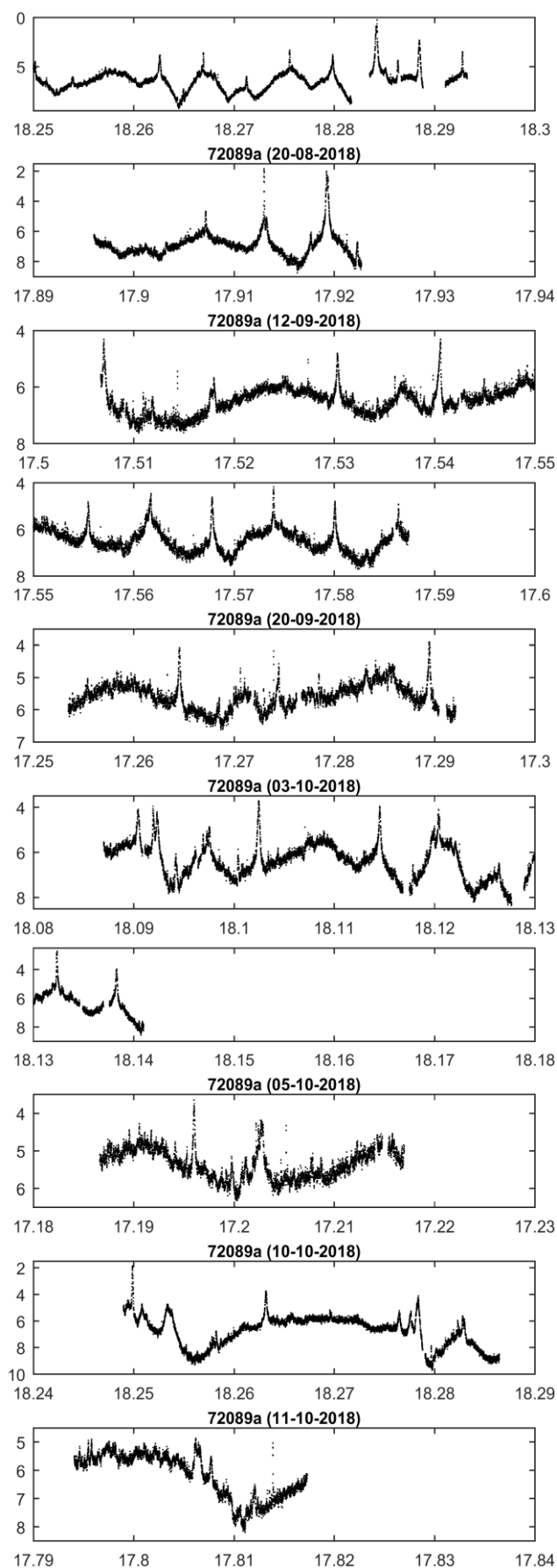
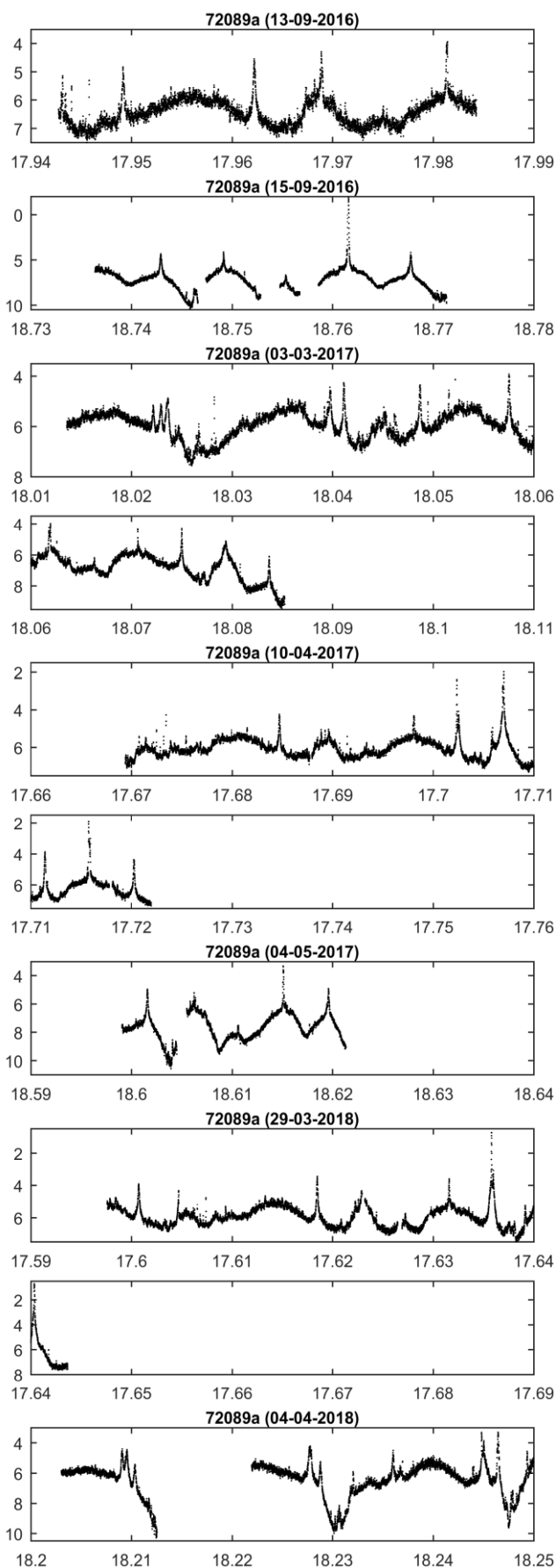
Apogee: 885 km
 Inclination: 98.8°
 Period: 101.83 min
 Eccentricity: 0.006
 Launch date: 1972-03-24
 Source: United States (US)

NORAD ID: 06275
 Int'l Code: 1972-089A
 Dimensions: 12-faced frustum 1.64m long
 1.31m to 1.10m dia
 Initial orbit:
 Perigee: 813 km
 Apogee: 872 km
 Inclination: 98.65°
 Period: 101.8 min
 Eccentricity: 0.004
 Launch date: 1972-11-09
 Source: United States (US)



OPS 7323 (DMSP 5B F3)
(DSAP-5B F3)





COSMOS 546 (Zaliv-GVM #2)

NORAD ID: 06350

Int'l Code: 1973-005A

Dimensions:

Initial orbit:

Perigee: 575 km

Apogee: 614 km

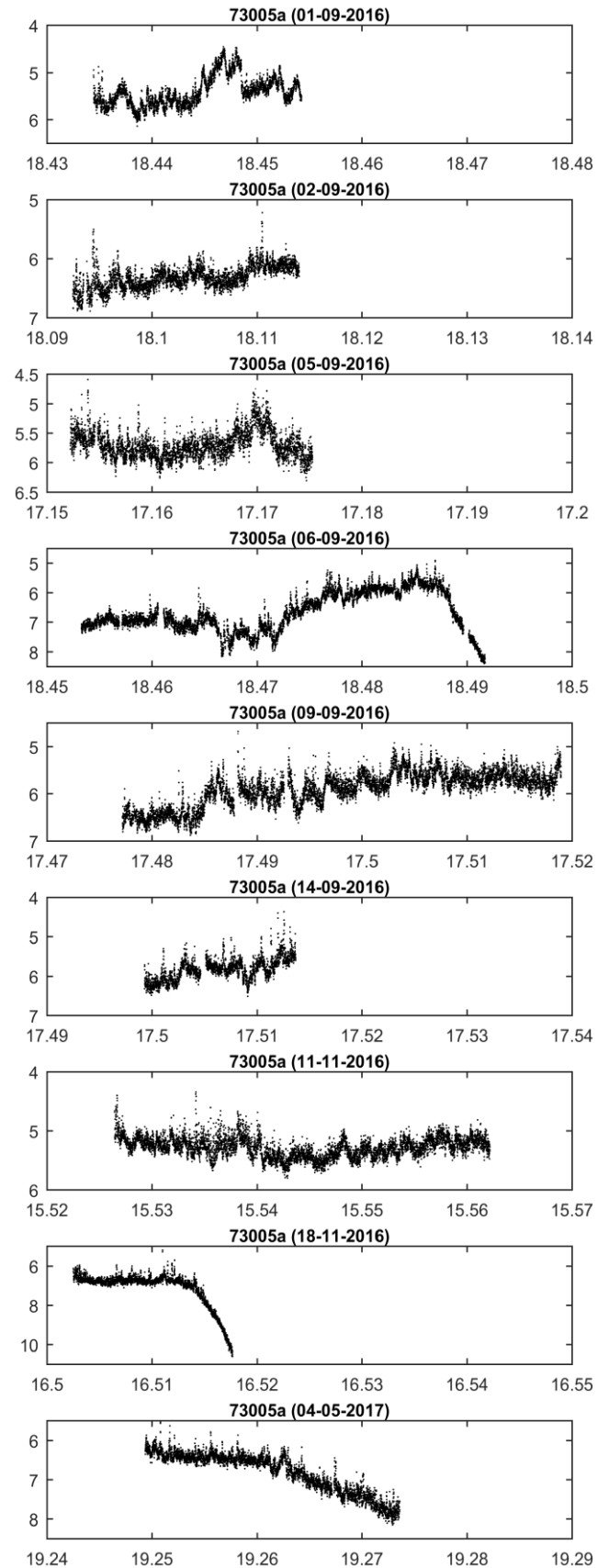
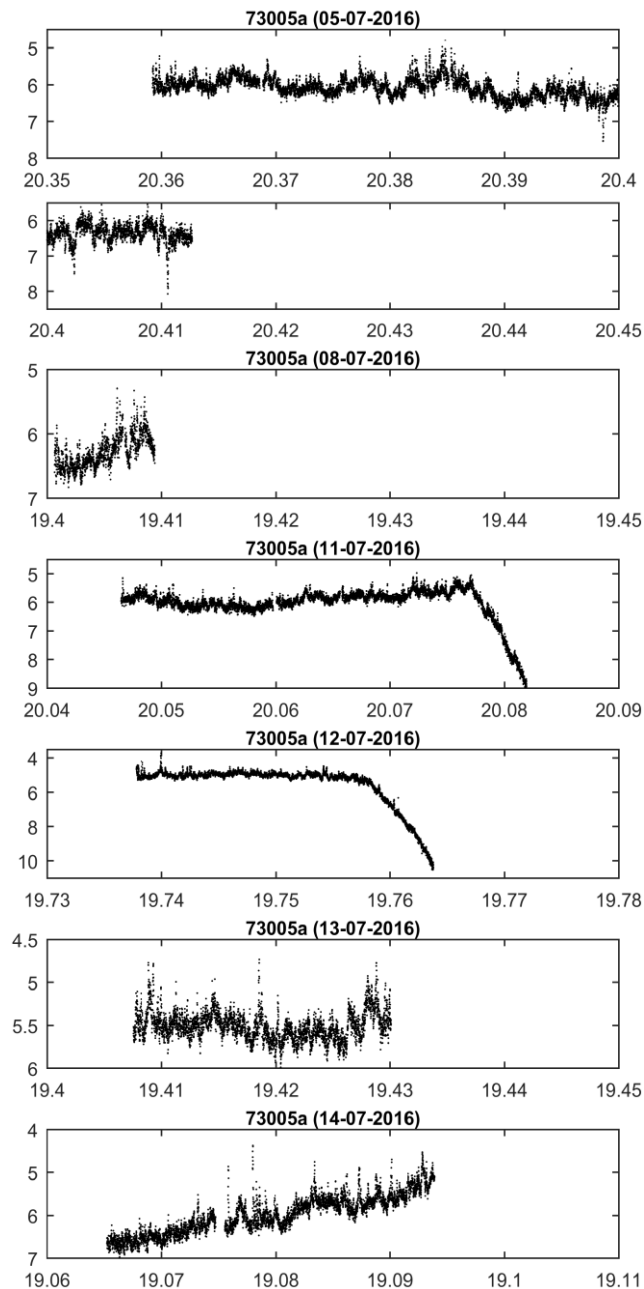
Inclination: 50.66°

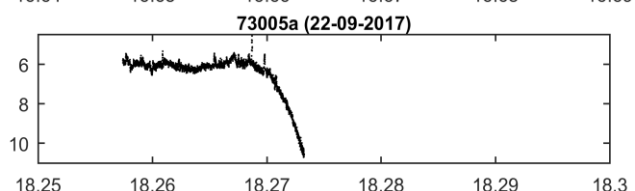
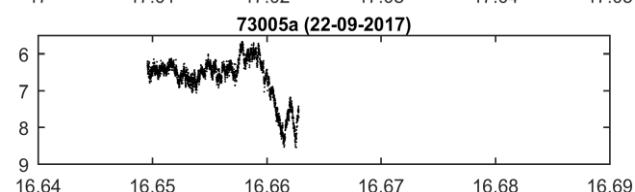
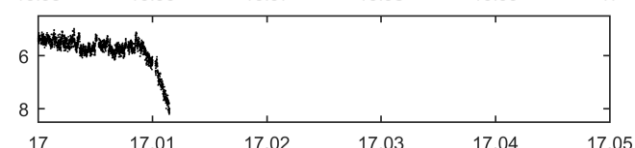
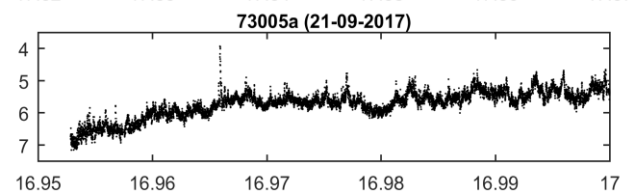
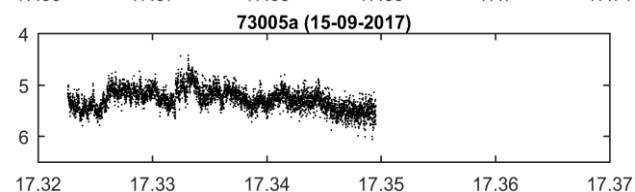
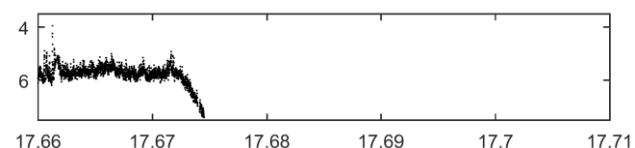
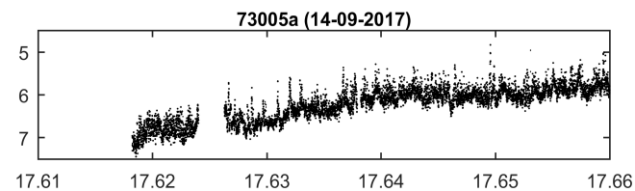
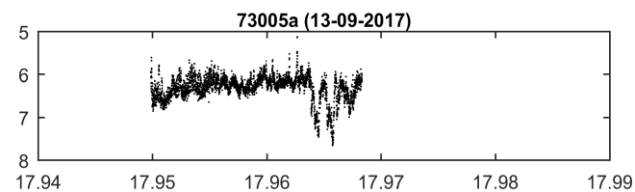
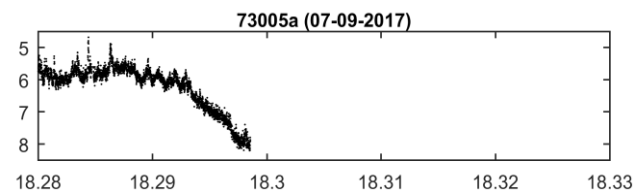
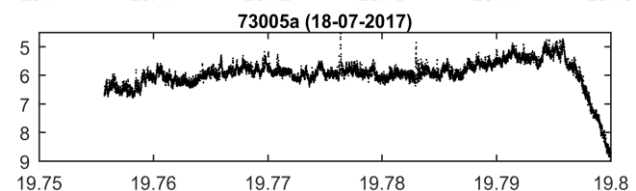
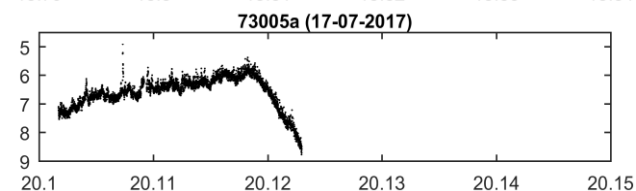
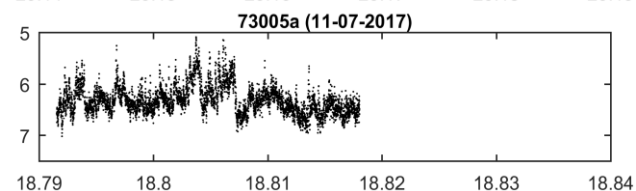
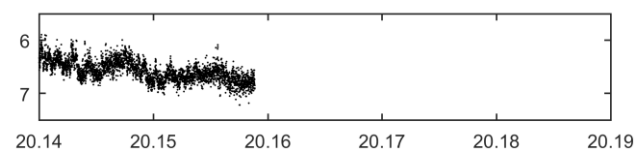
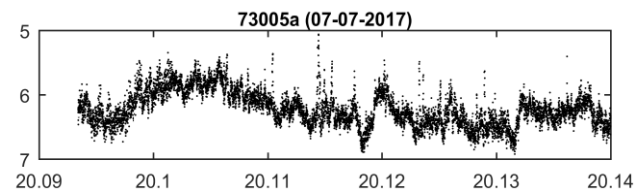
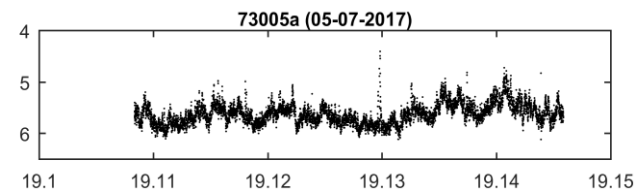
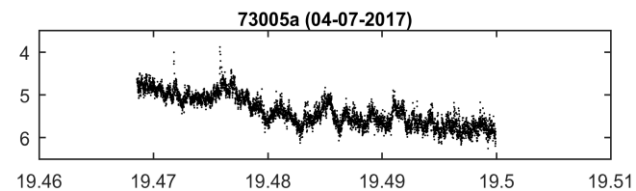
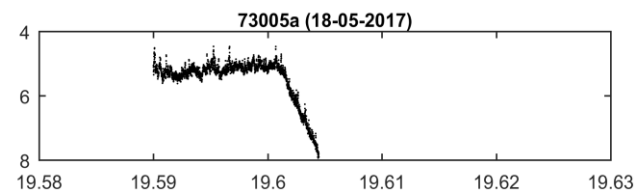
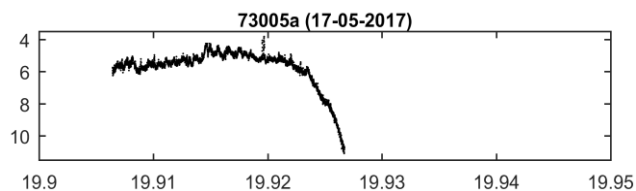
Period: 96.51 min

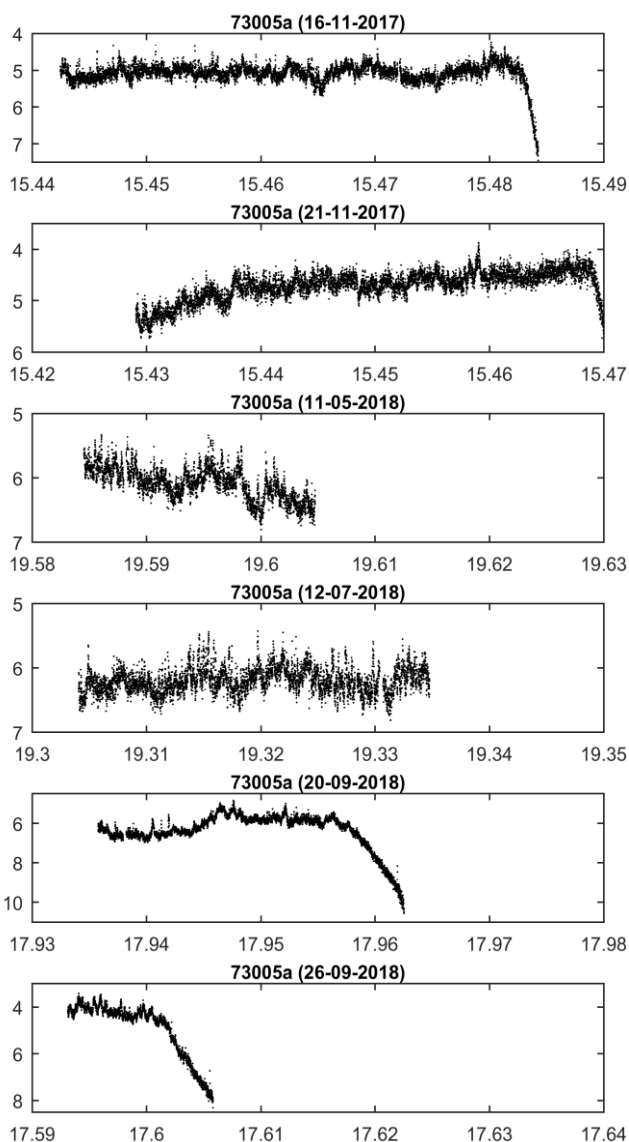
Eccentricity: 0.003

Launch date: 1973-01-26

Source: Commonwealth of Independent States (former USSR) (CIS)







**SL-8 R/B (S3M) (11K65M)(2nd stage)
(COSMOS 585 ROCKET)**

NORAD ID: 06826

Int'l Code: 1973-064B

Dimensions: cylinder 7.4m long

2.4m dia

Initial orbit:

Perigee: 1375 km

Apogee: 1395 km

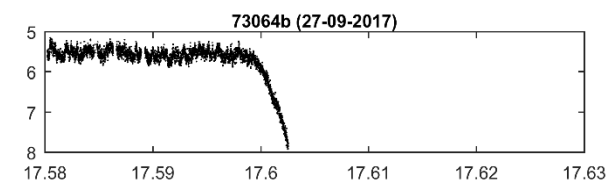
Inclination: 73.97°

Period: 113.49 min

Eccentricity: 0.001

Launch date: 1973-09-08

Source: Commonwealth of Independent States (former USSR) (CIS)



OPS 6983 (DMSP 5C F1)

(DMSP 9532)

NORAD ID: 7411

Int'l Code: 1974-063A

Dimensions: 12-sided frustum

1.64m long, 1.31m to 1.10m dia

Initial orbit:

Perigee: 806 km

Apogee: 875 km

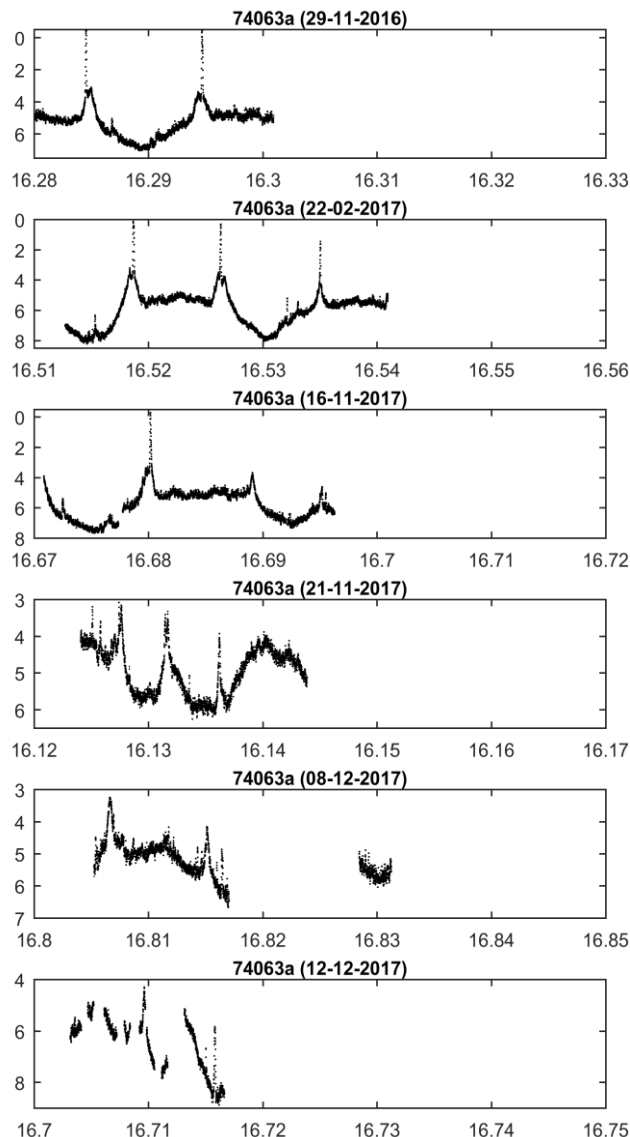
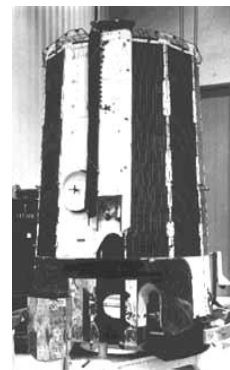
Inclination: 98.86°

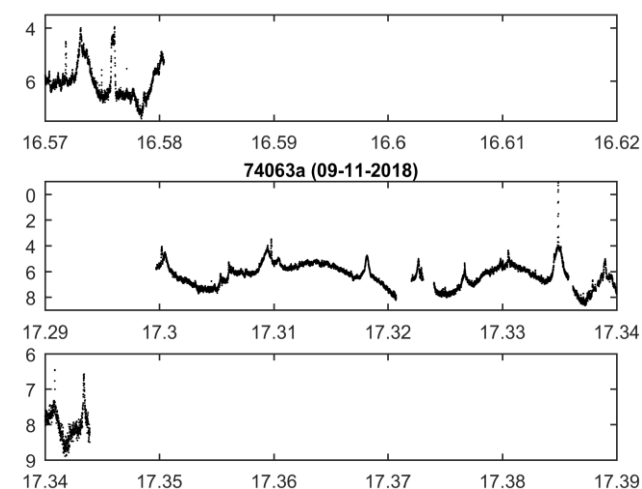
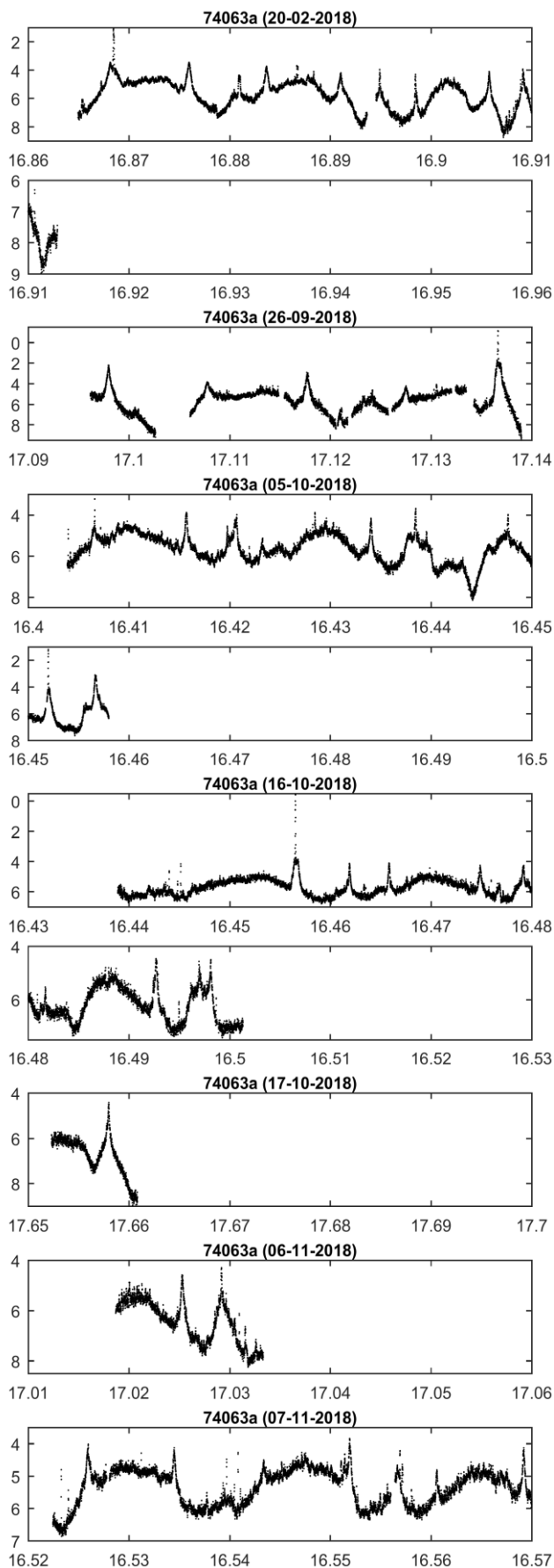
Period: 101.76 min

Eccentricity: 0.005

Launch date: 1974-08-09

Source: United States (US)





SL-8 R/B (S3M) (11K65M)(2nd stage) (COSMOS 836 ROCKET)

NORAD ID: 08924

Int'l Code: 1976-061B

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 784 km

Apogee: 815 km

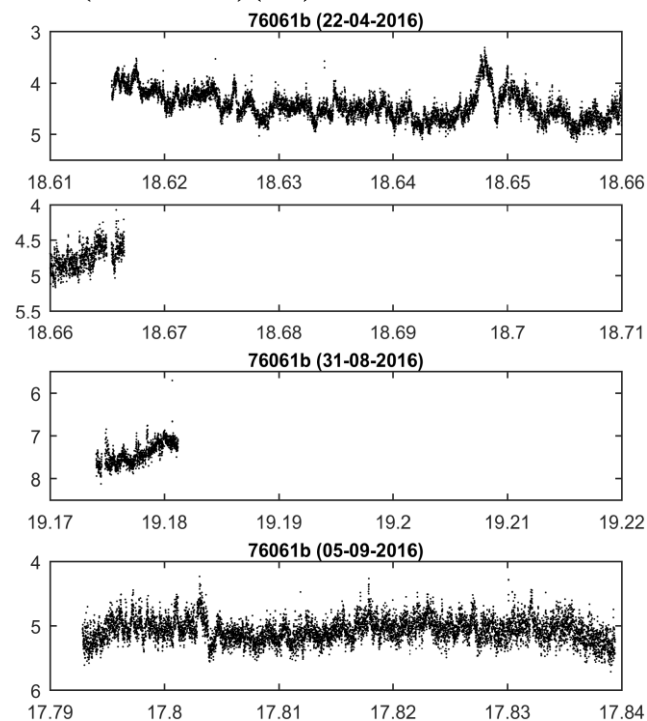
Inclination: 74.07°

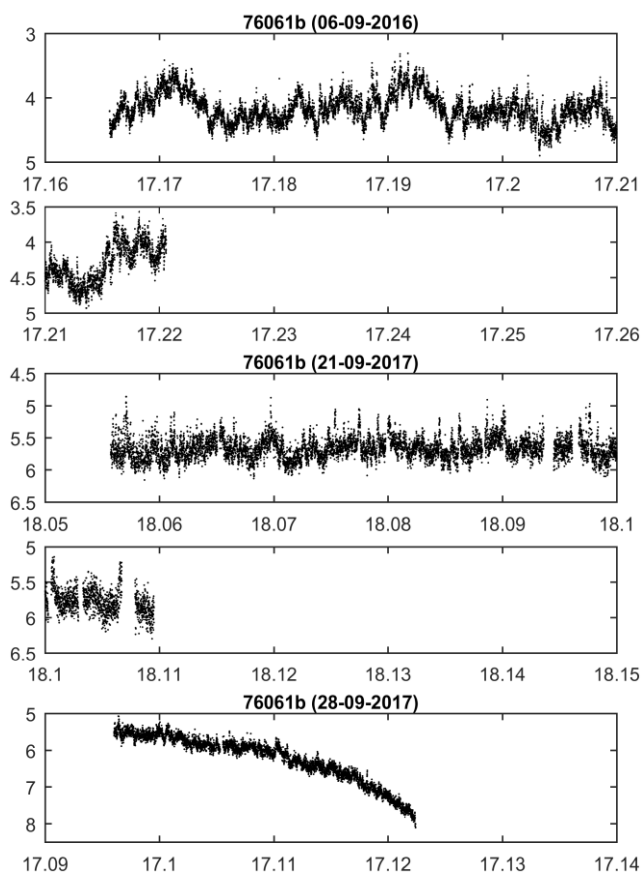
Period: 100.88 min

Eccentricity: 0.002

Launch date: 1976-01-28

Source: Commonwealth of Independent
States (former USSR) (CIS)





OPS 5721 (DMSP 5D F-1) **(AMS 1)**

NORAD ID: 9415

Int'l Code: 1976-091A

Dimensions: irregular 6.40m long
 1.68m dia

Initial orbit:

Perigee: 818 km

Apogee: 848 km

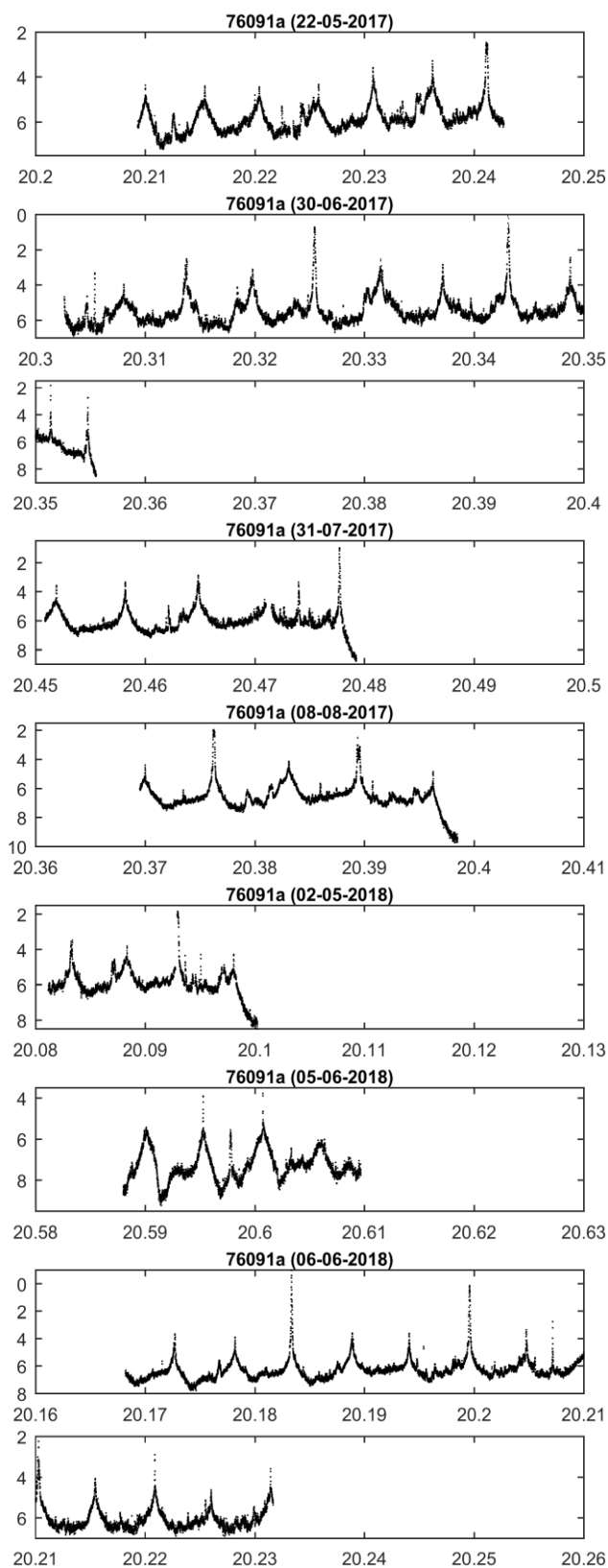
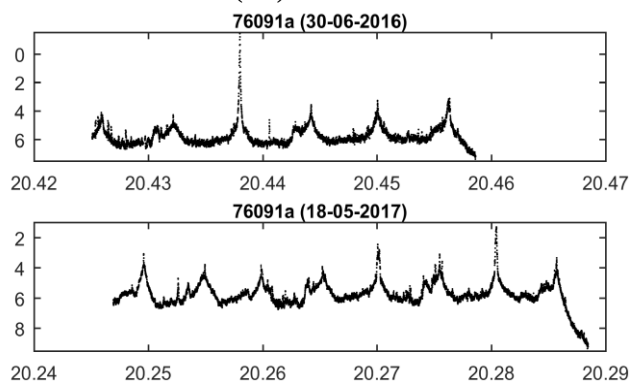
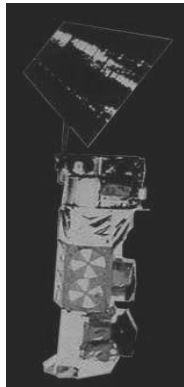
Inclination: 98.70°

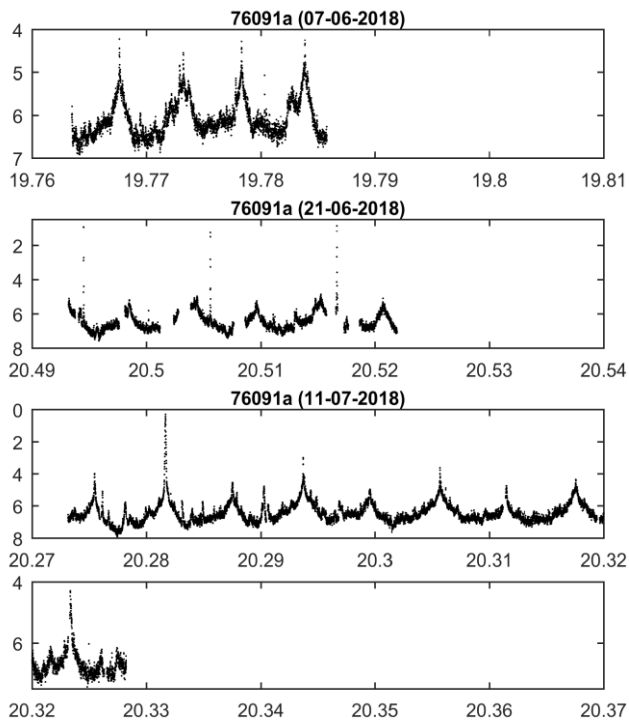
Period: 101.60 min

Eccentricity: 0.002

Launch date: 1976-09-11

Source: United States (US)





**SL-3 R/B (8A92ME)
VOSTOK-2M (block E 3rd stage)
(METEOR-2 02 ROCKET)**

NORAD ID: 09662

Int'l Code: 1977-002B

Dimensions: cylinder 3.8m long

2.6m dia

Initial orbit:

Perigee: 862 km

Apogee: 942 km

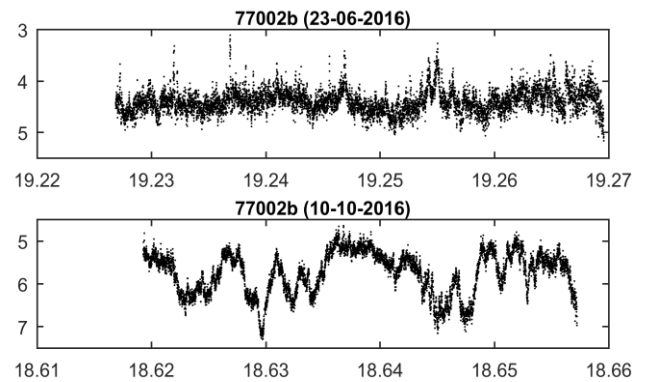
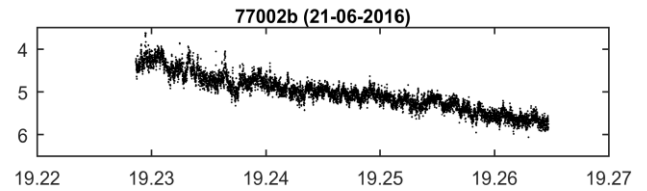
Inclination: 81.28°

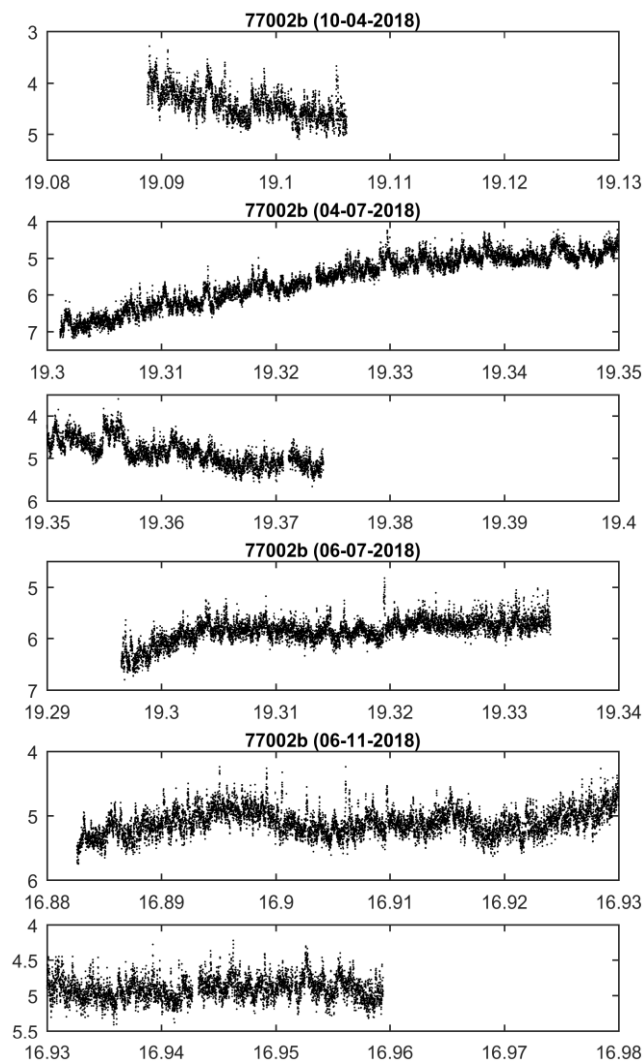
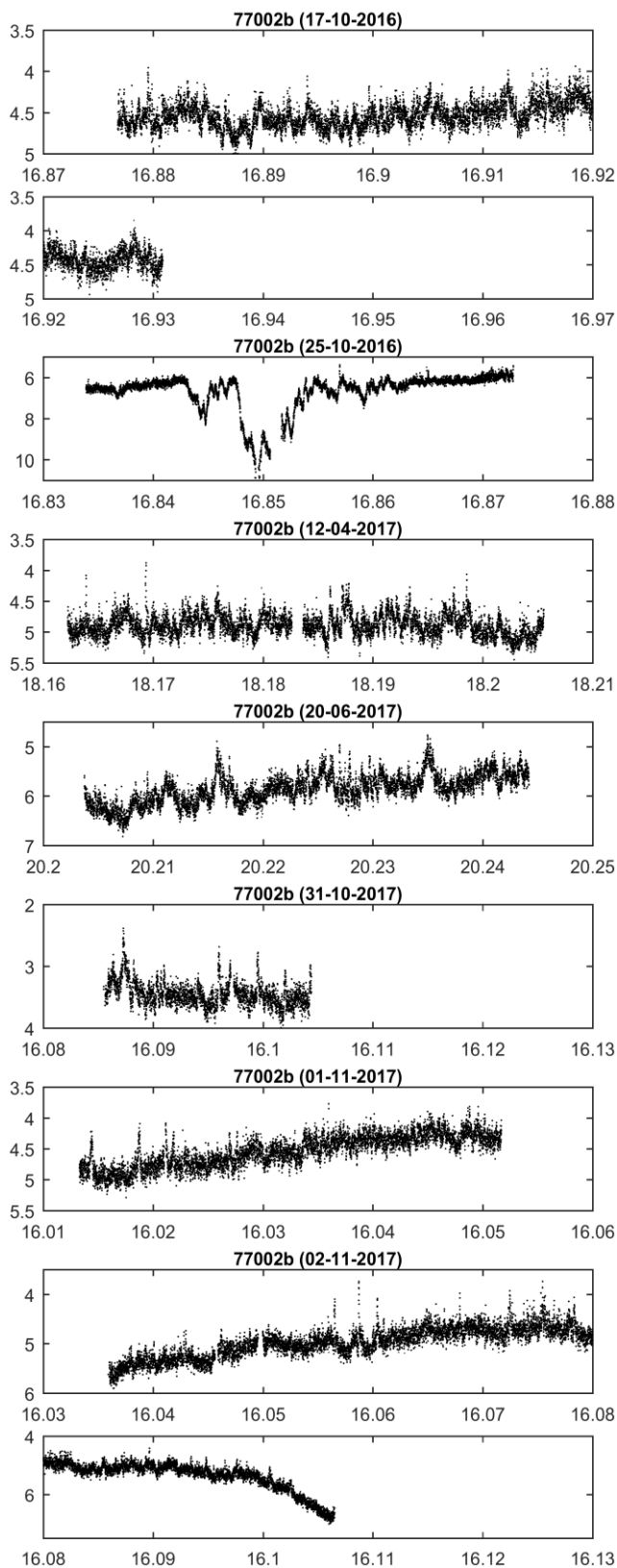
Period: 103.05 min

Eccentricity: 0.005

Launch date: 1977-01-06

Source: Commonwealth of Independent States (former USSR) (CIS)

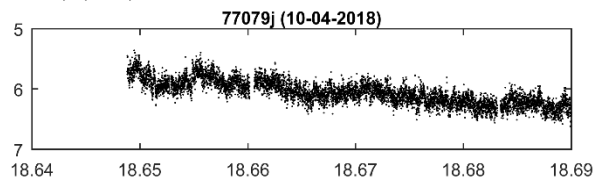


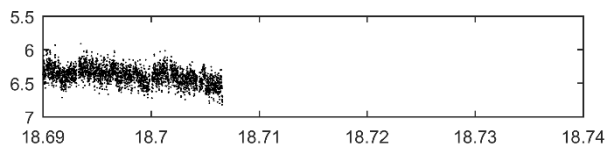


SL-8 R/B
COSMOS 939-946 (2nd stage)
 NORAD ID: 10293
 Int'l Code: 1977-079J
 Dimensions: cylinder 7.4m long
 2.4m dia

Initial orbit:
 Perigee: 1462 km
 Apogee: 1683 km
 Inclination: 74.02°
 Period: 117.6 min
 Eccentricity: 0.014

Launch date: 1977-08-24
 Source: Commonwealth of Independent States (former USSR) (CIS)





UME 2 (Nu 3rd stage)

NORAD ID: 10675

Int'l Code: 1978-018B

Dimensions: cylinder 1.74m long 1.65m dia

Initial orbit:

Perigee: 975 km

Apogee: 1223 km

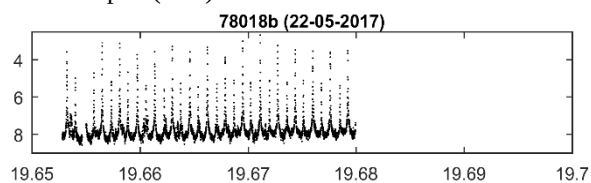
Inclination: 69.36°

Period: 107.24 min

Eccentricity: 0.017

Launch date: 1978-02-16

Source: Japan (JPN)



OPS 6182 (DMSP 5D-1 F2) (AMS 3)

NORAD ID: 10820

Int'l Code: 1978-042A

Dimensions: irregular 6.40m long

1.68m dia

Initial orbit:

Perigee: 820 km

Apogee: 835 km

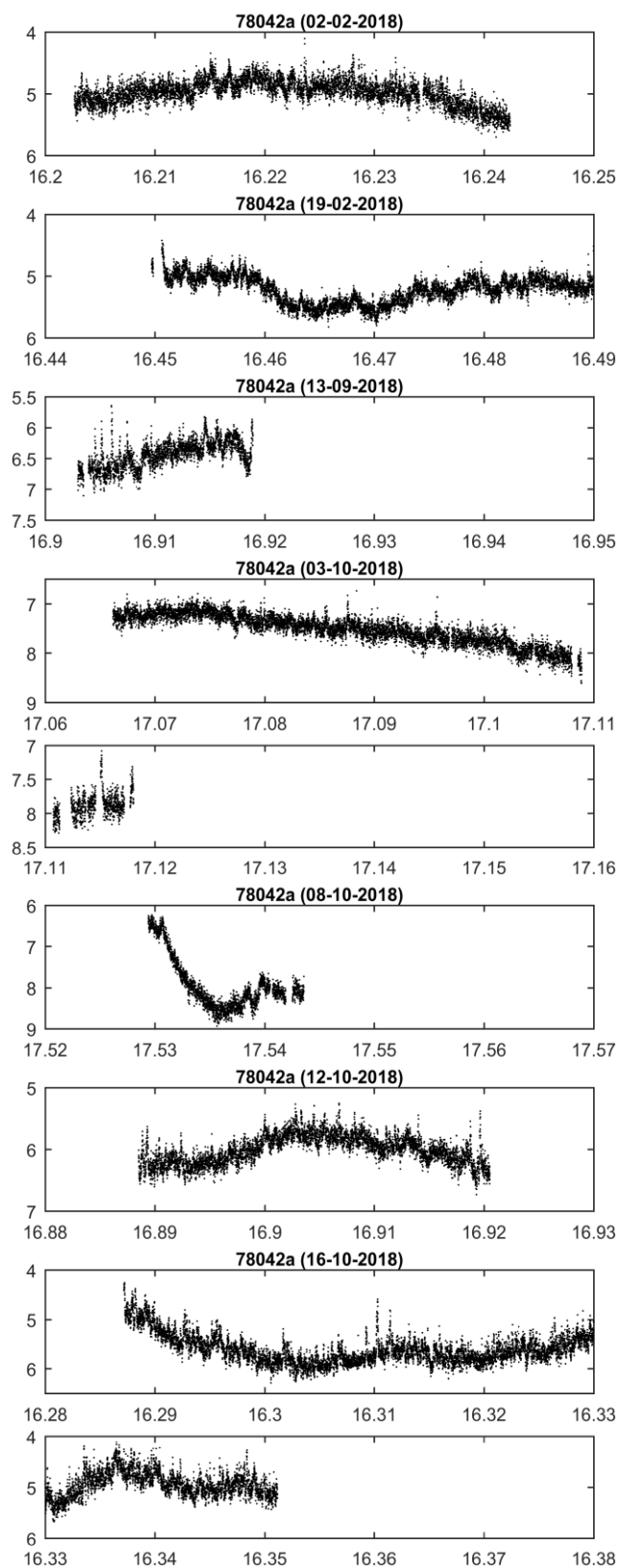
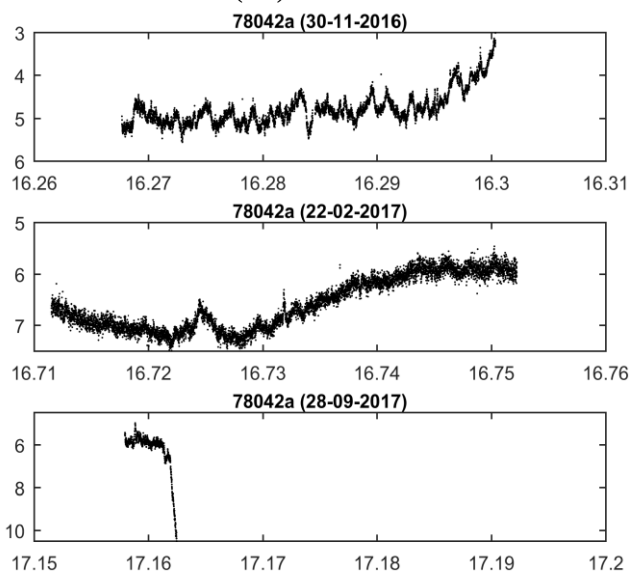
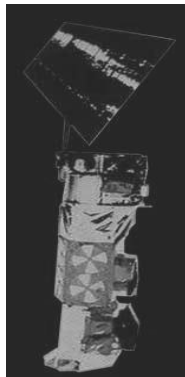
Inclination: 98.71°

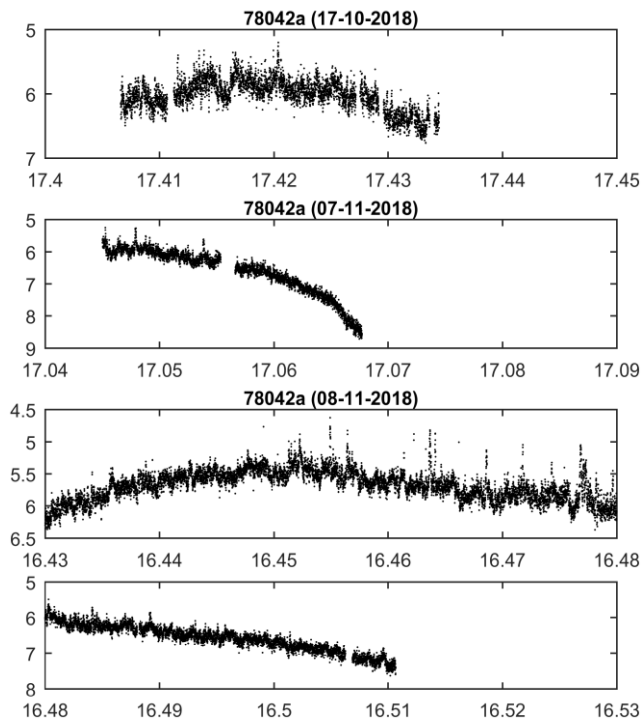
Period: 101.47 min

Eccentricity: 0.001

Launch date: 1978-05-01

Source: United States (US)





TIROS N

NORAD ID: 11060

Int'l Code: 1978-096A

Dimensions: cylinder 3.71m long

1.88m dia

Initial orbit:

Perigee: 850 km

Apogee: 866 km

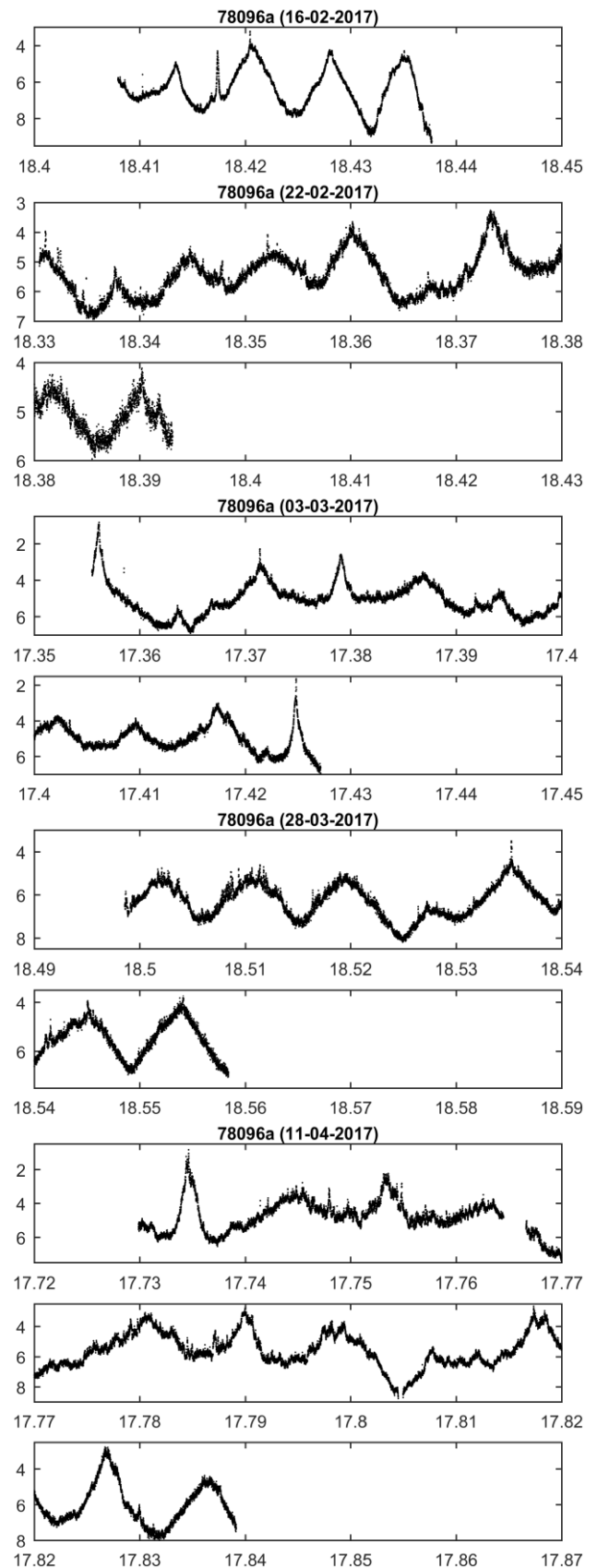
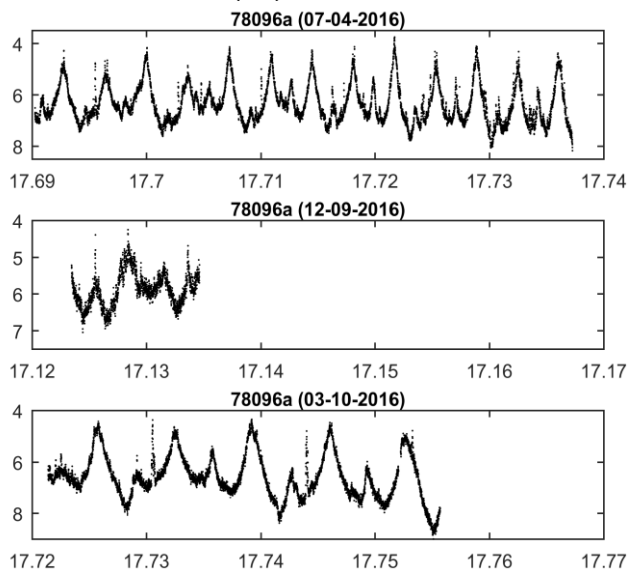
Inclination: 98.91°

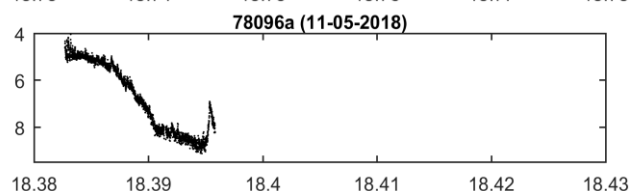
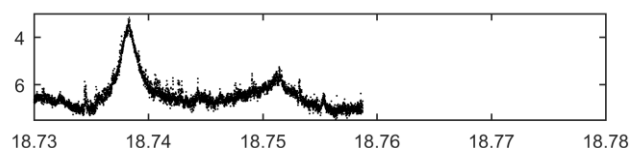
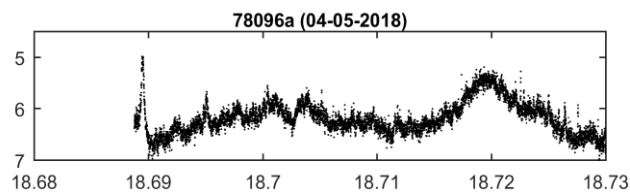
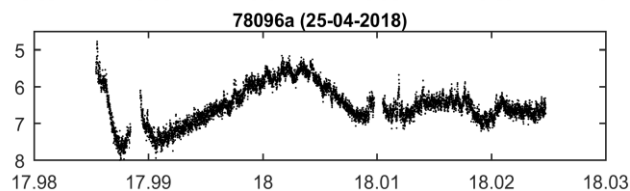
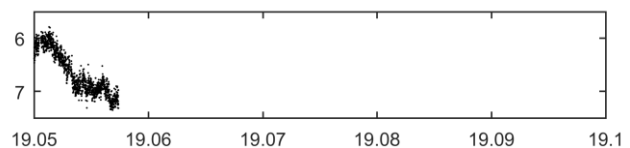
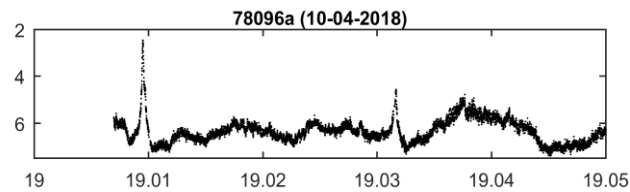
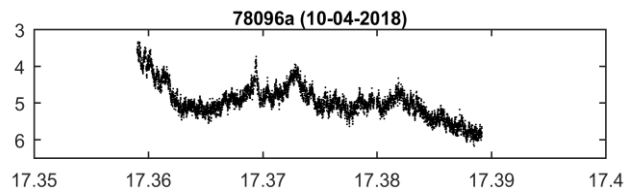
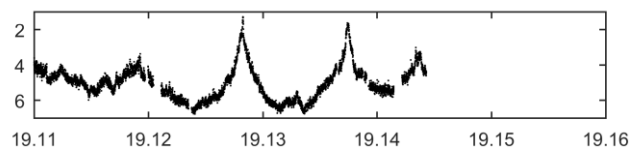
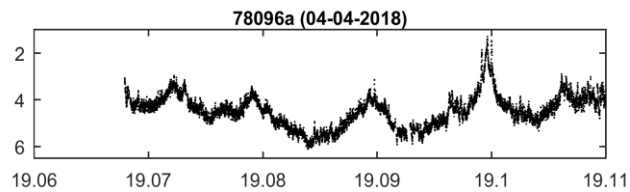
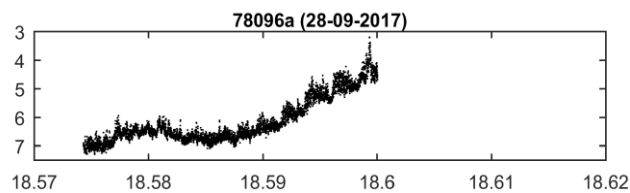
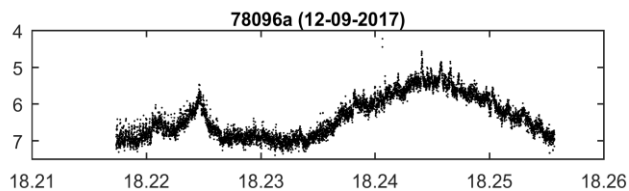
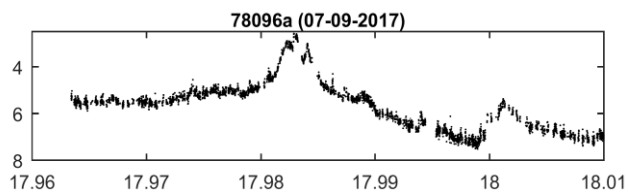
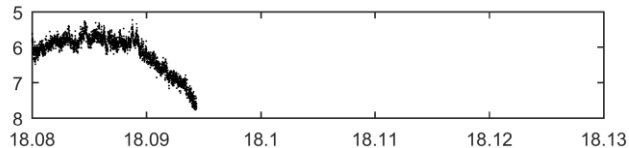
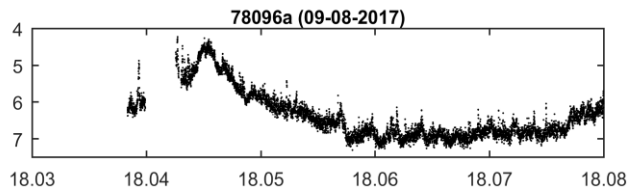
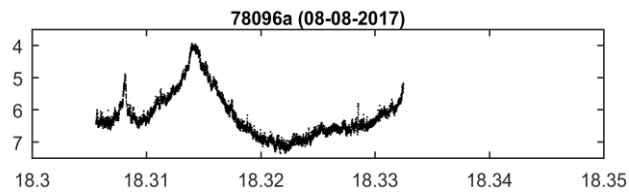
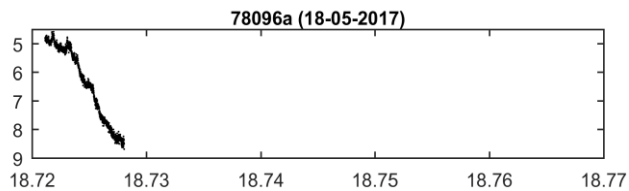
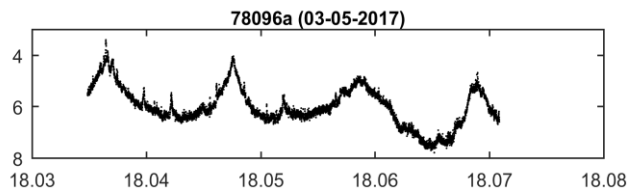
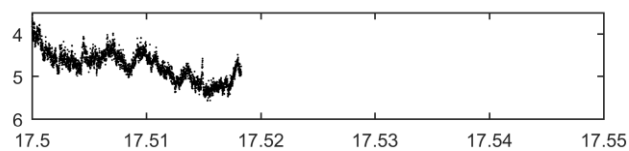
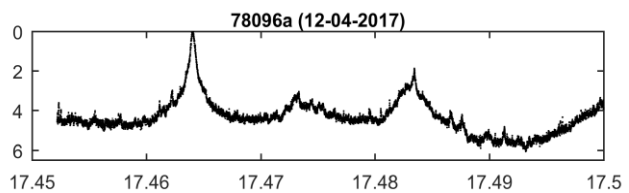
Period: 102.12 min

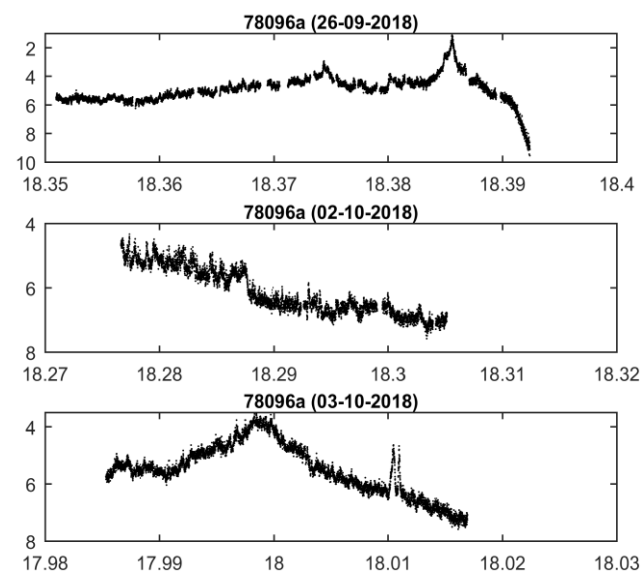
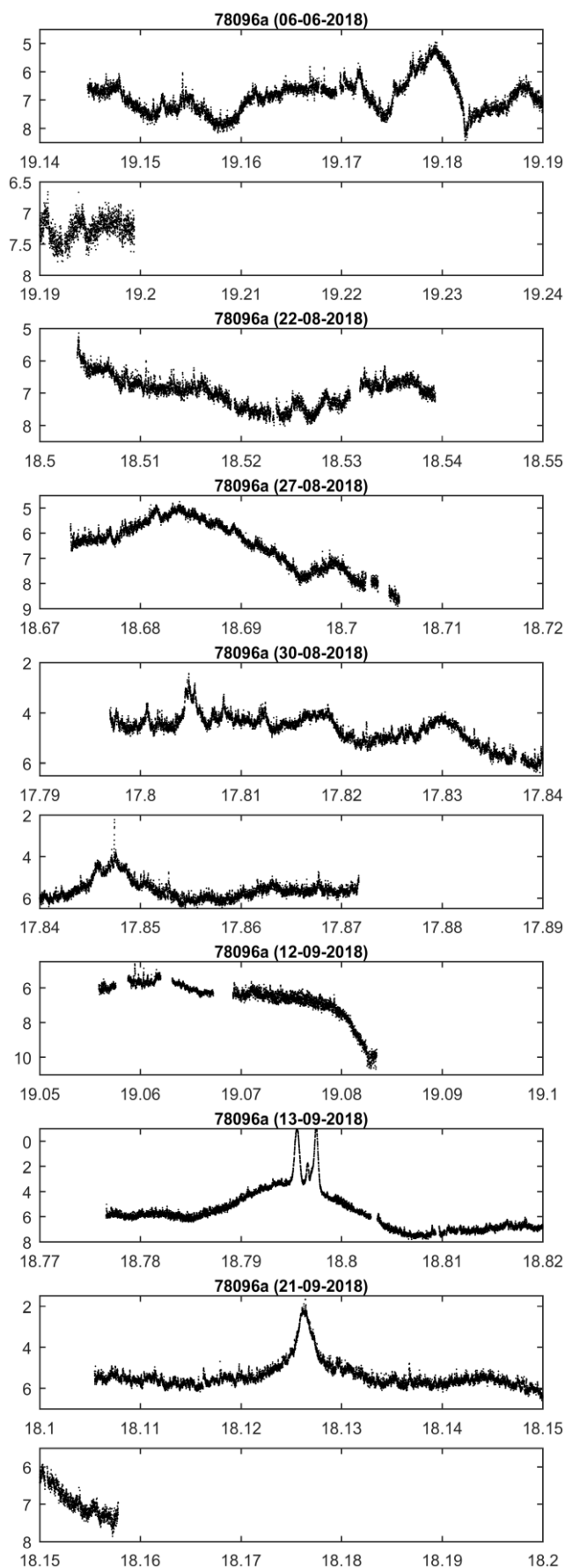
Eccentricity: 0.001

Launch date: 1978-10-13

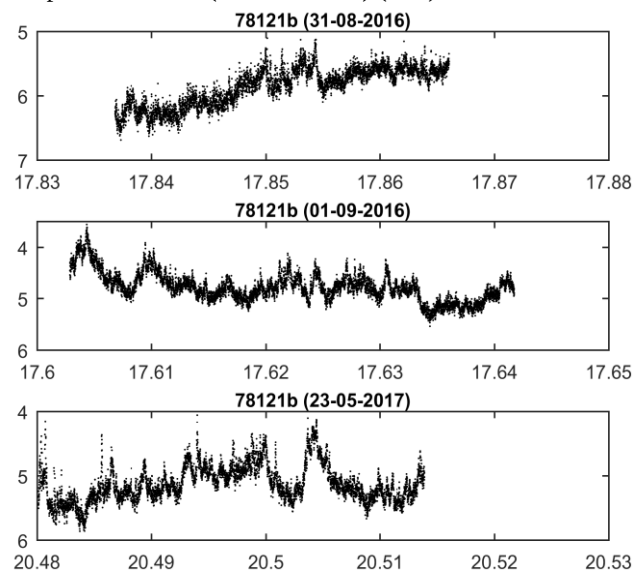
Source: United States (US)

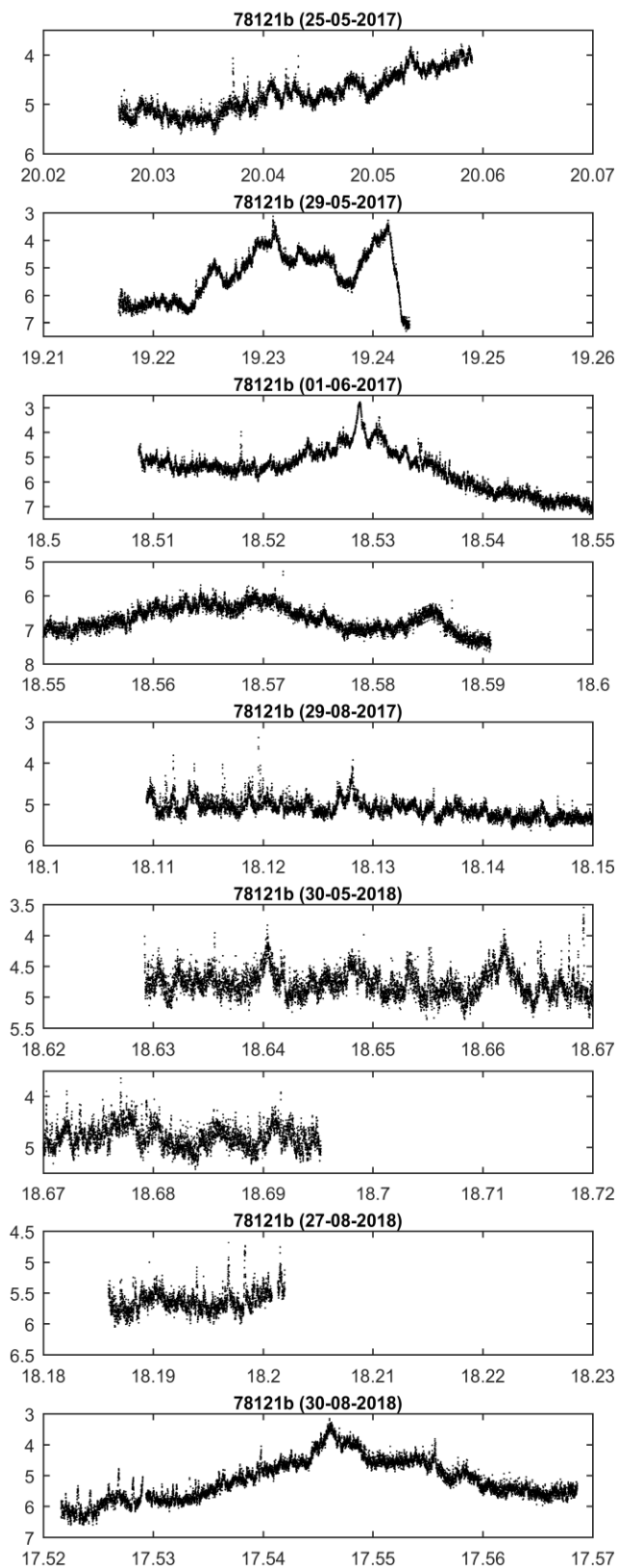






SL-3 R/B (8A92ME)
VOSTOK-2M (block E 3rd stage)
(COSMOS 1066 ROCKET)
 NORAD ID: 11166
 Int'l Code: 1978-121B
 Dimensions: cylinder 3.8m long
 2.6m dia
 Initial orbit:
 Perigee: 816 km
 Apogee: 898 km
 Inclination: 81.25°
 Period: 102.10 min
 Eccentricity: 0.006
 Launch date: 1978-12-23
 Source: Commonwealth of
 Independent States (former USSR) (CIS)





SL-8 R/B (2nd stage)
(COSMOS 1067)
 NORAD ID: 11170
 Int'l Code: 1978-122B



Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1157 km

Apogee: 1197 km

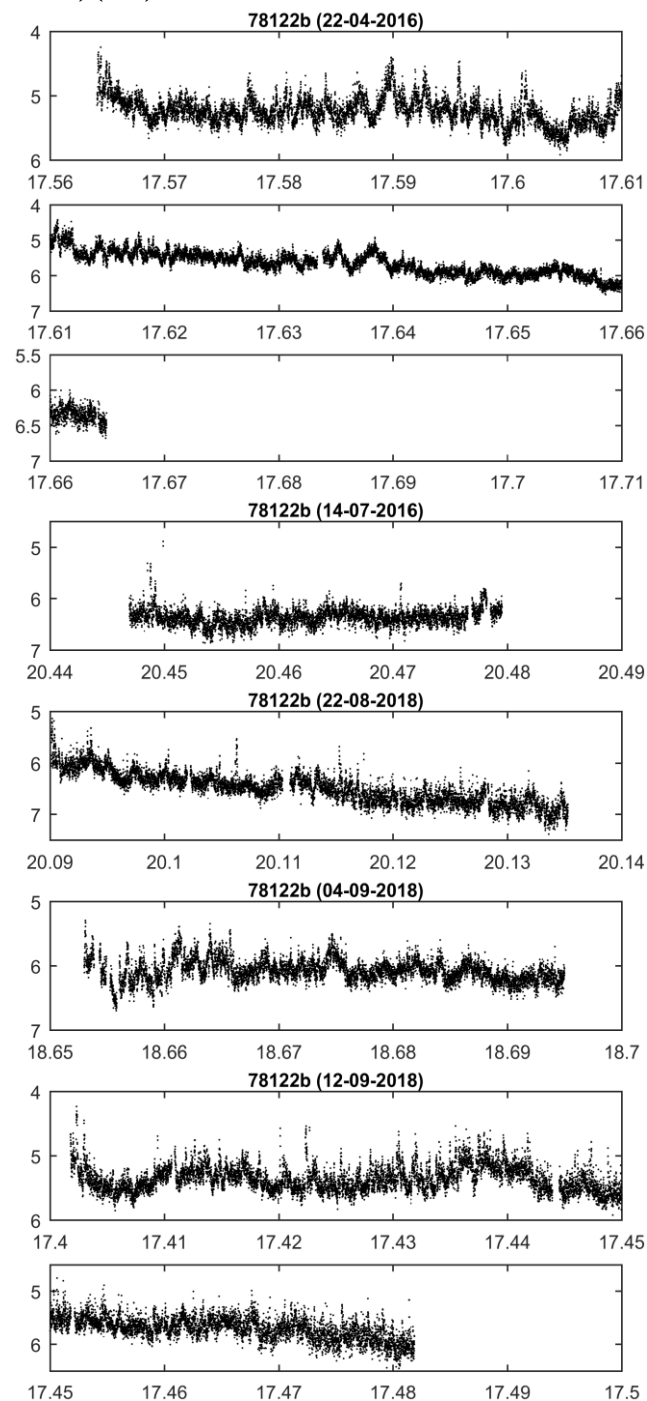
Inclination: 82.97°

Period: 108.95 min

Eccentricity: 0.003

Launch date: 1978-12-26

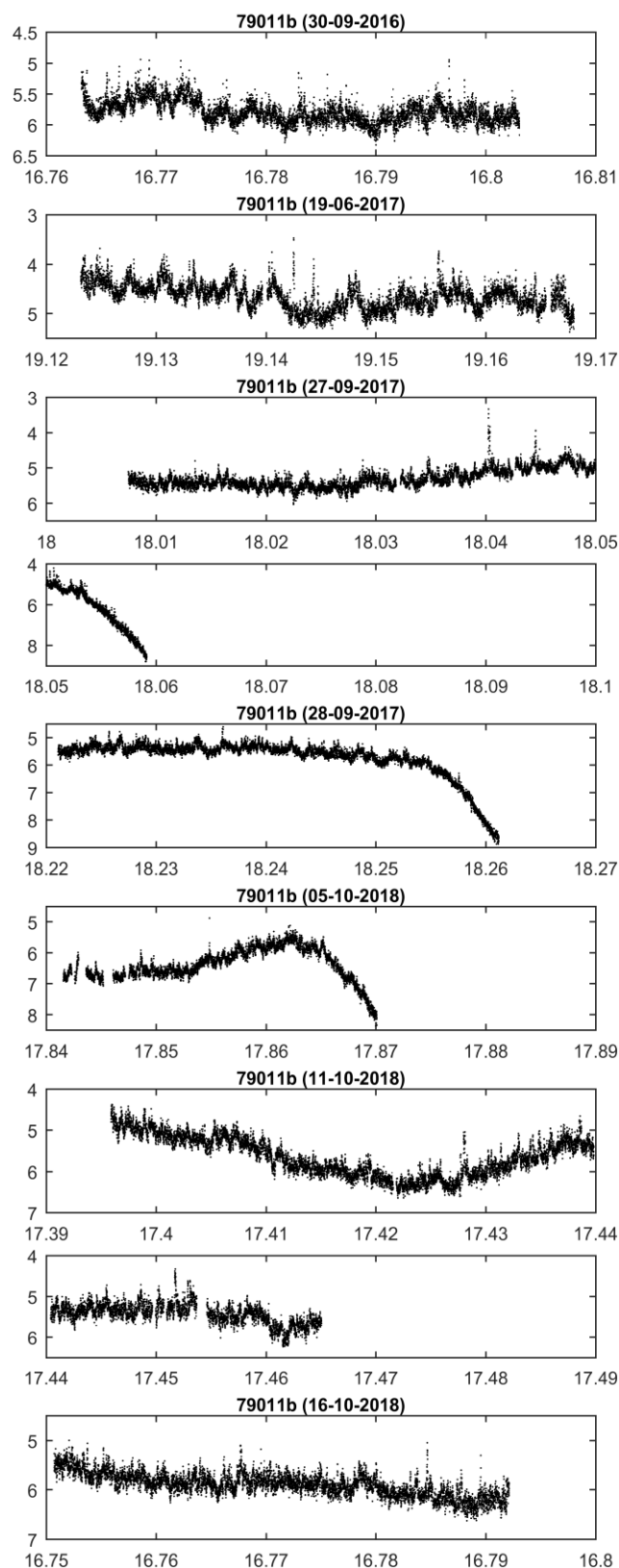
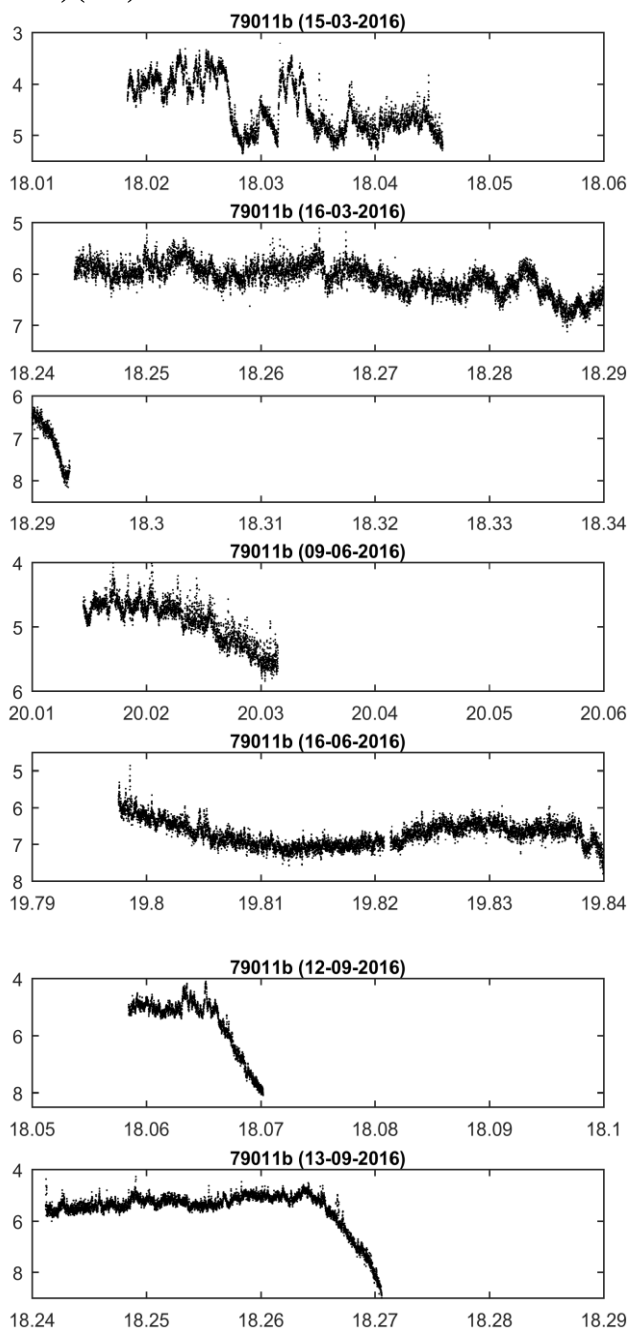
Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (S5M) (2nd stage)
(COSMOS 1076 ROCKET)



NORAD ID: 11267
 Int'l Code: 1979-011B
 Dimensions: cylinder 7.4m long 2.4m dia
 Initial orbit:
 Perigee: 635 km
 Apogee: 664 km
 Inclination: 82.54°
 Period: 97.75 min
 Eccentricity: 0.002
 Launch date: 1979-02-12
 Source: Commonwealth of Independent States (former USSR) (CIS)



SL-8 R/B (S3M) (11K65M)(2nd stage)
(COSMOS 1304 ROCKET)
 NORAD ID: 12804
 Int'l Code: 1981-087B



Dimensions: cylinder 7.4m long

2.4m dia

Initial orbit:

Perigee: 909 km

Apogee: 974 km

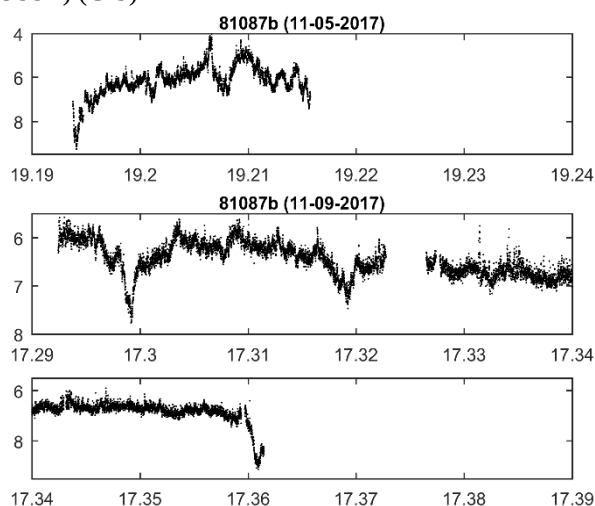
Inclination: 82.93°

Period: 103.89 min

Eccentricity: 0.004

Launch date: 1981-09-04

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (3rd stage) (COSMOS 1312)

NORAD ID: 12880

Int'l Code: 1981-098B

Dimensions: cylinder 7.4m long

2.4m dia

Initial orbit:

Perigee: 1490 km

Apogee: 1503 km

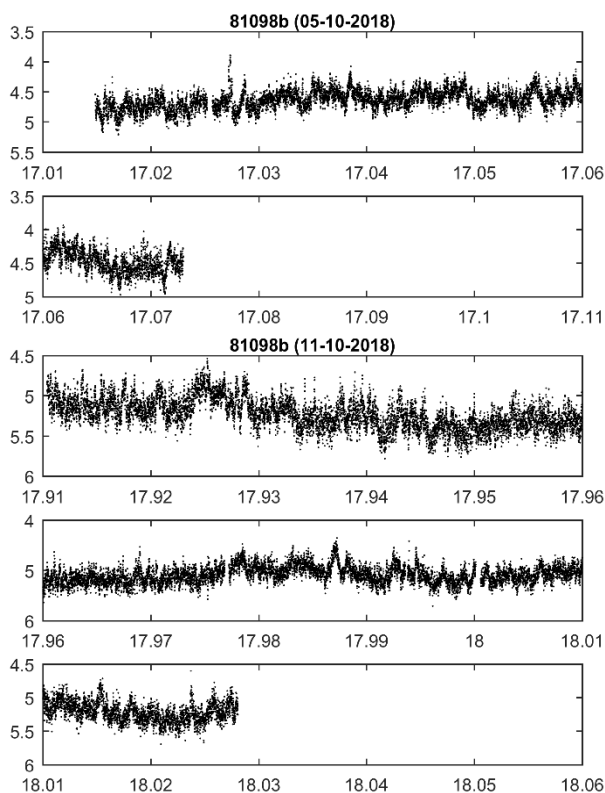
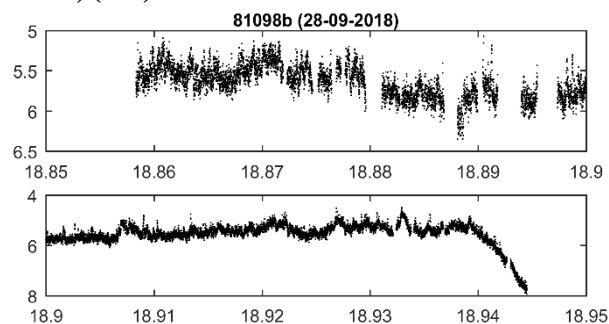
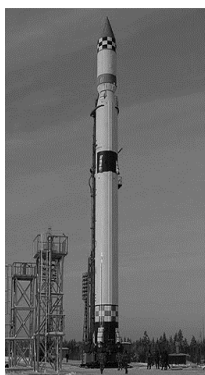
Inclination: 82.6°

Period: 115.93 min

Eccentricity: 0.001

Launch date: 1981-09-30

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-8 R/B (S3M) (11K65M)(2nd stage) (COSMOS 1320-1327 ROCKET)

NORAD ID: 12983

Int'l Code: 1981-116J

Dimensions: cylinder 7.4m long

2.4m dia

Initial orbit:

Perigee: 1483 km

Apogee: 1670 km

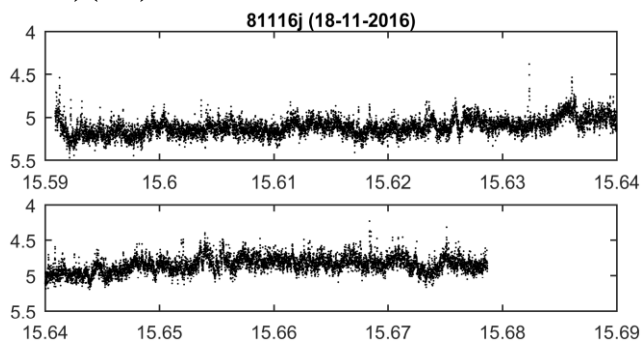
Inclination: 73.98°

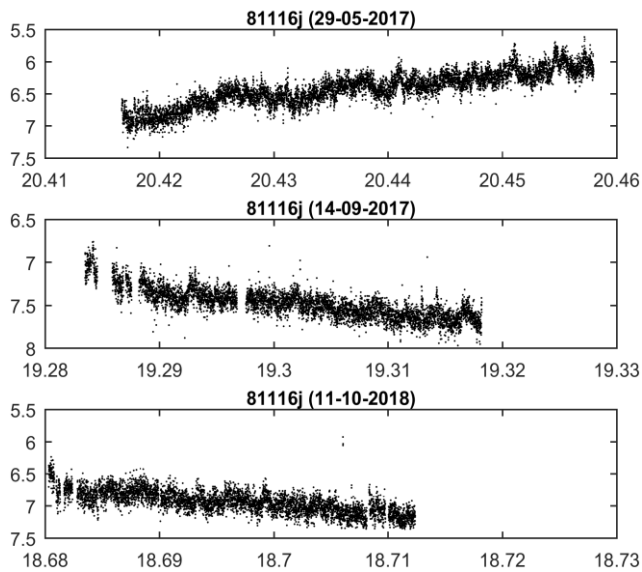
Period: 117.69 min

Eccentricity: 0.012

Launch date: 1981-11-28

Source: Commonwealth of Independent States (former USSR) (CIS)





**SL-8 R/B (S3M) (11K65M)(2nd stage)
(RADIO SPORT 3-8 ROCKET)**

NORAD ID: 13003

Int'l Code: 1981-120G

Dimensions: cylinder 7.4m long

2.4m dia

Initial orbit:

Perigee: 1663 km

Apogee: 1785 km

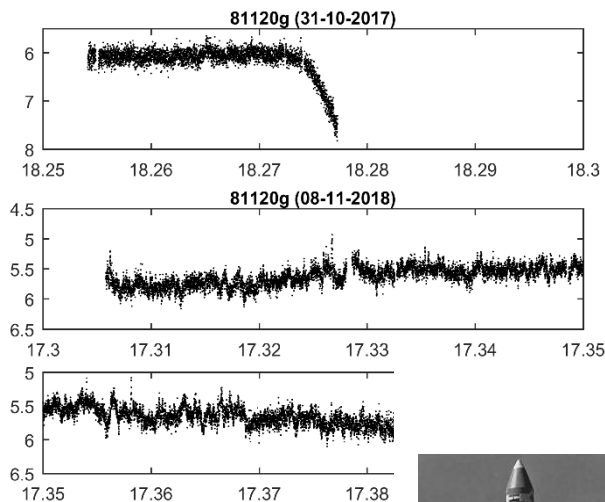
Inclination: 82.96°

Period: 120.95 min

Eccentricity: 0.007

Launch date: 1981-12-17

Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-3 R/B (8A92ME)
VOSTOK-2M (block E 3rd stage)
(COSMOS 1356 ROCKET)**

NORAD ID: 13154

Int'l Code: 1982-039B

Dimensions: cylinder 3.8m long



2.6m dia

Initial orbit:

Perigee: 618 km

Apogee: 698 km

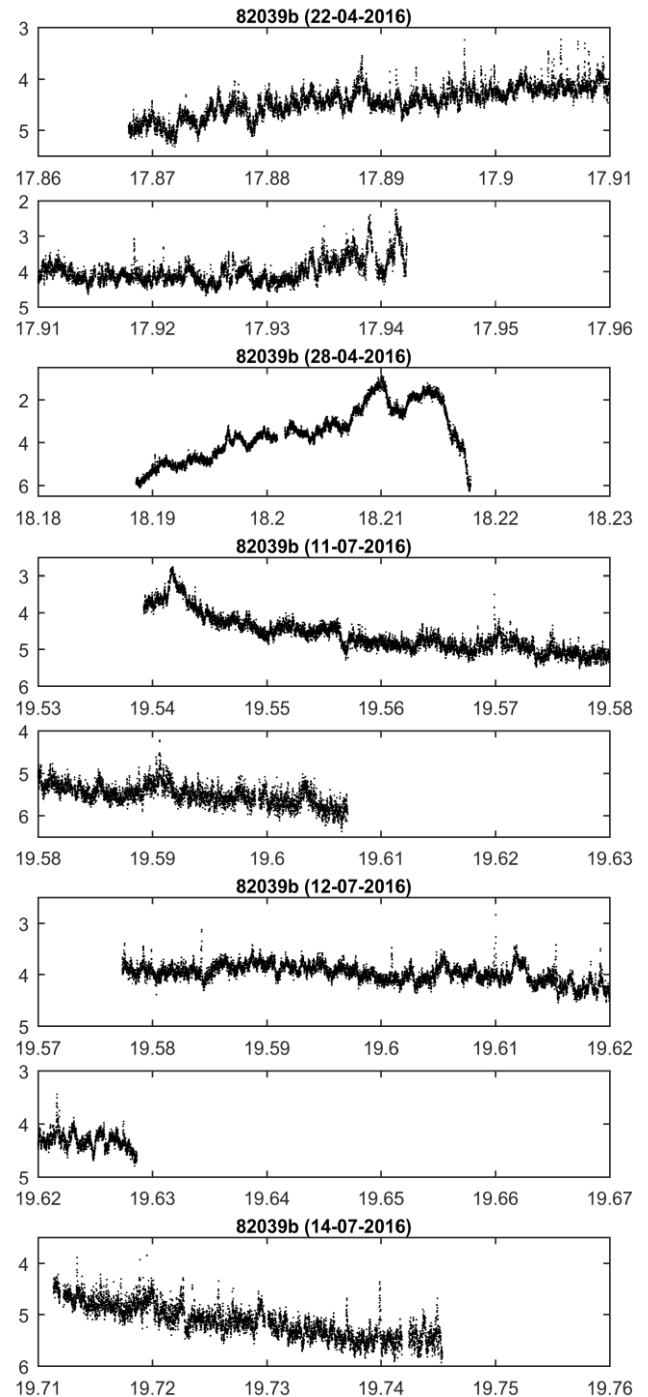
Inclination: 81.21°

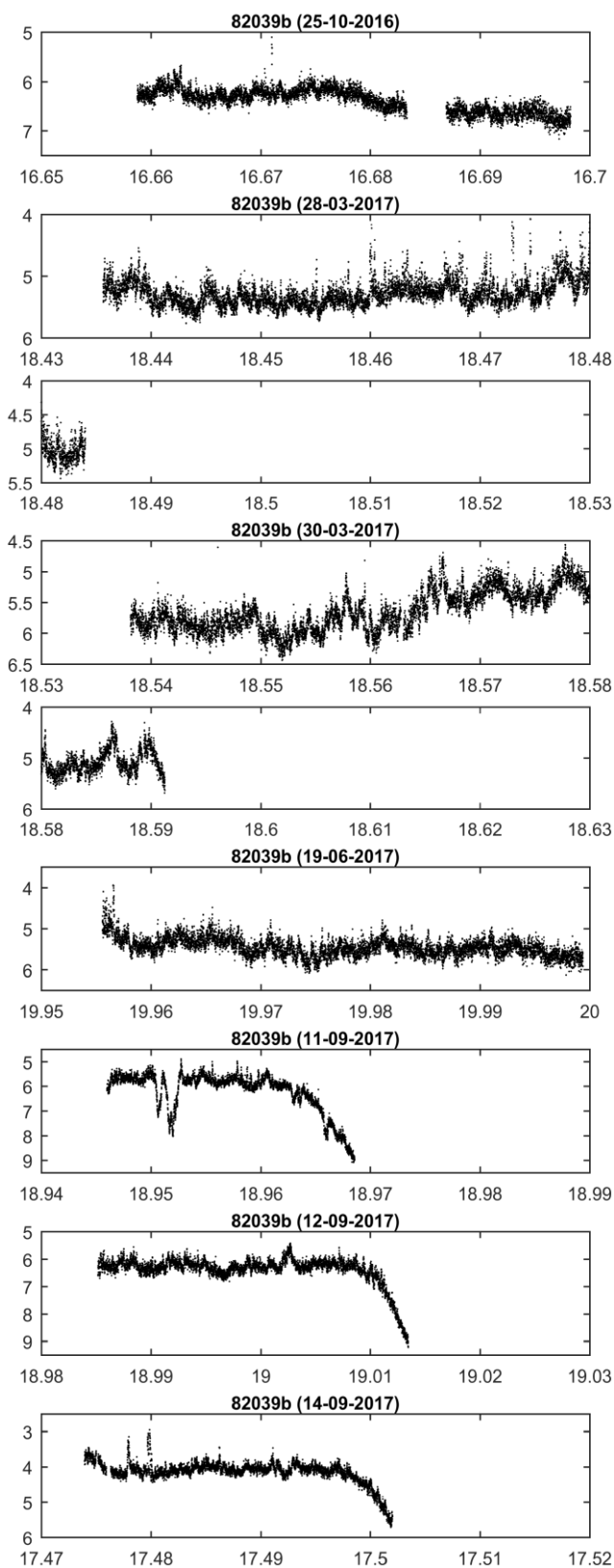
Period: 97.92 min

Eccentricity: 0.006

Launch date: 1982-05-05

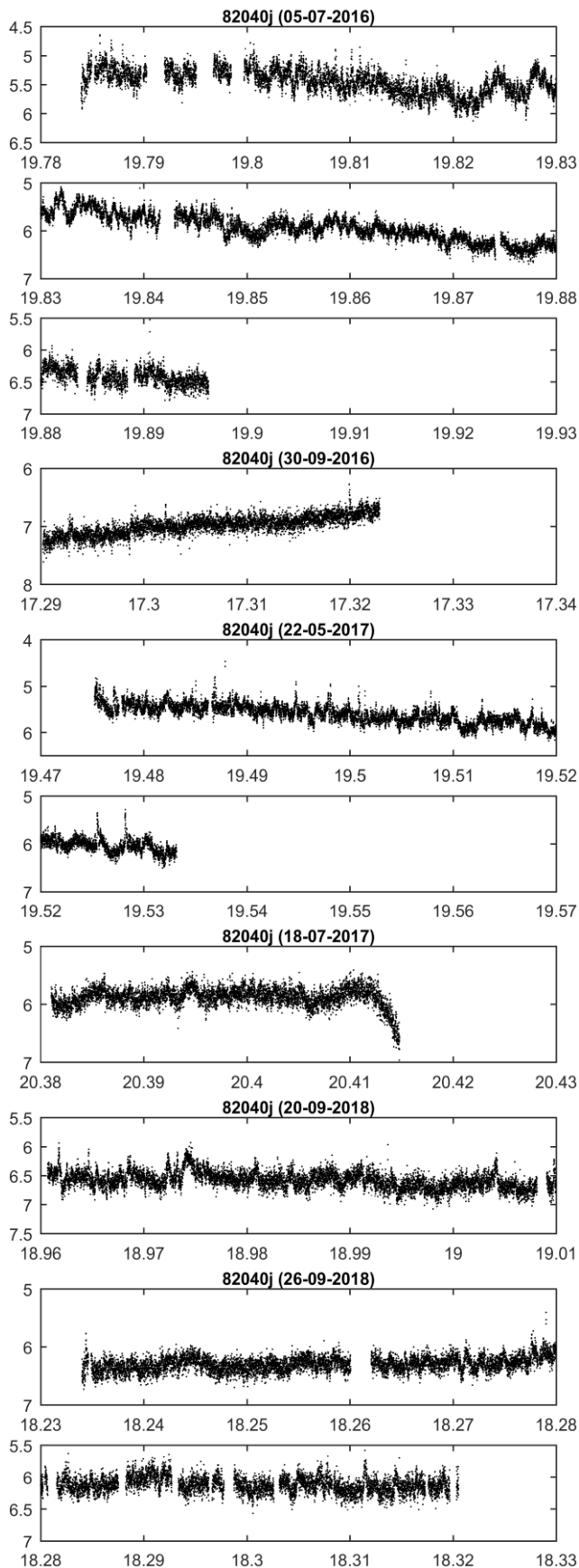
Source: Commonwealth of Independent States (former USSR) (CIS)





SL-8 R/B (S3M) (2nd stage)
(COSMOS 1357-1364 ROCKET)
 NORAD ID: 13168
 Int'l Code: 1982-040J
 Dimensions: cylinder 7.4m long 2.4m dia
 Initial orbit:
 Perigee: 1481 km
 Apogee: 1683 km
 Inclination: 74.05°
 Period: 117.81 min
 Eccentricity: 0.013
 Launch date: 1982-05-06
 Source: Commonwealth of Independent
 States (former USSR) (CIS)





SL-14 R/B (3rd stage)



NORAD ID: 13590

Int'l Code: 1982-096B

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1493 km

Apogee: 1501 km

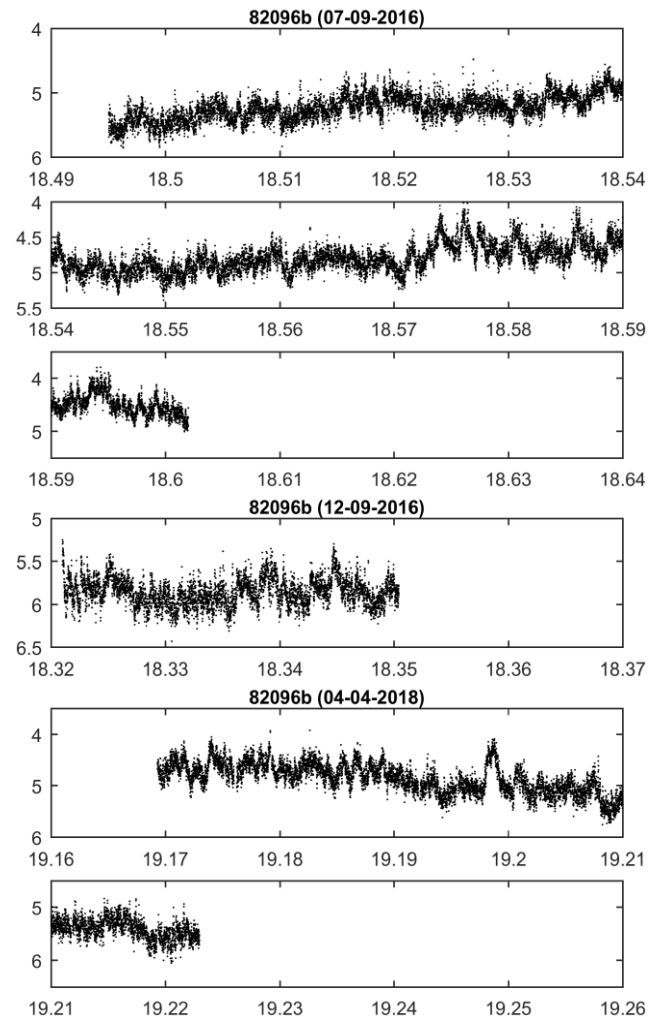
Inclination: 82.62°

Period: 115.94 min

Eccentricity: 0.001

Launch date: 1982-09-24

Source: Commonwealth of Independent States (former USSR) (CIS)



OPS 9845 (DMSP 5D-2 F6)

NORAD ID: 13736

Int'l Code: 1982-118A

Dimensions: irregular 6.40m long?
1.68m dia?

Initial orbit:

Perigee: 816 km

Apogee: 827 km

Inclination: 98.72°

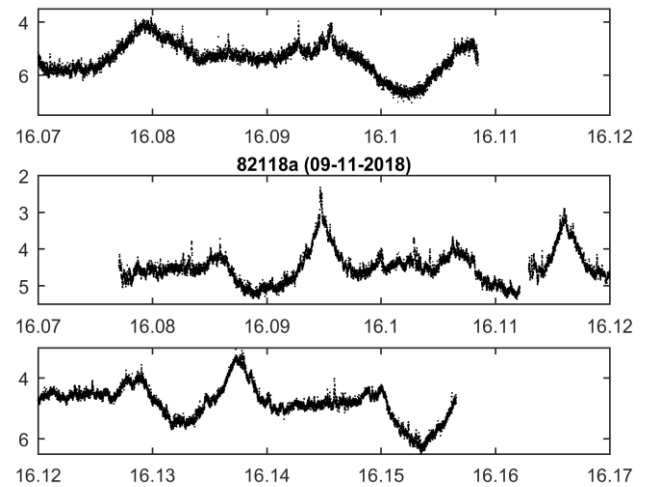
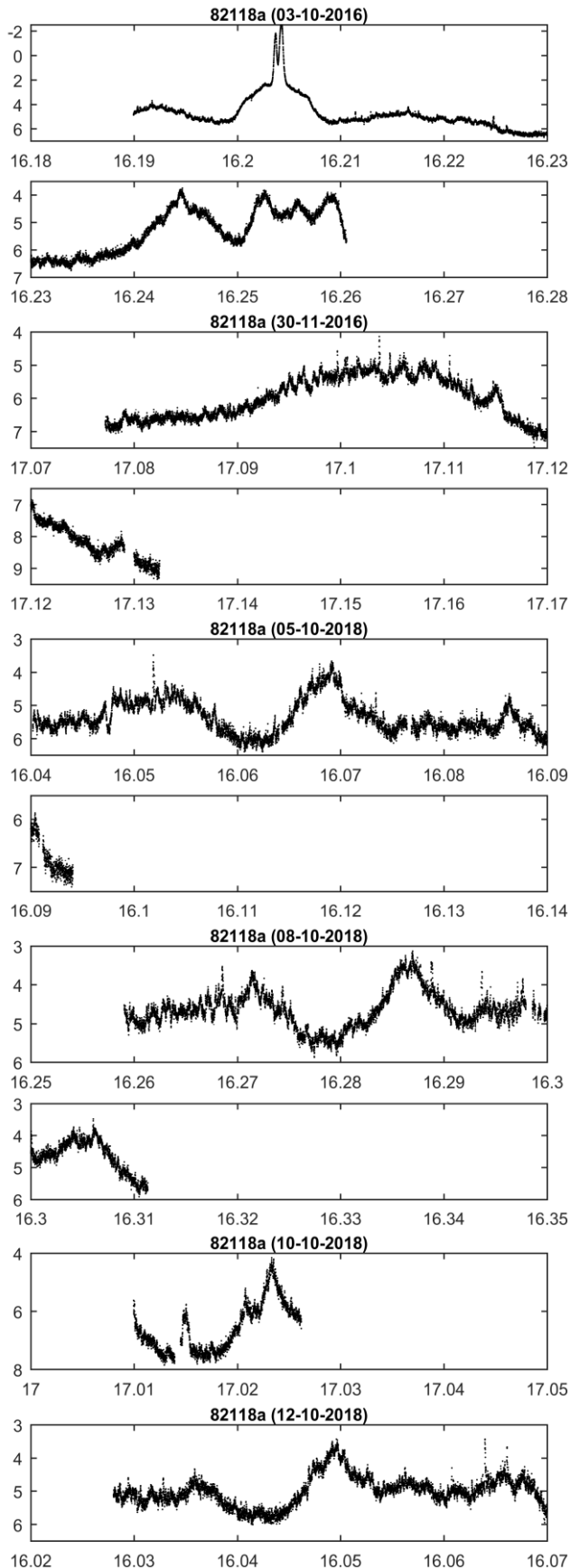
Period: 101.36 min

Eccentricity: 0.001

Launch date: 1982-12-21



Source: United States (US)



SL-8 R/B

(COSMOS 1429-1436)

NORAD ID: 13769

Int'l Code: 1983-002J

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1471 km

Apogee: 1707 km

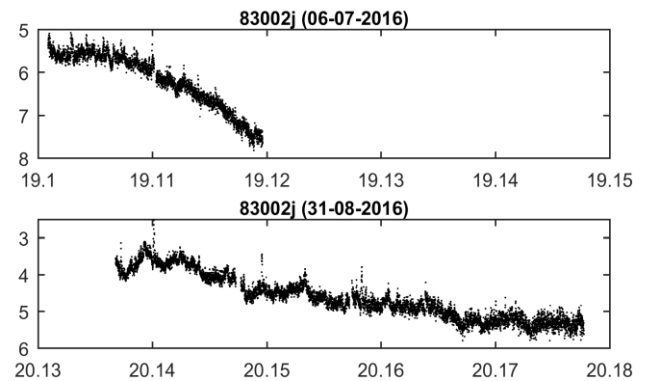
Inclination: 74.00°

Period: 117.97 min

Eccentricity: 0.015

Launch date: 1983-01-19

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-3 R/B (8A92ME)

VOSTOK-2M (block E 3rd stage)

(COSMOS 1437 ROCKET)

NORAD ID: 13771

Int'l Code: 1983-003B

Dimensions: cylinder 3.8m long

2.6m dia

Initial orbit:

Perigee: 605 km

Apogee: 685 km

Inclination: 81.17°

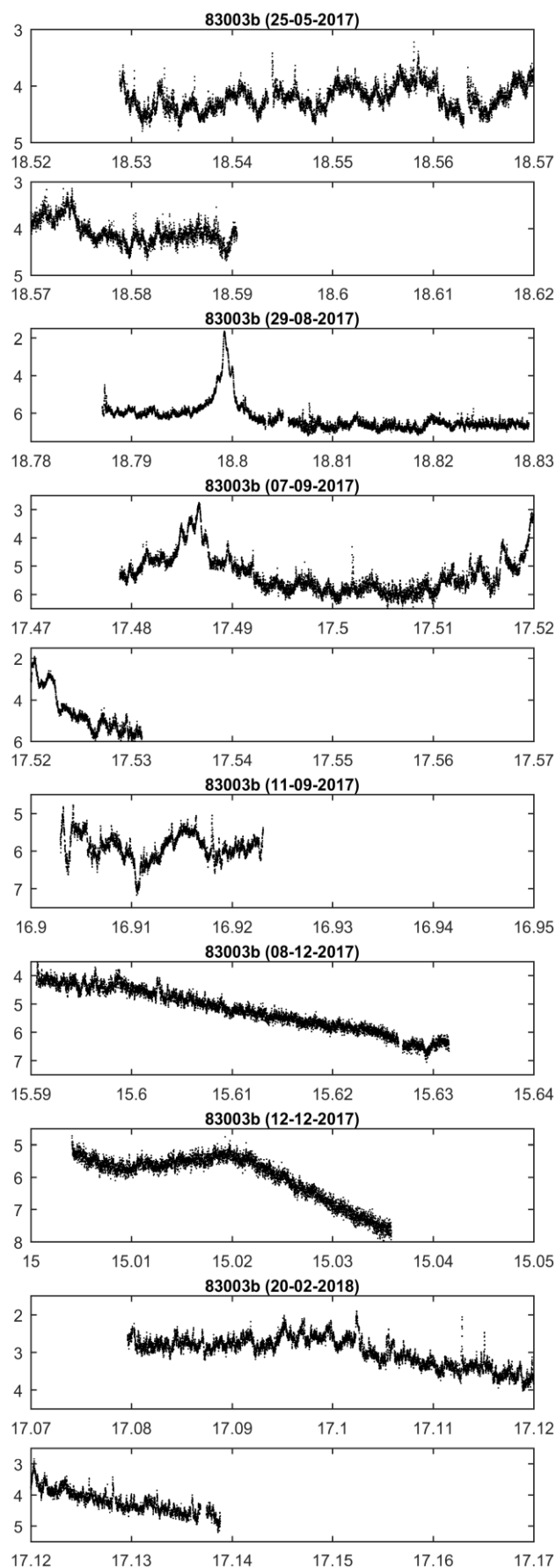
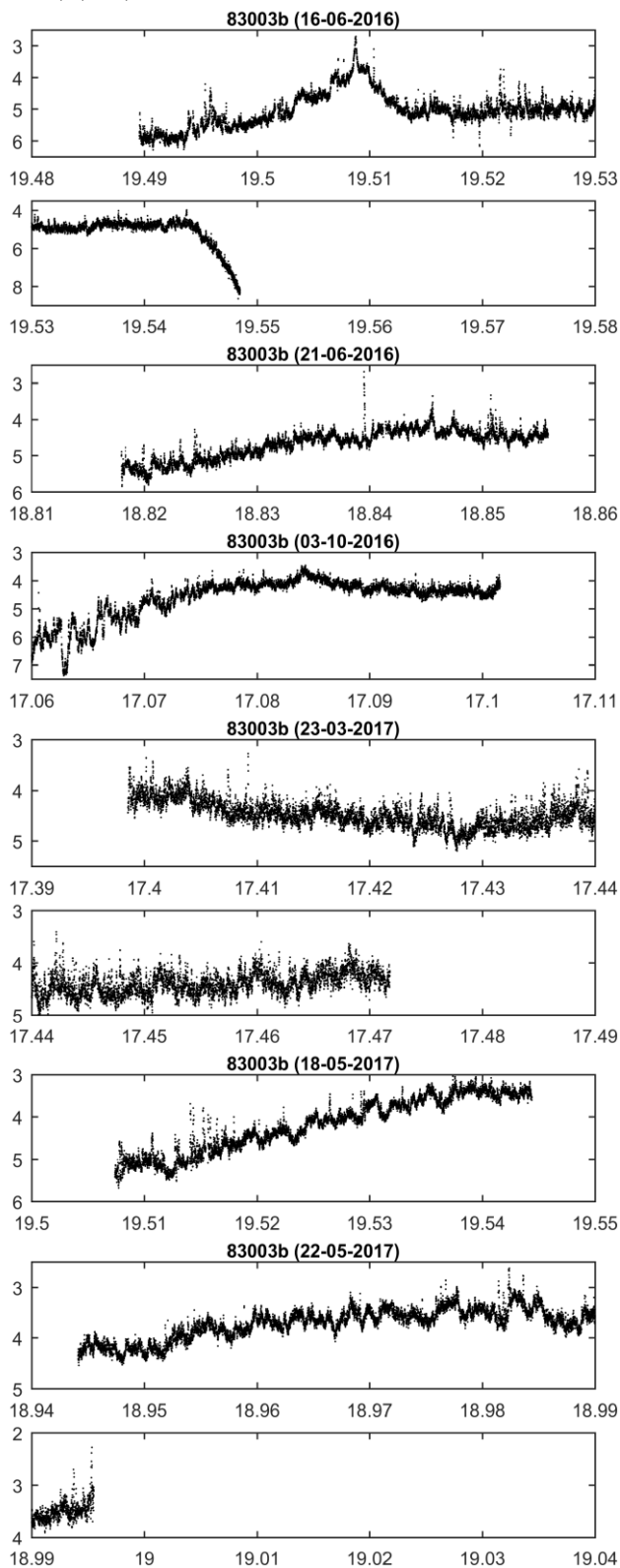
Period: 97.65 min

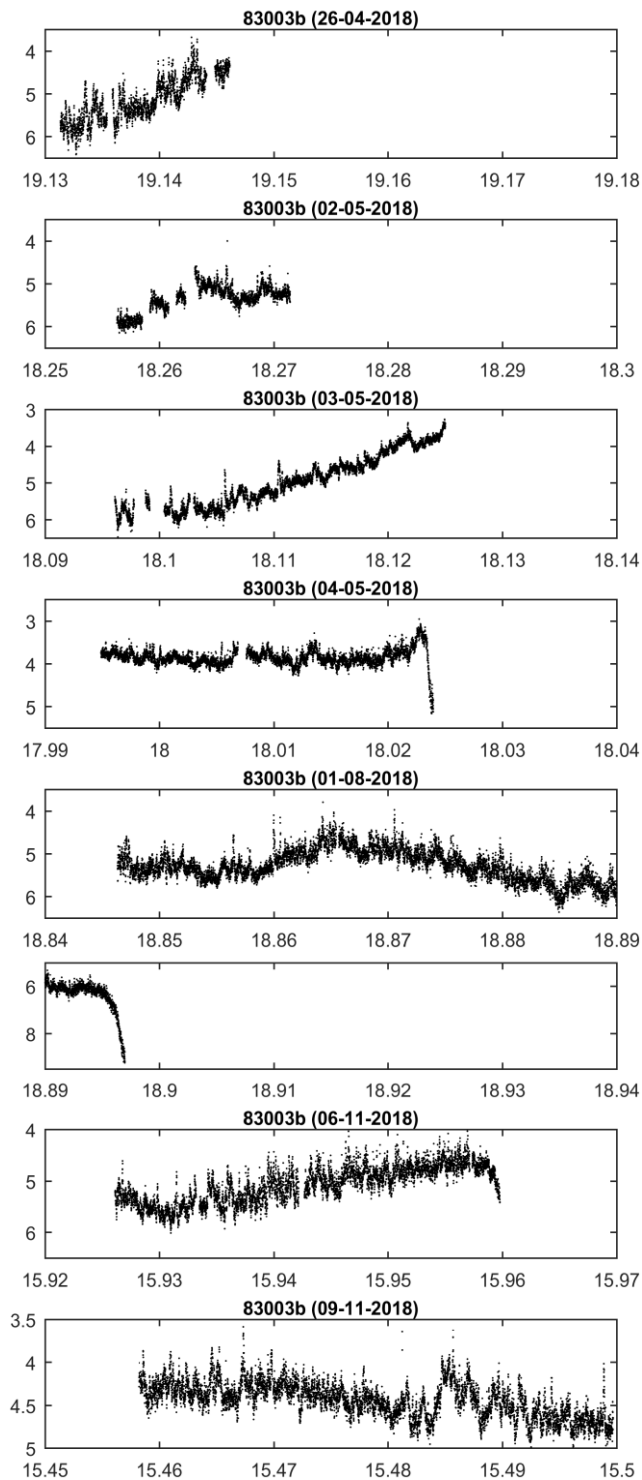
Eccentricity: 0.006

Launch date: 1983-01-20



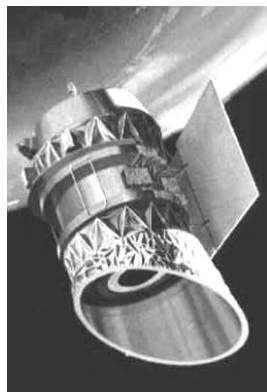
Source: Commonwealth of Independent States (former USSR) (CIS)



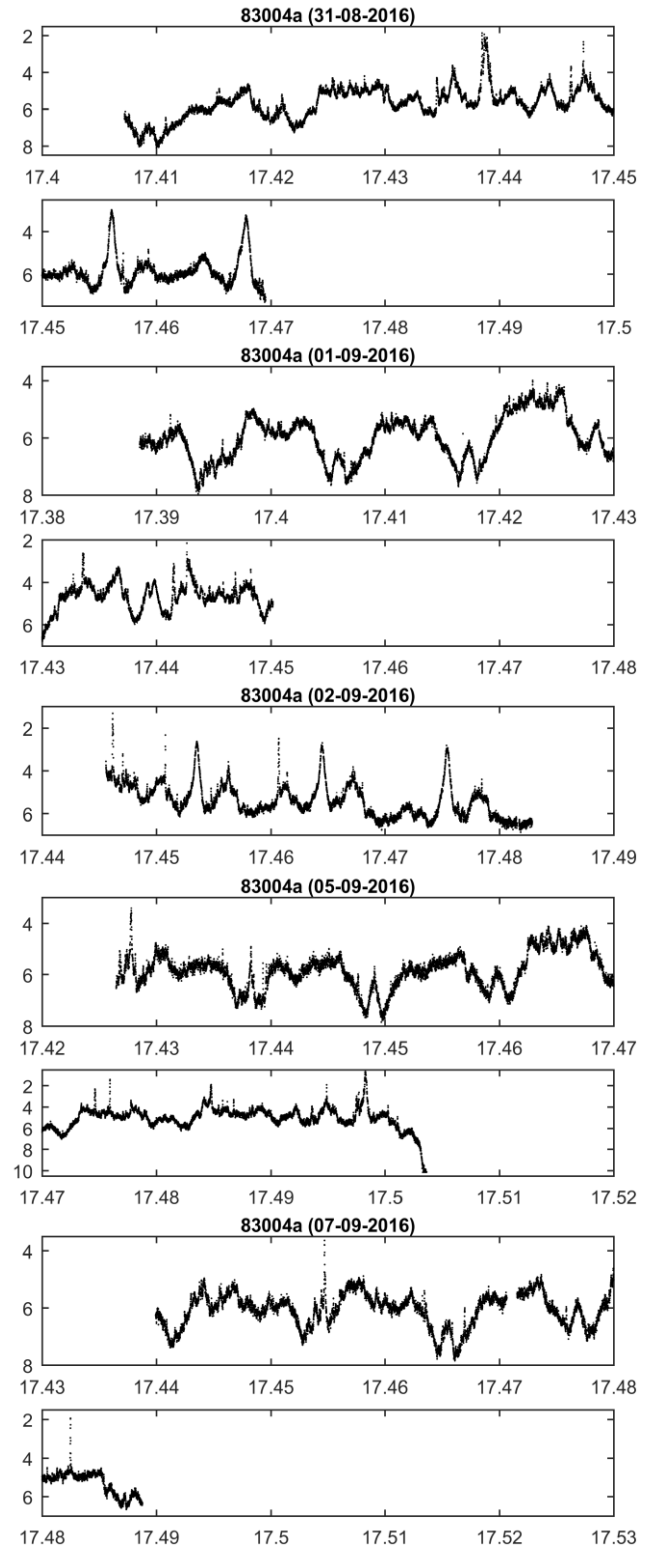


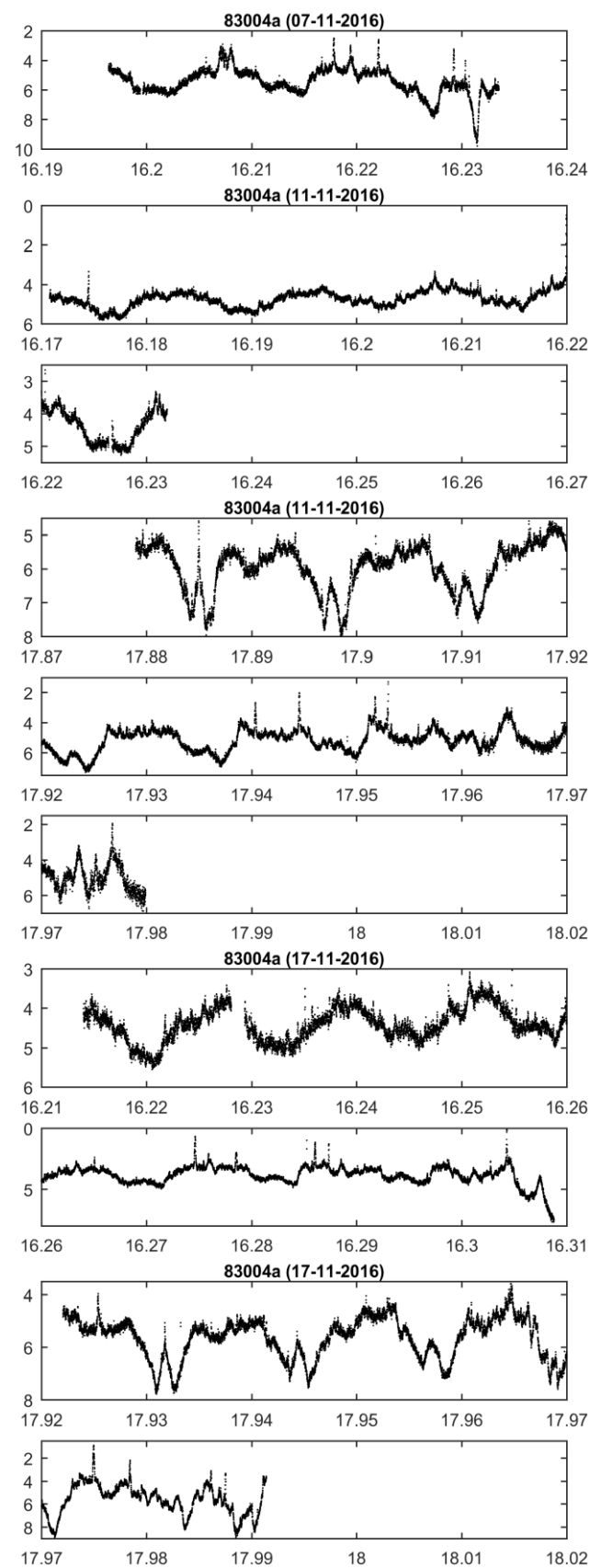
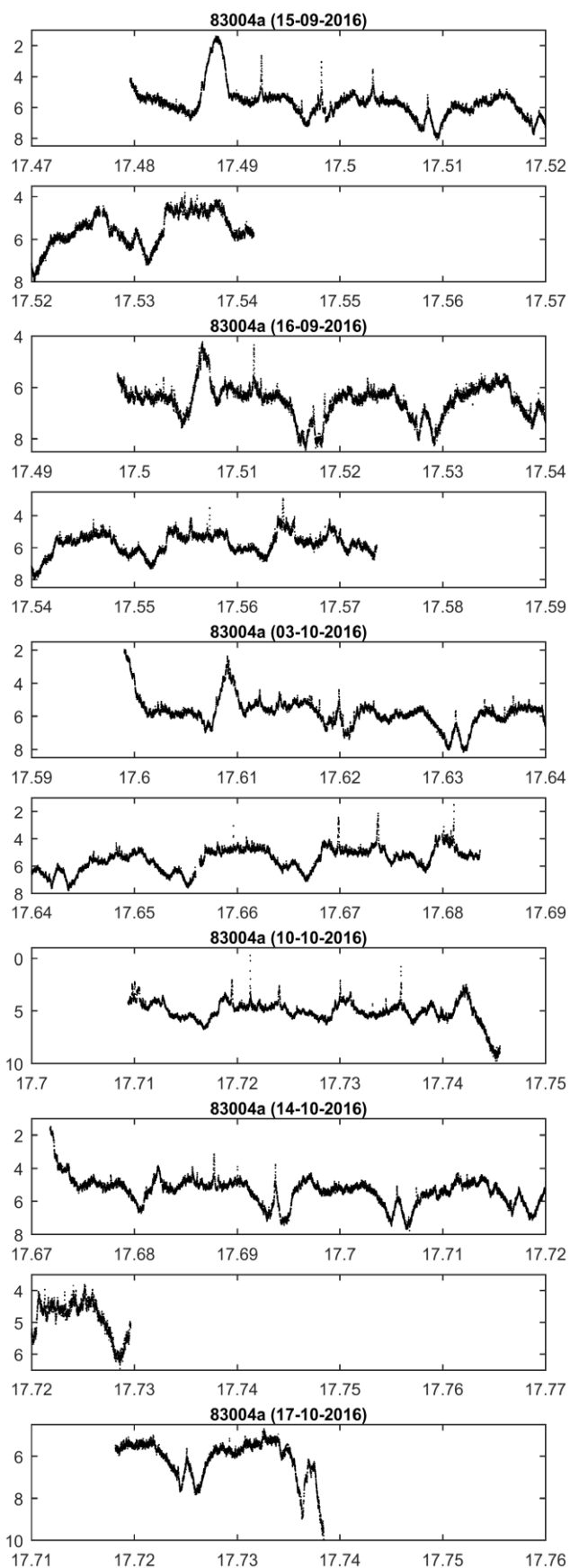
IRAS

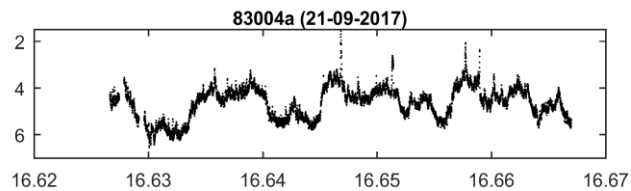
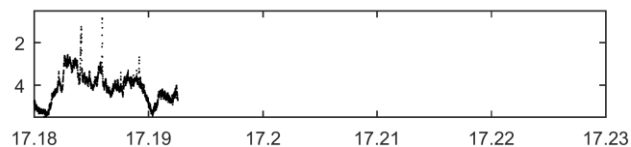
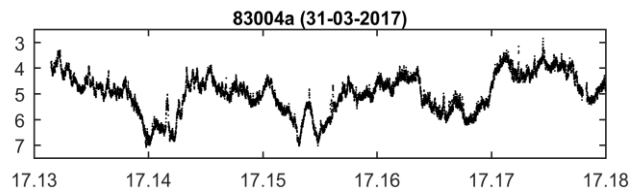
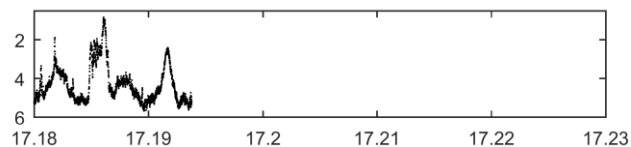
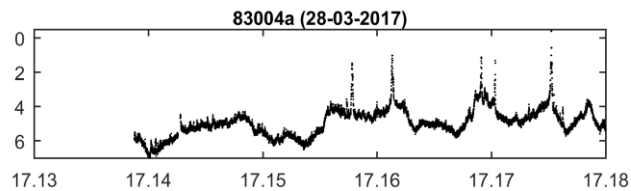
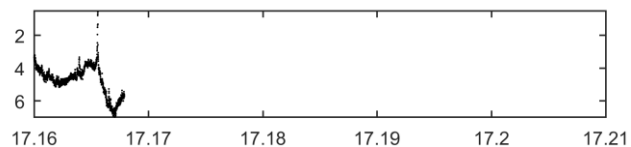
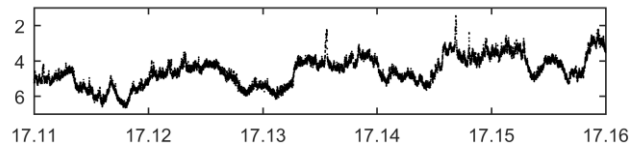
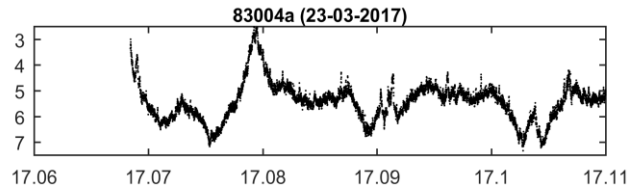
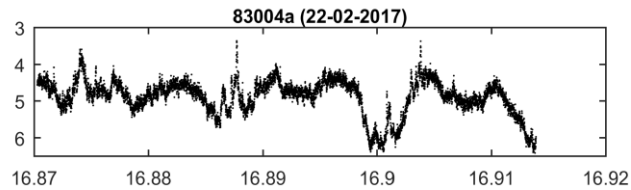
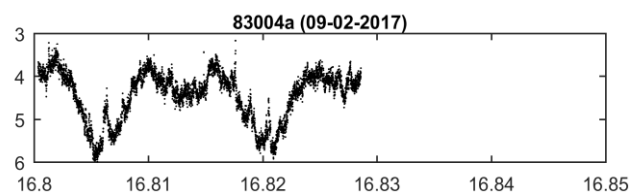
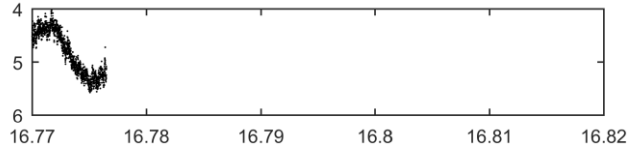
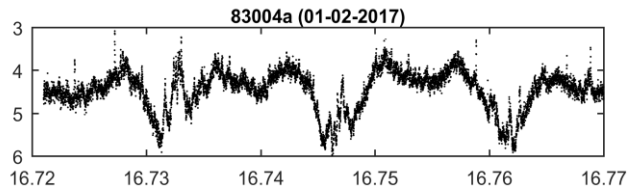
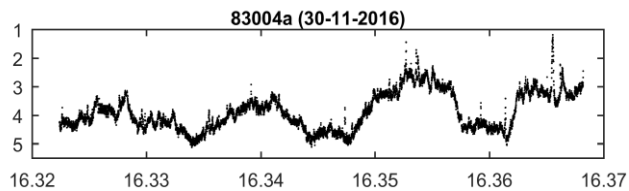
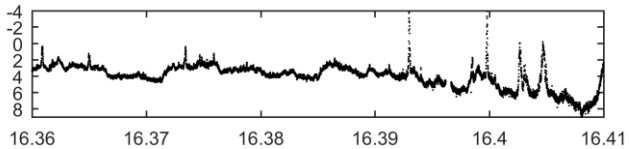
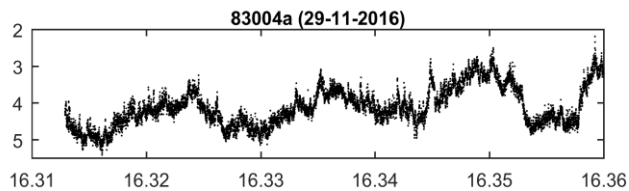
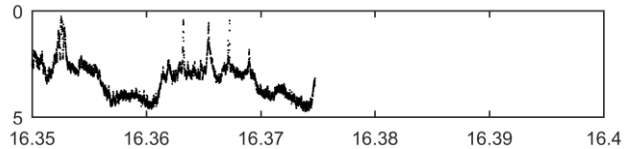
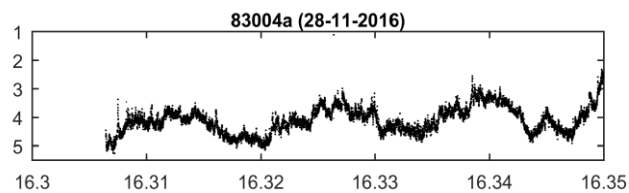
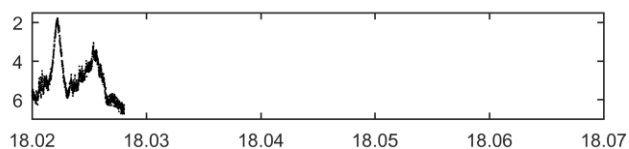
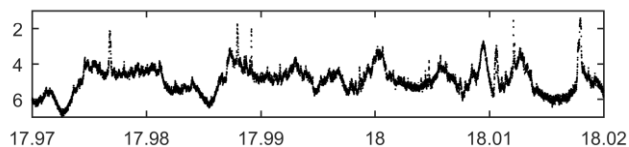
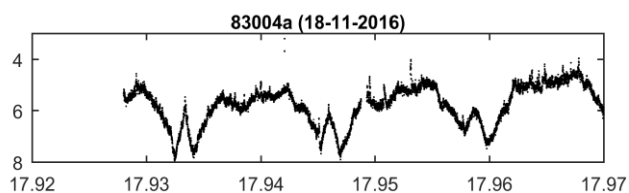
NORAD ID: 13777
 Int'l Code: 1983-004A
 Dimensions: cylinder + panel
 3.60m long 2.05m dia
 Initial orbit:
 Perigee: 896 km
 Apogee: 913 km
 Inclination: 99.1°

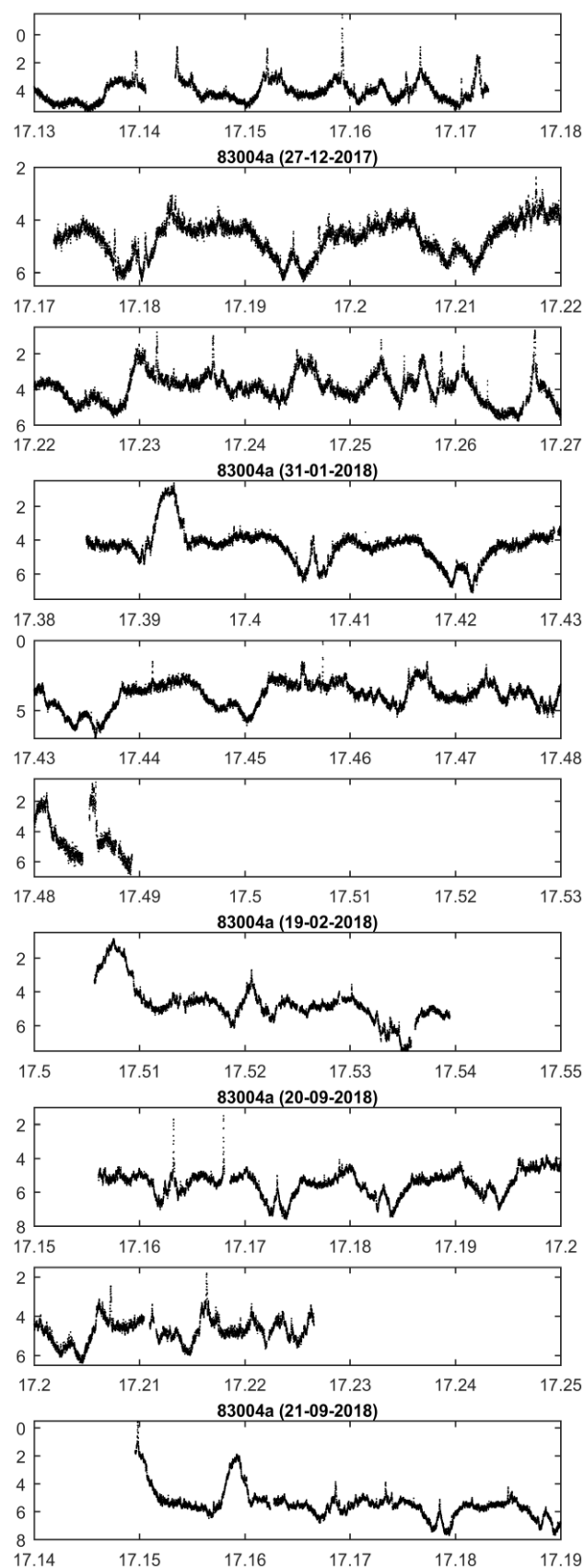
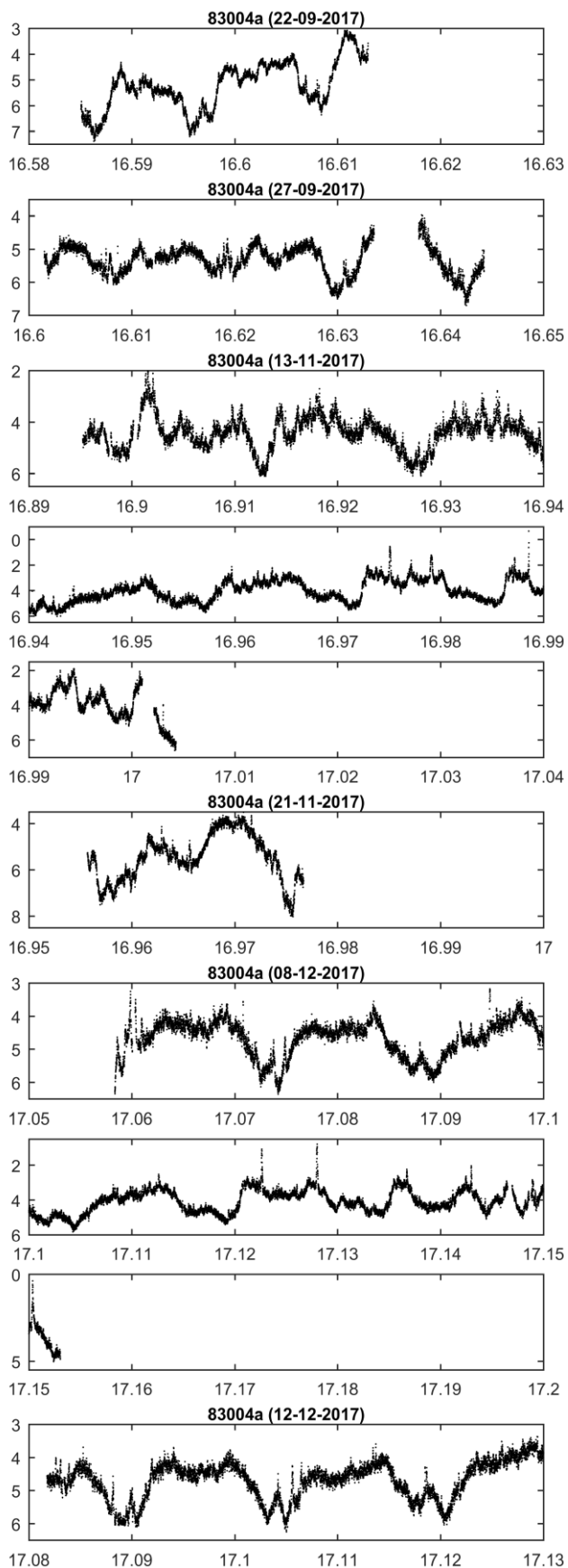


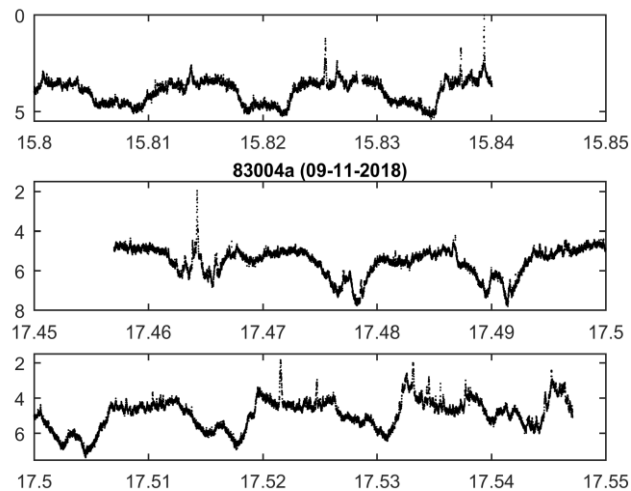
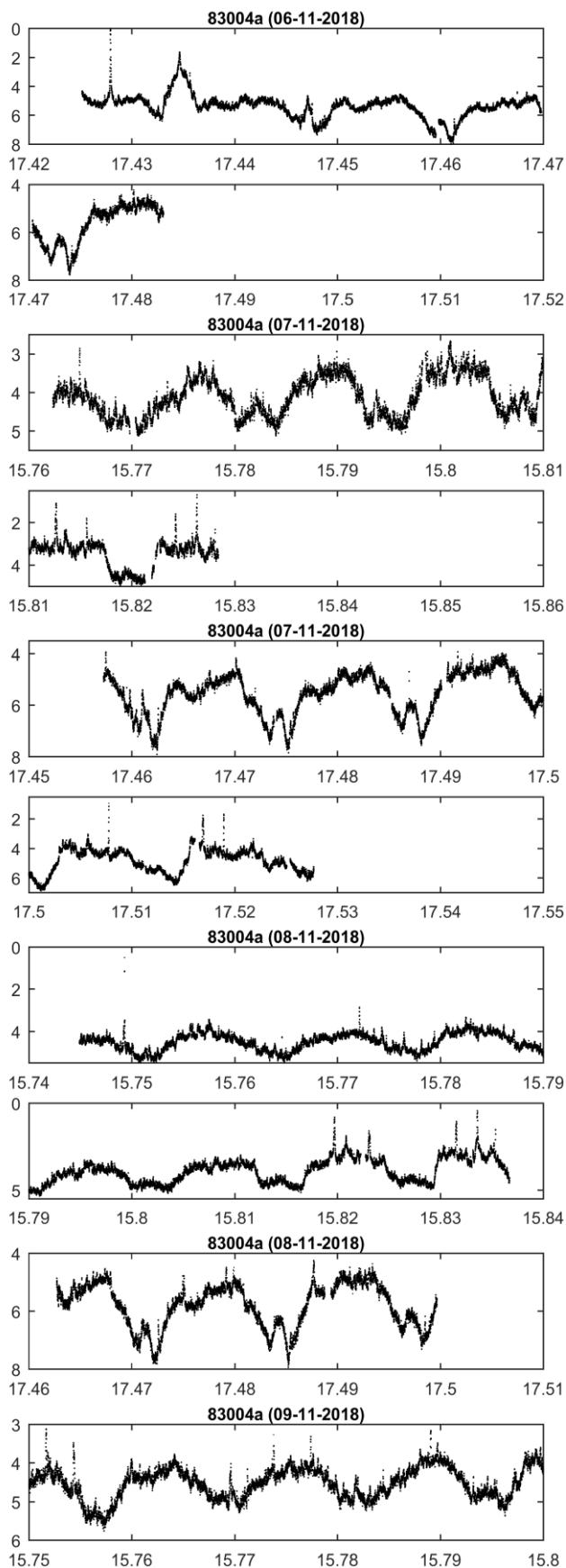
Period: 103.11 min
 Eccentricity: 0.001
 Launch date: 1983-01-26
 Source: United States (US)











SL-8 R/B

(COSMOS 1473-1480)

NORAD ID: 14179

Int'l Code: 1983-069J

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1464 km

Apogee: 1676 km

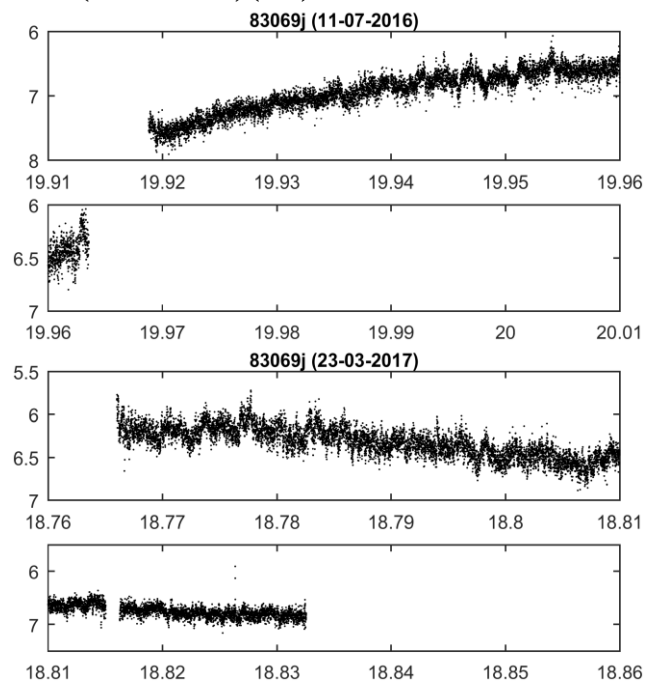
Inclination: 74.03°

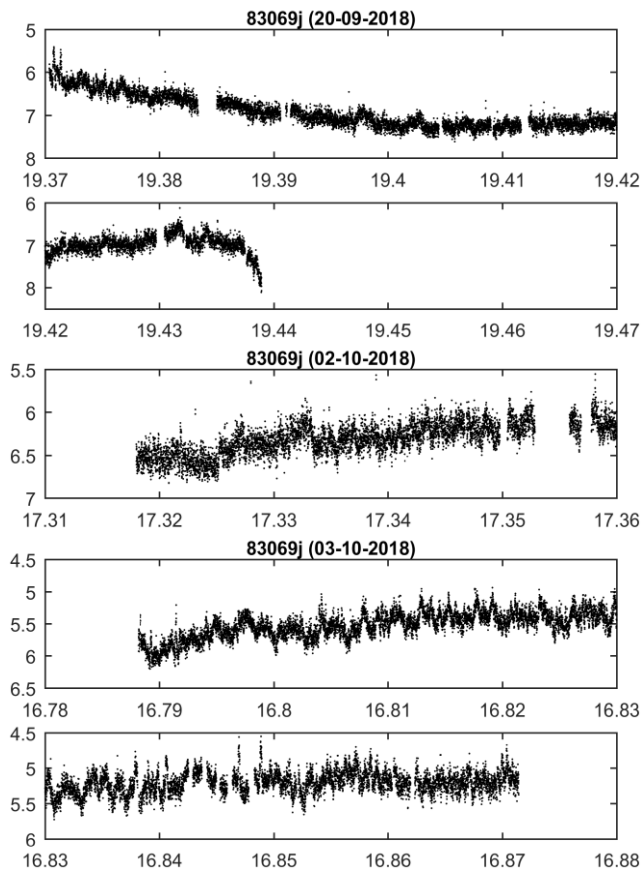
Period: 117.54 min

Eccentricity: 0.013

Launch date: 1983-07-06

Source: Commonwealth of Independent States (former USSR) (CIS)





SL-14 R/B

COSMOS 1589 (3rd stage)

NORAD ID: 15172

Int'l Code: 1984-084B

Dimensions: cylinder 7.4m long
2.4m dia

Initial orbit:

Perigee: 1493 km

Apogee: 1502 km

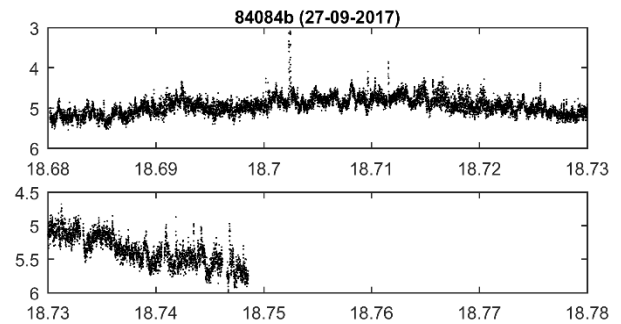
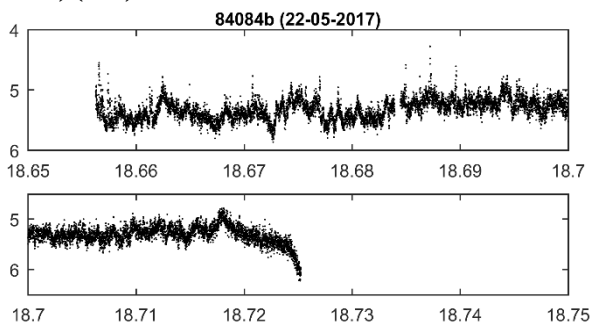
Inclination: 82.6°

Period: 115.95 min

Eccentricity: 0.001

Launch date: 1984-08-08

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (3rd stage)

(COSMOS 1617)

NORAD ID: 15475

Int'l Code: 1985-003G

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1414 km

Apogee: 1473 km

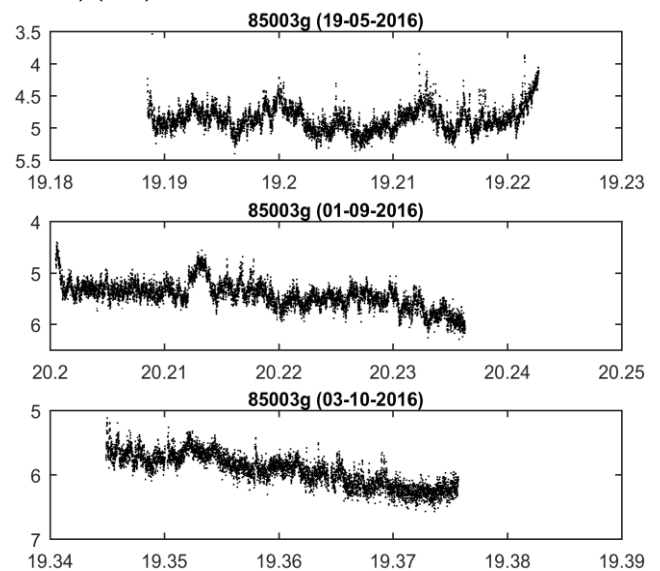
Inclination: 82.61°

Period: 114.79 min

Eccentricity: 0.004

Launch date: 1985-01-15

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (S5M) (3rd stage)

(COSMOS 1633 ROCKET)

NORAD ID: 15593

Int'l Code: 1985-020B

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 635 km

Apogee: 656 km

Inclination: 82.54°

Period: 97.7 min

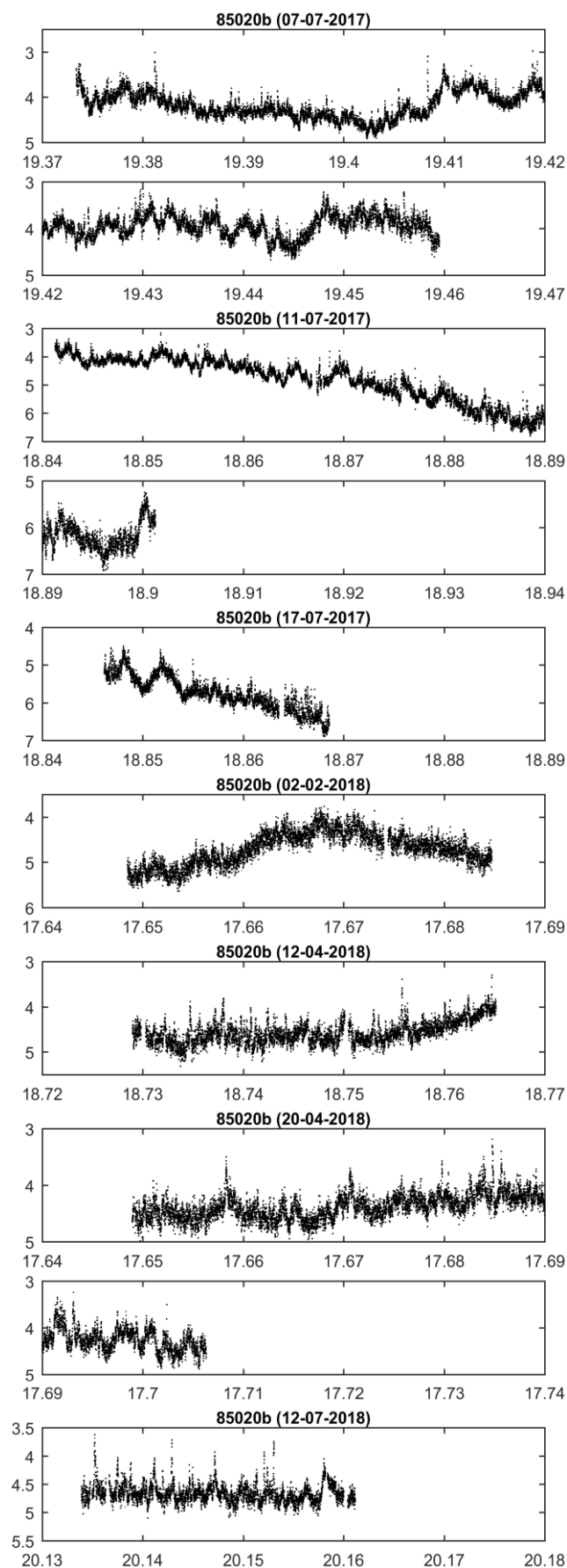
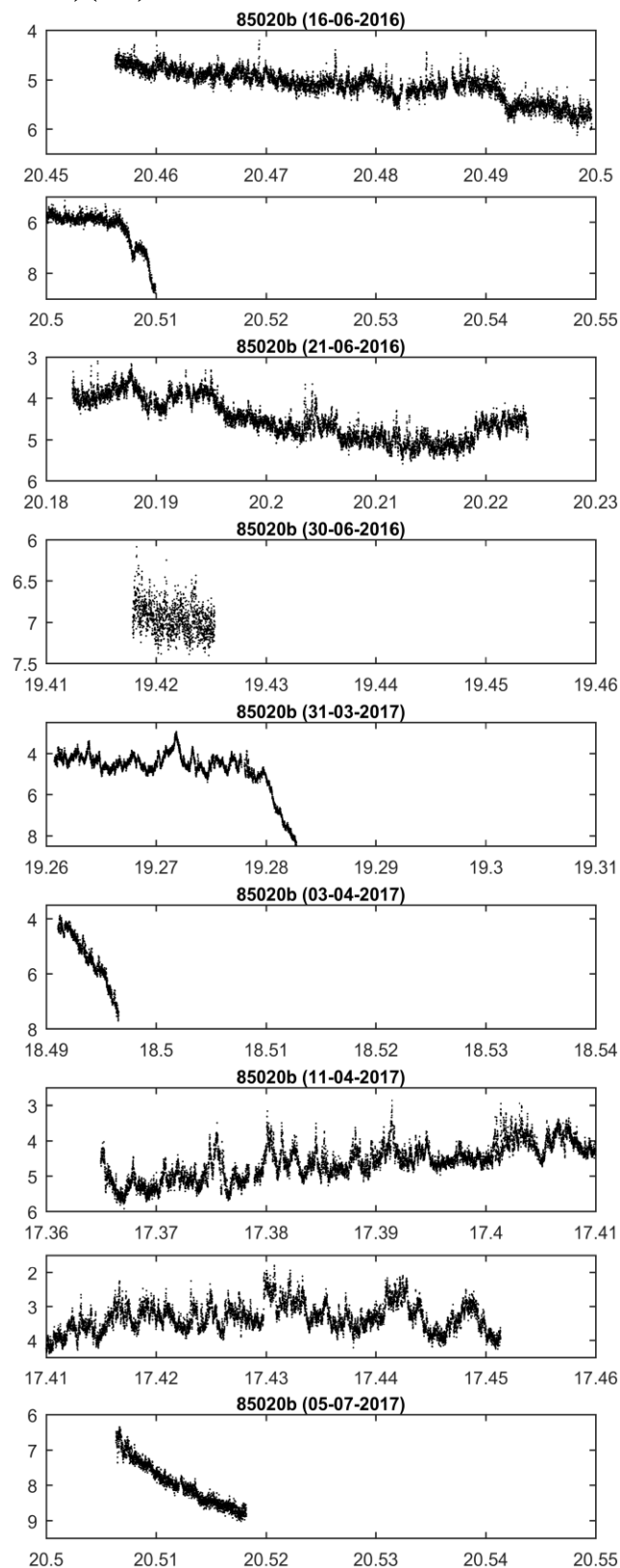
Eccentricity: 0.001

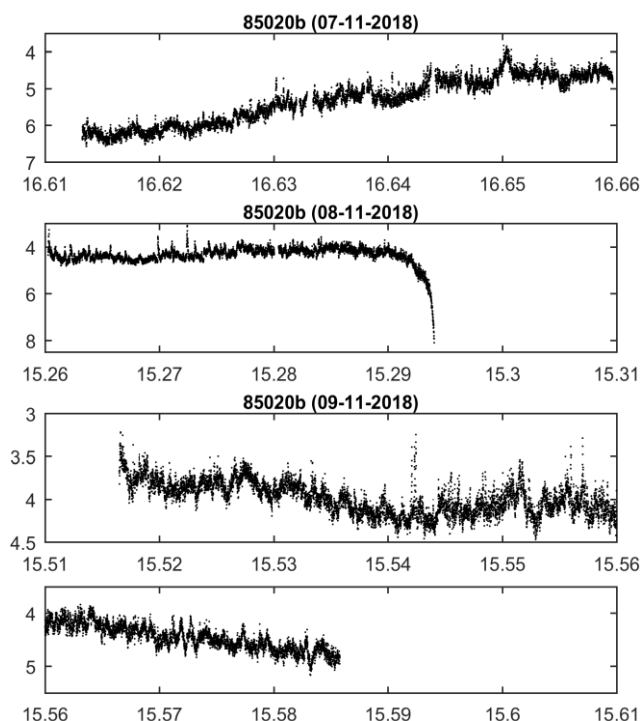
Launch date: 1985-03-05

Source: Commonwealth of Independent States (former USSR) (CIS)



USSR) (CIS)





SL-8 R/B (S3M)(2nd stage) (COSMOS 1635-1642)

NORAD ID: 15625

Int'l Code: 1985-023J

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 1480 km

Apogee: 1707 km

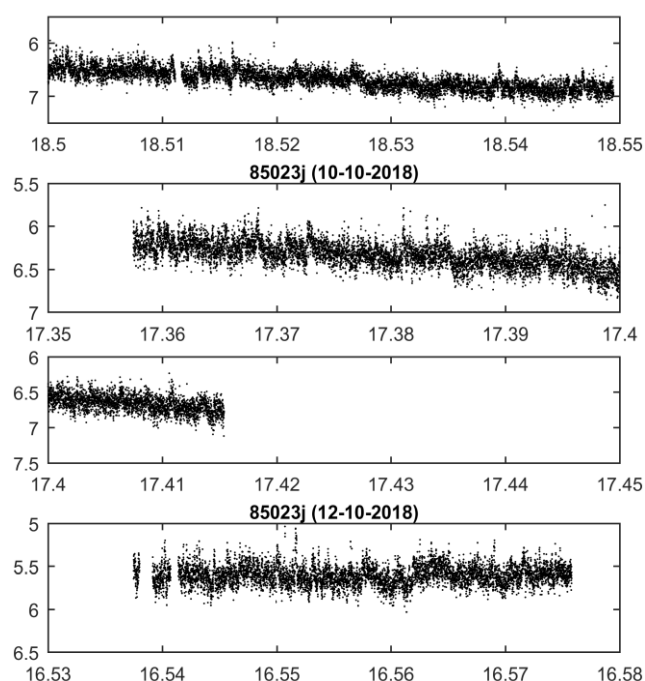
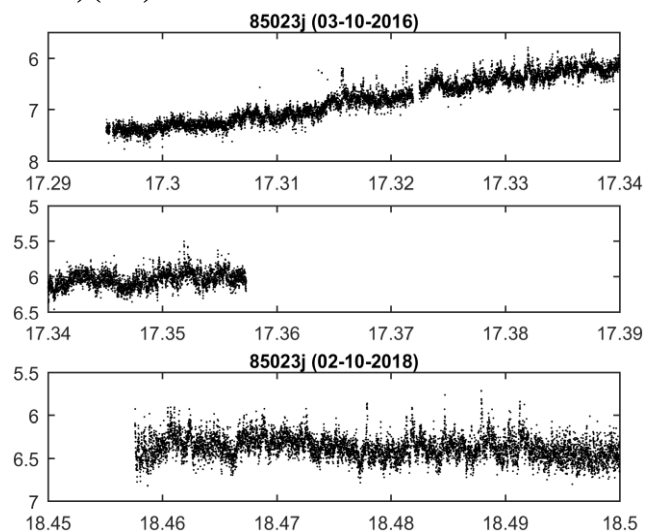
Inclination: 74.06°

Period: 118.08 min

Eccentricity: 0.014

Launch date: 1985-03-21

Source: Commonwealth of Independent States (former USSR) (CIS)



COSMOS 1660

GEO-IK (MUSSON, 11F666)

NORAD ID: 15821

Int'l Code: 1985-047A

Dimensions:

Initial orbit:

Perigee: 1482 km

Apogee: 1526 km

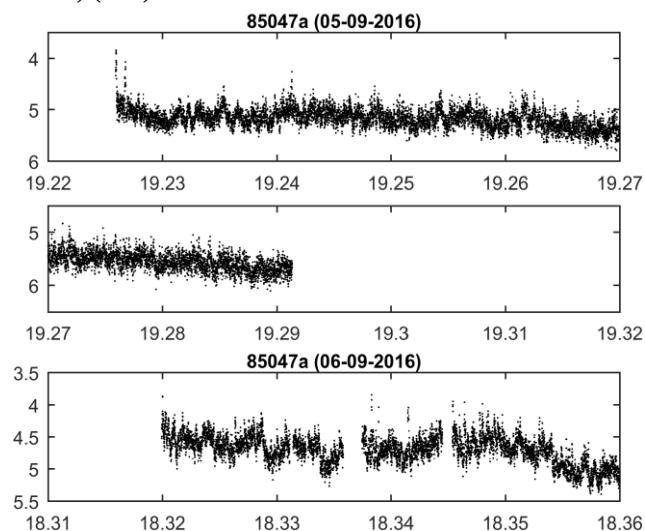
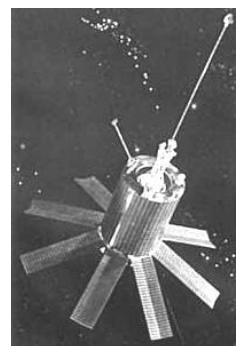
Inclination: 73.63°

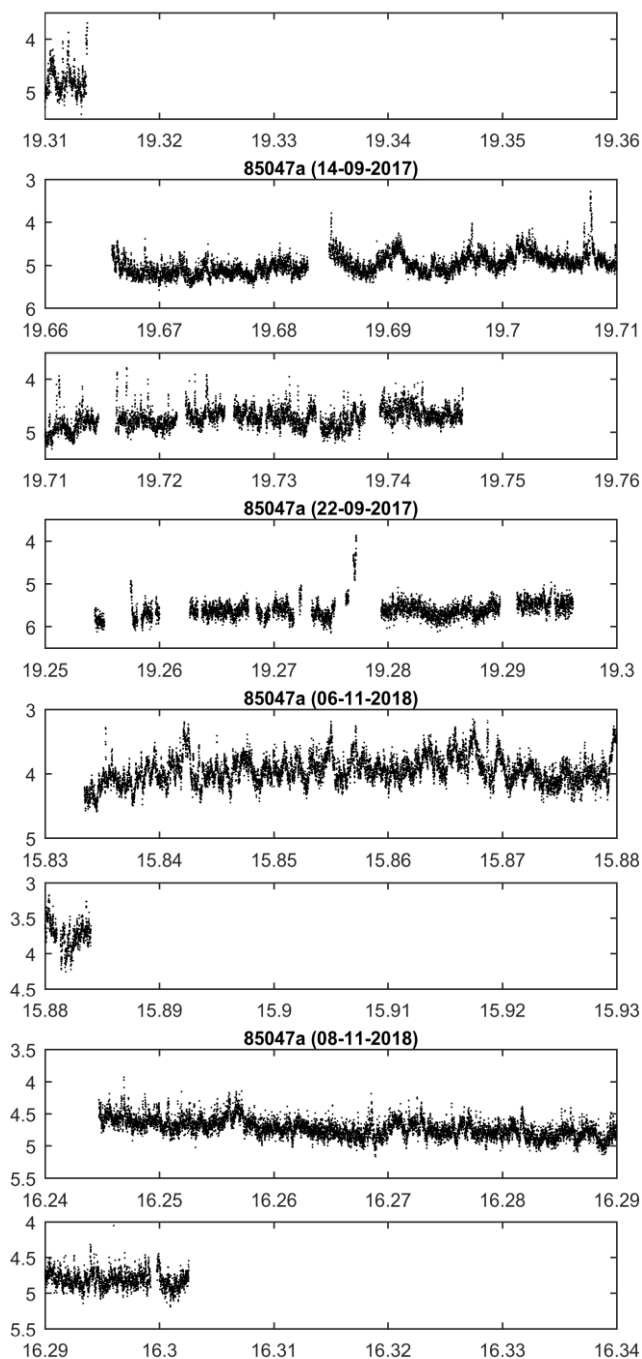
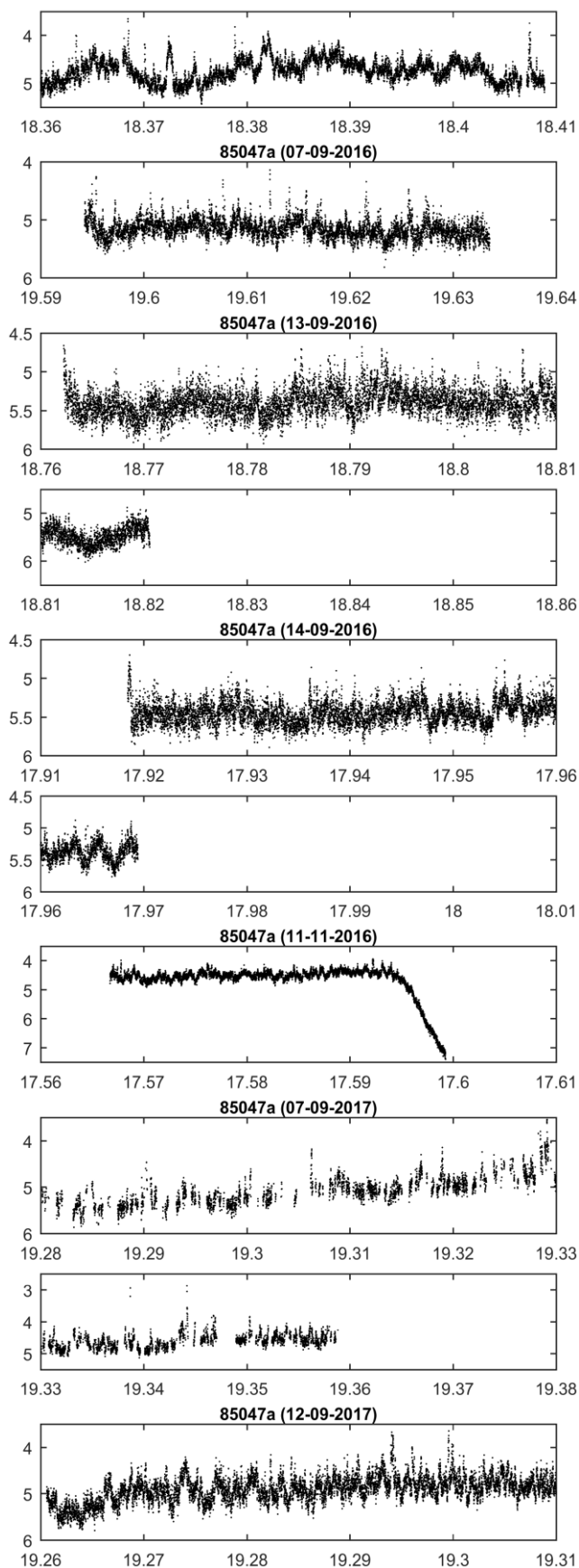
Period: 116.11 min

Eccentricity: 0.003

Launch date: 1985-06-14

Source: Commonwealth of Independent States (former USSR) (CIS)





SL-14 R/B (S5M) (3rd stage) (COSMOS 1660 ROCKET)

NORAD ID: 15822

Int'l Code: 1985-047B

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1481 km

Apogee: 1522 km

Inclination: 73.63°

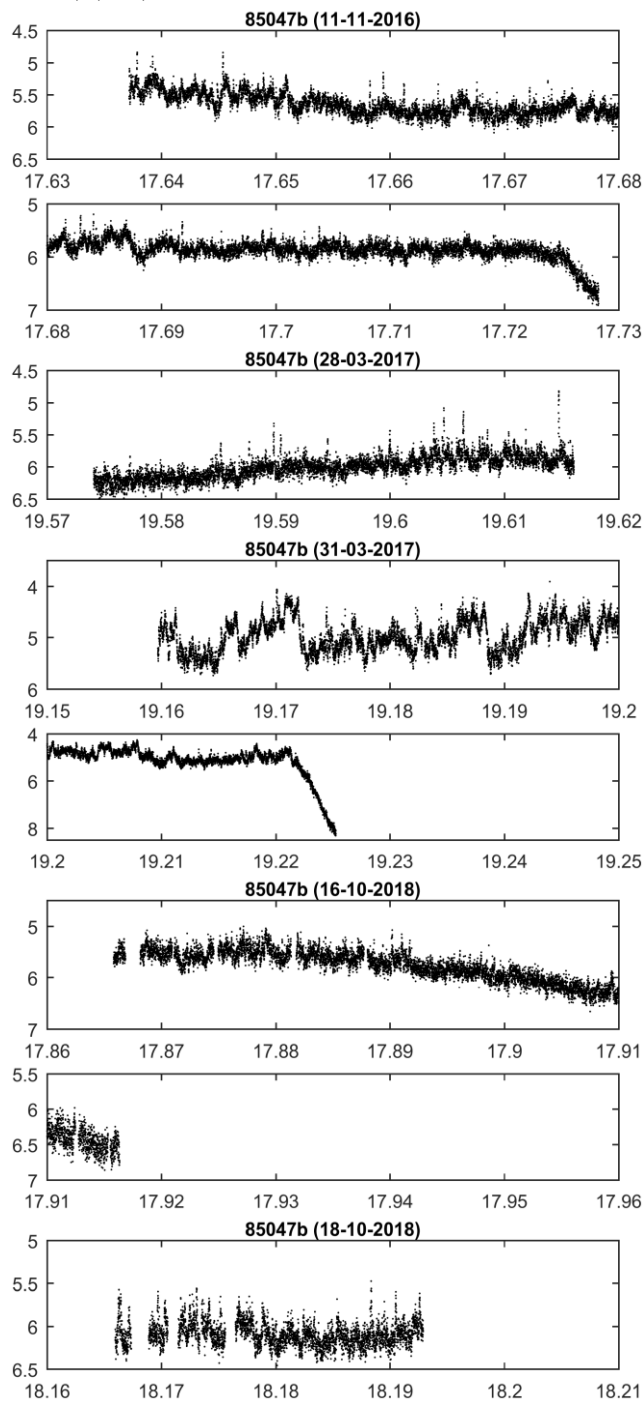
Period: 116.06 min

Eccentricity: 0.003

Launch date: 1985-06-14



Source: Commonwealth of Independent States (former USSR) (CIS)

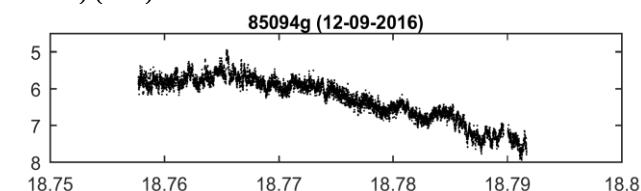


SL-14 R/B

NORAD ID: 16144
Int'l Code: 1985-094G
Dimensions: cylinder 7.4m long 2.4m dia
Initial orbit:
Perigee: 1417 km
Apogee: 1470 km



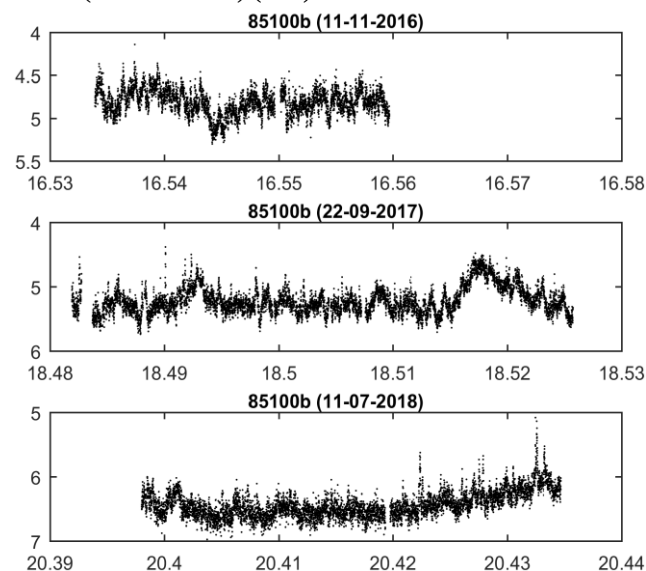
Inclination: 82.61°
Period: 114.80 min
Eccentricity: 0.003
Launch date: 1985-10-09
Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (3rd stage)

(METEOR-3 01)

NORAD ID: 16194
Int'l Code: 1985-100B
Dimensions: cylinder 7.4m long 2.4m dia
Initial orbit:
Perigee: 1227 km
Apogee: 1247 km
Inclination: 82.55°
Period: 110.29 min
Eccentricity: 0.001
Launch date: 1985-10-24
Source: Commonwealth of Independent States (former USSR) (CIS)



SL-8 R/B (2nd stage)

(COSMOS 1716-1723)

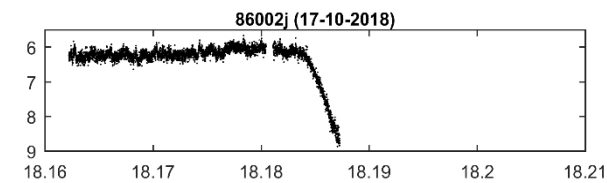
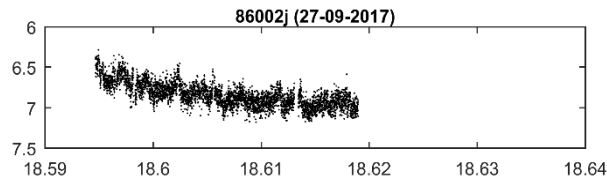
NORAD ID: 16457
Int'l Code: 1986-002J
Dimensions: cylinder 7.4m long 2.4m dia
Initial orbit:
Perigee: 1480 km
Apogee: 1697 km
Inclination: 73.99°
Period: 117.99 min



Eccentricity: 0.014

Launch date: 1986-01-09

Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-14 R/B (3rd stage)
(COSMOS 1732)**

NORAD ID: 16594

Int'l Code: 1986-015B

Dimensions: cylinder 7.4m long 2.4m dia

Initial orbit:

Perigee: 1479 km

Apogee: 1522 km

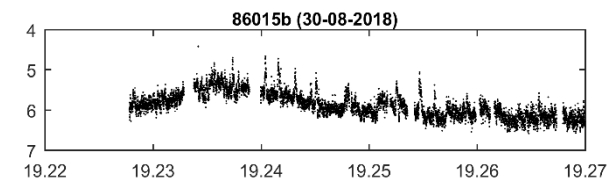
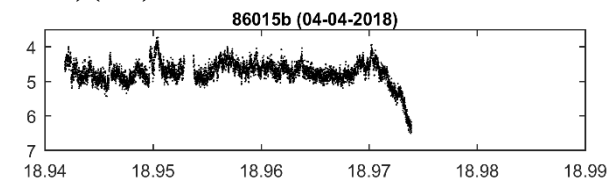
Inclination: 73.61°

Period: 116.03 min

Eccentricity: 0.003

Launch date: 1986-02-11

Source: Commonwealth of Independent States (former USSR) (CIS)



**ARIANE 1 R/B (H8 third stage)
(SPOT 1, VIKING ROCKET)**

NORAD ID: 16615

Int'l Code: 1986-019C

Dimensions: cylinder 8.6m long, 2.6m dia

Initial orbit:

Perigee: 799 km

Apogee: 833 km

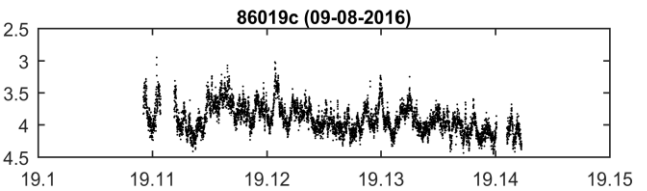
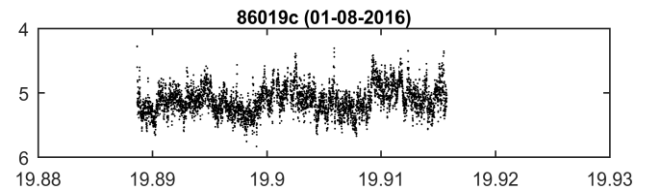
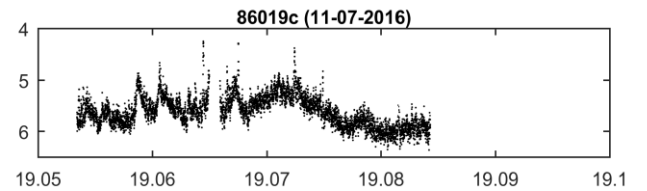
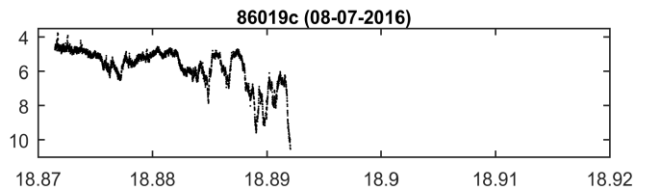
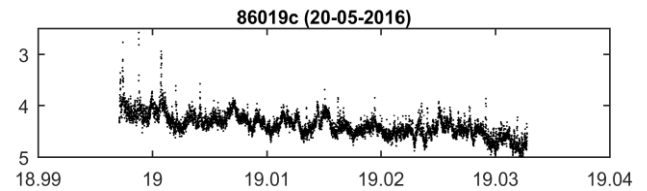
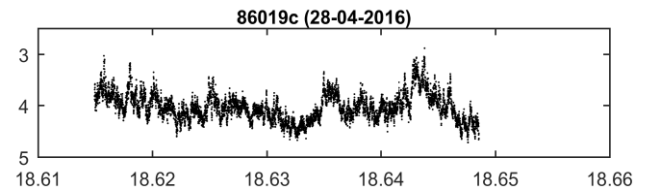
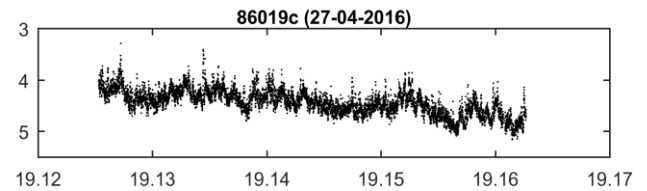
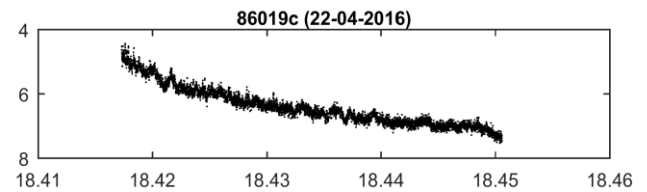
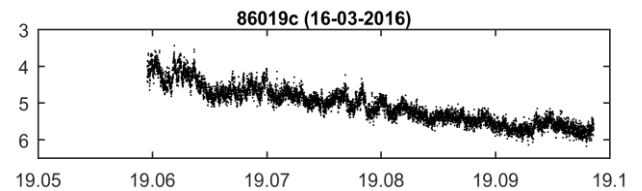
Inclination: 98.72°

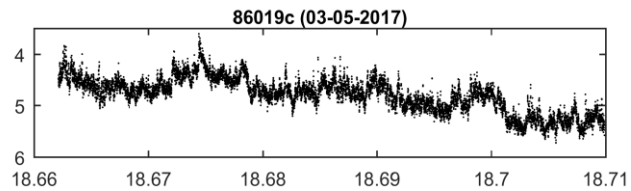
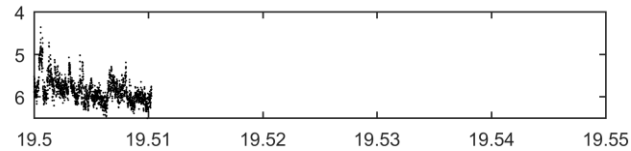
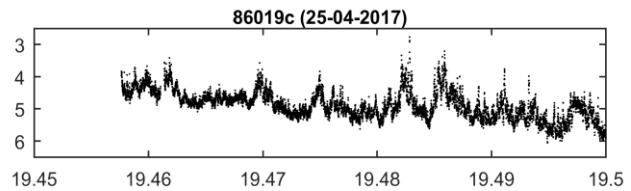
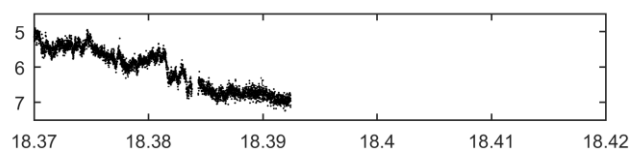
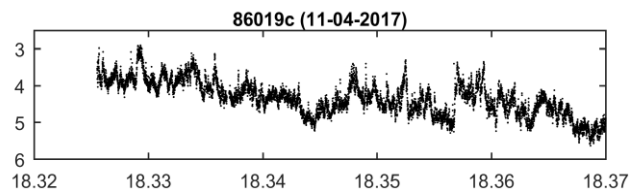
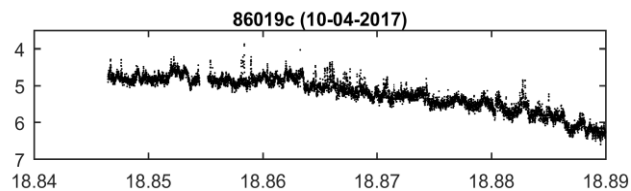
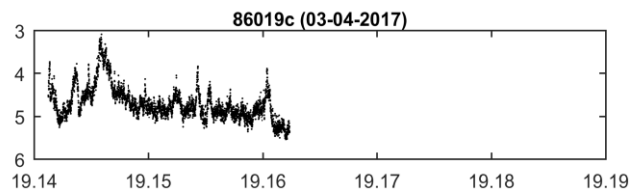
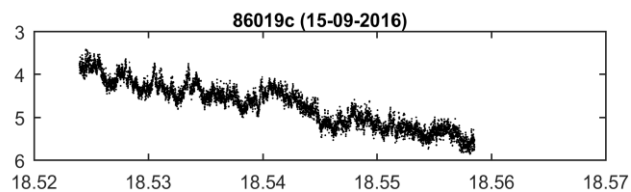
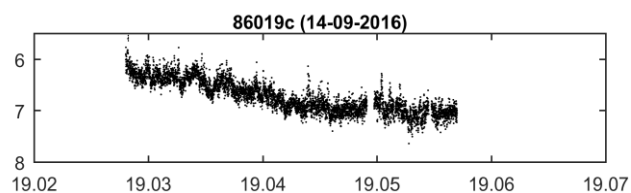
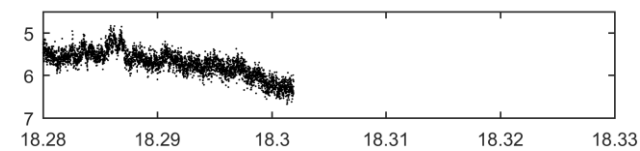
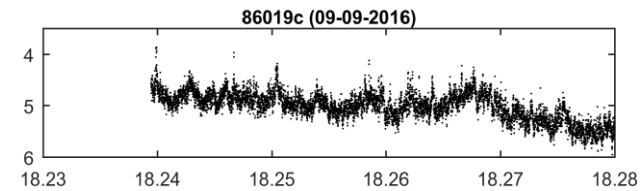
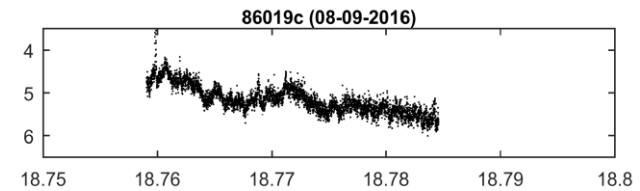
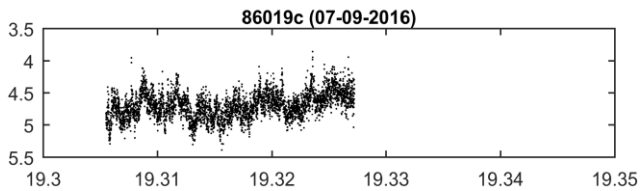
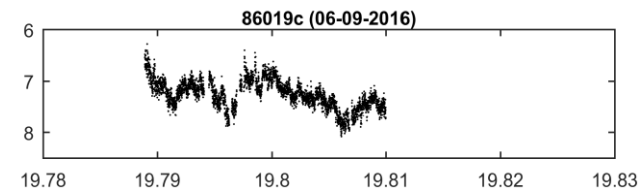
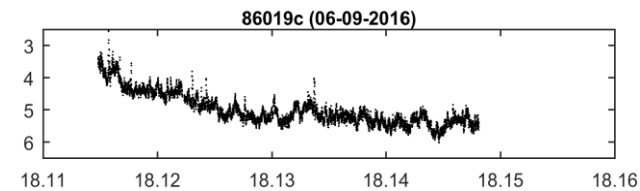
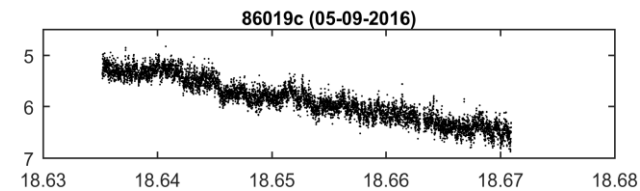
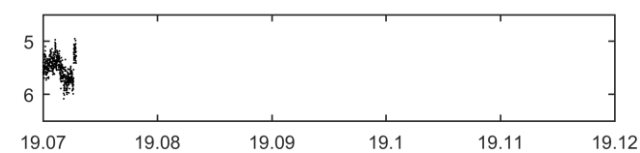
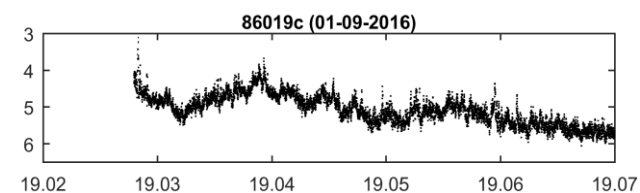
Period: 101.27 min

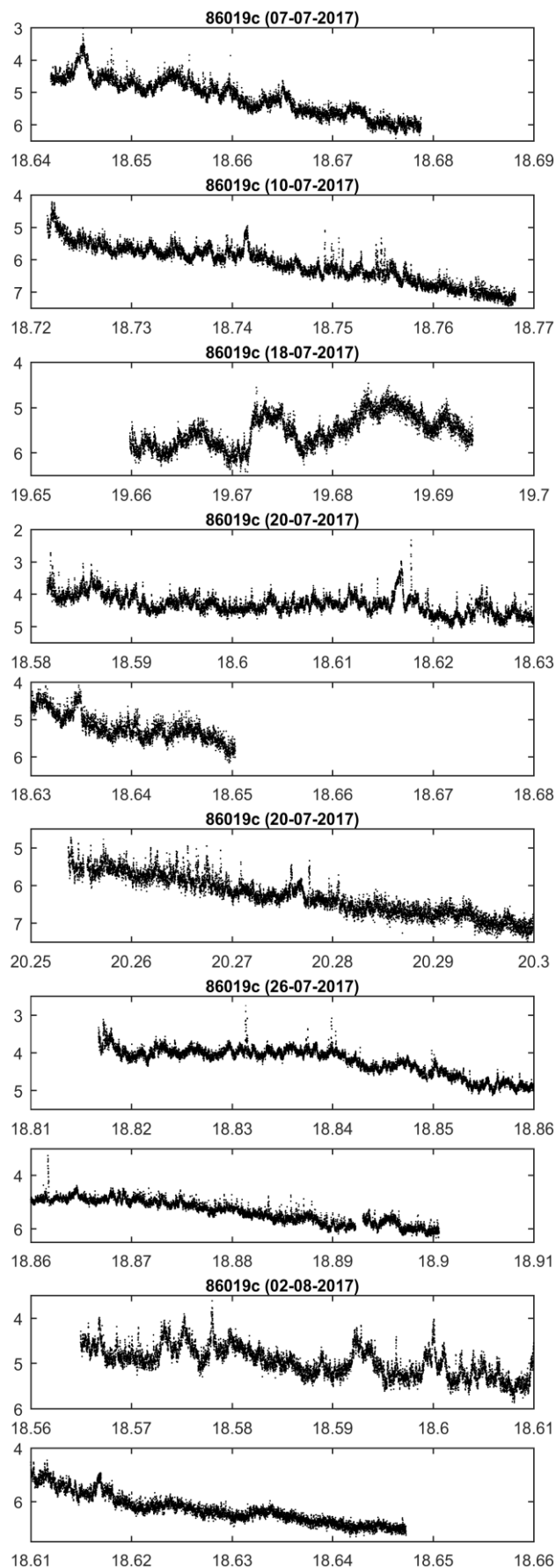
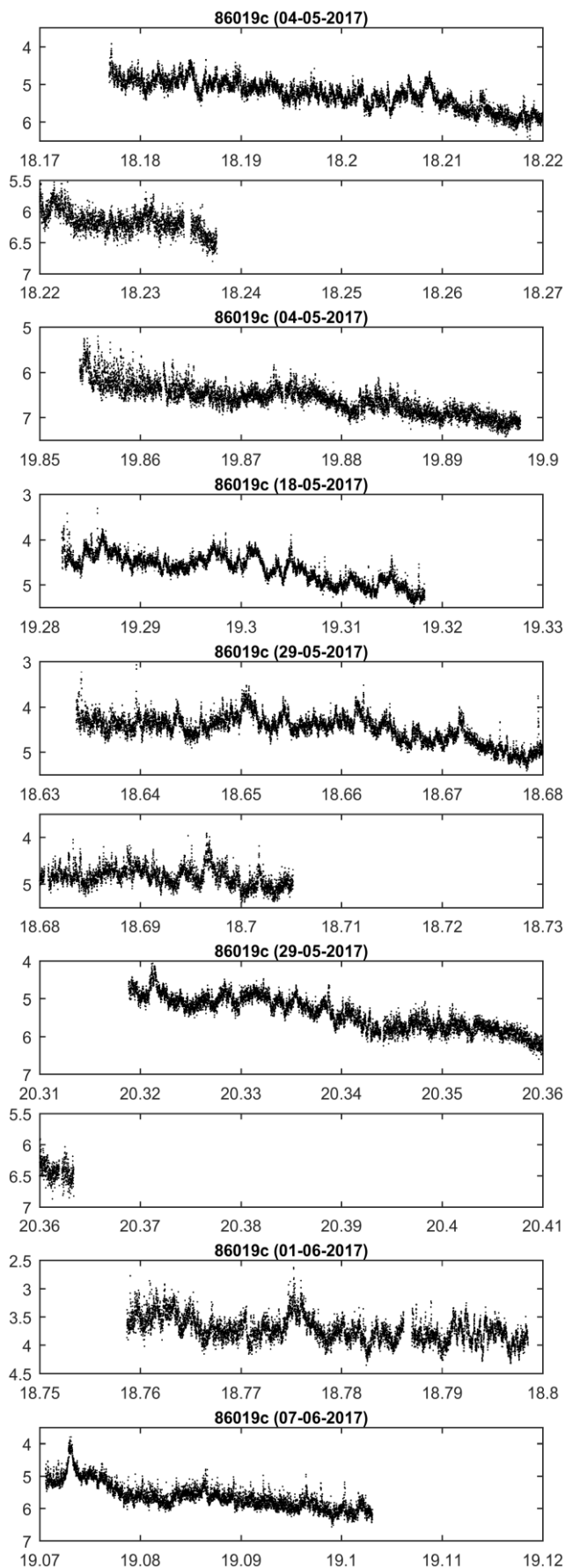
Eccentricity: 0.002

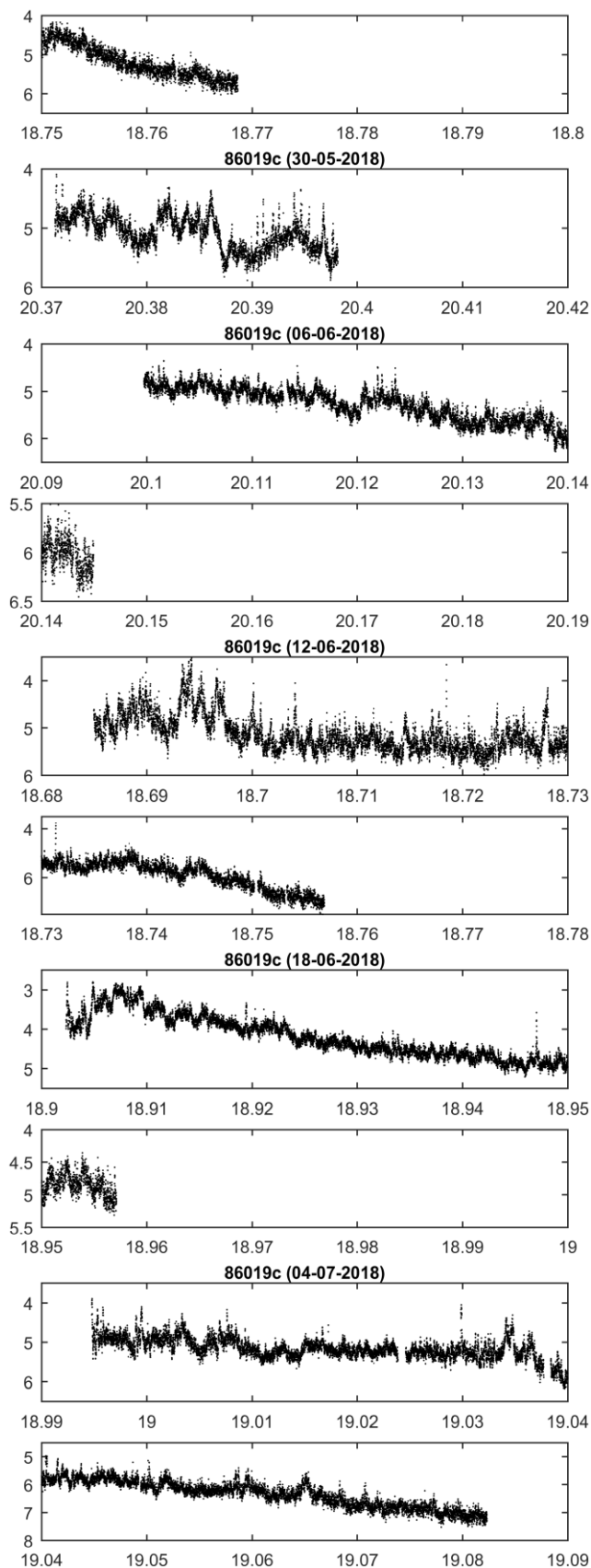
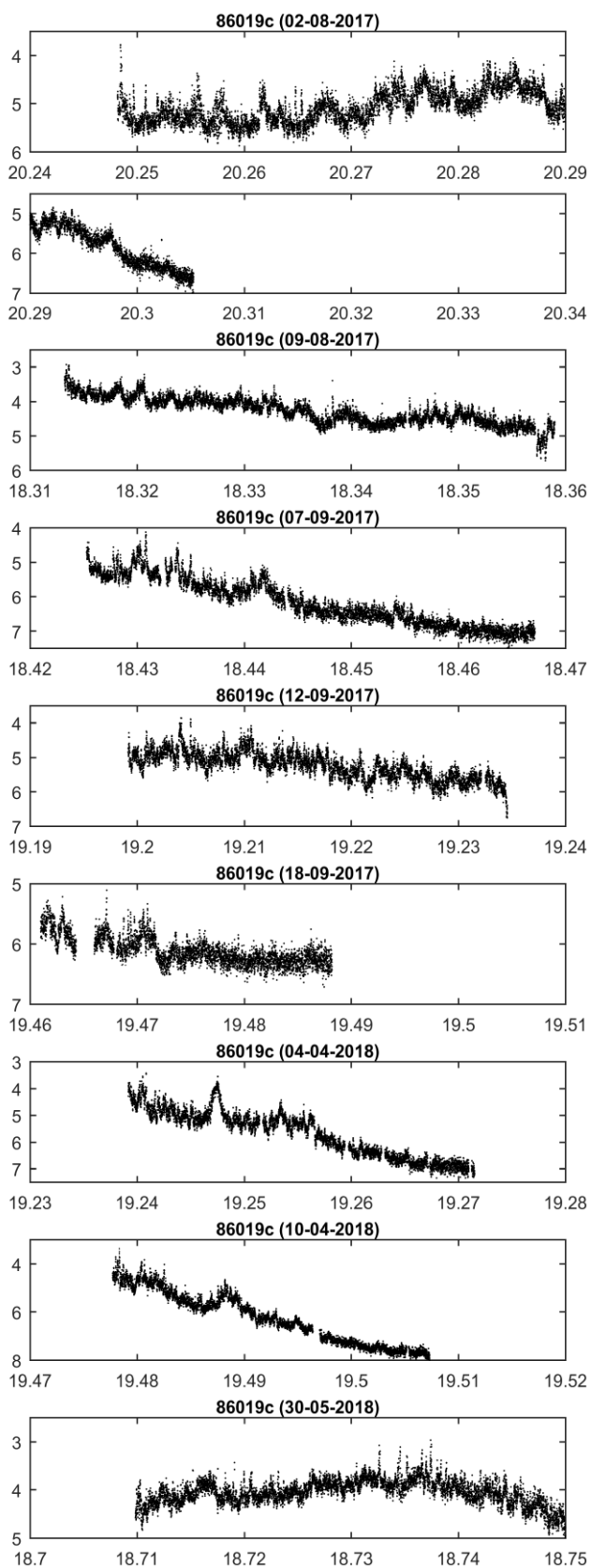
Launch date: 1986-02-22

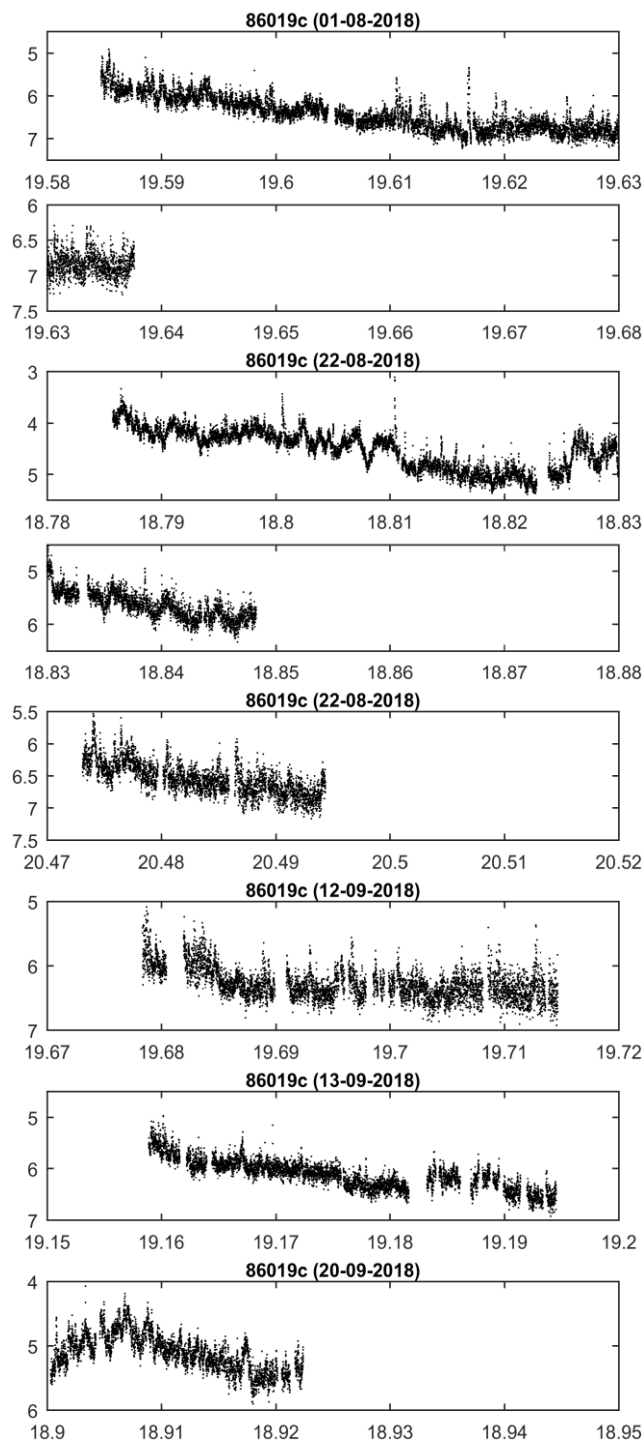
Source: France (FR)





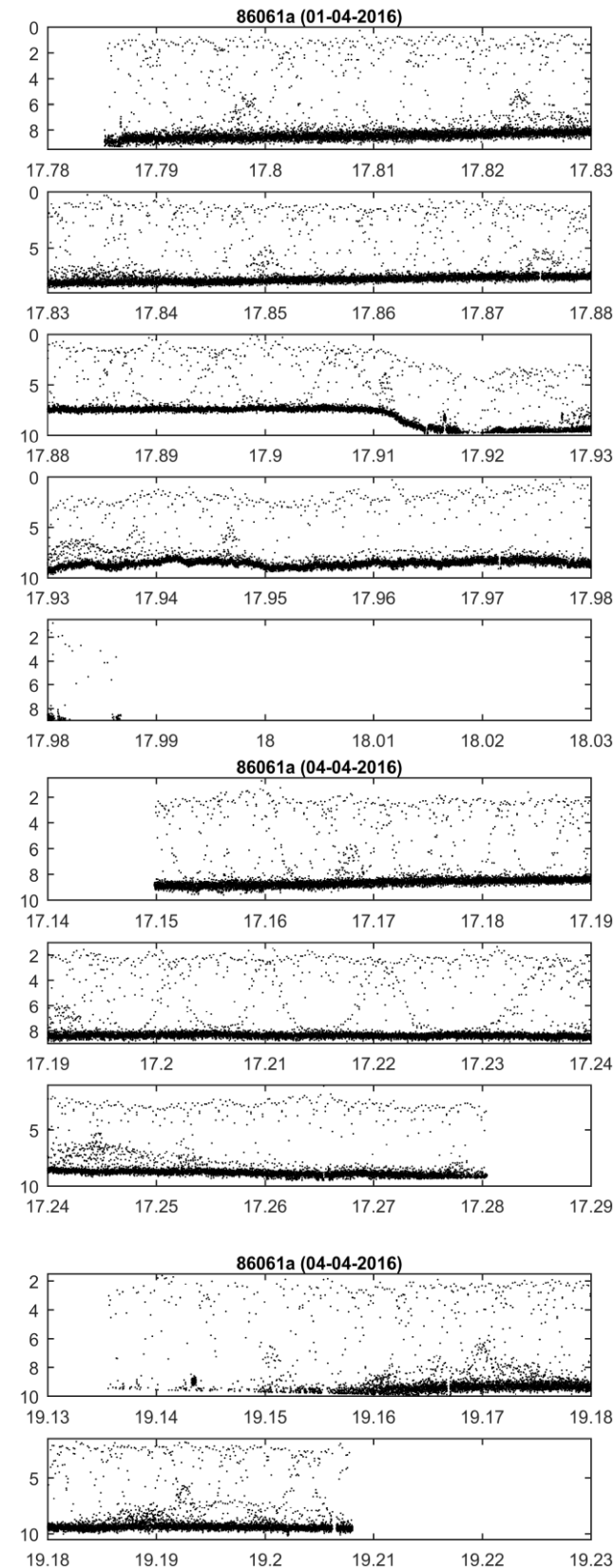






Launch date: 1986-08-12

Source: Japan (JPN)



AJISAI (EGP) (EGS)

NORAD ID: 16908

Int'l Code: 1986-061A

Dimensions: sphere 2.15m dia

Initial orbit:

Perigee: 1479 km

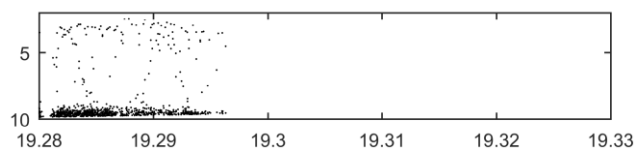
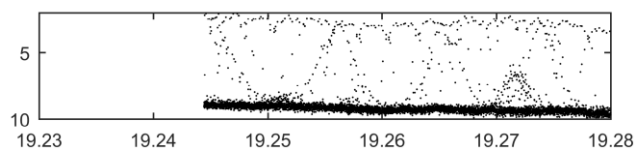
Apogee: 1497 km

Inclination: 50.01°

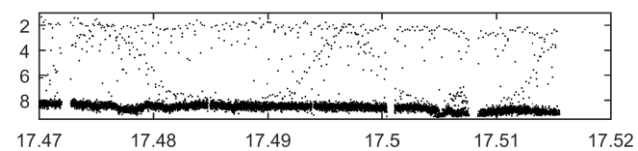
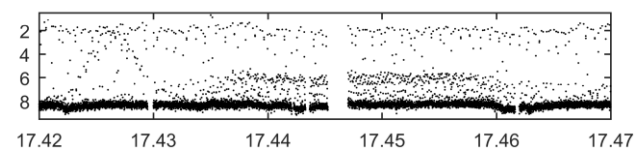
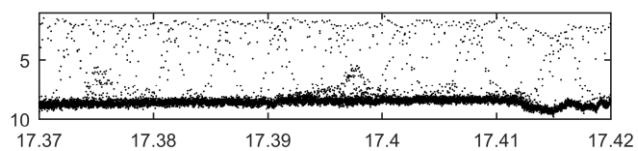
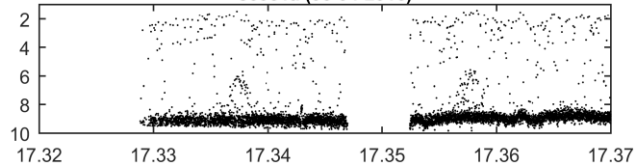
Period: 115.66 min

Eccentricity: 0.001

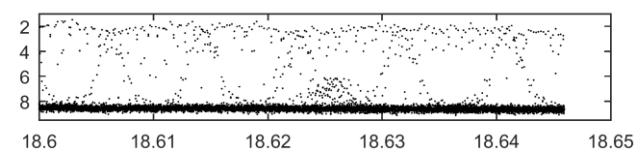
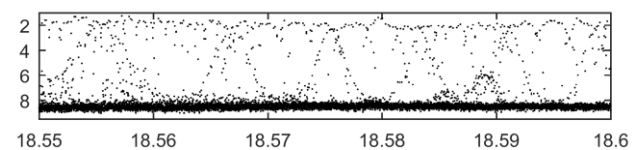
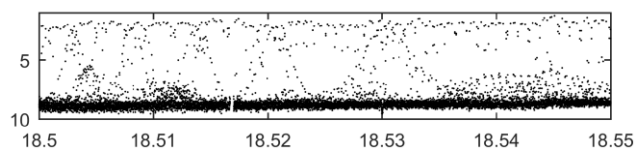
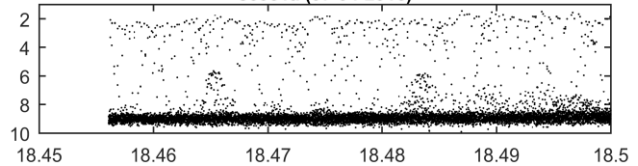




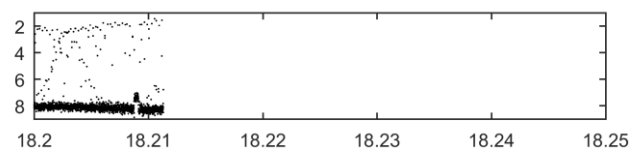
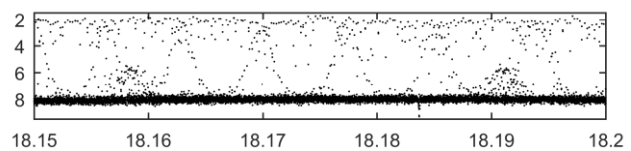
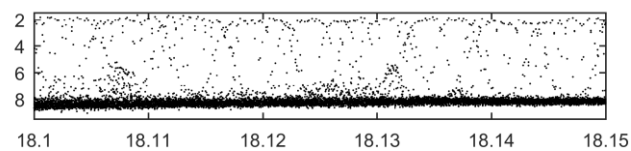
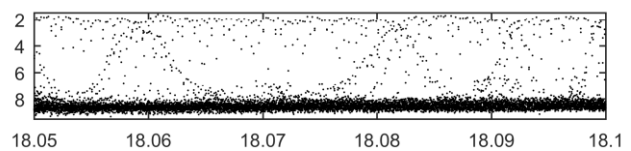
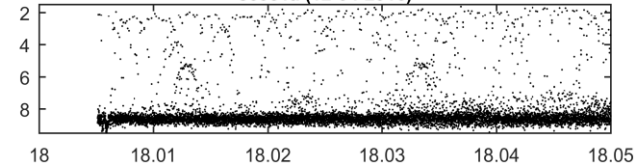
86061a (06-04-2016)



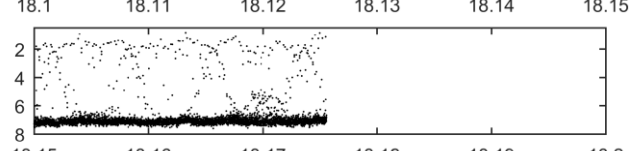
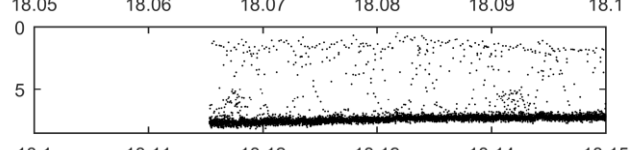
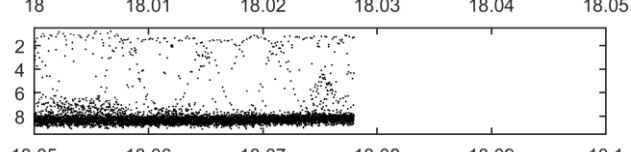
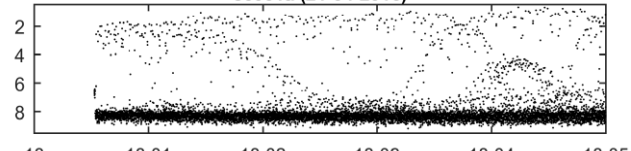
86061a (07-04-2016)



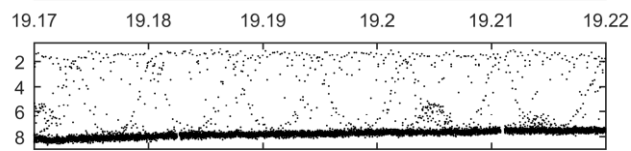
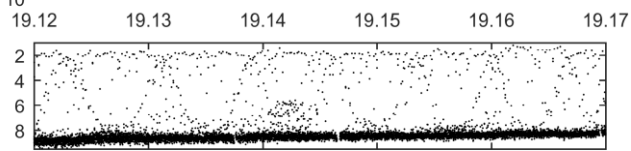
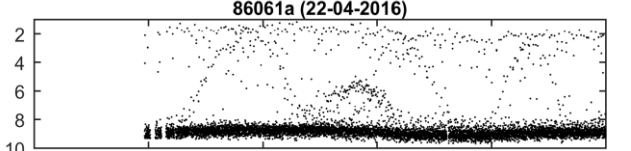
86061a (12-04-2016)

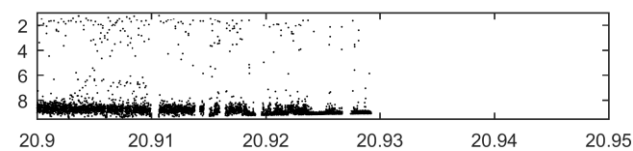
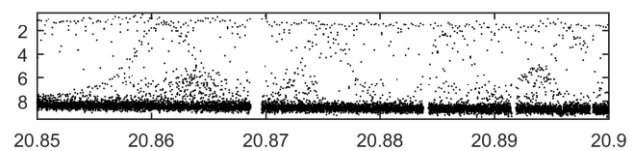
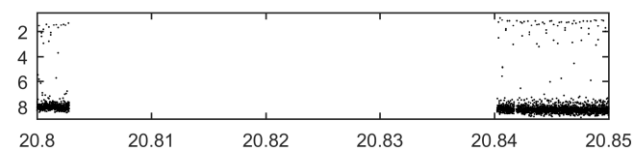
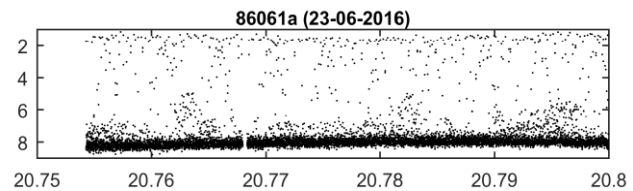
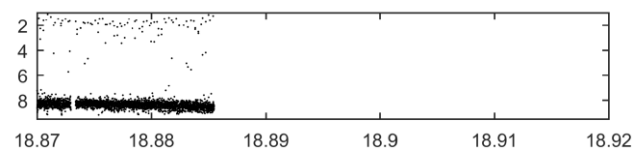
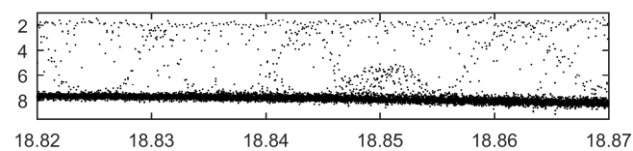
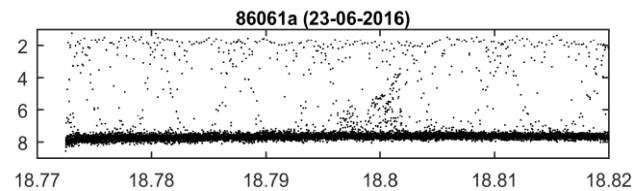
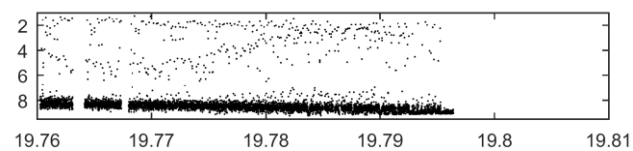
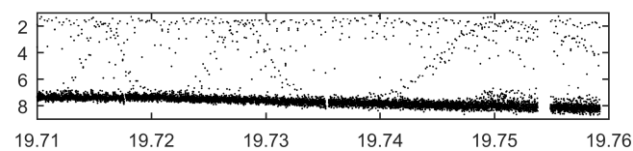
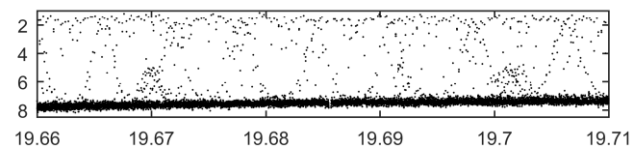
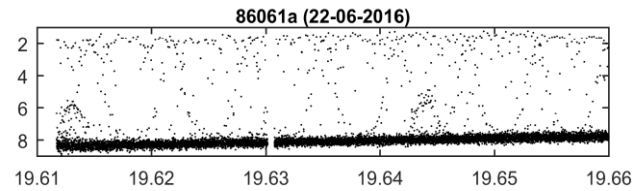
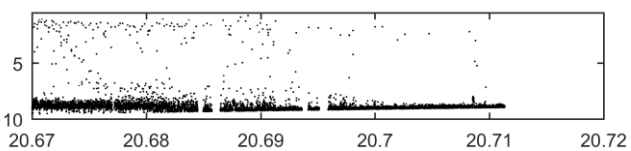
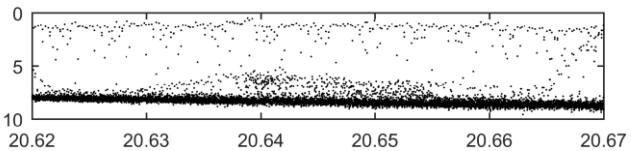
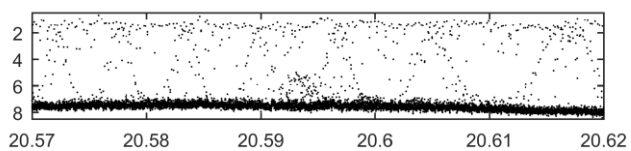
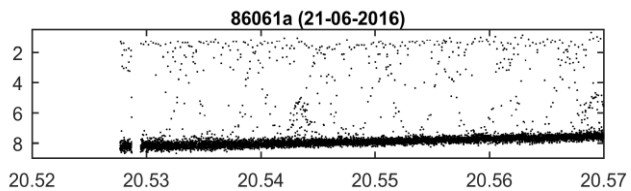
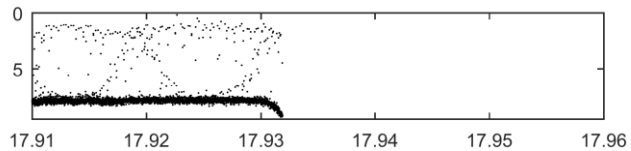
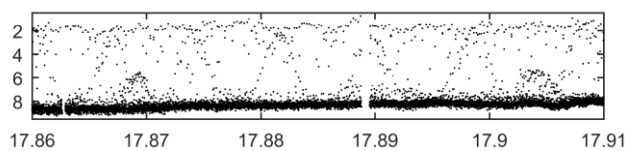
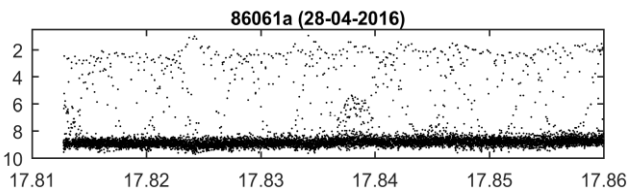
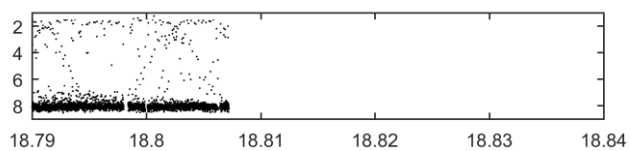
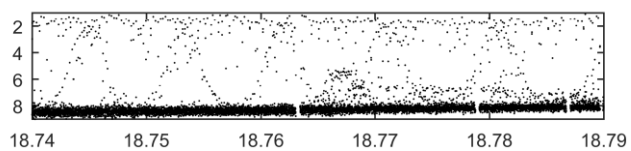
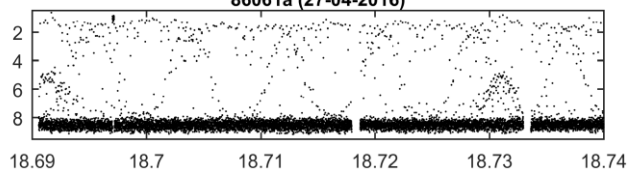
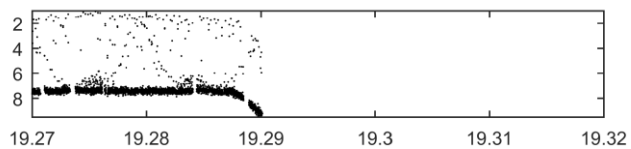


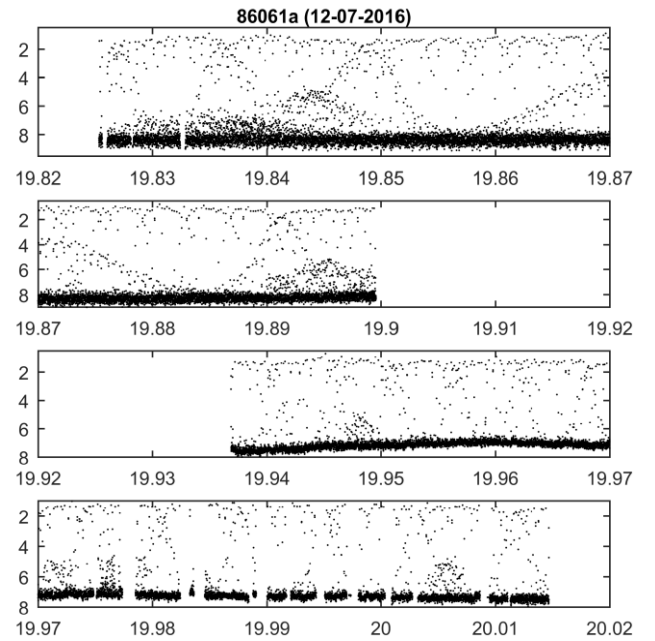
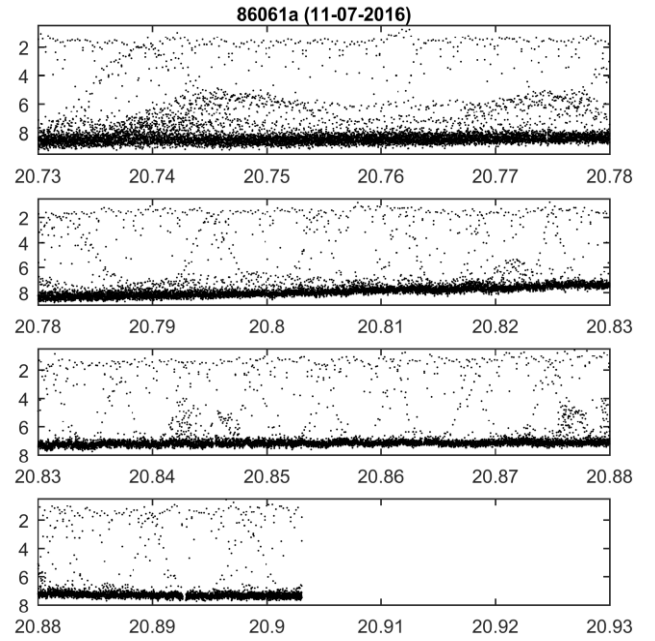
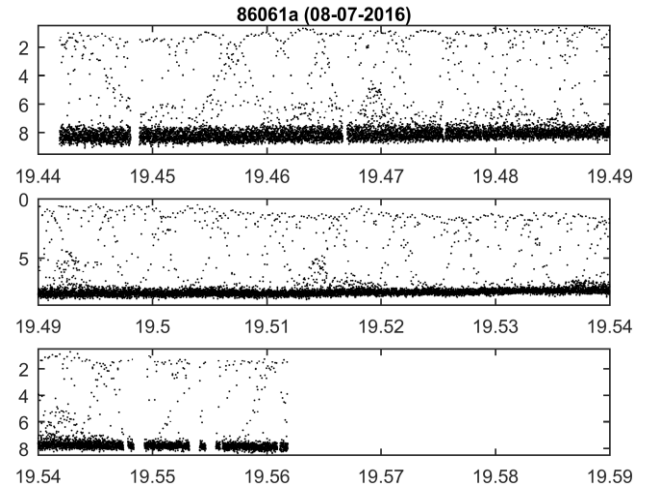
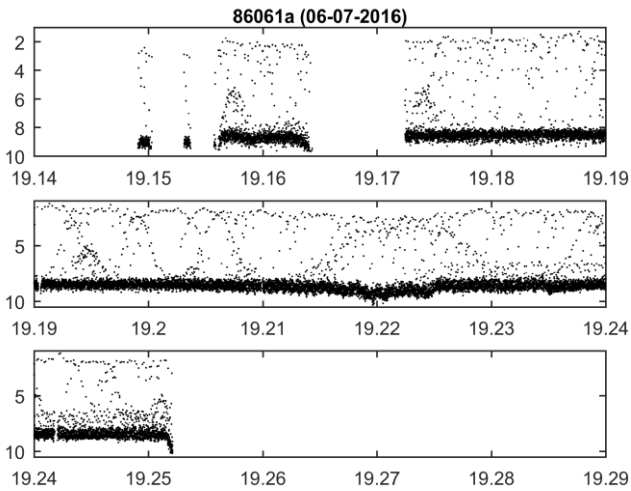
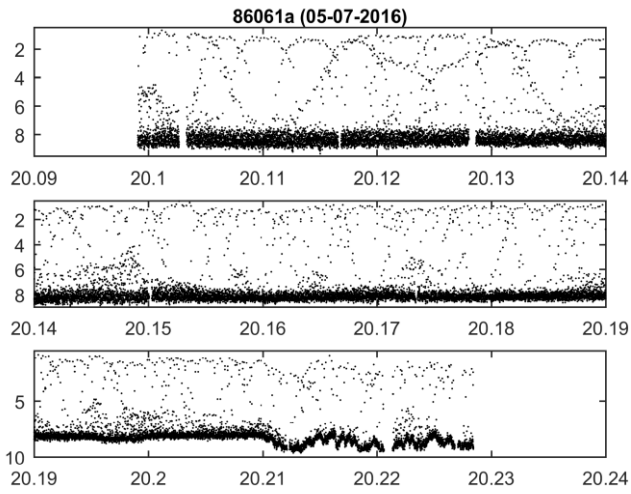
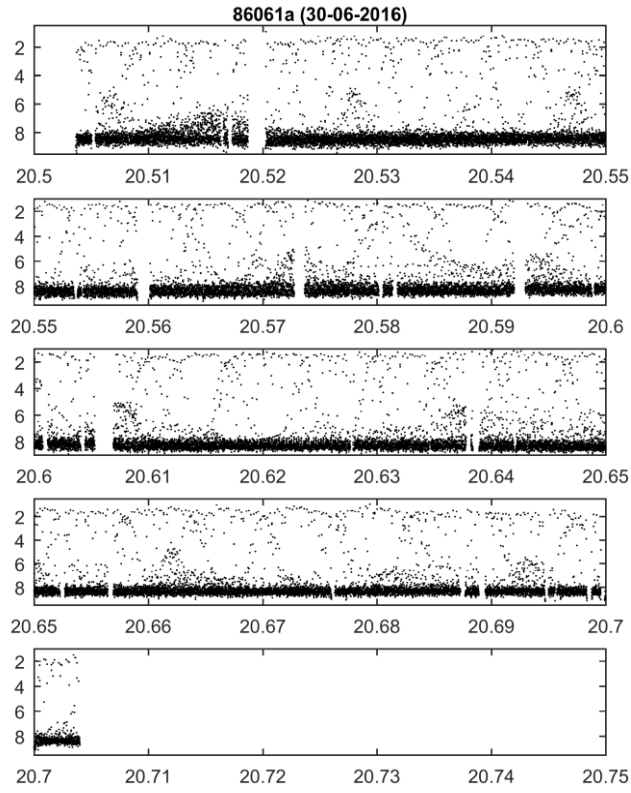
86061a (21-04-2016)

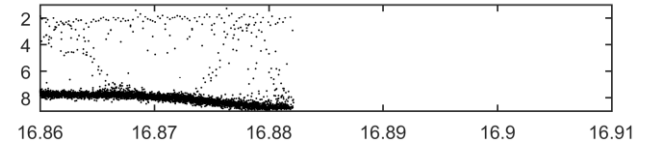
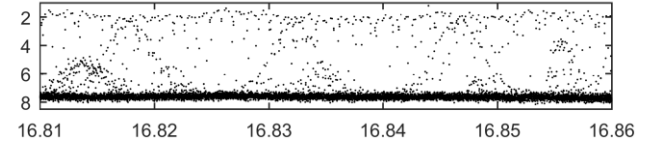
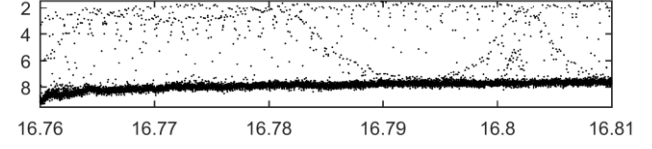
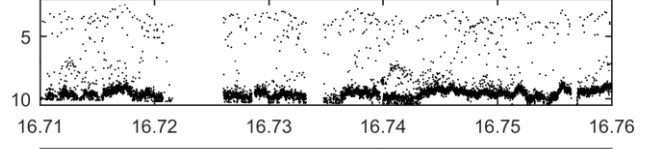
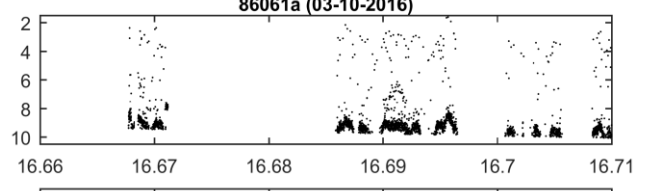
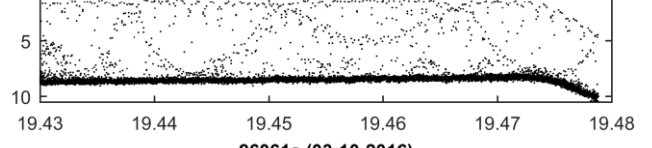
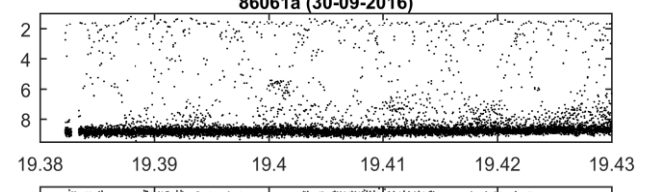
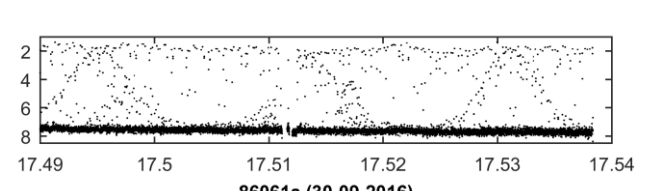
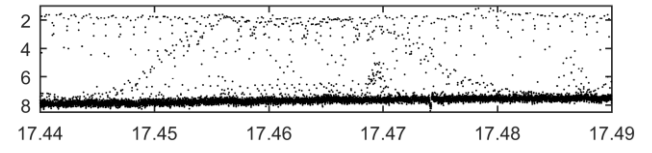
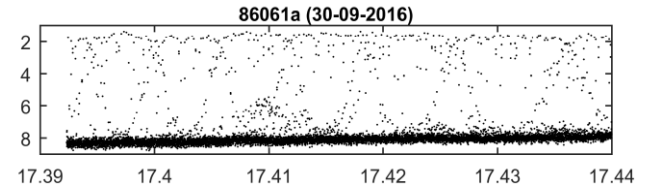
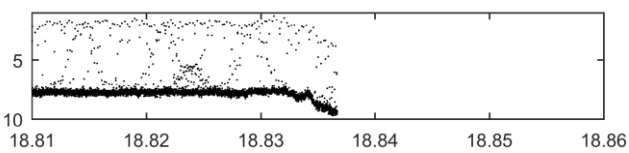
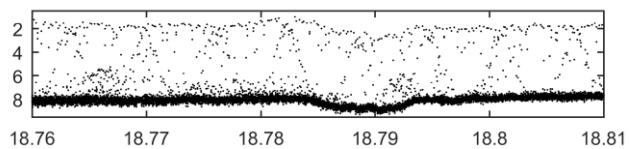
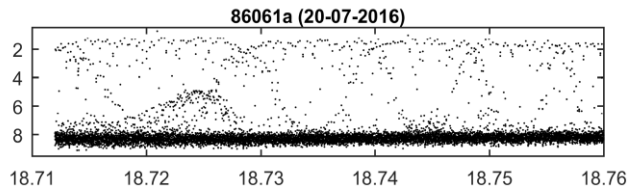
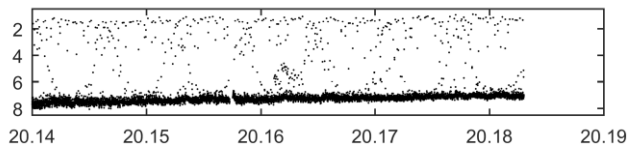
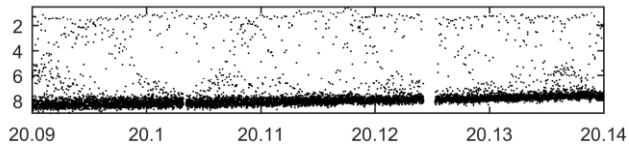
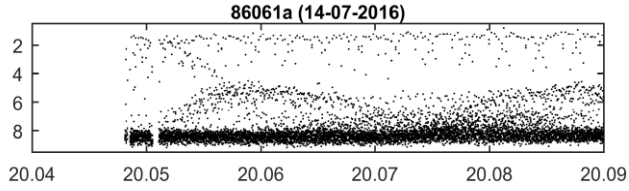
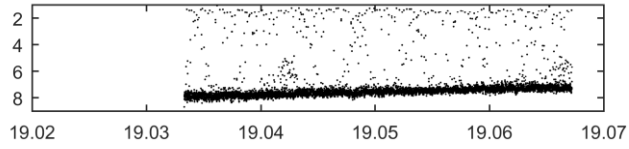
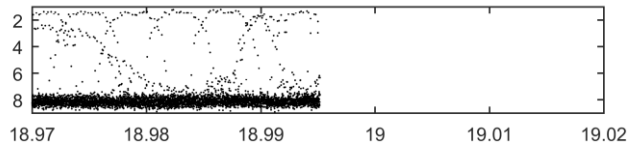
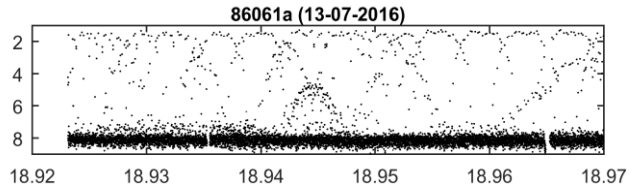


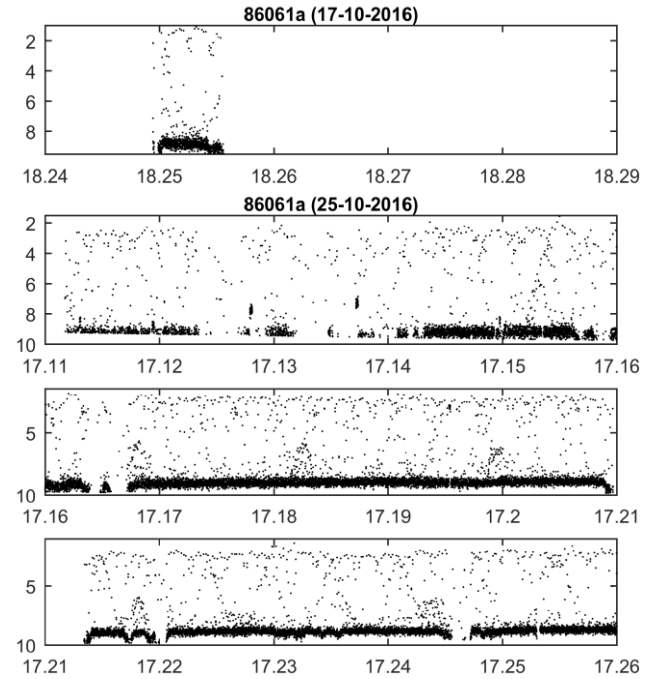
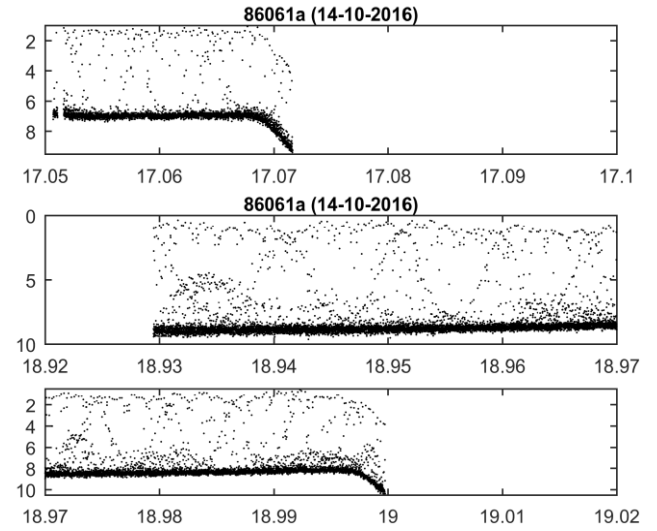
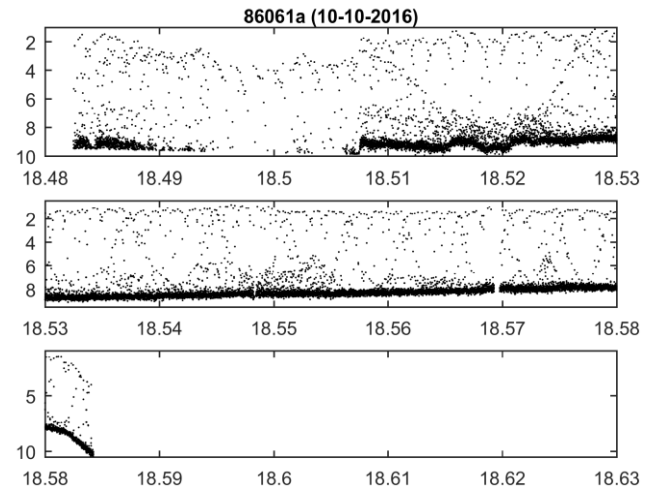
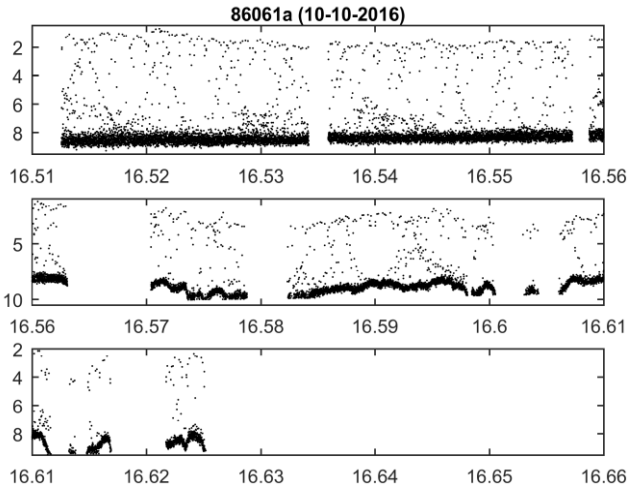
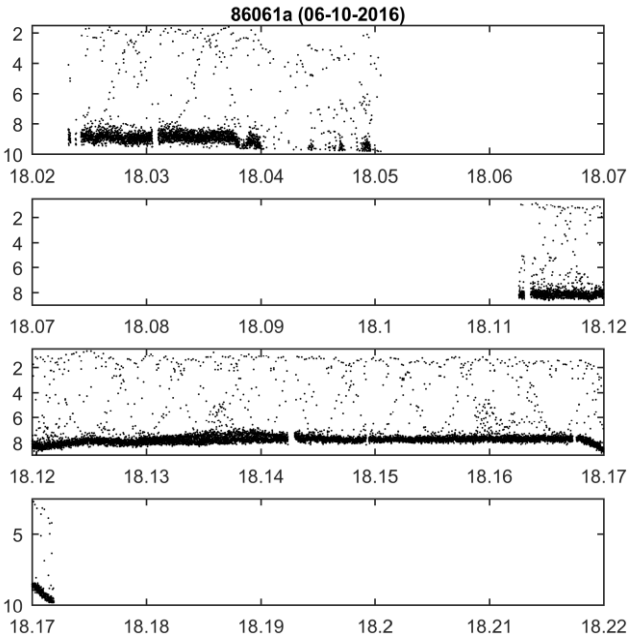
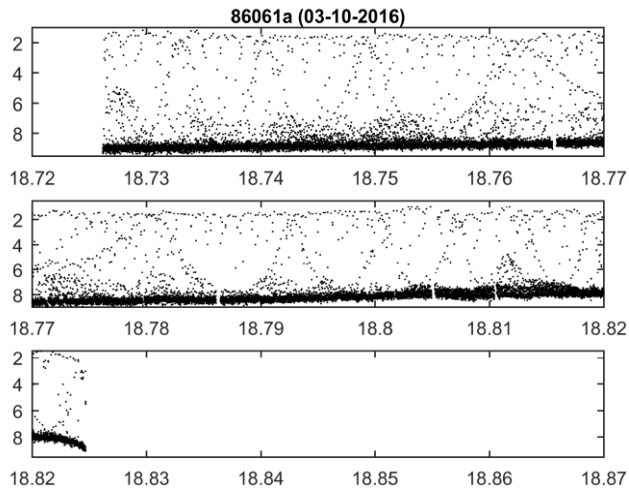
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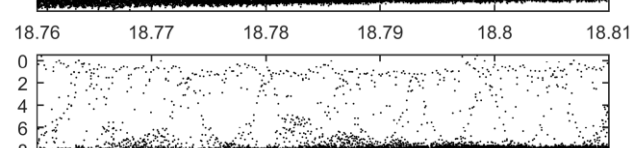
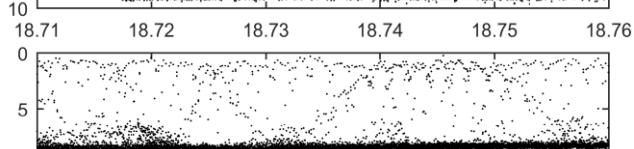
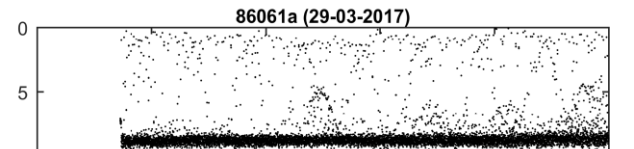
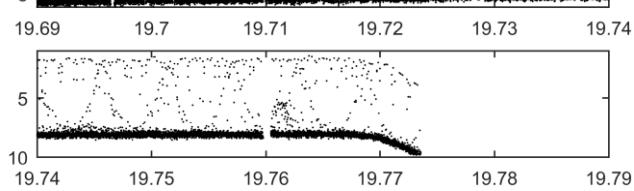
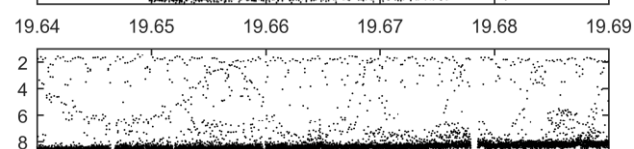
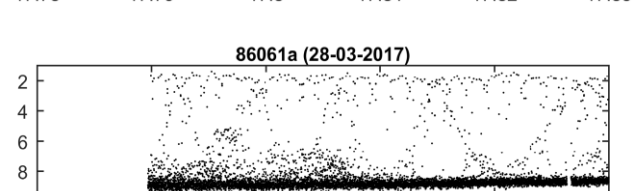
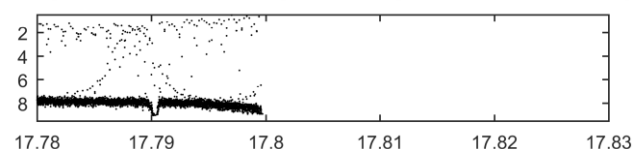
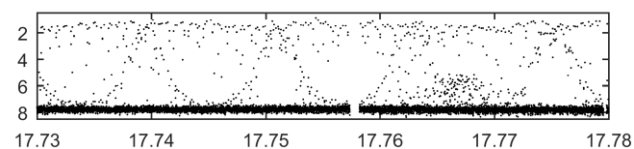
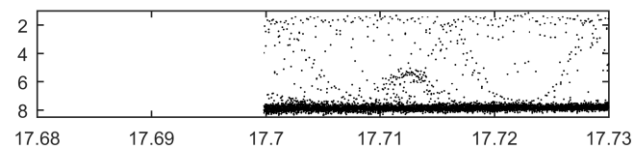
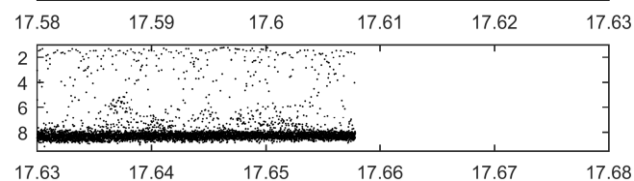
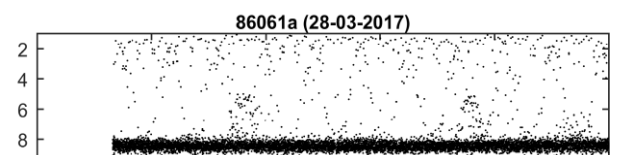
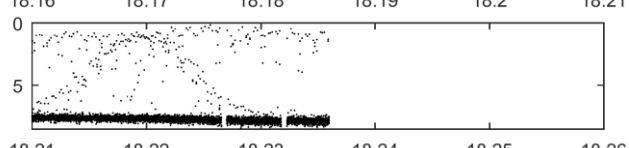
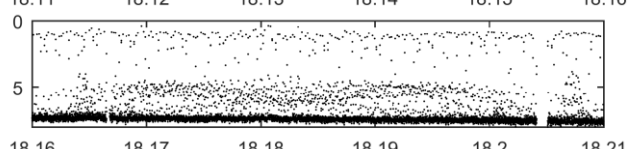
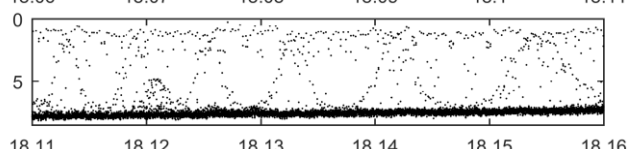
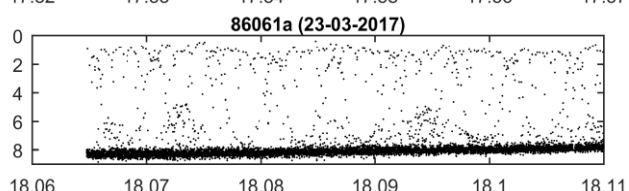
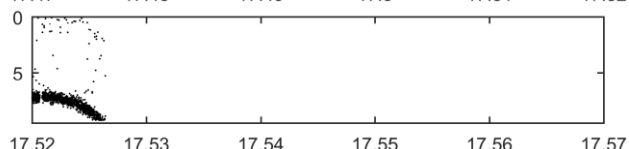
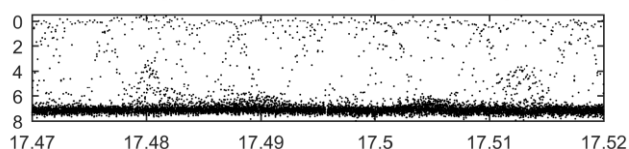
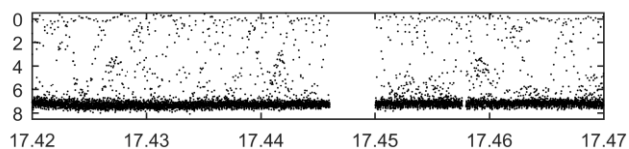
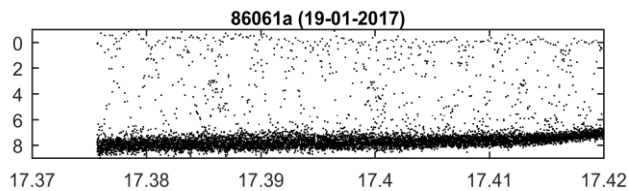
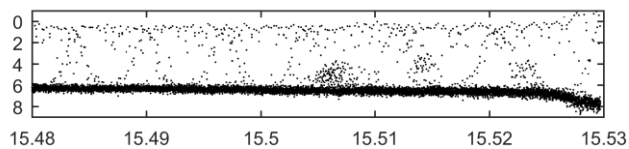
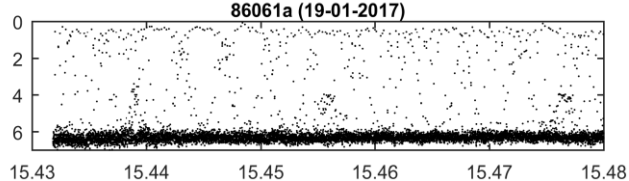
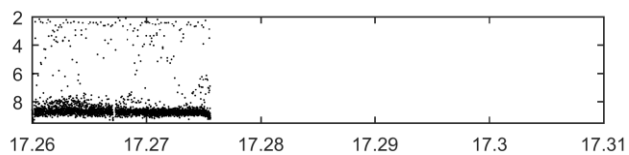


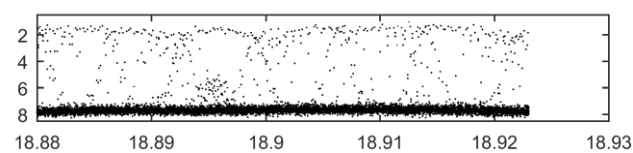
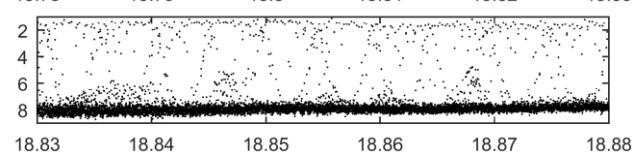
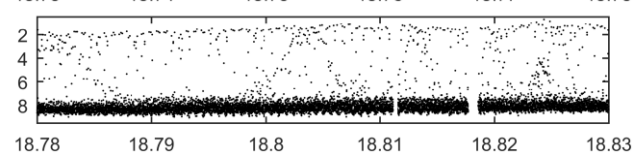
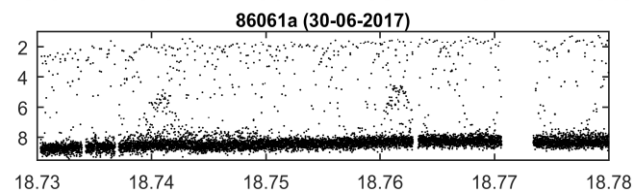
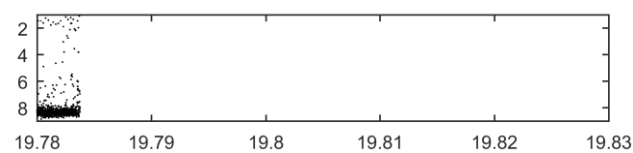
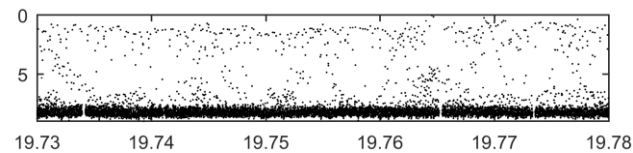
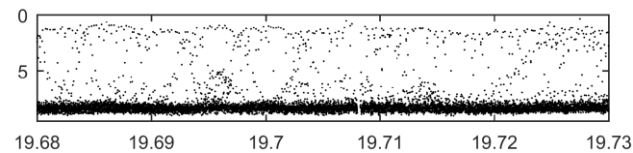
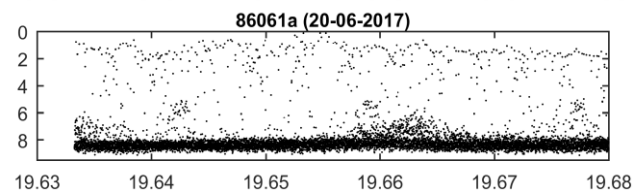
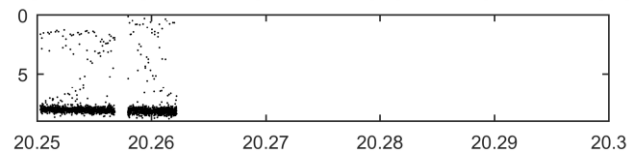
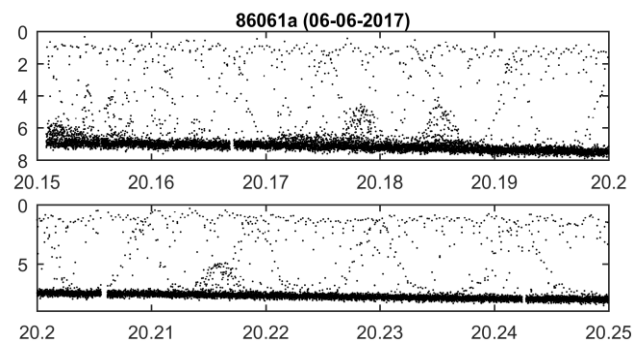
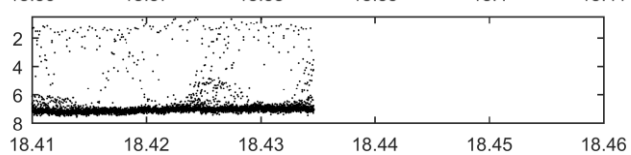
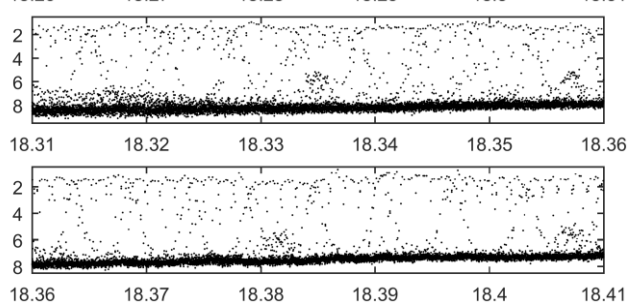
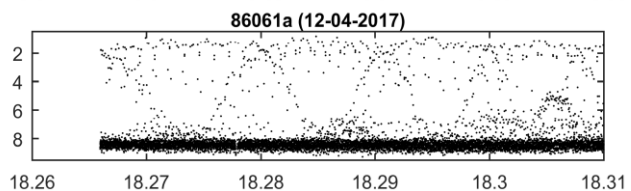
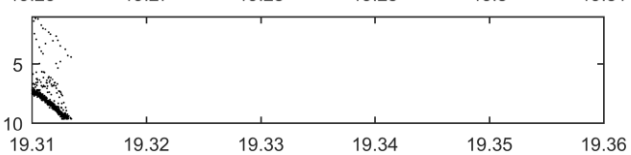
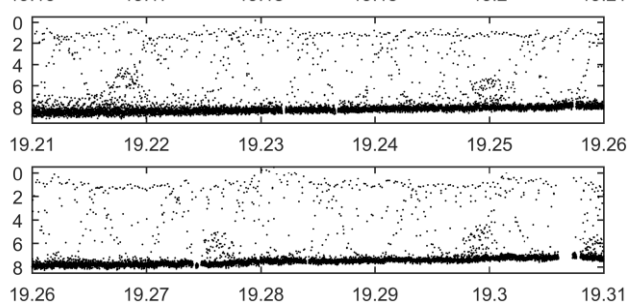
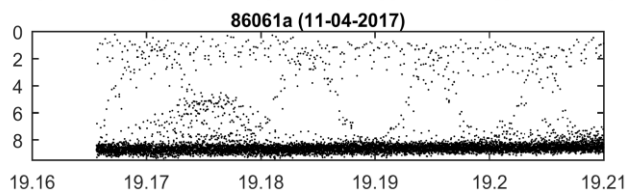
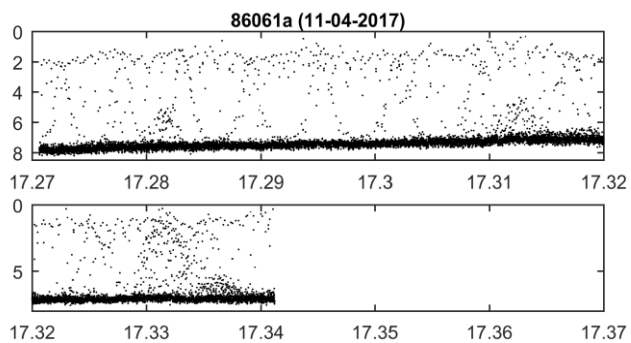


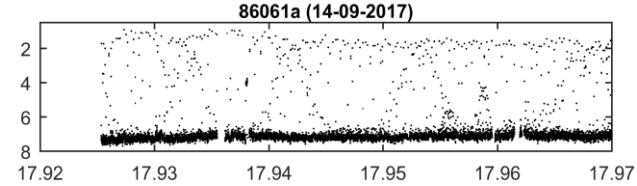
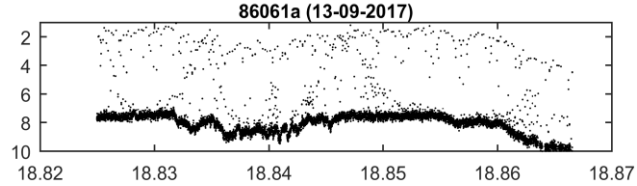
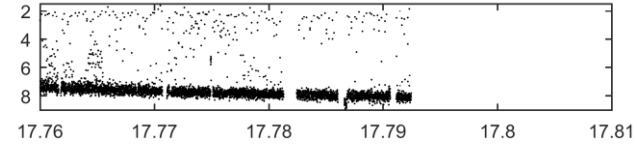
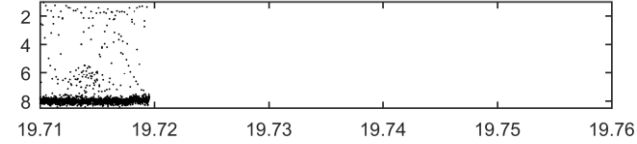
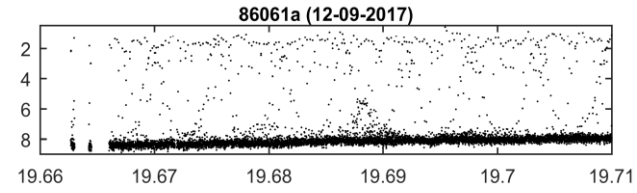
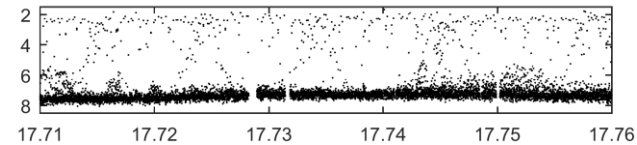
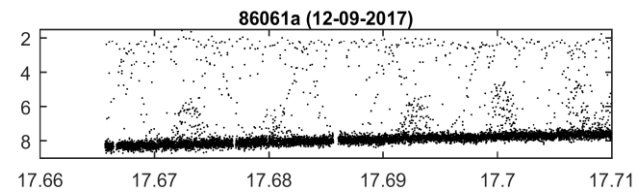
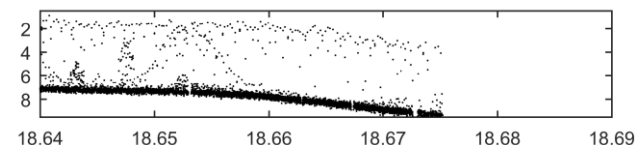
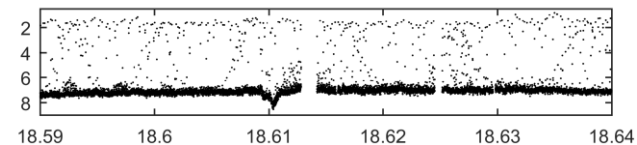
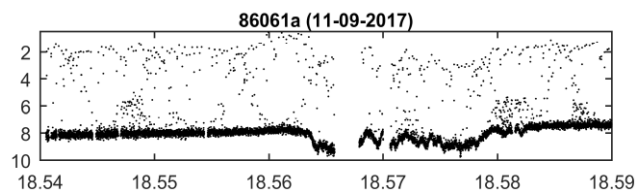
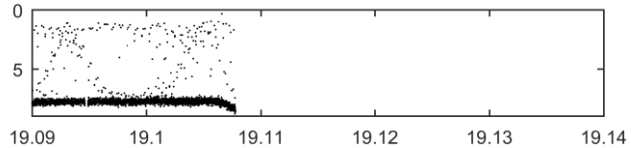
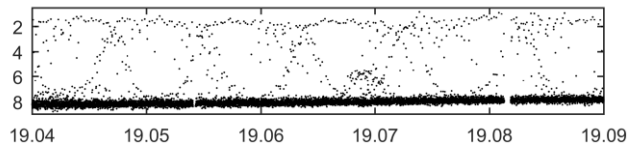
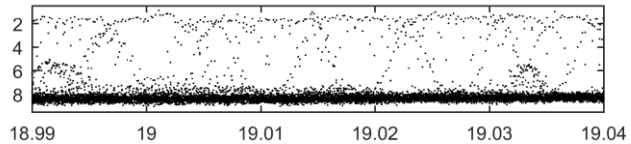
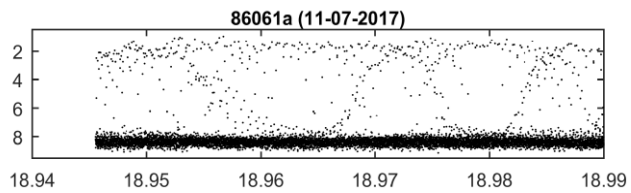
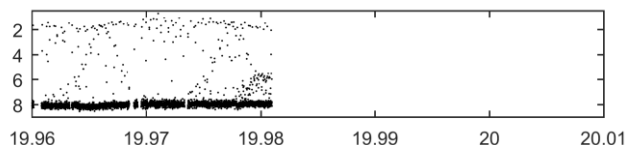
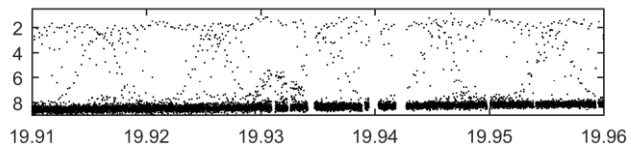
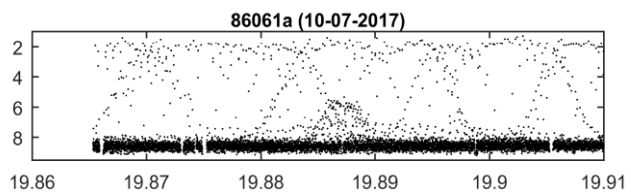
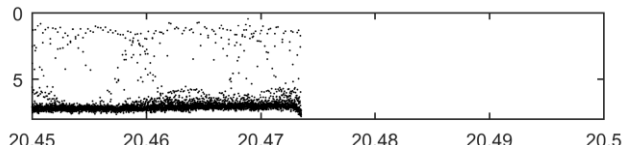
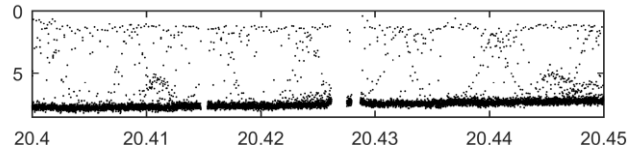
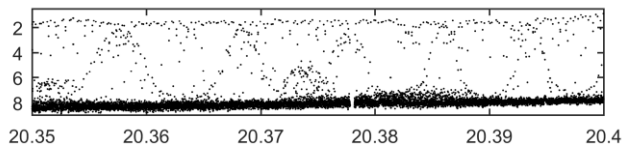
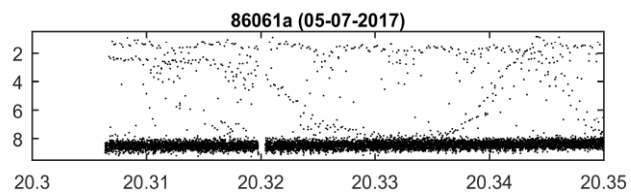


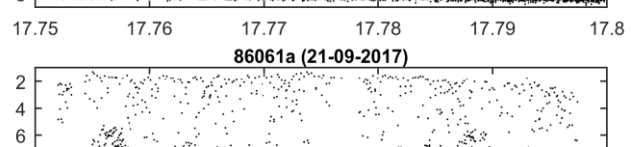
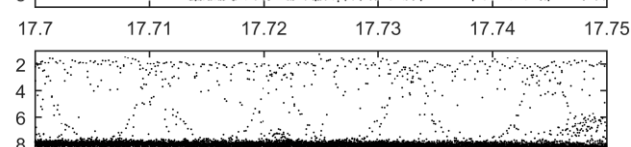
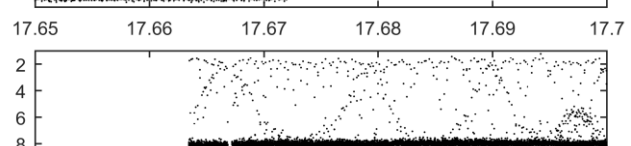
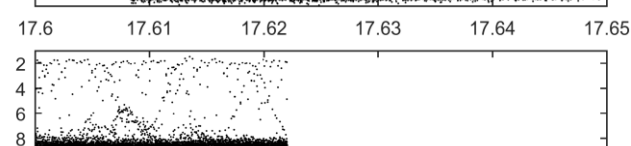
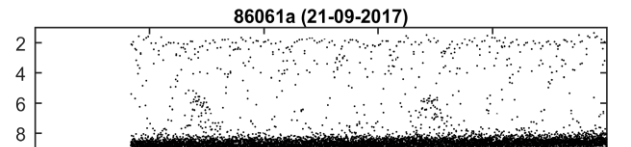
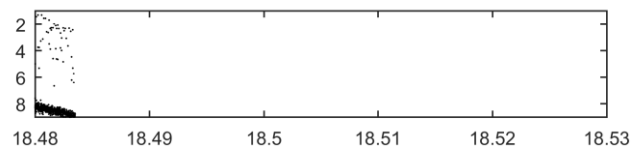
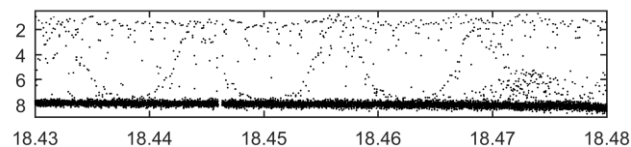
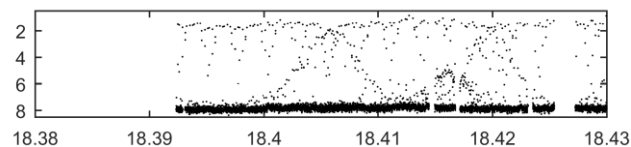
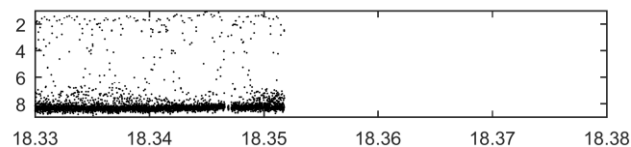
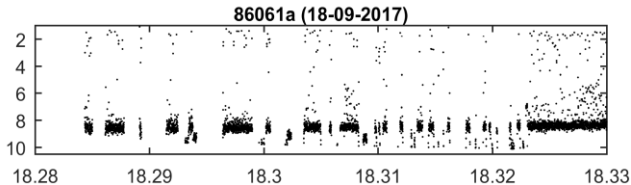
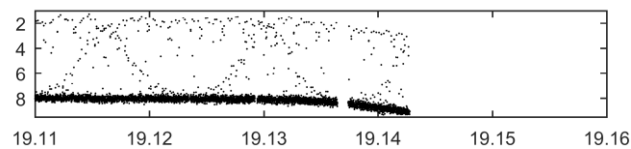
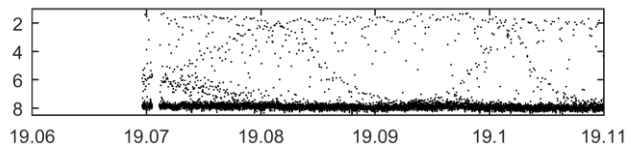
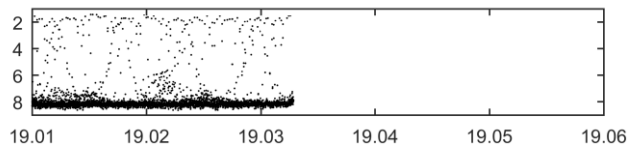
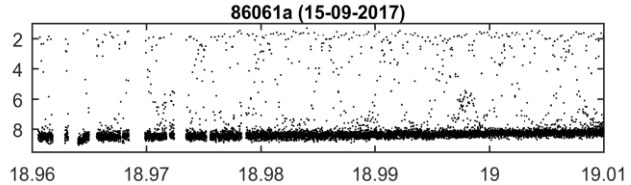
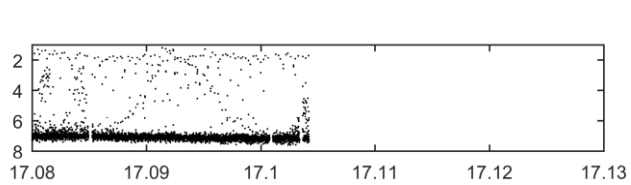
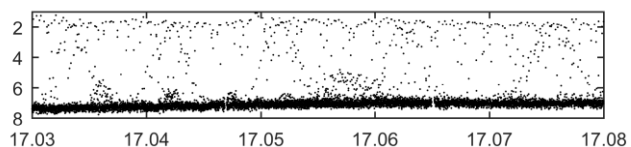
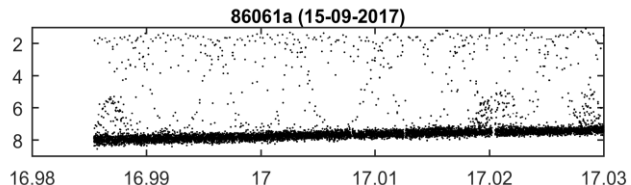
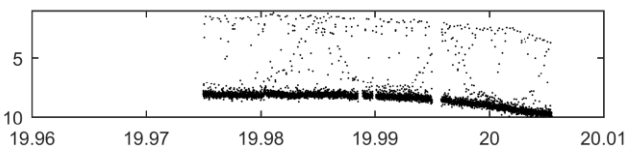
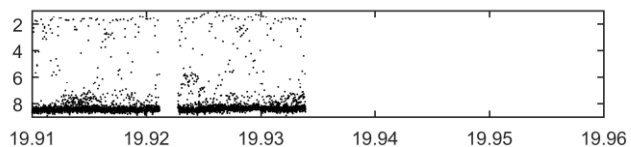
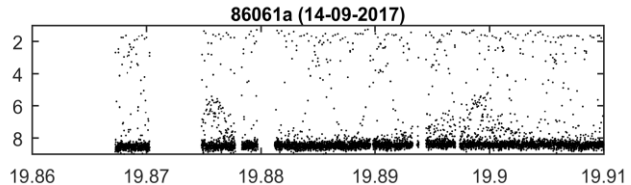
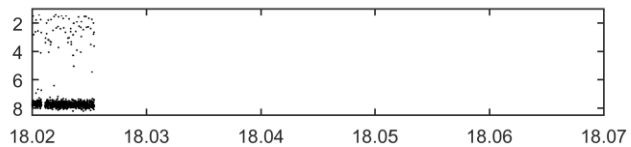
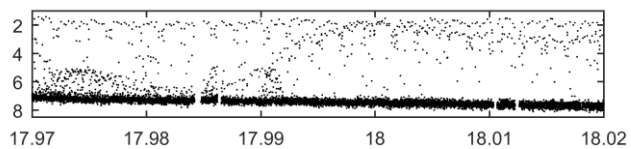


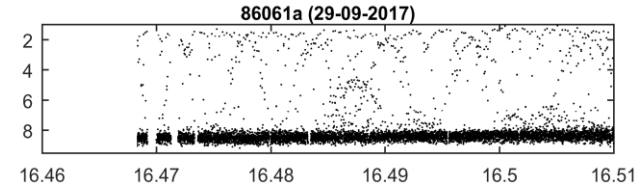
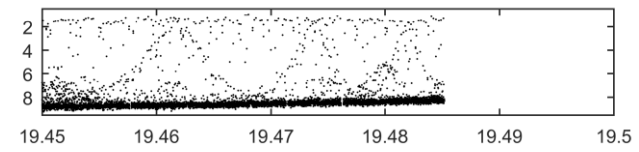
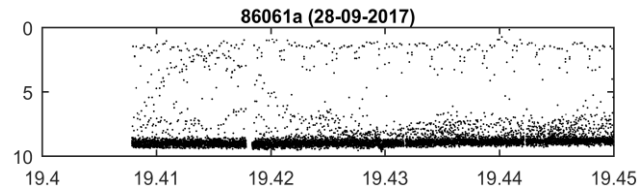
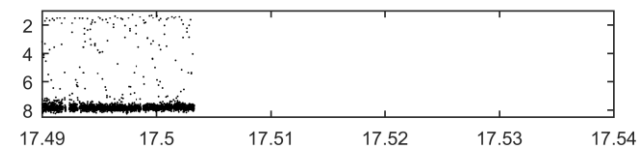
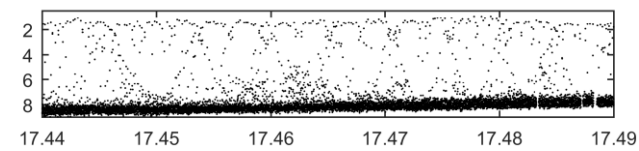
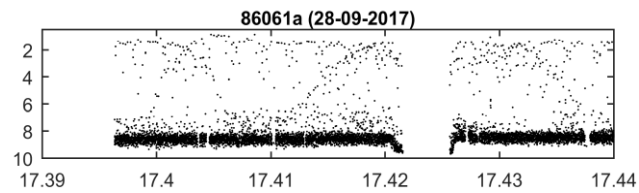
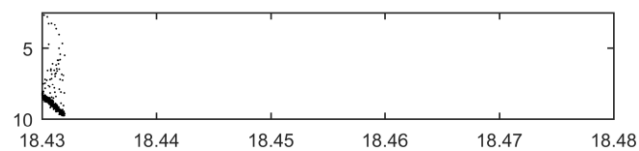
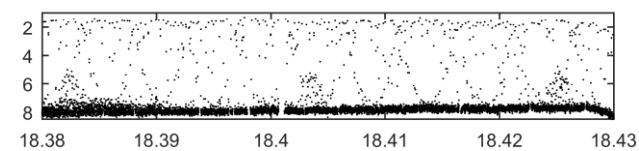
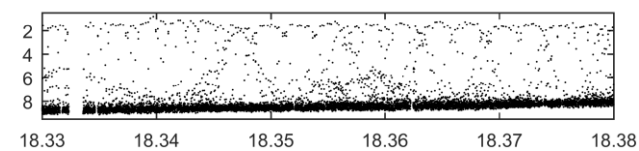
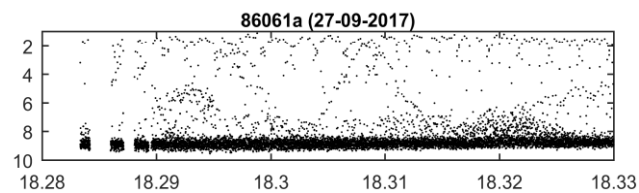
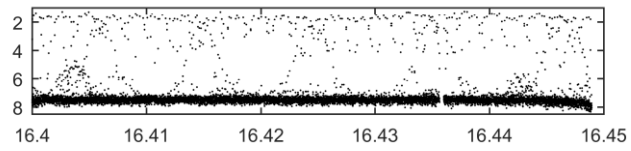
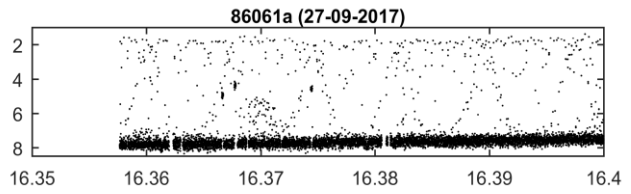
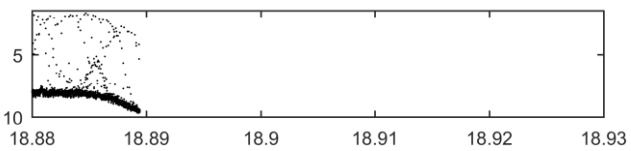
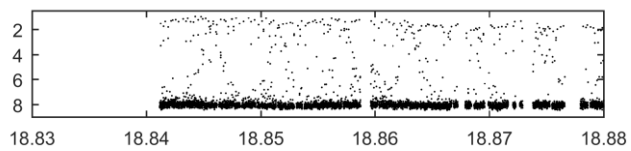
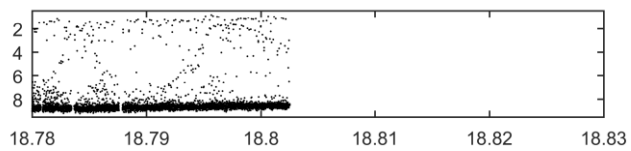
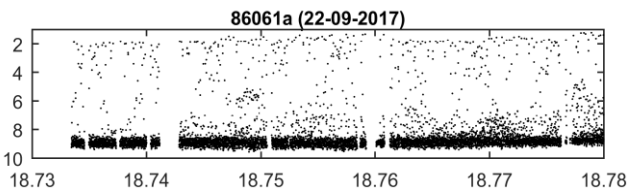
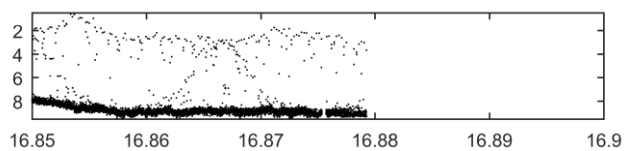
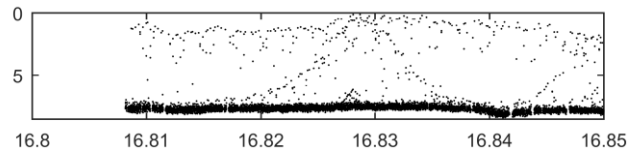
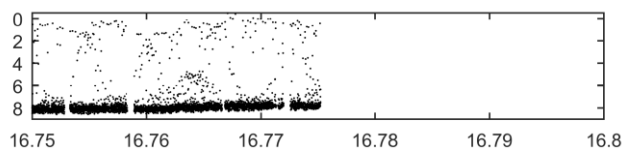
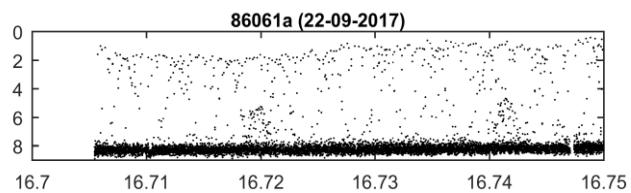


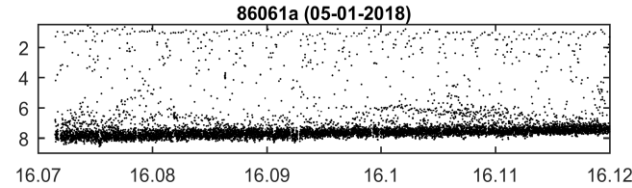
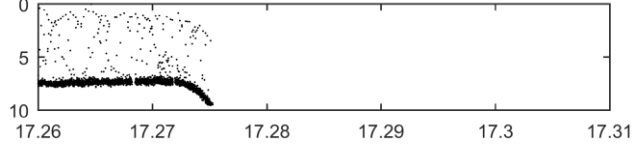
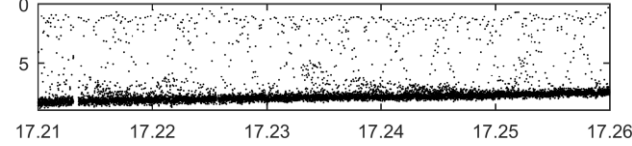
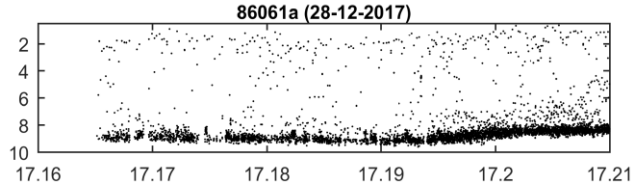
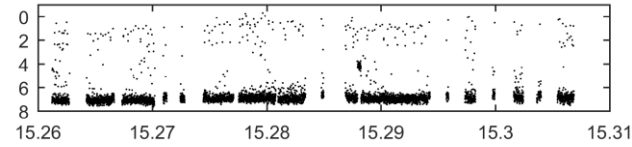
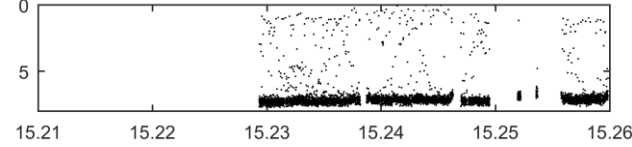
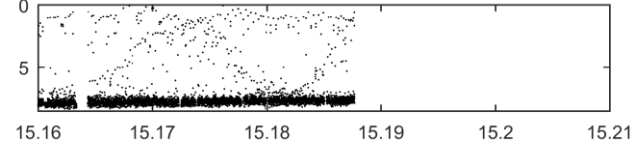
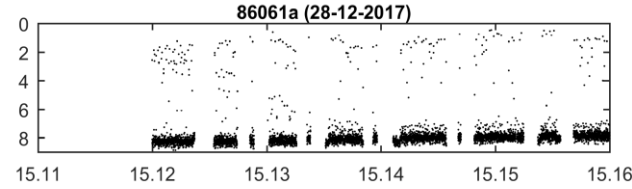
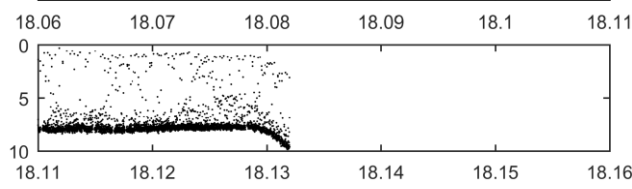
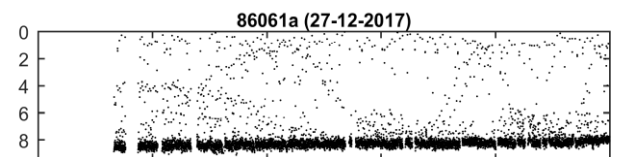
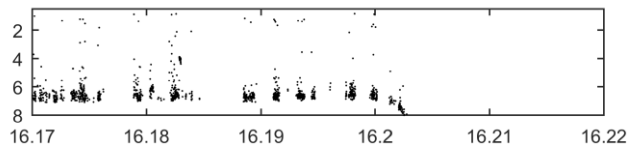
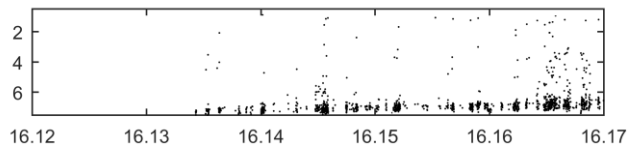
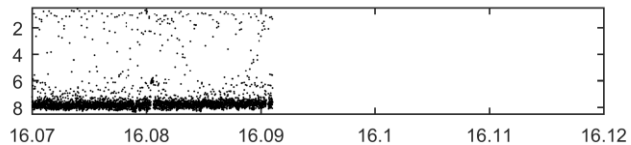
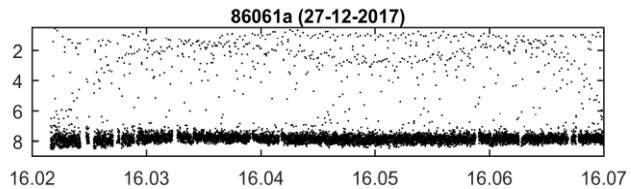
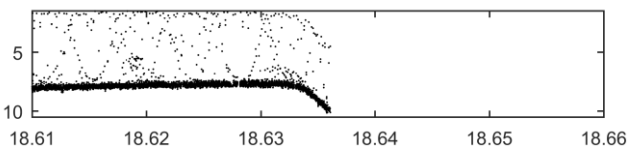
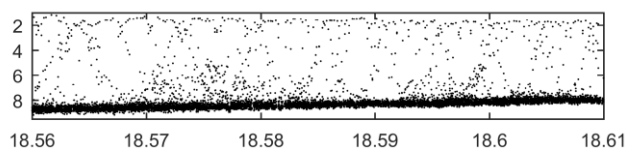
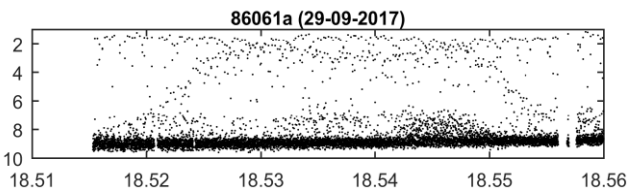
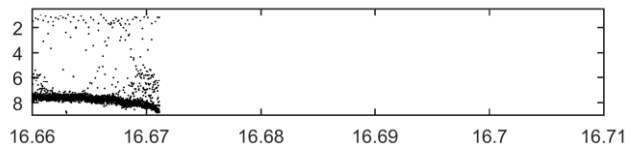
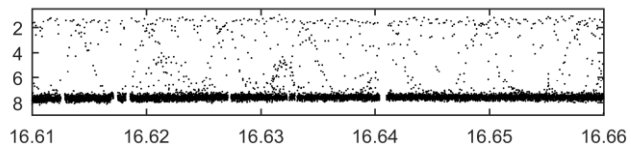
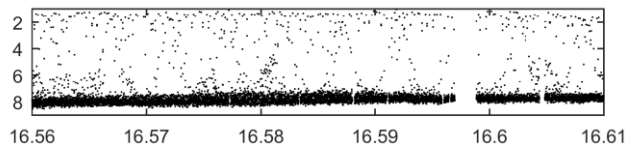
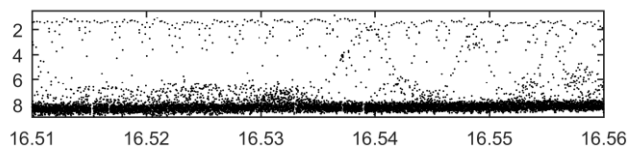


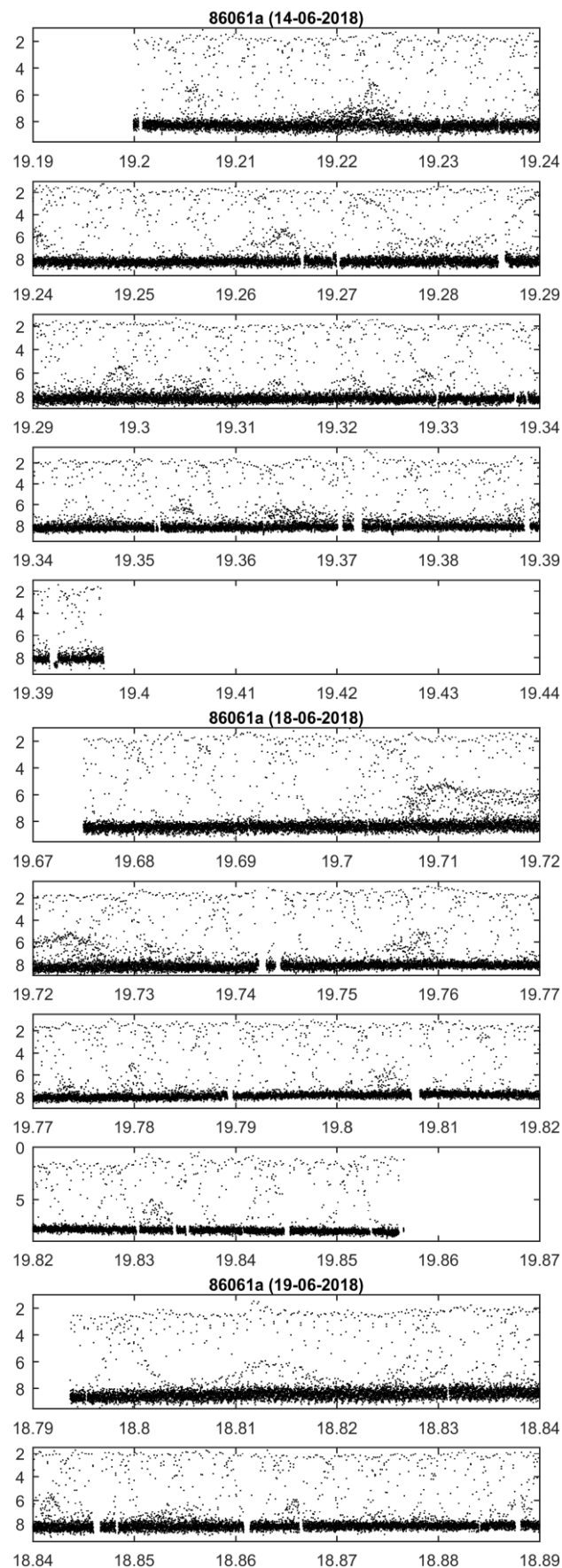
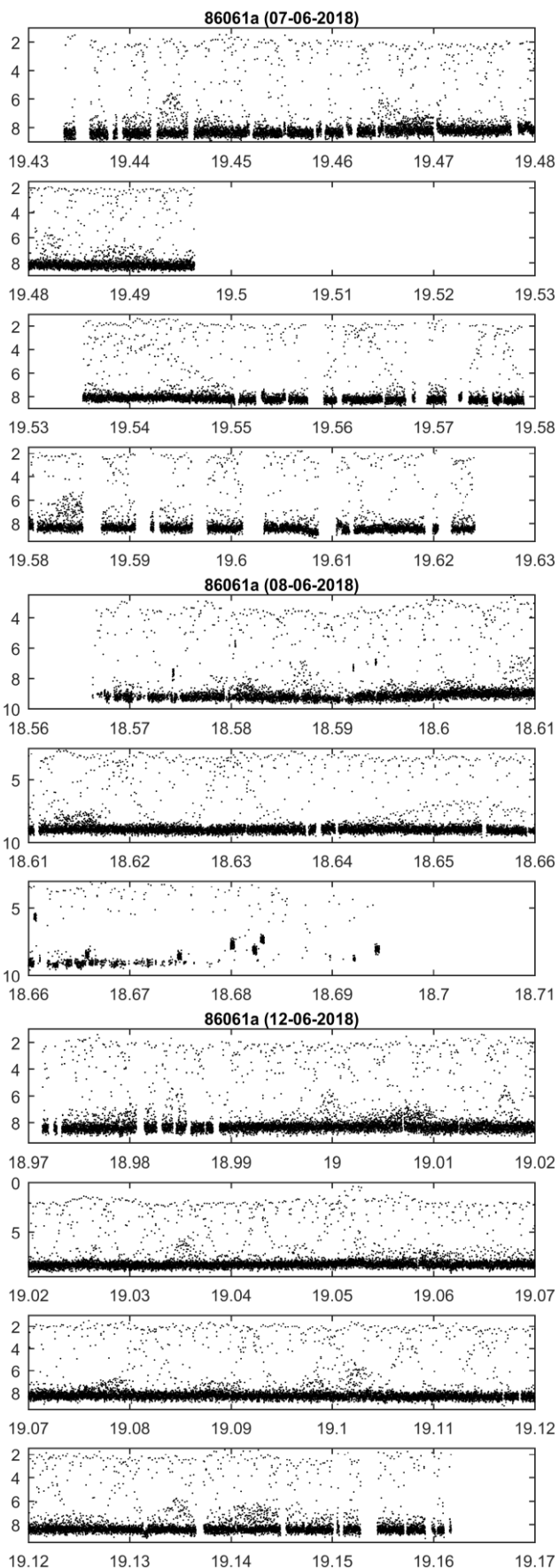


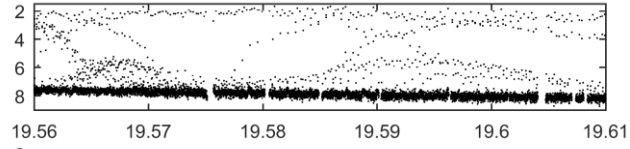
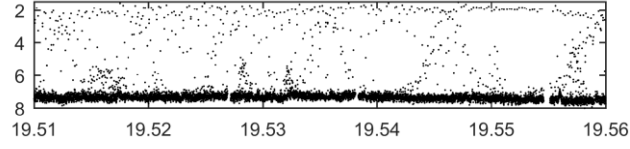
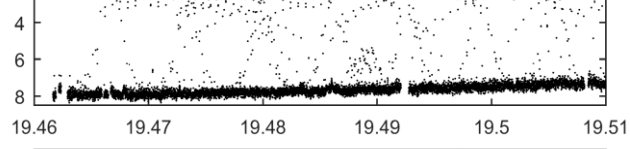
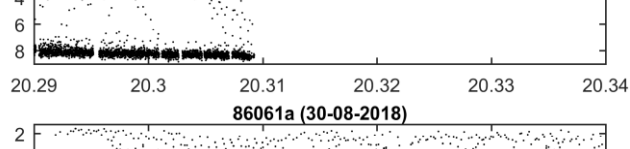
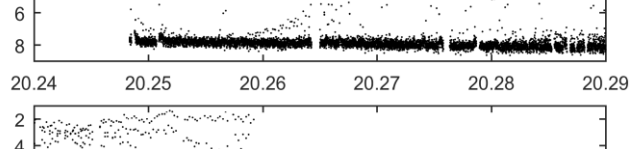
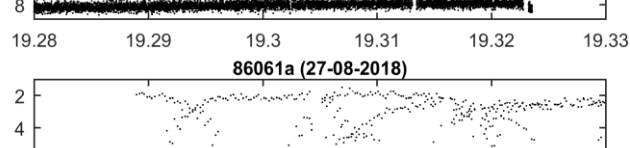
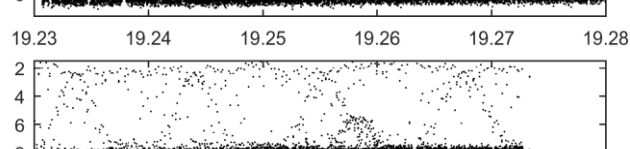
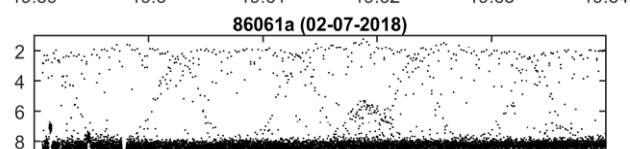
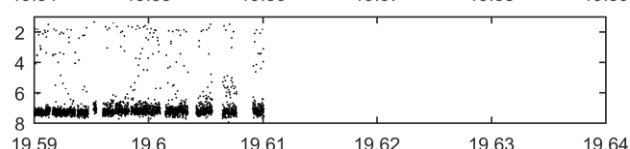
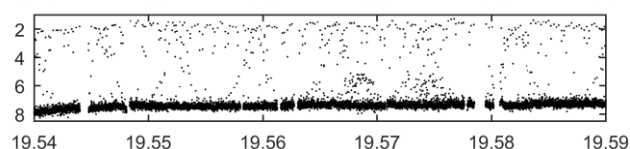
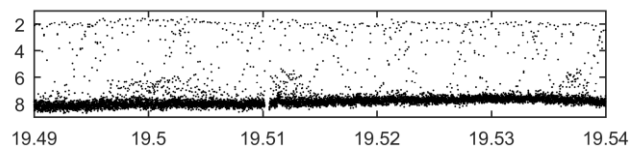
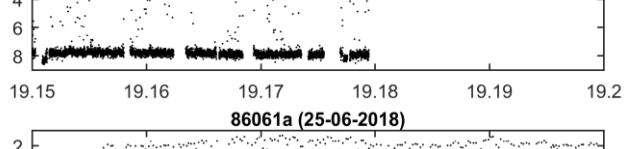
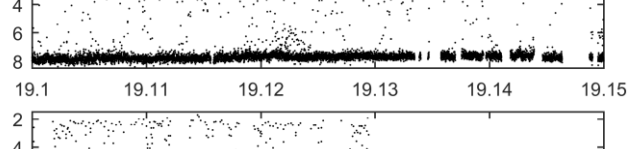
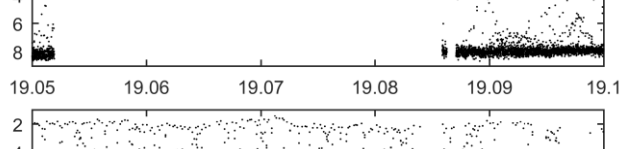
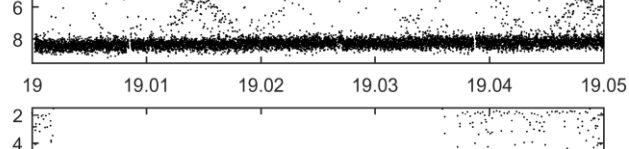
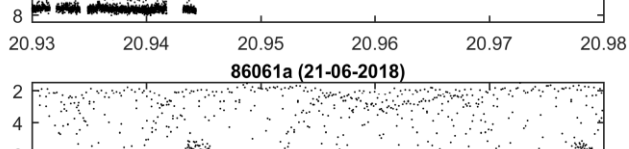
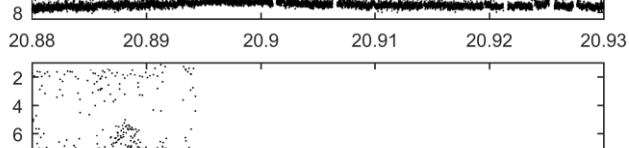
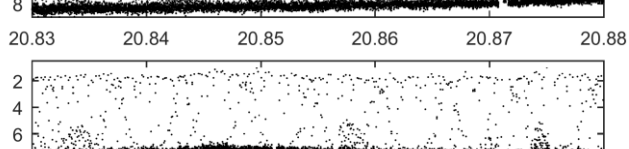
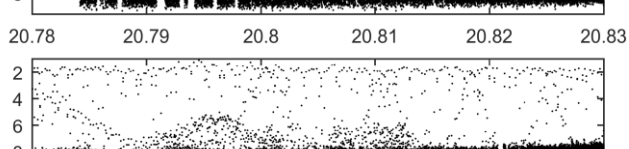
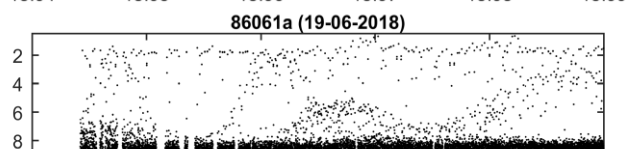
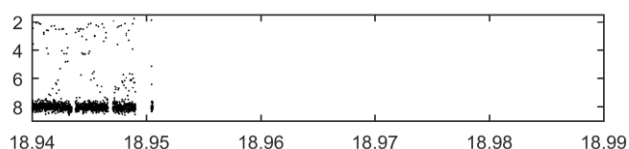
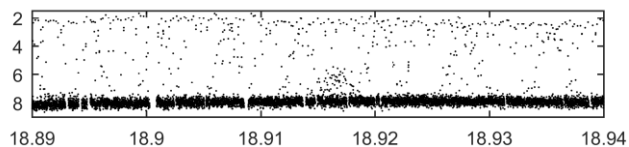












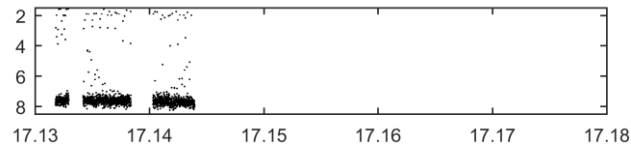
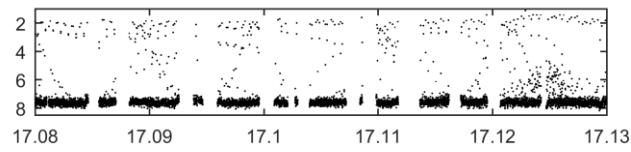
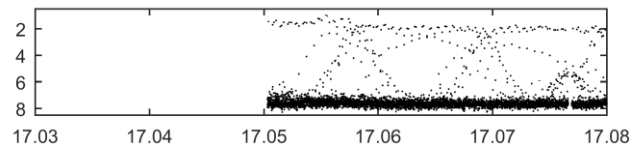
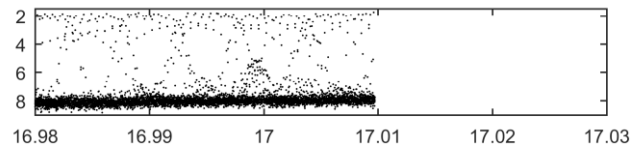
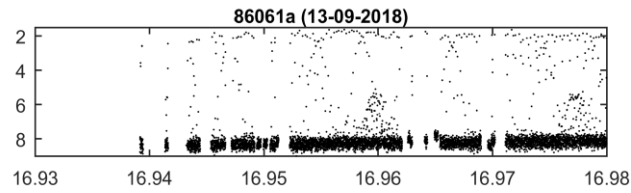
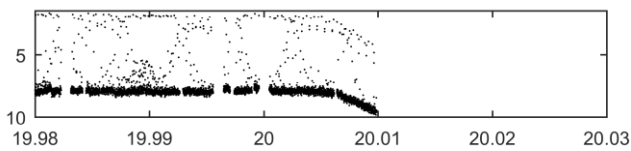
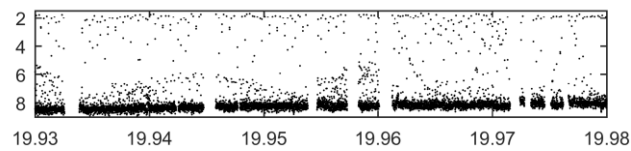
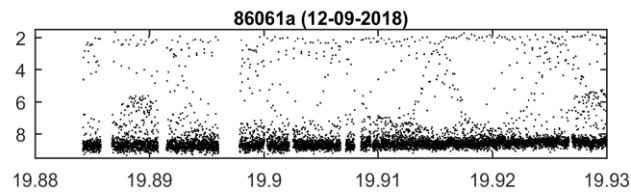
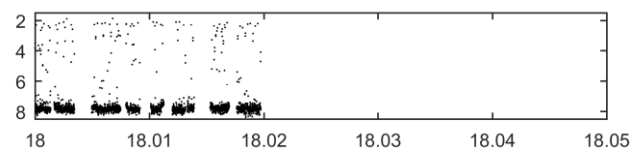
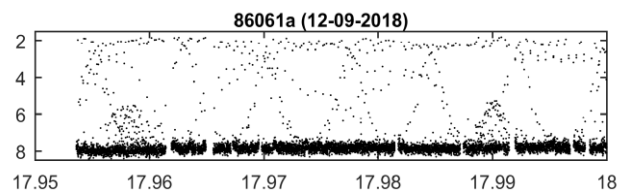
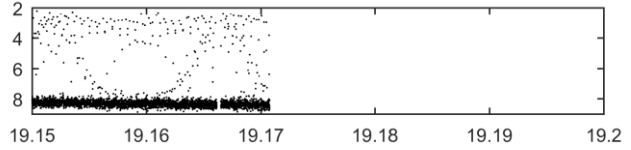
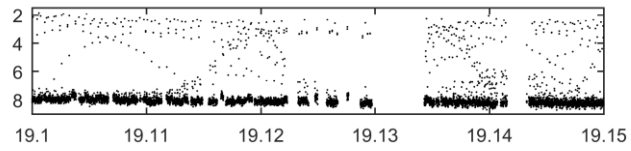
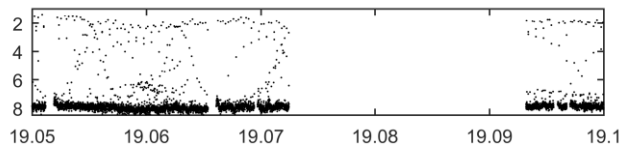
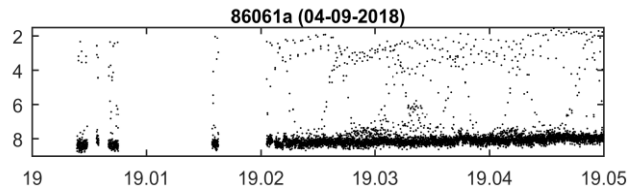
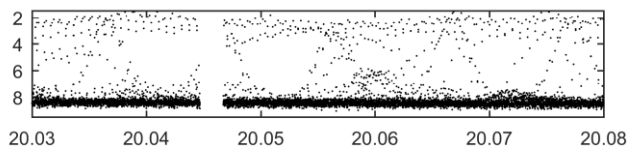
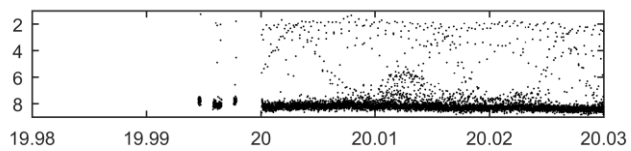
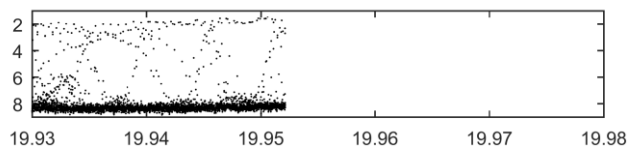
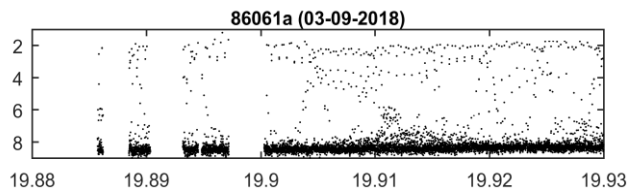
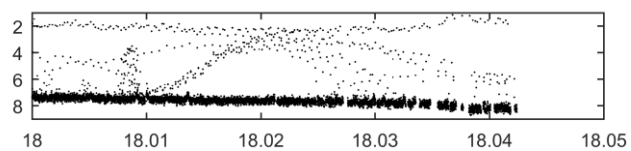
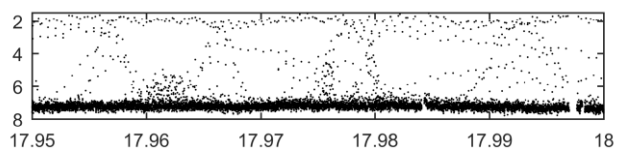
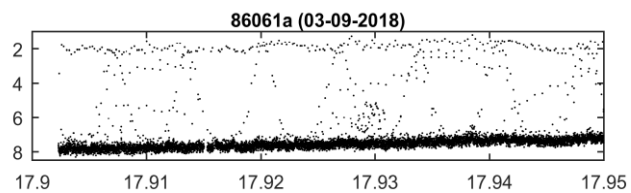
86061a (19-06-2018)

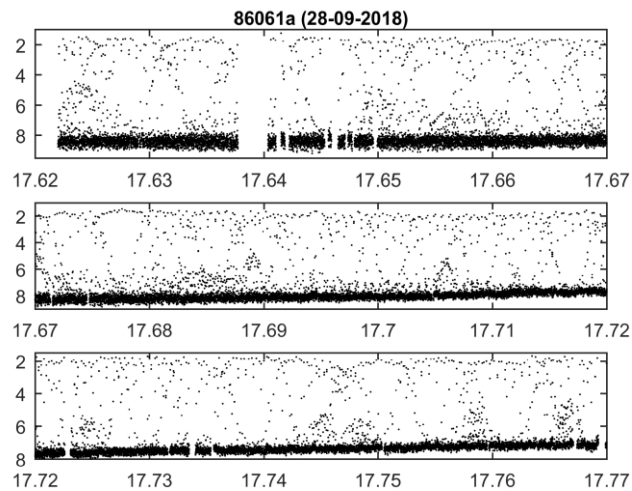
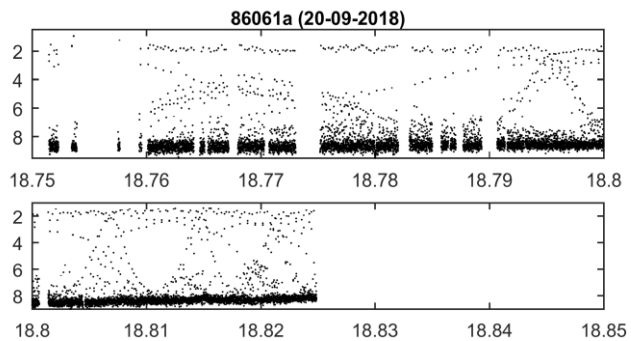
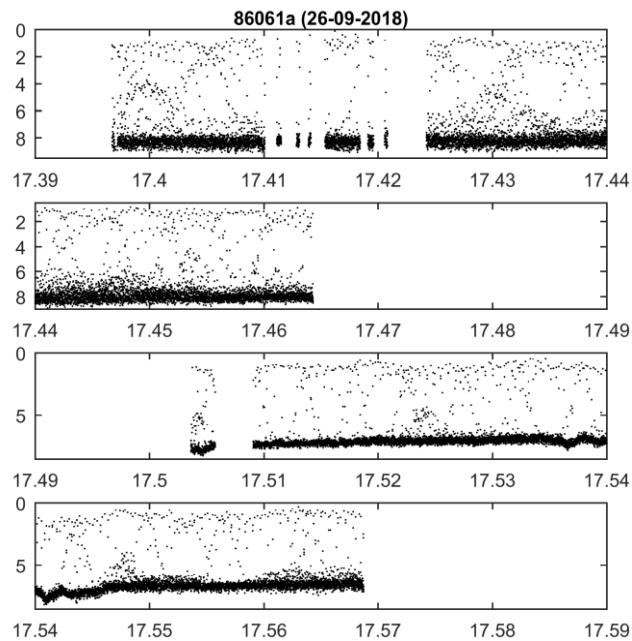
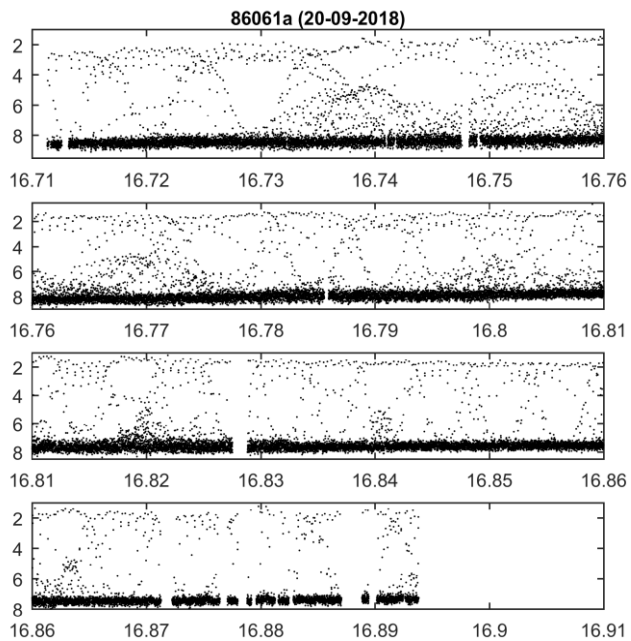
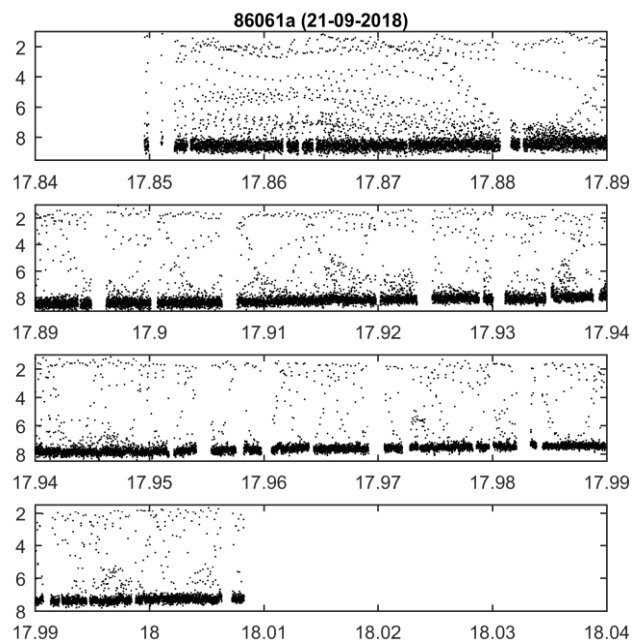
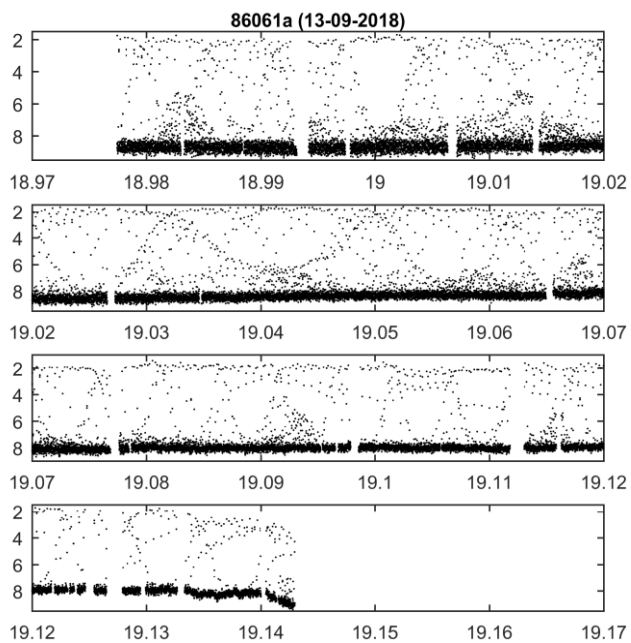
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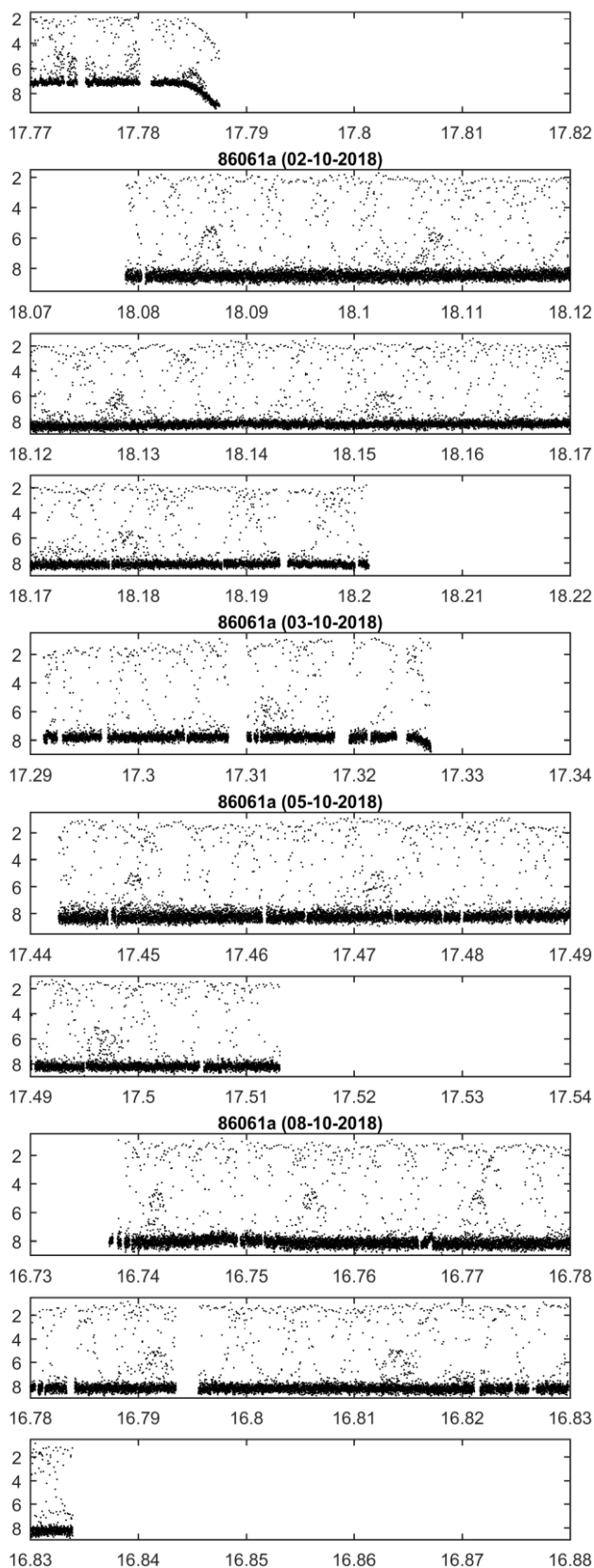
86061a (27-08-2018)

86061a (30-08-2018)

86061a (25-06-2018)



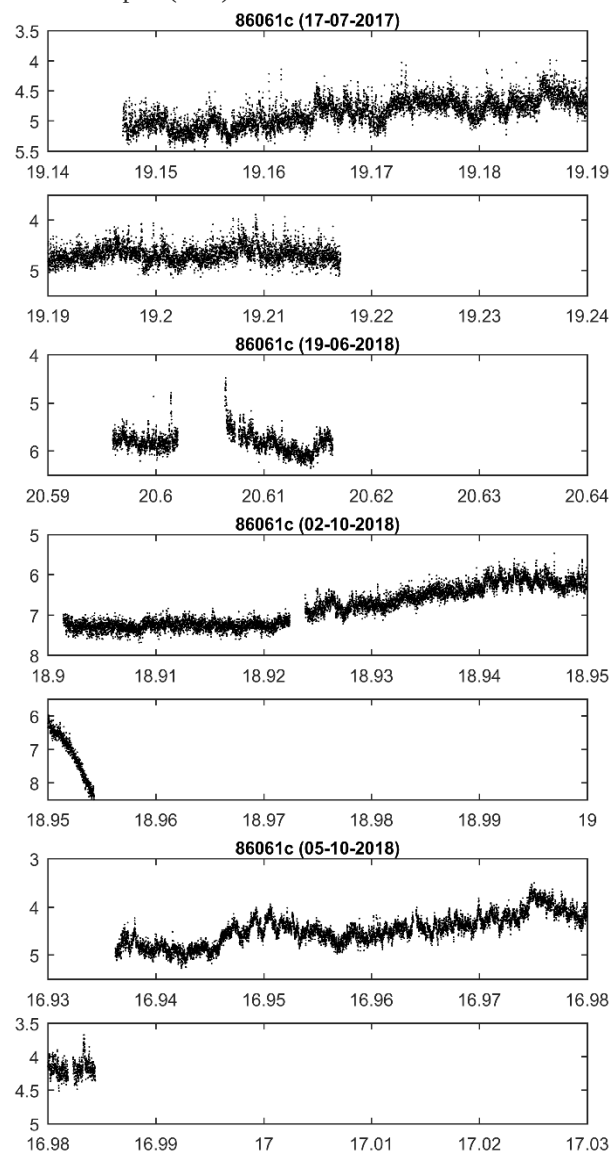




**H-1 R/B (2nd stage)
(MABES (JINDAI))**
NORAD ID: 16910



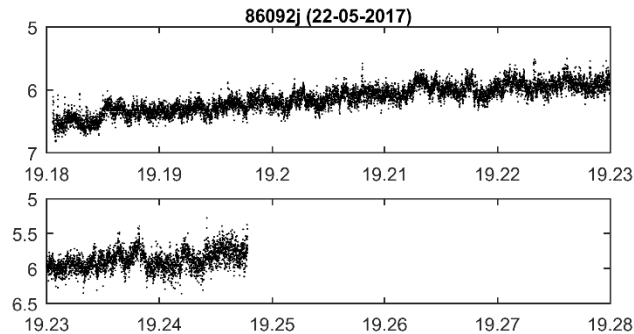
Int'l Code: 1986-061C
 Dimensions: cylinder 13.54m long
 2.49m dia
 Initial orbit:
 Perigee: 1484 km
 Apogee: 1594 km
 Inclination: 50.00°
 Period: 116.78 min
 Eccentricity: 0.007
 Launch date: 1986-08-12
 Source: Japan (JPN)



**SL-8 R/B (S3M) (2nd stage)
(COSMOS 1794-1801 ROCKET)**
 NORAD ID: 17146
 Int'l Code: 1986-092J
 Dimensions: cylinder 7.4m long
 2.4m dia
 Initial orbit:
 Perigee: 1471 km
 Apogee: 1685 km

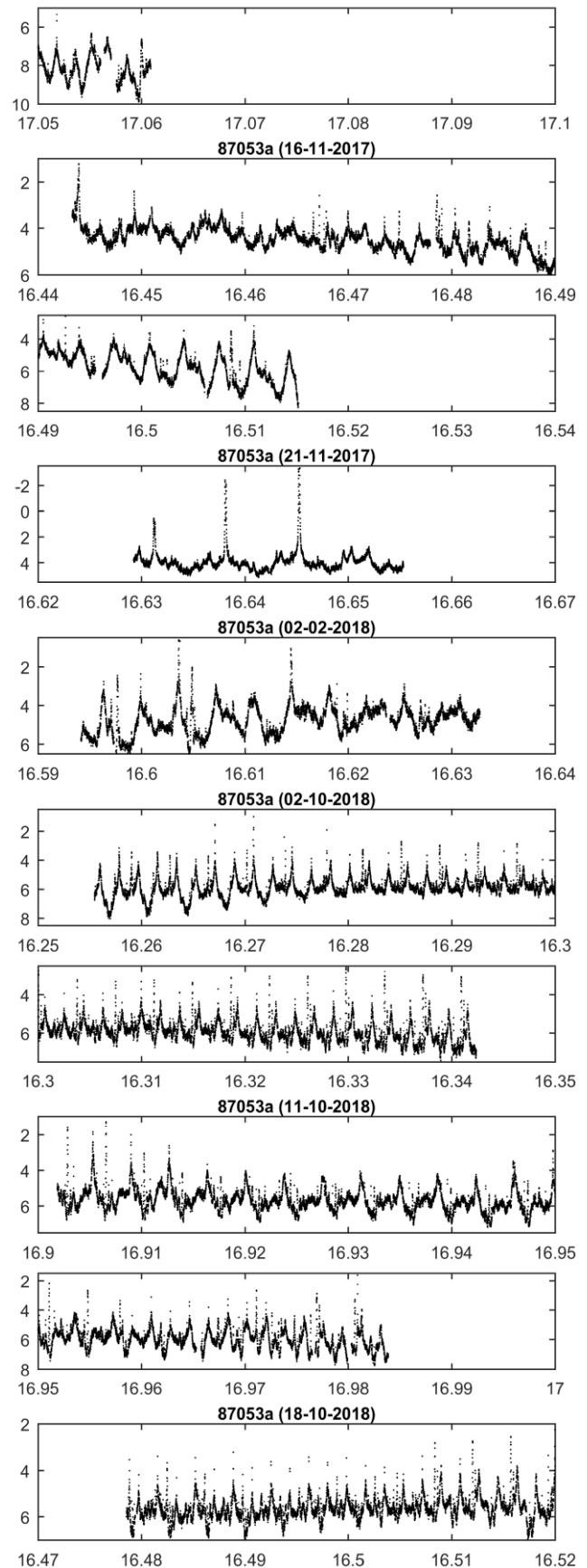
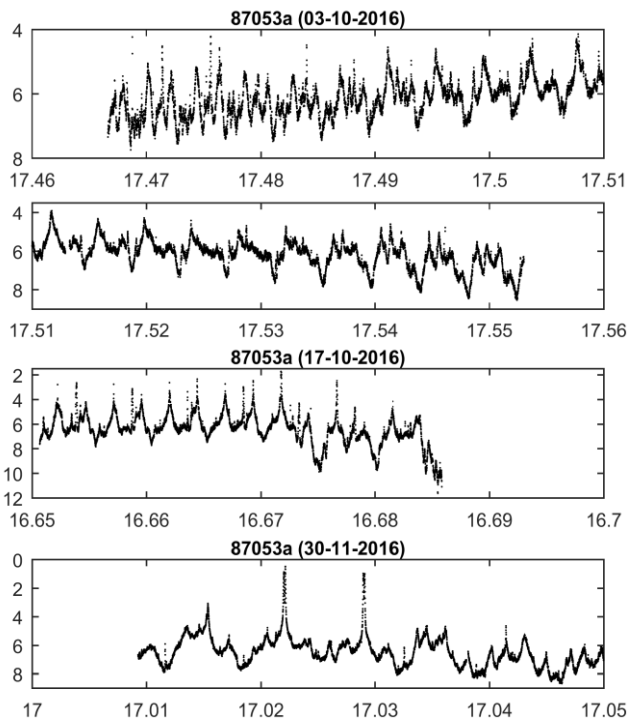


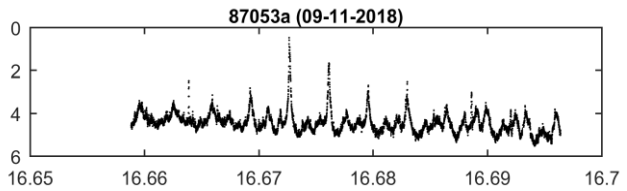
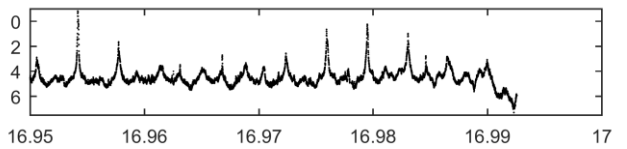
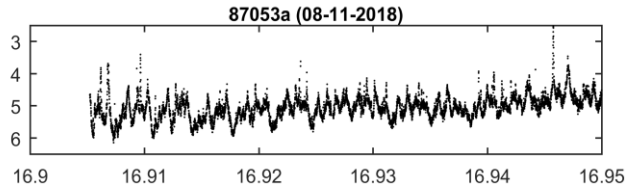
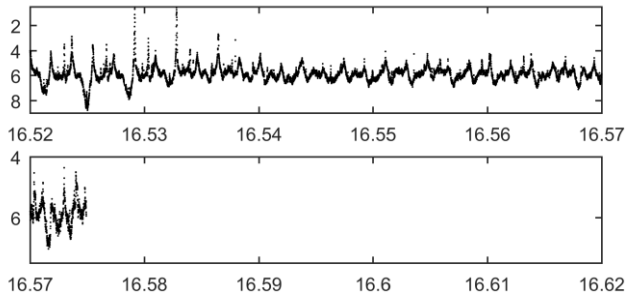
Inclination: 74.01°
 Period: 117.75 min
 Eccentricity: 0.013
 Launch date: 1986-11-21
 Source: Commonwealth of Independent States (former USSR) (CIS)



DMSP 5D-2 F8 (USA 26)

NORAD ID: 18123
 Int'l Code: 1987-053A
 Dimensions: cylinder 6.4m span
 6.4m long 1.68m dia?
 Initial orbit:
 Perigee: 840 km
 Apogee: 859 km
 Inclination: 98.84°
 Period: 101.98 min
 Eccentricity: 0.001
 Launch date: 1987-06-20
 Source: United States (US)





COSMOS 1867 ((PLASMA-A 2))

NORAD ID: 18187

Int'l Code: 1987-060A

Dimensions:

Initial orbit:

Perigee: 786 km

Apogee: 801 km

Inclination: 65.00°

Period: 100.74 min

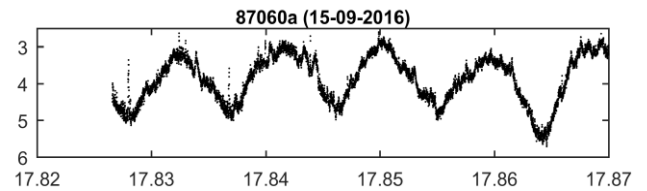
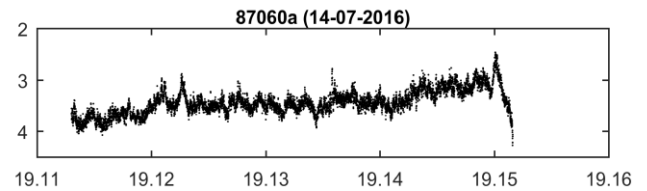
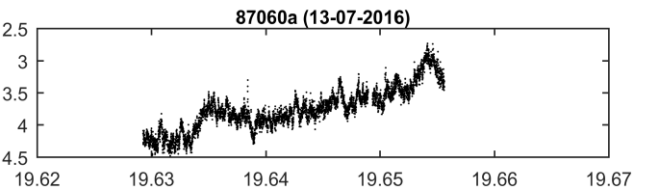
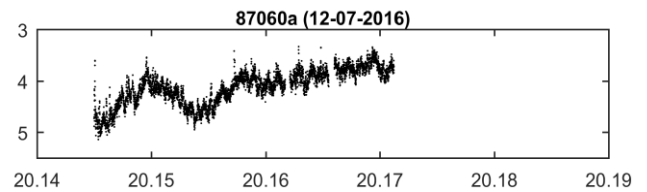
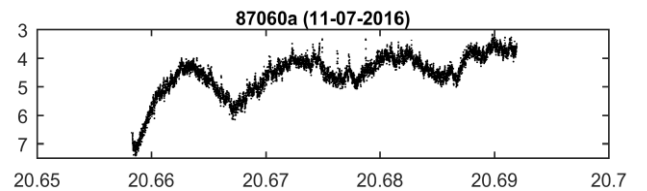
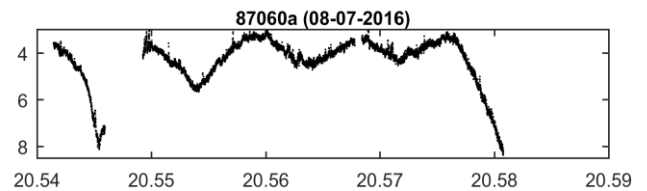
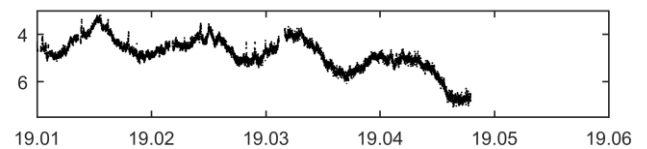
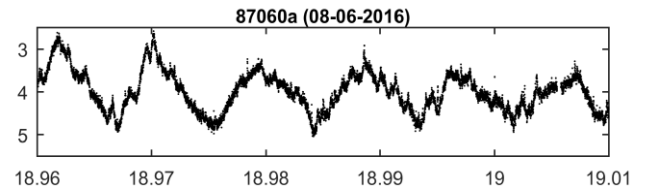
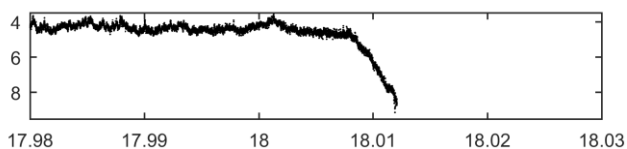
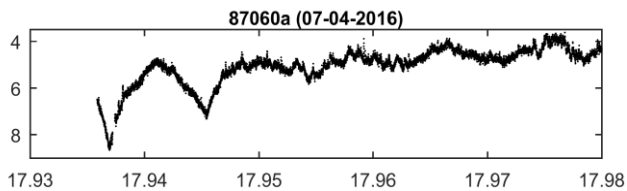
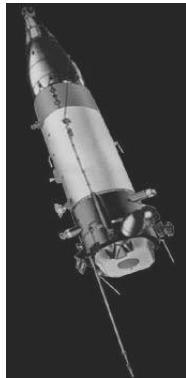
Eccentricity: 0.001

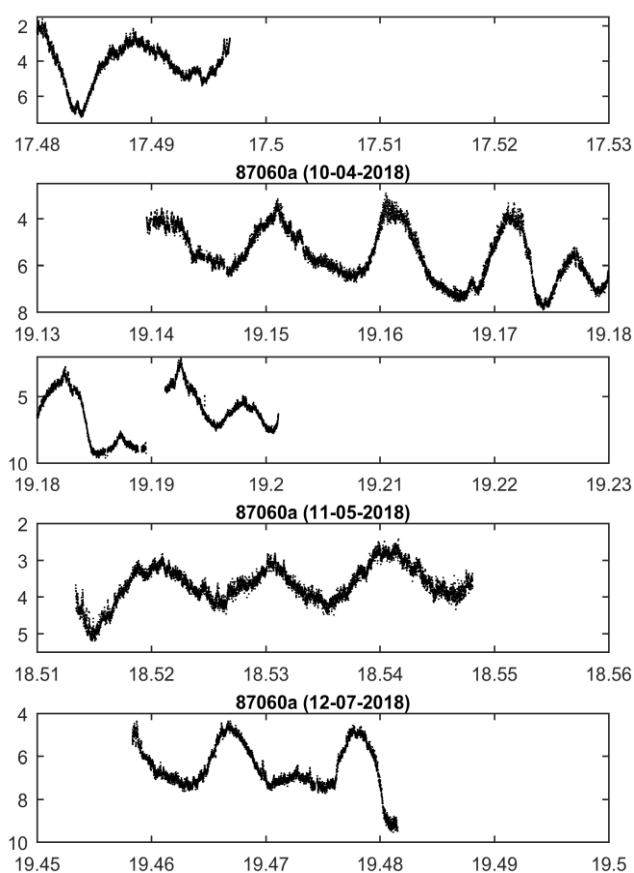
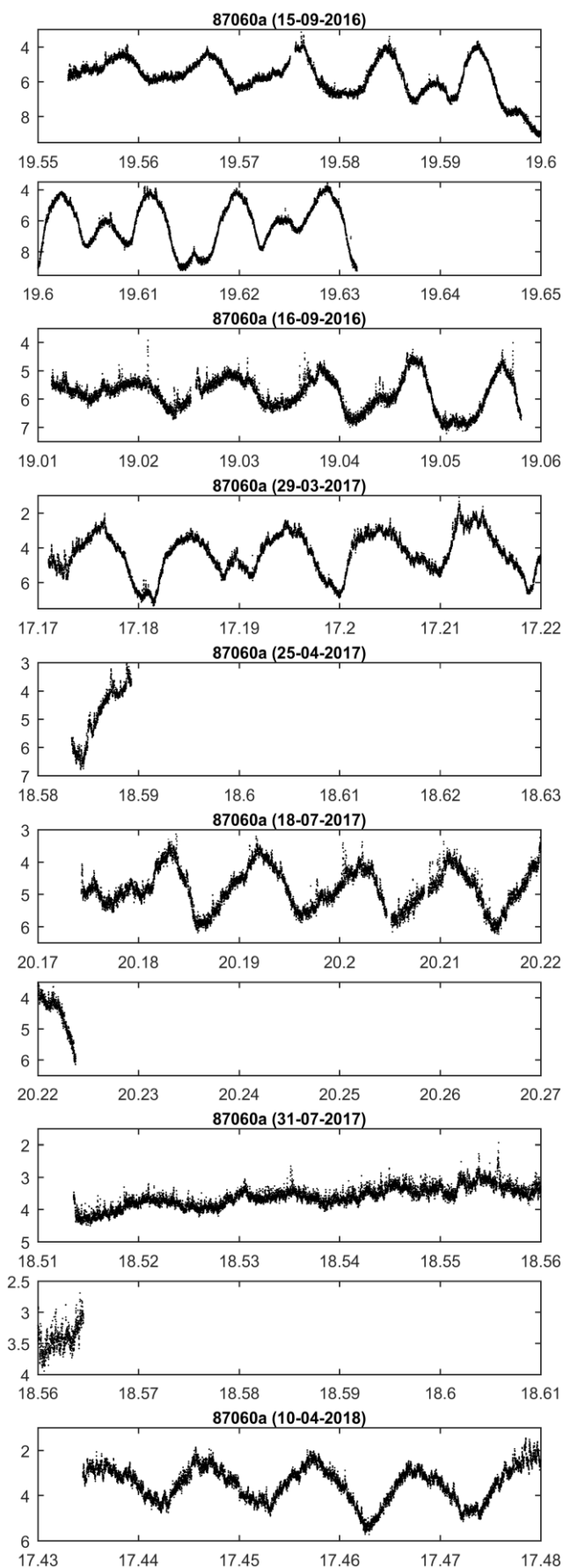
Launch date: 1987-07-10

manoeuvrable

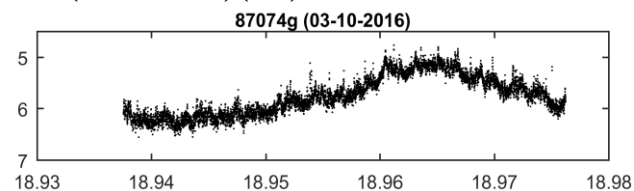
Source: Commonwealth of

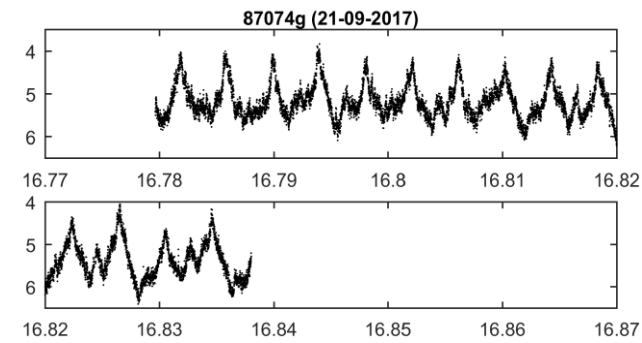
Independent States (former USSR) (CIS)





SL-14 R/B (S5M) (3rd stage)
(COSMOS 1875-1880 ROCKET)
 NORAD ID: 18340
 Int'l Code: 1987-074G
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1410 km
 Apogee: 1473 km
 Inclination: 82.58°
 Period: 114.76 min
 Eccentricity: 0.004
 Launch date: 1987-09-07
 Source: Commonwealth of Independent States (former USSR) (CIS)





**SL-14 R/B (S5M) (2nd stage)
(METEOR-2 17 ROCKET)**

NORAD ID: 18821

Int'l Code: 1988-005B

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 938 km

Apogee: 957 km

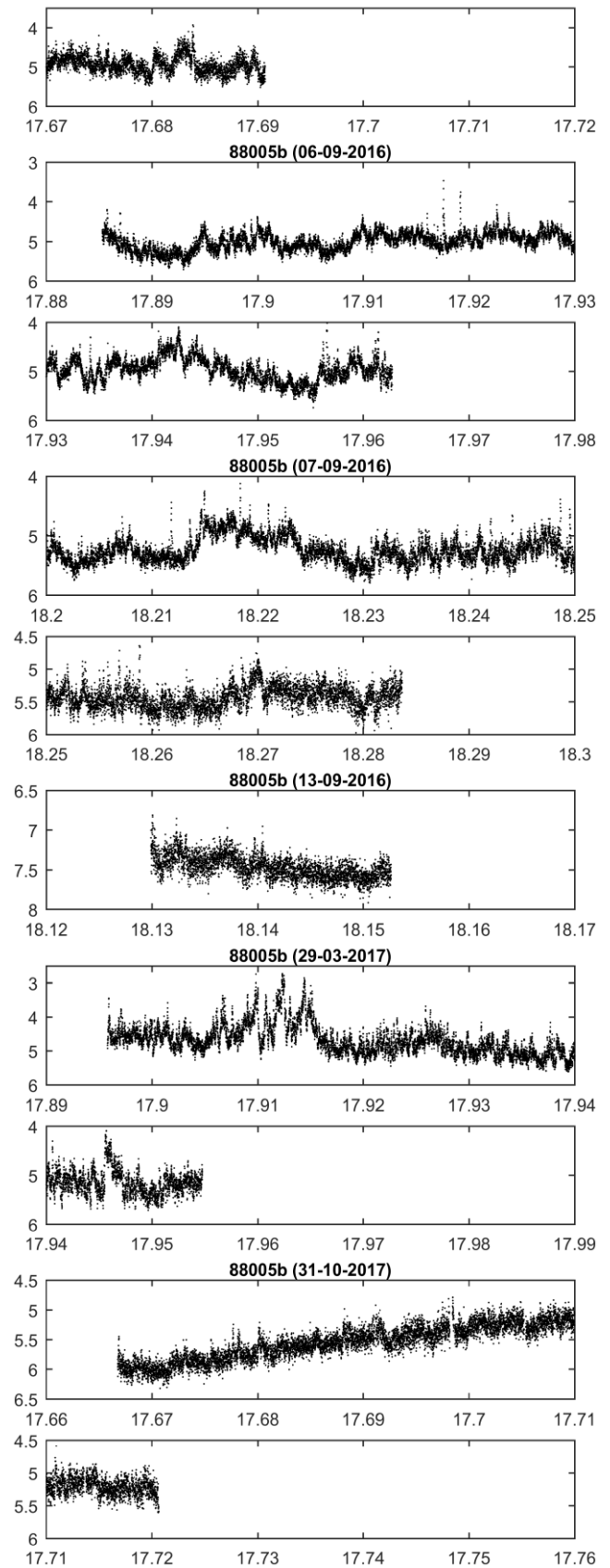
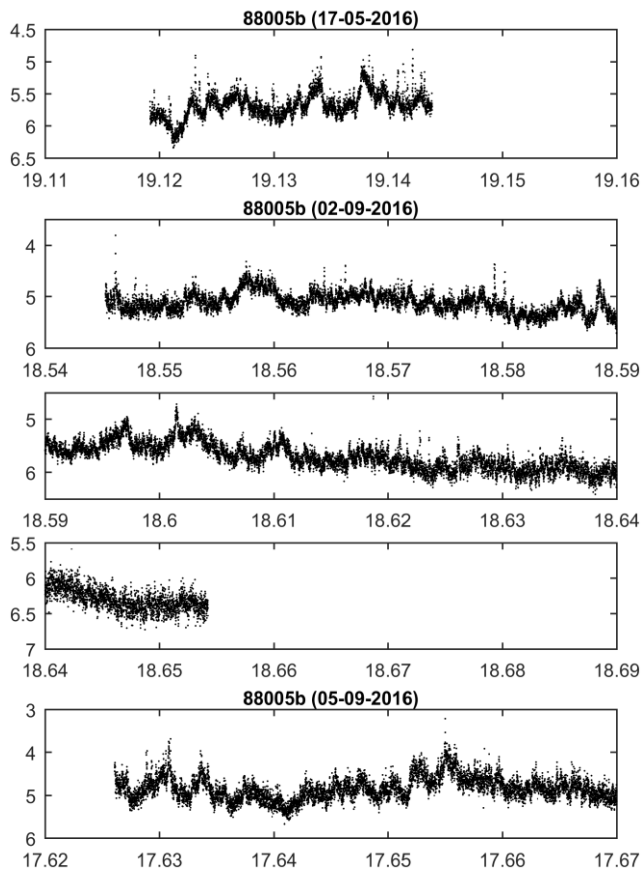
Inclination: 82.55°

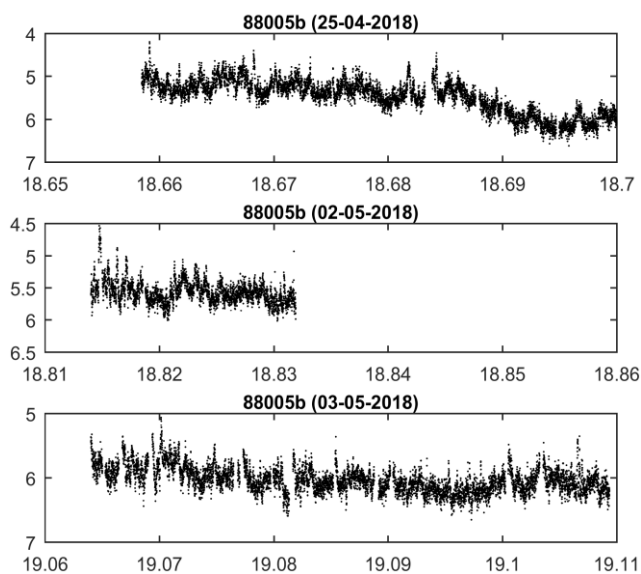
Period: 104.06 min

Eccentricity: 0.001

Launch date: 1988-01-30

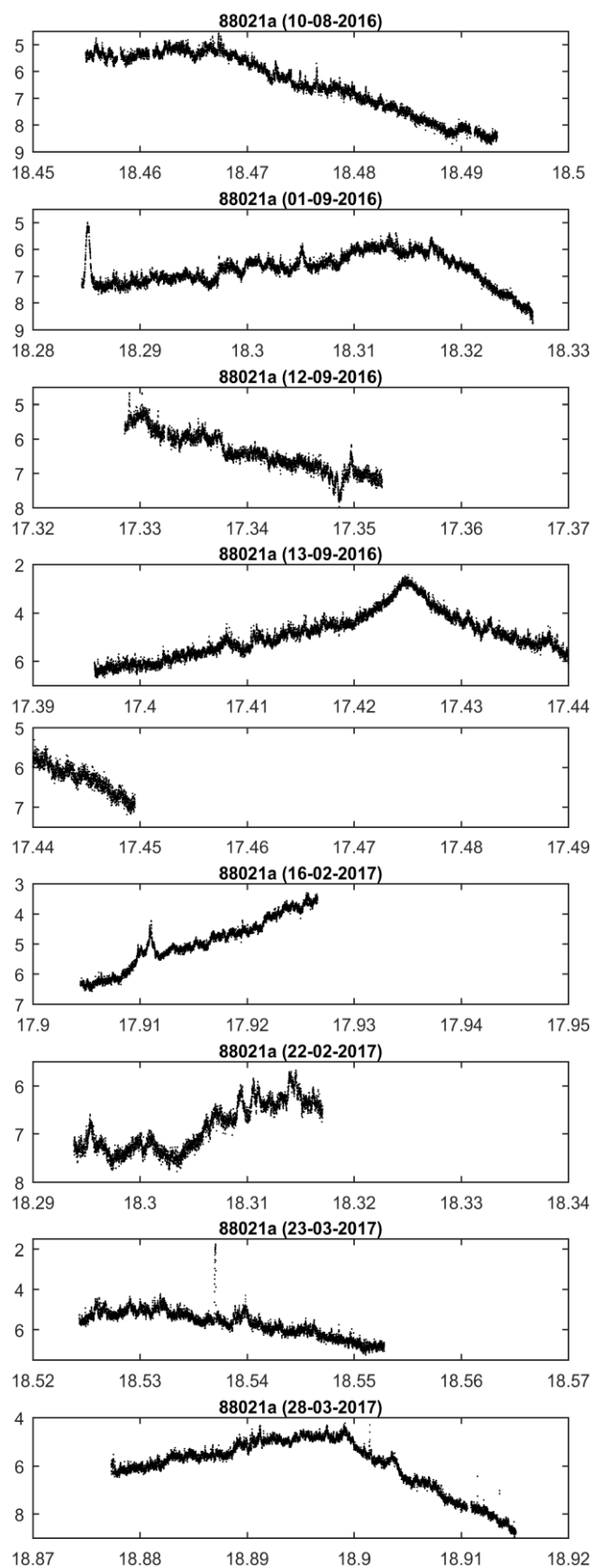
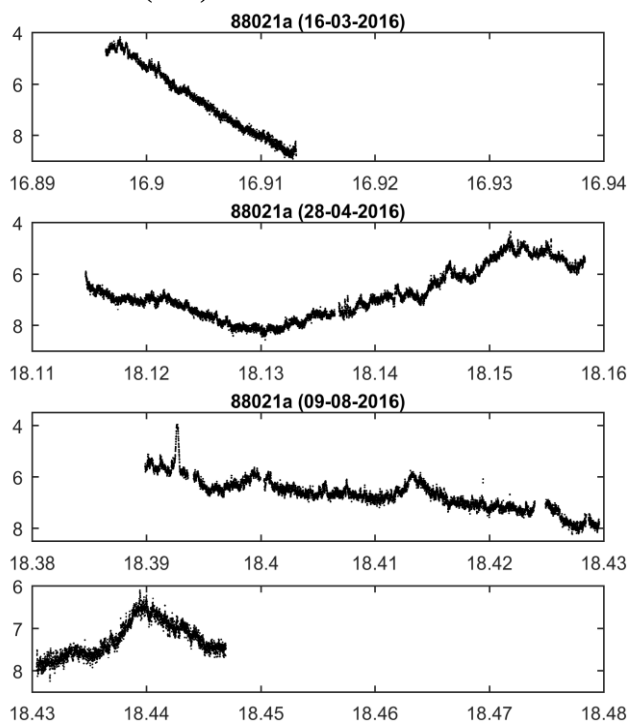
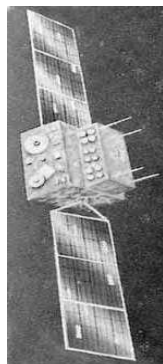
Source: Commonwealth of Independent States (former USSR) (CIS)

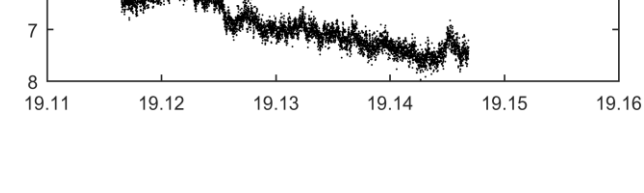
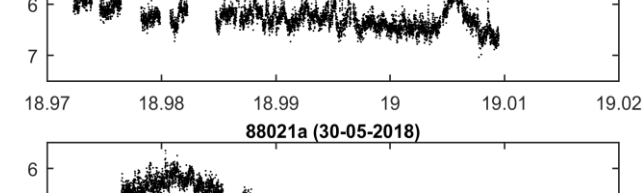
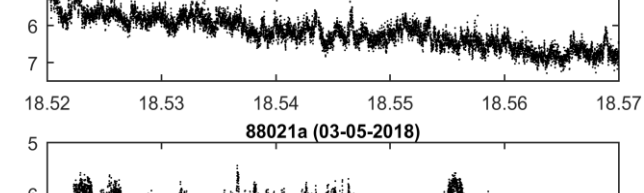
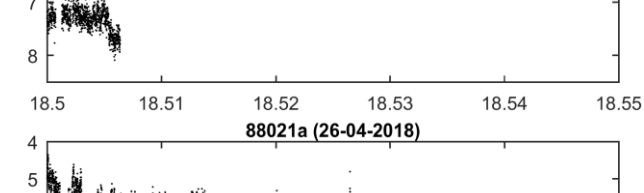
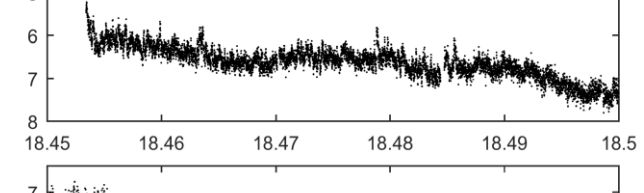
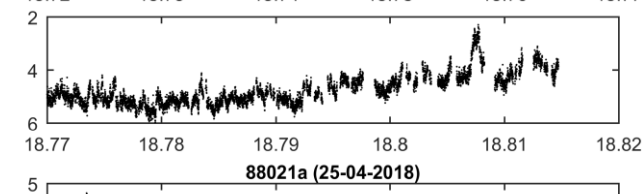
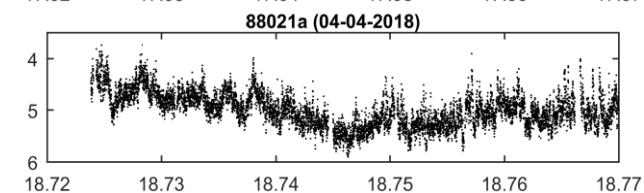
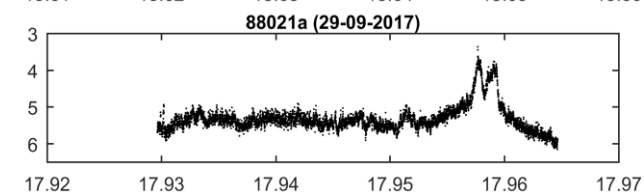
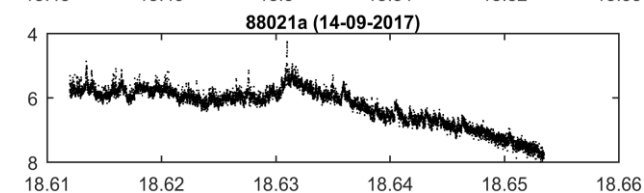
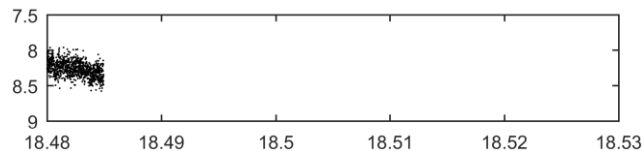
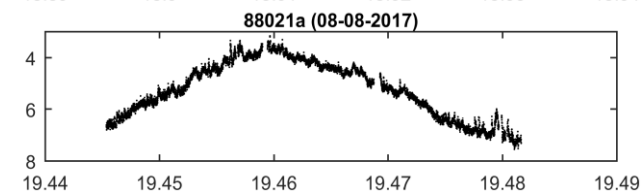
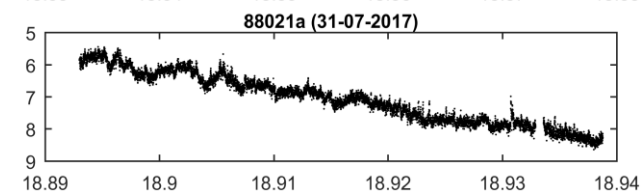
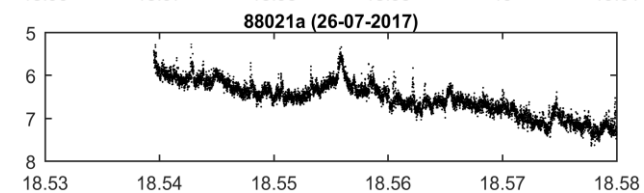
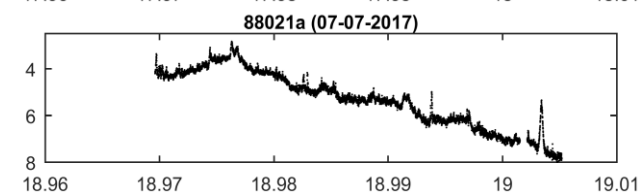
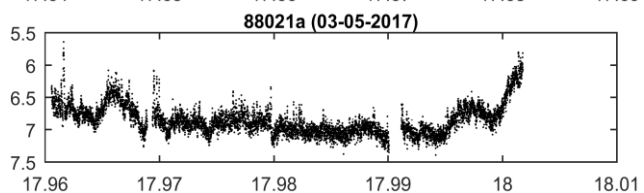
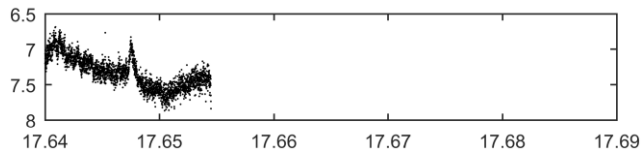
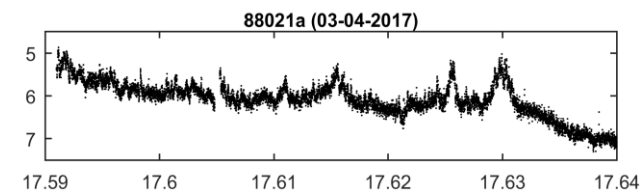
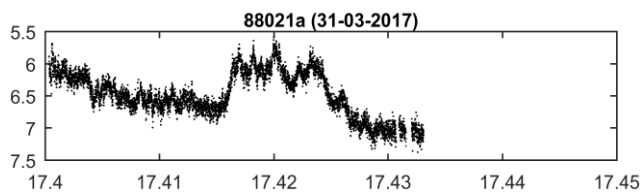


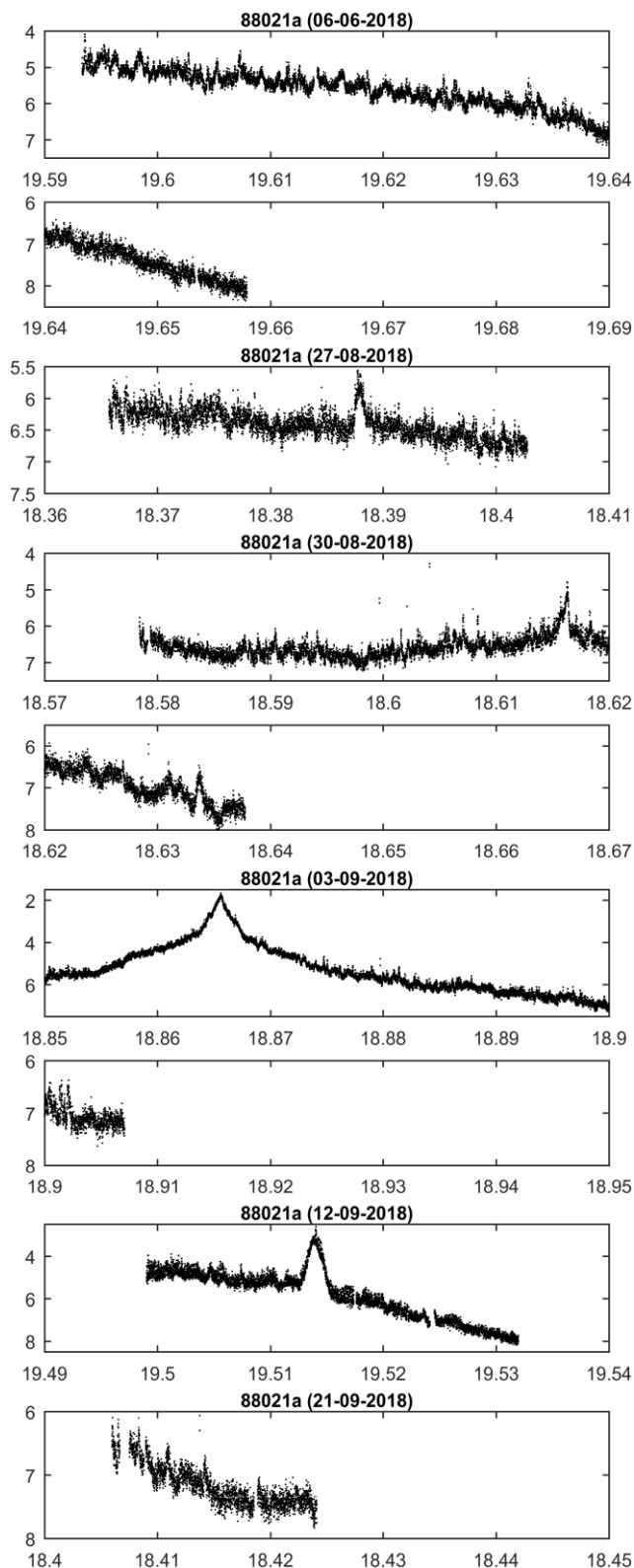


IRS 1A

NORAD ID: 18960
 Int'l Code: 1988-021A
 Dimensions: box + panels
 Initial orbit:
 Perigee: 871 km
 Apogee: 913 km
 Inclination: 99.02°
 Period: 102.87 min
 Eccentricity: 0.003
 Launch date: 1988-03-17
 Source: India (IND)



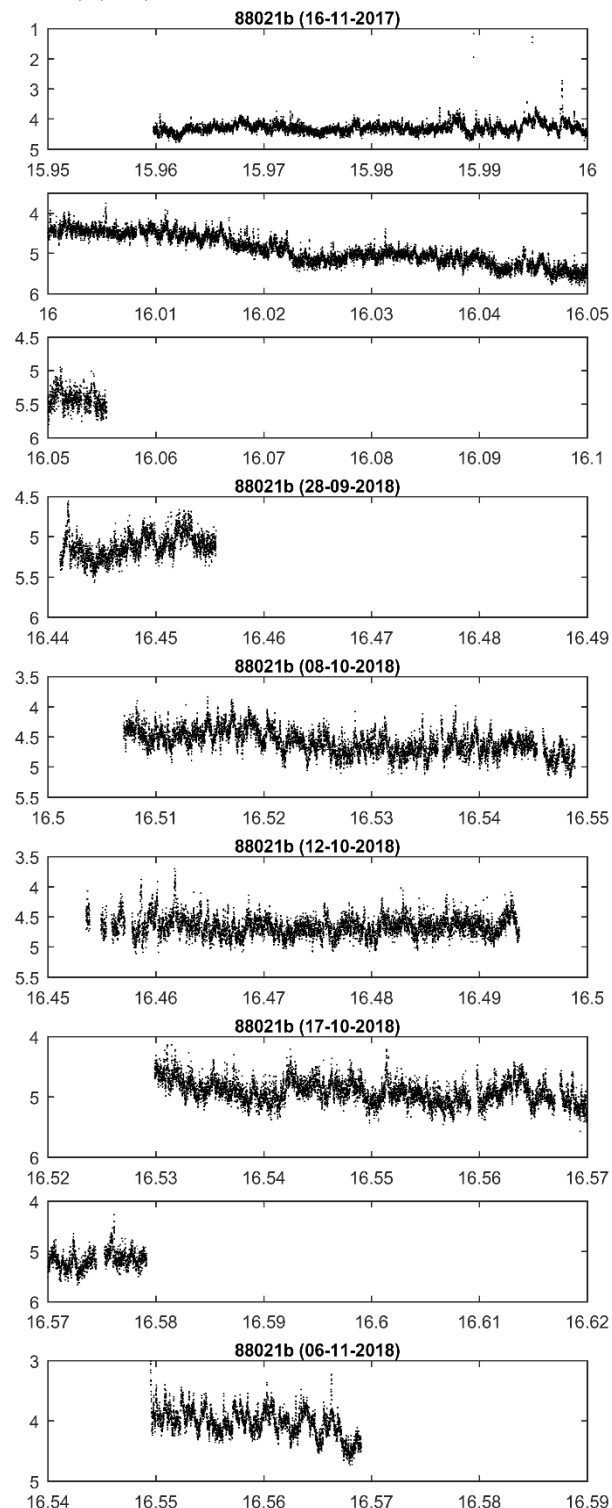


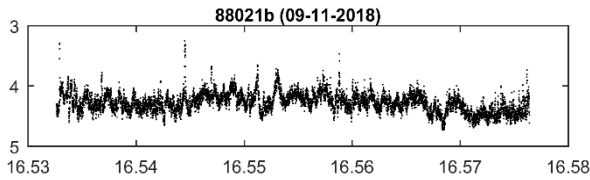


SL-3 R/B
IRS-1A (block E 3rd stage)
 NORAD ID: 18961
 Int'l Code: 1988-021B
 Dimensions: cylinder 3.8m long?
 2.6m dia?



Initial orbit:
 Perigee: 868 km
 Apogee: 922 km
 Inclination: 99.04°
 Period: 102.94 min
 Eccentricity: 0.004
 Launch date: 1988-03-17
 Source: Commonwealth of Independent States (former USSR) (CIS)





USA 32

NORAD ID: 19460

Int'l Code: 1988-078A

Dimensions: No data

Initial orbit:

Perigee: 185 km

Apogee: 292 km

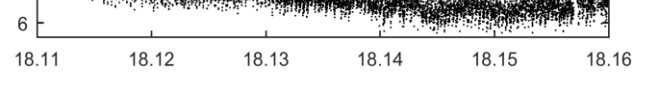
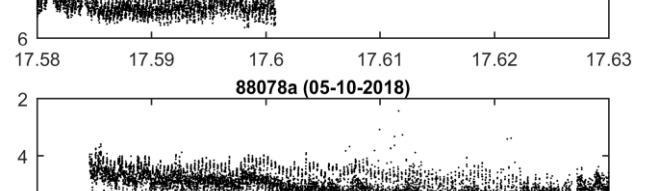
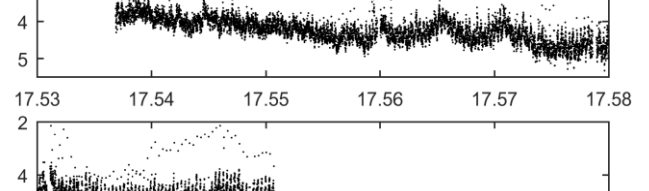
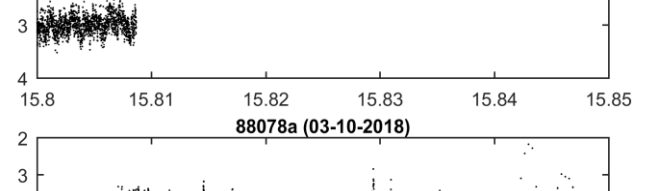
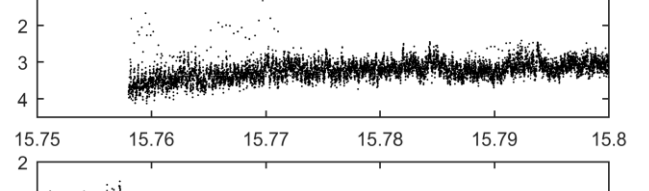
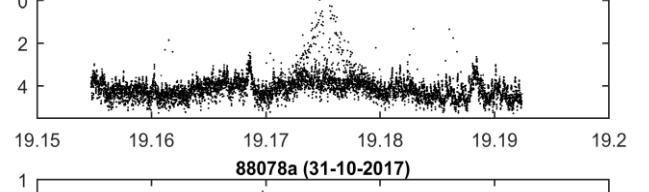
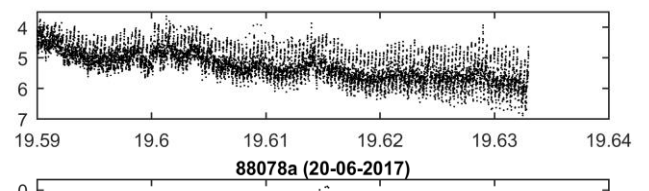
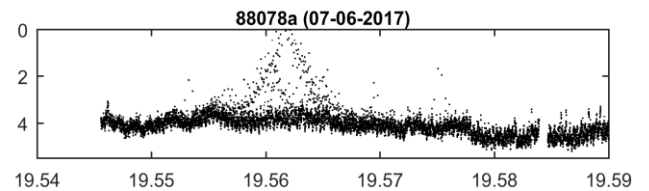
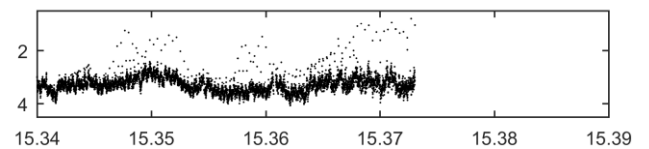
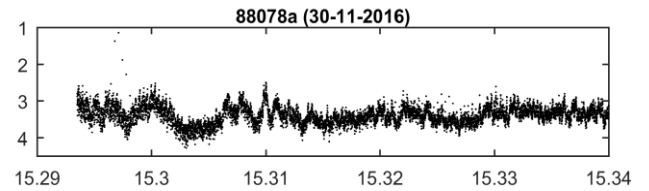
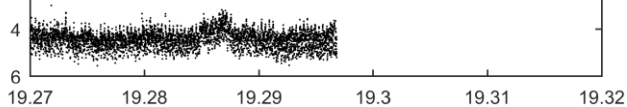
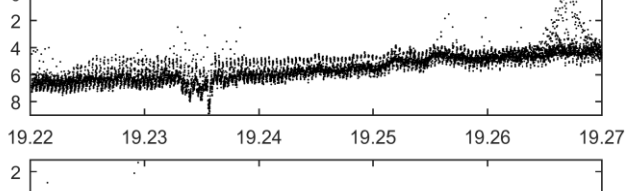
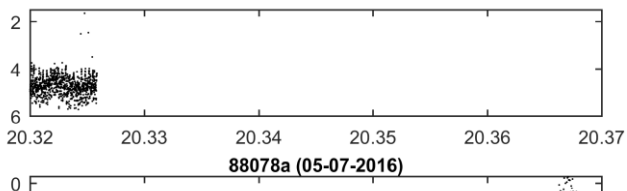
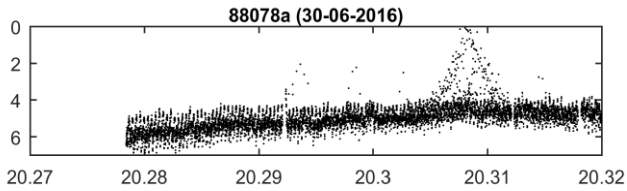
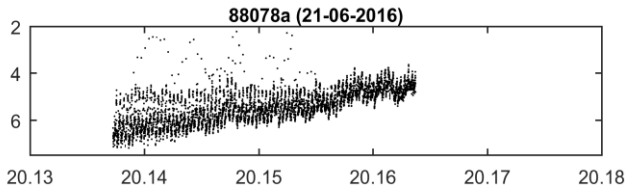
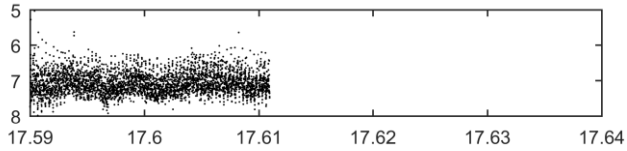
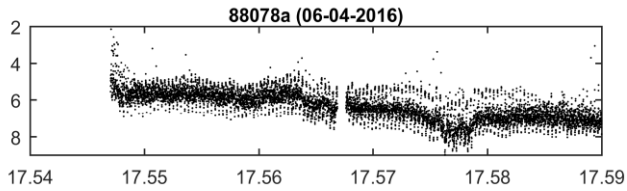
Inclination: 85.0°

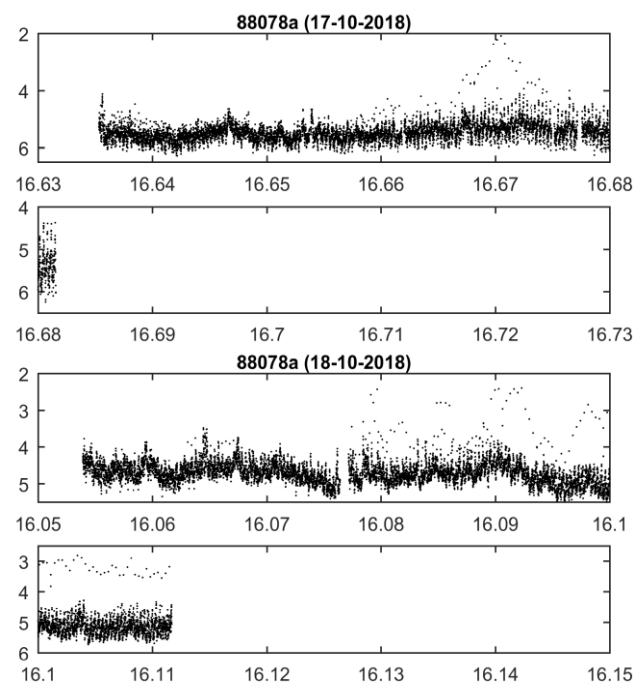
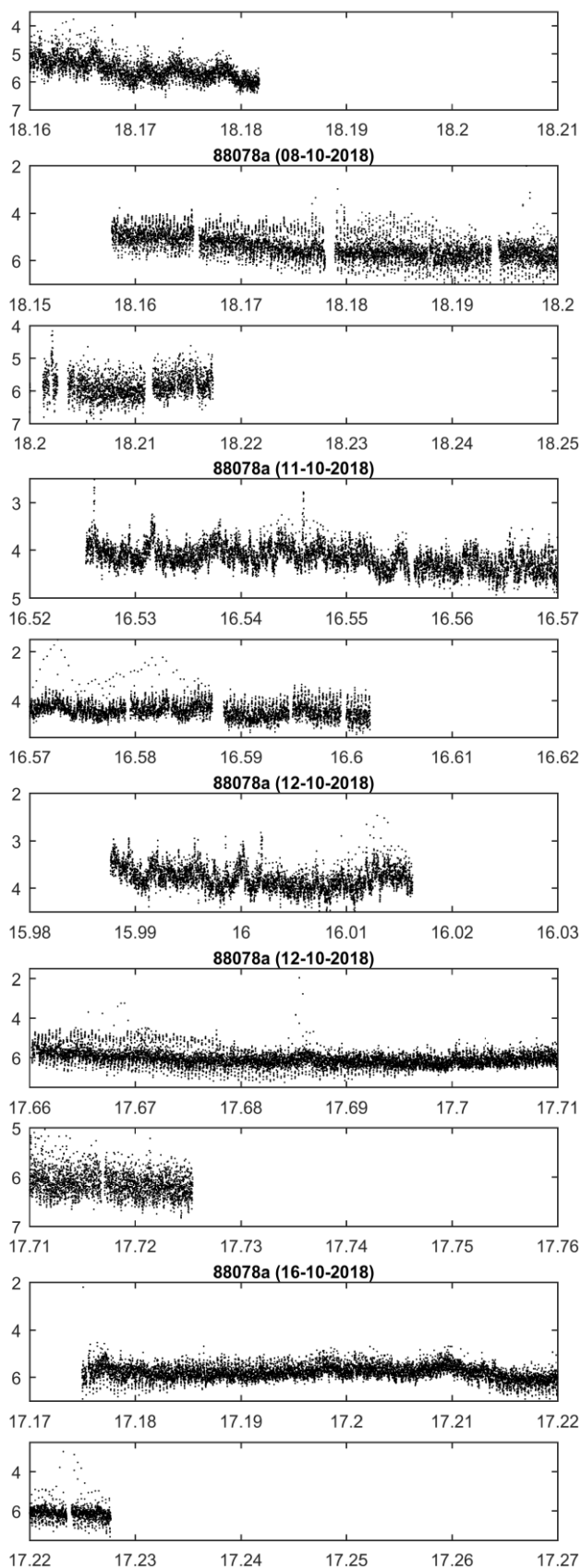
Period: 89.3 min

Eccentricity: 0.008

Launch date: 1988-09-05

Source: United States (US)





SL-14 R/B (S5M) (3rd stage) (COSMOS 1994-1999 ROCKET)

NORAD ID: 19791

Int'l Code: 1989-009G

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 1417 km

Apogee: 1472 km

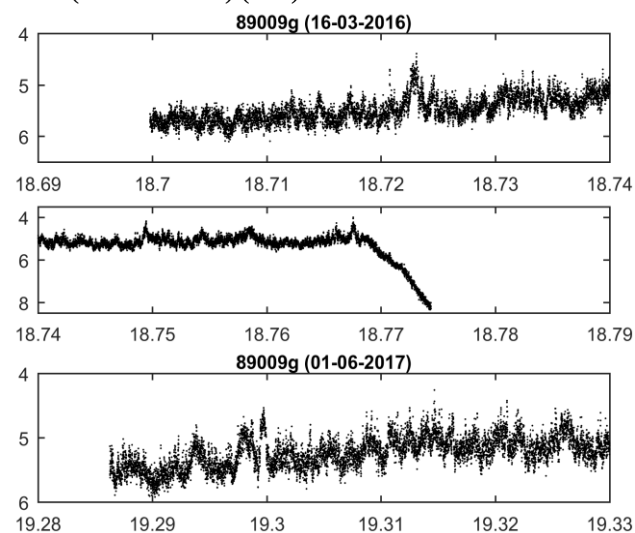
Inclination: 82.61°

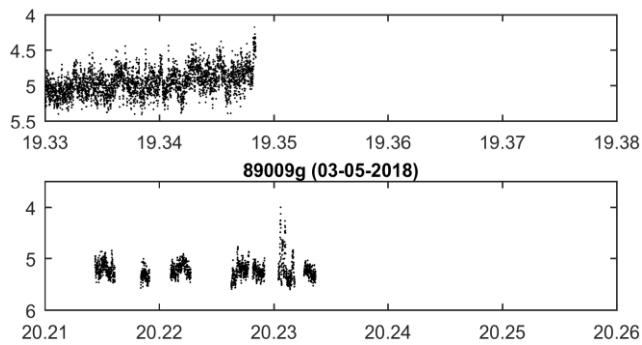
Period: 114.82 min

Eccentricity: 0.004

Launch date: 1989-02-10

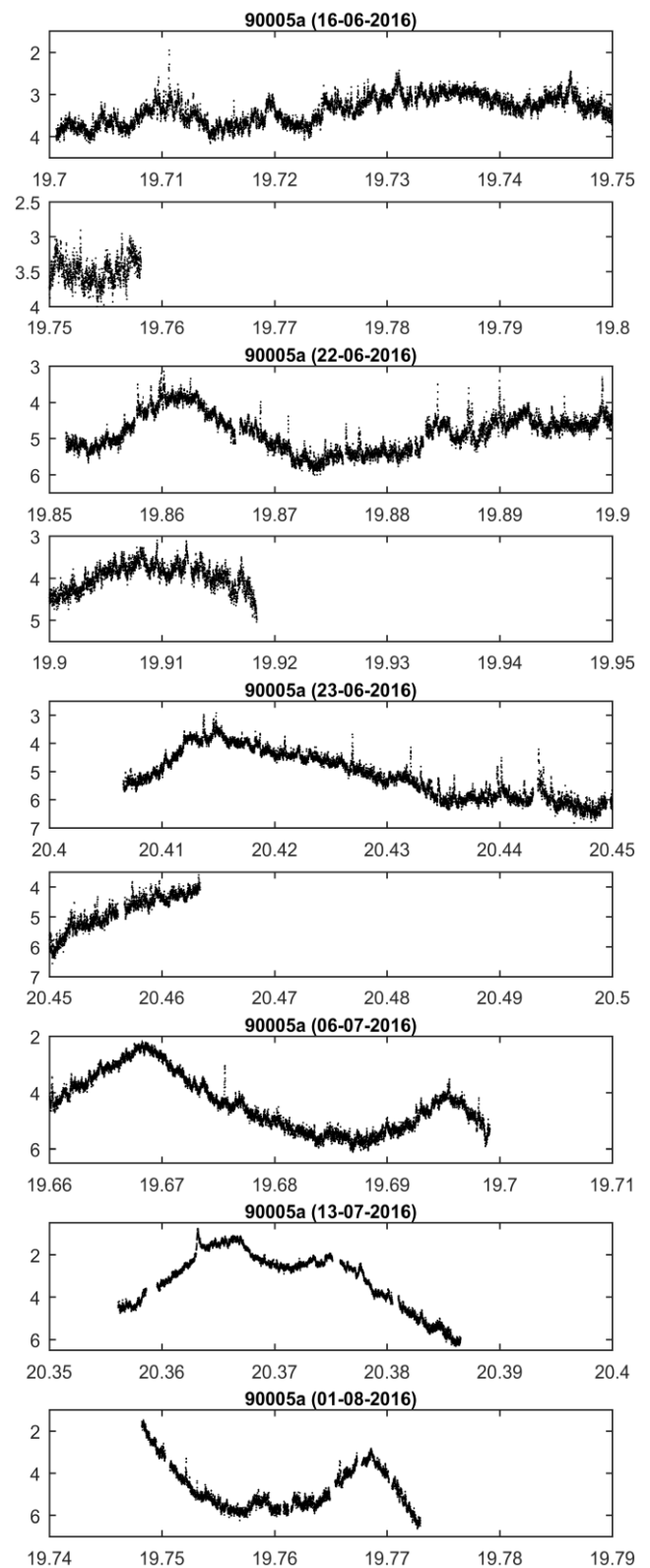
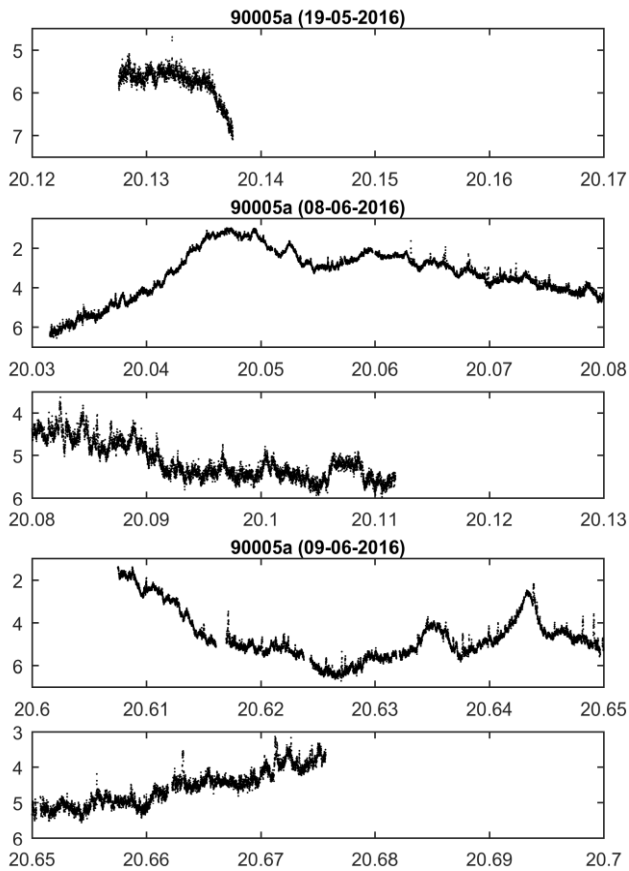
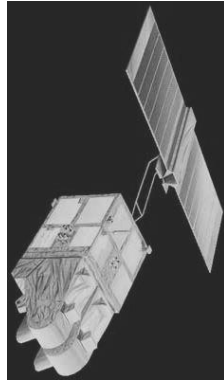
Source: Commonwealth of Independent
States (former USSR) (CIS)





SPOT 2

NORAD ID: 20436
 Int'l Code: 1990-005A
 Dimensions: box
 1.84m x 1.84m x 4.73m
 Initial orbit:
 Perigee: 825 km
 Apogee: 826 km
 Inclination: 98.72°
 Period: 101.46 min
 Eccentricity: 0.0001
 Launch date: 1990-01-22
 Source: France (FR)

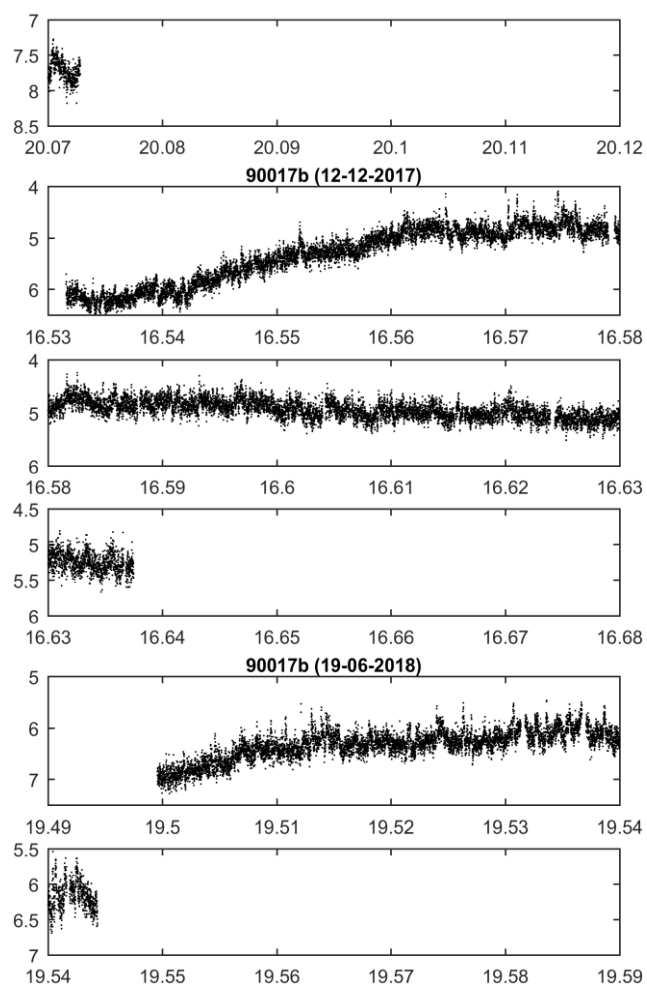
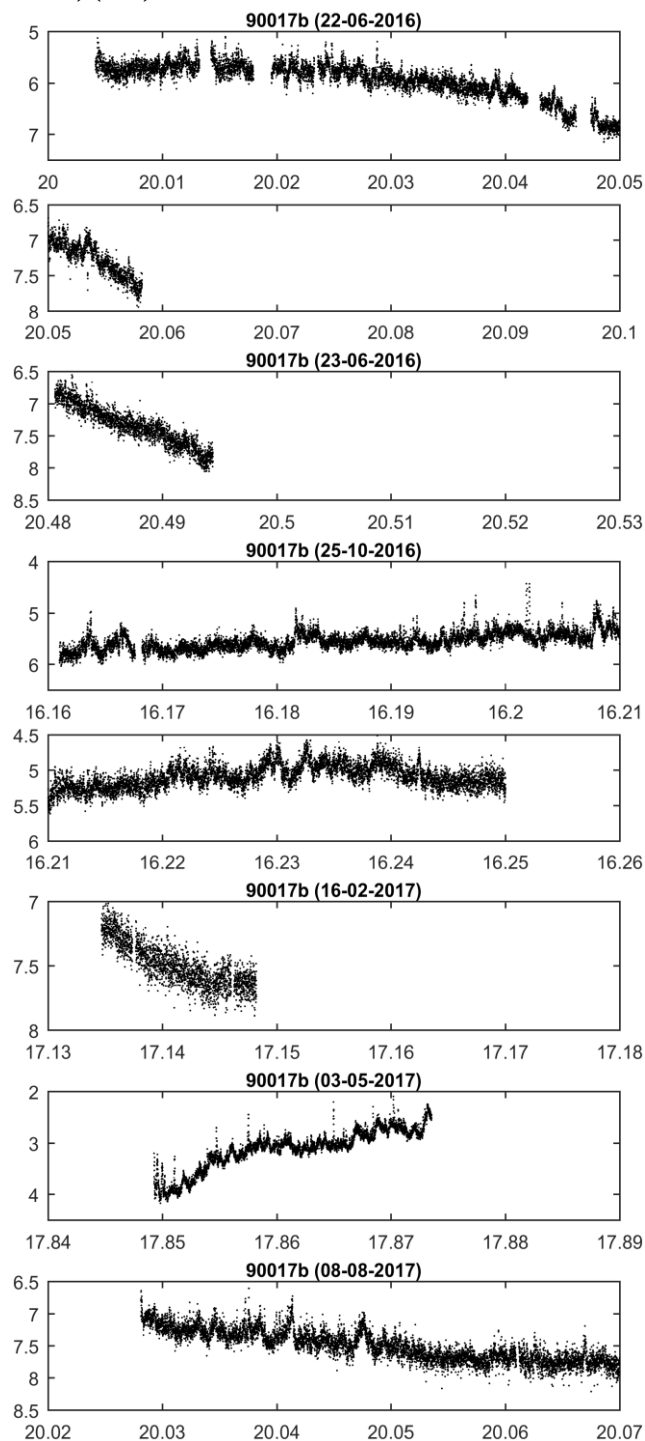


SL-8 R/B (S3M) (2nd stage) (NADEZHDA 2 ROCKET)

NORAD ID: 20509
 Int'l Code: 1990-017B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:



Perigee: 956 km
 Apogee: 1010 km
 Inclination: 82.95°
 Period: 104.81 min
 Eccentricity: 0.004
 Launch date: 1990-02-27
 Source: Commonwealth of Independent States (former USSR) (CIS)



NOSS 2-1B (USA 61)

NORAD ID: 20691

Int'l Code: 1990-050C

Dimensions:

Initial orbit: 1990-12-05

Perigee: 1071 km

Apogee: 1146 km

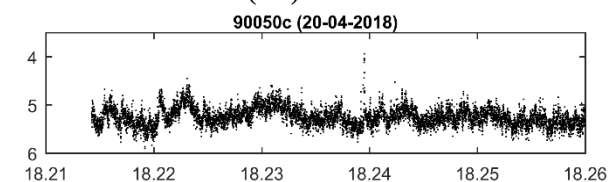
Inclination: 63.4°

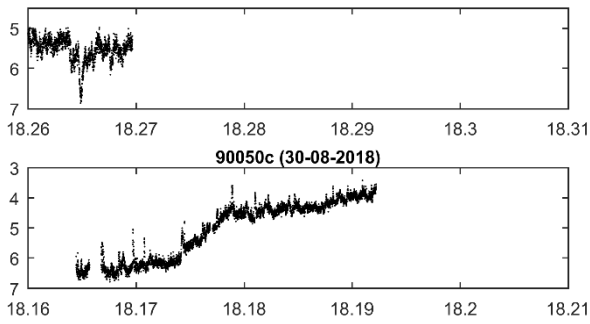
Period: 107.44 min

Eccentricity: 0.005

Launch date: 1990-06-08

Source: United States (US)





FENGYUN 1B (China 30)

NORAD ID: 20788

Int'l Code: 1990-081A

Dimensions: box + 2 vanes

1.4m wide 1.2m high 8.6m span

Initial orbit:

Perigee: 885 km

Apogee: 900 km

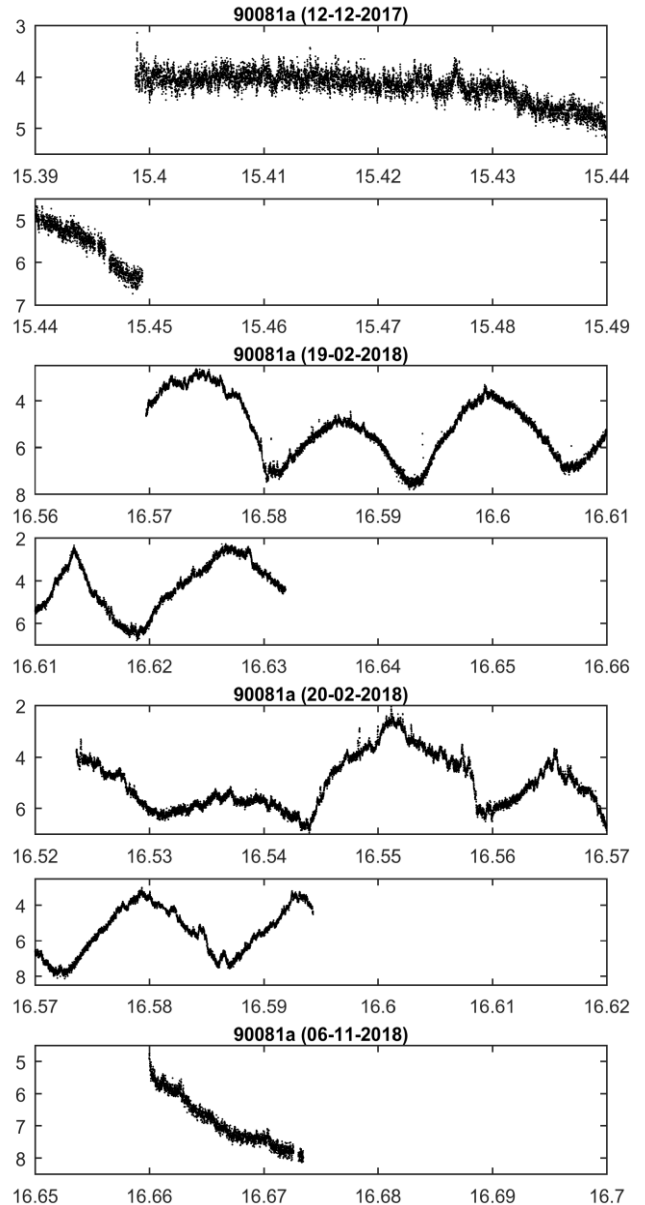
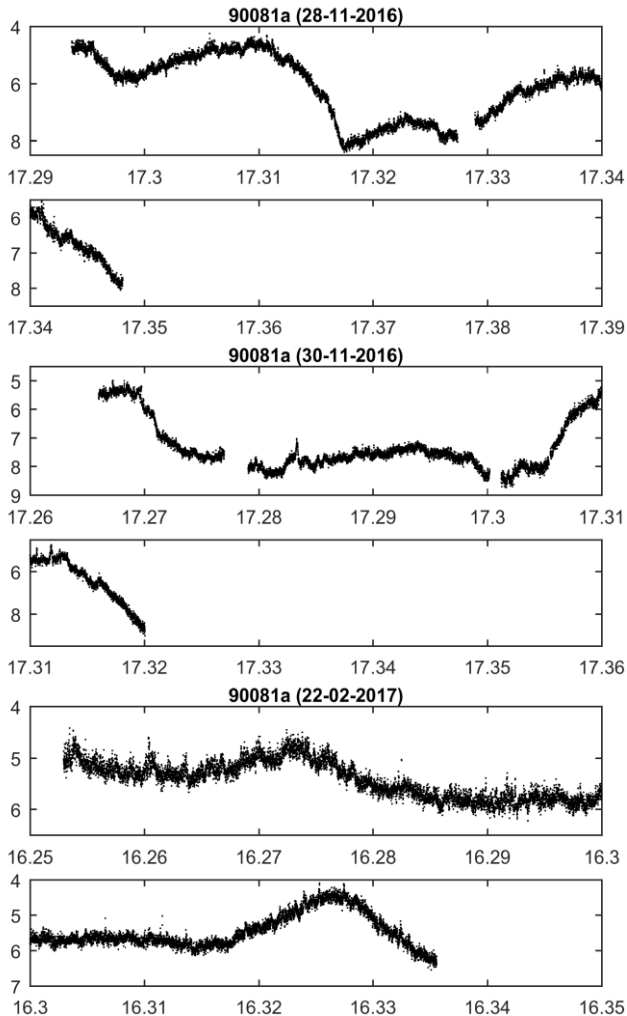
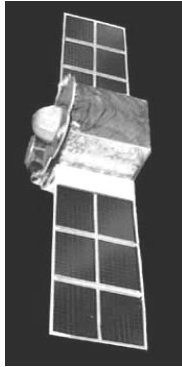
Inclination: 98.94°

Period: 102.88 min

Eccentricity: 0.001

Launch date: 1990-09-03

Source: People's Republic of China (PRC)



NOSS-2 2A (USA 74)

NORAD ID: 21799

Int'l Code: 1991-076C

Dimensions:

Initial orbit:

Perigee: 1053 km

Apogee: 1165 km

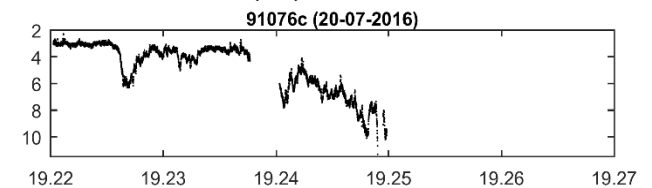
Inclination: 63.42°

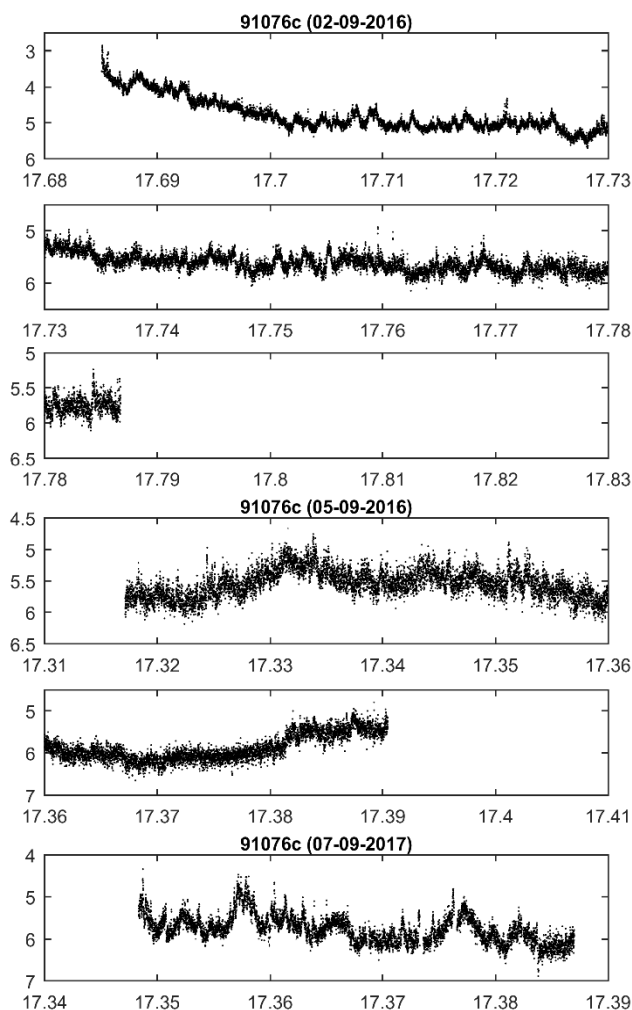
Period: 107.45 min

Eccentricity: 0.007

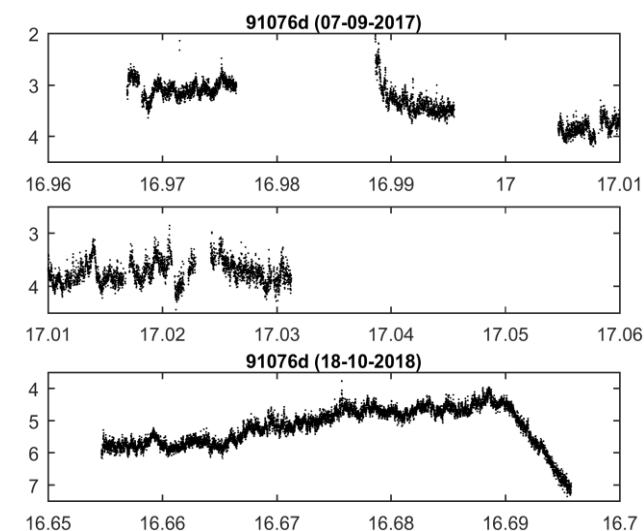
Launch date: 1991-11-08

Source: United States (US)

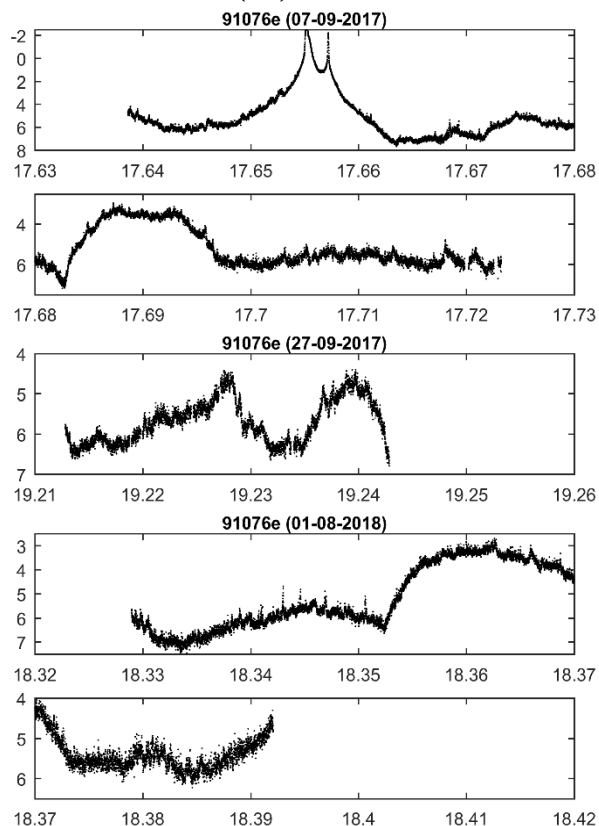




NOSS-2 2B (USA 76)
 NORAD ID: 21808
 Int'l Code: 1991-076D
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1165 km
 Inclination: 63.42°
 Period: 107.45 min
 Eccentricity: 0.007
 Launch date: 1991-11-08
 Source: United States (US)



NOSS-2 2C (USA 77)
 NORAD ID: 21809
 Int'l Code: 1991-076E
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1165 km
 Inclination: 63.42°
 Period: 107.45 min
 Eccentricity: 0.007
 Launch date: 1991-11-08
 Source: United States (US)



DMSP 5D-2 F11 (USA 73)

NORAD ID: 21798

Int'l Code: 1991-082A

Dimensions: cylinder + panel

6.4m span 6.4m long 1.68m dia?

Initial orbit:

Perigee: 840 km

Apogee: 857 km

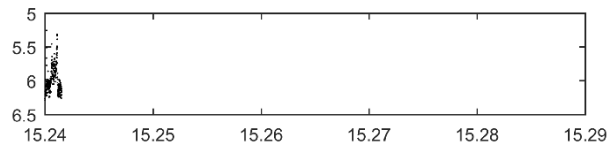
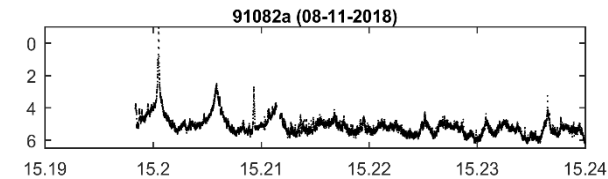
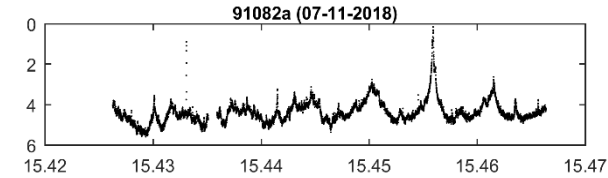
Inclination: 98.92°

Period: 101.97 min

Eccentricity: 0.001

Launch date: 1991-11-28

Source: United States (US)

**USA 81**

NORAD ID: 21949

Int'l Code: 1992-023A

Dimensions:

Initial orbit:

Perigee: 784 km

Apogee: 805 km

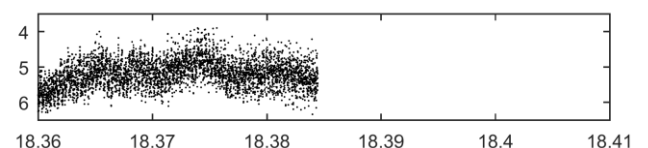
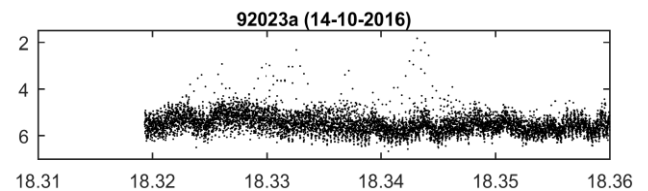
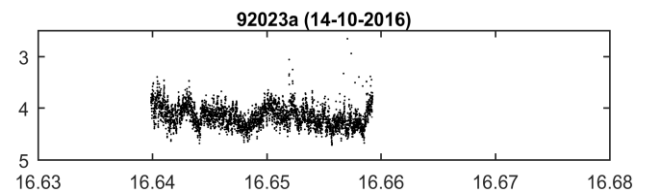
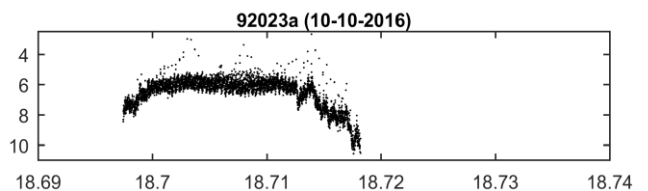
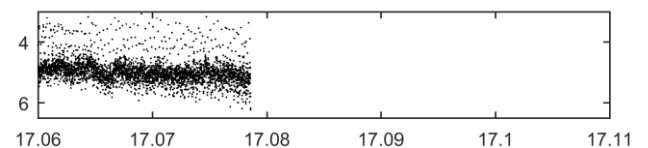
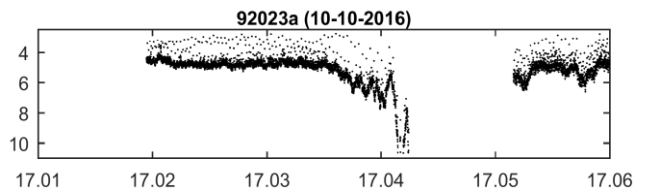
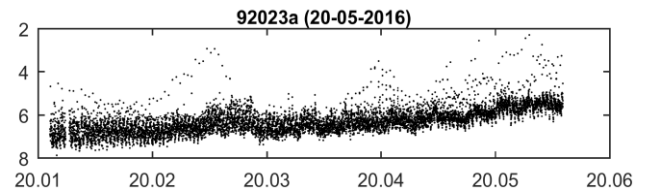
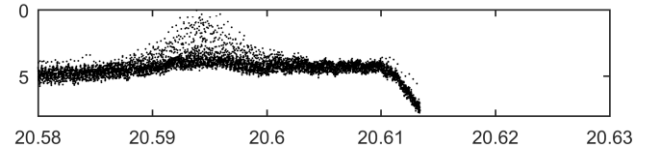
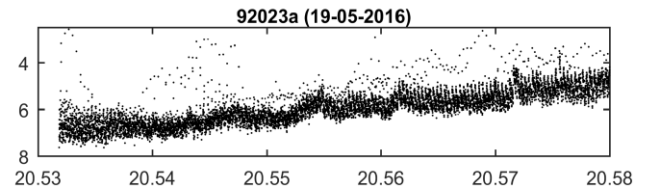
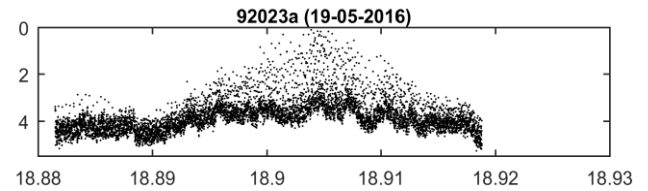
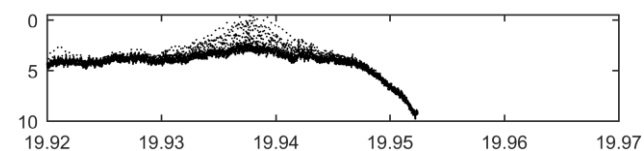
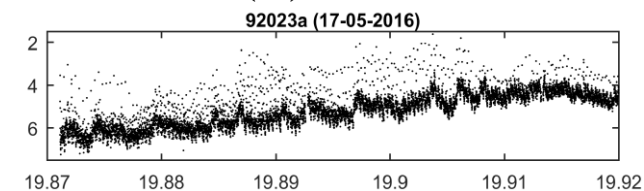
Inclination: 85.14°

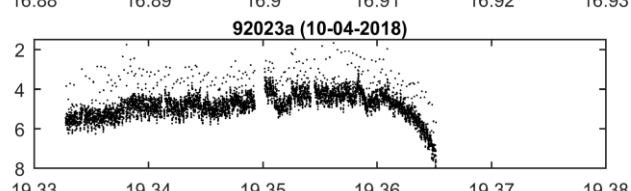
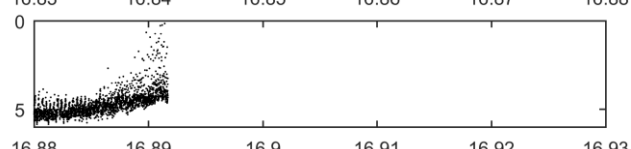
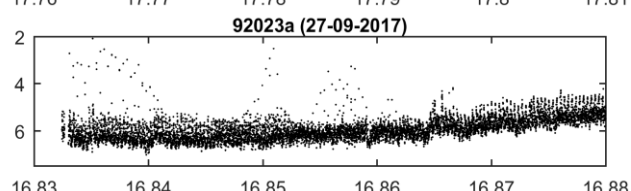
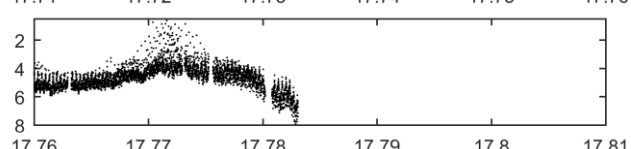
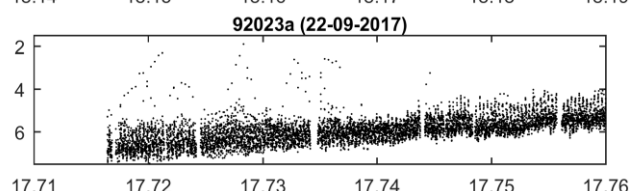
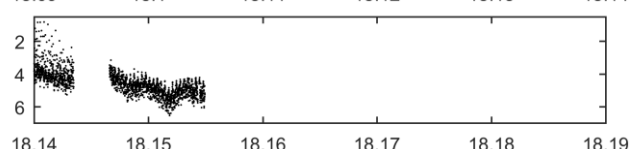
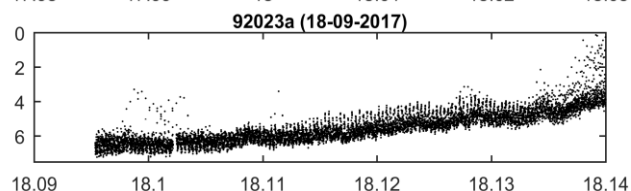
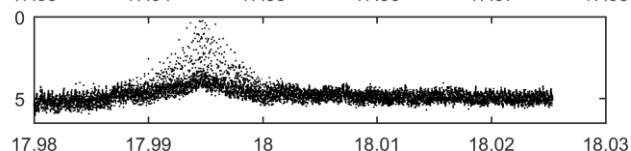
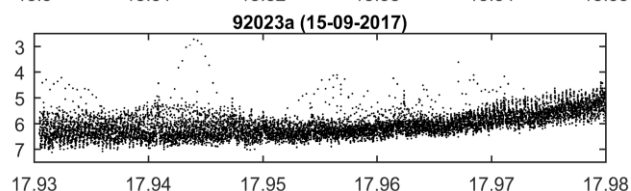
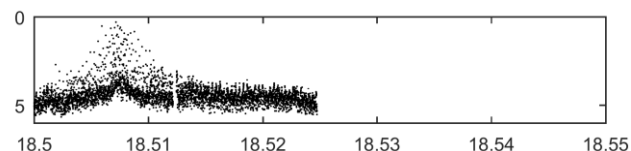
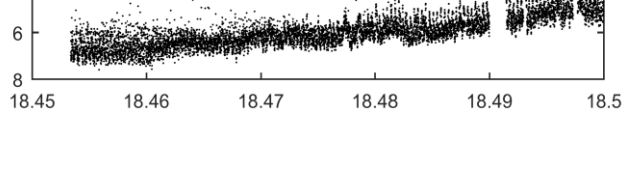
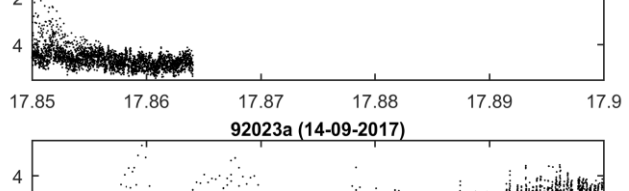
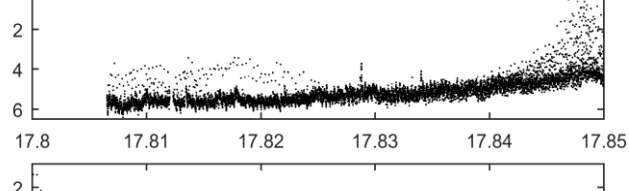
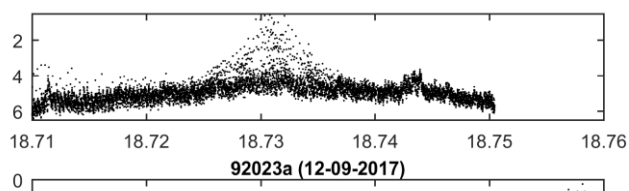
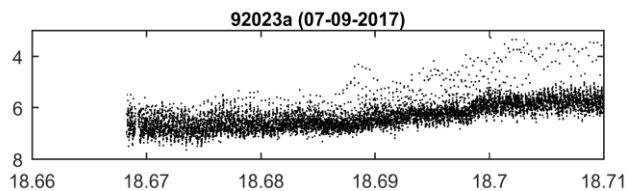
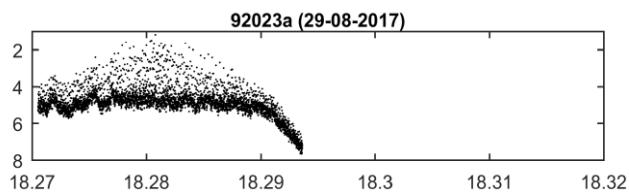
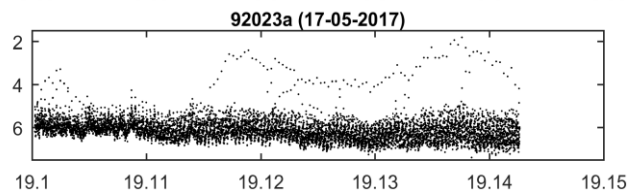
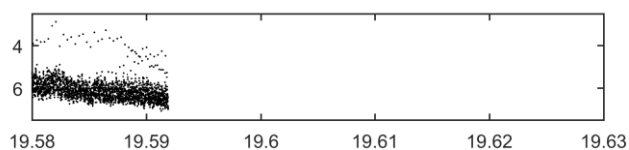
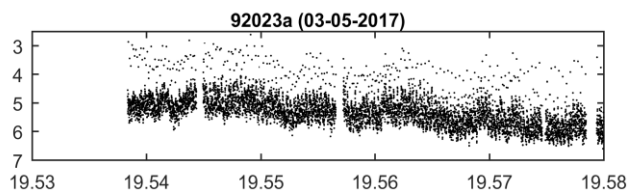
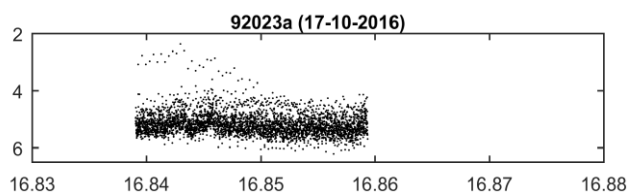
Period: 100.82 min

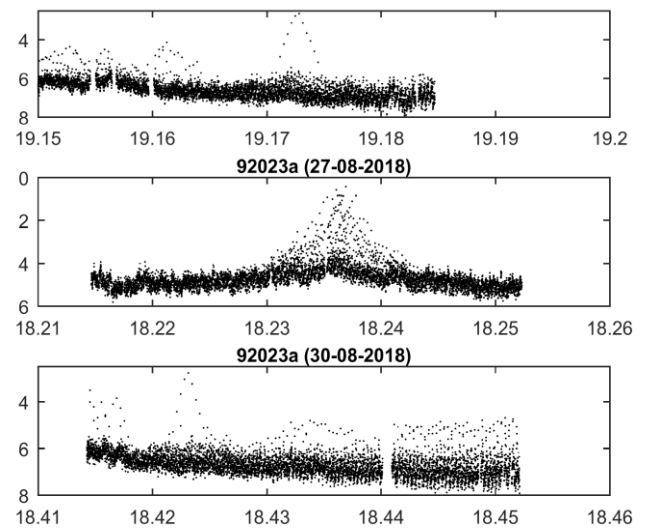
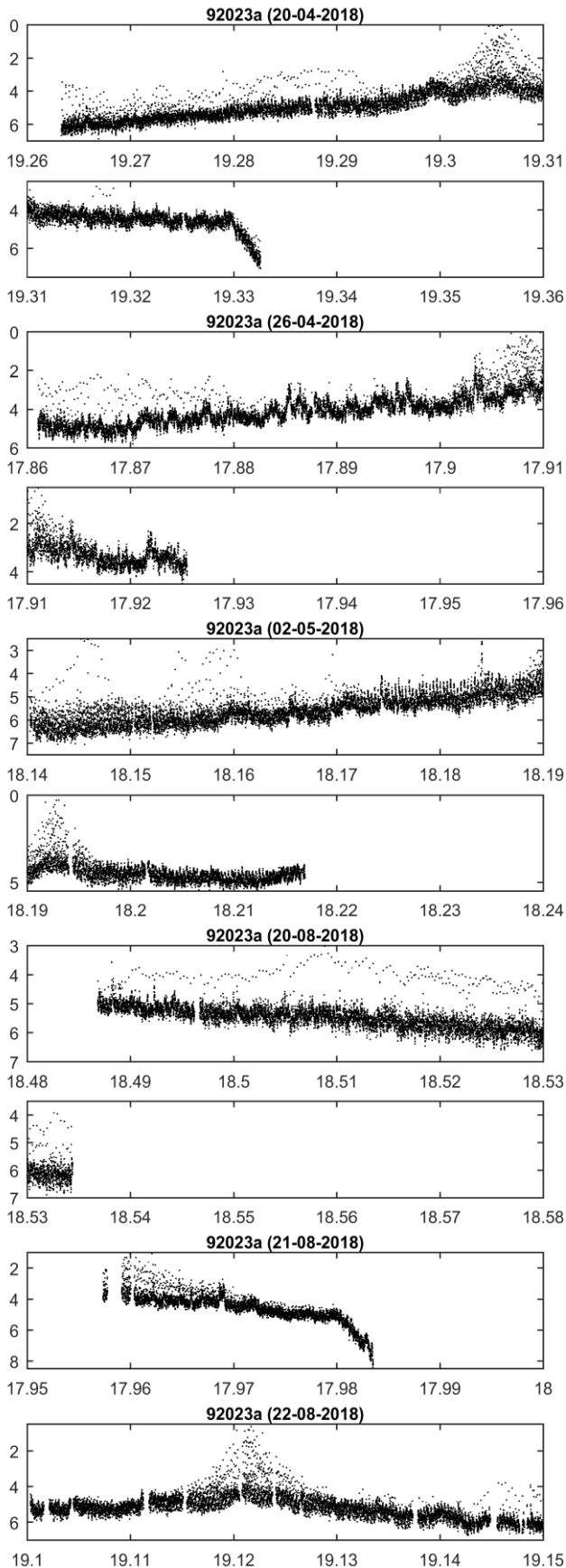
Eccentricity: 0.002

Launch date: 1992-04-25

Source: United States (US)







TOPEX/POSEIDON

NORAD ID: 22076

Int'l Code: 1992-052A

Dimensions: box 4.15m x 2.19m x 1.45m, 8.7m span

Initial orbit:

Perigee: 1317 km

Apogee: 1331 km

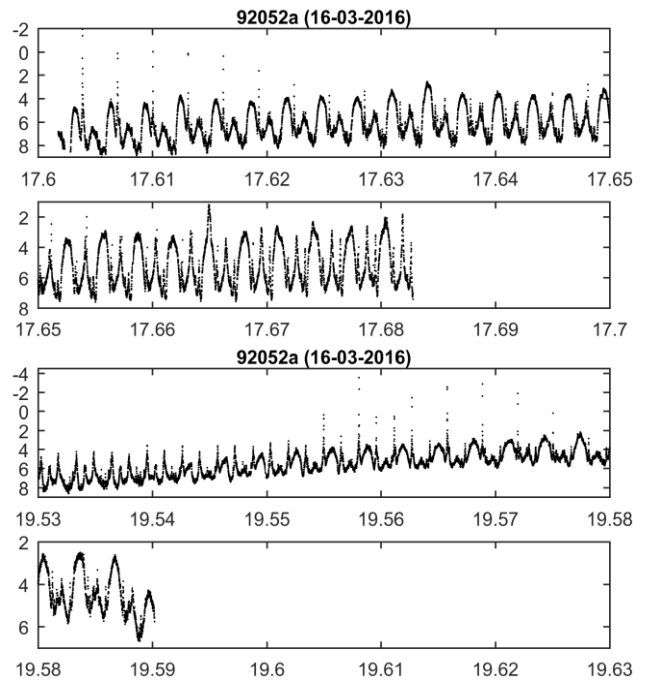
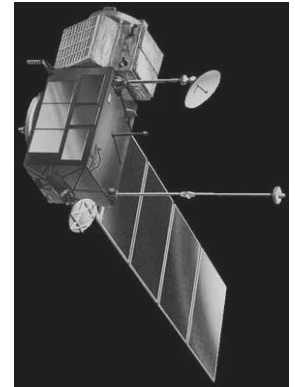
Inclination: 66.08°

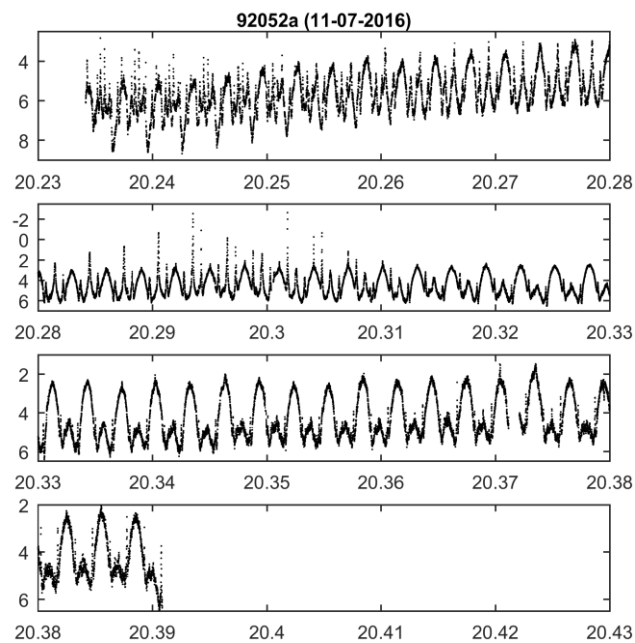
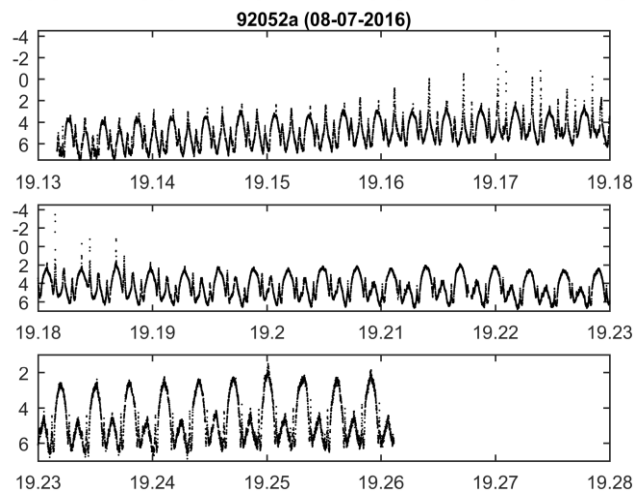
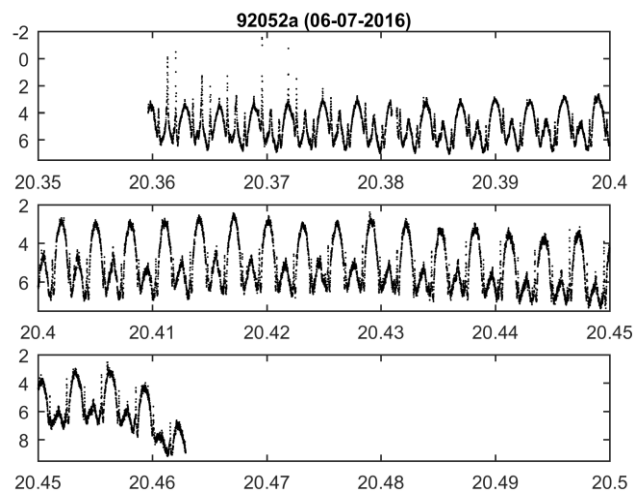
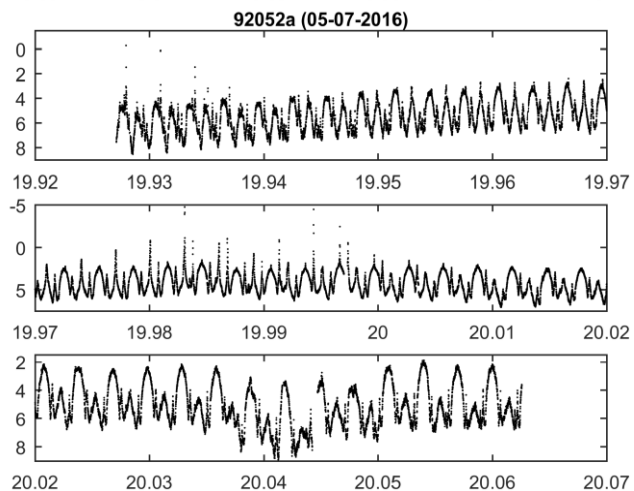
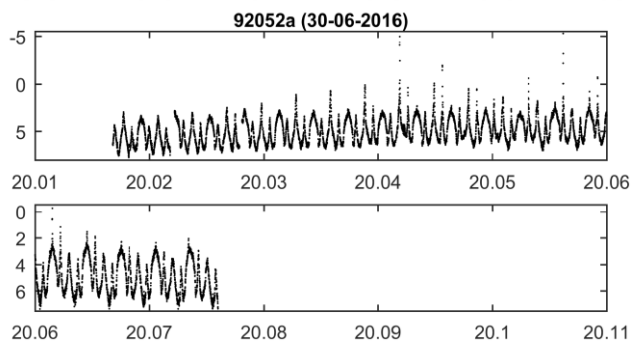
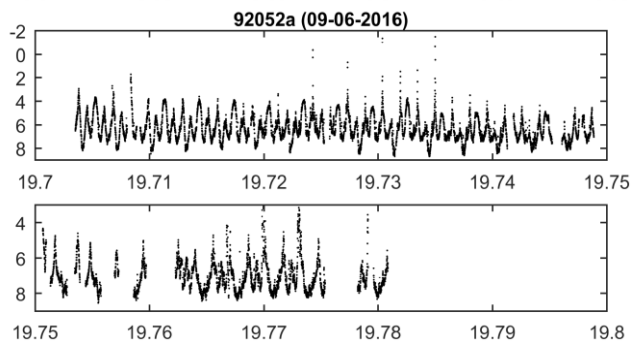
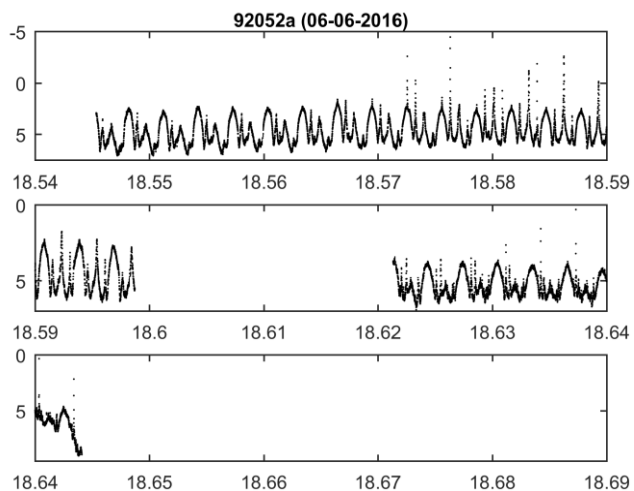
Period: 112.13 min

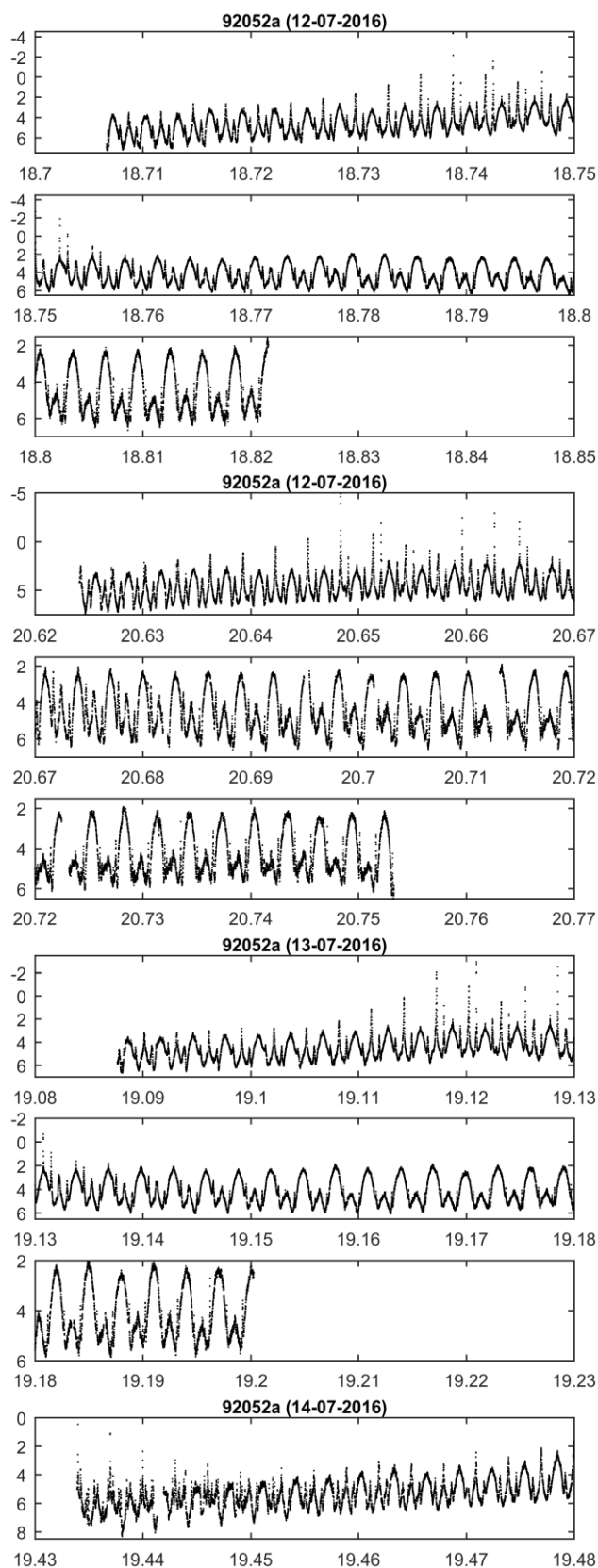
Eccentricity: 0.001

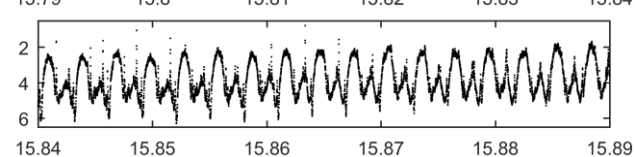
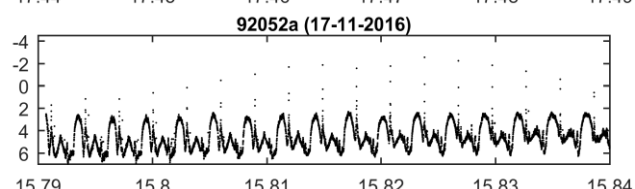
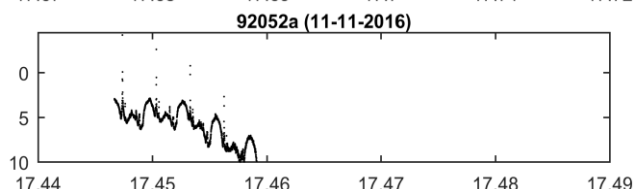
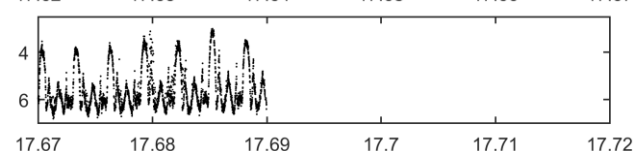
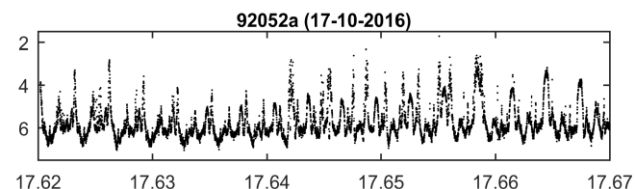
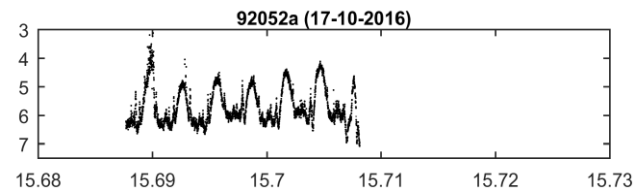
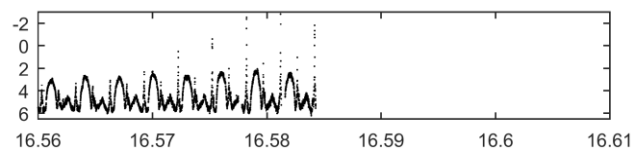
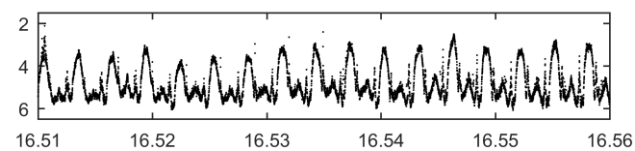
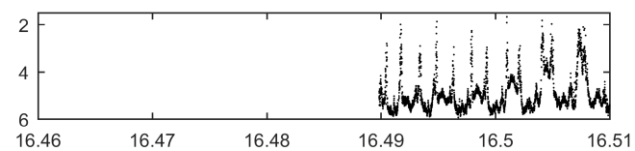
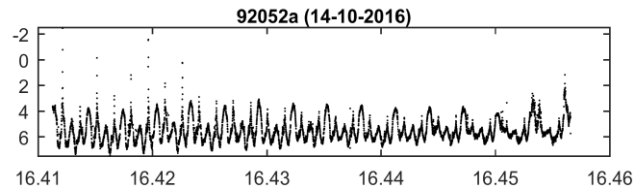
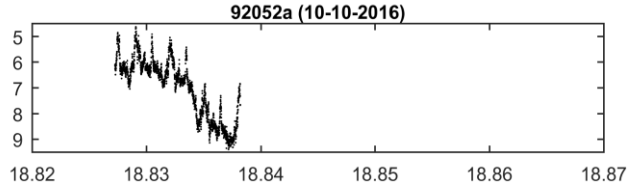
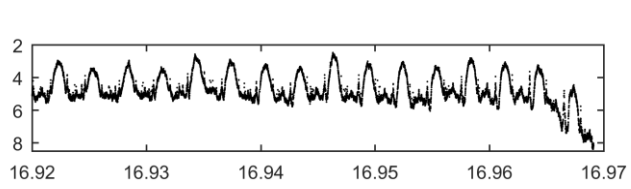
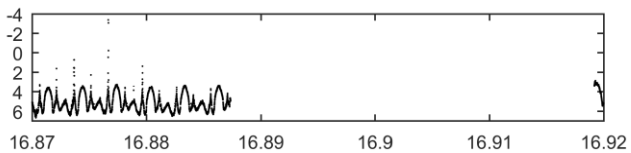
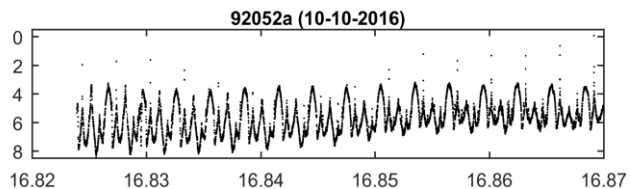
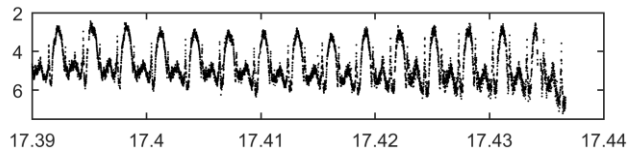
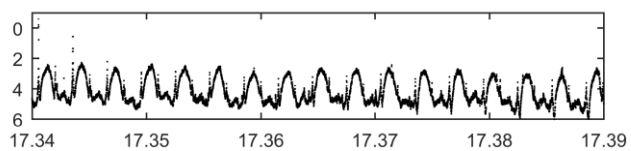
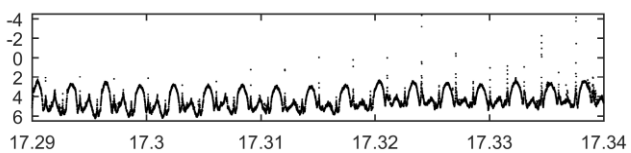
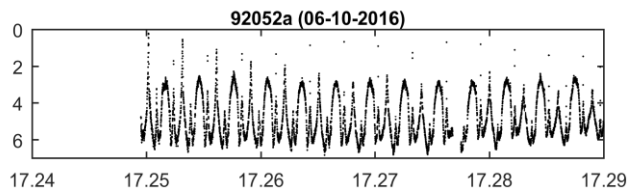
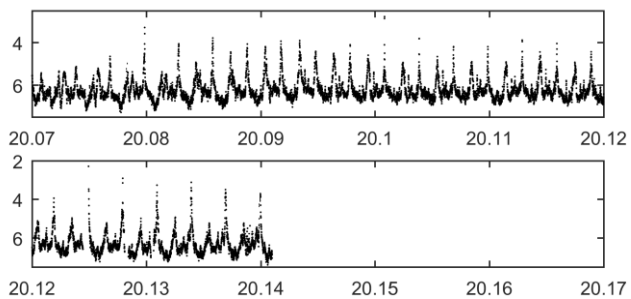
Launch date: 1992-08-10

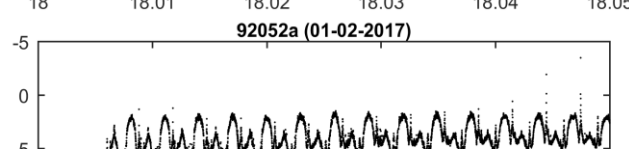
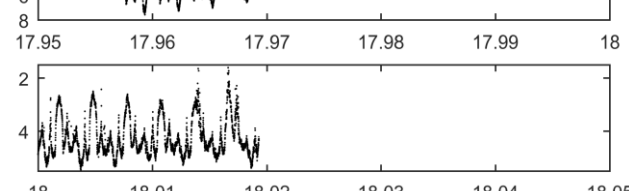
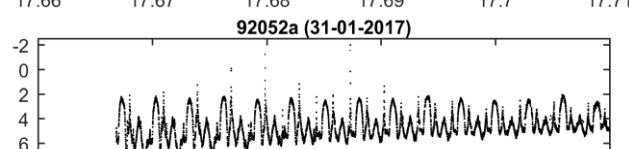
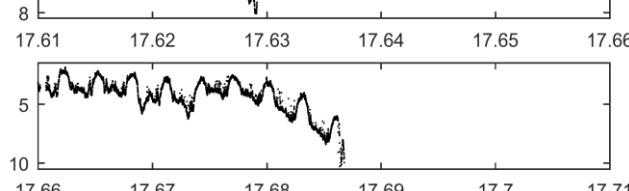
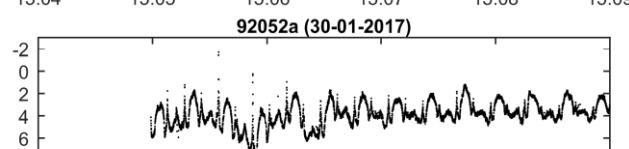
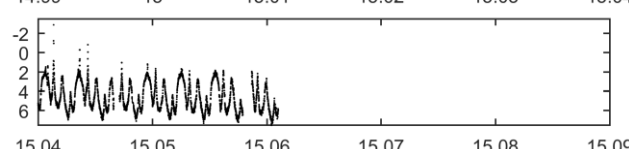
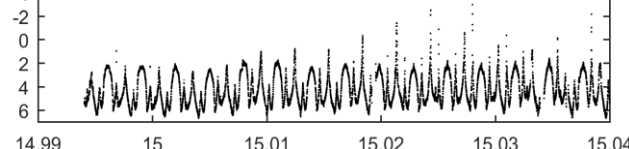
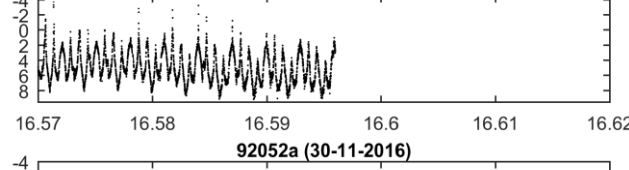
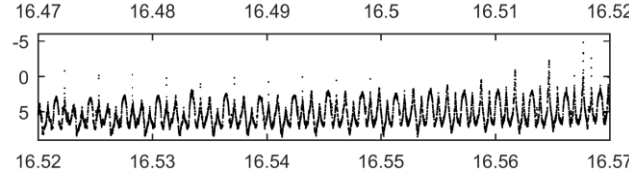
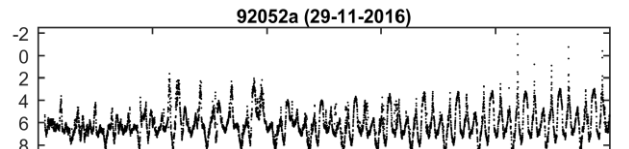
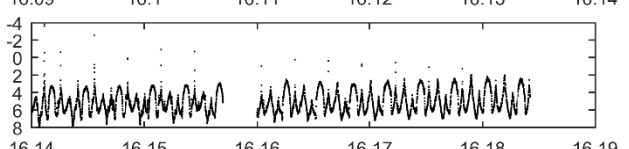
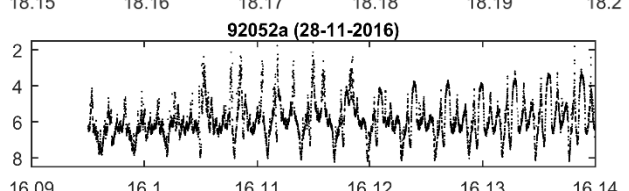
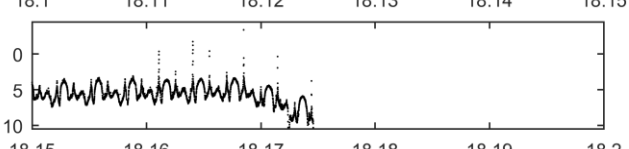
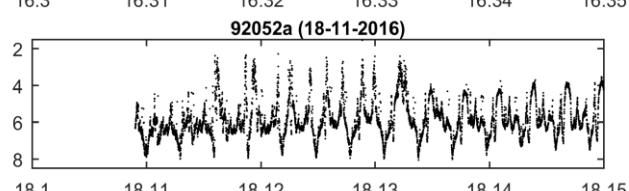
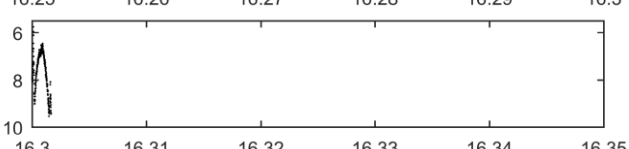
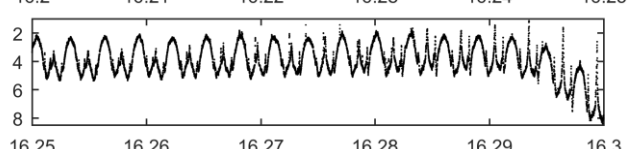
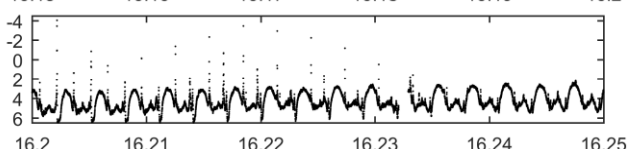
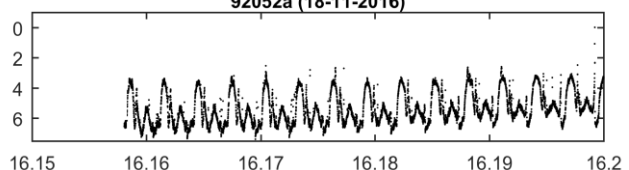
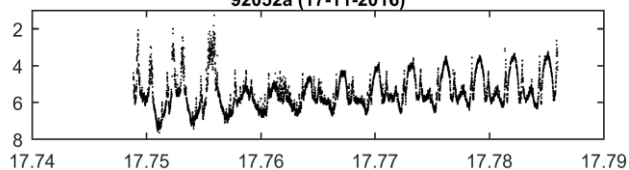
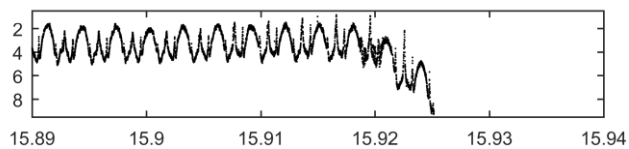
Source: United States (US)

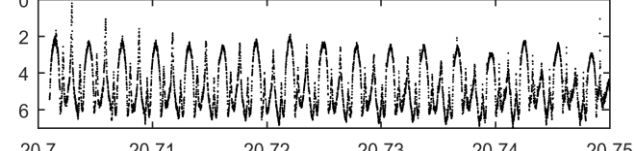
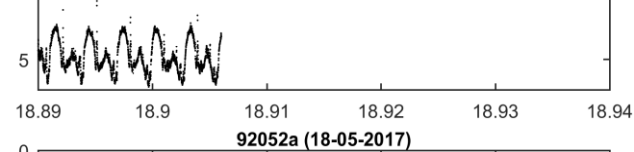
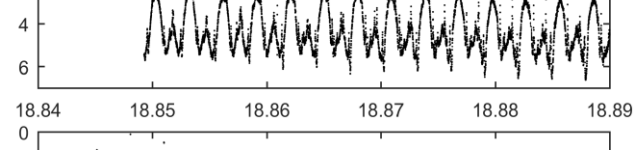
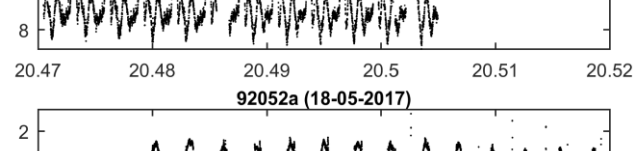
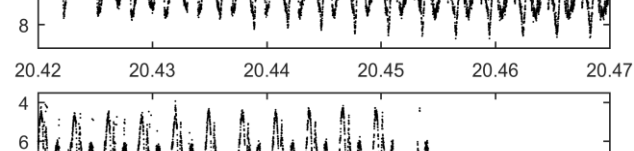
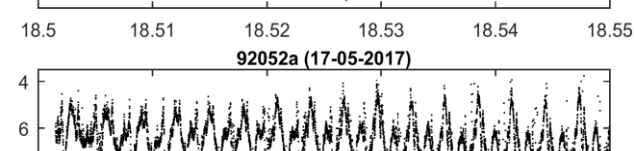
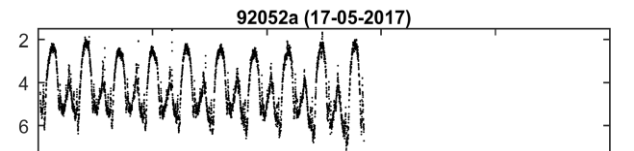
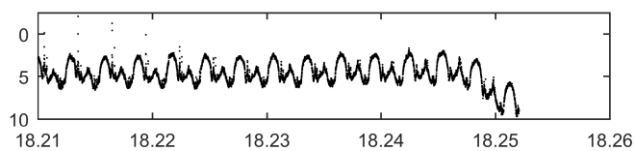
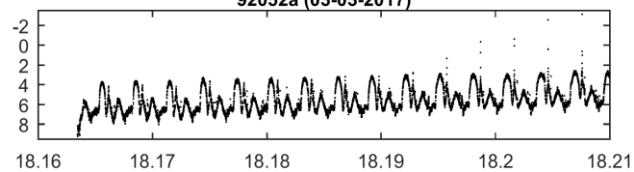
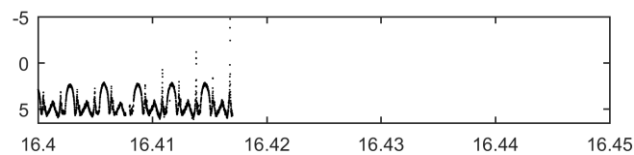
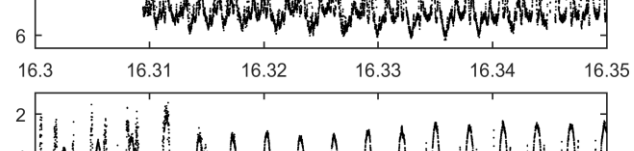
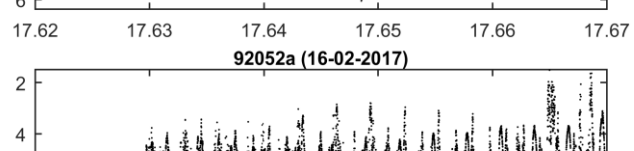
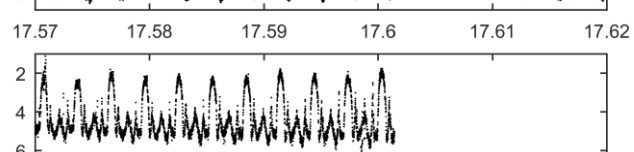
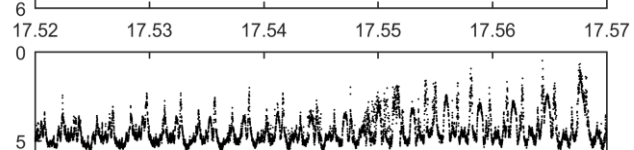
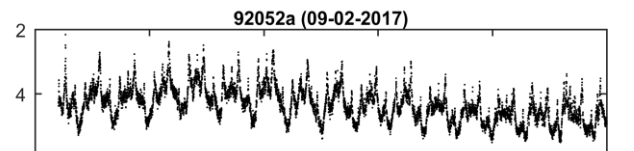
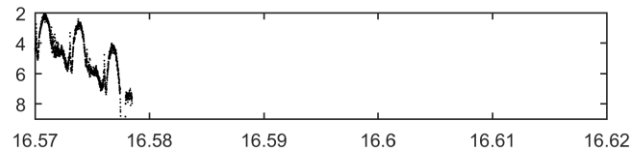
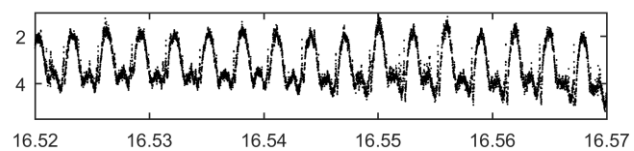
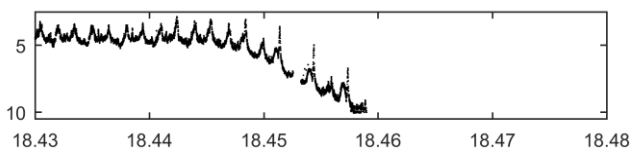
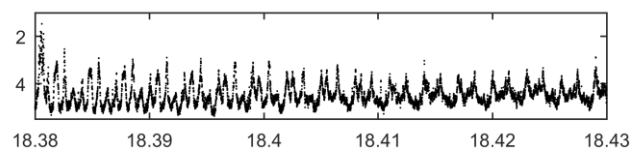
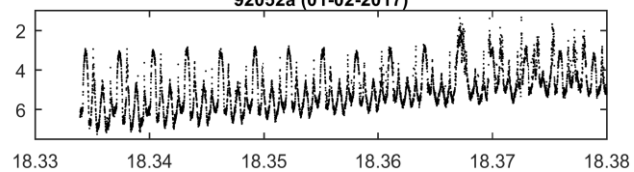
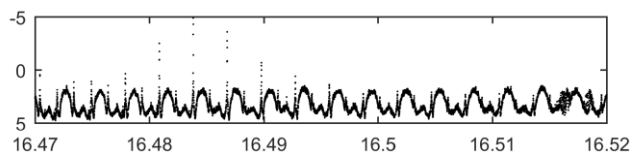


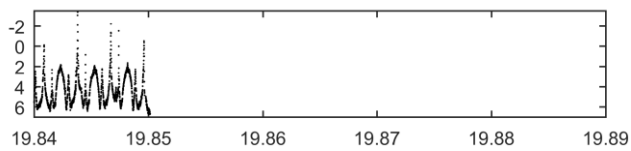
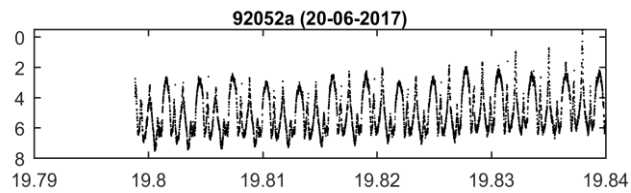
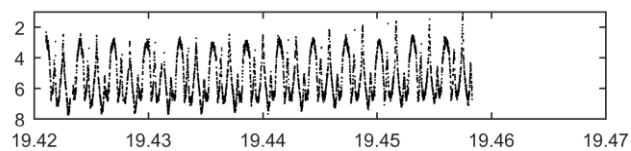
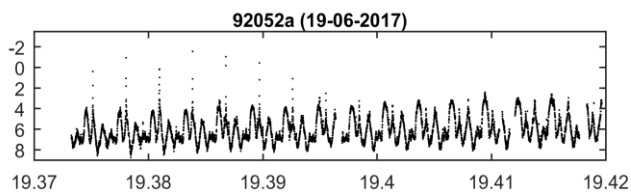
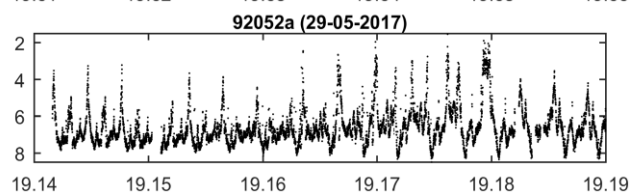
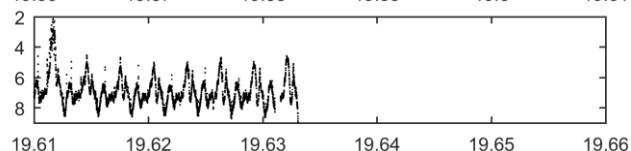
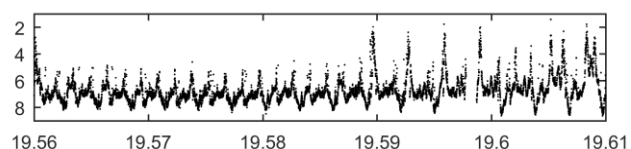
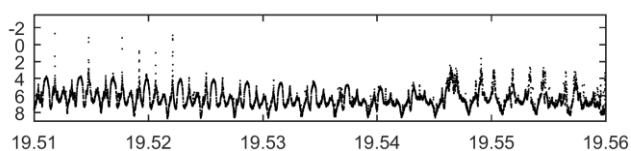
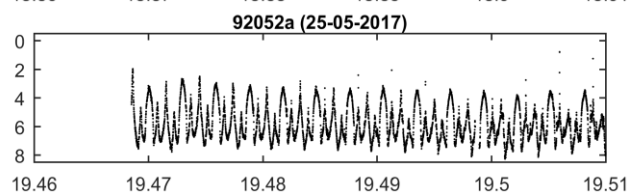
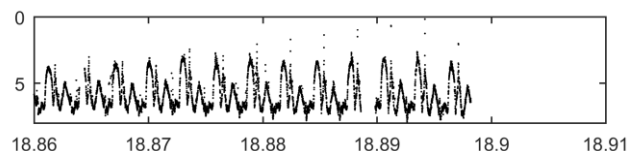
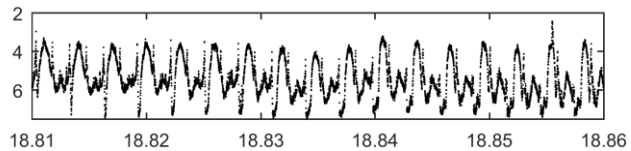
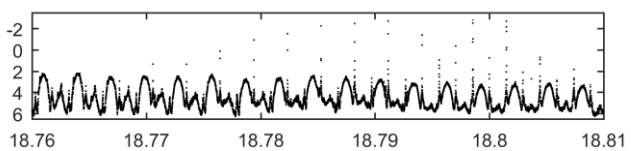
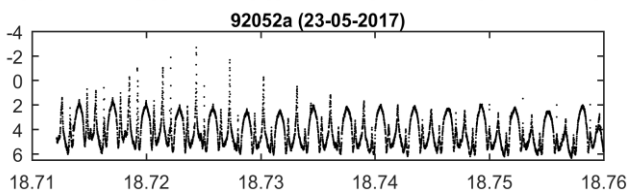
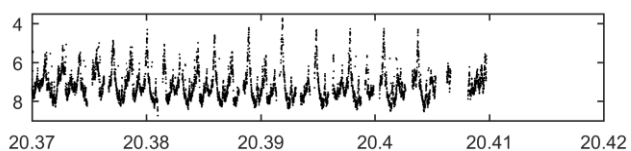
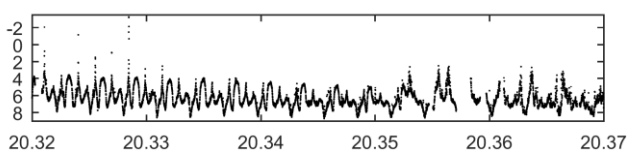
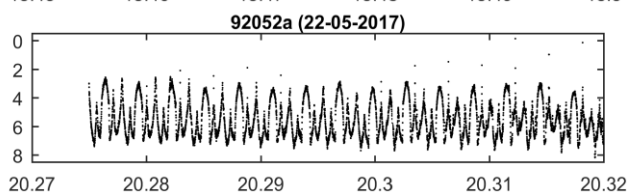
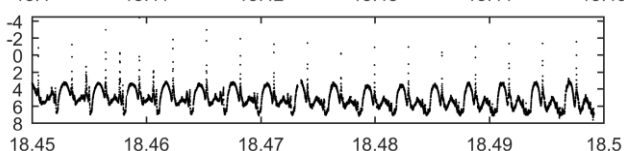
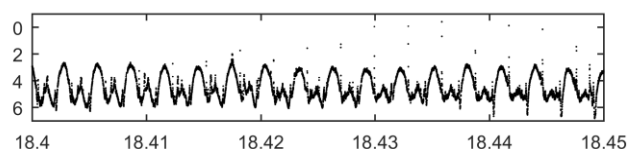
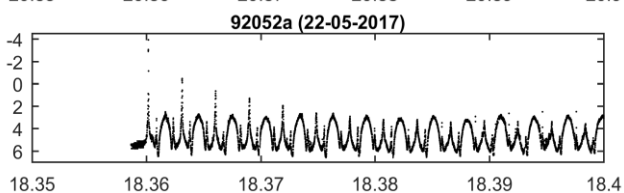
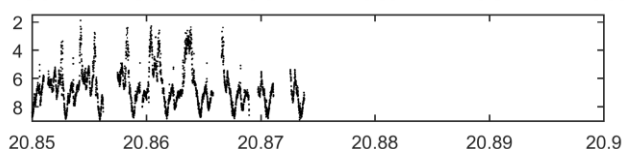
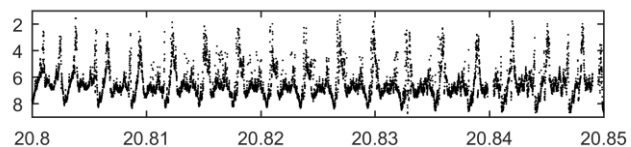


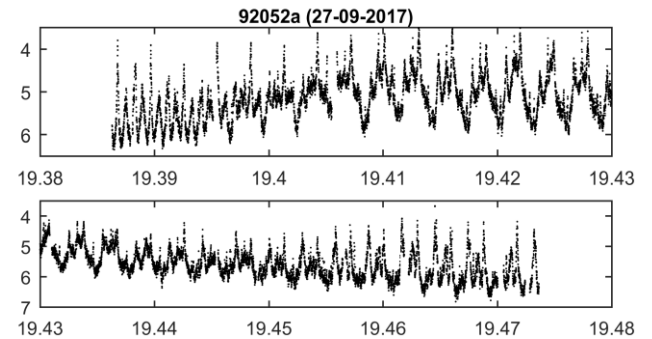
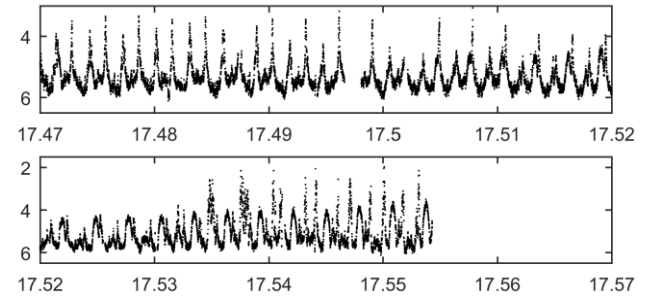
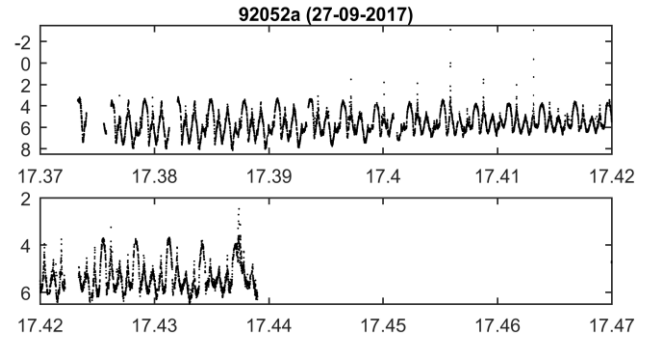
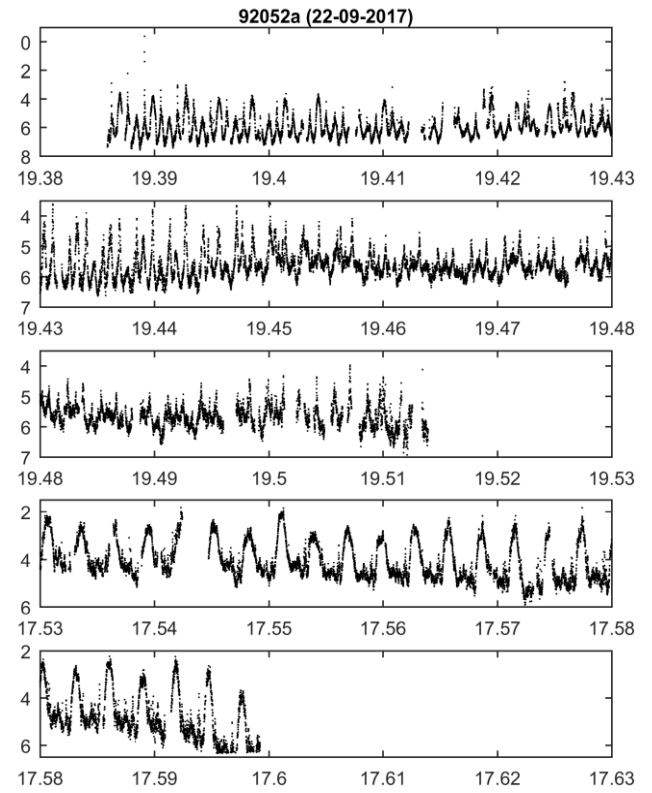
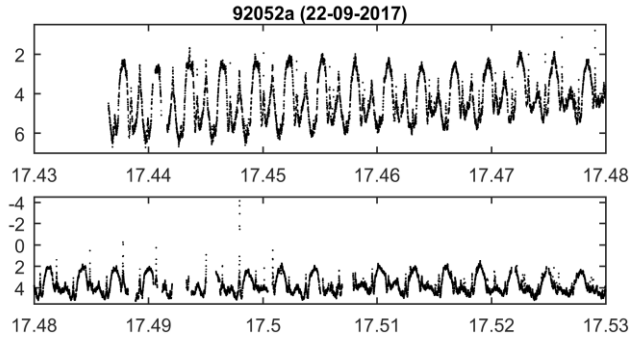
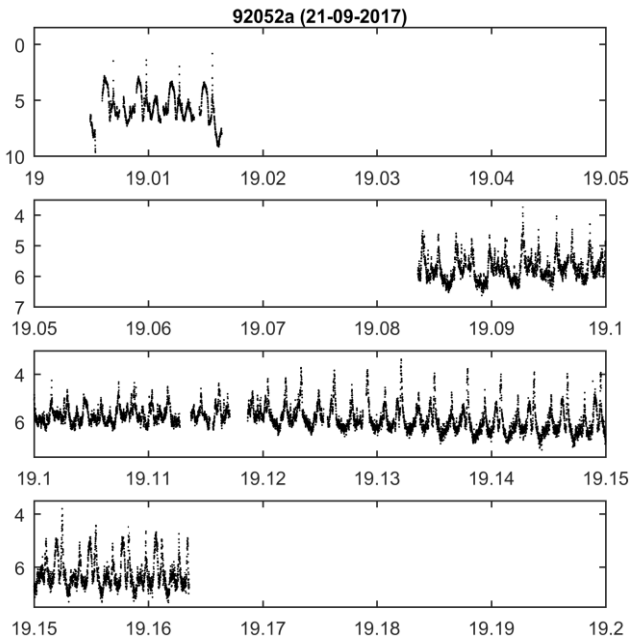
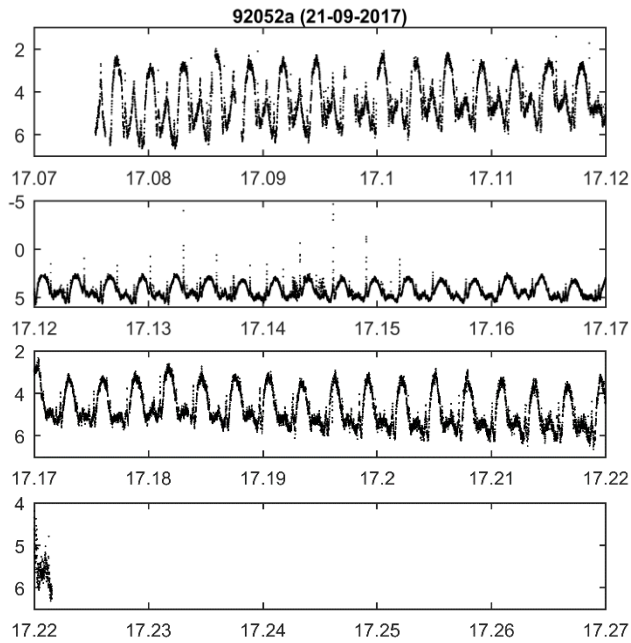


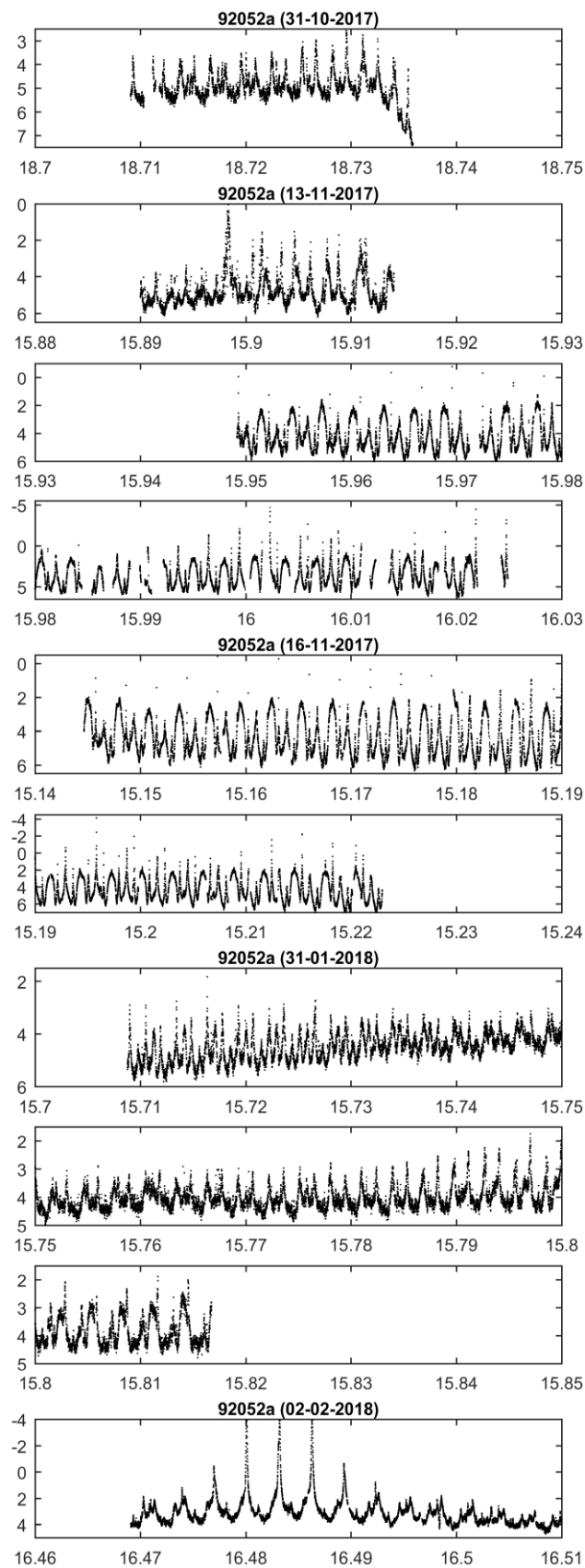
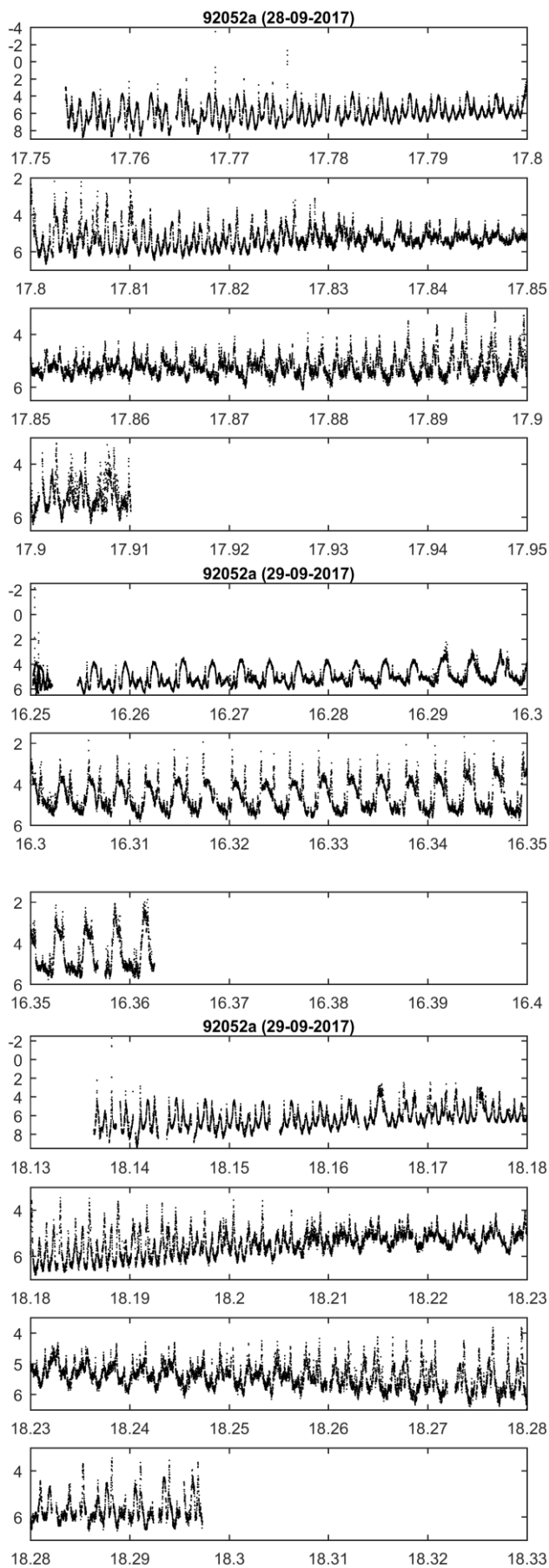


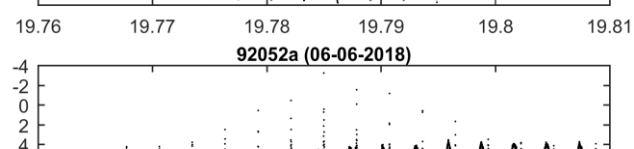
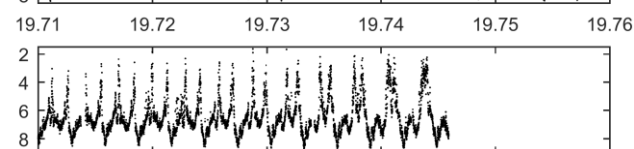
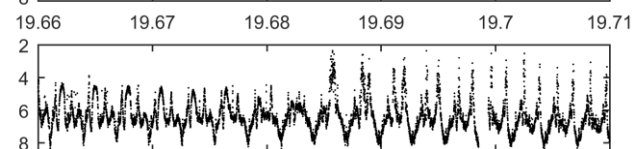
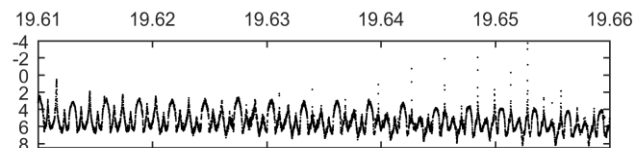
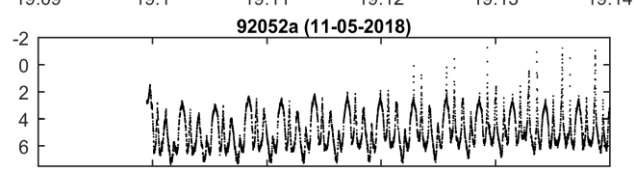
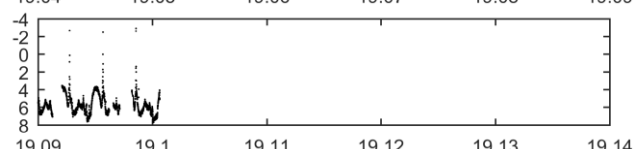
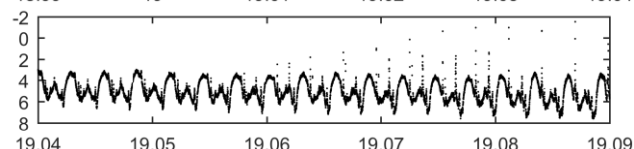
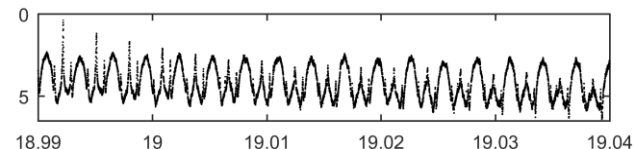
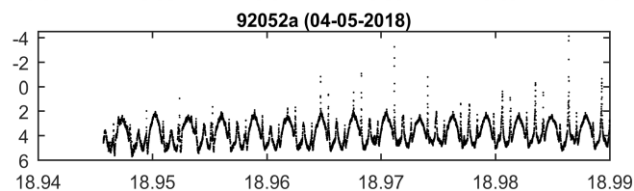
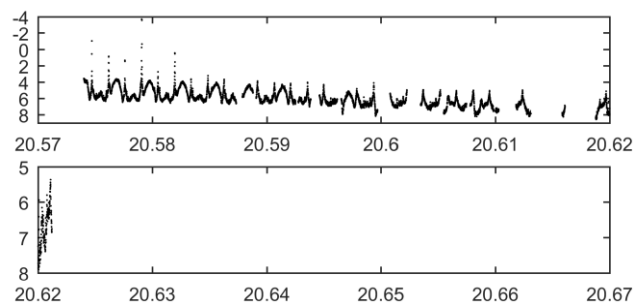
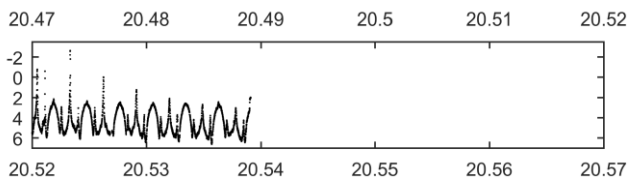
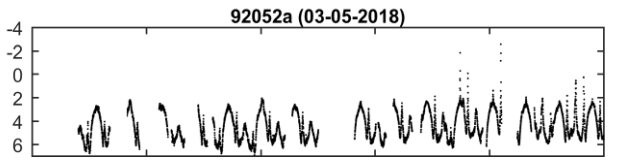
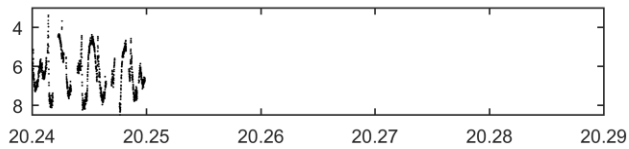
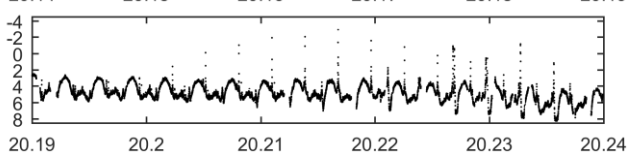
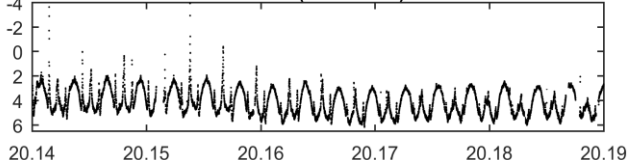
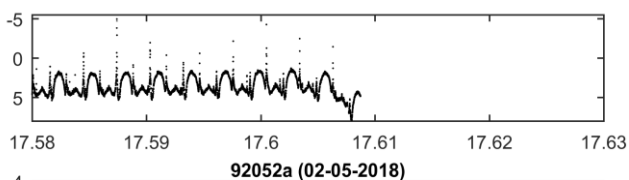
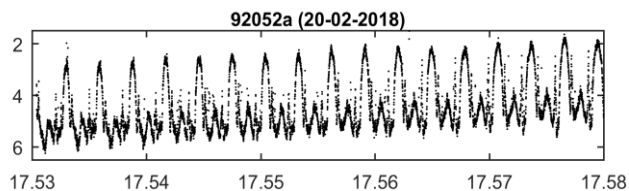
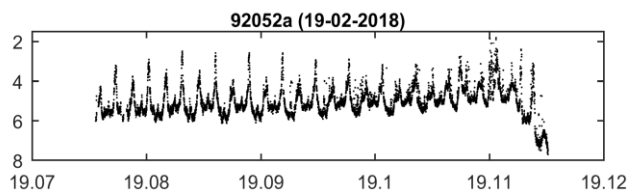
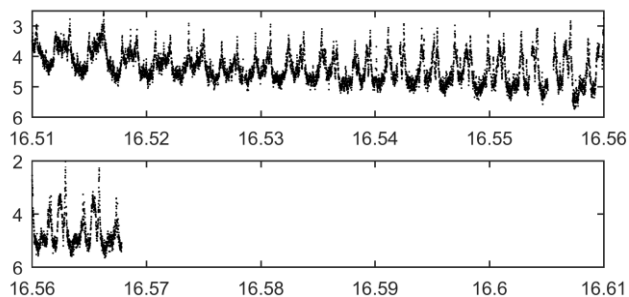


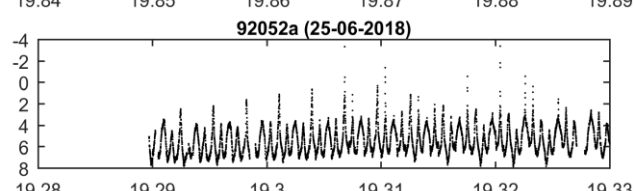
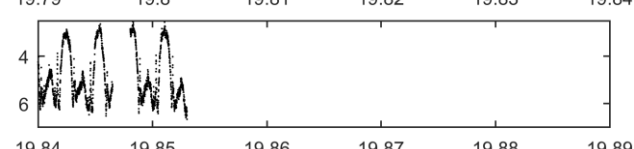
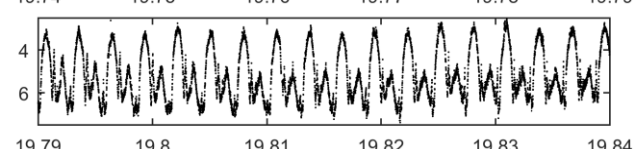
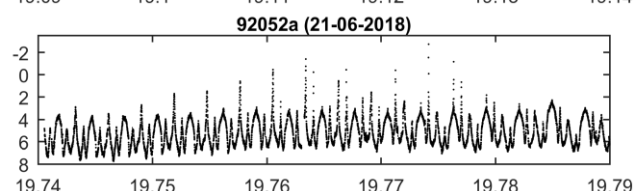
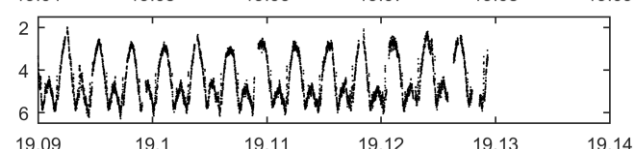
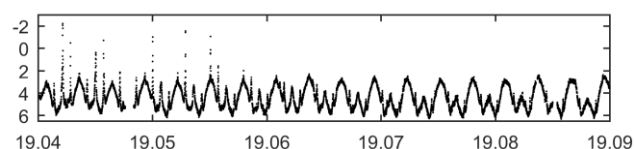
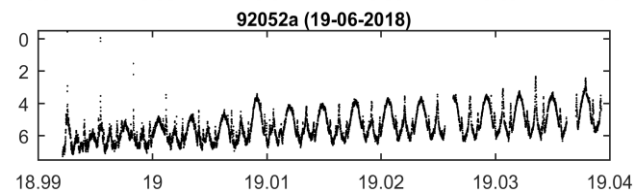
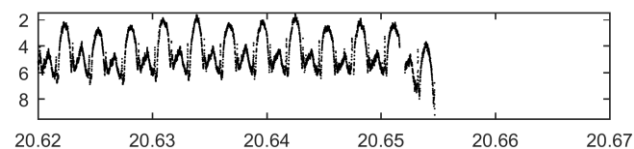
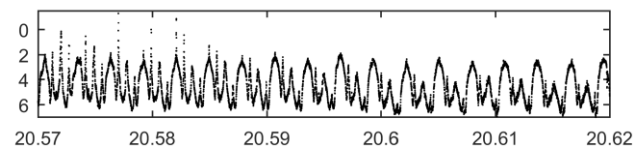
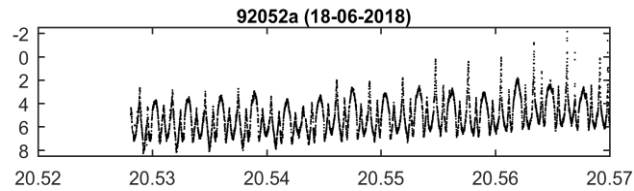
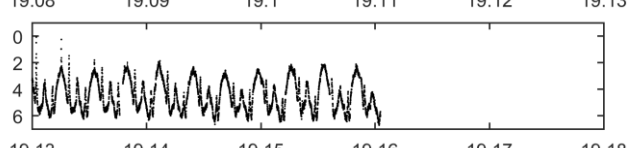
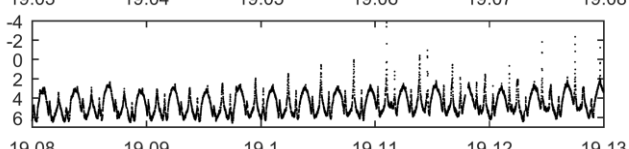
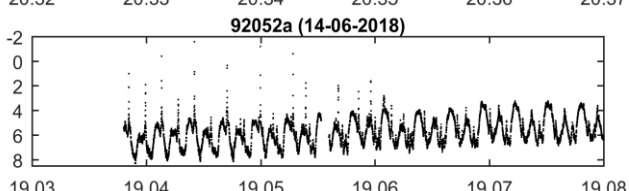
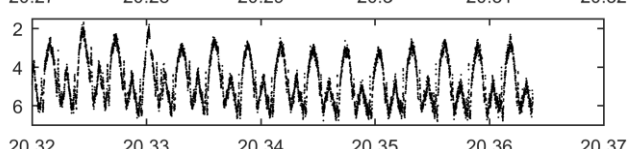
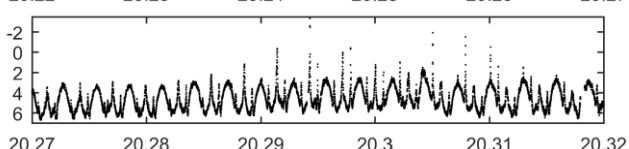
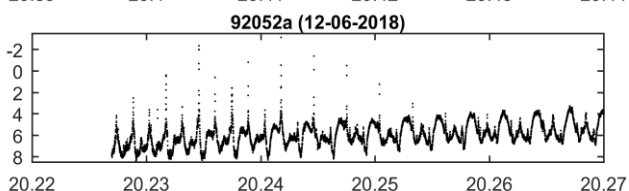
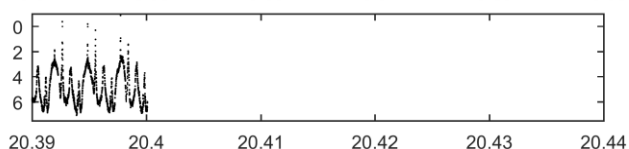
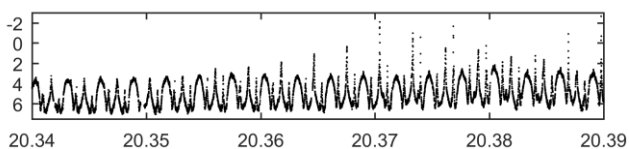
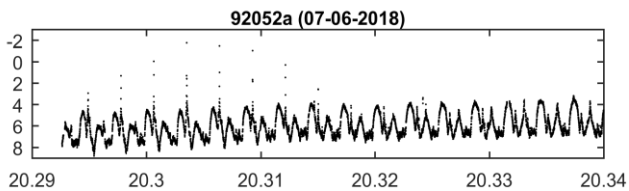
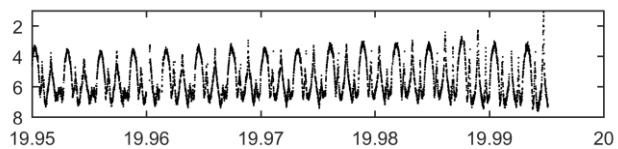


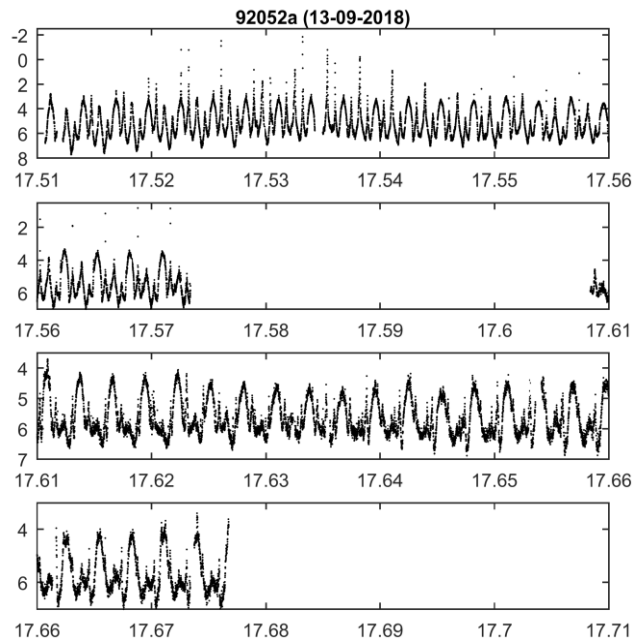
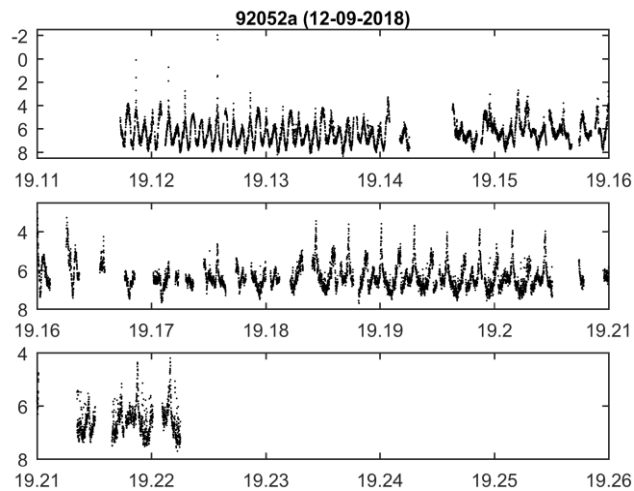
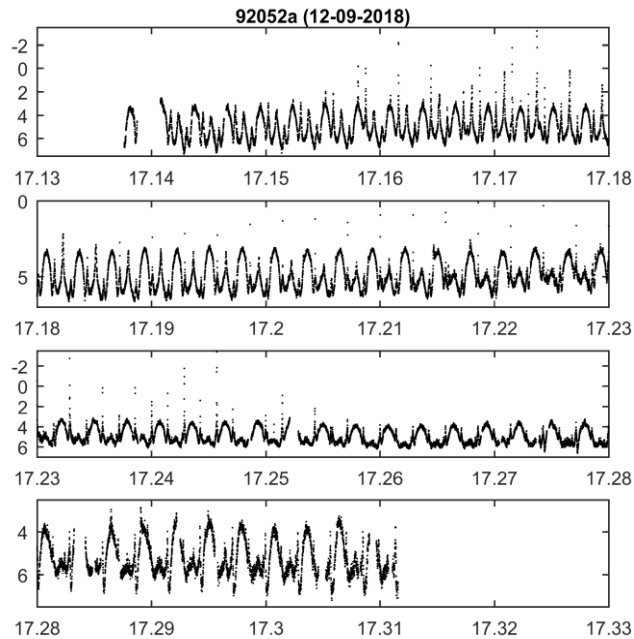
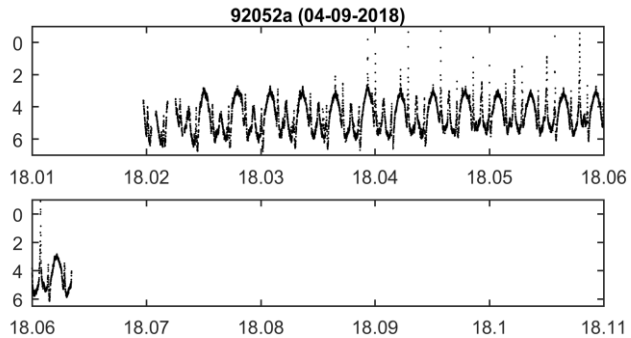
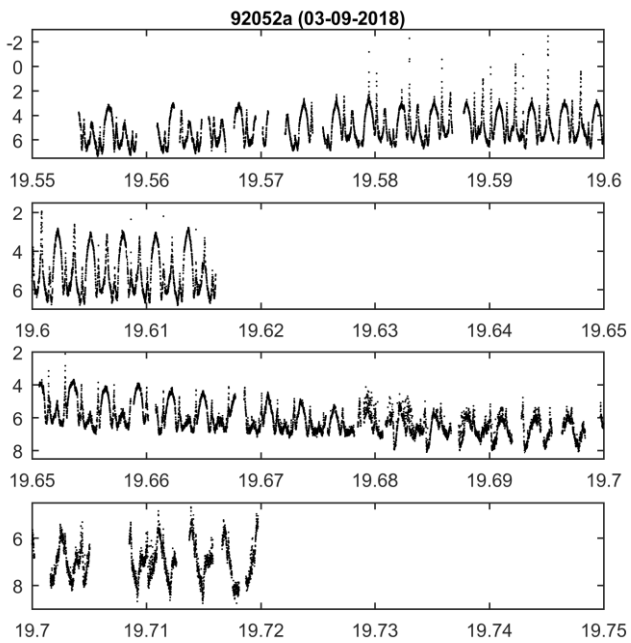
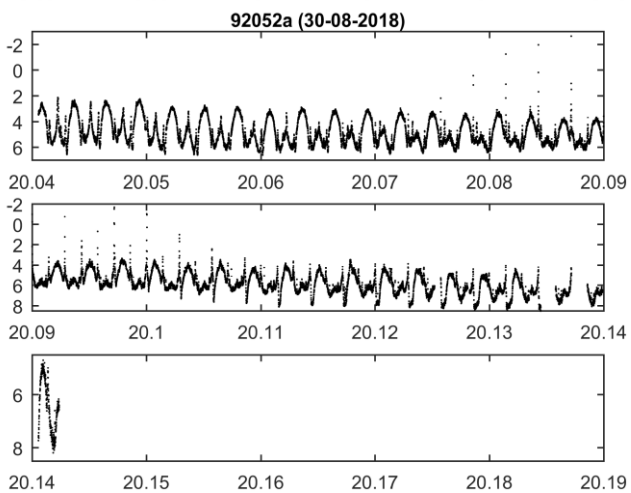
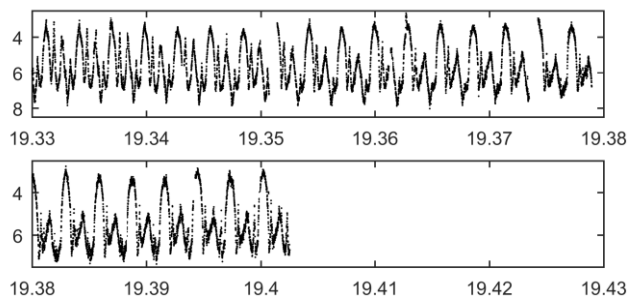


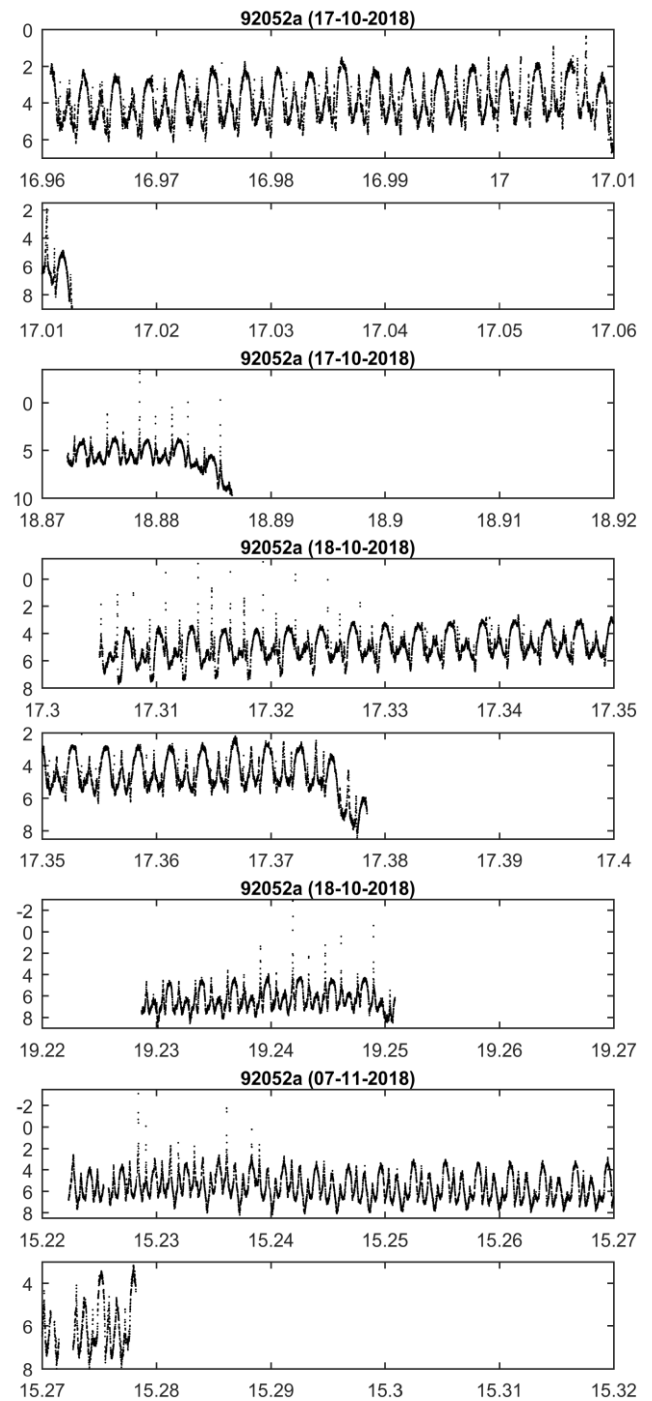
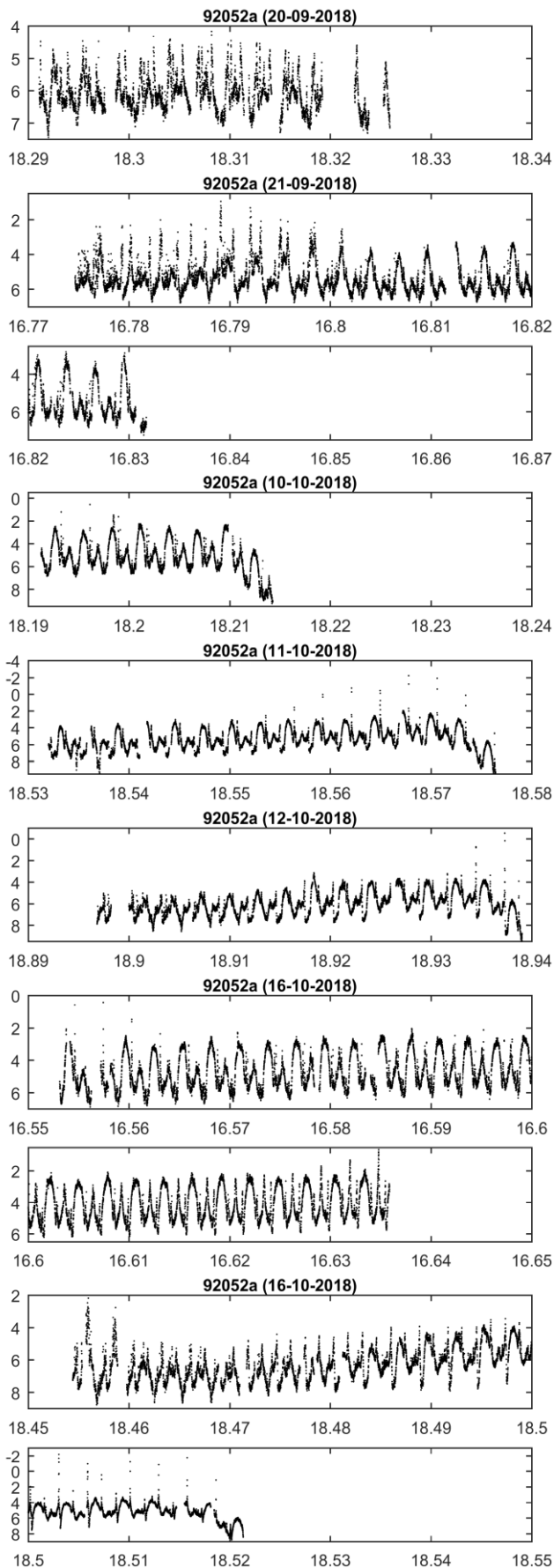








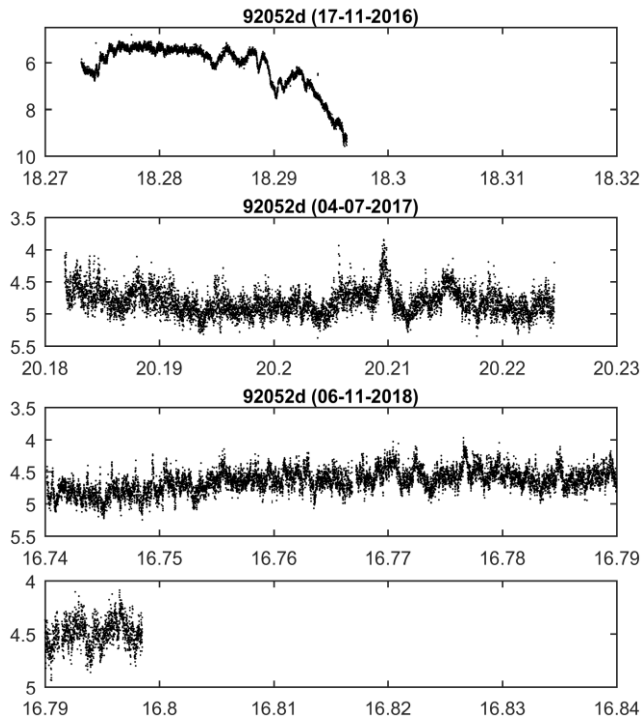




ARIANE 42P H10 R/B (3rd stage)
(TOPEX/POSEIDON ROCKET)
 NORAD ID: 22079
 Int'l Code: 1992-052D
 Dimensions: cylinder 11.4m long 2.6m dia
 Initial orbit:
 Perigee: 1301 km
 Apogee: 1401 km
 Inclination: 66.07°
 Period: 112.72 min
 Eccentricity: 0.006
 Launch date: 1992-08-10



Source: France (FR)



NOAA 13

NORAD ID: 22739

Int'l Code: 1993-050A

Dimensions: box + panel 4.18m long

1.8m dia

Initial orbit:

Perigee: 850 km

Apogee: 863 km

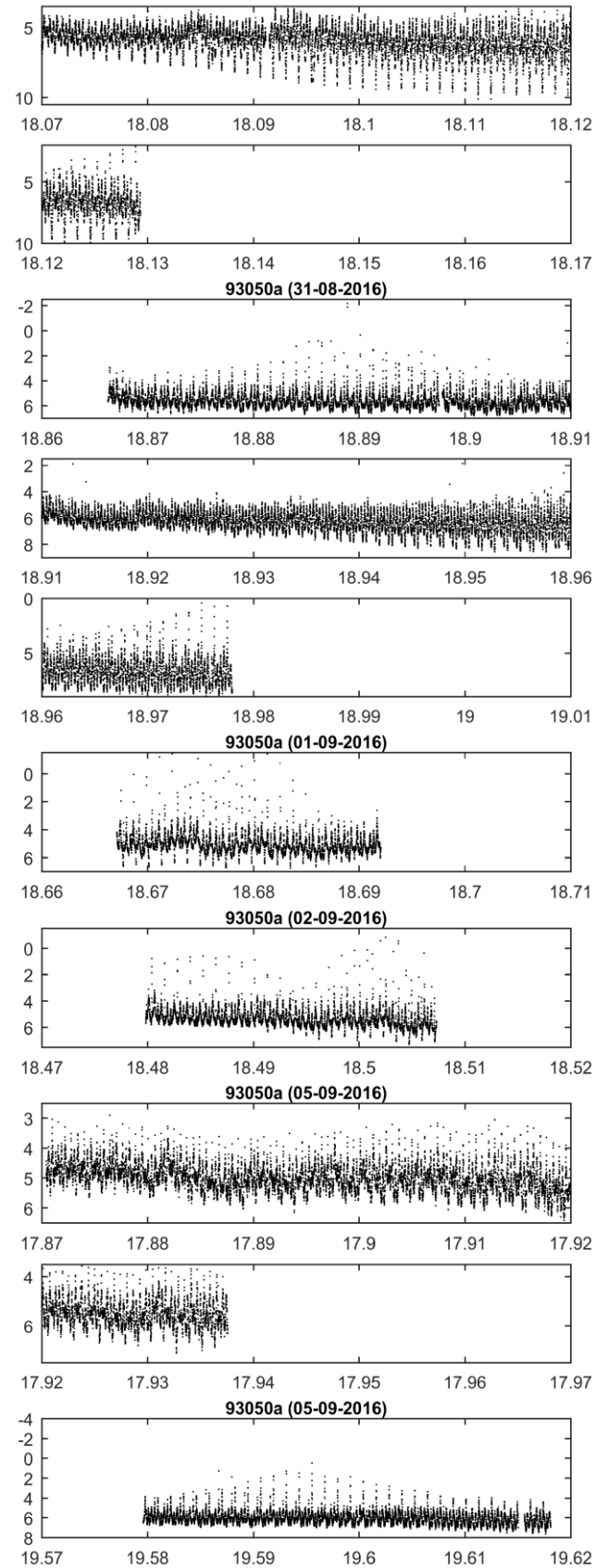
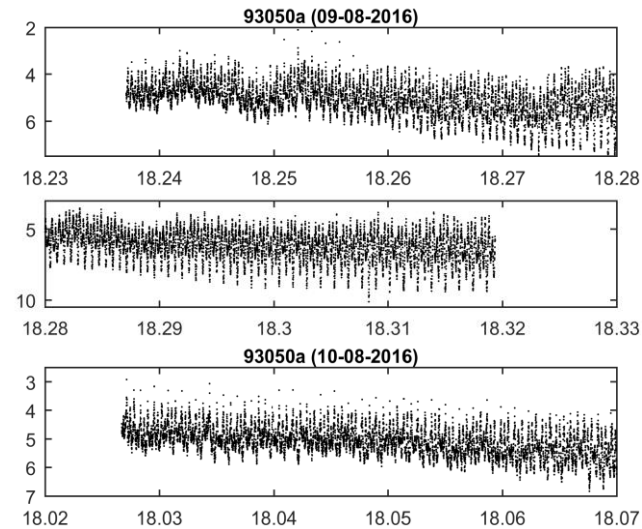
Inclination: 98.91°

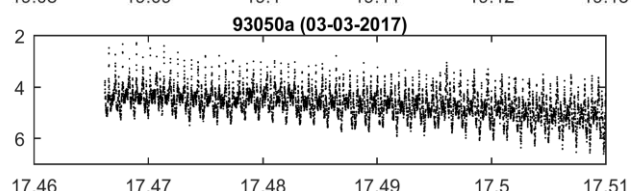
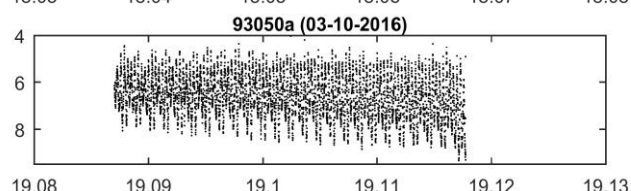
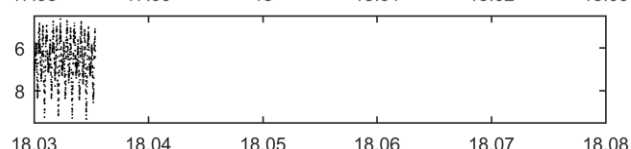
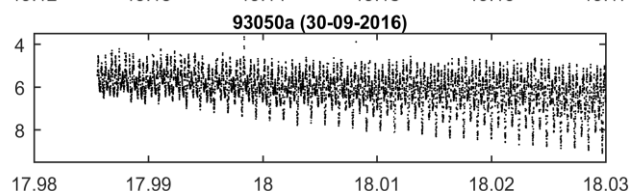
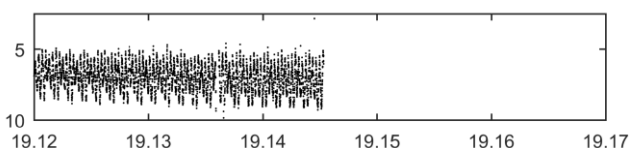
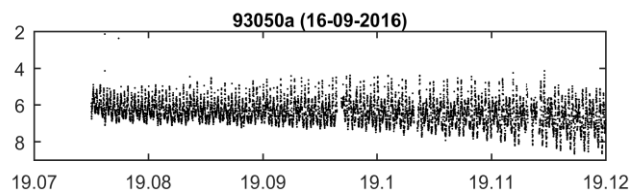
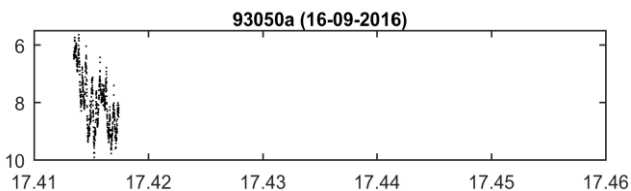
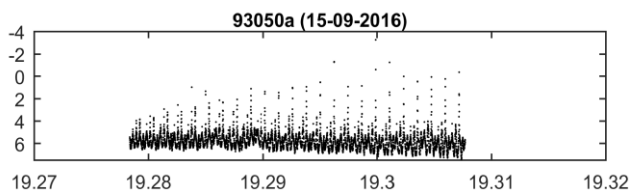
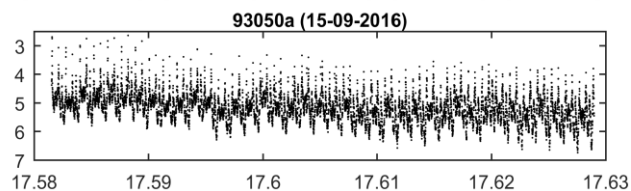
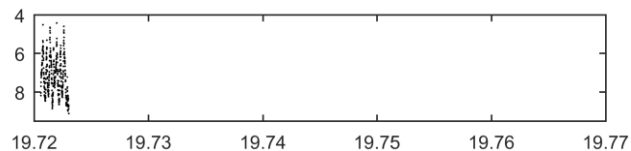
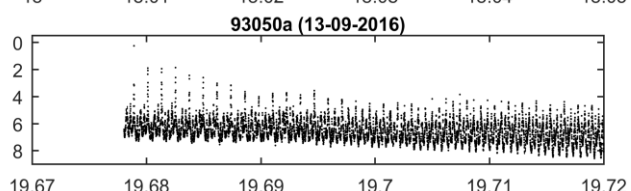
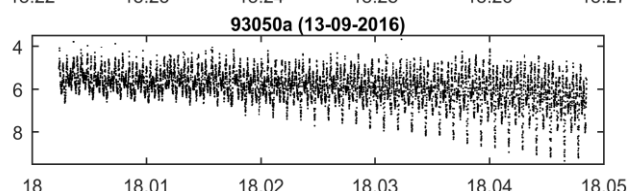
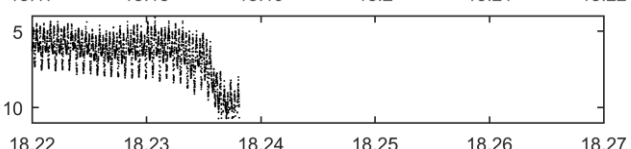
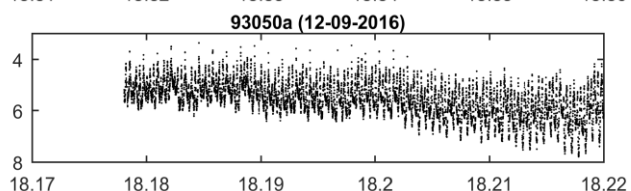
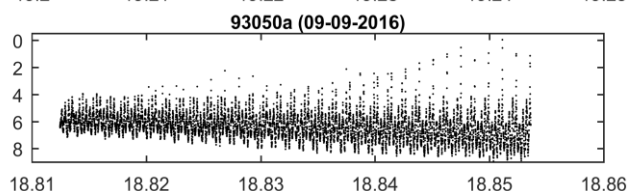
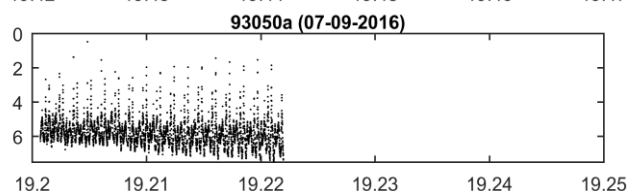
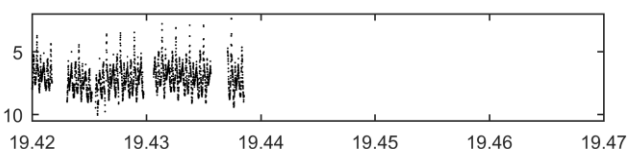
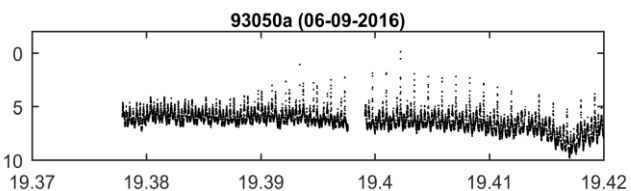
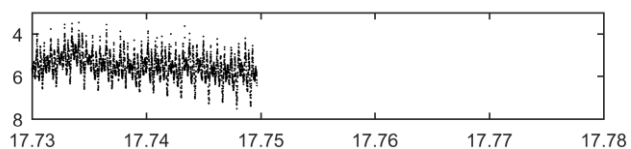
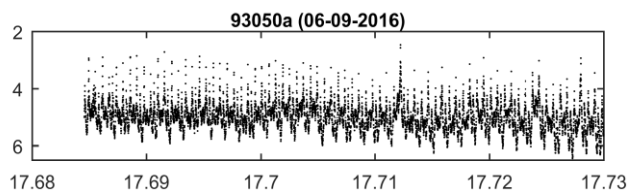
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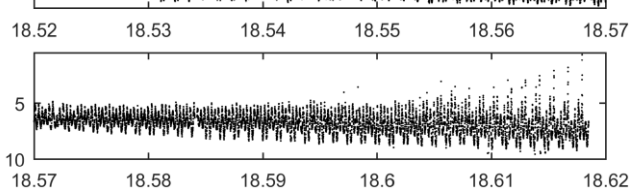
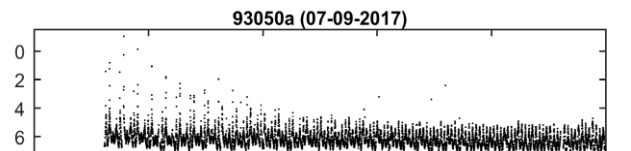
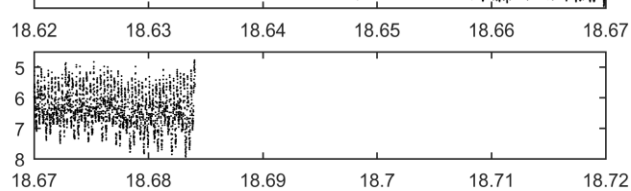
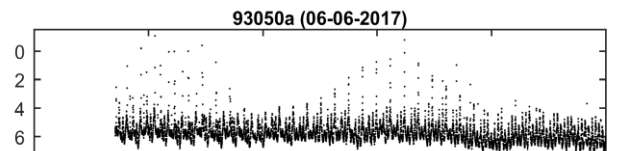
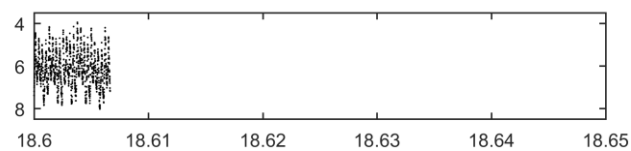
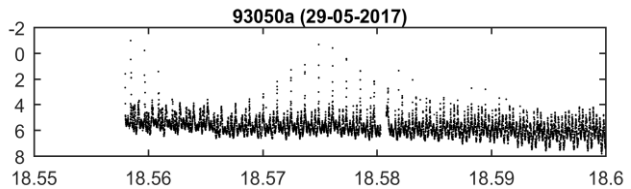
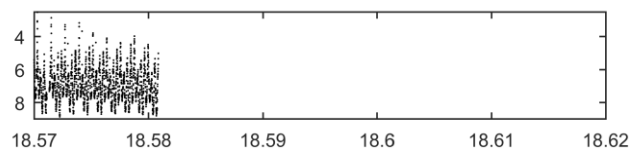
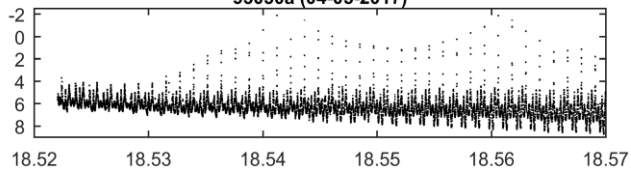
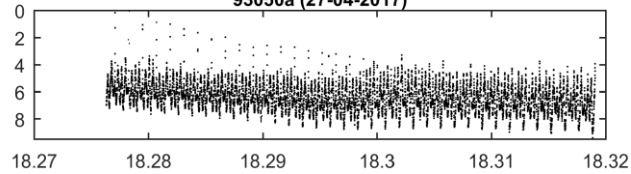
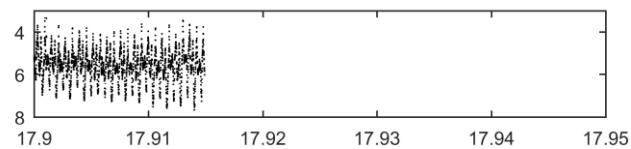
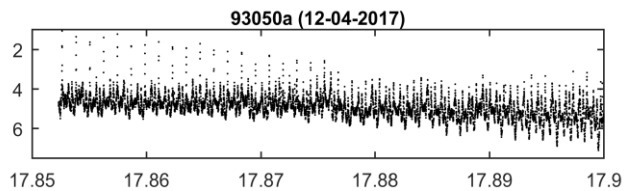
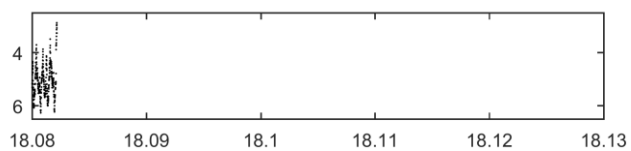
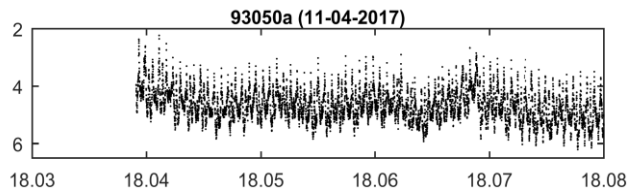
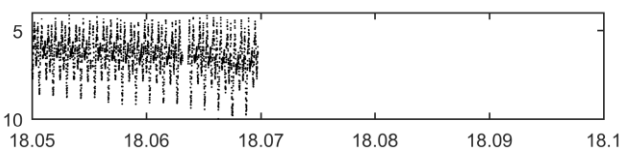
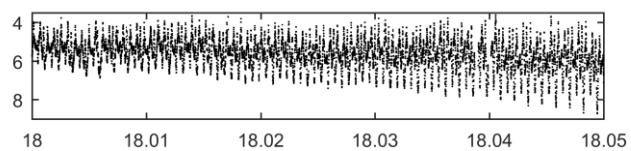
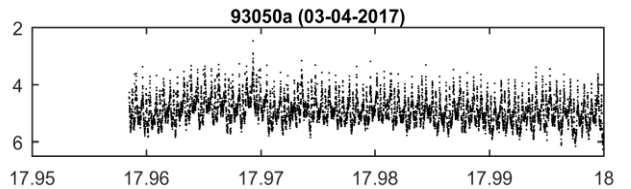
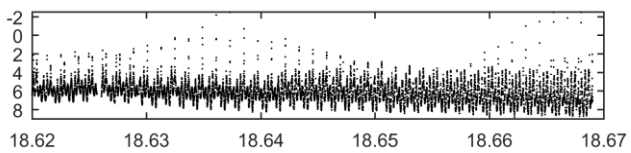
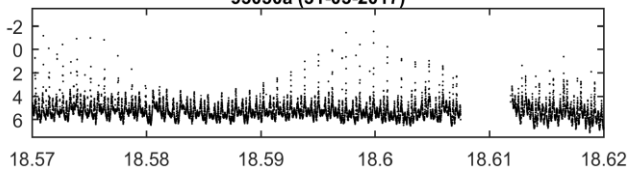
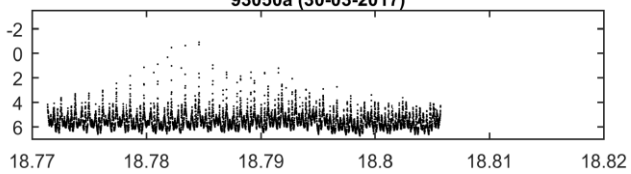
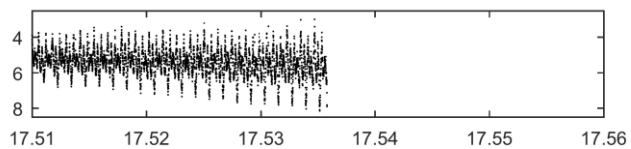
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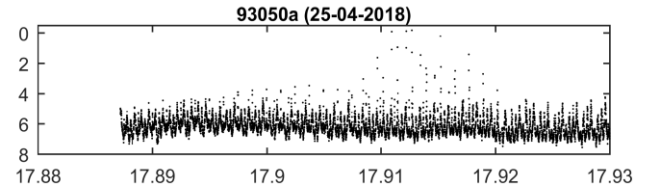
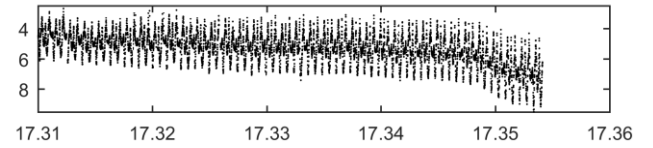
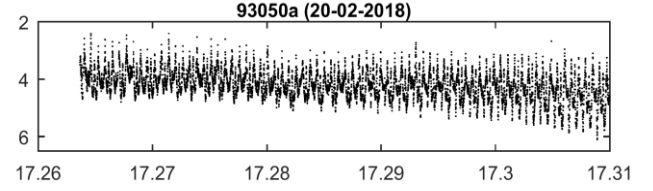
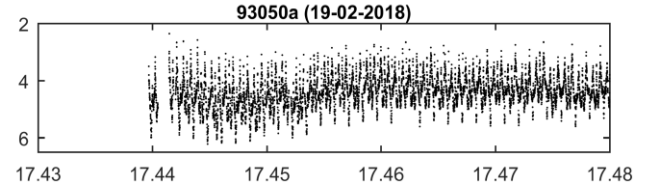
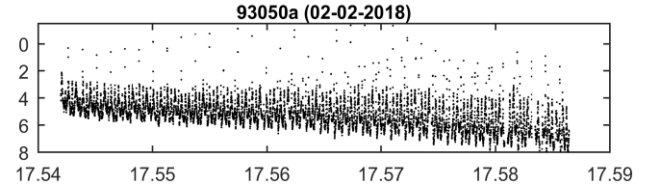
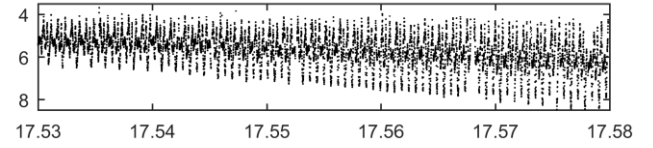
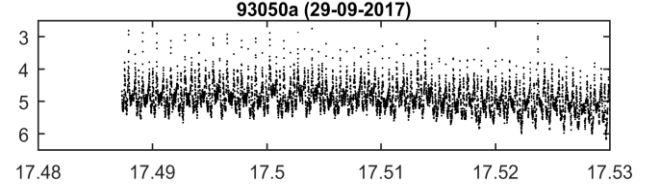
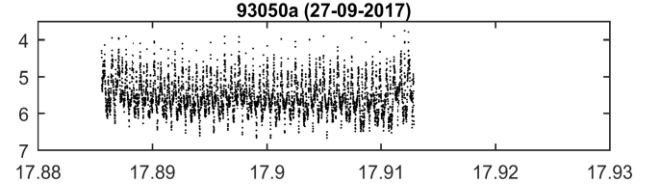
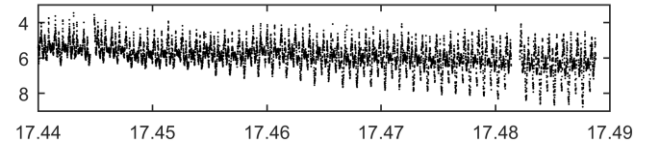
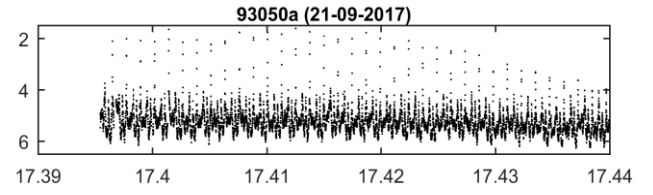
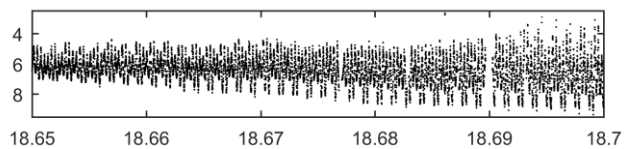
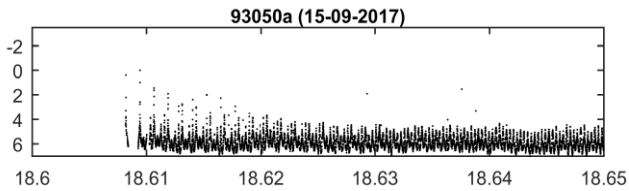
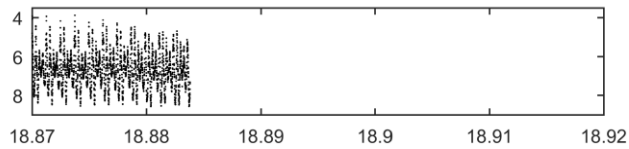
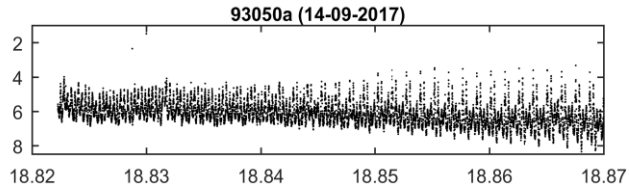
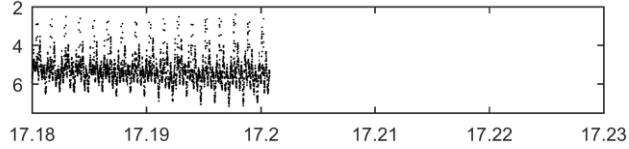
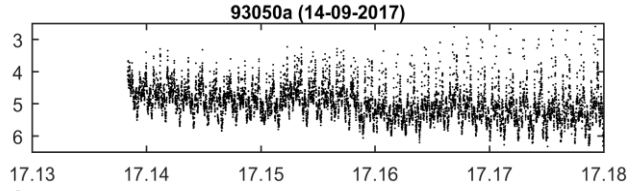
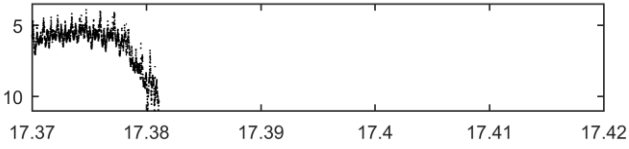
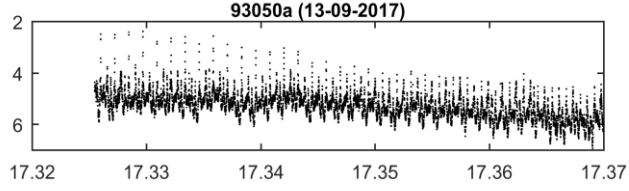
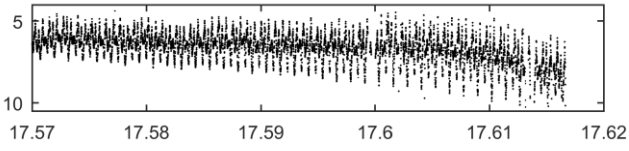
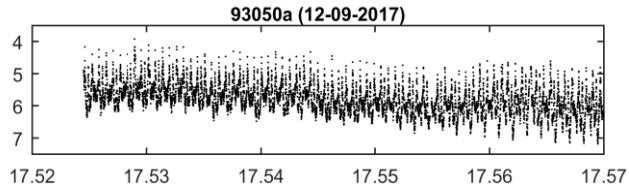
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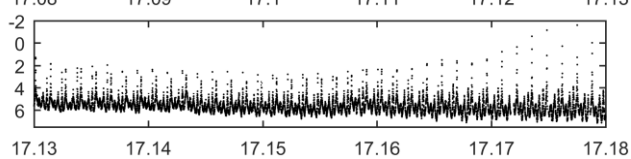
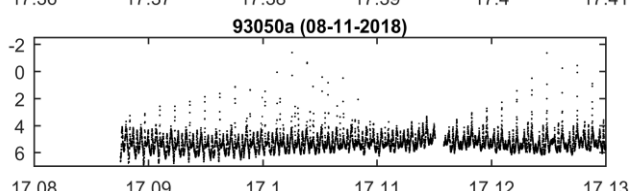
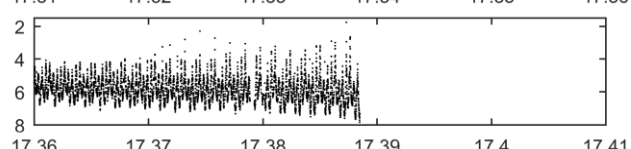
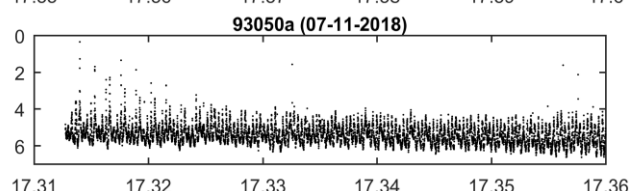
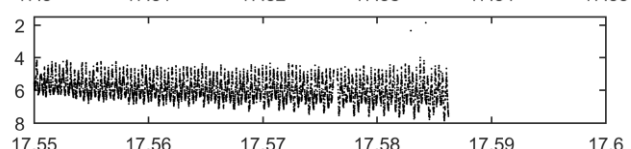
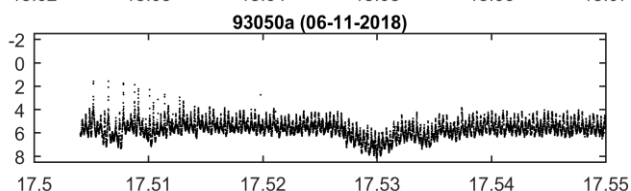
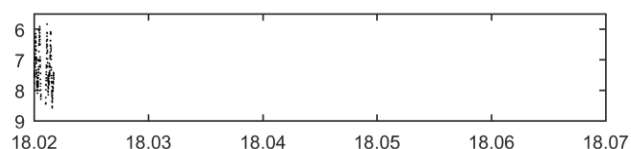
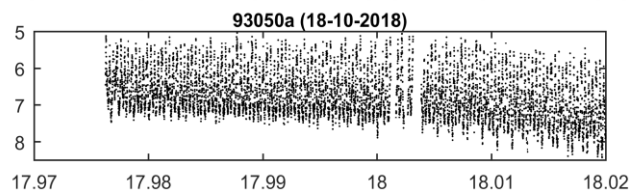
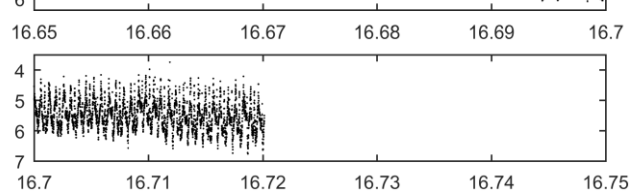
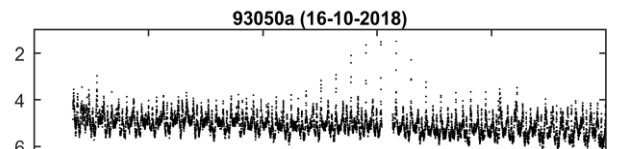
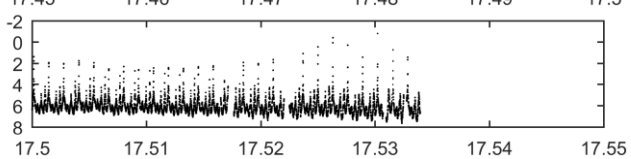
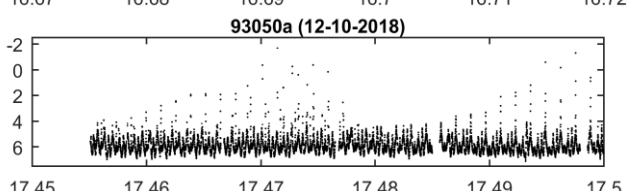
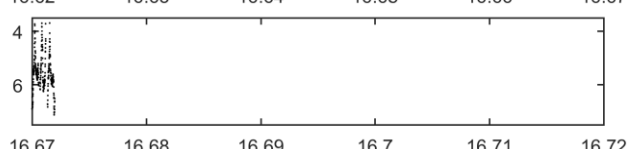
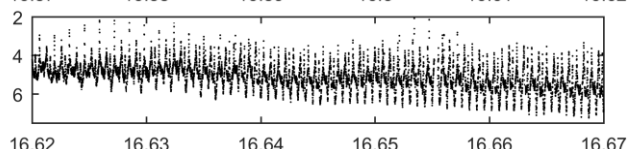
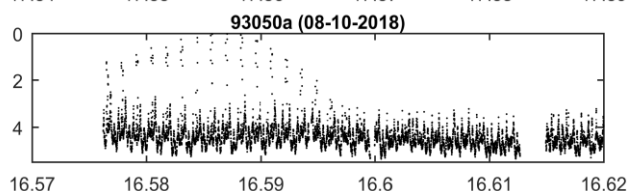
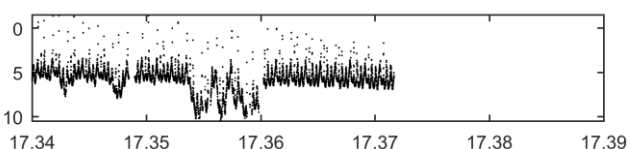
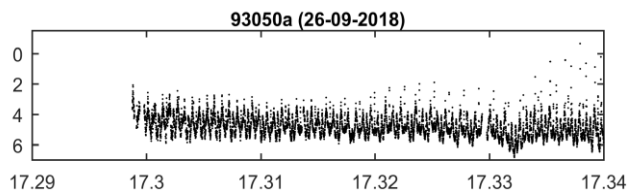
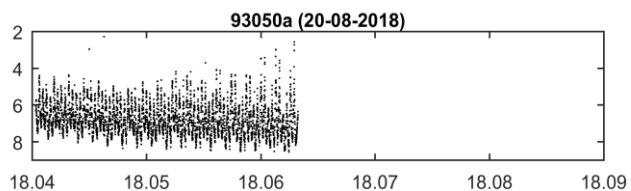
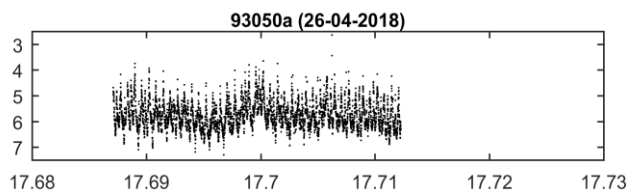
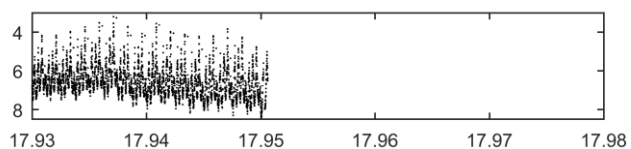
Source: United States (US)

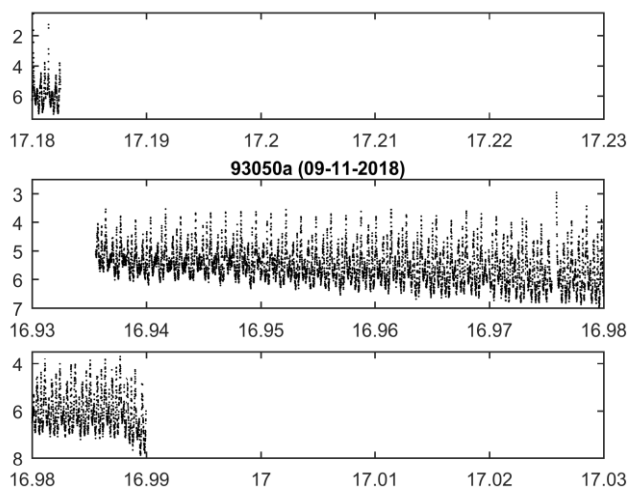












APEX (P90-6)

NORAD ID: 23191

Int'l Code: 1994-046A

Dimensions:

Initial orbit:

Perigee: 379 km

Apogee: 2551 km

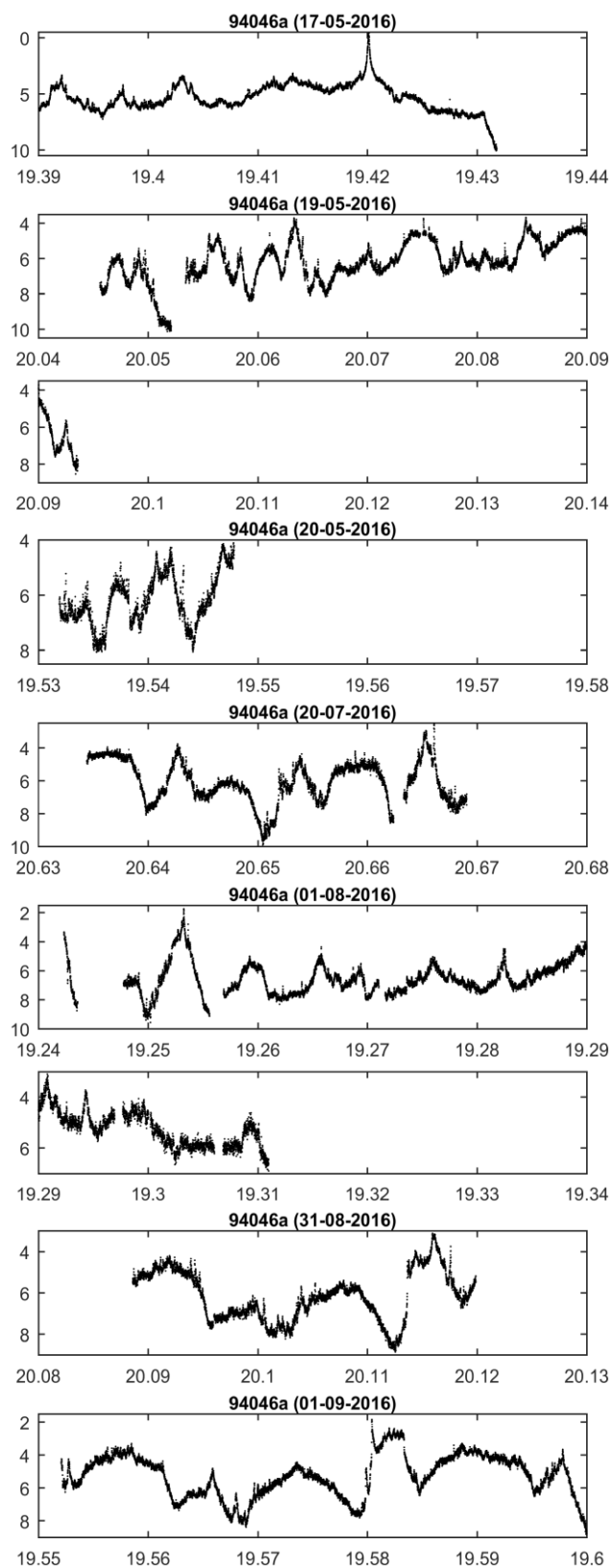
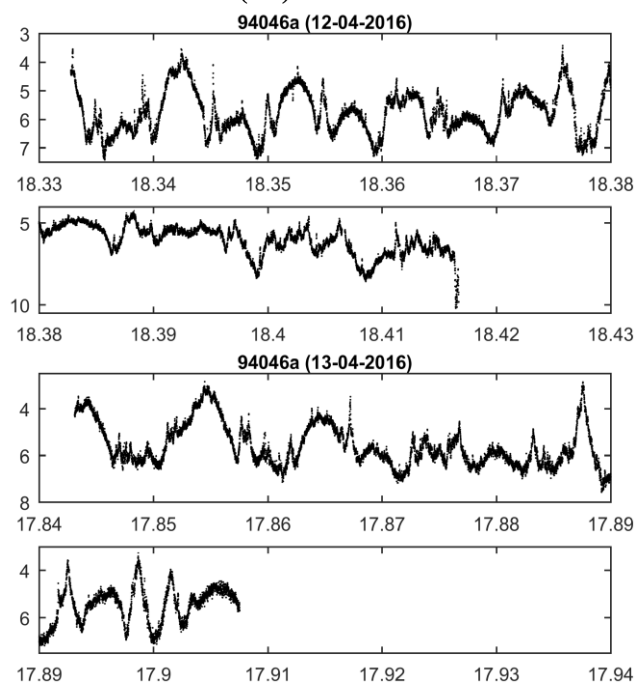
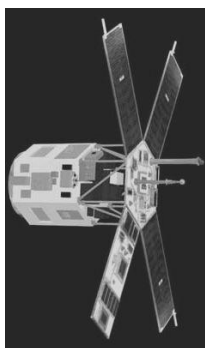
Inclination: 69.93°

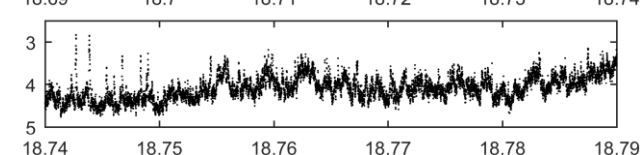
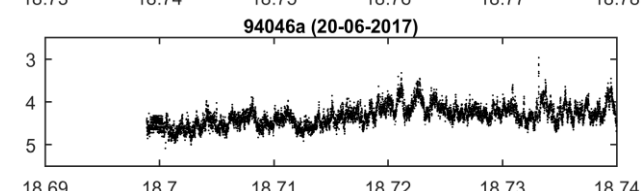
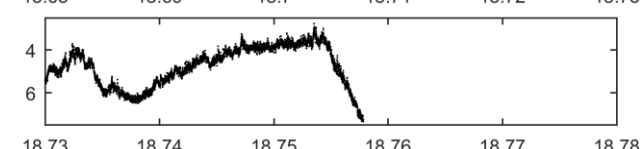
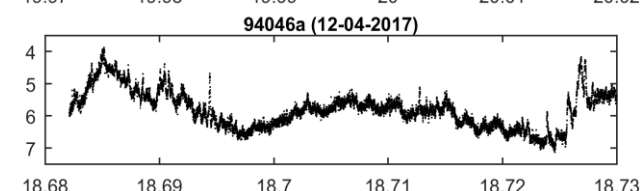
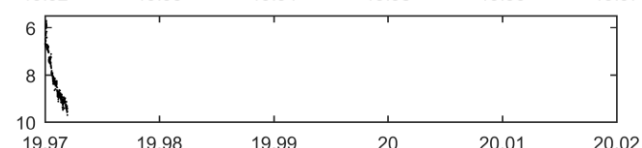
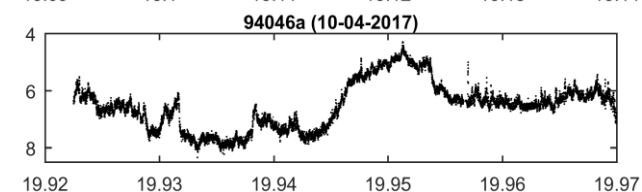
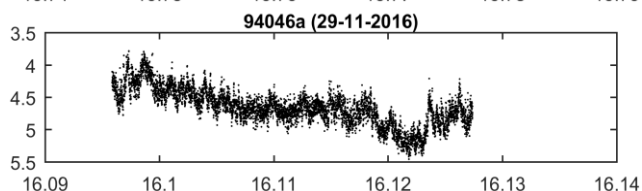
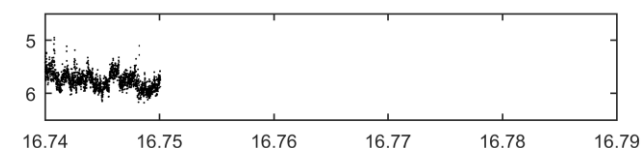
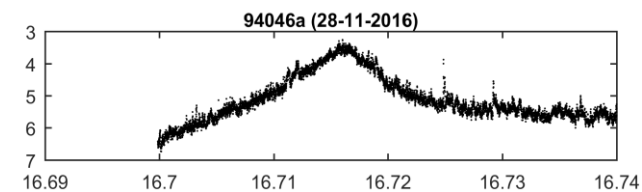
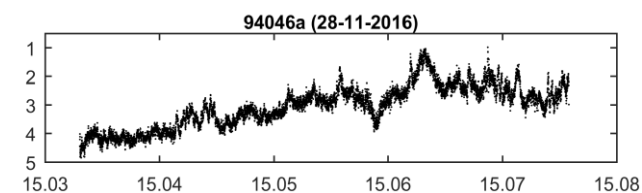
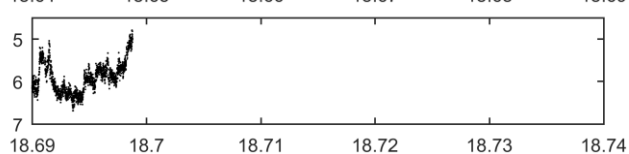
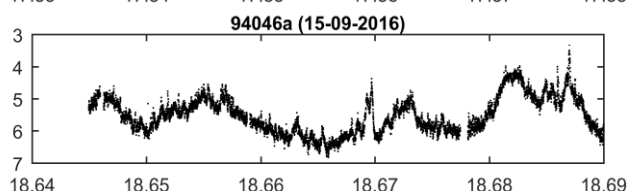
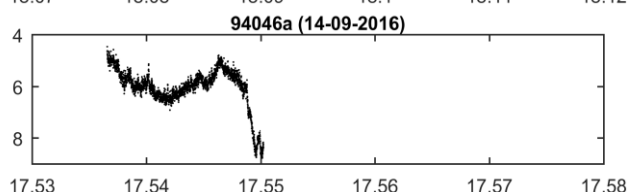
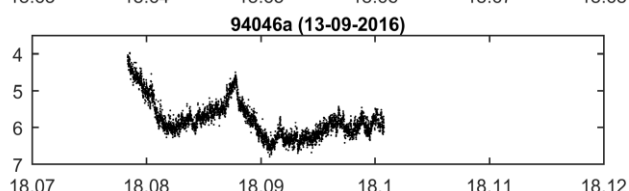
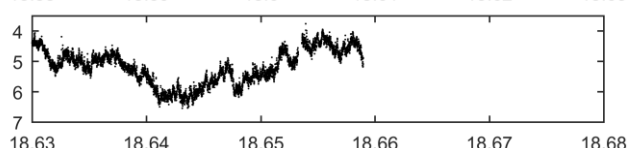
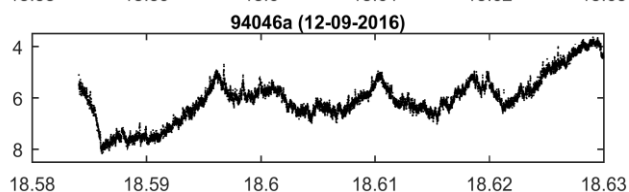
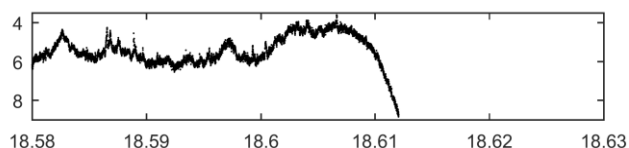
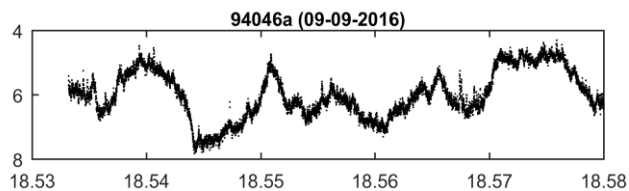
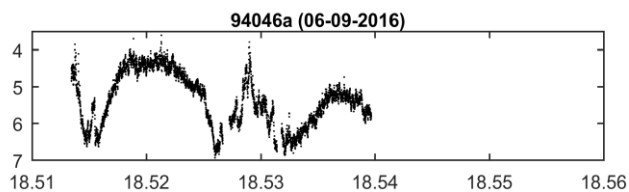
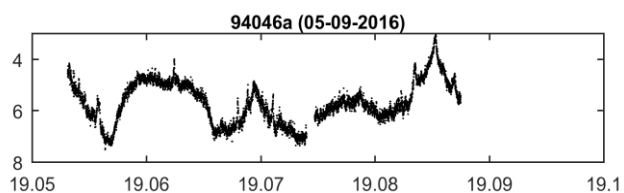
Period: 115.22 min

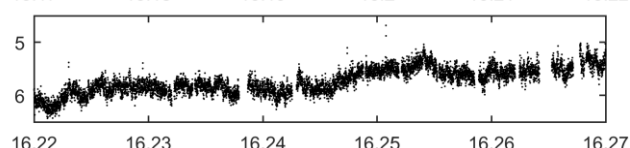
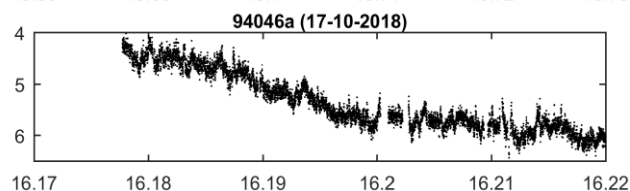
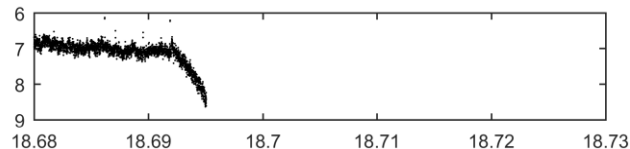
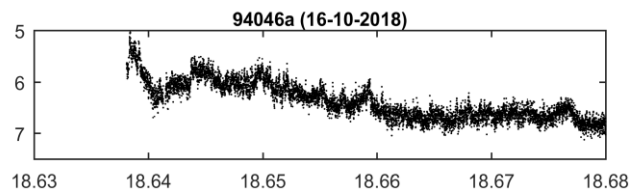
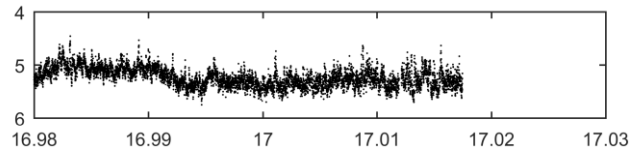
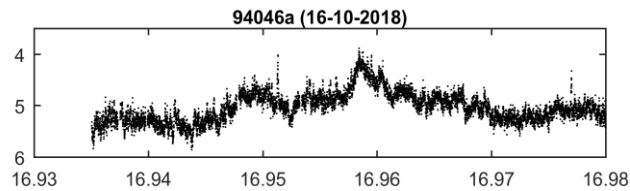
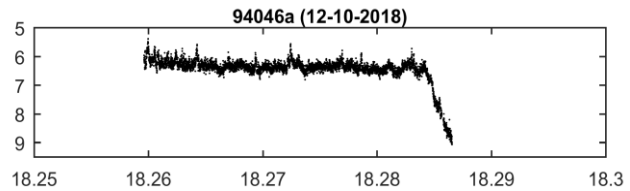
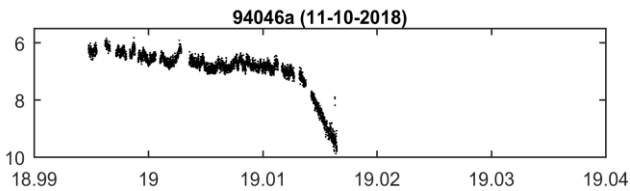
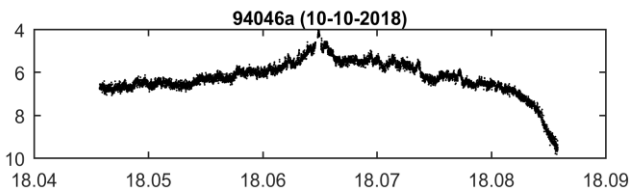
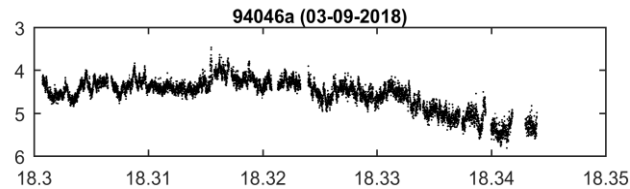
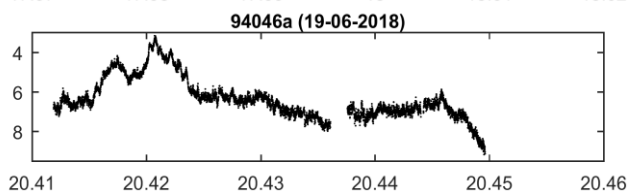
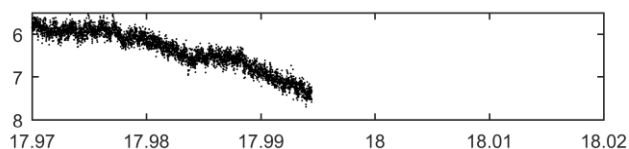
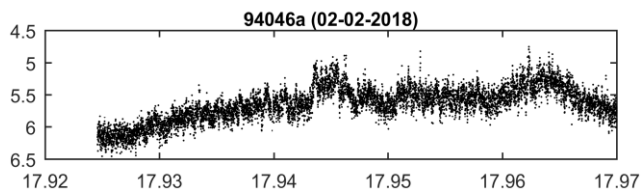
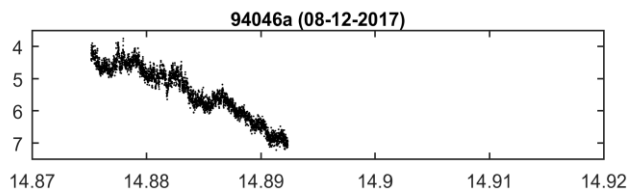
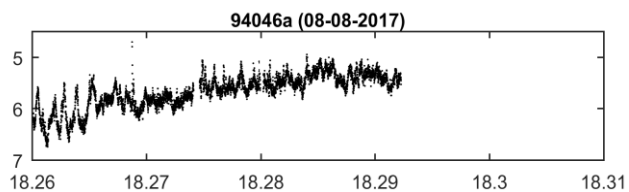
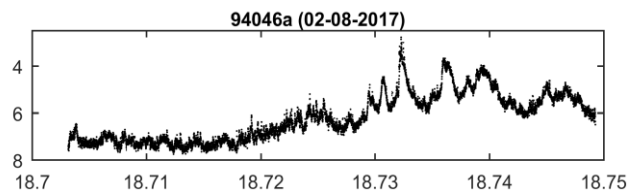
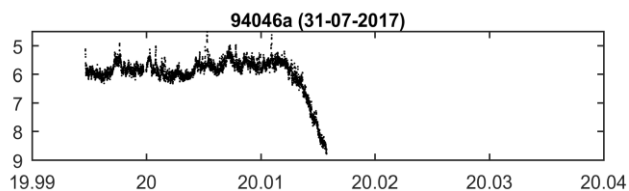
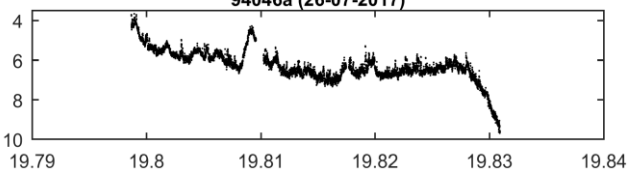
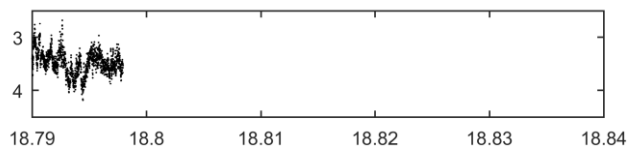
Eccentricity: 0.138

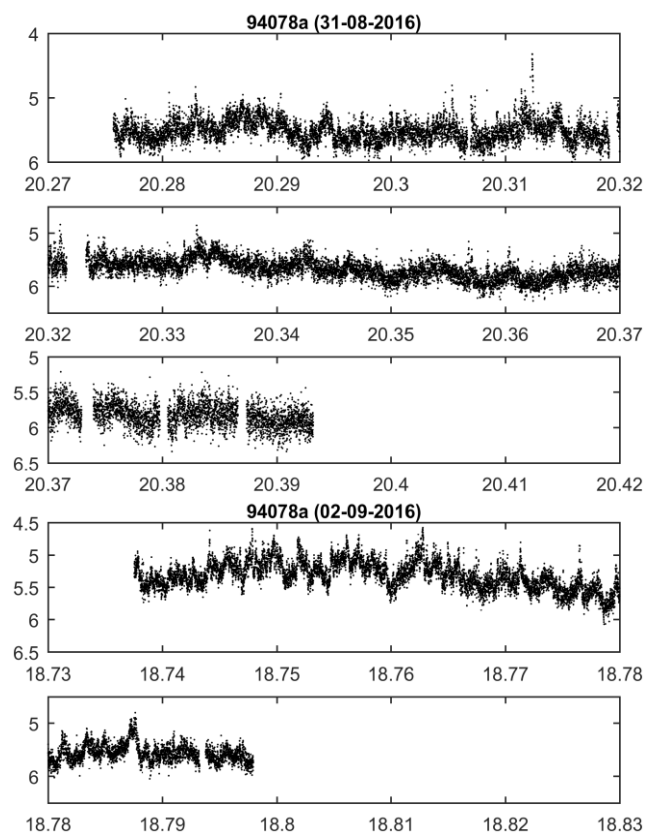
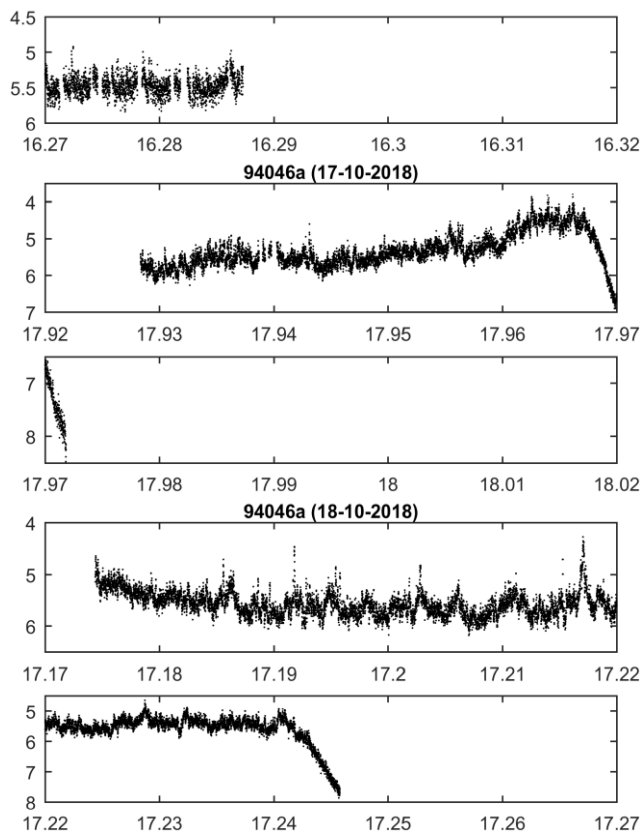
Launch date: 1994-08-03

Source: United States (US)









GEO-IK 1 **(Geo-IK #14, Musson #14, 11F666)**

NORAD ID: 23411

Int'l Code: 1994-078A

Dimensions:

Initial orbit:

Perigee: 1479 km

Apogee: 1526 km

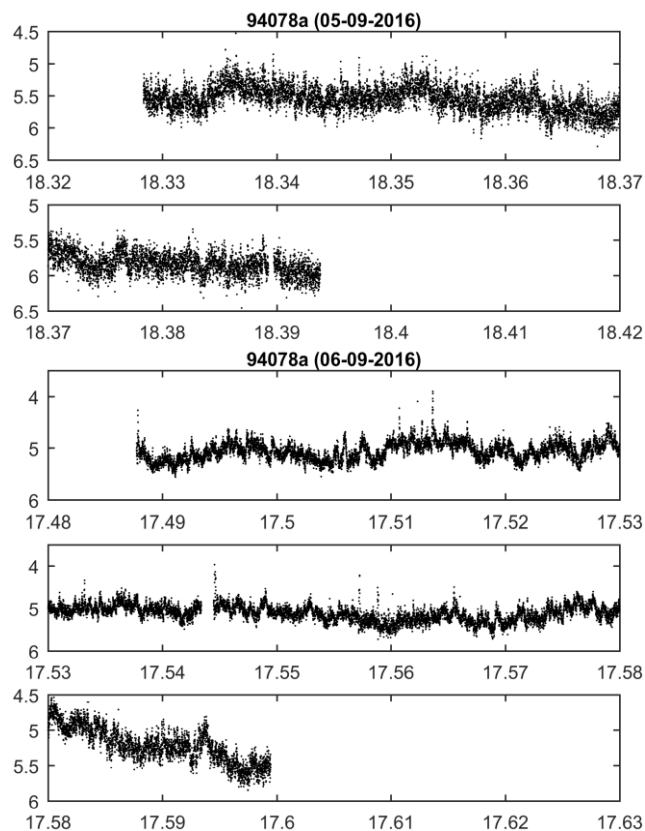
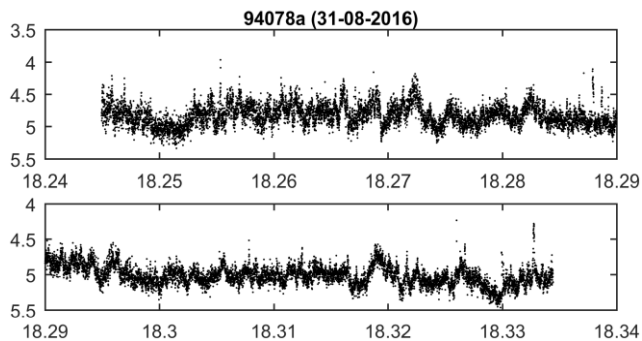
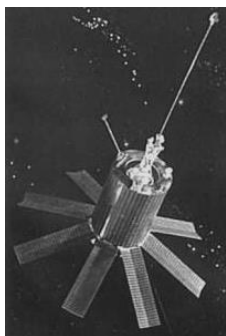
Inclination: 73.6°

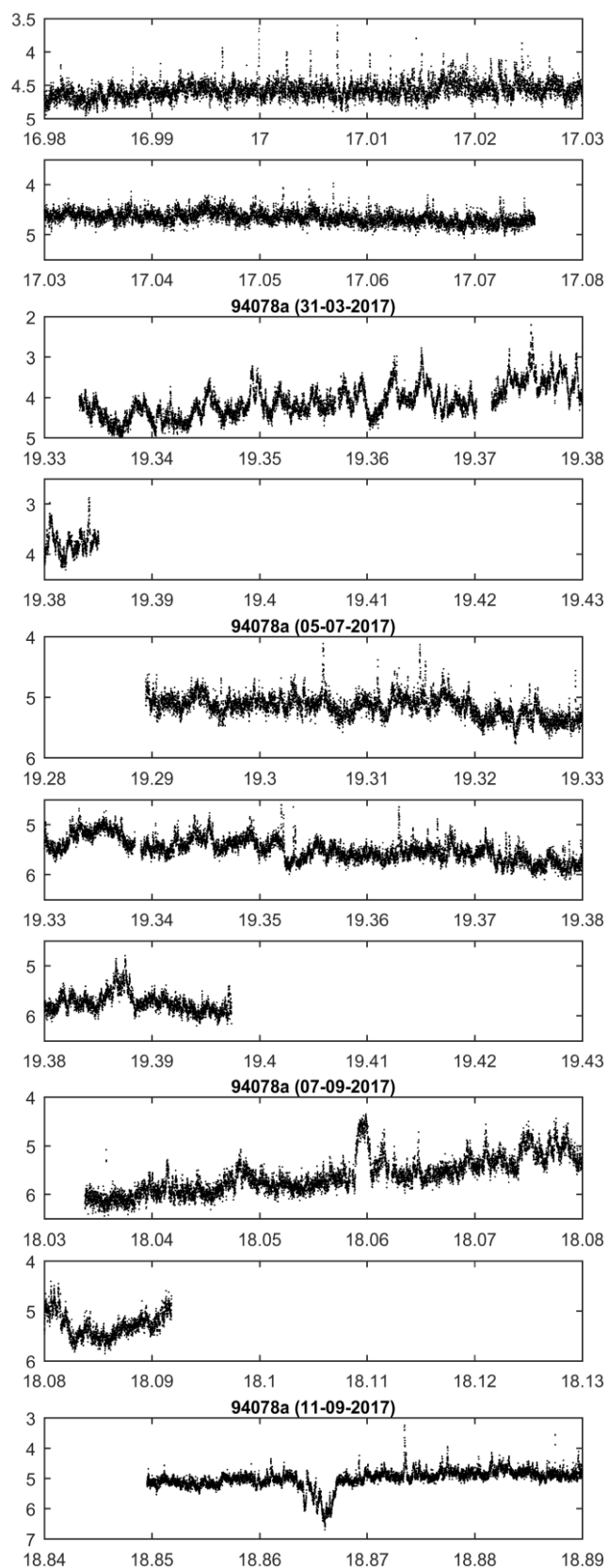
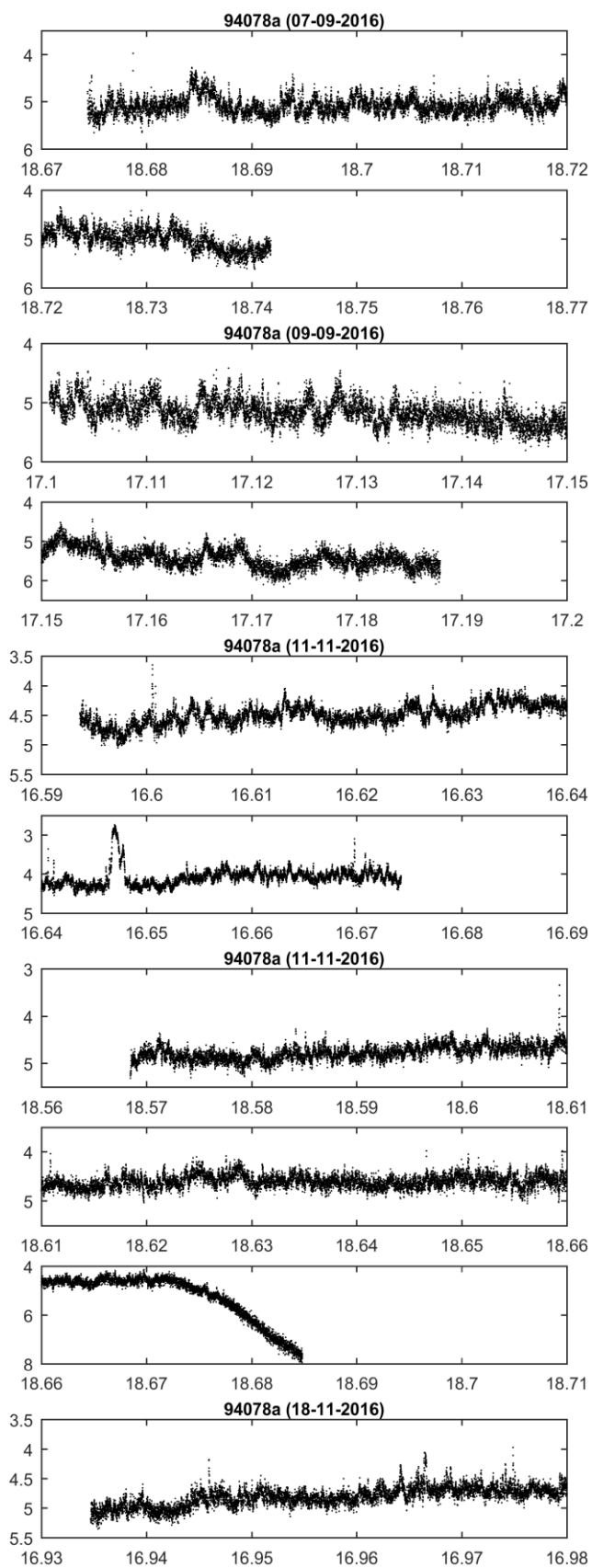
Period: 116.04 min

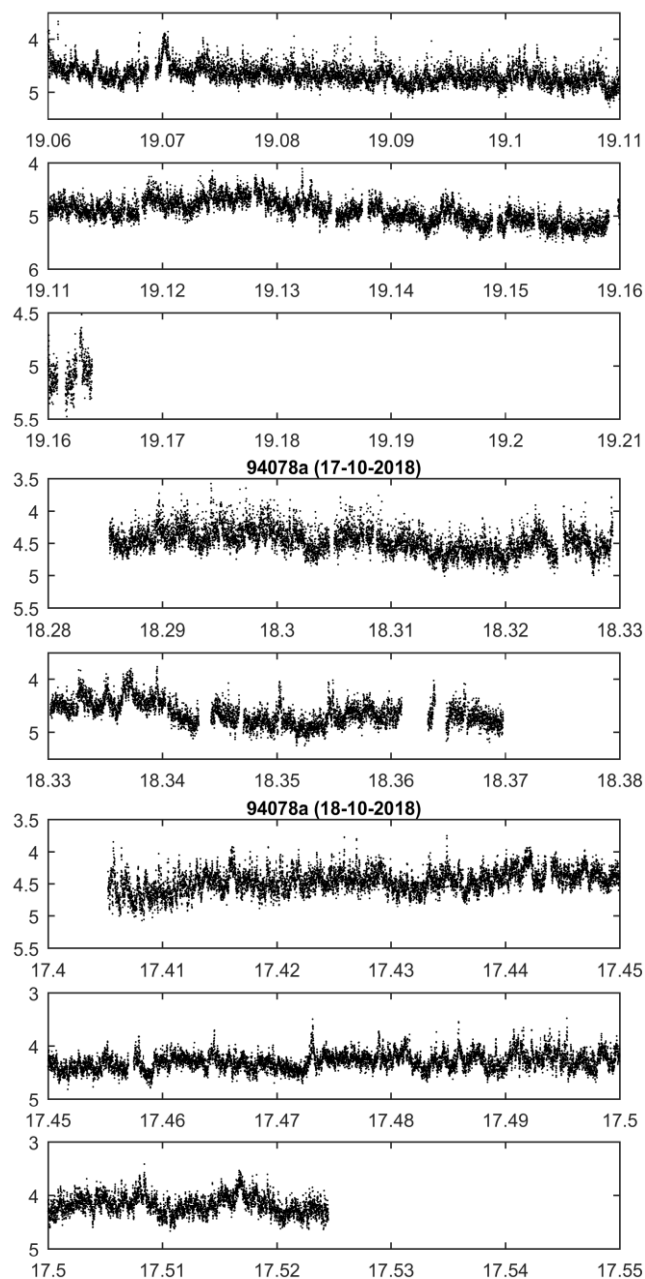
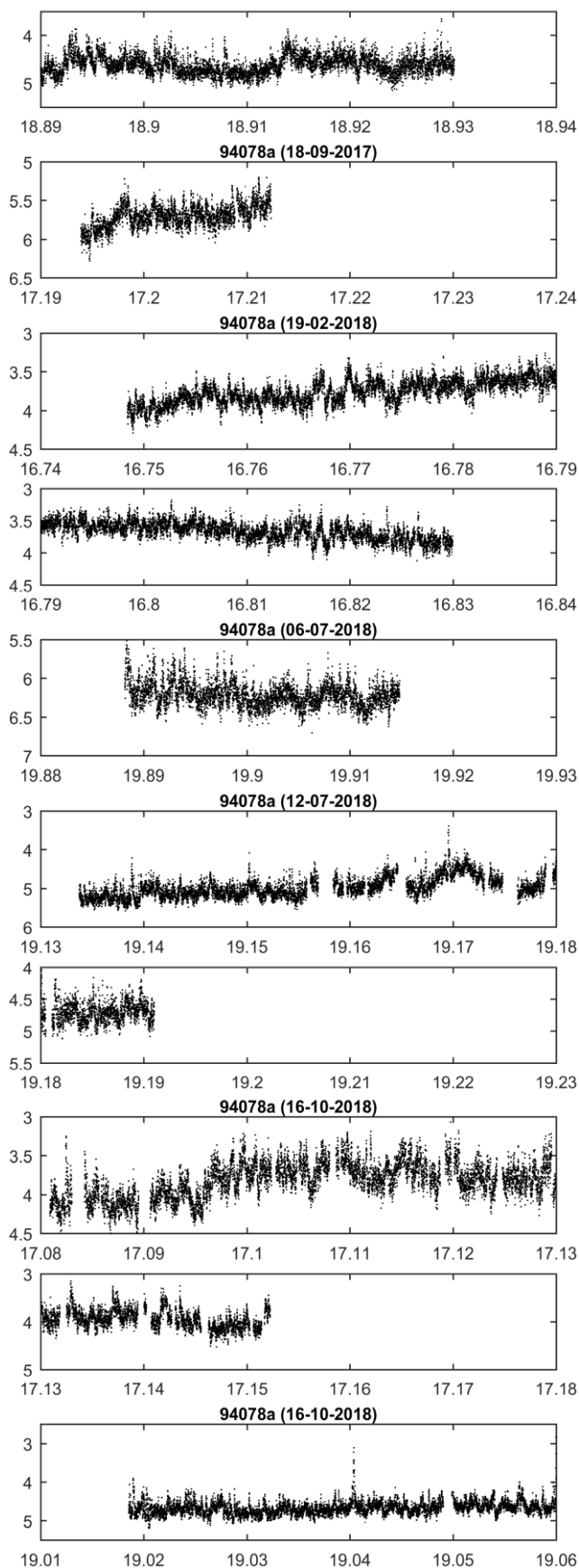
Eccentricity: 0.003

Launch date: 1994-11-29

Source: Commonwealth of Independent States (former USSR) (CIS)







SL-19 R/B (Rokot 3rd stage)

NORAD ID: 23440

Int'l Code: 1994-085B

Dimensions:

Initial orbit:

Perigee: 1866 km

Apogee: 2183 km

Inclination: 64.83°

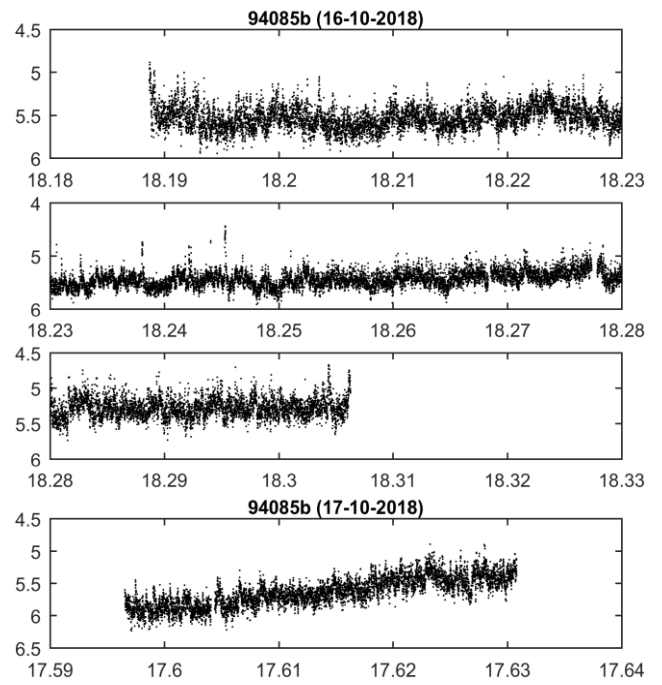
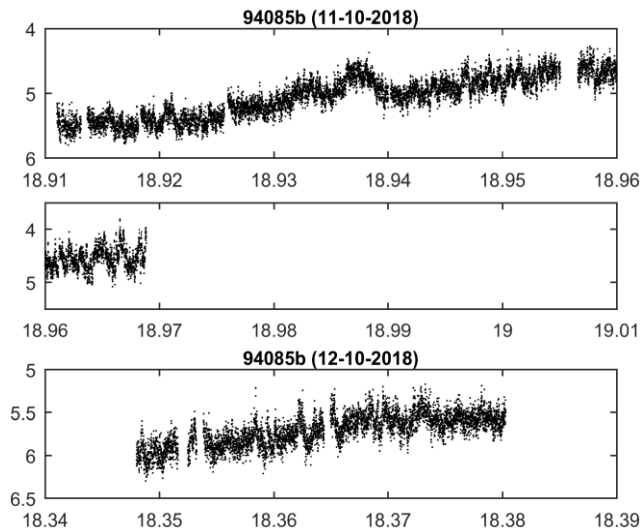
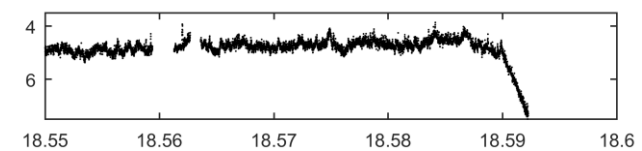
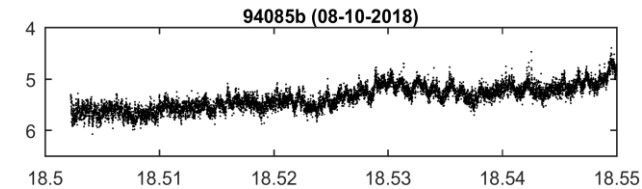
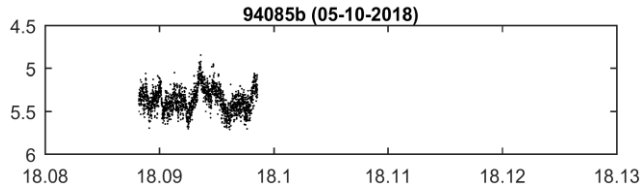
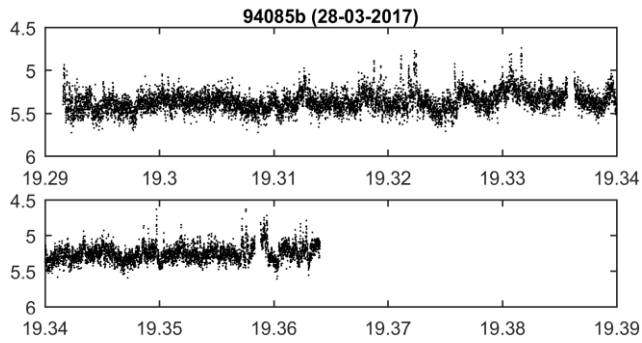
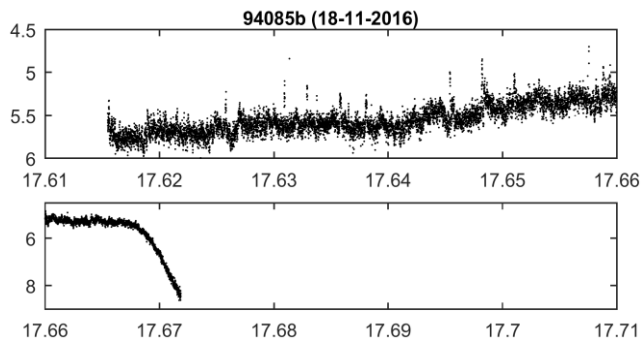
Period: 127.75 min

Eccentricity: 0.019

Launch date: 1994-12-26

Source: Commonwealth of
Independent States (former
USSR) (CIS)





NOAA 14 (J)

NORAD ID: 23455

Int'l Code: 1994-089A

Dimensions: cylindrical 4.18m long
1.88m dia

Initial orbit:

Perigee: 847 km

Apogee: 860 km

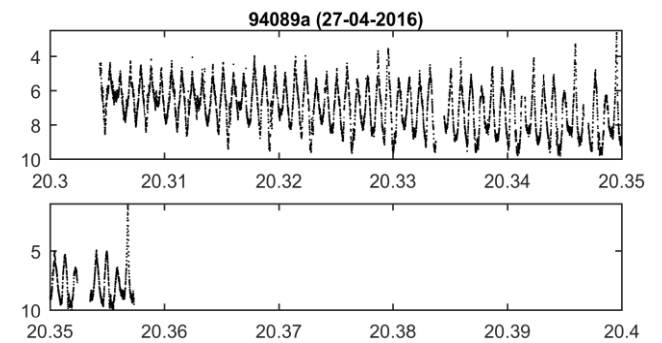
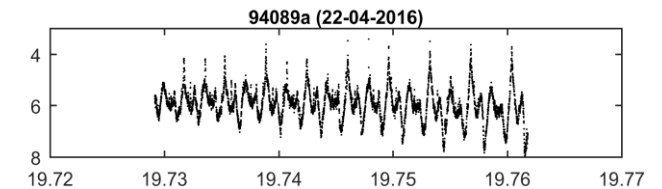
Inclination: 98.89°

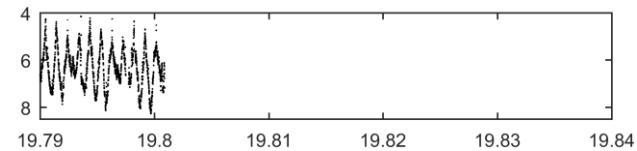
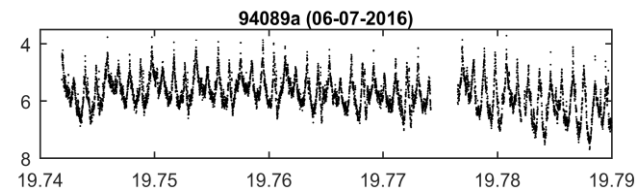
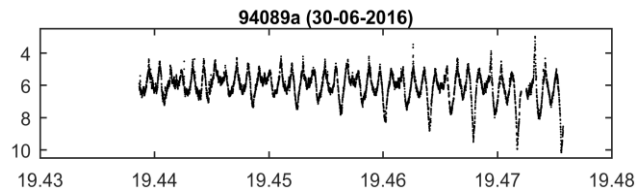
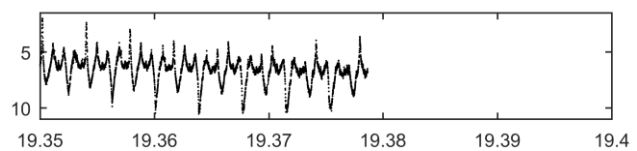
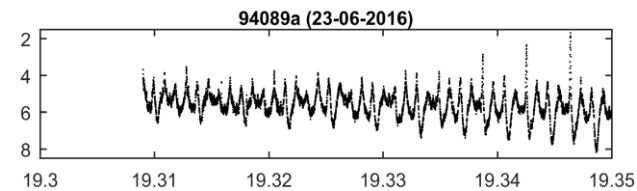
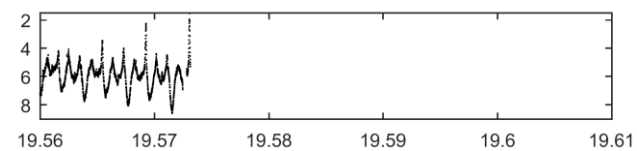
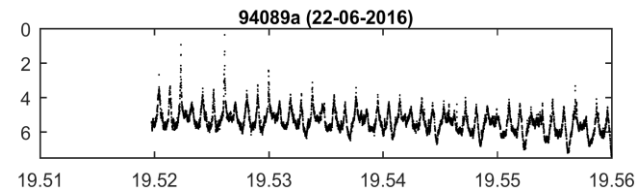
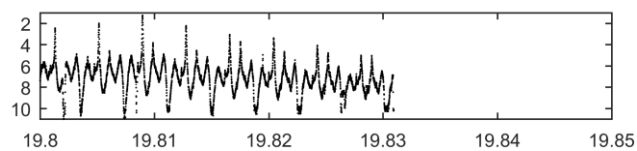
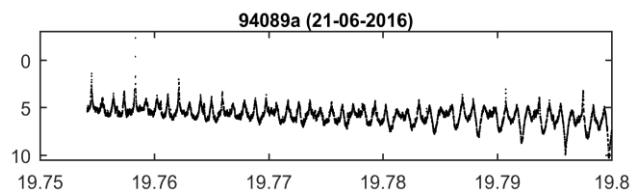
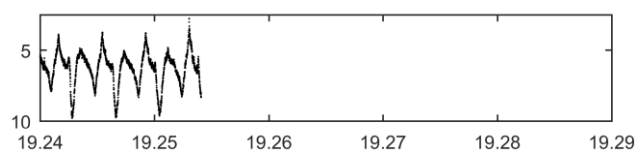
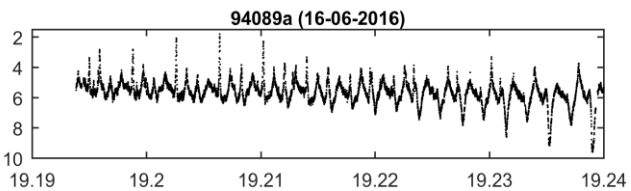
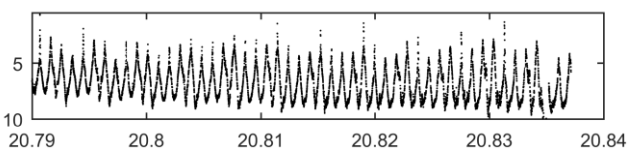
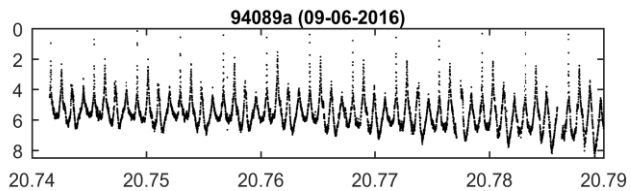
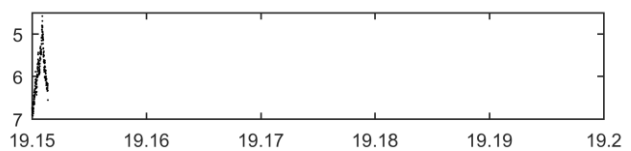
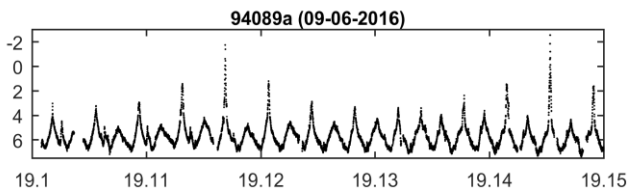
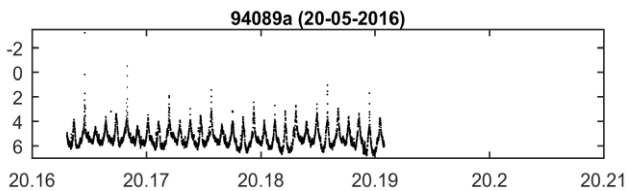
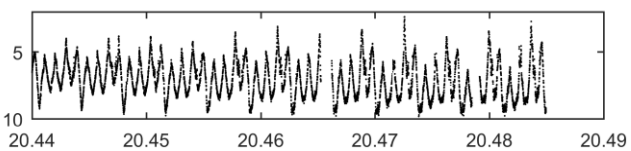
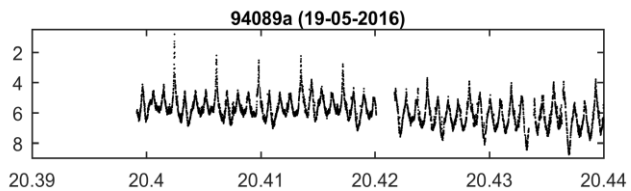
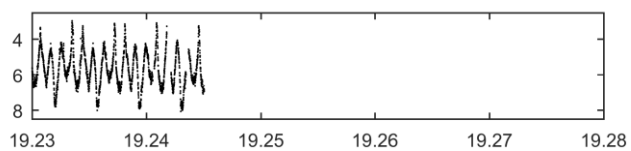
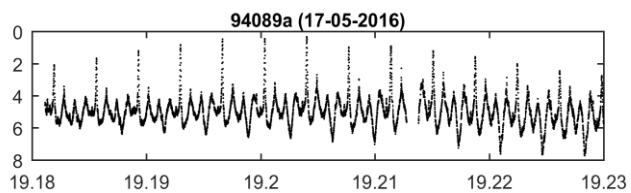
Period: 102.02 min

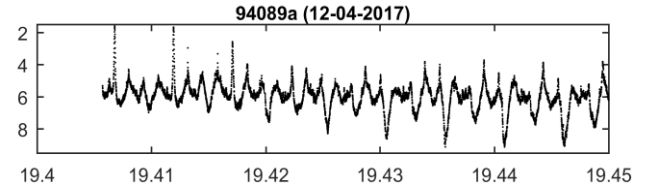
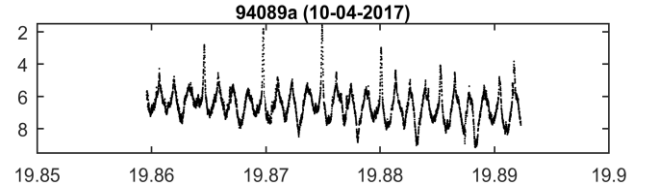
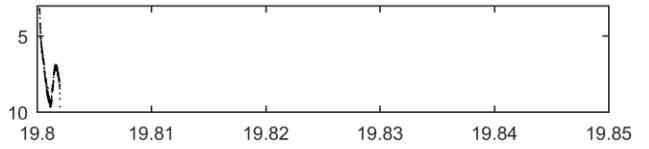
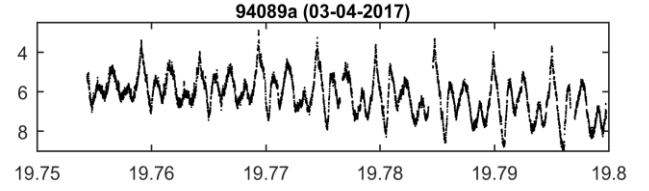
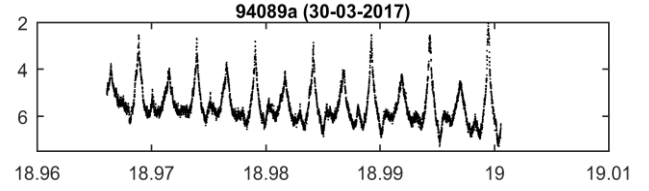
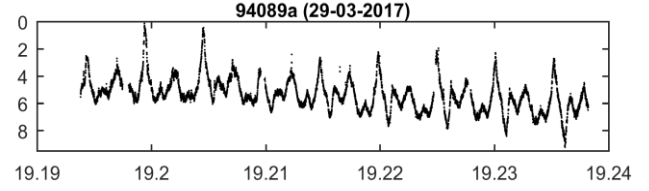
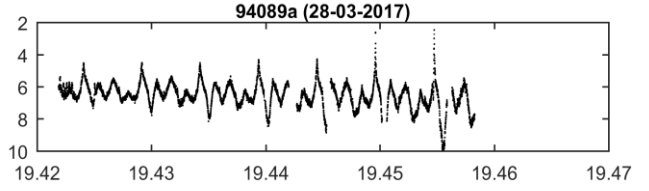
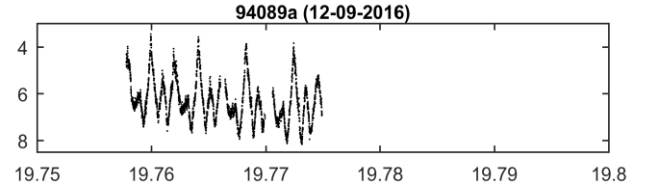
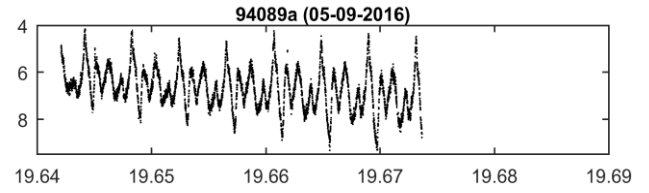
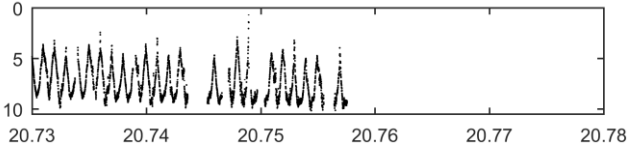
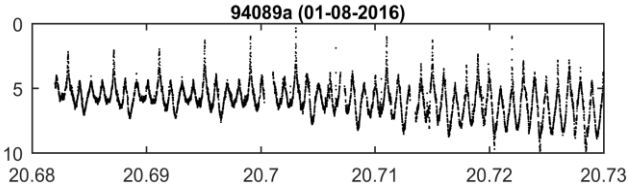
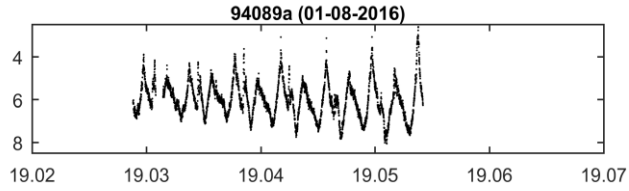
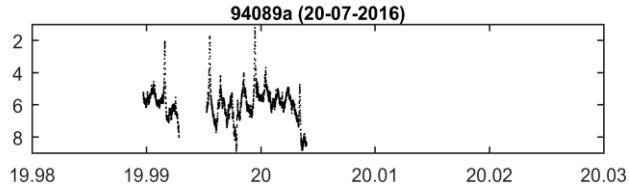
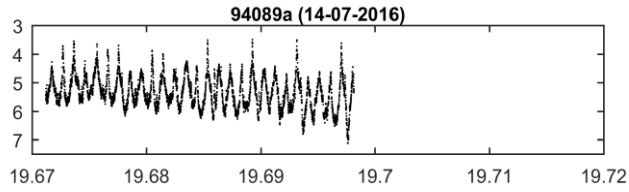
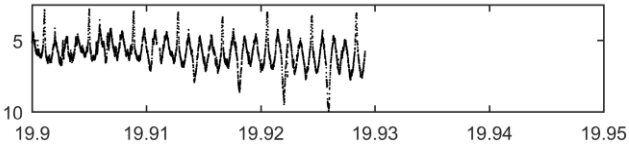
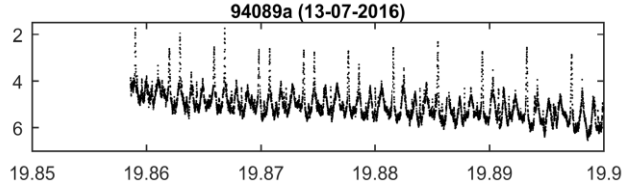
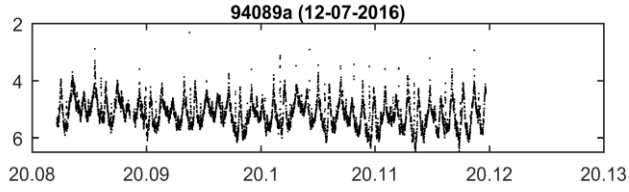
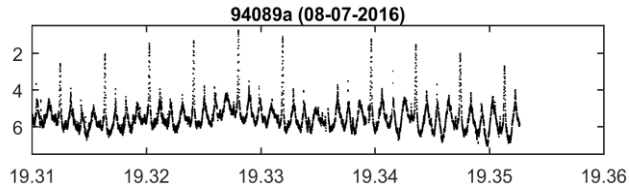
Eccentricity: 0.0009

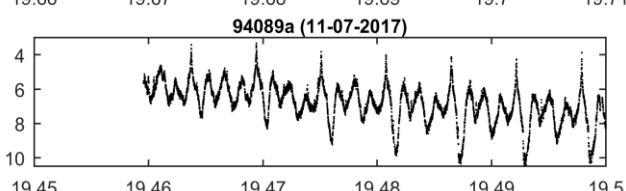
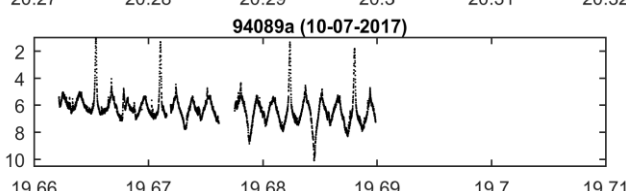
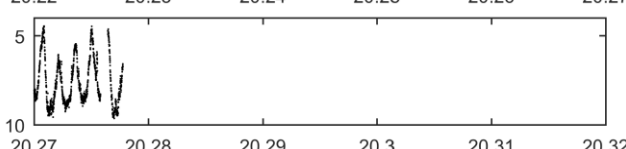
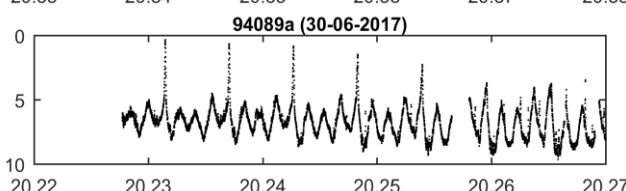
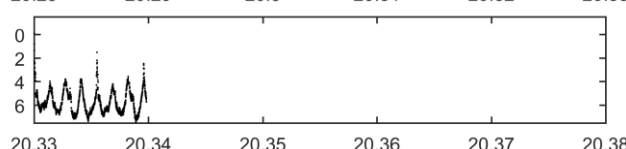
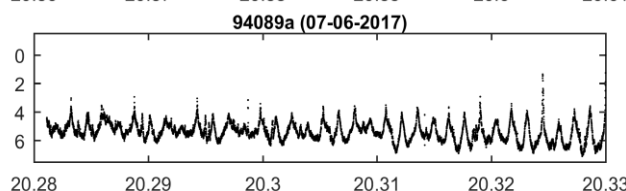
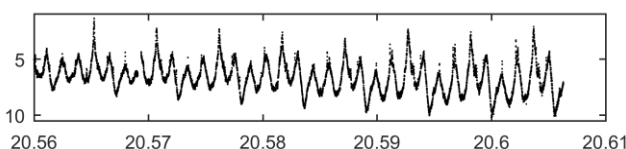
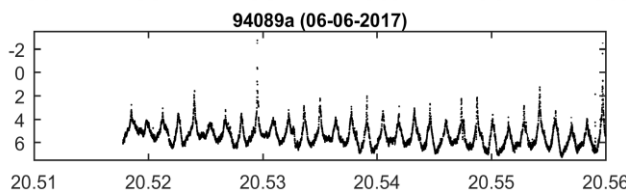
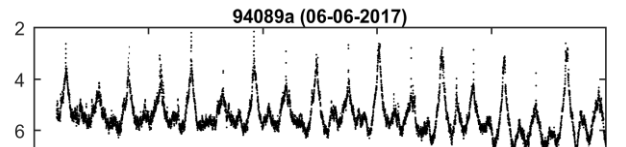
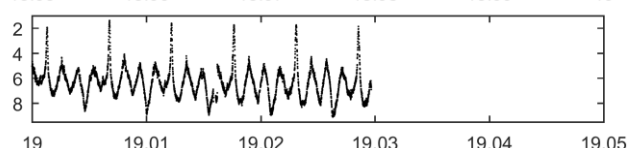
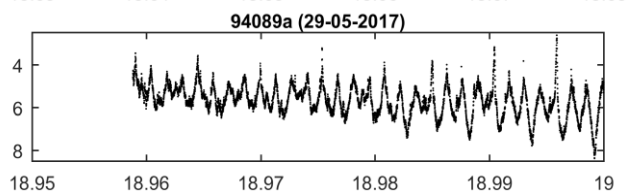
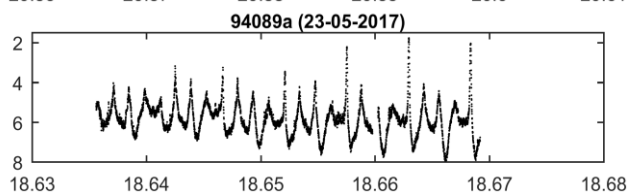
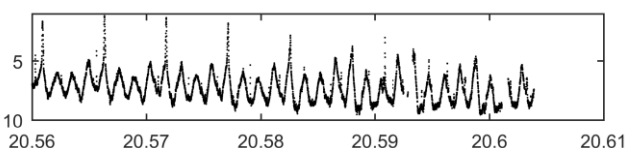
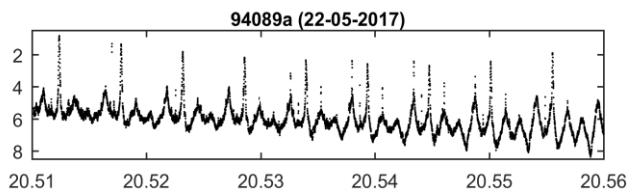
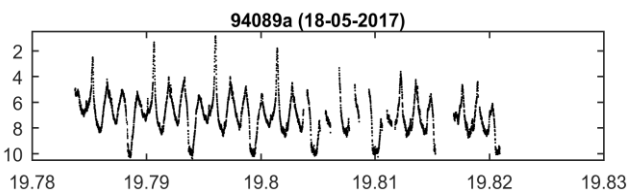
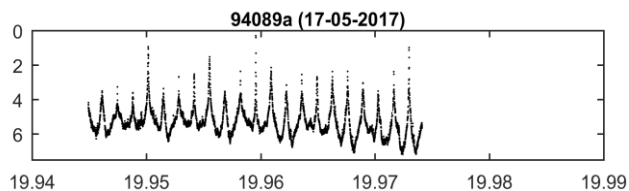
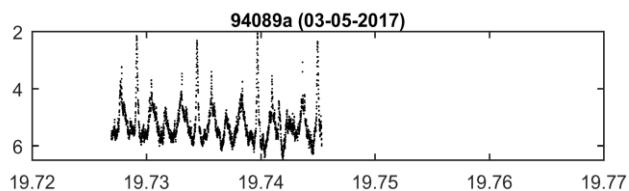
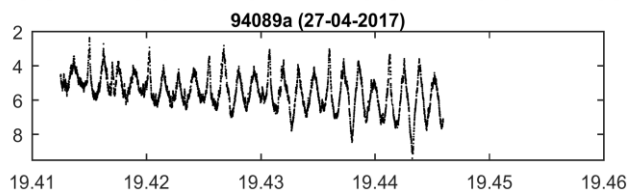
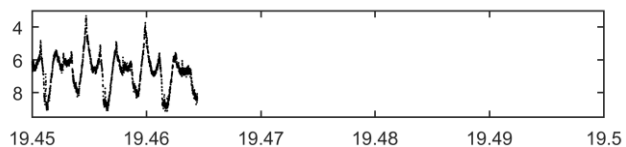
Launch date: 1994-12-30

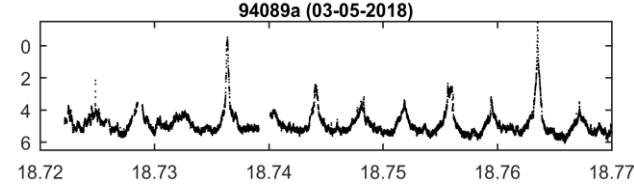
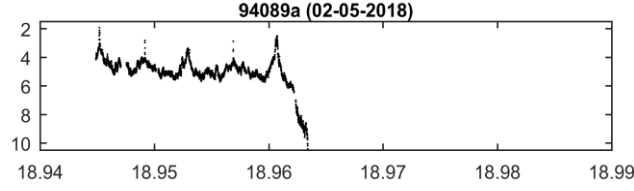
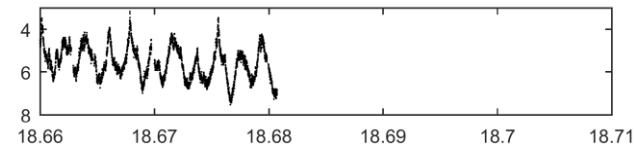
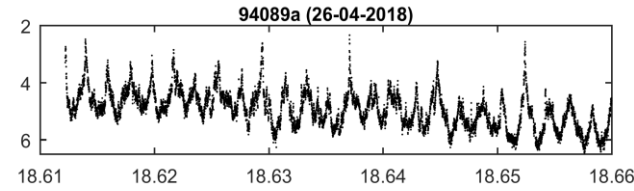
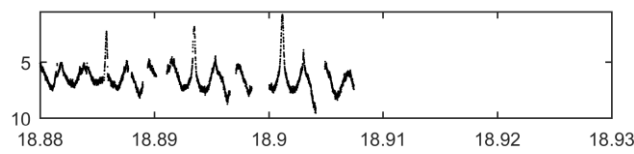
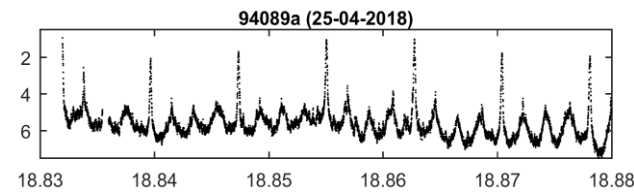
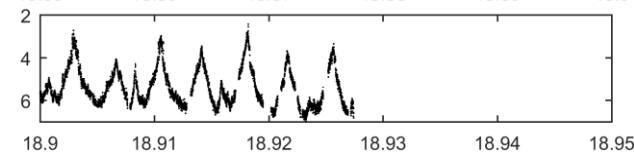
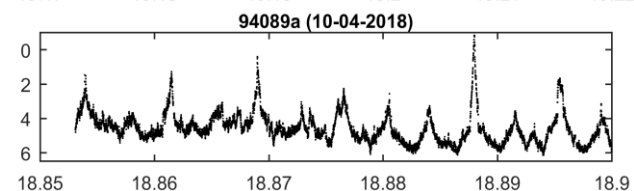
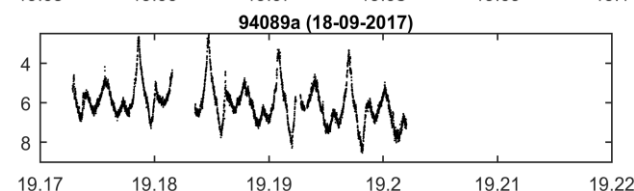
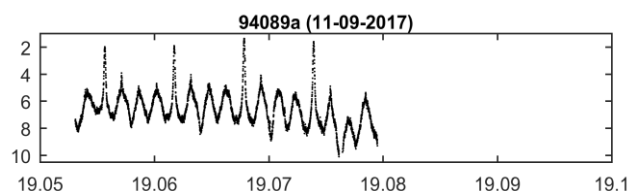
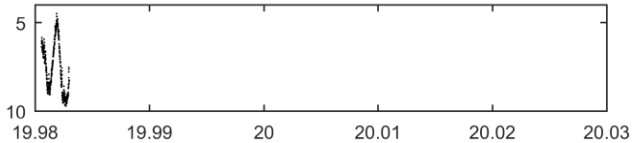
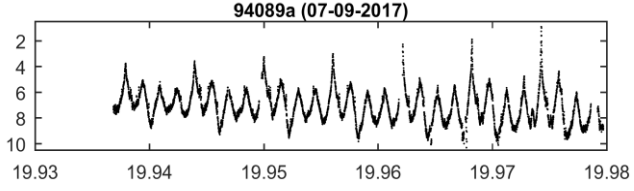
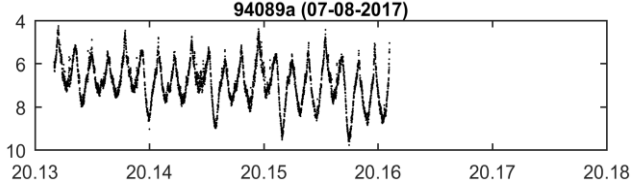
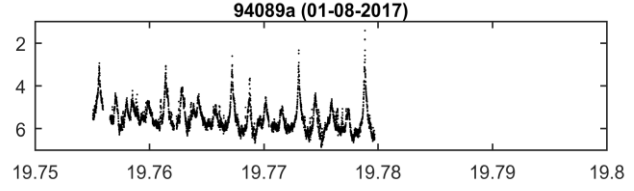
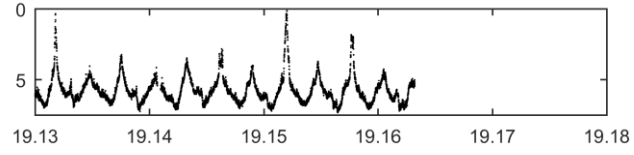
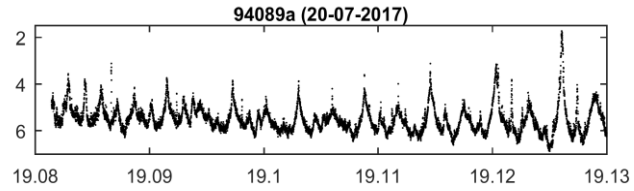
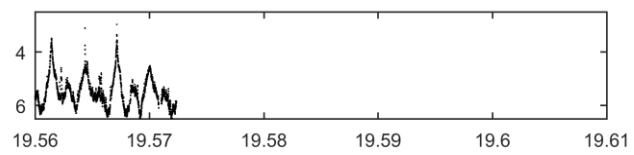
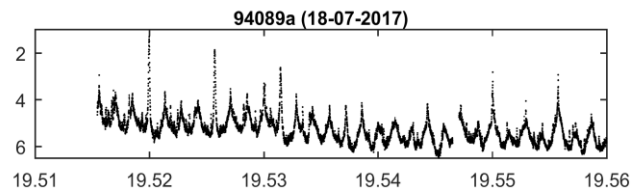
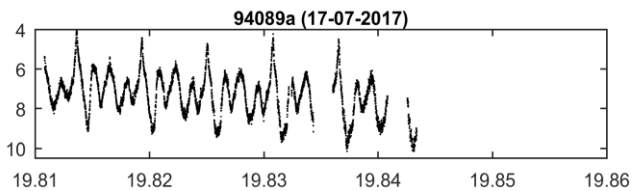
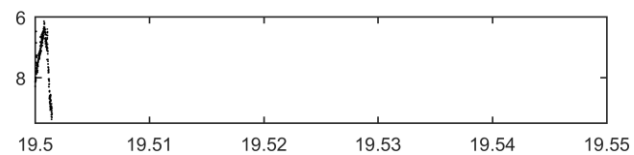
Source: United States (US)

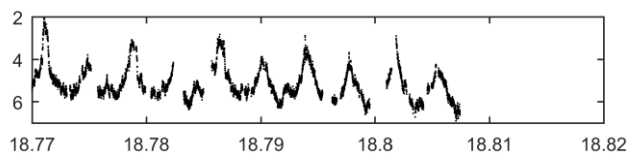




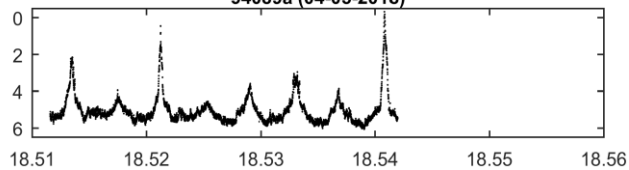




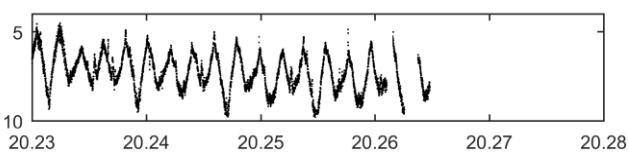
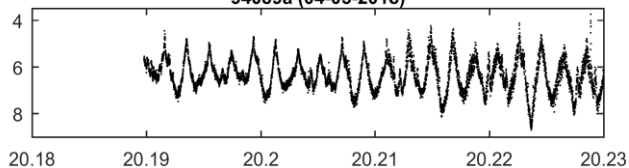




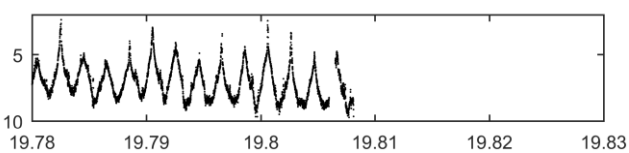
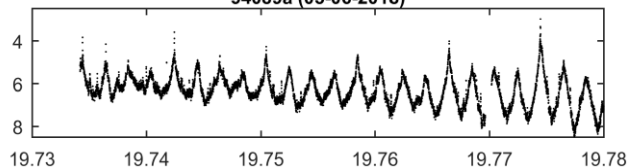
94089a (04-05-2018)



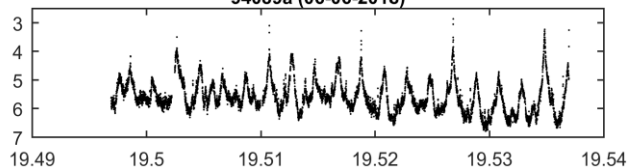
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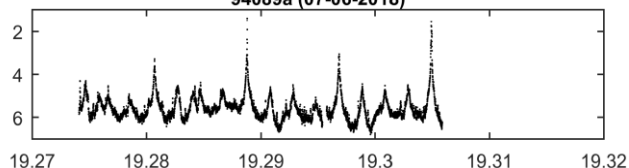
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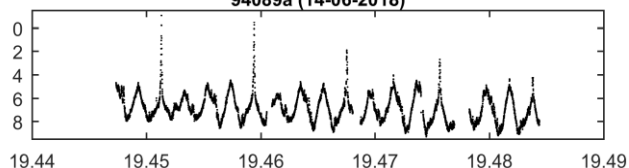
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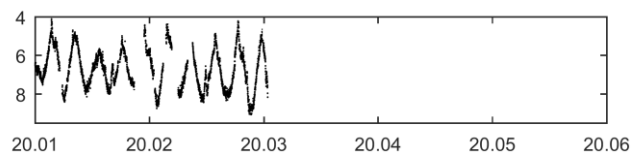
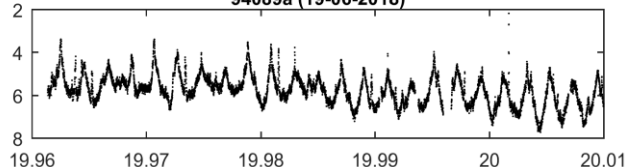
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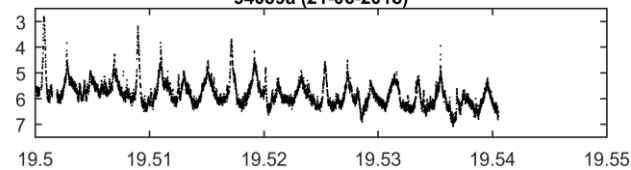
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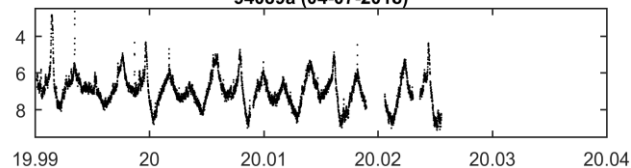
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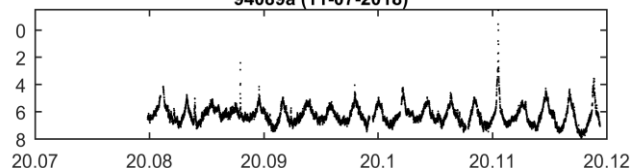
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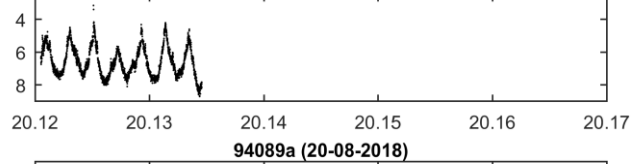
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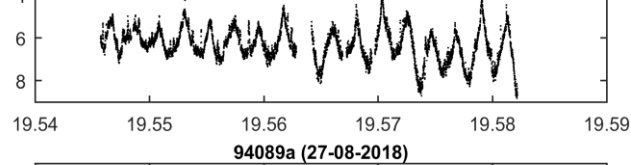
94089a (11-07-2018)



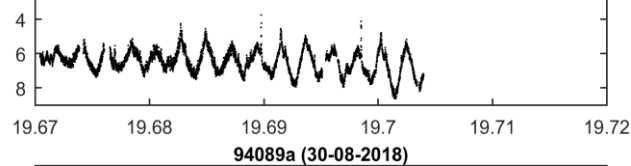
94089a (20-08-2018)



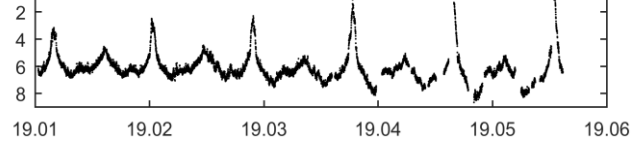
94089a (20-08-2018)

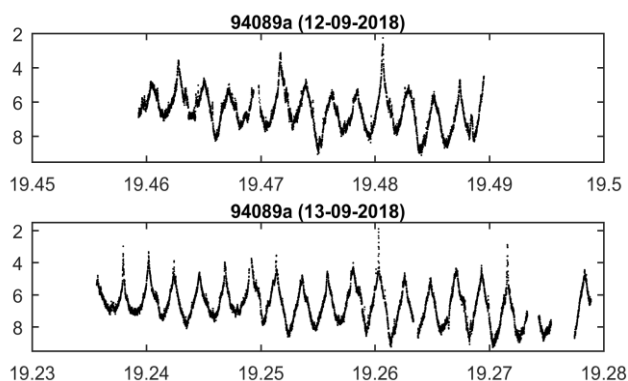


94089a (27-08-2018)



94089a (30-08-2018)





ERS 2

NORAD ID: 23560

Int'l Code: 1995-021A

Dimensions: box 11.8m high

+ panel 2.4m x 11.7m

+ SAR antenna 1m x 10m

Initial orbit:

Perigee: 783 km

Apogee: 785 km

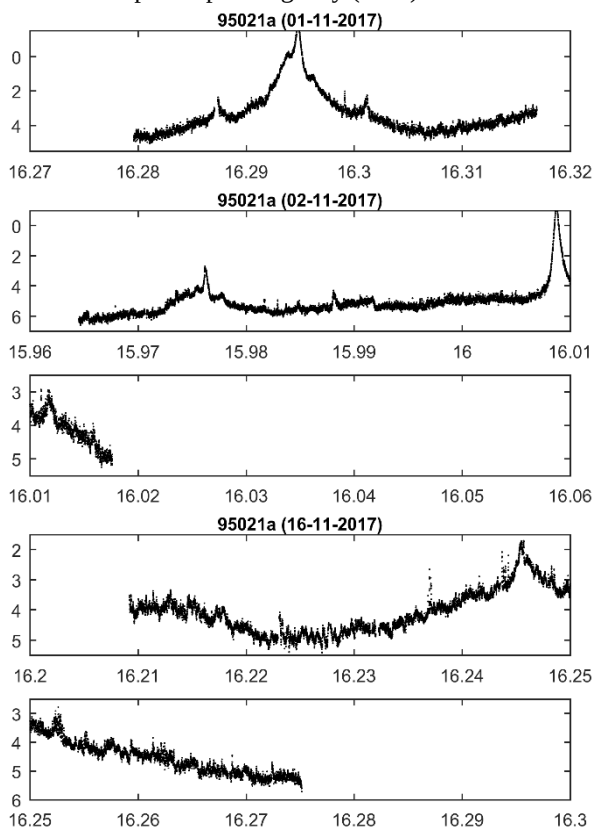
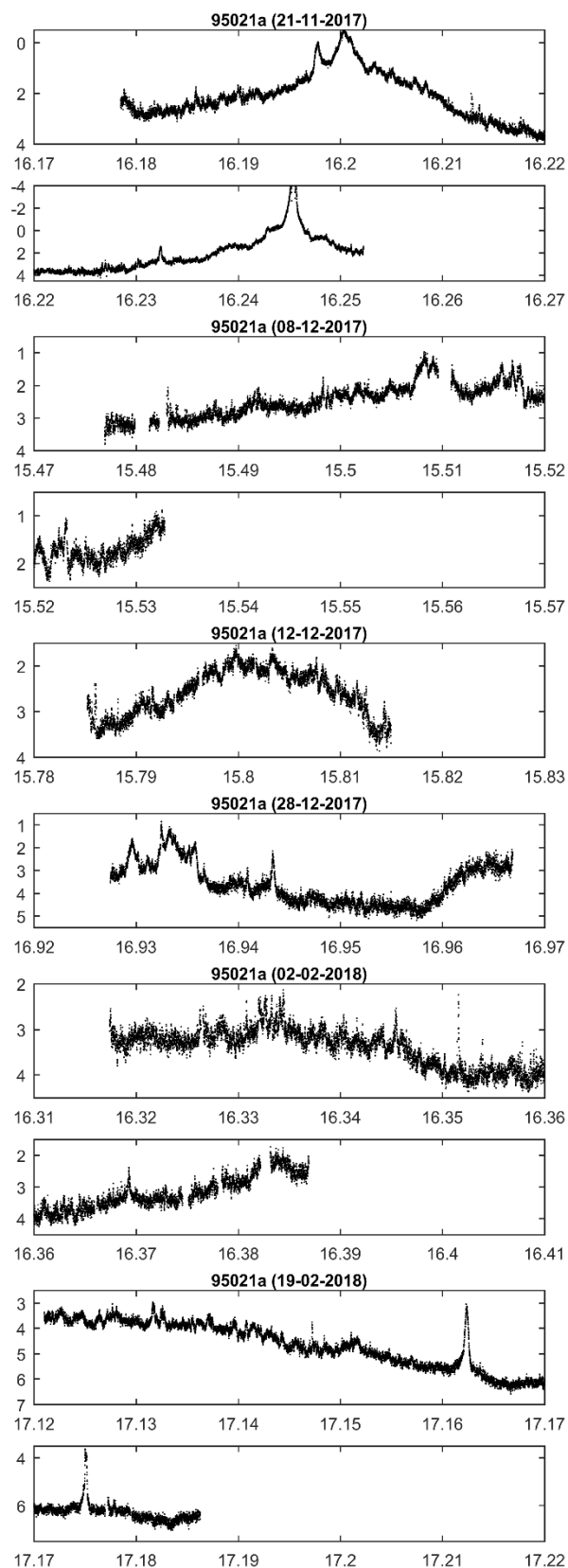
Inclination: 98.5°

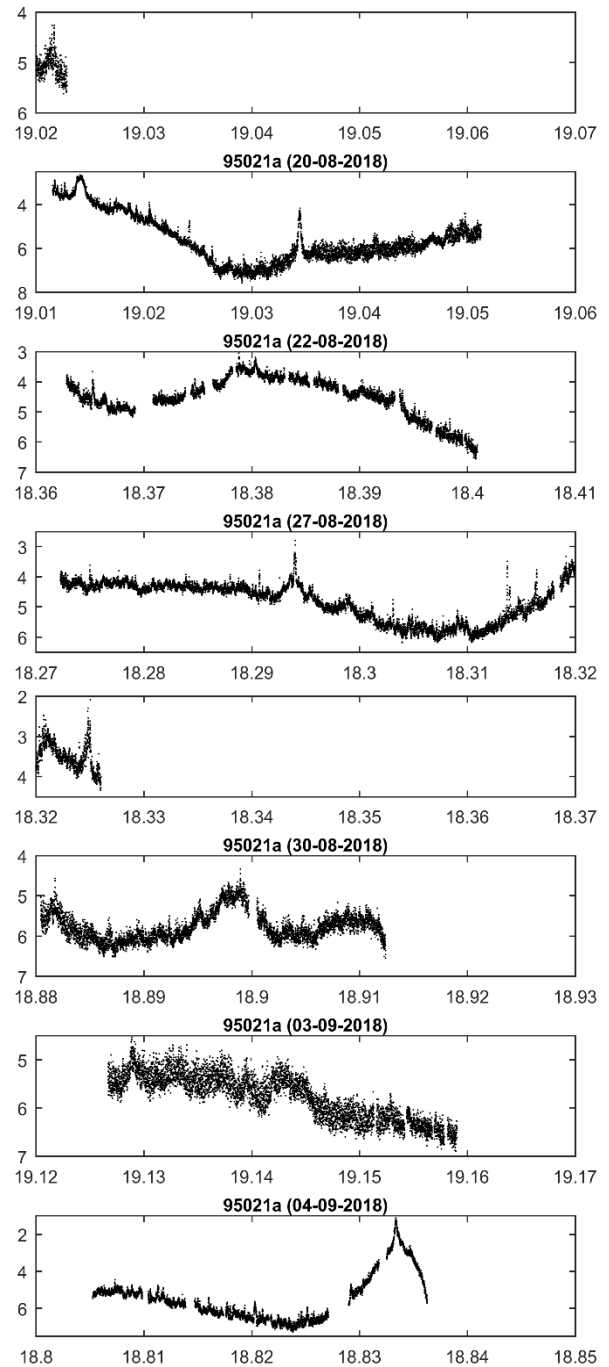
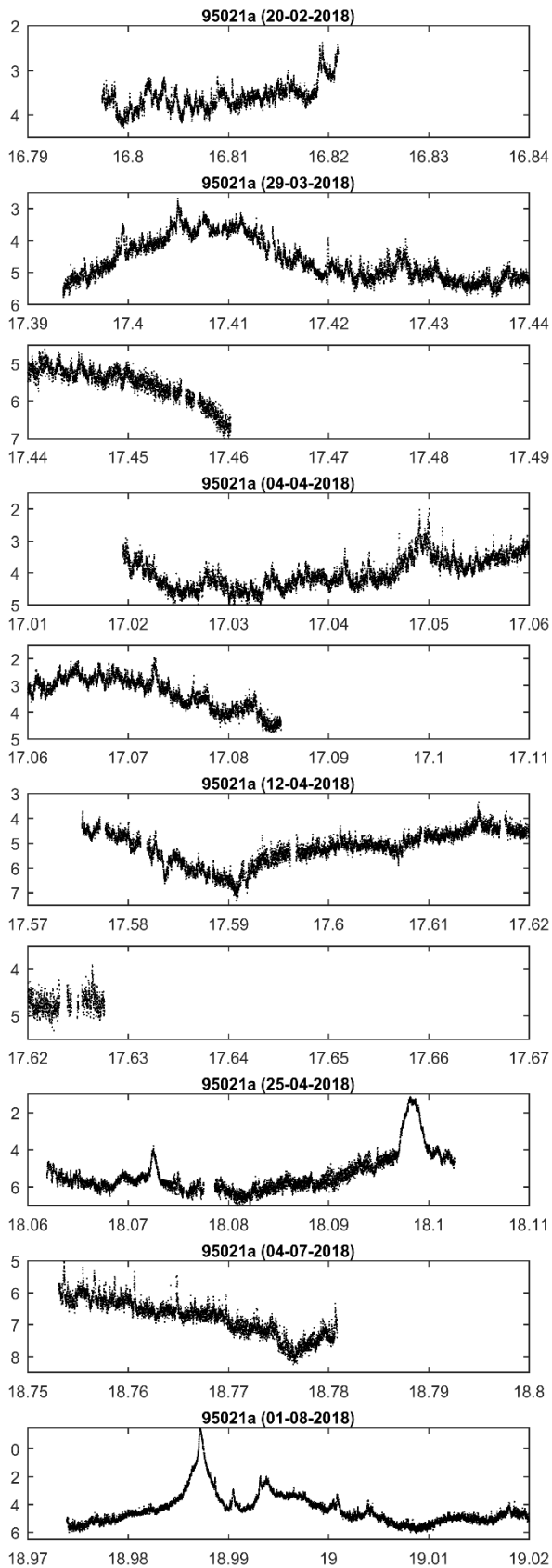
Period: 100.53 min

Eccentricity: 0.00014

Launch date: 1995-04-21

Source: European Space Agency (ESA)





HELIOS 1A

NORAD ID: 23605

Int'l Code: 1995-033A

Dimensions:

Initial orbit:

Perigee: 679 km

Apogee: 681 km

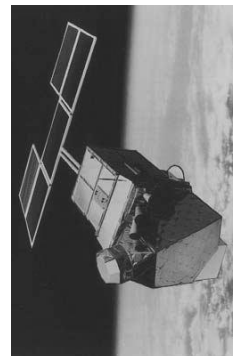
Inclination: 98.0°

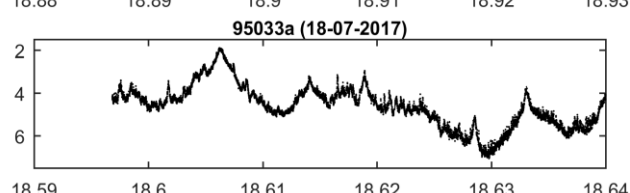
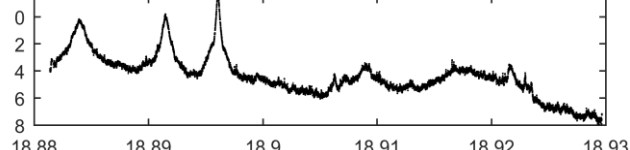
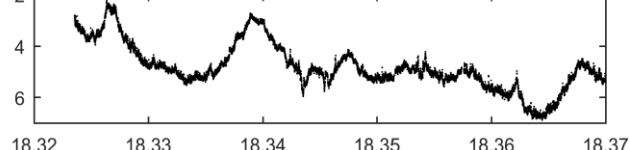
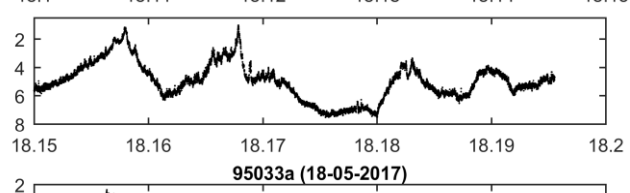
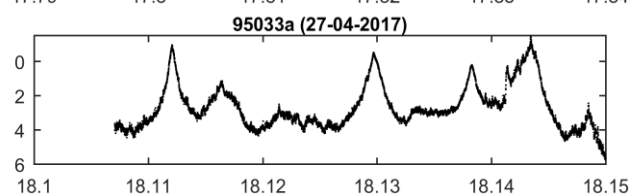
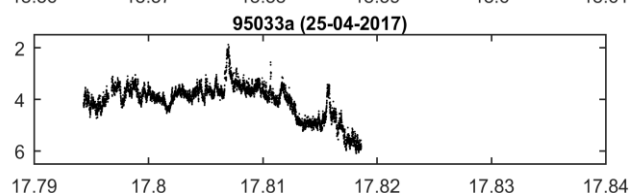
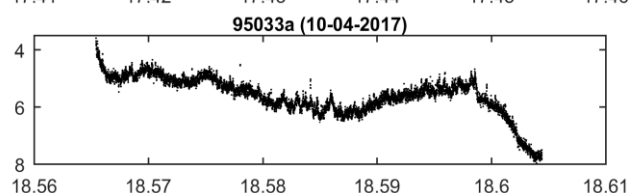
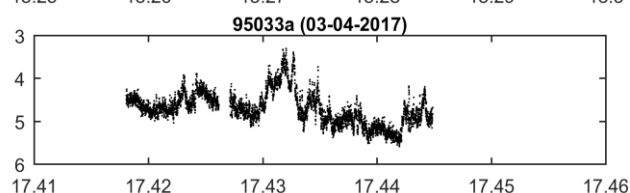
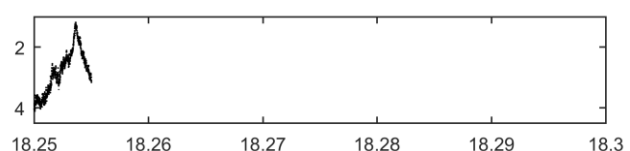
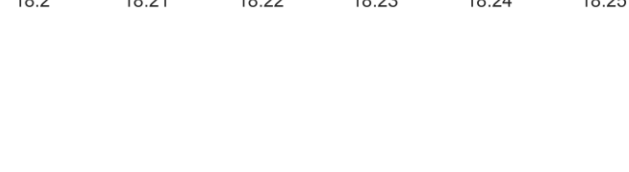
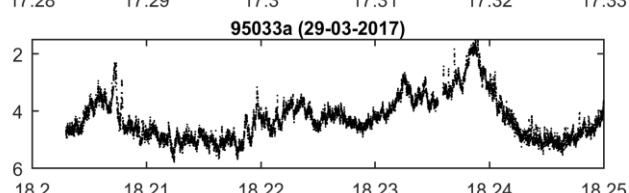
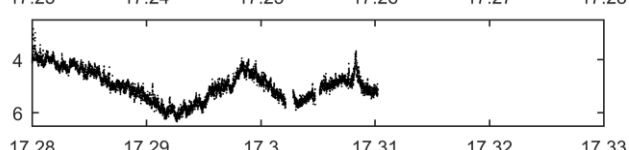
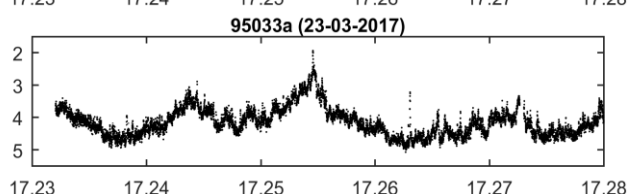
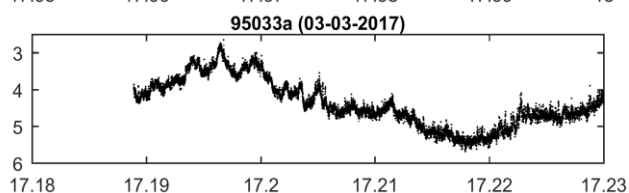
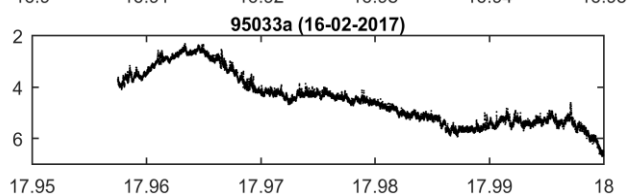
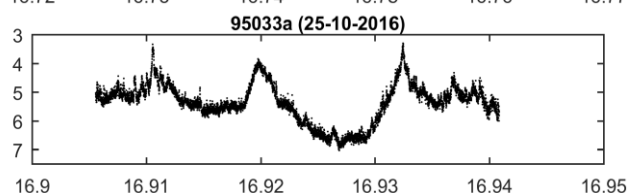
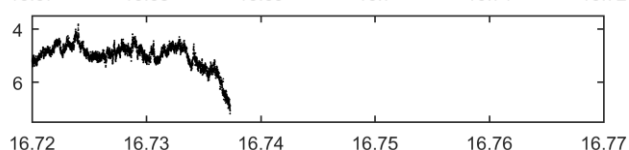
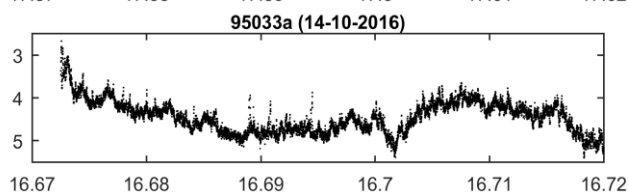
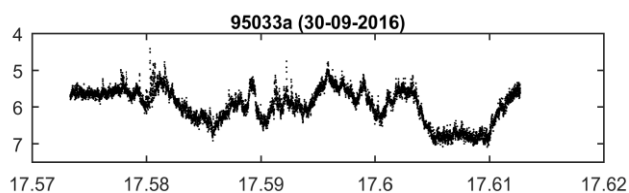
Period: 98.35 min

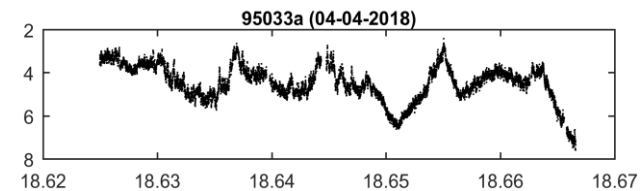
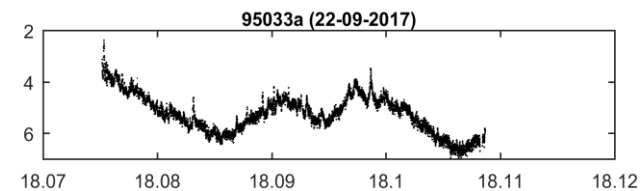
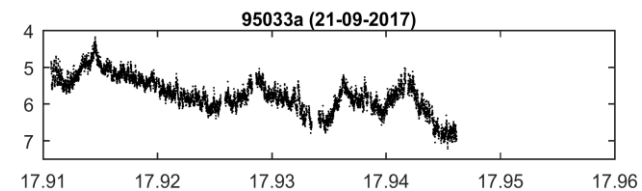
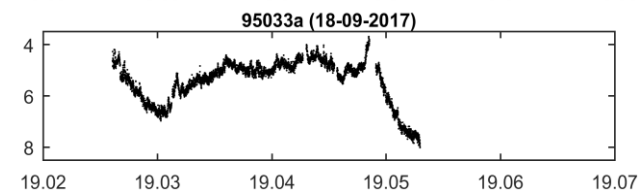
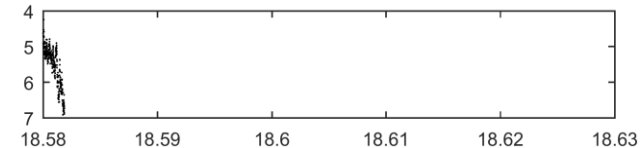
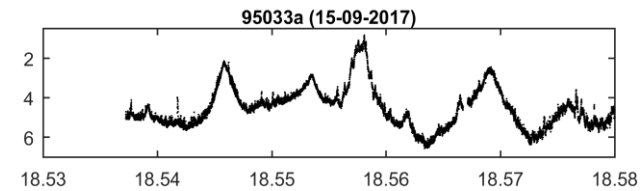
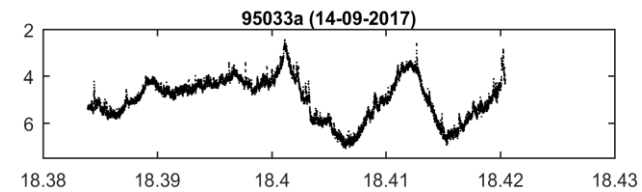
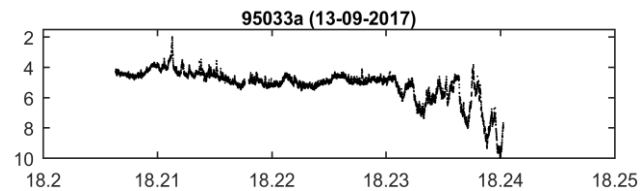
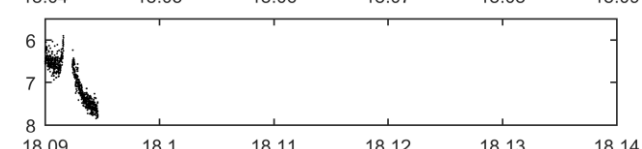
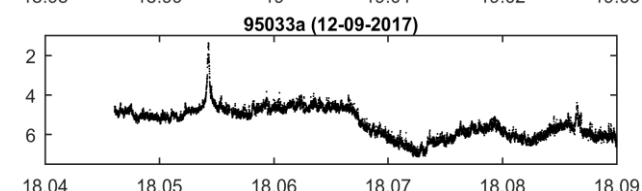
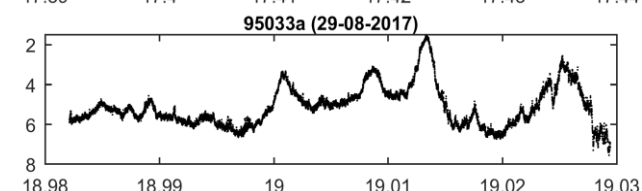
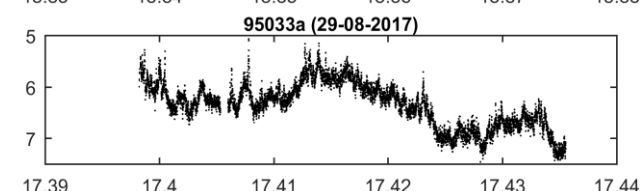
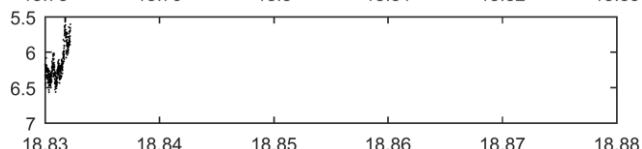
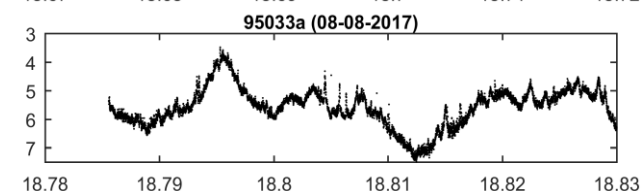
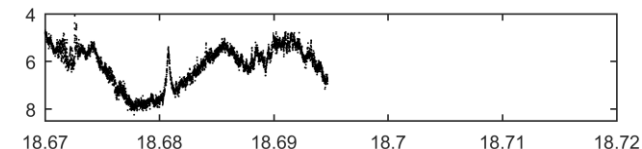
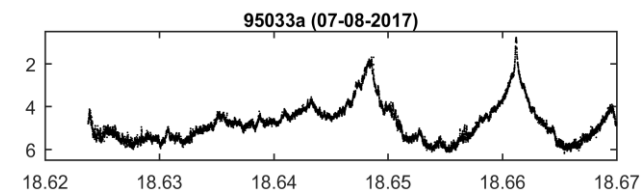
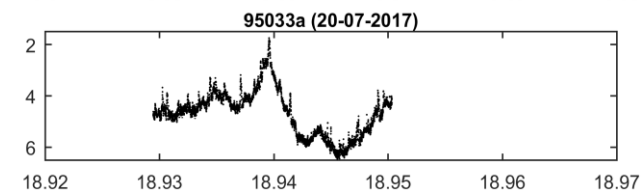
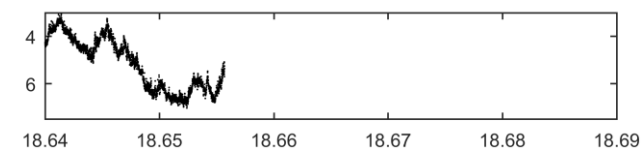
Eccentricity: 0.00014

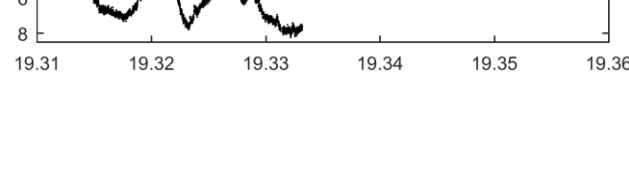
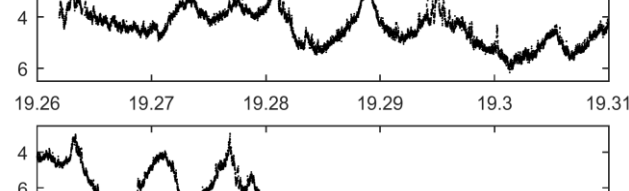
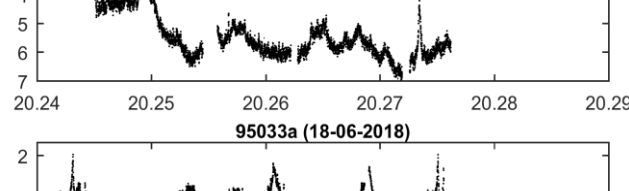
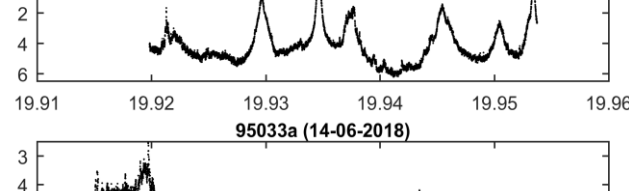
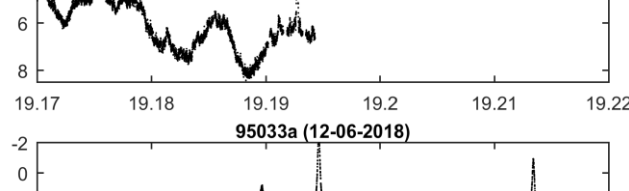
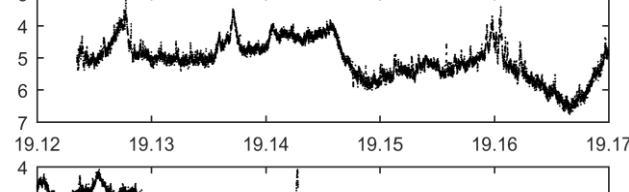
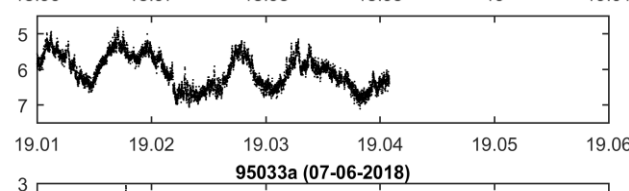
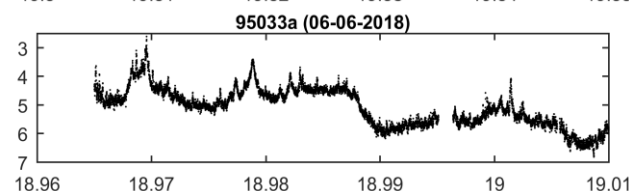
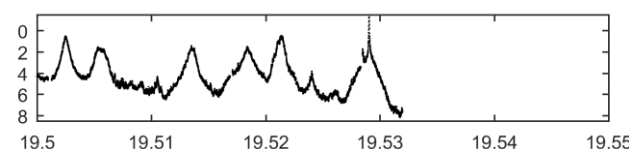
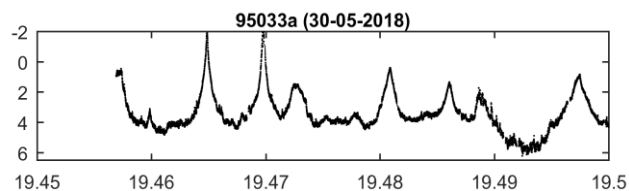
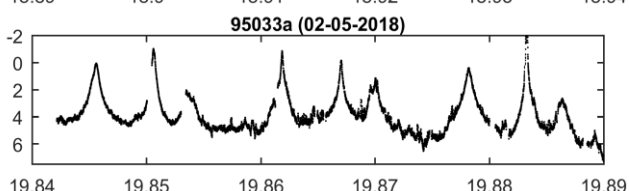
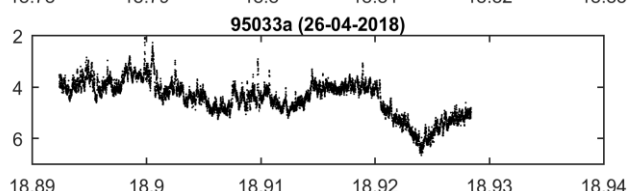
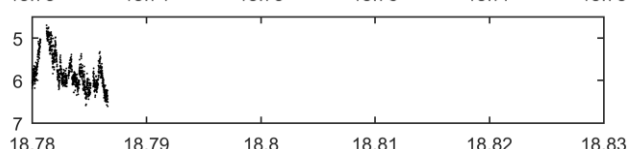
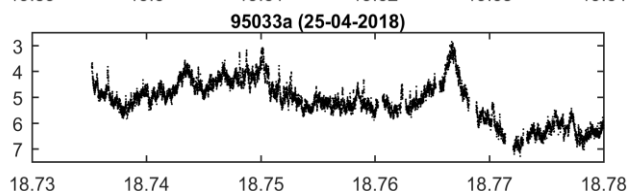
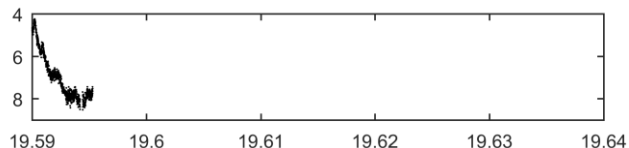
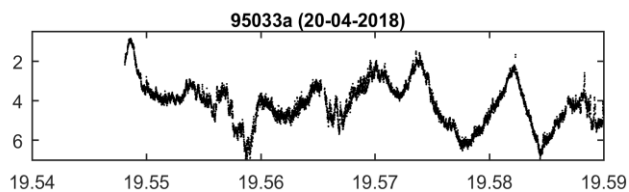
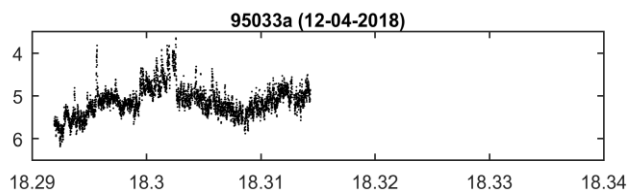
Launch date: 1995-07-07

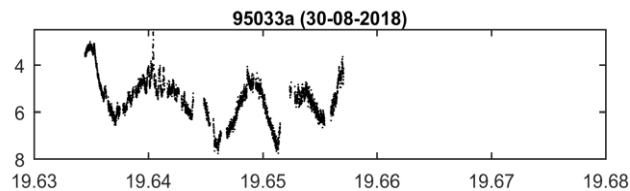
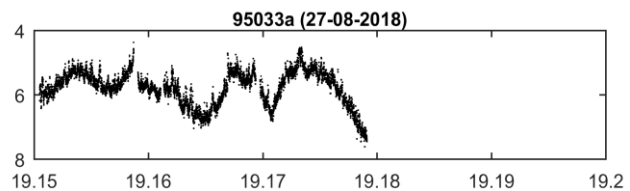
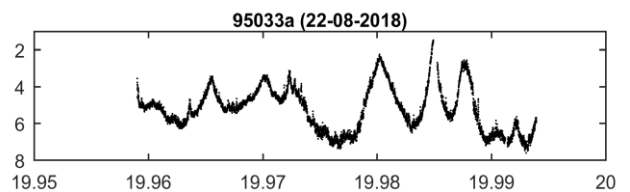
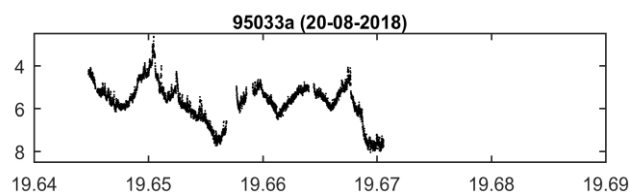
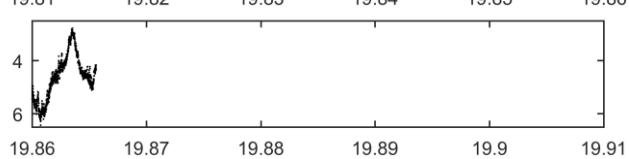
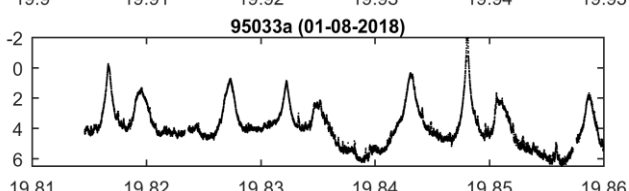
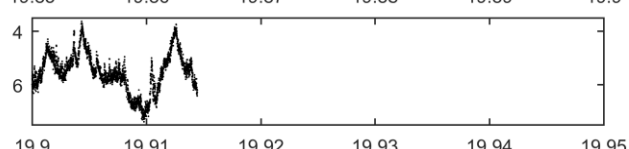
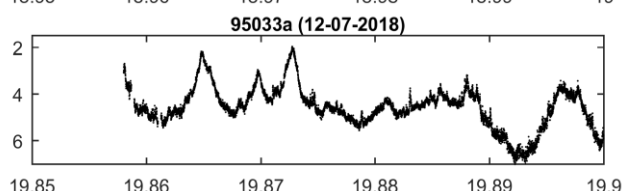
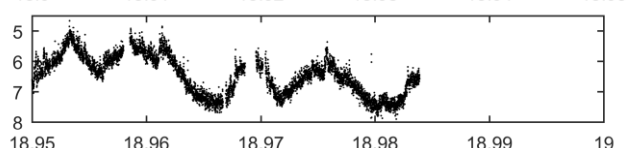
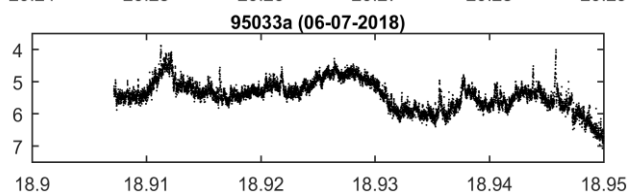
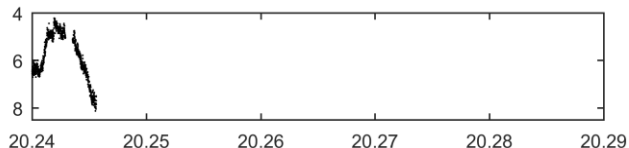
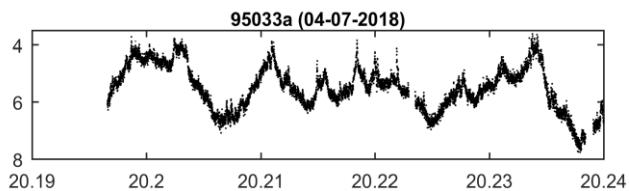
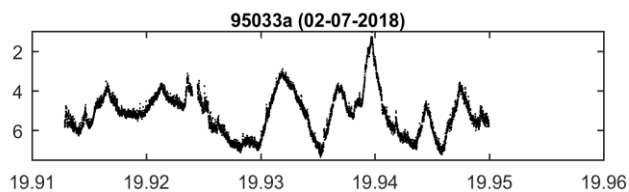
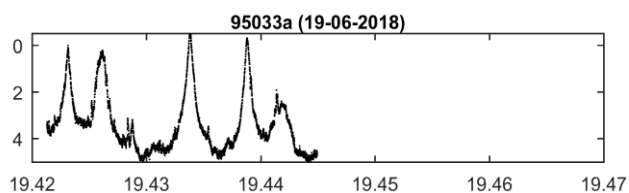
Source: France (FR)











SICH 1 (OKEAN-O1 8)

NORAD ID: 23657

Int'l Code: 1995-046A

Dimensions: conical 3m high

1.4m maxdia

Initial orbit:

Perigee: 630 km

Apogee: 669 km

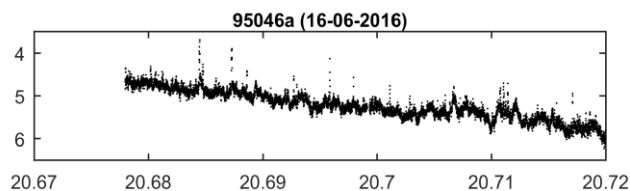
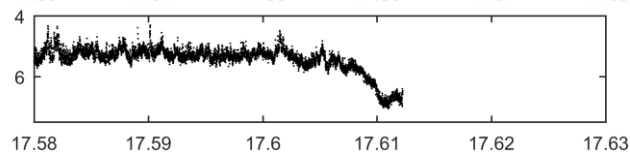
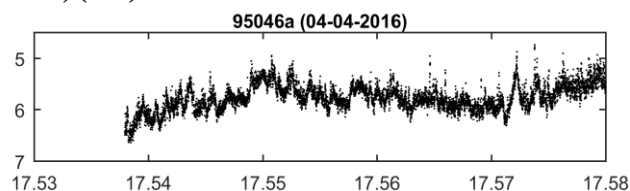
Inclination: 82.5°

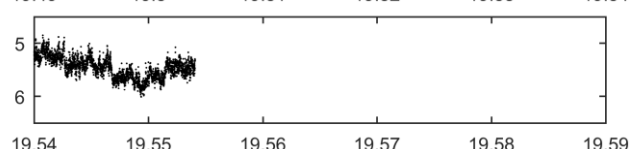
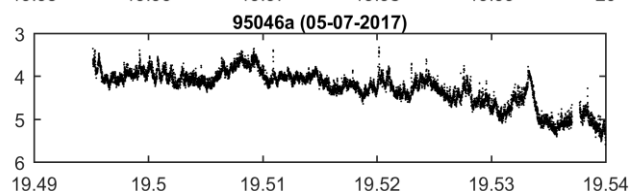
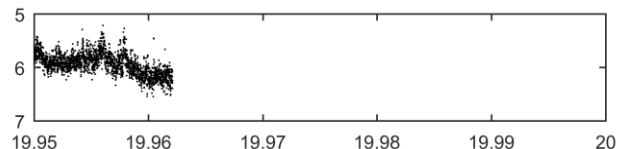
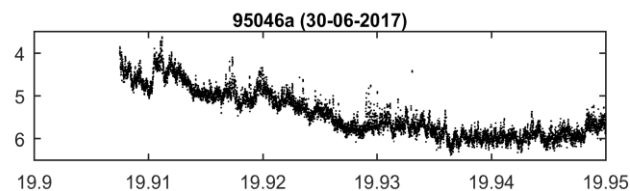
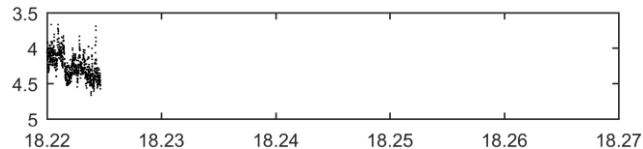
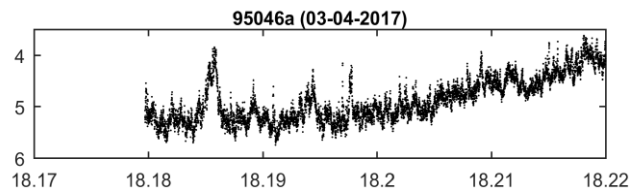
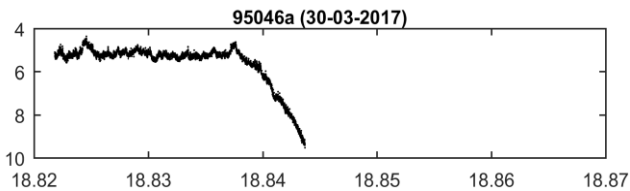
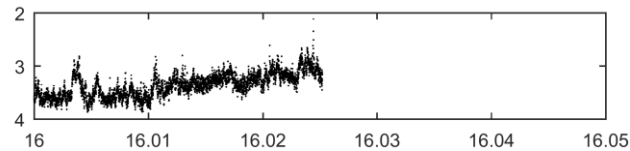
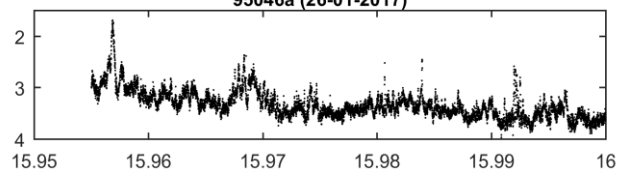
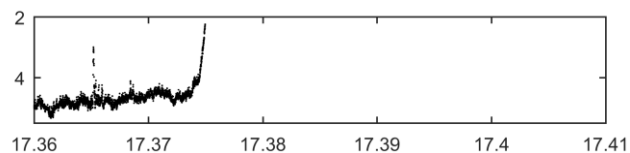
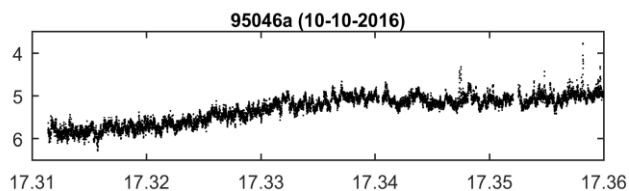
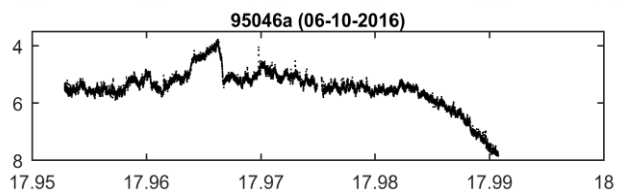
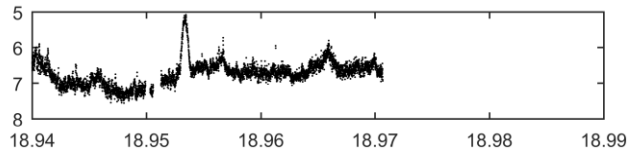
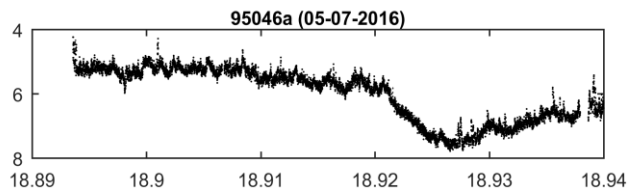
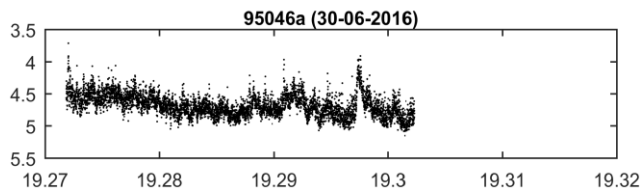
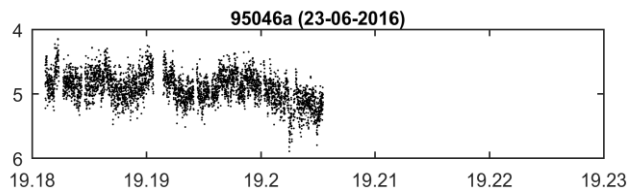
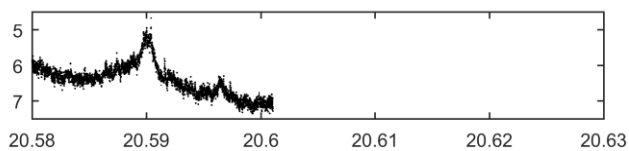
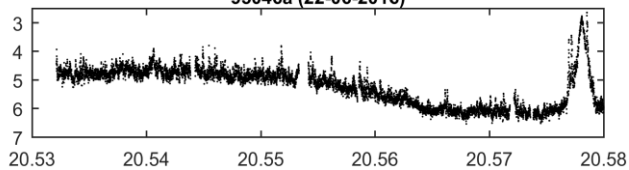
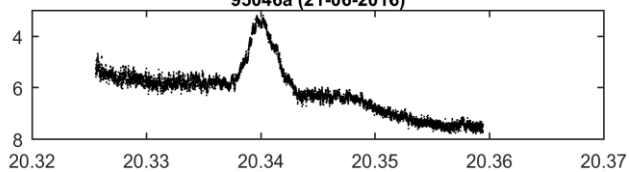
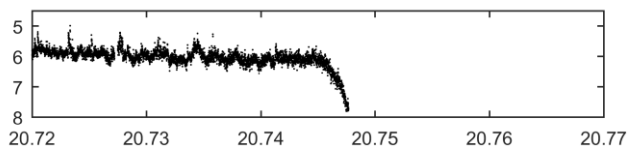
Period: 97.71 min

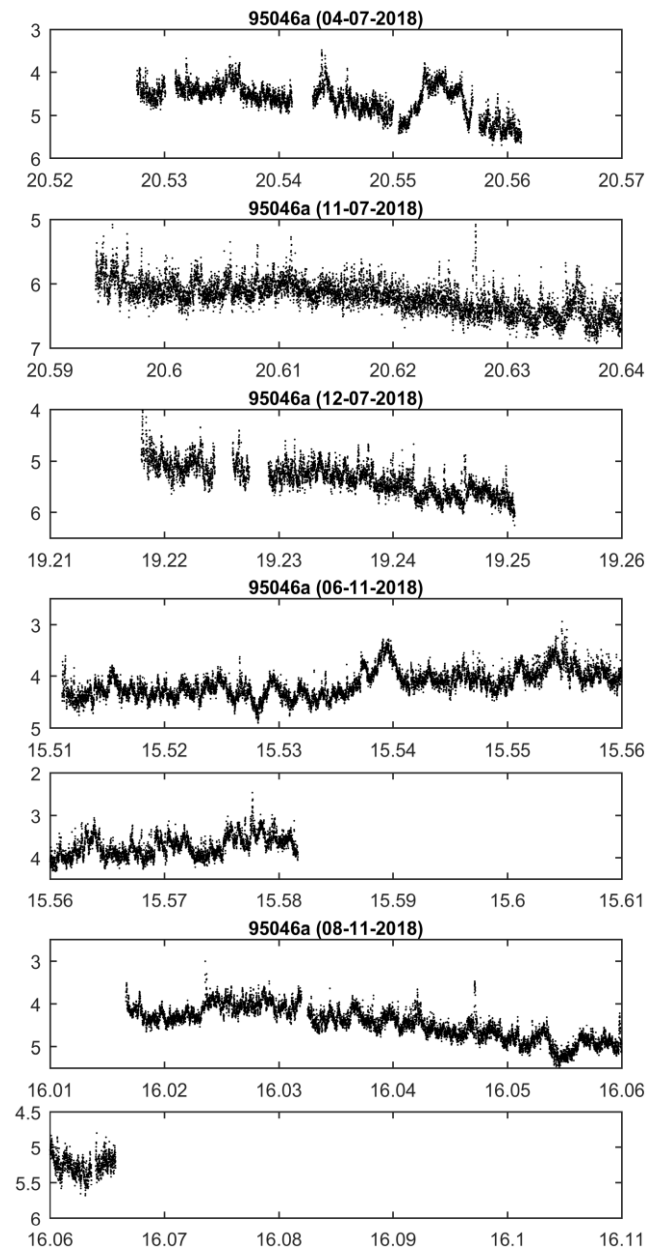
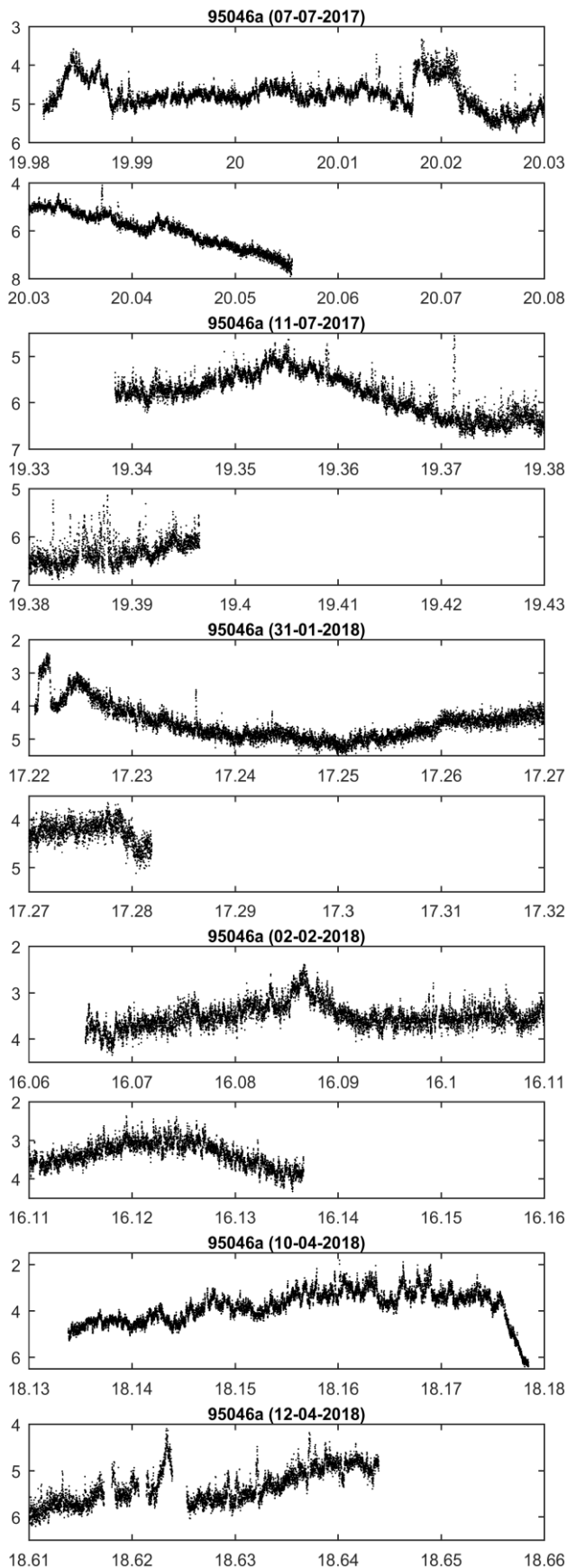
Eccentricity: 0.00278

Launch date: 1995-08-31

Source: Commonwealth of Independent States (former USSR) (CIS)

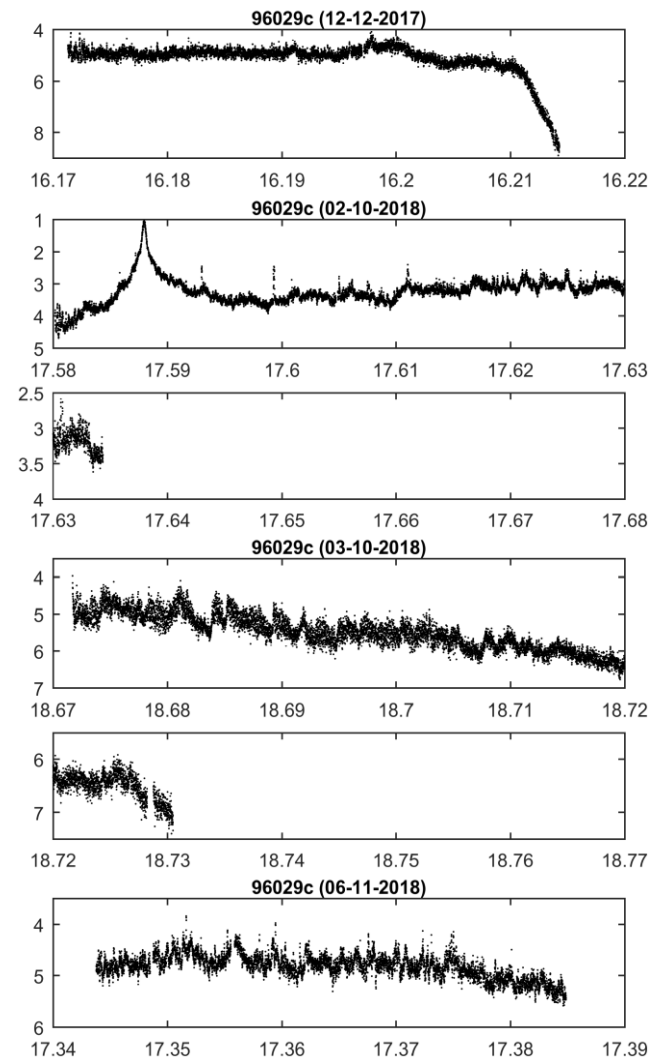
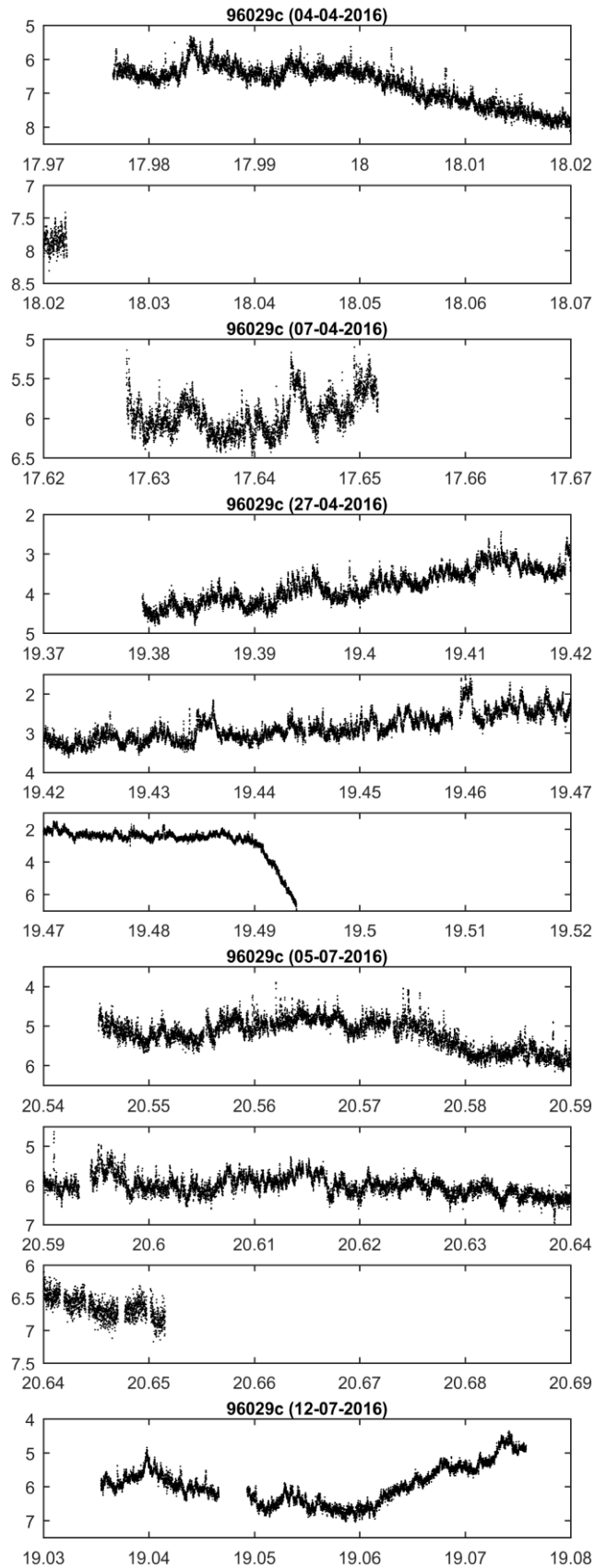






NOSS-2 4B (USA 121)
 NORAD ID: 23908
 Int'l Code: 1996-029C
 Dimensions:
 Initial orbit:
 Perigee: 1054 km
 Apogee: 1162 km
 Inclination: 63.42°
 Period: 107.44 min
 Eccentricity: 0.007
 Launch date: 1996-05-12

Source: United States (US)



NOSS-2 4C (USA 122)

NORAD ID: 23862

Int'l Code: 1996-029D

Dimensions:

Initial orbit:

Perigee: 1053 km

Apogee: 1164 km

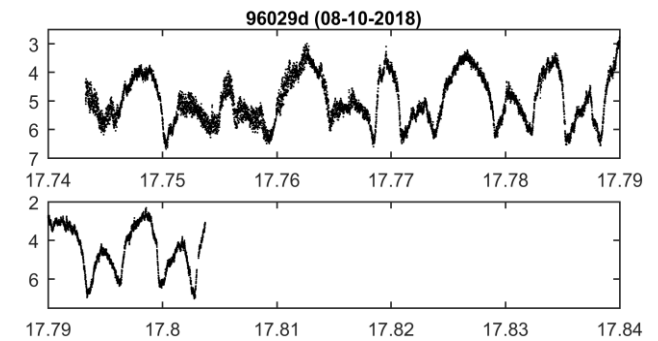
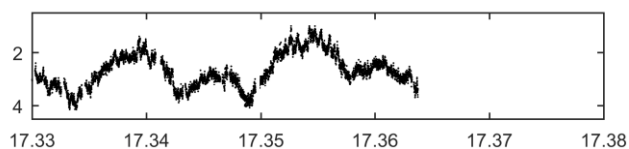
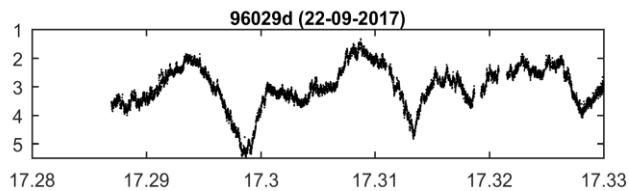
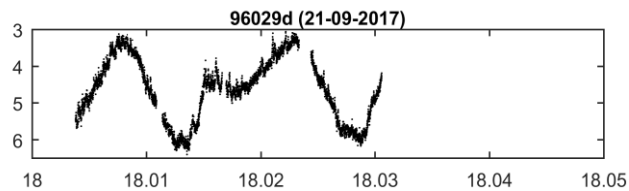
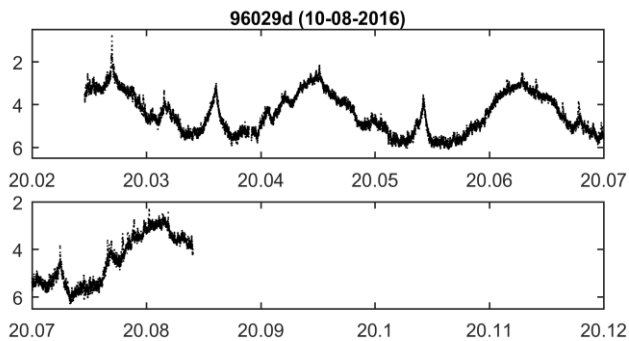
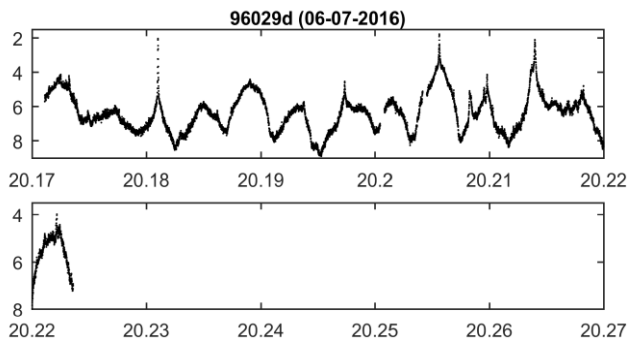
Inclination: 63.50°

Period: 107.44 min

Eccentricity: 0.0074

Launch date: 1996-05-12

Source: United States (US)



TIPS 1A (RALPH, USA 123)

NORAD ID: 23936

Int'l Code: 1996-029E

Dimensions:

Initial orbit:

Perigee: 1056 km

Apogee: 1161 km

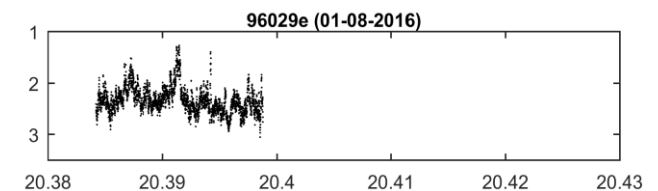
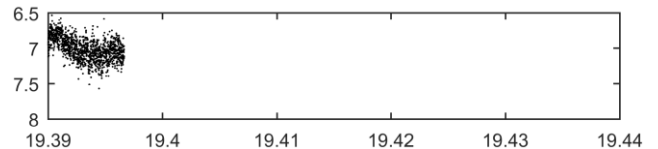
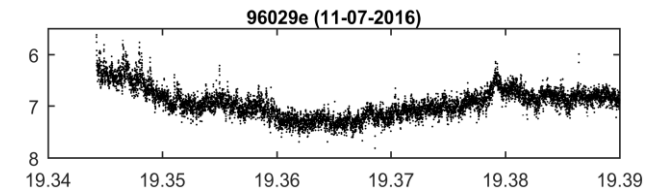
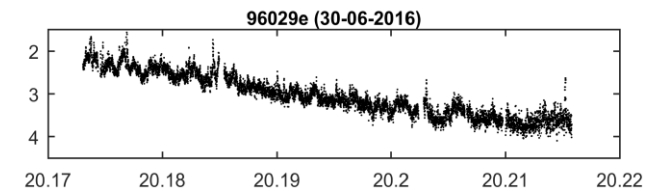
Inclination: 63.42°

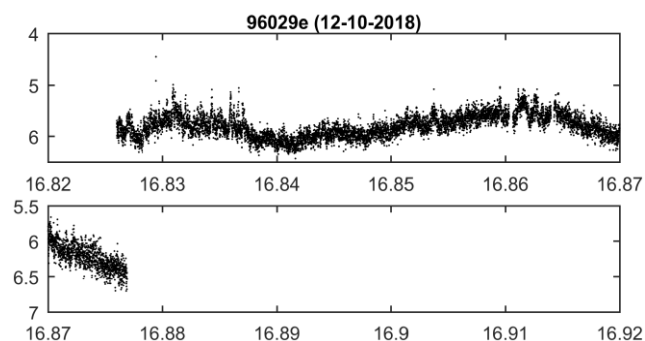
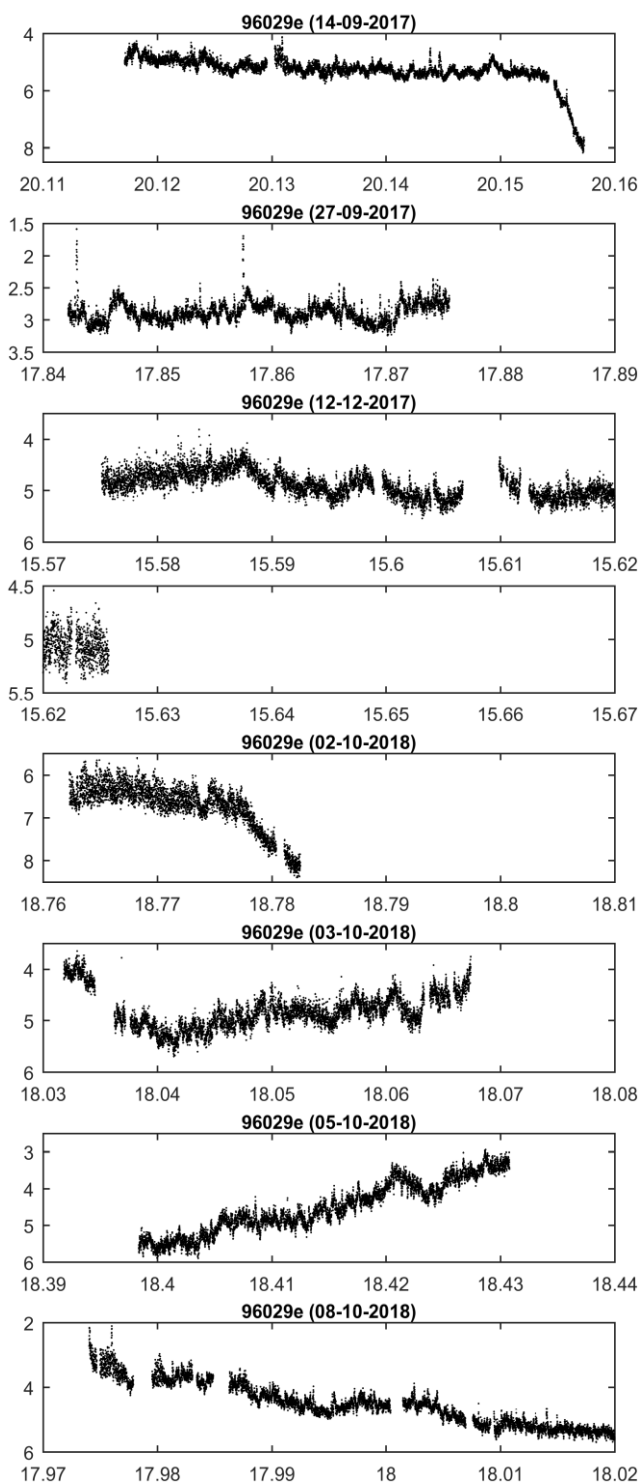
Period: 107.44 min

Eccentricity: 0.007

Launch date: 1996-05-12

Source: United States (US)





IRIDIUM 7

NORAD ID: 24793

Int'l Code: 1997-020B

Dimensions: box + 2 panels

1m across 3.5m long

Initial orbit:

Perigee: 773 km

Apogee: 782 km

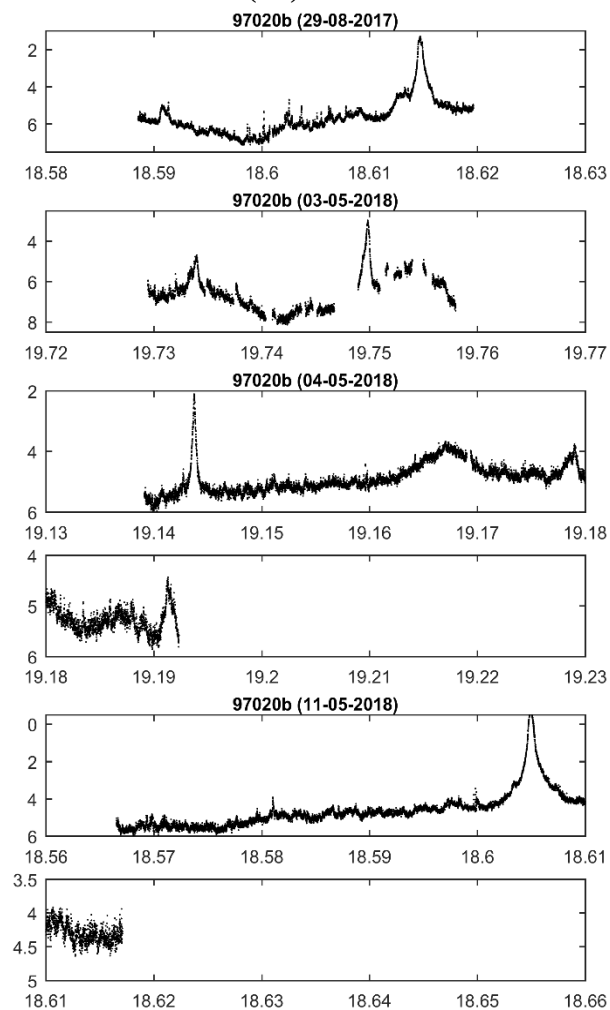
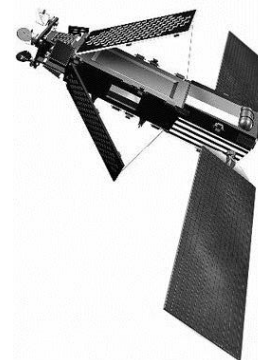
Inclination: 86.4°

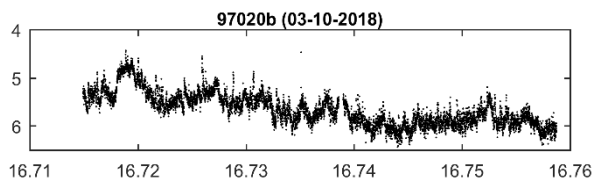
Period: 100.4 min

Eccentricity: 0.0006

Launch date: 1997-05-05

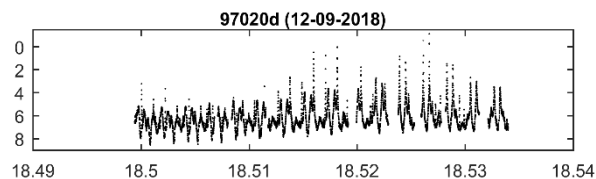
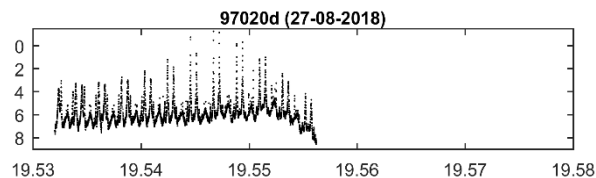
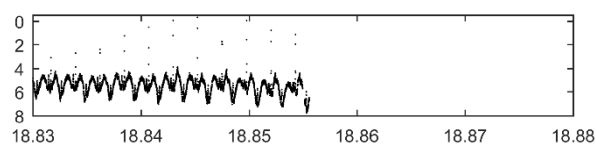
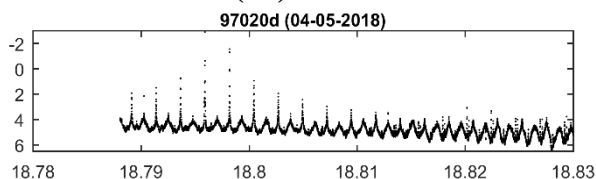
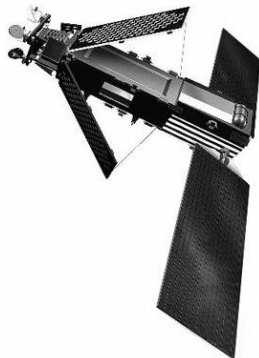
Source: United States (US)





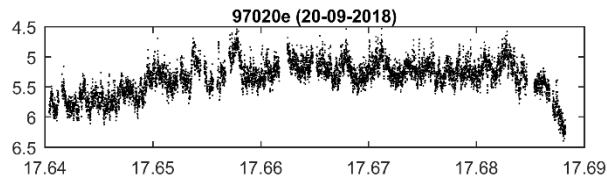
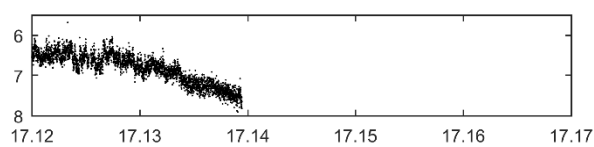
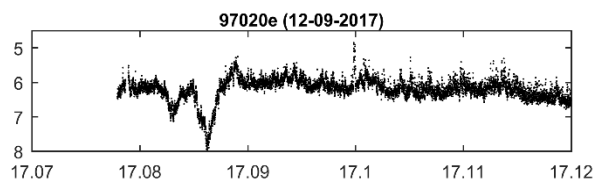
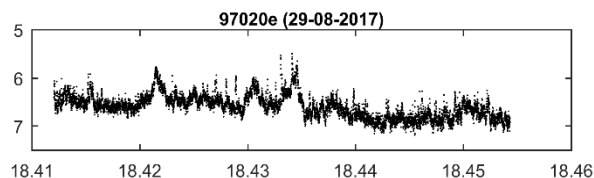
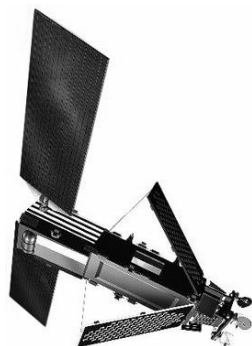
IRIDIUM 5

NORAD ID: 24795
 Int'l Code: 1997-020D
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1997-05-05
 Source: United States (US)



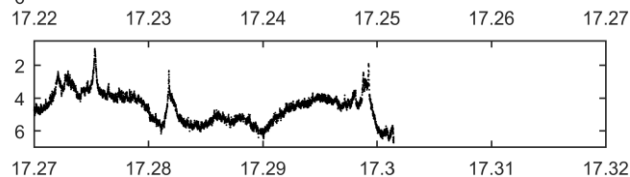
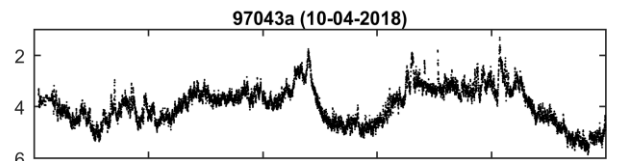
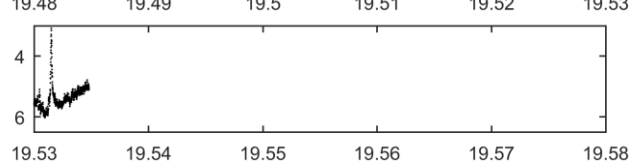
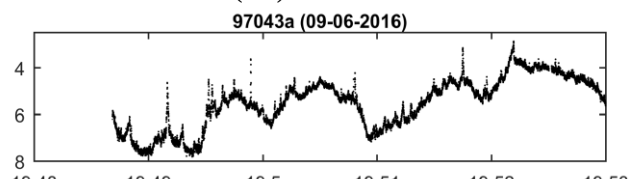
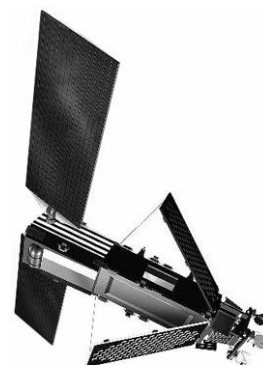
IRIDIUM 4

NORAD ID: 24796
 Int'l Code: 1997-020E
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 771 km
 Apogee: 784 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00091
 Launch date: 1997-05-05
 Source: United States (US)



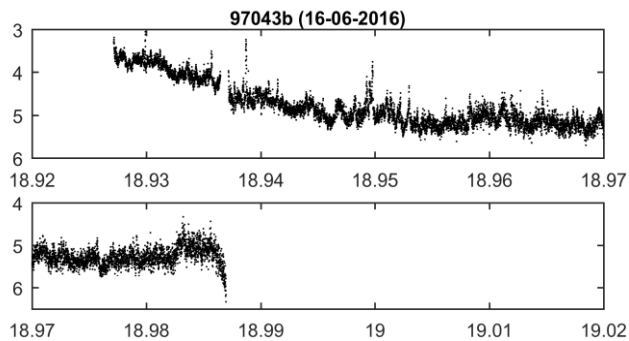
IRIDIUM 26

NORAD ID: 24903
 Int'l Code: 1997-043A
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 774 km
 Apogee: 780 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.0004
 Launch date: 1997-08-21
 Source: United States (US)



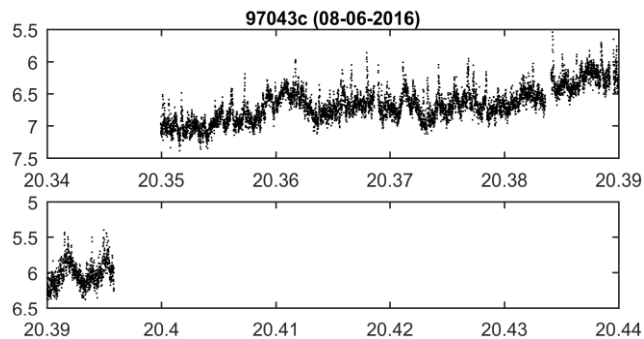
IRIDIUM 25

NORAD ID: 24904
Int'l Code: 1997-043B
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-08-21
Decay date: 2018-05-14
Source: United States (US)



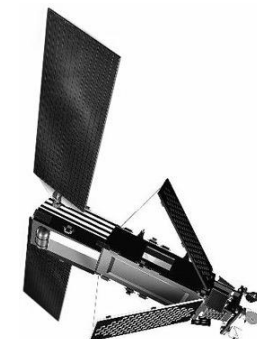
IRIDIUM 24

NORAD ID: 24905
Int'l Code: 1997-043C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-08-21
Source: United States (US)

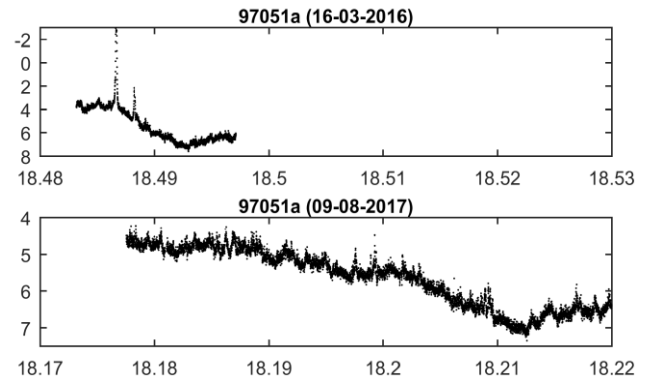


IRIDIUM 29

NORAD ID: 24944
Int'l Code: 1997-051A
Dimensions: box + 2 panels
1 across 3.5 long
Initial orbit:
Perigee: 776 km

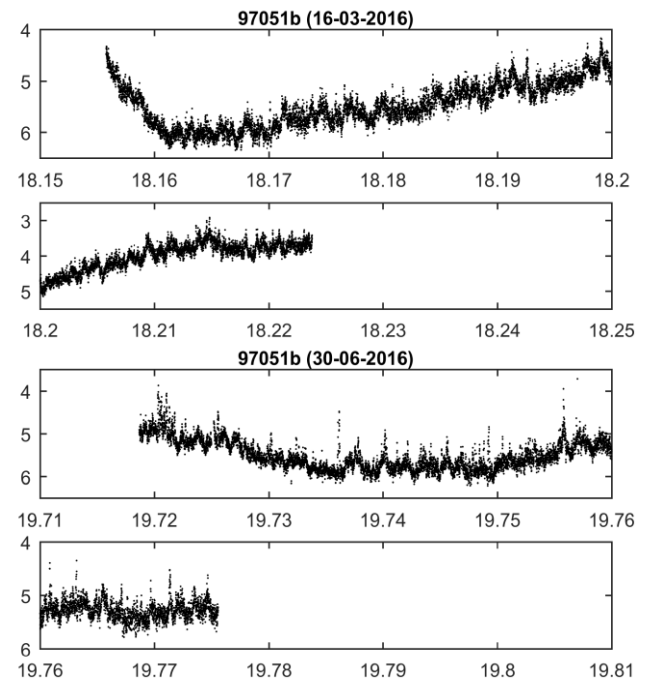
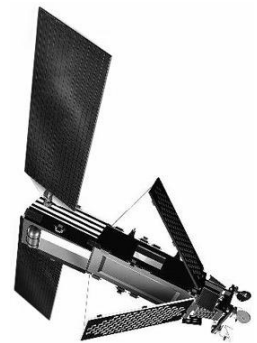


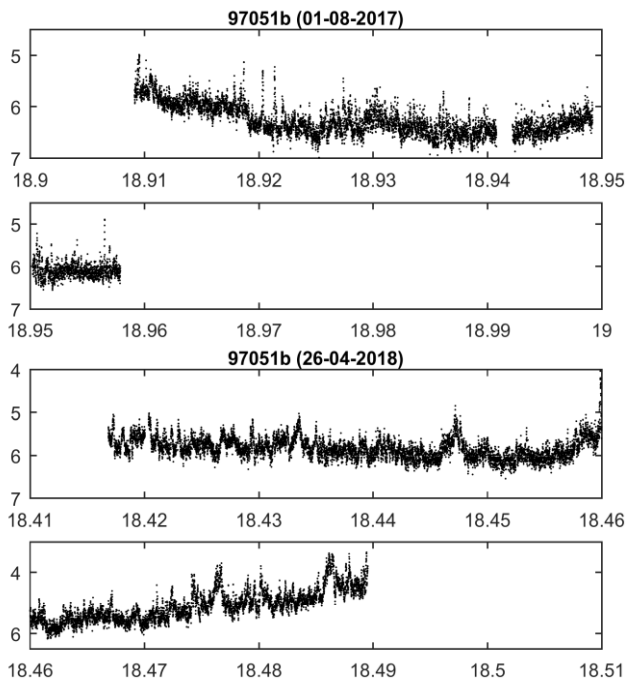
Apogee: 778 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.0001
Launch date: 1997-09-14
Source: United States (US)



IRIDIUM 32

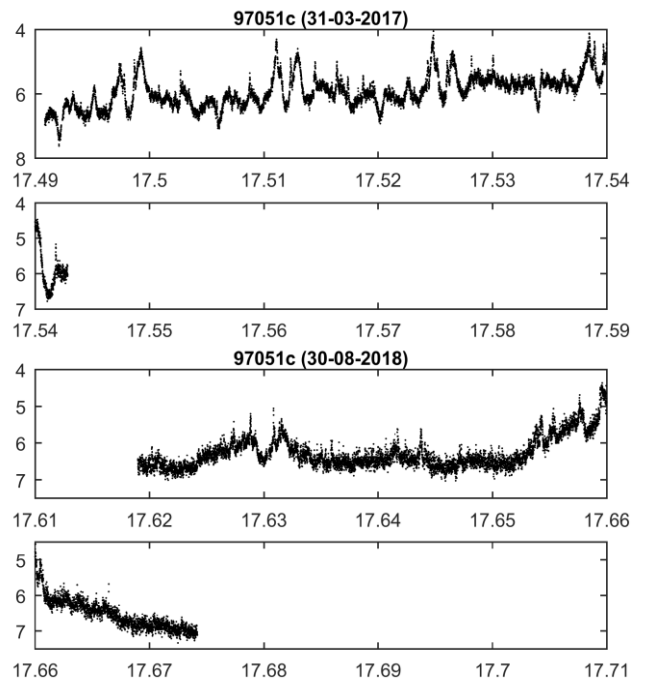
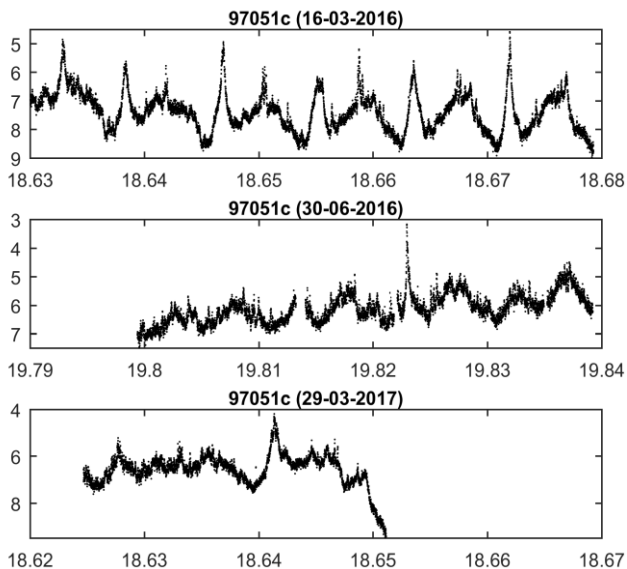
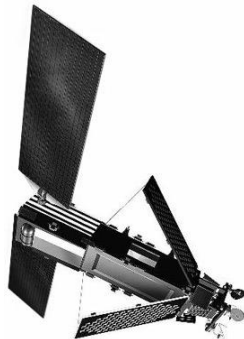
NORAD ID: 24945
Int'l Code: 1997-051B
Dimensions: box + 2 panels
1 across 3.5 long
Initial orbit:
Perigee: 776 km
Apogee: 778 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.0001
Launch date: 1997-09-14
Decay date: 2019-03-10
Source: United States (US)





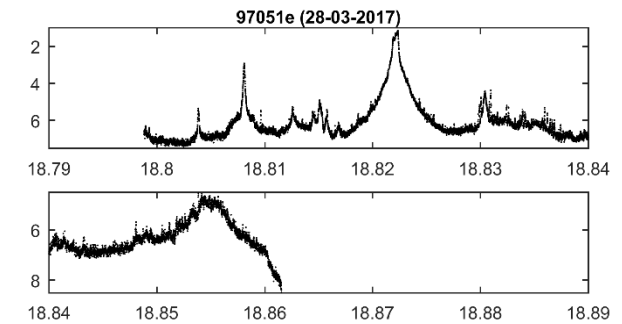
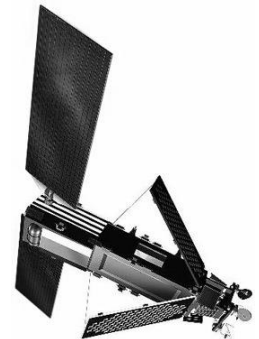
IRIDIUM 33

NORAD ID: 24946
 Int'l Code: 1997-051C
 Dimensions: box + 2 panels
 1 m across 3.5 m long
 Initial orbit:
 Perigee: 774 km
 Apogee: 780 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.0001
 Launch date: 1997-09-14
 Source: United States (US)



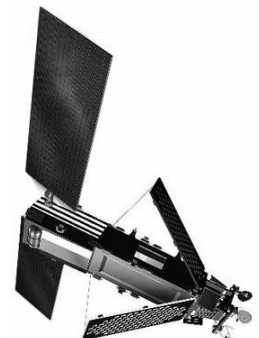
IRIDIUM 28

NORAD ID: 24948
 Int'l Code: 1997-051E
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.0001
 Launch date: 1997-09-14
 Source: United States (US)

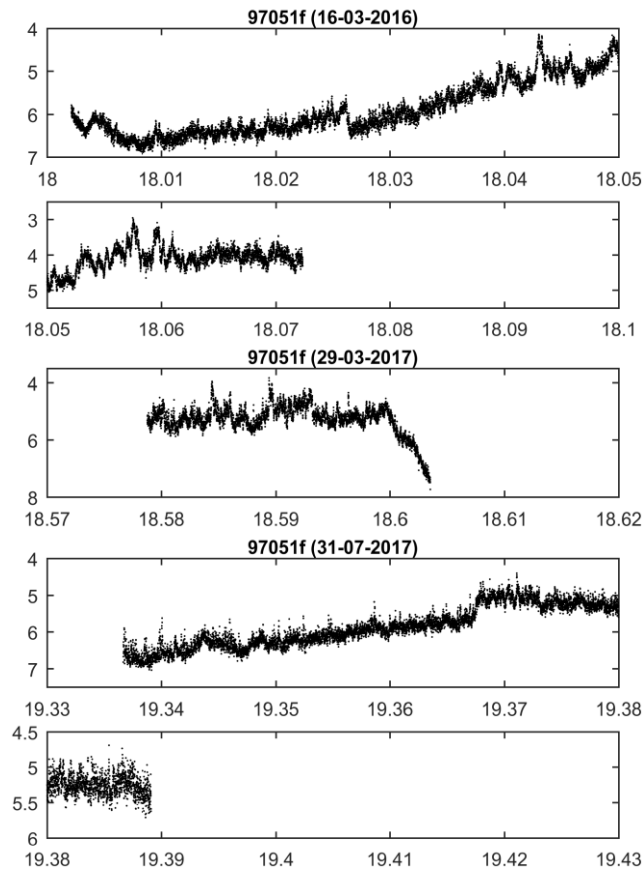


IRIDIUM 30

NORAD ID: 24949
 Int'l Code: 1997-051F
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 774 km
 Apogee: 780 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.0004
 Launch date: 1997-09-14

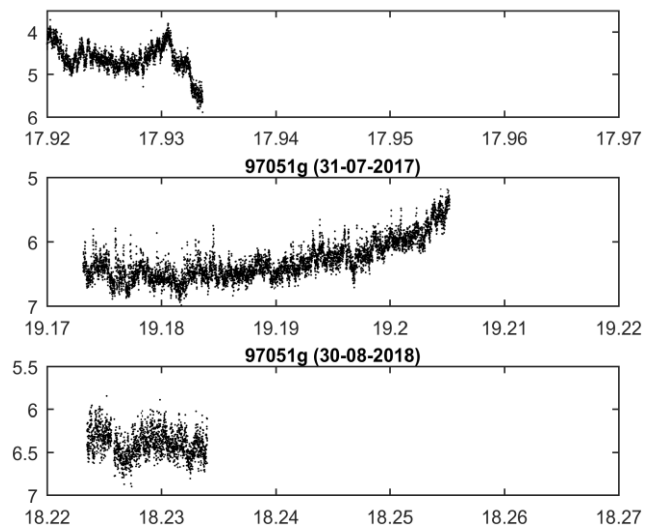
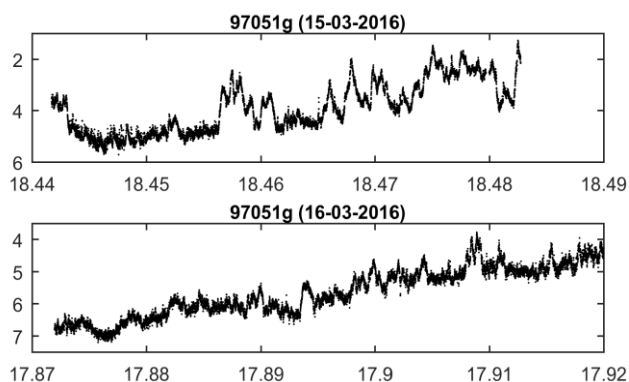


Decay date: 2017-09-28
Source: United States (US)



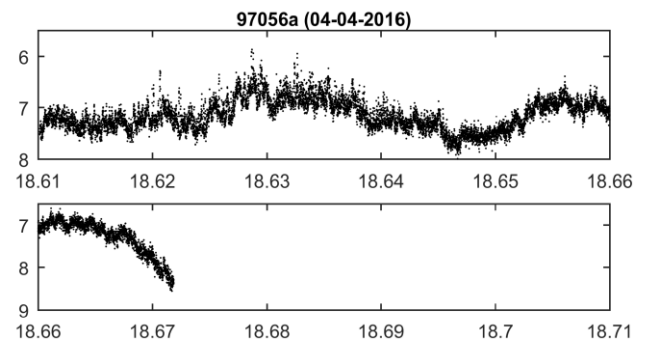
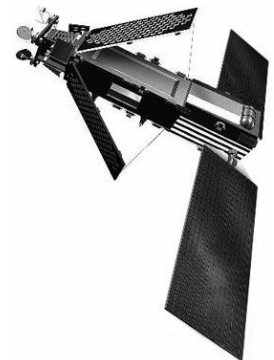
IRIDIUM 31

NORAD ID: 24950
Int'l Code: 1997-051G
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 778 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.00014
Launch date: 1997-09-14
Decay date: 2018-12-20
Source: United States (US)



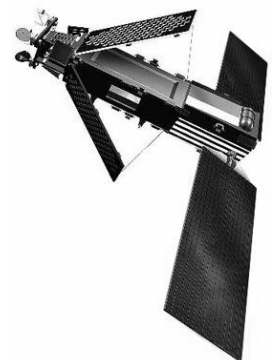
IRIDIUM 19

NORAD ID: 24965
Int'l Code: 1997-056A
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 778 km
Inclination: 86.3°
Period: 100.37 min
Eccentricity: 0.00021
Launch date: 1997-09-27
Decay date: 2018-04-07
Source: United States (US)

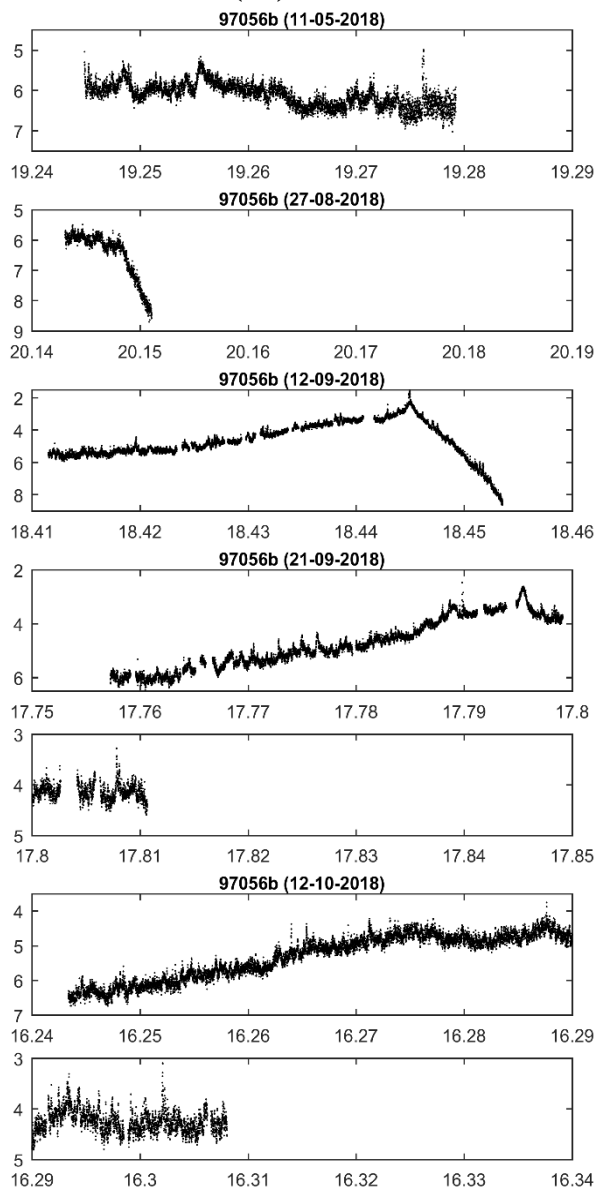


IRIDIUM 37 (35?)

NORAD ID: 24966
Int'l Code: 1997-056B
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.00028
Launch date: 1997-09-27
Decay date: 2018-12-26

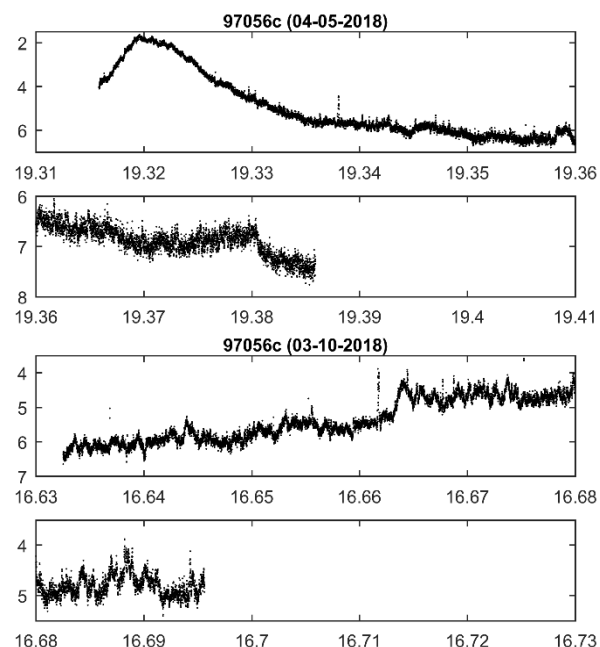


Source: United States (US)



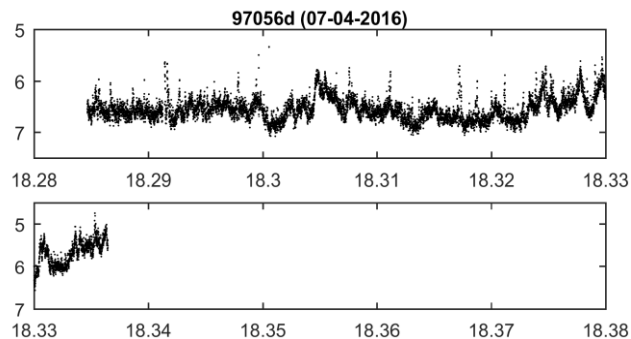
IRIDIUM 36

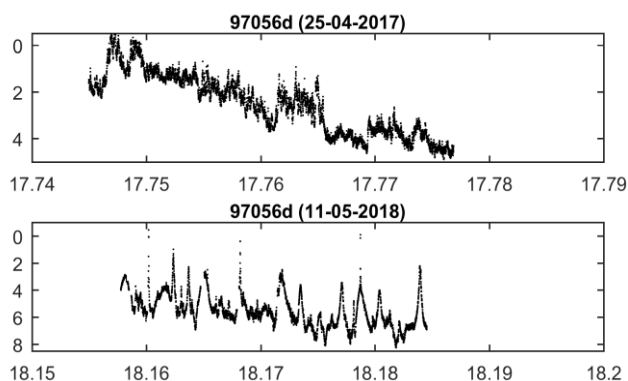
NORAD ID: 24967
Int'l Code: 1997-056C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 562 km
Apogee: 566 km
Inclination: 86.7°
Period: 95.95 min
Eccentricity: 0.000288
Launch date: 1997-09-27
Source: United States (US)



IRIDIUM 37(35)

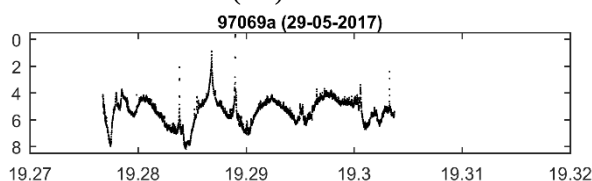
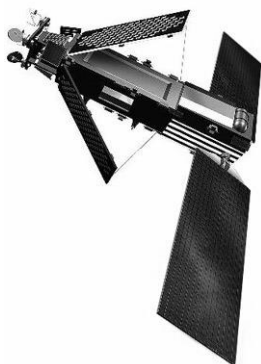
NORAD ID: 24968
Int'l Code: 1997-056D
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 778 km
Inclination: 86.3°
Period: 100.38 min
Eccentricity: 0.00014
Launch date: 1997-09-27
Decay date: 2018-05-26
Source: United States (US)





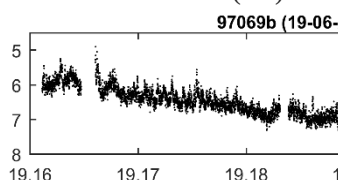
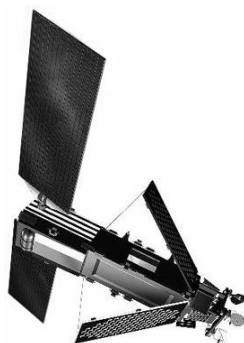
IRIDIUM 43

NORAD ID: 25039
 Int'l Code: 1997-069A
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.40 min
 Eccentricity: 0.0002
 Launch date: 1997-11-09
 Decay date: 2018-02-11
 Source: United States (US)



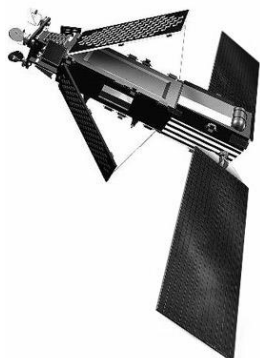
IRIDIUM 41

NORAD ID: 25040
 Int'l Code: 1997-069B
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 775 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.37 min
 Eccentricity: 0.0002
 Launch date: 1997-11-09
 Decay date: 2018-07-28
 Source: United States (US)



IRIDIUM 47

NORAD ID: 25106
 Int'l Code: 1997-082C



Dimensions: box + 2 panels

1 across 3.5m long

Initial orbit:

Perigee: 776 km

Apogee: 779 km

Inclination: 86.4°

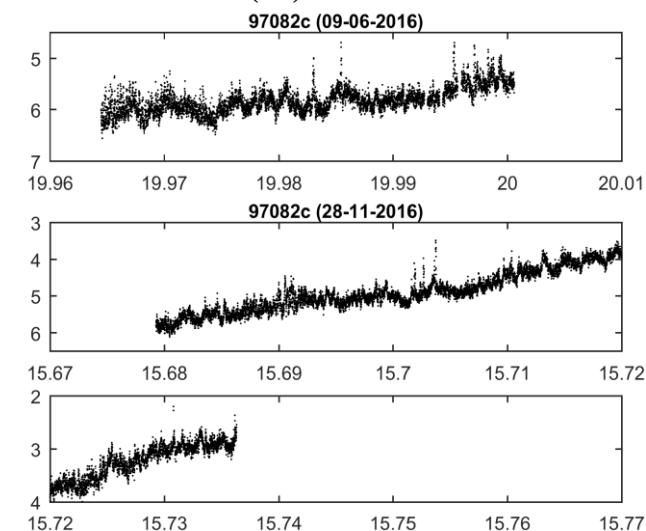
Period: 100.4 min

Eccentricity: 0.00042

Launch date: 1997-12-20

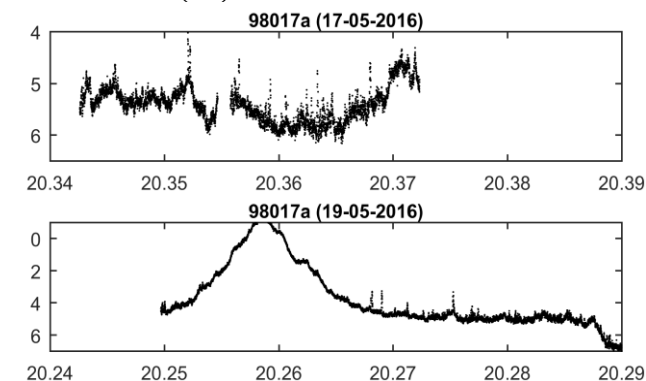
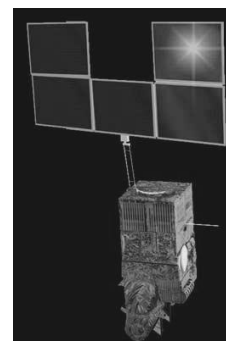
Decay date: 2018-09-01

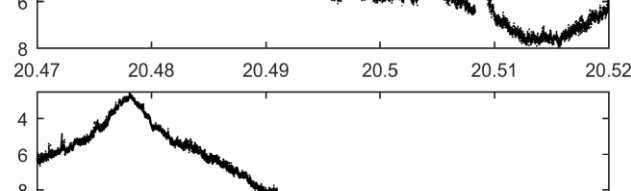
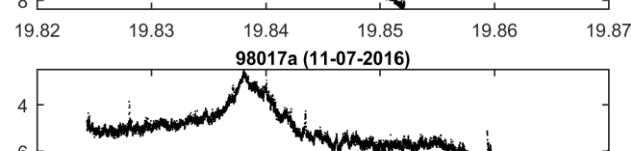
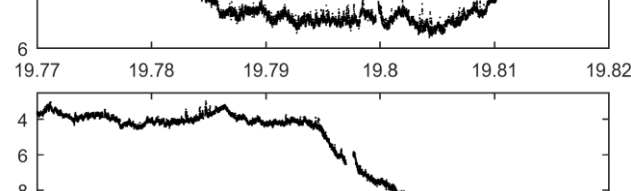
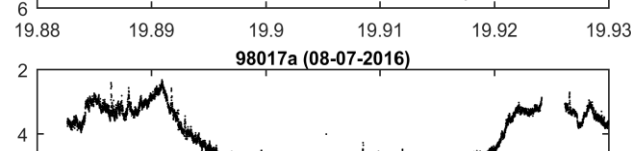
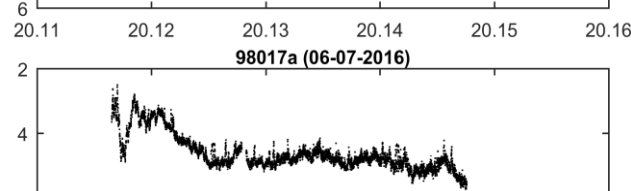
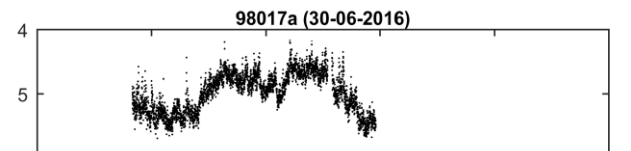
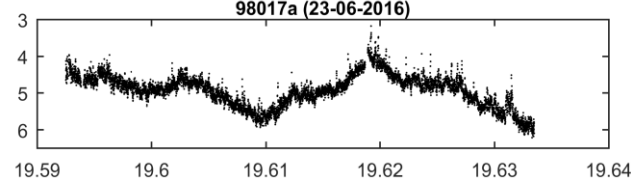
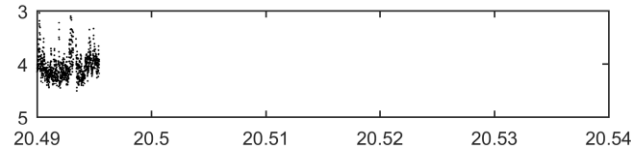
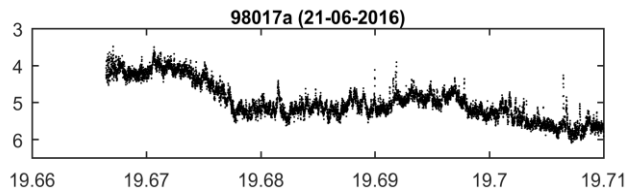
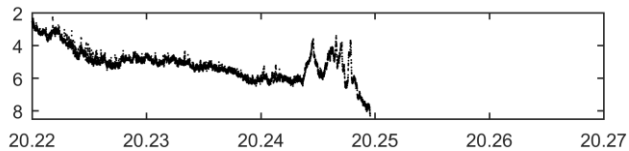
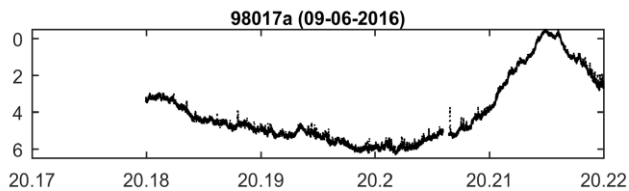
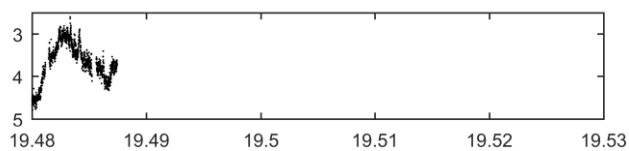
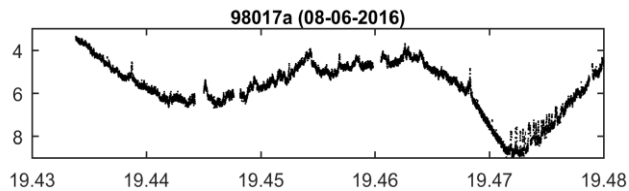
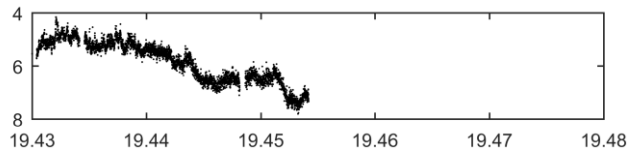
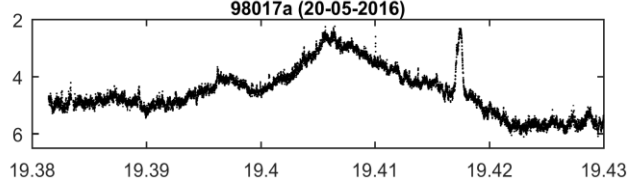
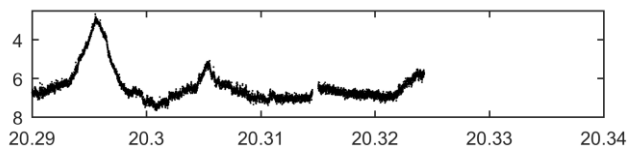
Source: United States (US)

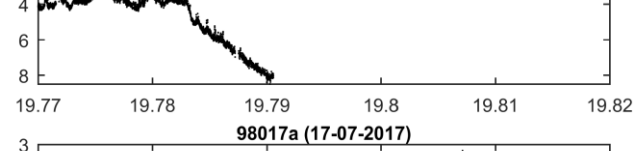
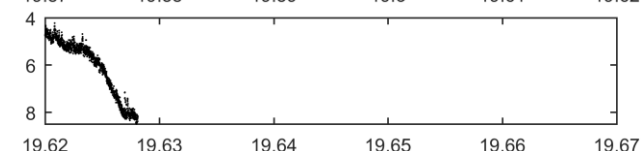
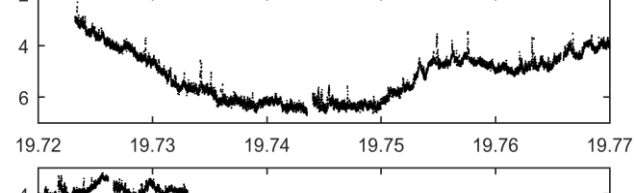
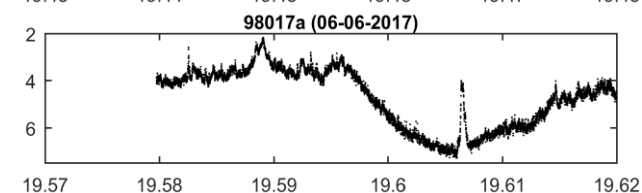
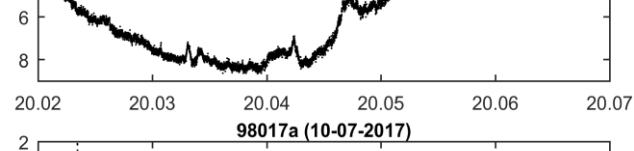
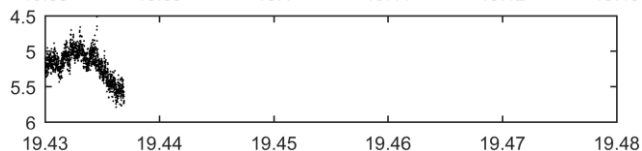
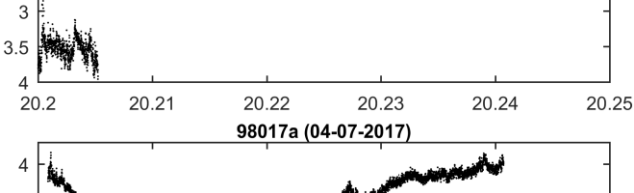
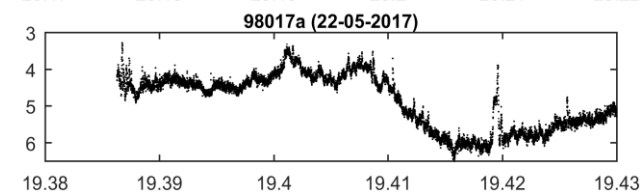
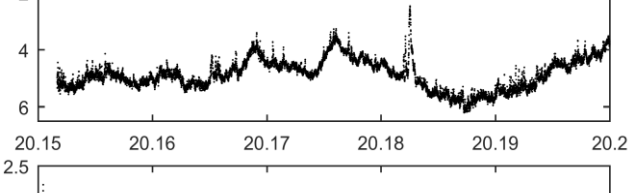
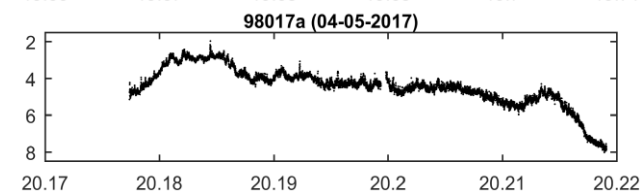
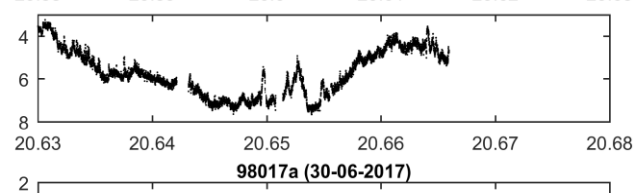
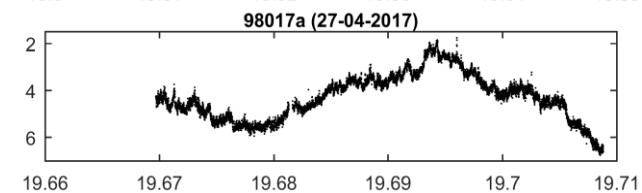
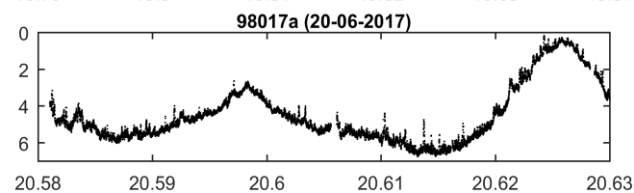
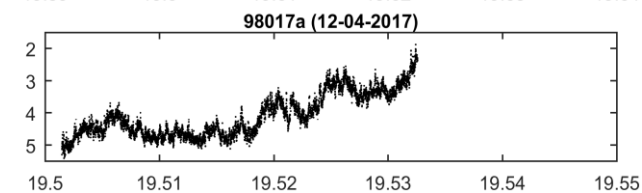
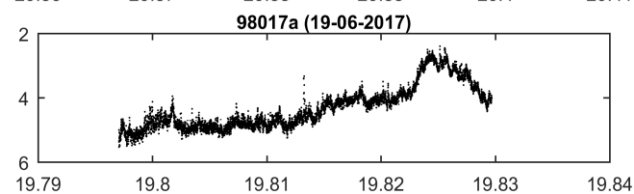
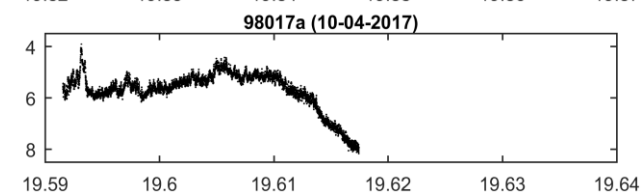
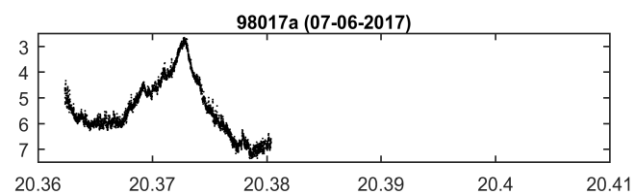
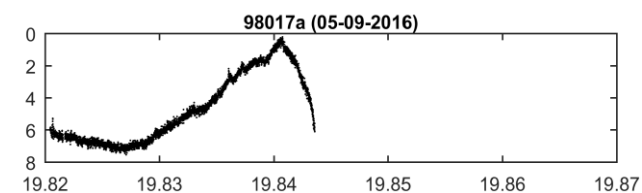


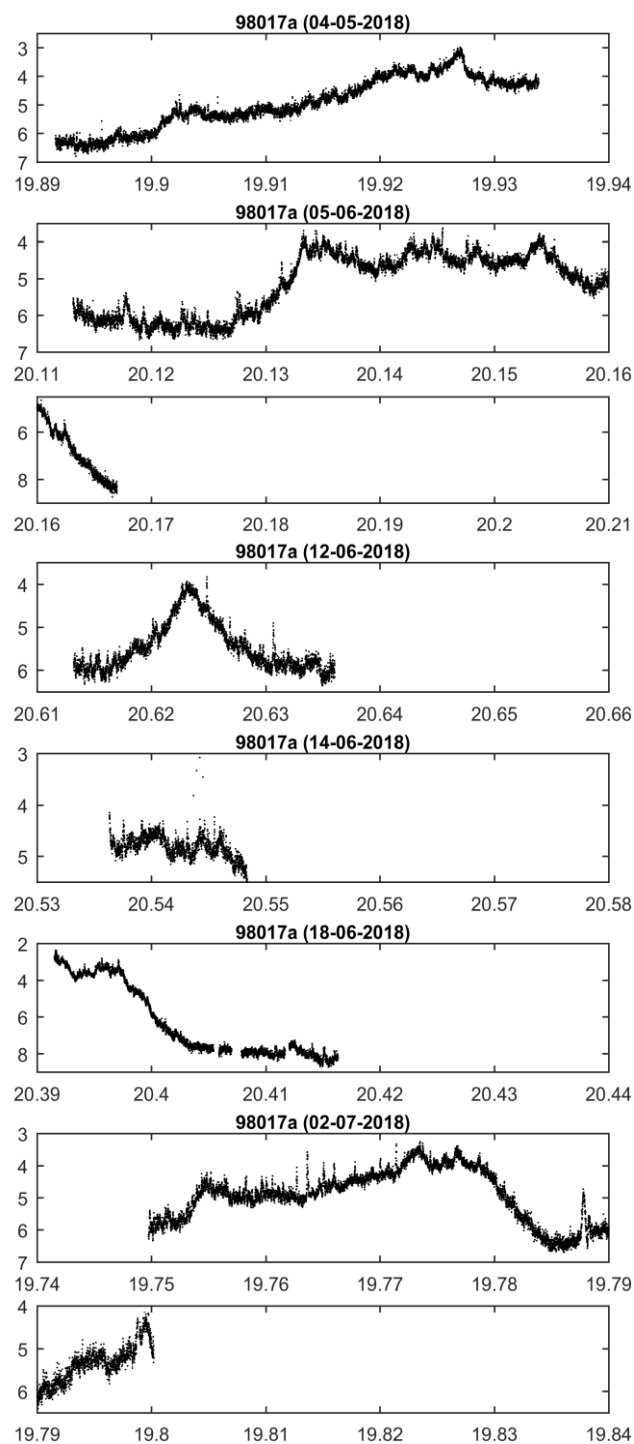
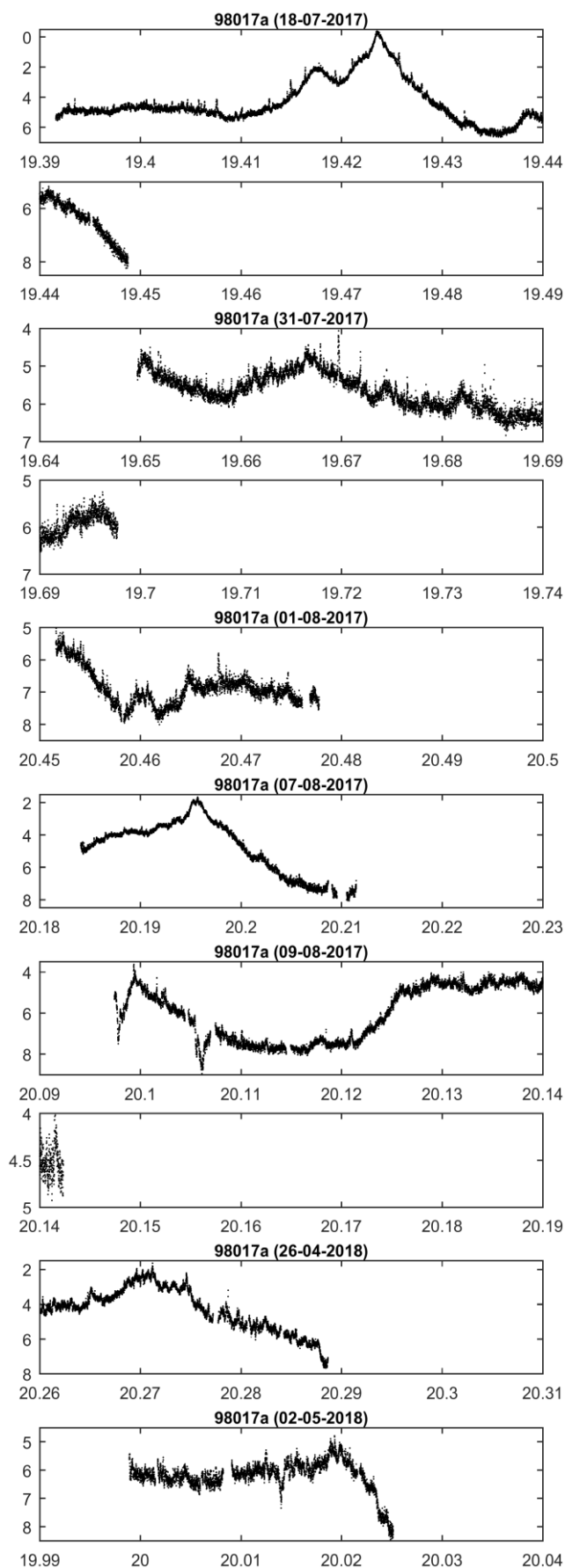
SPOT 4

NORAD ID: 25260
 Int'l Code: 1998-017A
 Dimensions: box+5 panels
 2.5m x 2.5m x 5.6m, 4m x 8m span
 Initial orbit:
 Perigee: 824 km
 Apogee: 825 km
 Inclination: 98.7°
 Period: 101.39 min
 Eccentricity: 0.00007
 Launch date: 1998-03-24
 Source: France (FR)









IRIDIUM 51

NORAD ID: 25262

Int'l Code: 1998-018A

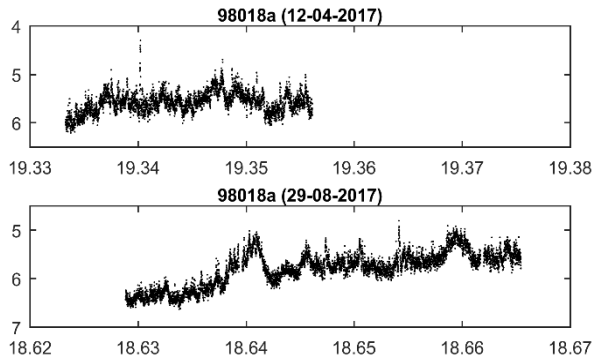
Dimensions: box+2 panels

1 across 3.5m long

Initial orbit:

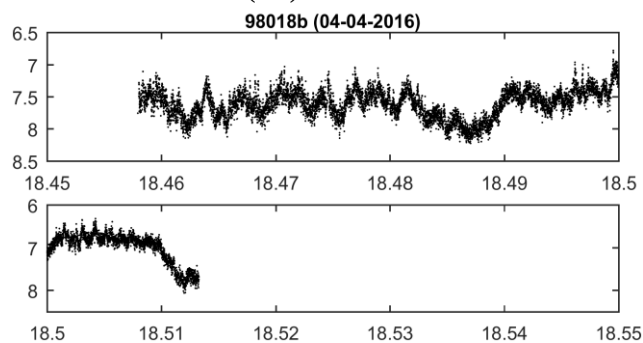


Perigee: 775 km
 Apogee: 780 km
 Inclination: 86.4°
 Period: 100.40 min
 Eccentricity: 0.00035
 Launch date: 1998-03-25
 Source: United States (US)



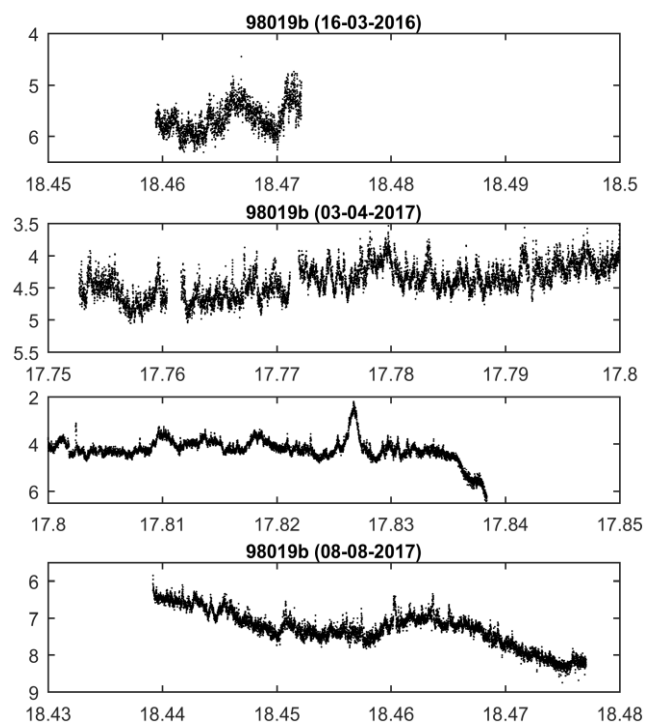
IRIDIUM 61

NORAD ID: 25263
 Int'l Code: 1998-018B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 693 km
 Apogee: 696 km
 Inclination: 86.5°
 Period: 98.65 min
 Eccentricity: 0.000212
 Launch date: 1998-03-25
 Source: United States (US)



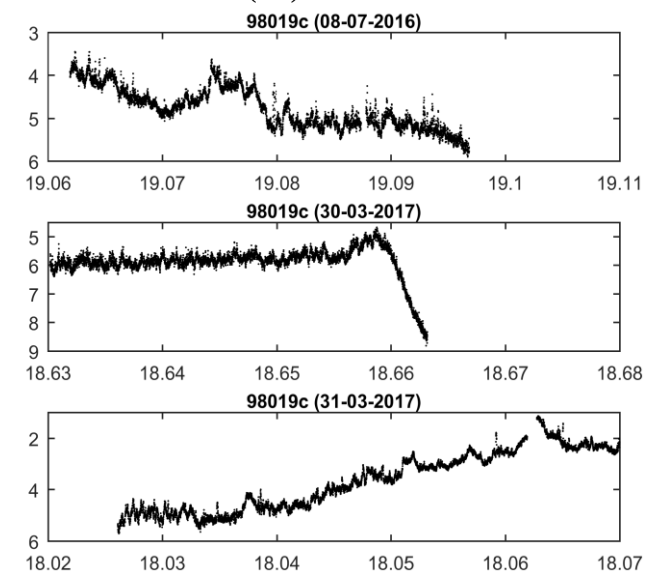
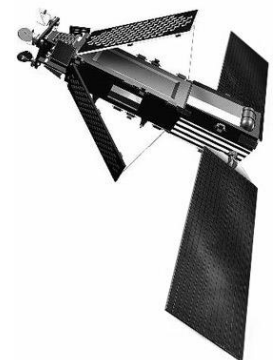
IRIDIUM 57

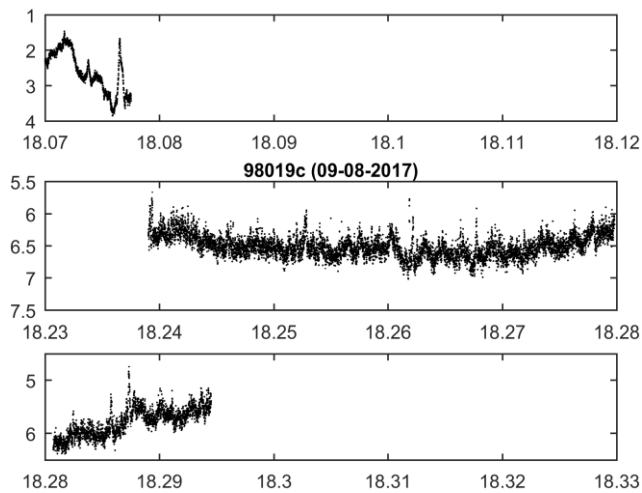
NORAD ID: 25273
 Int'l Code: 1998-019B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1998-03-30
 Source: United States (US)



IRIDIUM 58

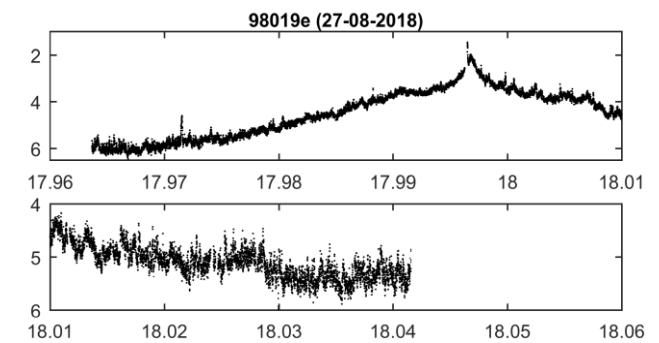
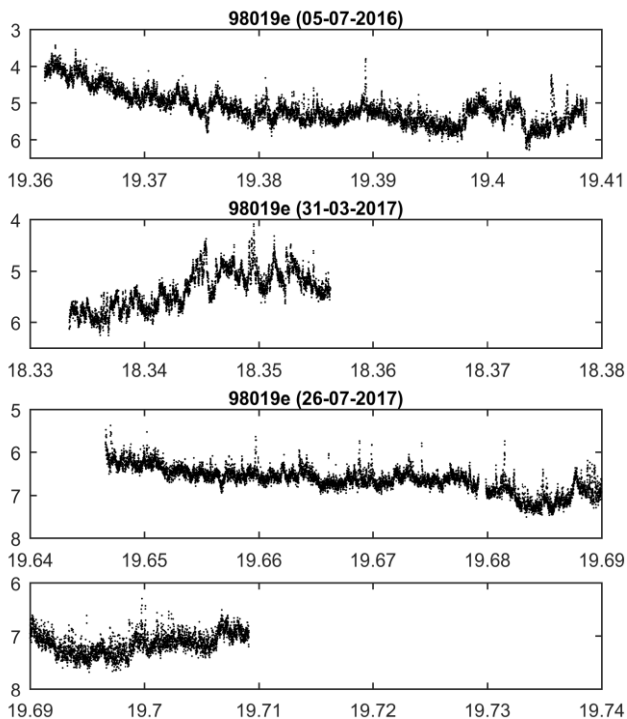
NORAD ID: 25274
 Int'l Code: 1998-019C
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-03-30
 Source: United States (US)





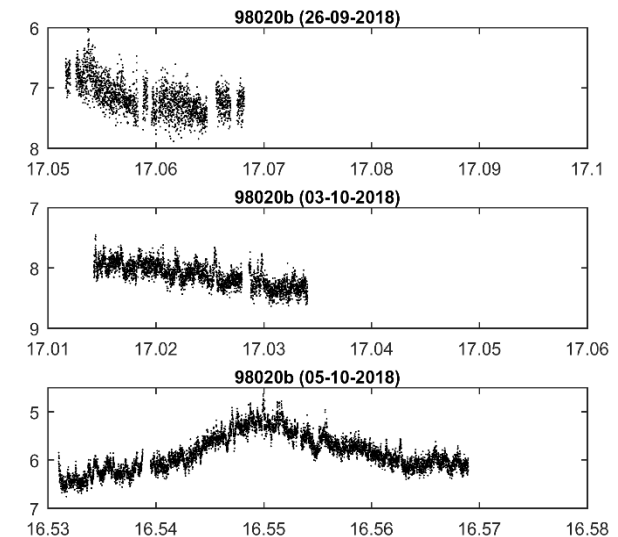
IRIDIUM 60

NORAD ID: 25276
 Int'l Code: 1998-019E
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 773 km
 Apogee: 781 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-03-30
 Decay date: 2019-03-17
 Source: United States (US)



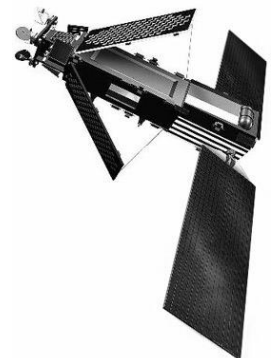
PEGASUS R/B (Pegasus-XL 3rd stage)

NORAD ID: 25281
 Int'l Code: 1998-020B
 Dimensions: cone-cylinder 0.97m dia
 2.08m long
 Initial orbit:
 Perigee: 522 km
 Apogee: 539 km
 Inclination: 97.6°
 Period: 95.2 min
 Eccentricity: 0.0012
 Launch date: 1998-04-02
 Source: United States (US)

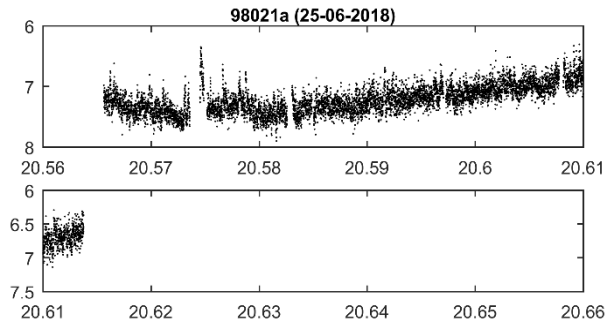


IRIDIUM 62

NORAD ID: 25285
 Int'l Code: 1998-021A
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-04-07
 Decay date: 2018-11-07

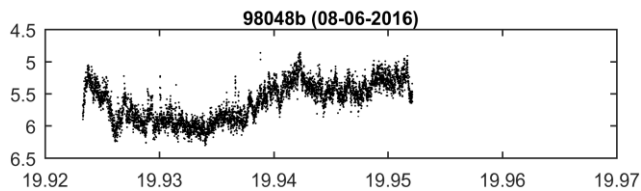


Source: United States (US)



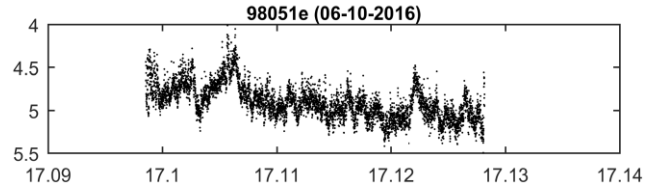
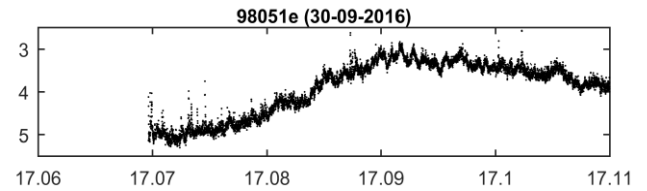
IRIDIUM 76

NORAD ID: 25432
Int'l Code: 1998-048B
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 779 km
Inclination: 86.3°
Period: 100.38 min
Eccentricity: 0.00028
Launch date: 1998-08-19
Decay date: 2018-08-28
Source: United States (US)



IRIDIUM 77

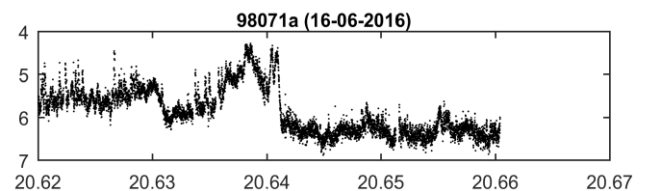
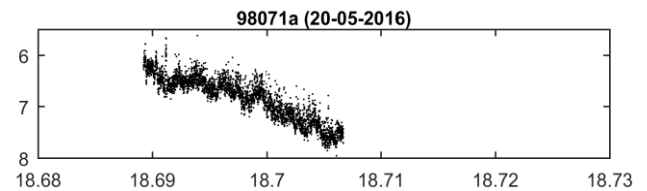
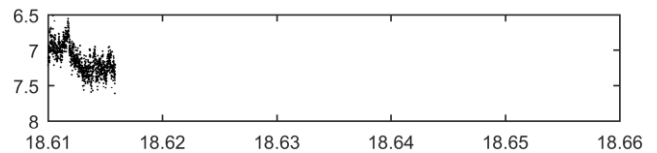
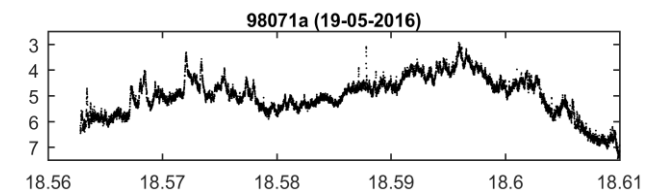
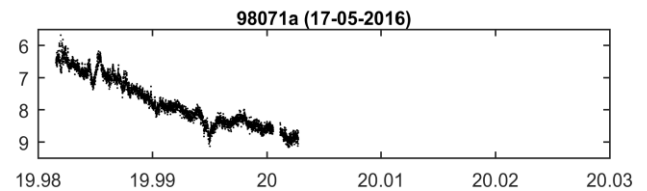
NORAD ID: 25471
Int'l Code: 1998-051E
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 704 km
Apogee: 708 km
Inclination: 86.5°
Period: 98.89 min
Eccentricity: 0.0003
Launch date: 1998-09-08
Source: United States (US)

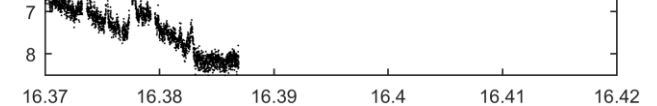
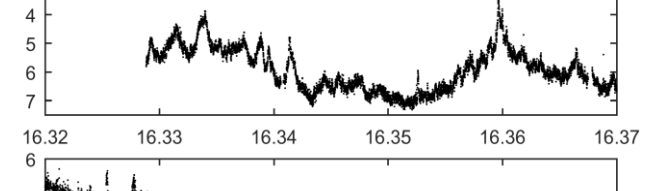
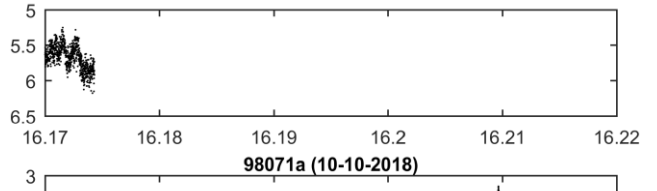
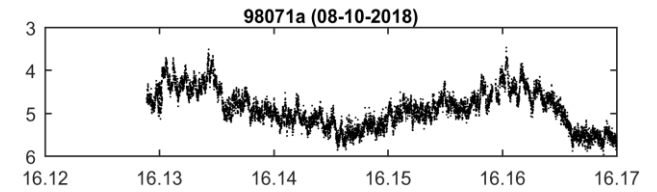
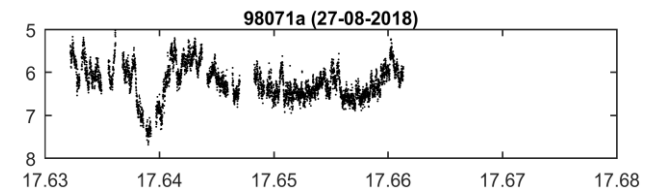
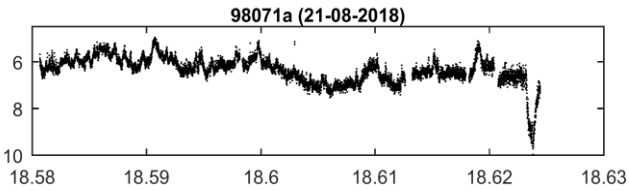
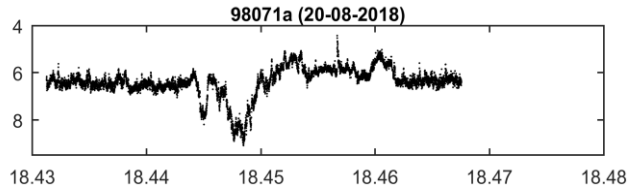
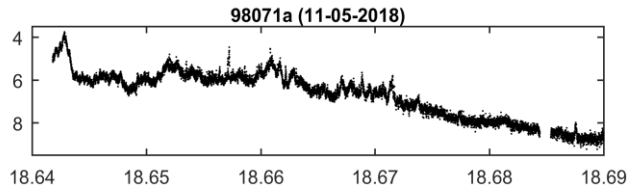
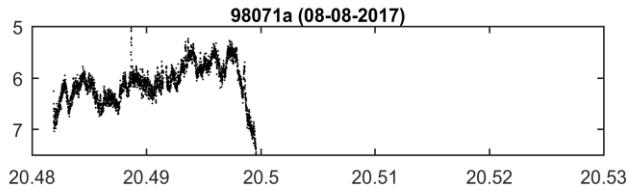
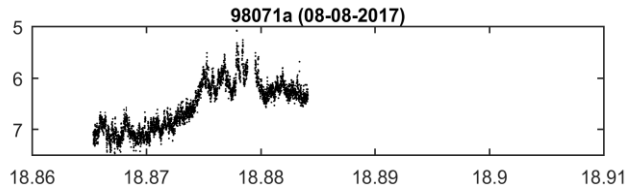
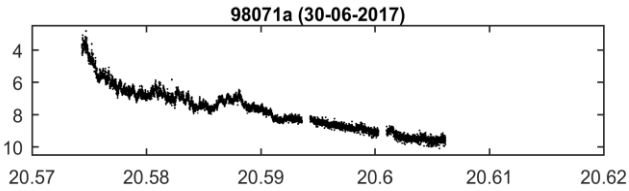
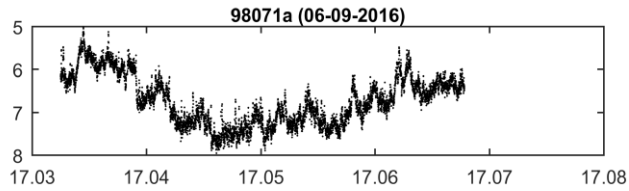
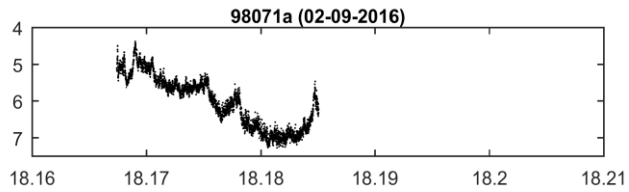
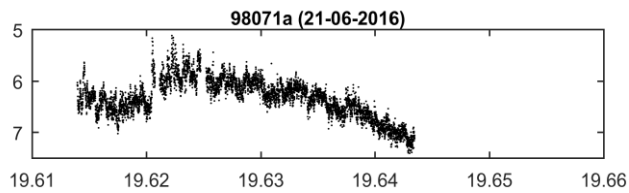


SWAS

(SMEX 3, EXPLORER 74)

NORAD ID: 25560
Int'l Code: 1998-071A
Dimensions: box + 4 panels 1 side
Initial orbit:
Perigee: 638 km
Apogee: 650 km
Inclination: 69.9°
Period: 97.60 min
Eccentricity: 0.00086
Launch date: 1998-12-06
Source: United States (US)





IRIDIUM 88 (20A)

NORAD ID: 25577

Int'l Code: 1998-074A

Dimensions: box + 2 panels

1 across 3.5m long

Initial orbit:

Perigee: 687 km

Apogee: 713 km

Inclination: 86.5°

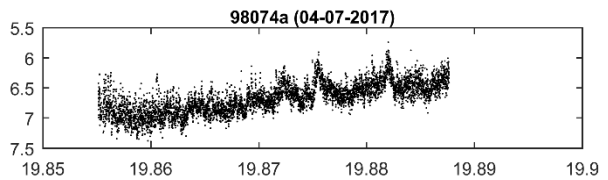
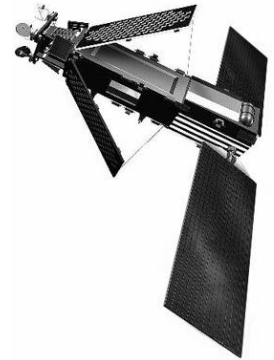
Period: 98.77 min

Eccentricity: 0.001838

Launch date: 1998-12-19

Decay date: 2018-10-22

Source: United States (US)



IRIDIUM 89 (11A)

NORAD ID: 25578

Int'l Code: 1998-074B

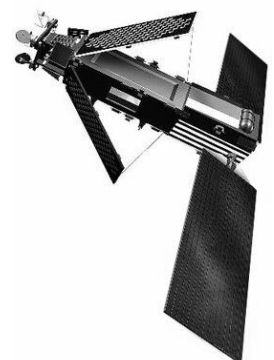
Dimensions: box + 2 panels

1 across 3.5m long

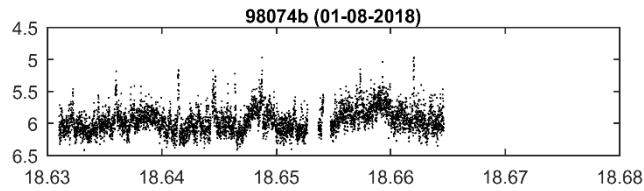
Initial orbit:

Perigee: 685 km

Apogee: 712 km

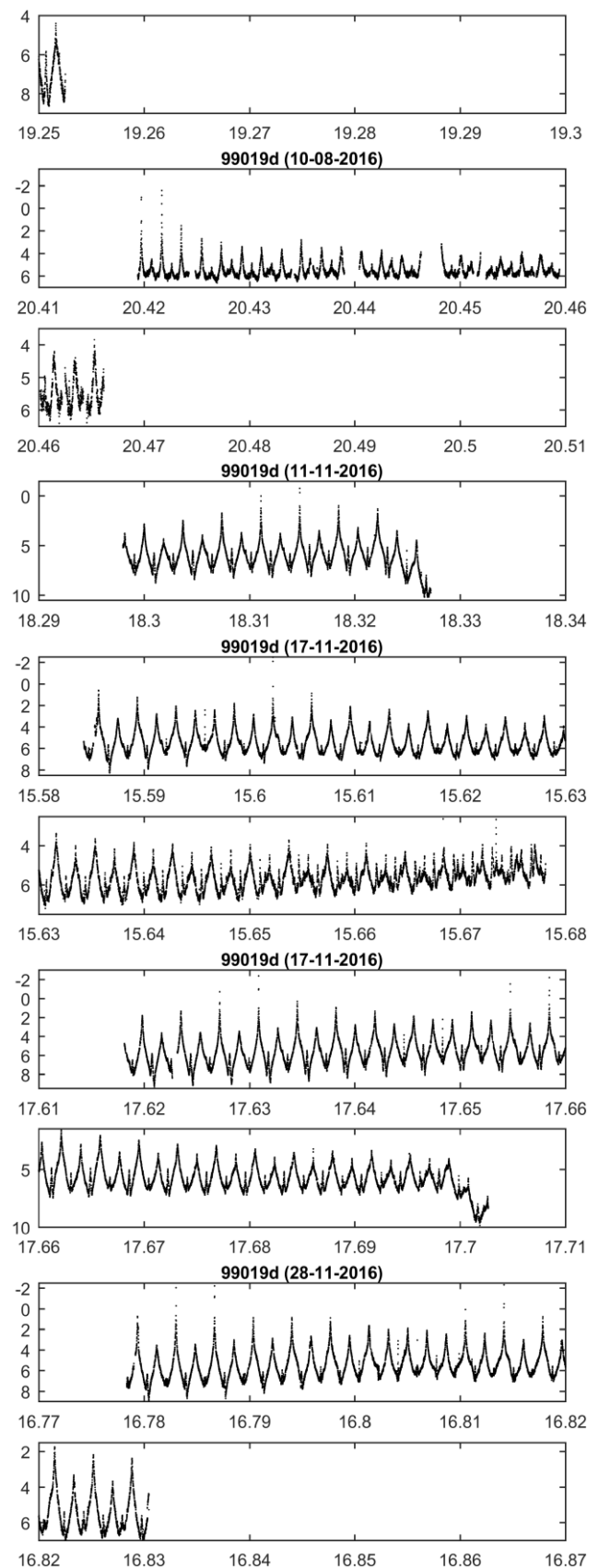
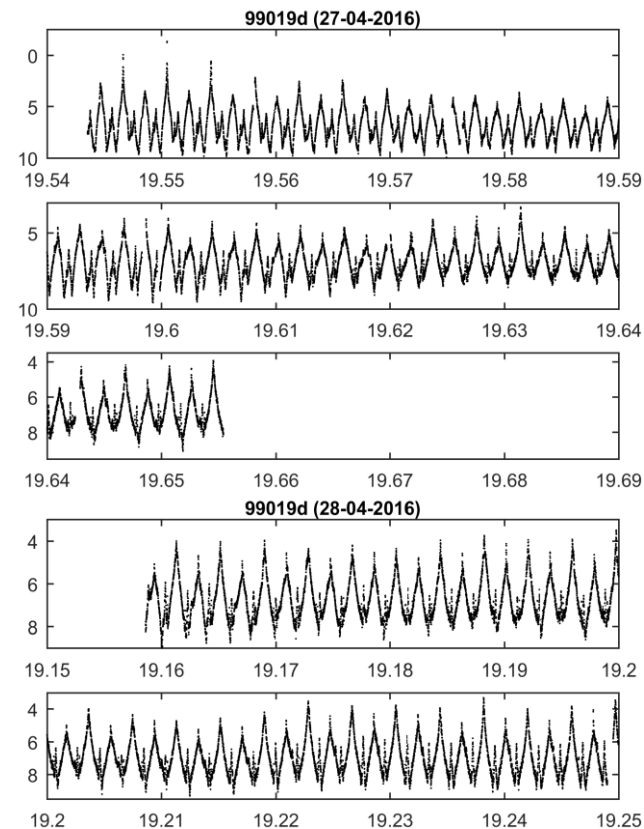
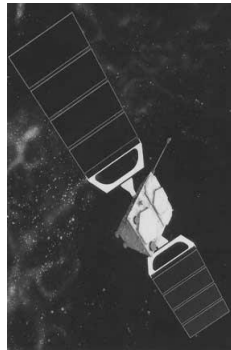


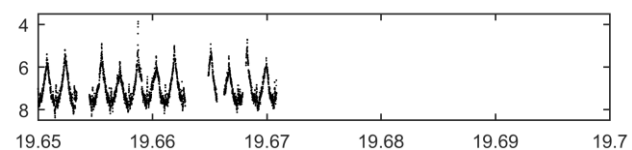
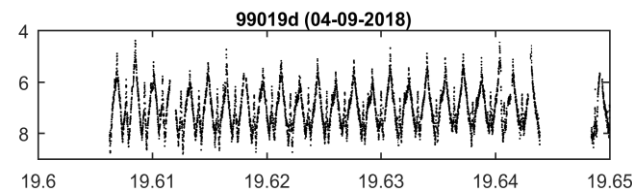
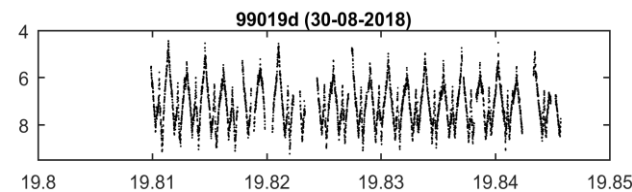
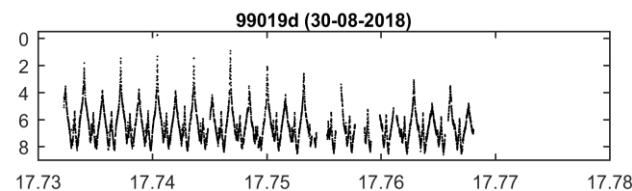
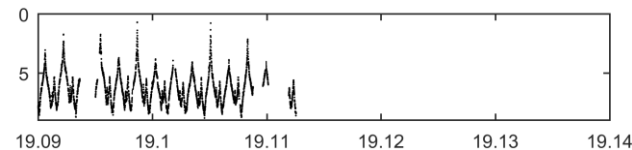
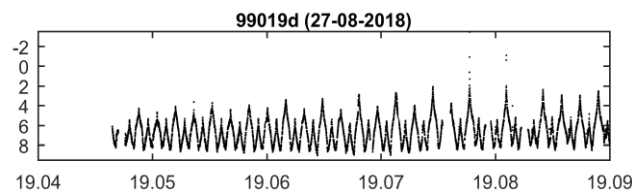
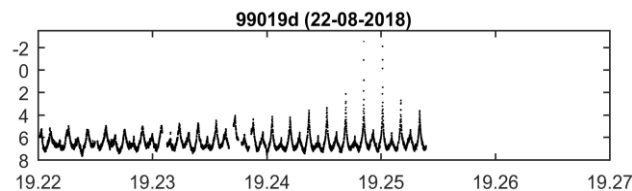
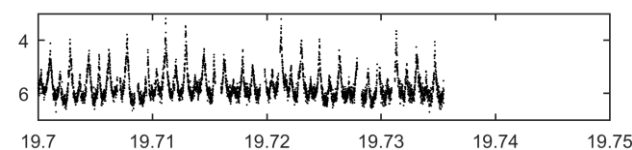
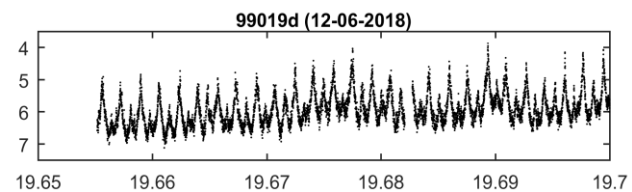
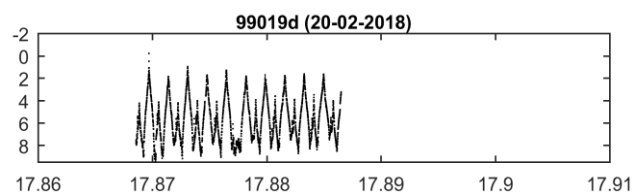
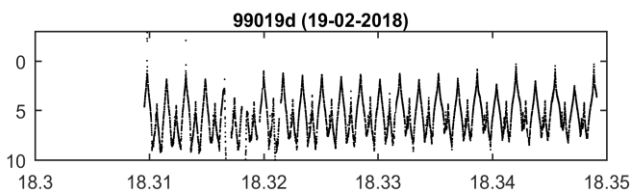
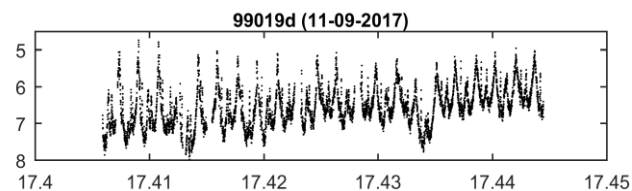
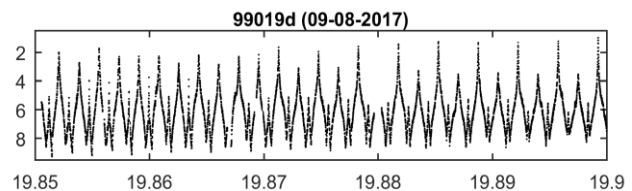
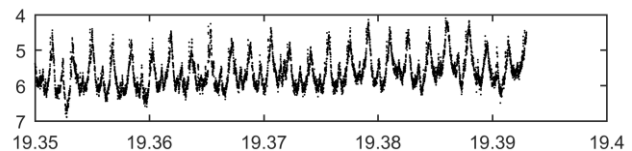
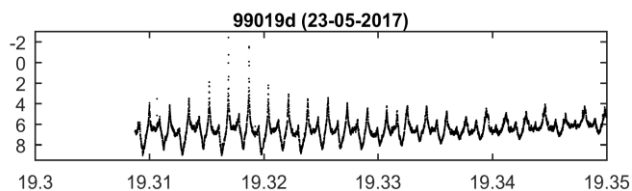
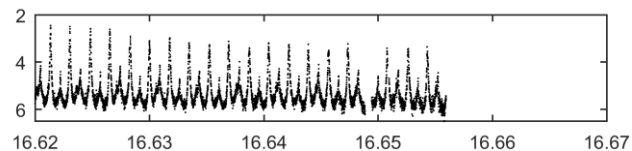
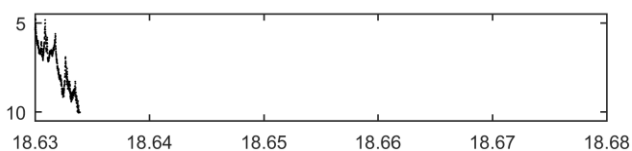
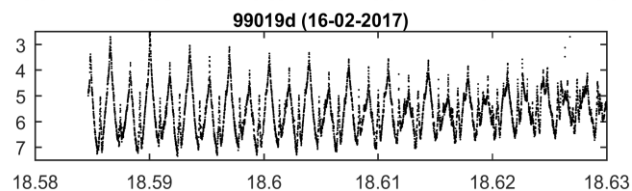
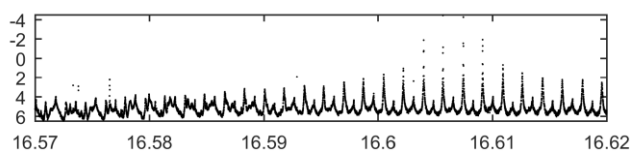
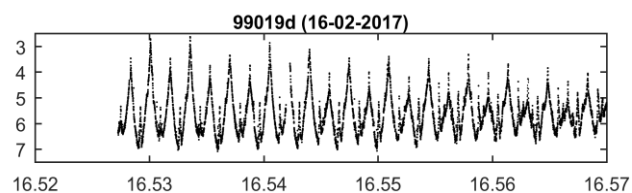
Inclination: 86.5°
 Period: 98.74 min
 Eccentricity: 0.00191
 Launch date: 1998-12-19
 Decay date: 2018-10-22
 Source: United States (US)

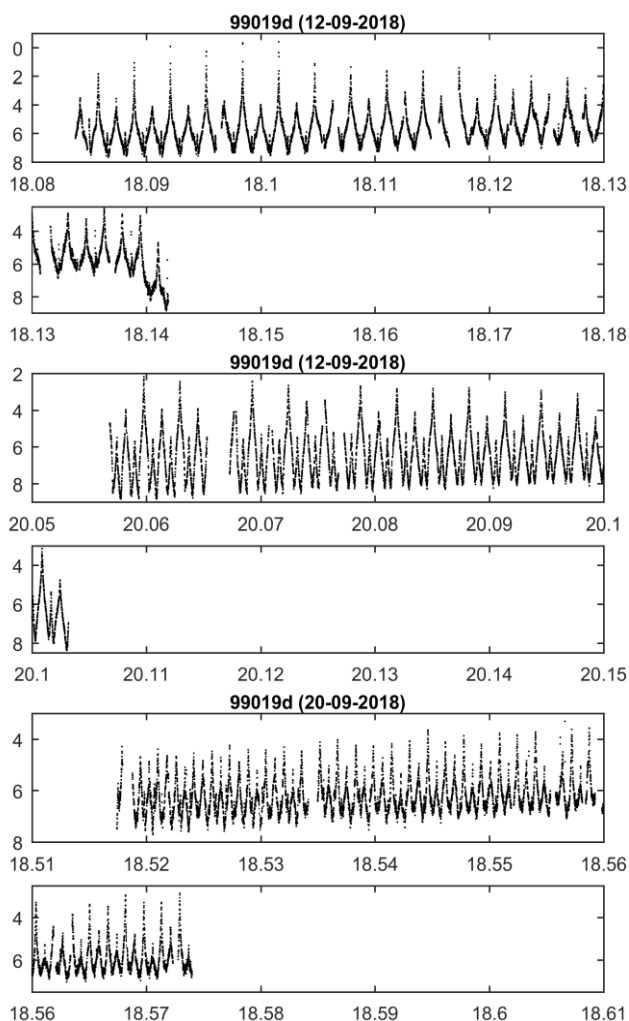


GLOBALSTAR M042

NORAD ID: 25679
 Int'l Code: 1999-019D
 Dimensions: trapezoidal box
 0.60m x 1.50m x 1.60m + 2 panels
 12m span
 Initial orbit:
 Perigee: 1412 km
 Apogee: 1414 km
 Inclination: 52.0°
 Period: 114.06 min
 Eccentricity: 0.000128
 Launch date: 1999-04-15
 Source: Globalstar (GLOB)







CZ-4B R/B (3rd stage)

NORAD ID: 25732

Int'l Code: 1999-025C

Dimensions: cylinder 2m long

2.9m dia

Initial orbit:

Perigee:

Apogee:

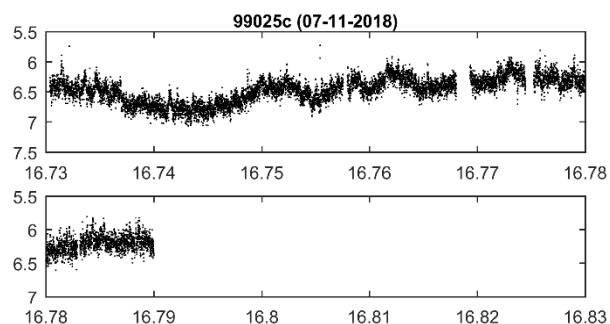
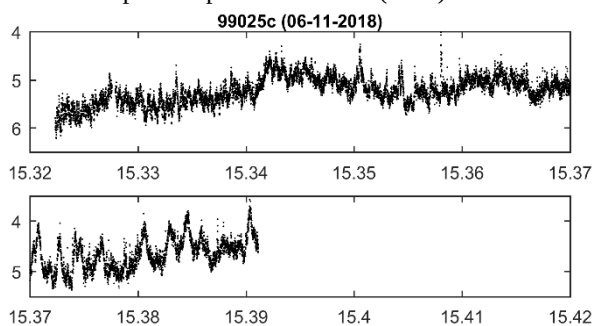
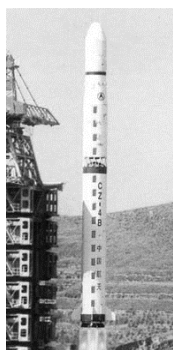
Inclination:

Period:

Eccentricity:

Launch date: 1999-05-10

Source: People's Republic of China (PRC)



IRIDIUM 93 (IRIDIUM 21A)

NORAD ID: 25778

Int'l Code: 1999-032B

Dimensions: box + 2 panels

1 across 3.5m long

Initial orbit:

Perigee: 709 km

Apogee: 711 km

Inclination: 86.5°

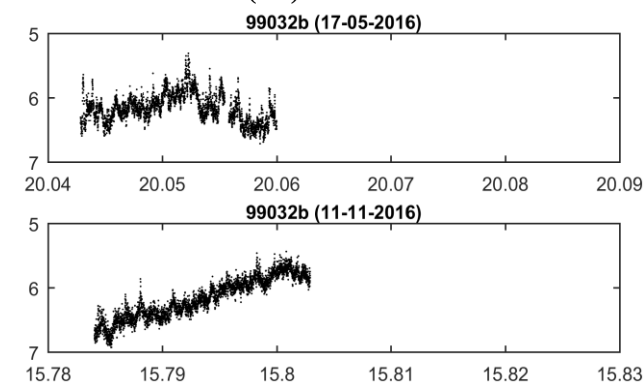
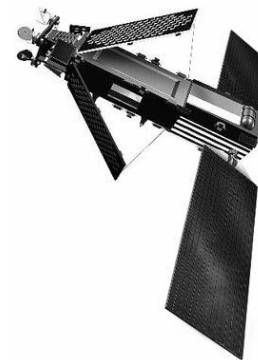
Period: 98.98 min

Eccentricity: 0.0001

Launch date: 1999-06-11

Decay date: 2018-05-24

Source: United States (US)



QUIKSCAT

NORAD ID: 25789

Int'l Code: 1999-034A

Dimensions: box + 2 panels

2m dia 2m high

Initial orbit:

Perigee: 804 km

Apogee: 807 km

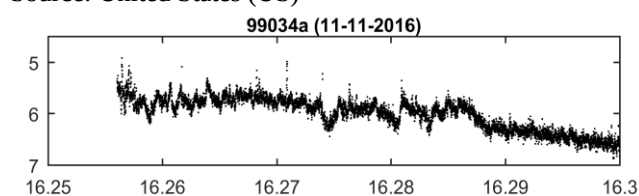
Inclination: 98.6°

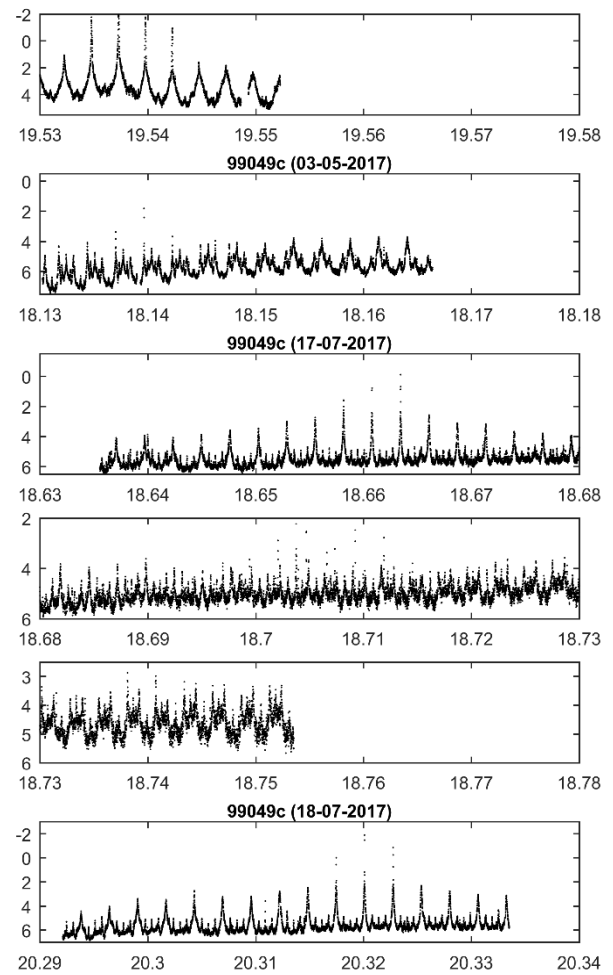
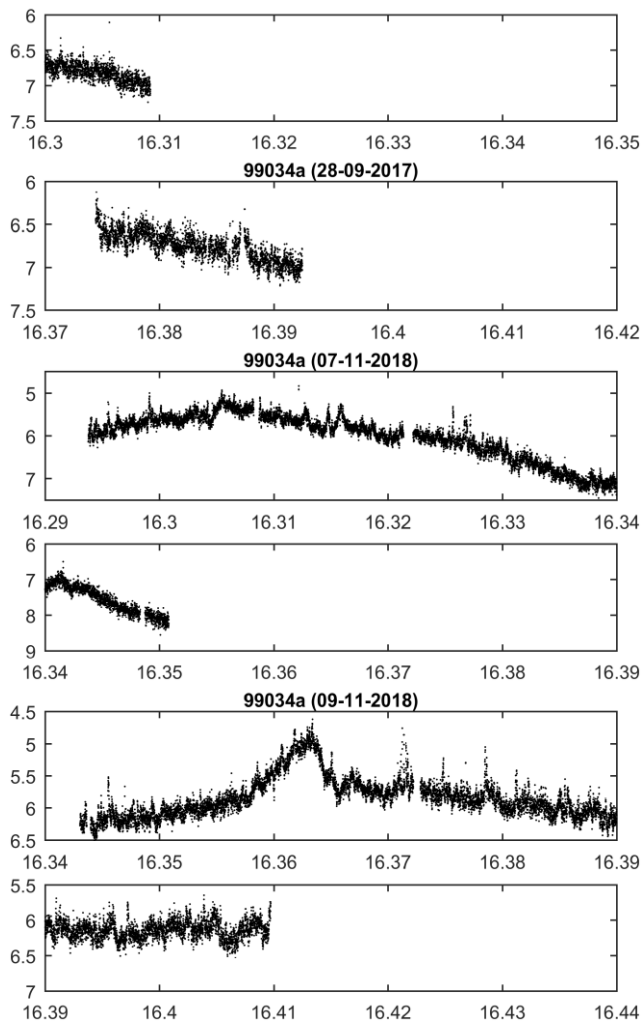
Period: 100.99 min

Eccentricity: 0.0001

Launch date: 1999-06-20

Source: United States (US)





GLOBALSTAR M033

NORAD ID: 25909

Int'l Code: 1999-049C

Dimensions: trapezoidal box +

2 panels 0.6m x 1.5m x 1.6m

Initial orbit:

Perigee: 899 km

Apogee: 955 km

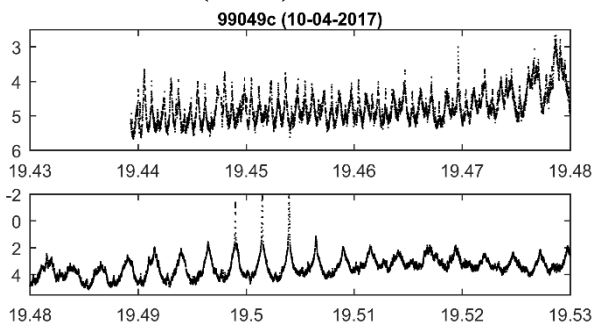
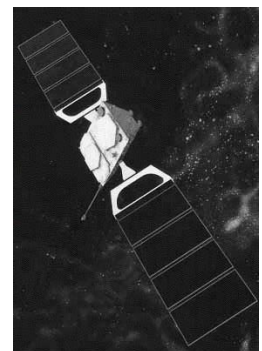
Inclination: 51.9°

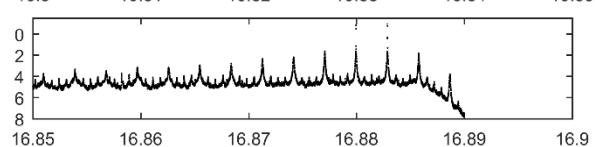
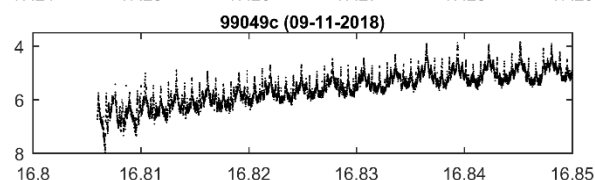
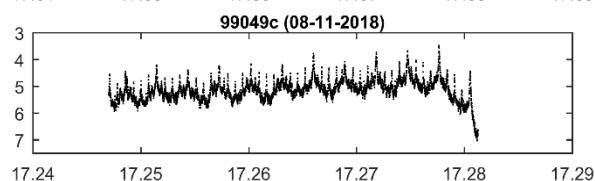
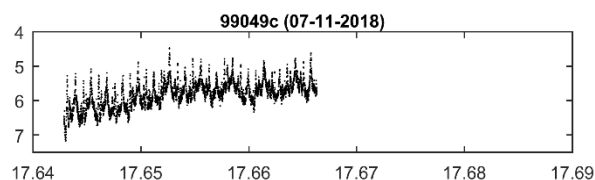
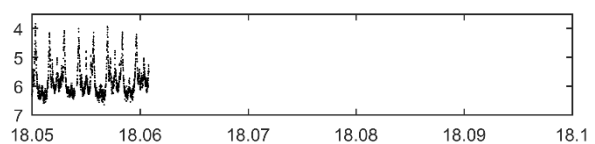
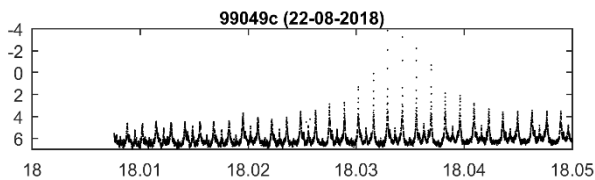
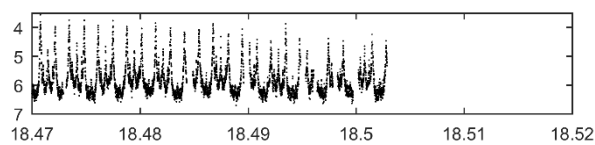
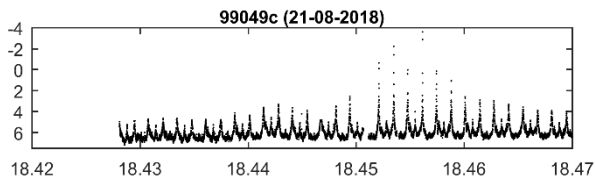
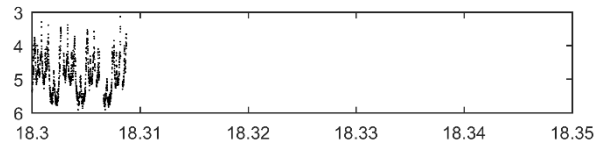
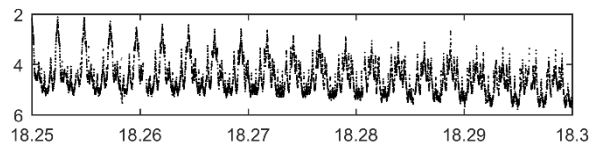
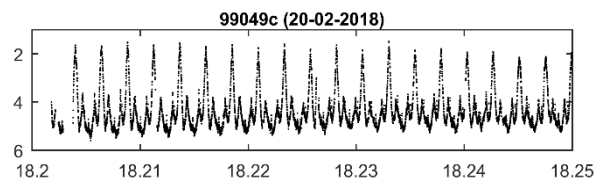
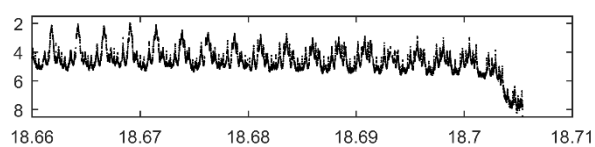
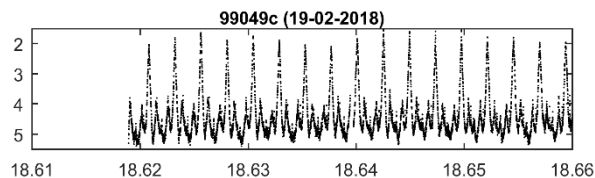
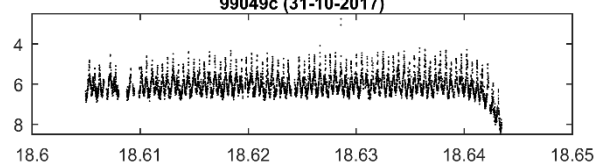
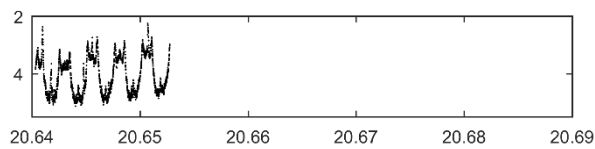
Period: 103.57 min

Eccentricity: 0.004

Launch date: 1999-09-22

Source: Globalstar (GLOB)





IKONOS 2

NORAD ID: 25919

Int'l Code: 1999-051A

Dimensions: box

1.8m x 1.8m x 1.6m + 2 panels

Initial orbit:

Perigee: 677 km

Apogee: 682 km

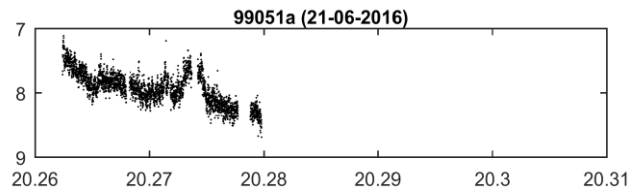
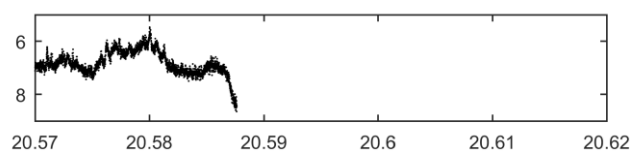
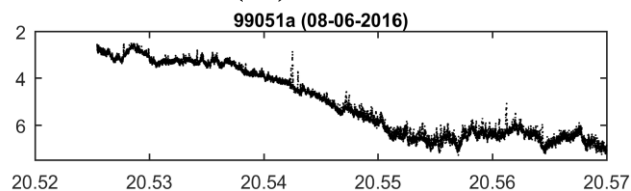
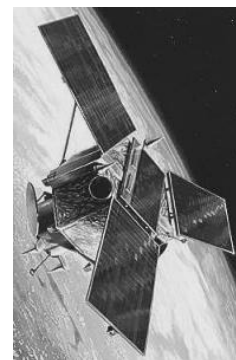
Inclination: 98.1°

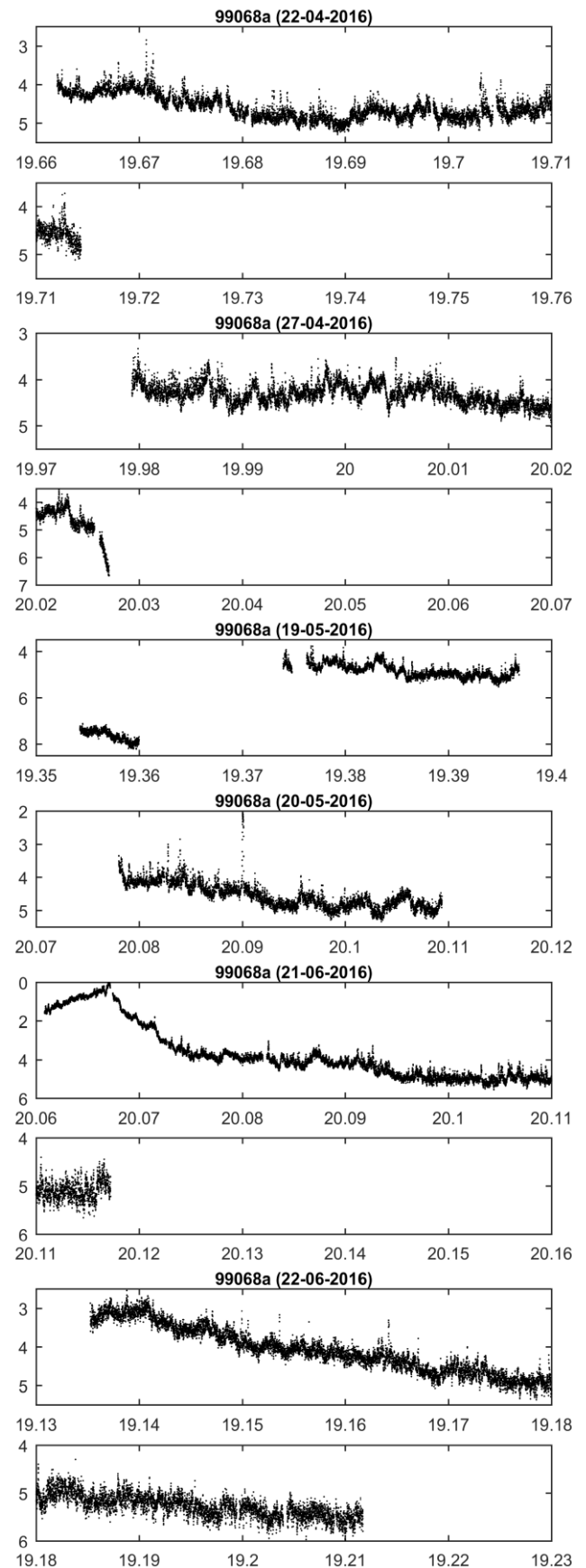
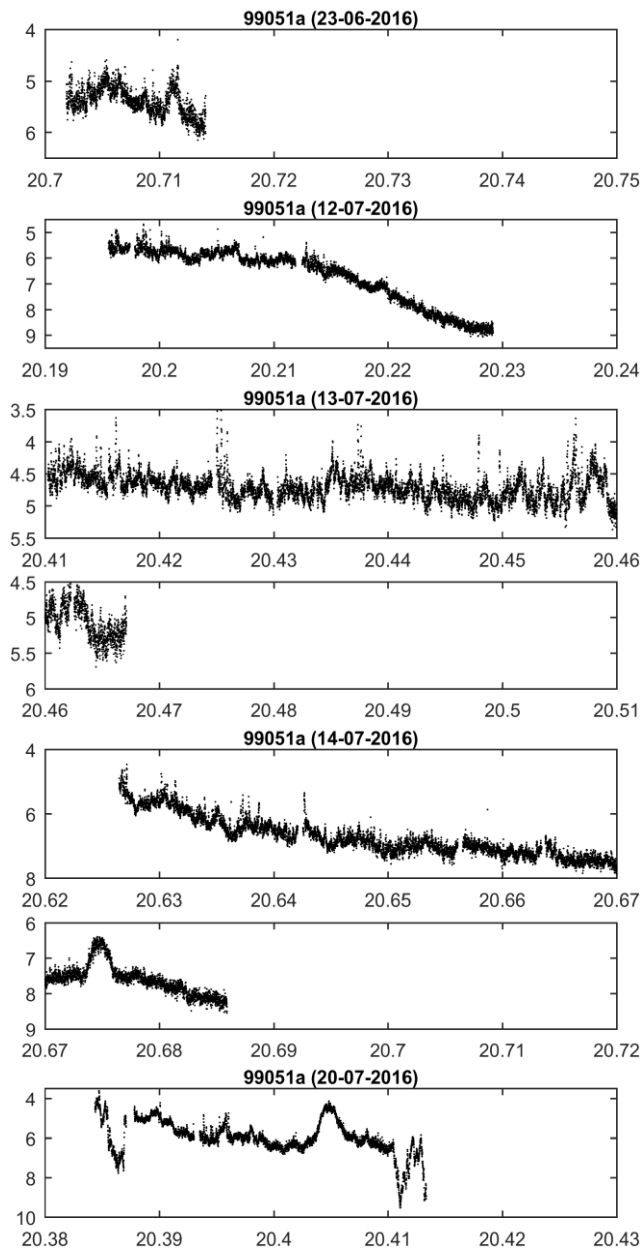
Period: 98.34 min

Eccentricity: 0.00035

Launch date: 1999-09-24

Source: United States (US)





TERRA (EOS AM-1)

NORAD ID: 25994

Int'l Code: 1999-068A

Dimensions: box 1.7m x 2m x 5.9m

Initial orbit:

Perigee: 655 km

Apogee: 686 km

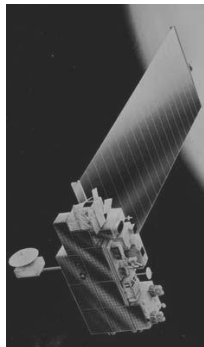
Inclination: 98.2°

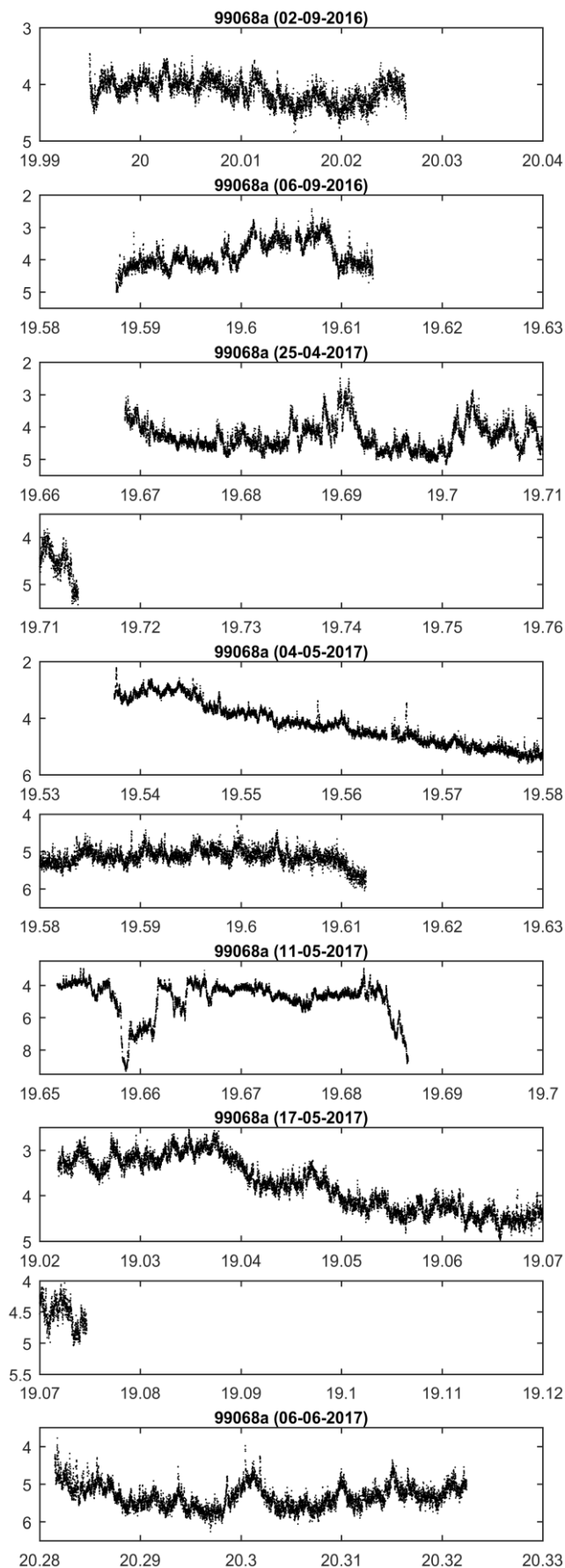
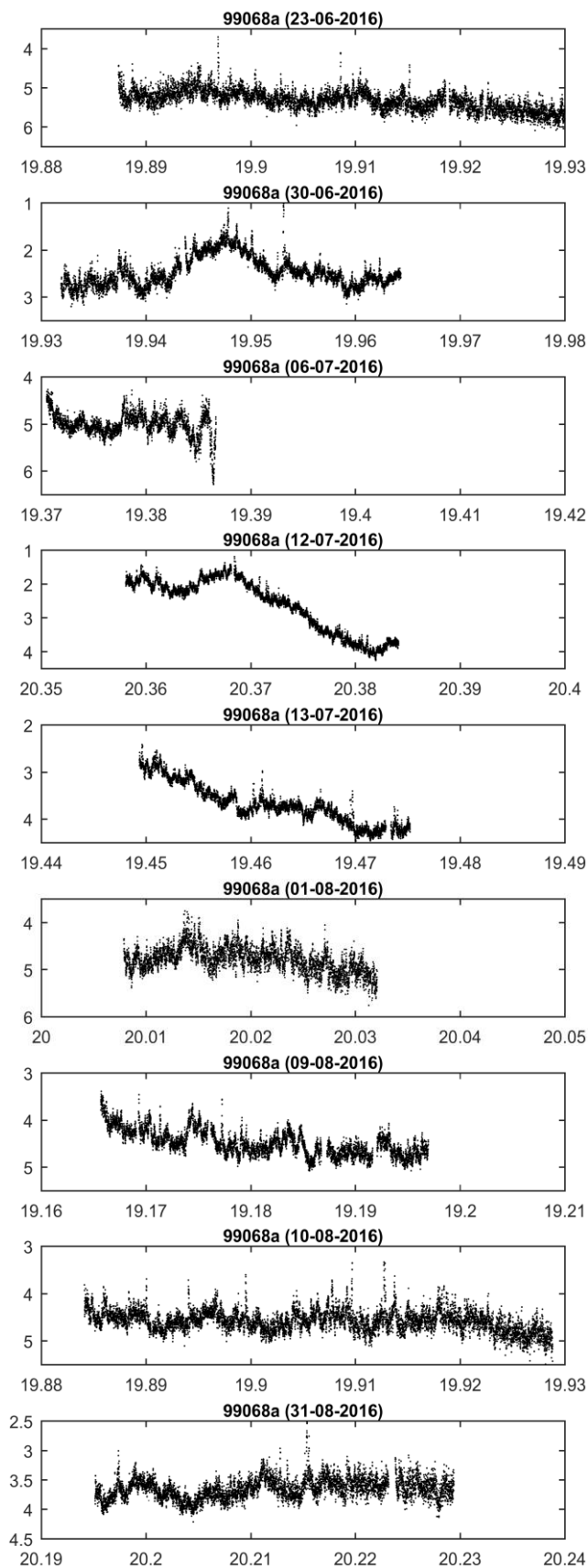
Period: 98.15 min

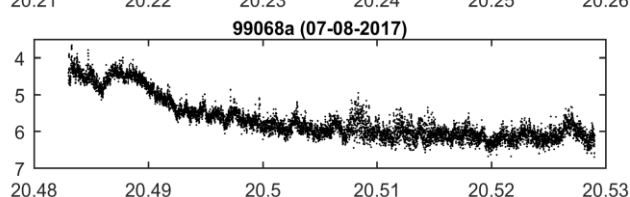
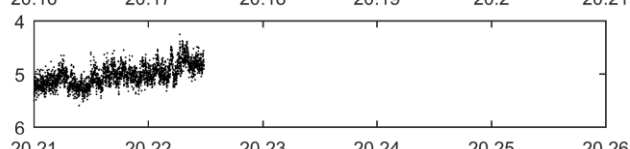
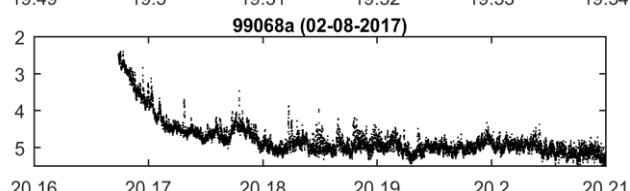
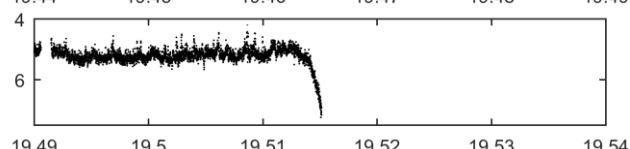
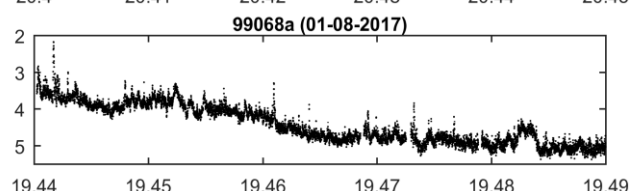
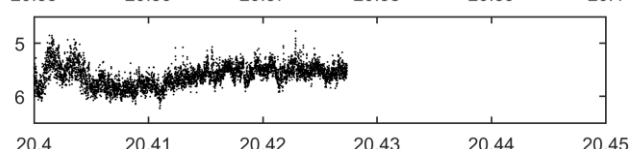
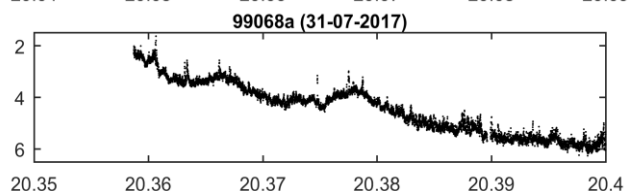
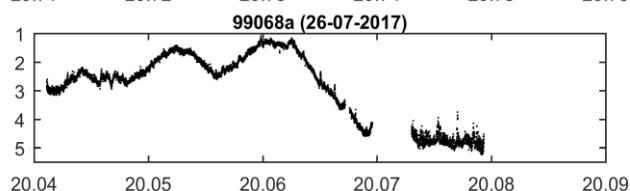
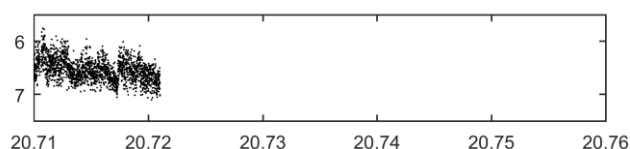
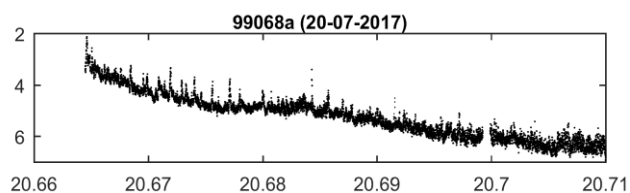
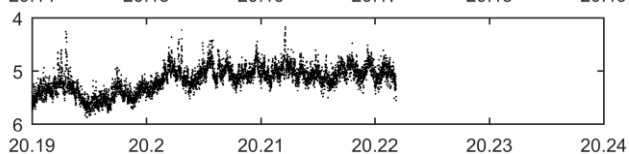
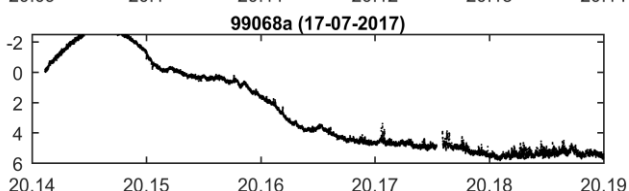
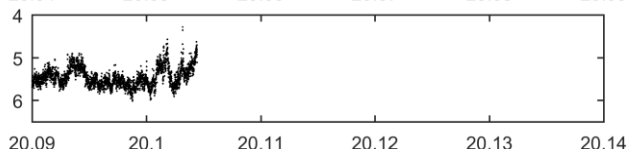
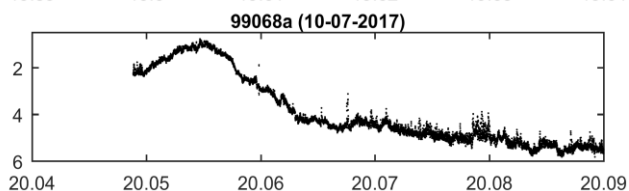
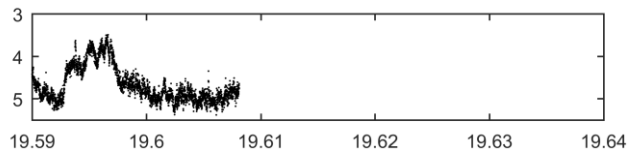
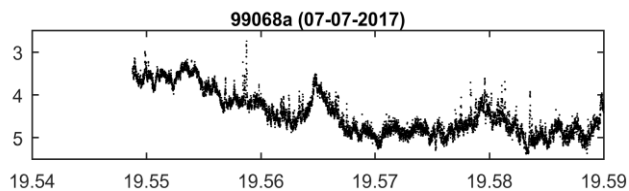
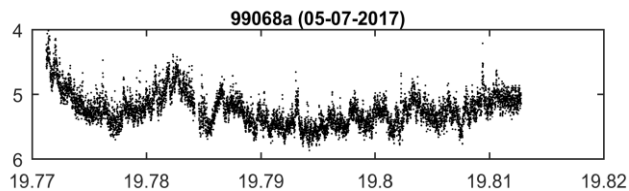
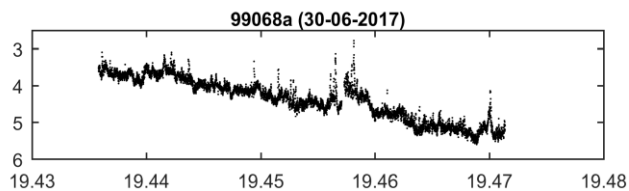
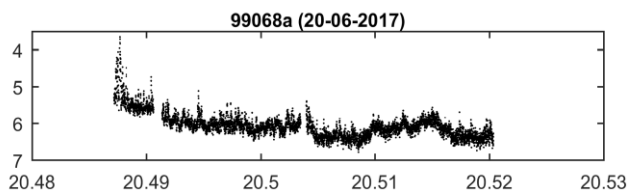
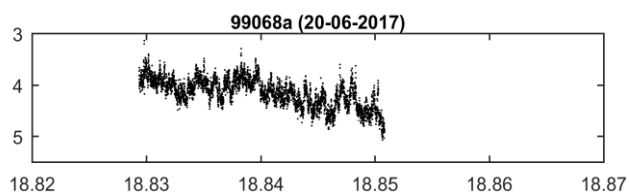
Eccentricity: 0.0022

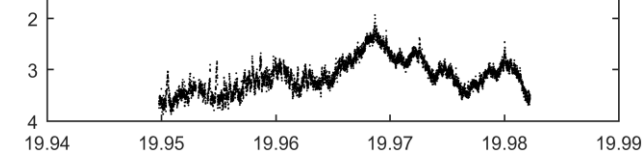
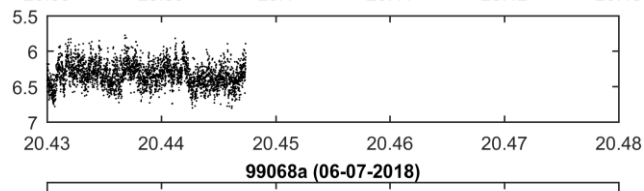
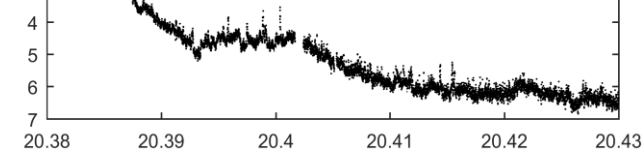
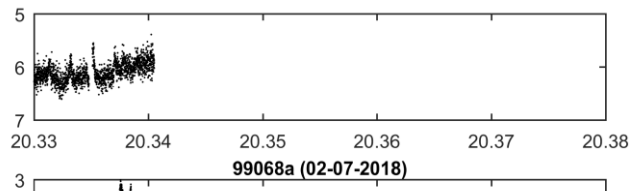
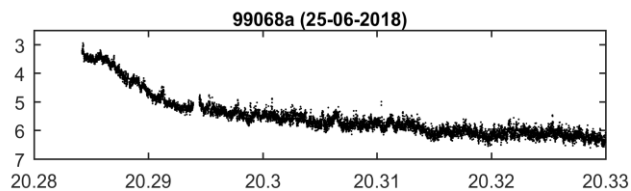
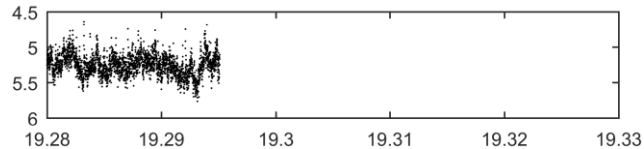
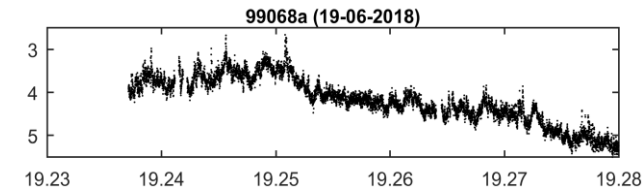
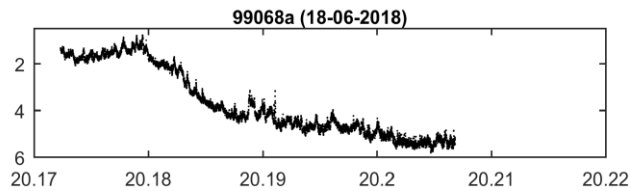
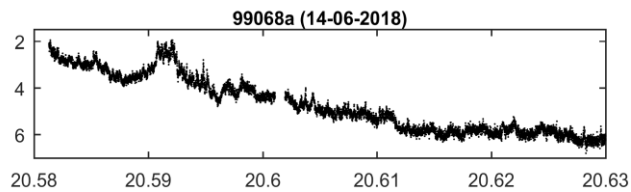
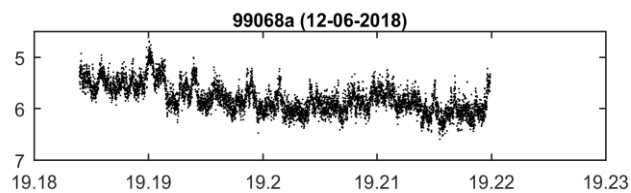
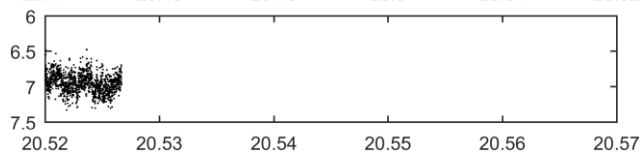
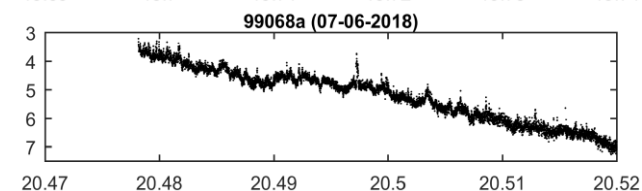
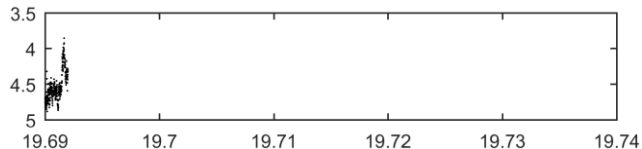
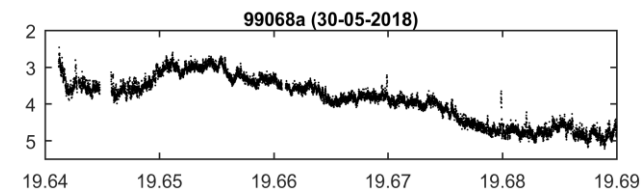
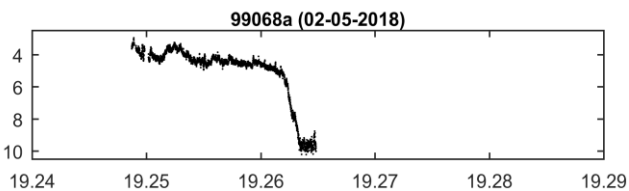
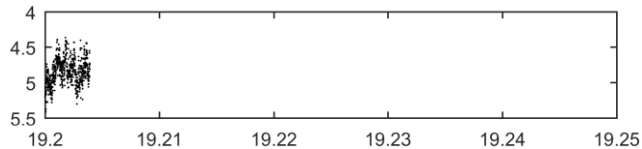
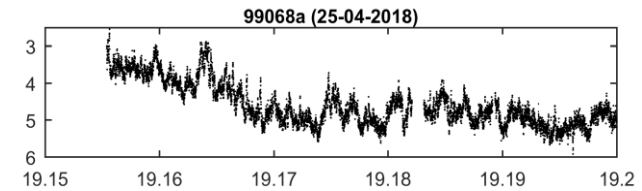
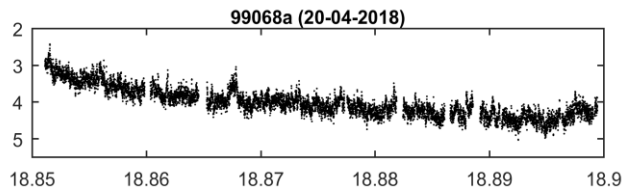
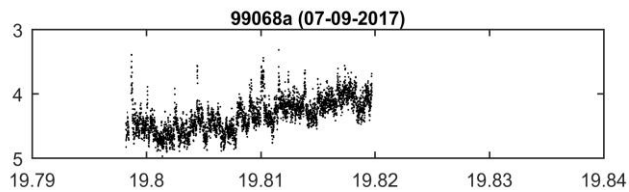
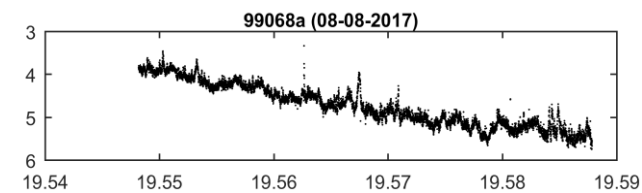
Launch date: 1999-12-18

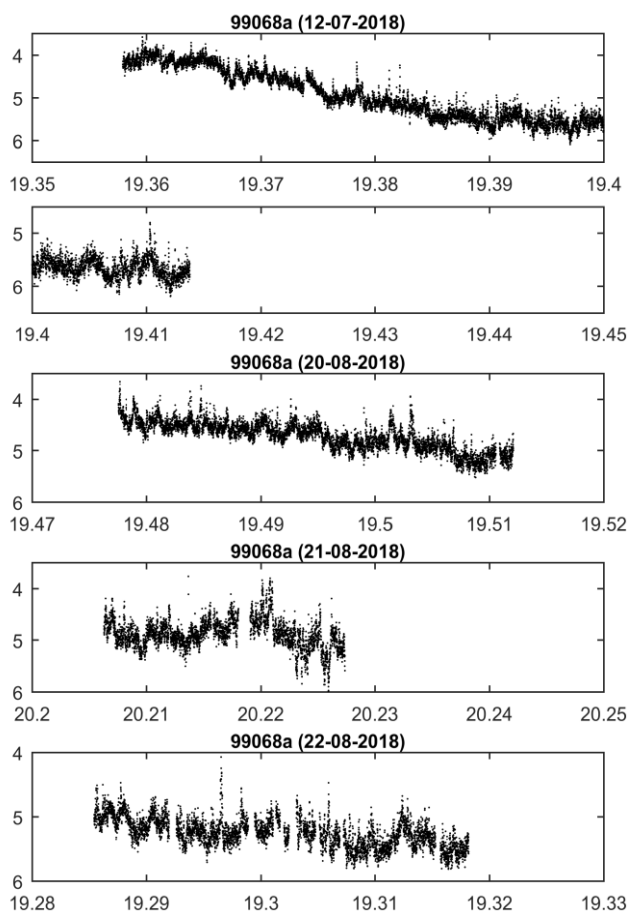
Source: United States (US)





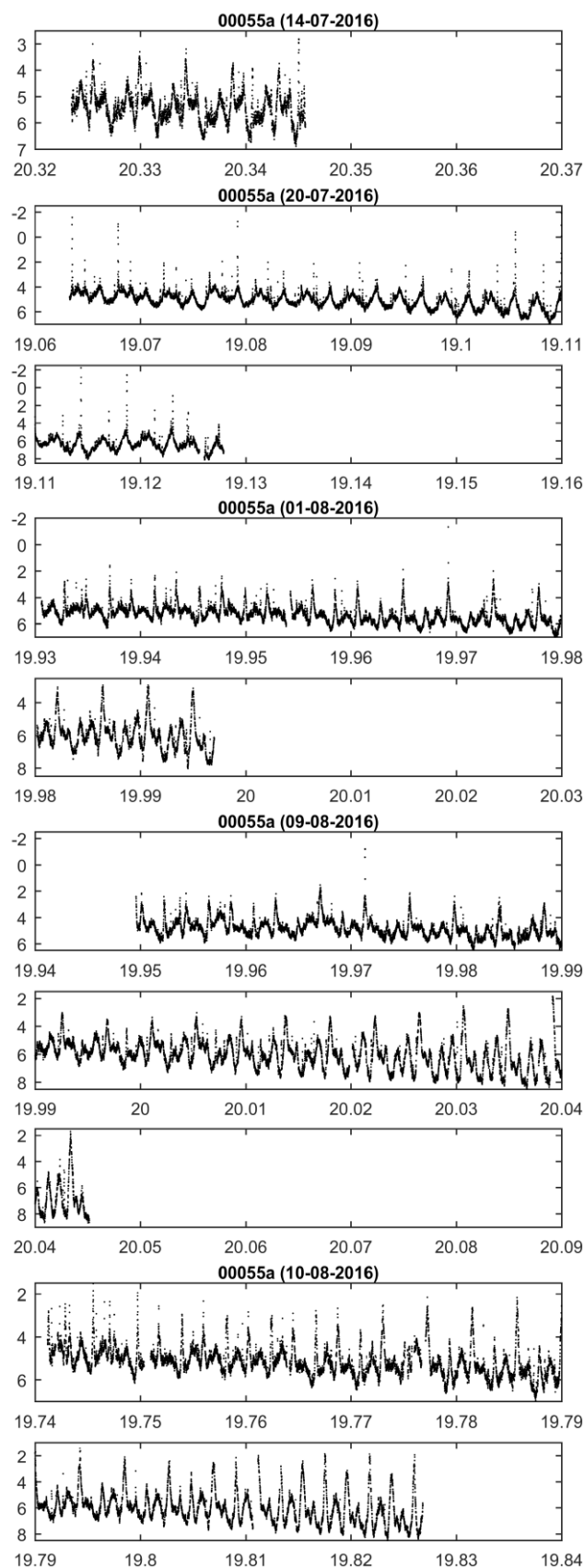
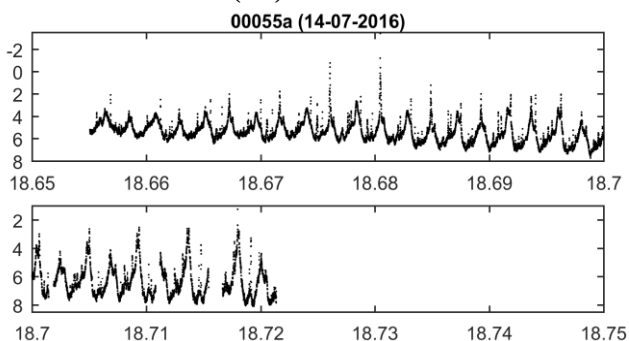


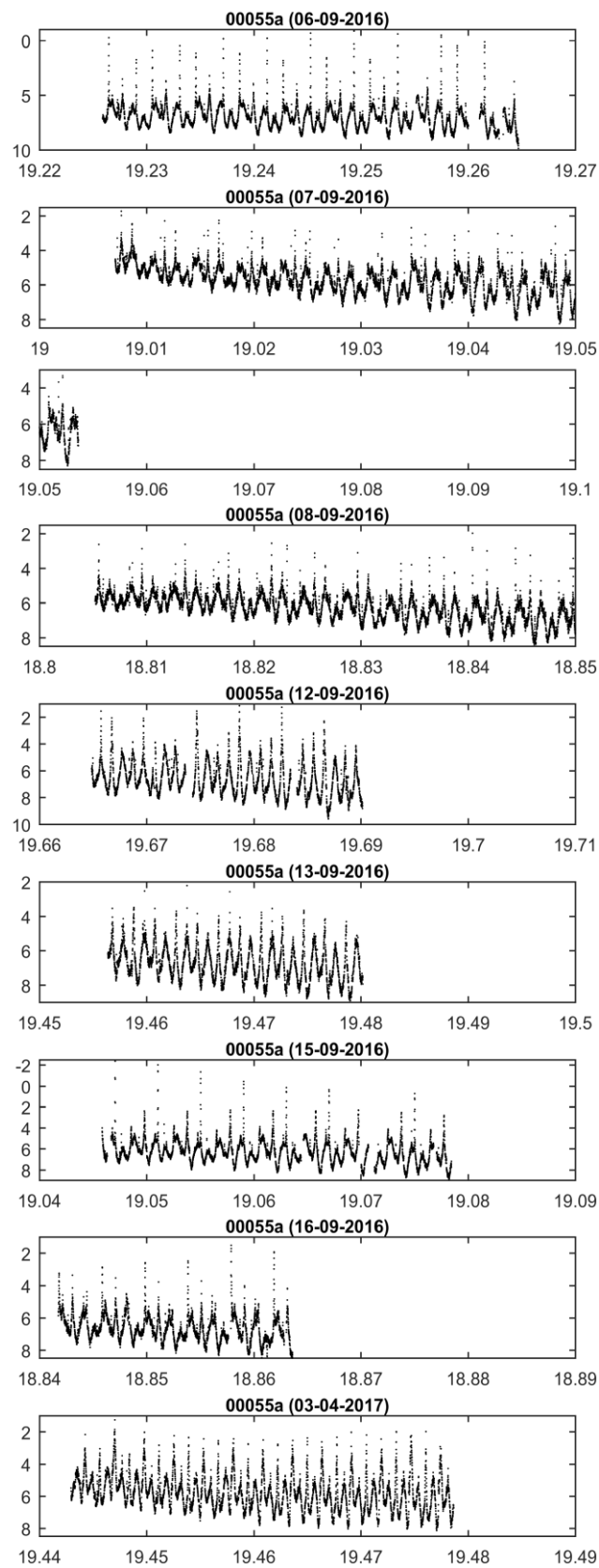
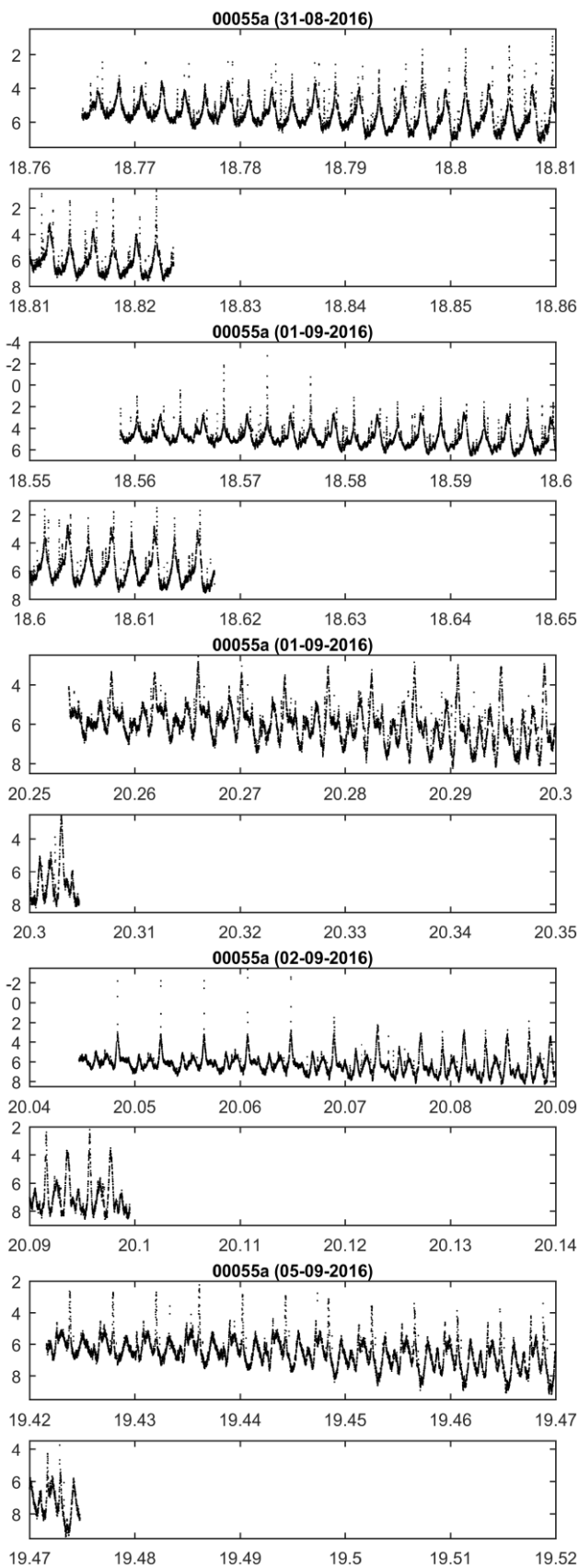


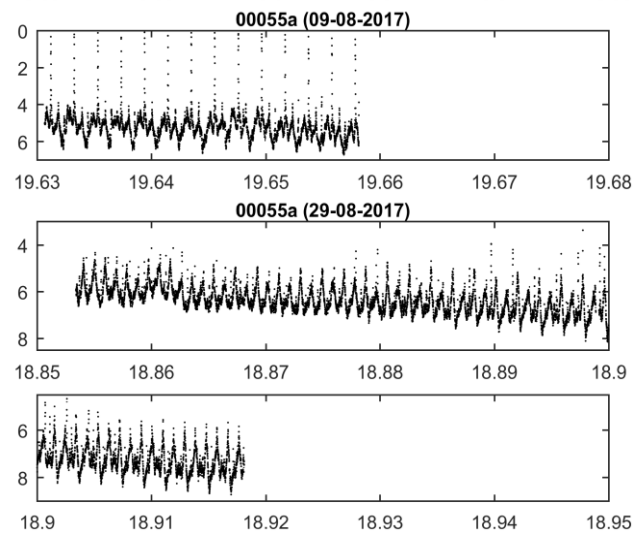
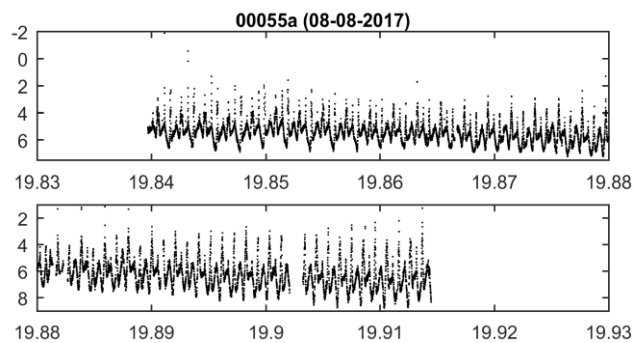
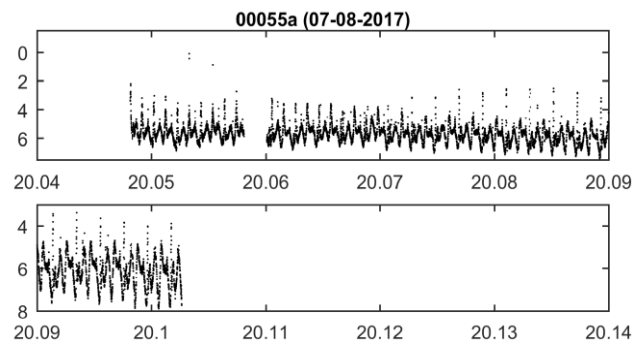
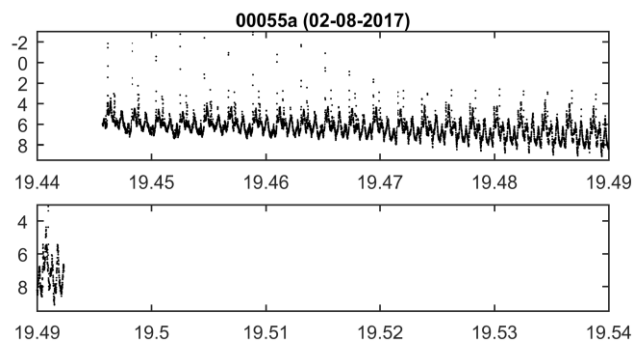
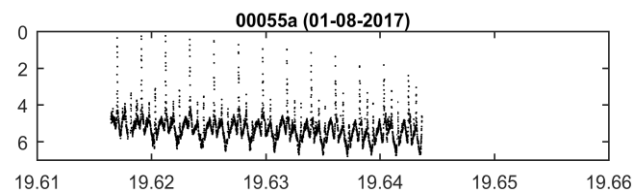
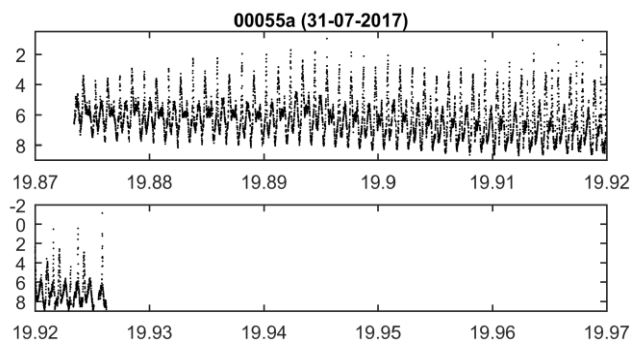
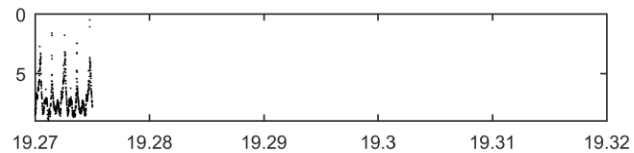
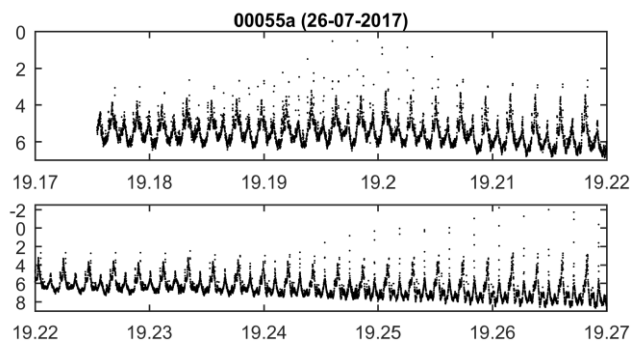
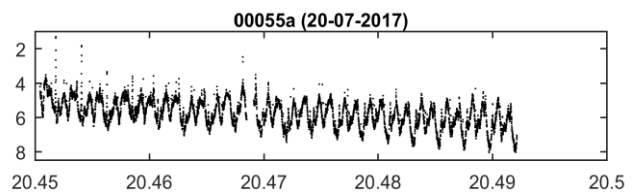
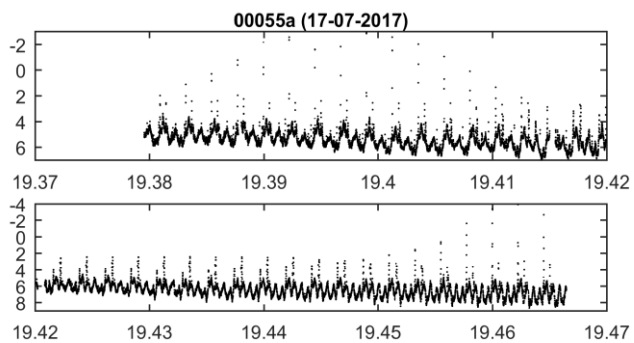
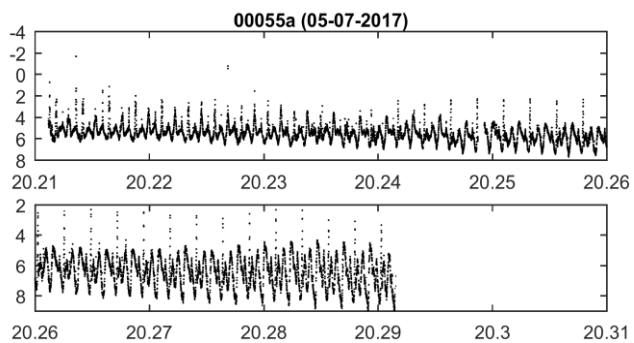


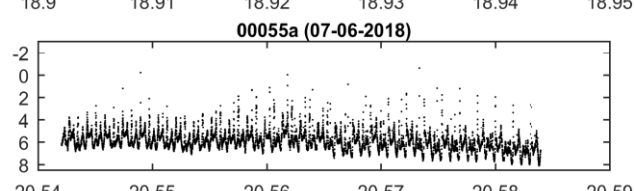
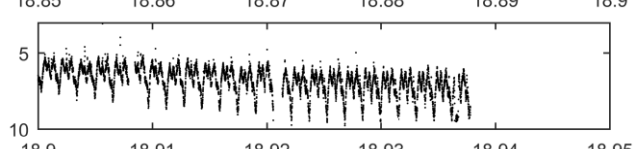
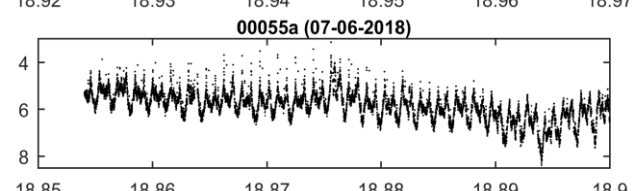
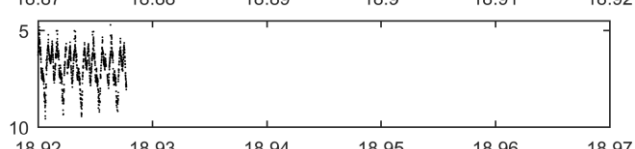
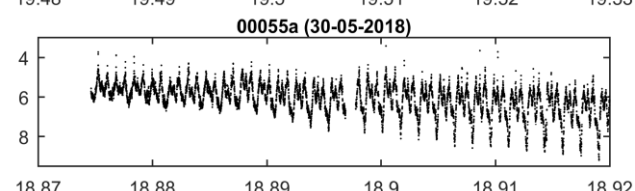
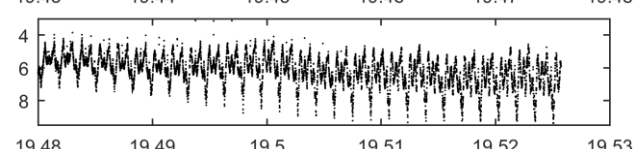
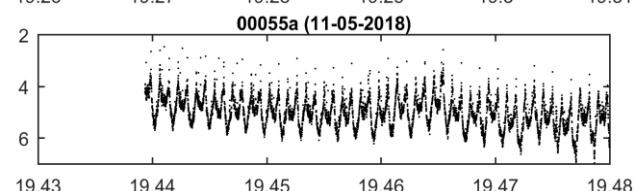
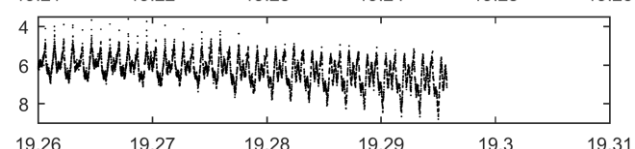
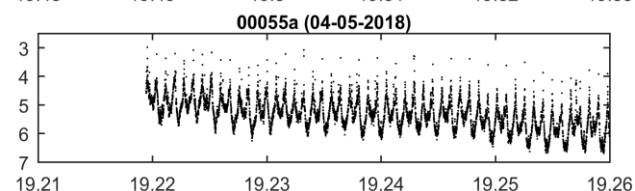
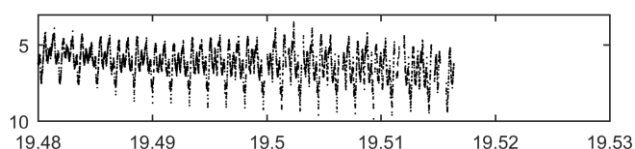
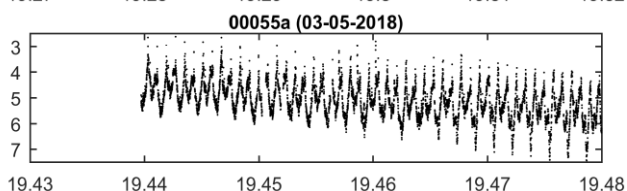
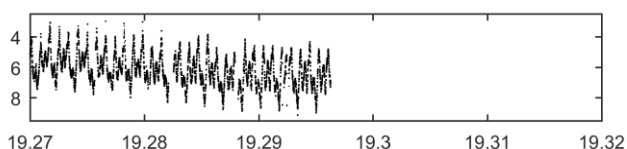
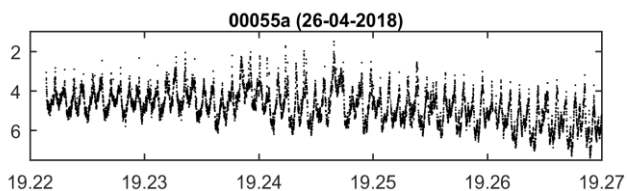
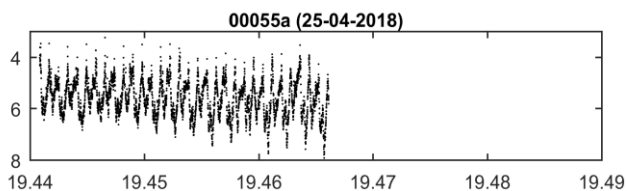
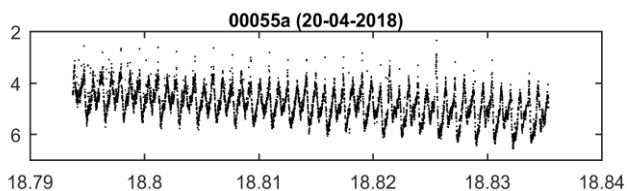
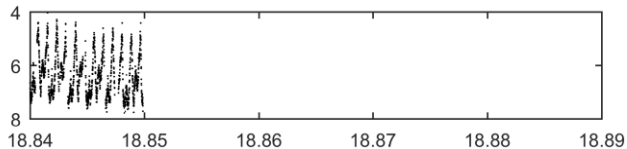
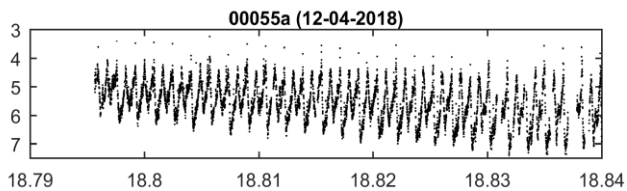
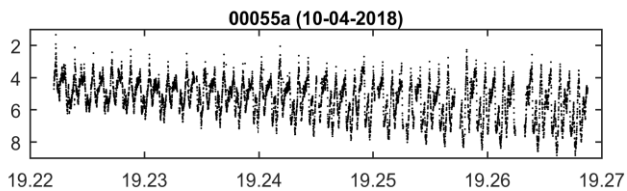
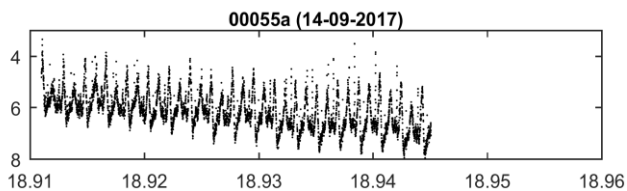
NOAA 16

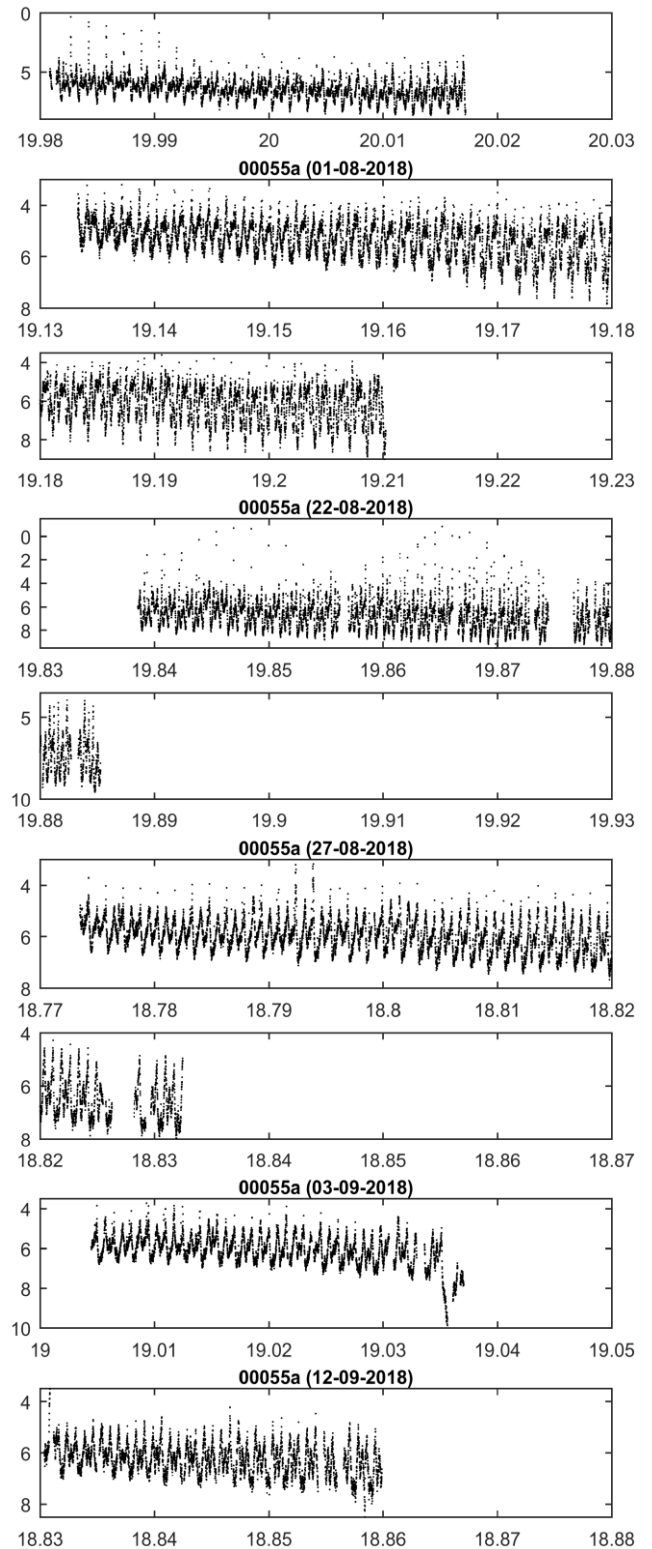
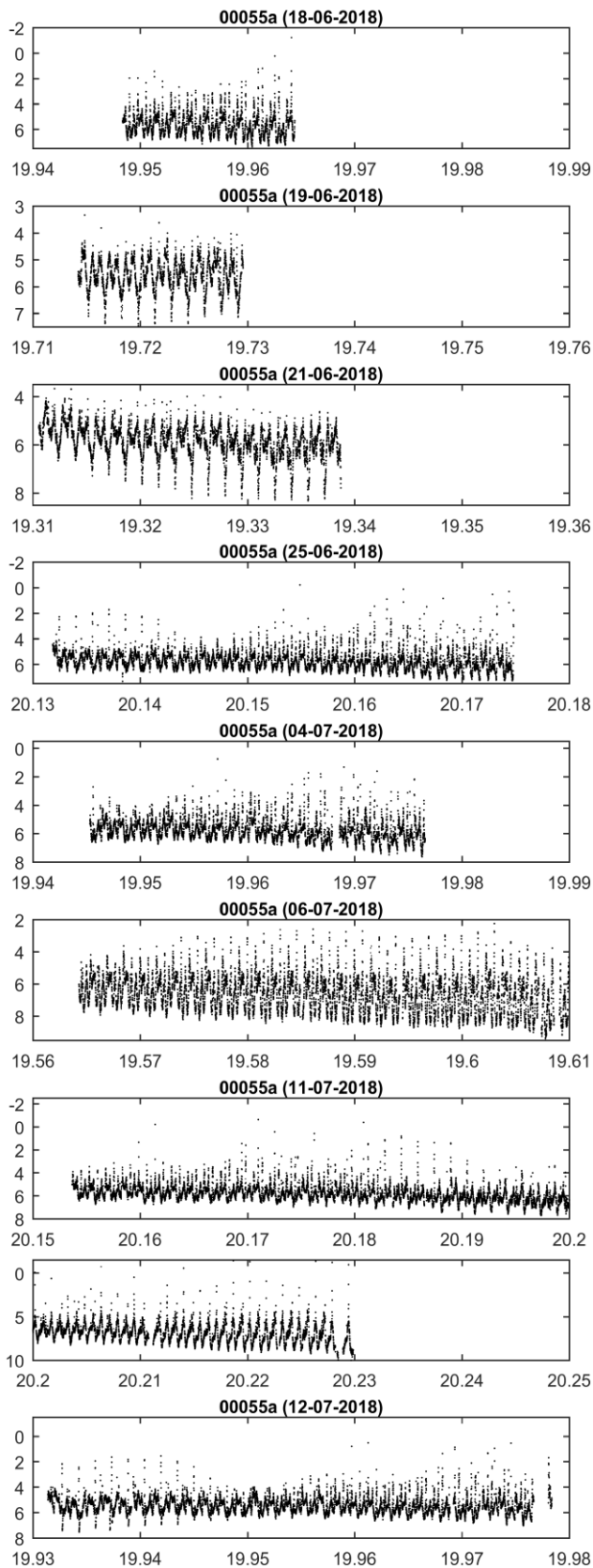
NORAD ID: 26536
 Int'l Code: 2000-055A
 Dimensions: box + panel,
 4.2m long 1.9m dia
 Initial orbit:
 Perigee: 848 km
 Apogee: 863 km
 Inclination: 98.79°
 Period: 102.05 min
 Eccentricity: 0.001
 Launch date: 2000-09-21
 Source: United States (US)











DNEPR 1 R/B (3rd stage)
(SAUDISAT 1A ROCKET)

NORAD ID: 26550

Int'l Code: 2000-057F

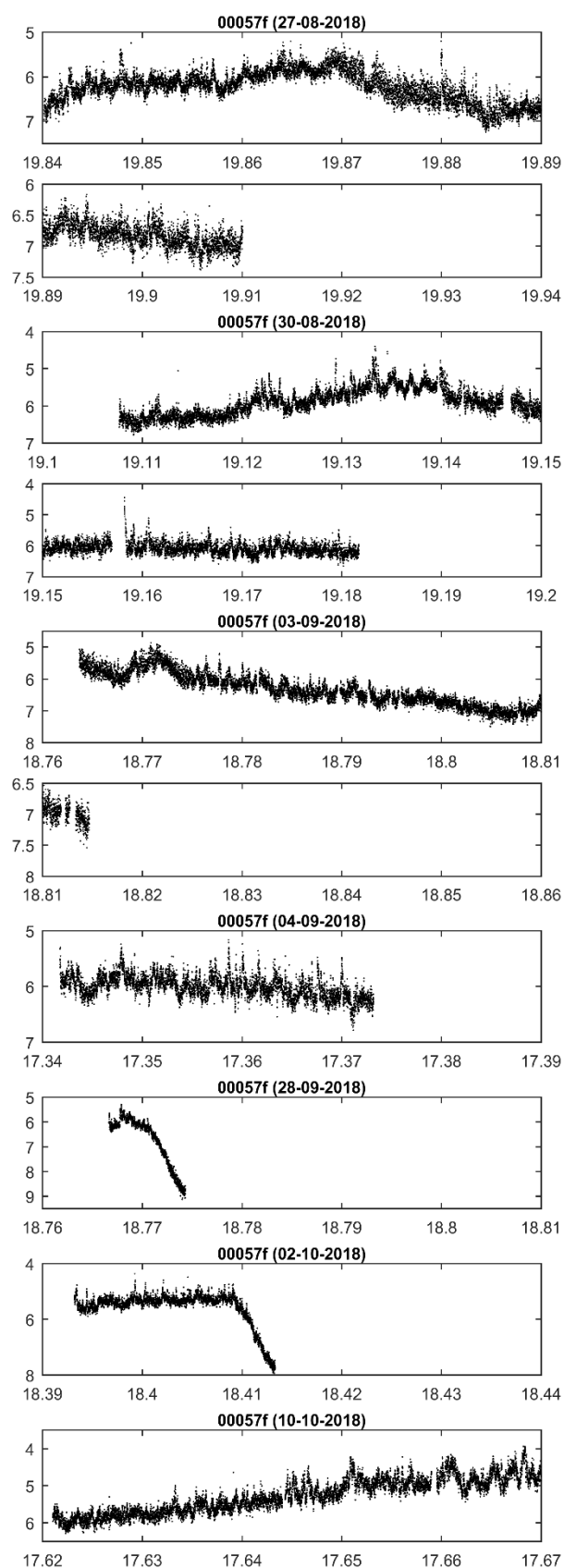
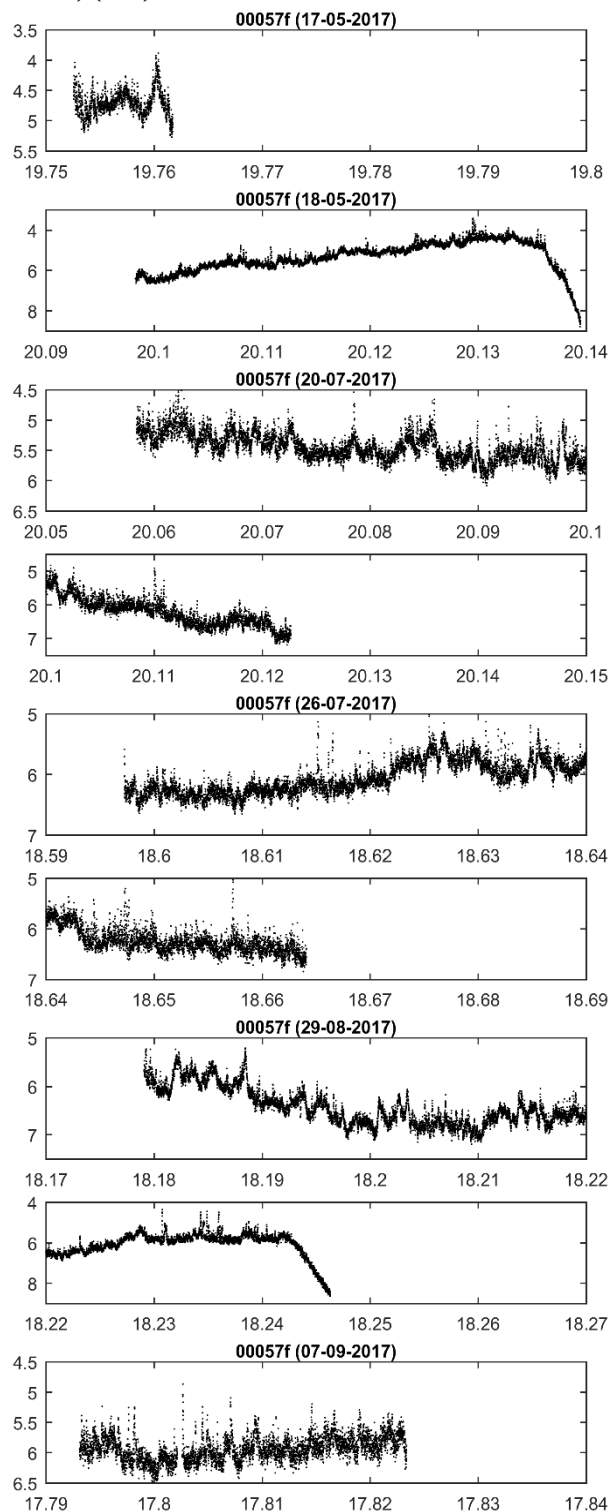
Dimensions:

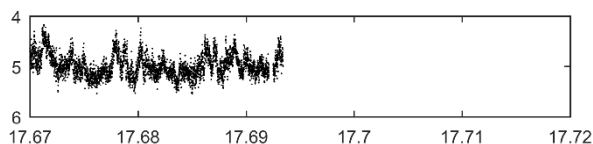
Initial orbit:

Perigee: 585 km



Apogee: 1353 km
 Inclination: 64.57°
 Period: 104.47 min
 Eccentricity: 0.052
 Launch date: 2000-09-26
 Source: Commonwealth of Independent States (former USSR) (CIS)





TSYKLON (3rd stage)

NORAD ID: 26874

Int'l Code: 2001-032B

Dimensions:

Initial orbit:

Perigee: 486 km

Apogee: 528 km

Inclination: 82.4°

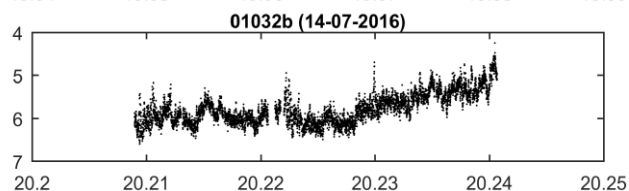
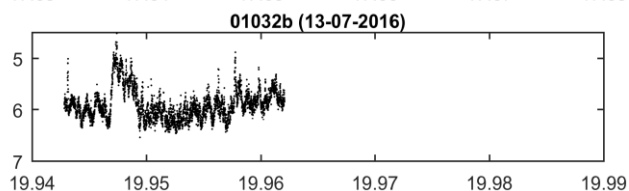
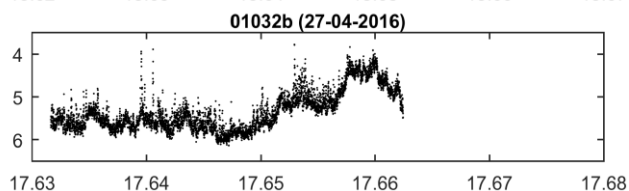
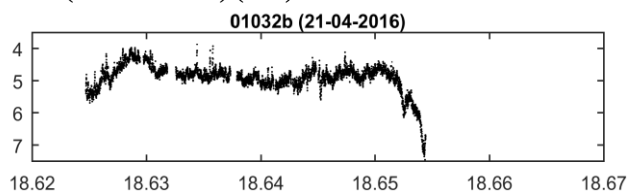
Period: 94.77 min

Eccentricity: 0.003

Launch date: 2001-07-31

Decay date: 2017-04-27

Source: Commonwealth of Independent States (former USSR) (CIS)



INTRUDER 5B

(USA 160 DEB, NOSS 3-1 (C), NROL 13)

NORAD ID: 26907

Int'l Code: 2001-040C

Dimensions:

Initial orbit:

Perigee: 1100 km

Apogee: 1100 km

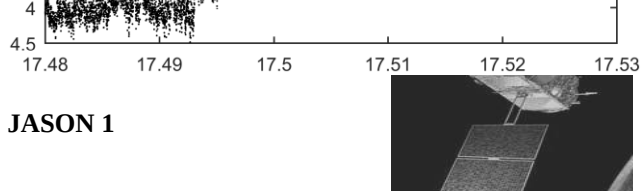
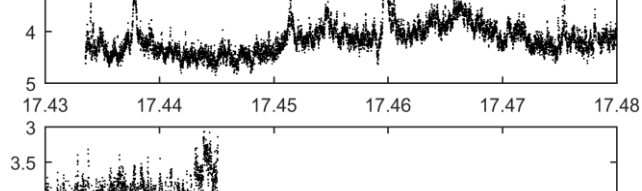
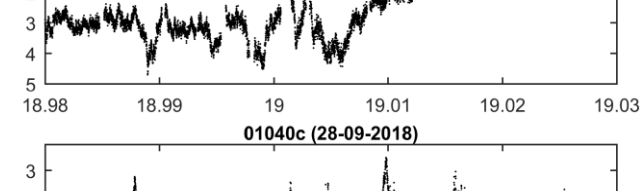
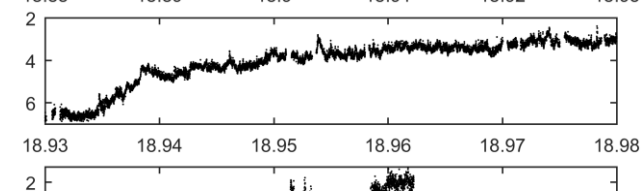
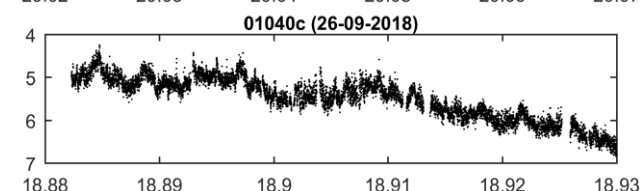
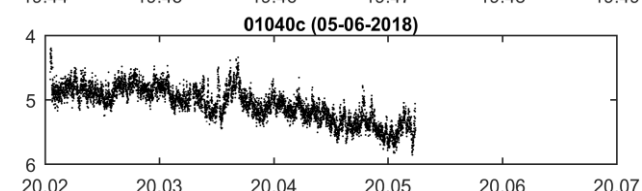
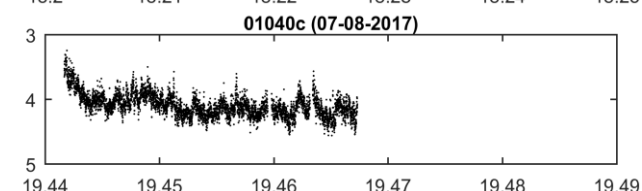
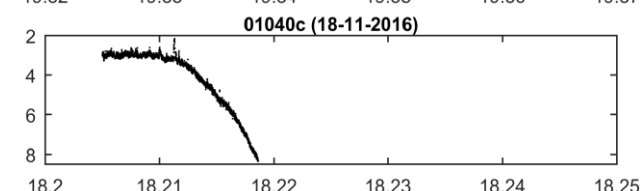
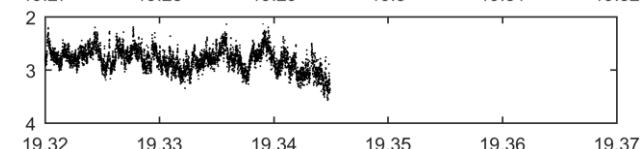
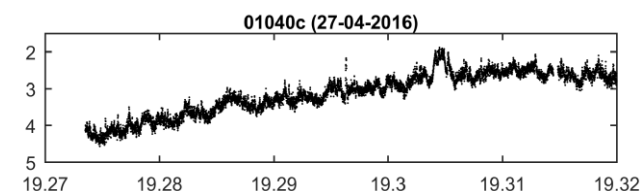
Inclination: 63.0°

Period: 107.26 min

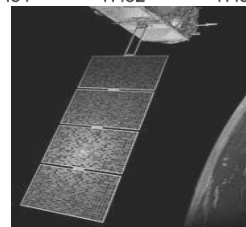
Eccentricity: 0

Launch date: 2001-09-08

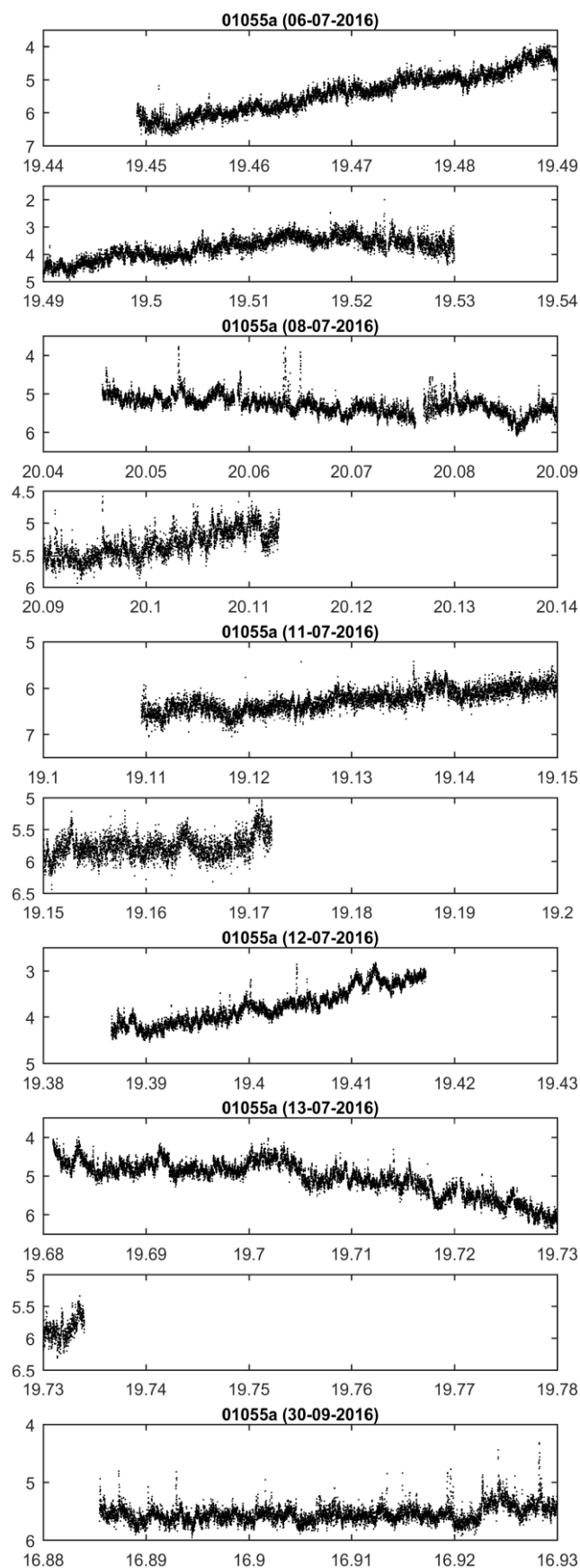
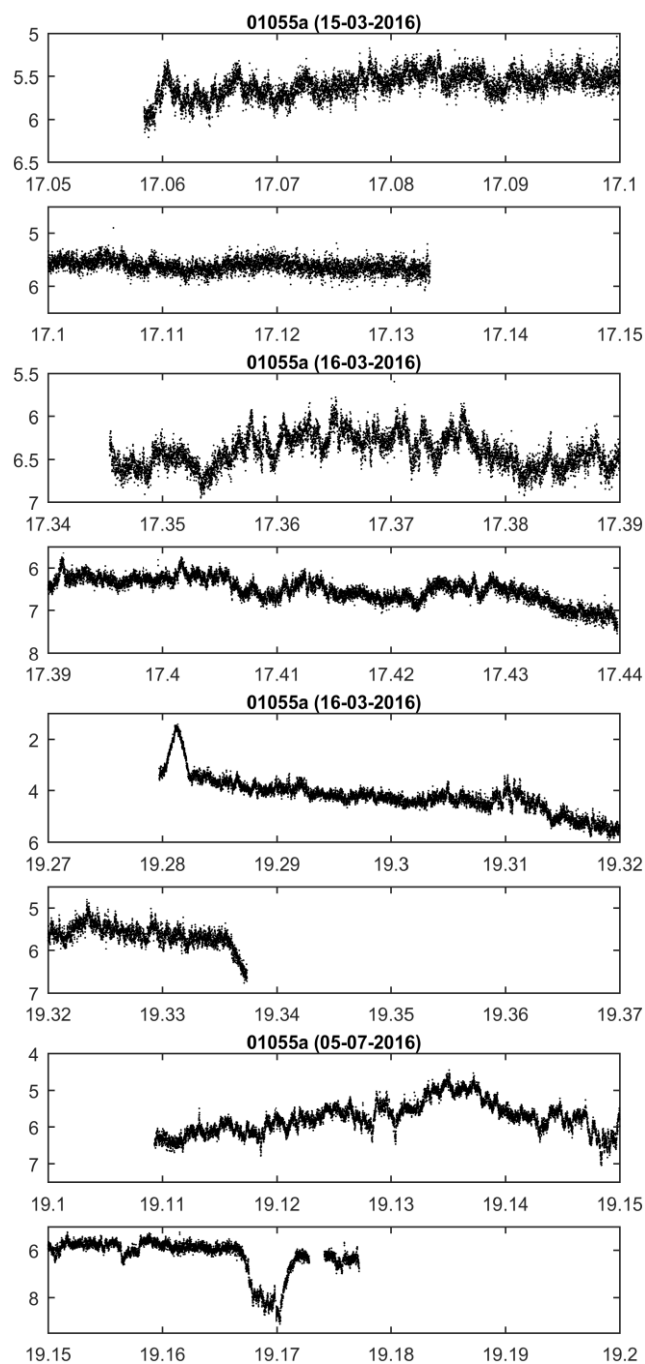
Source: United States (US)

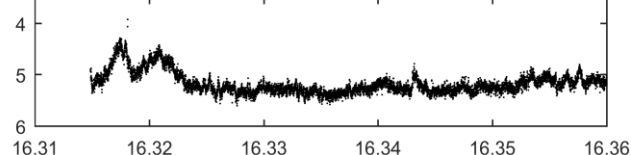
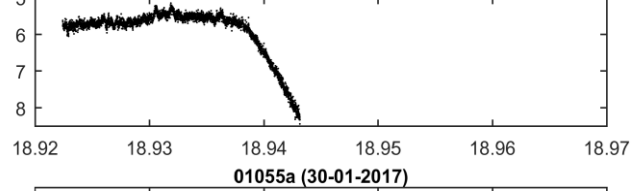
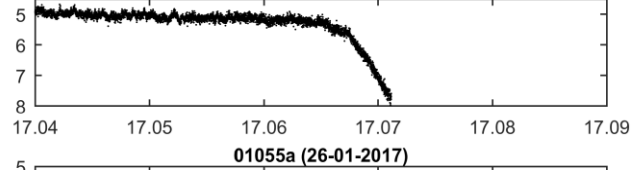
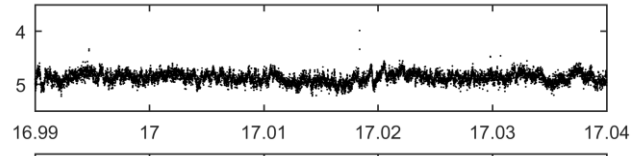
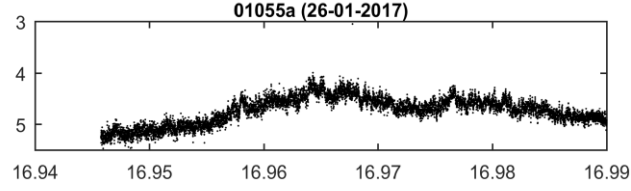
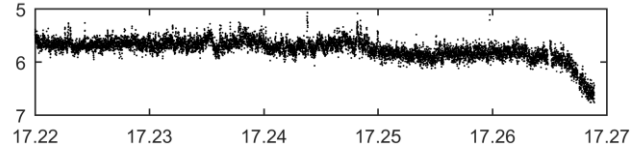
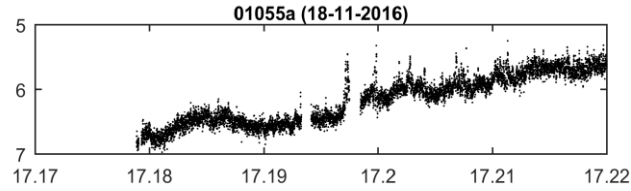
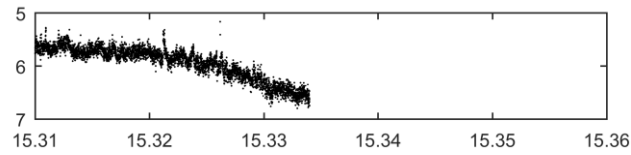
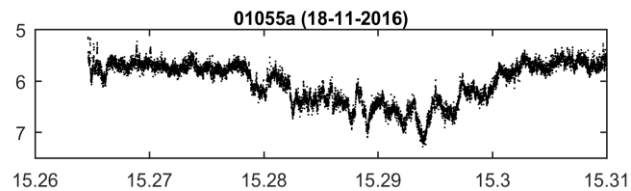
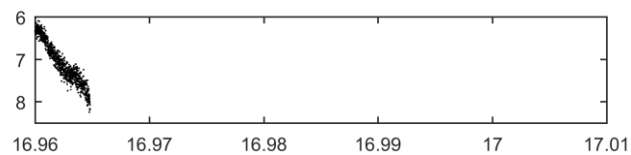
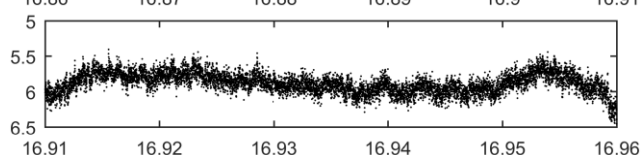
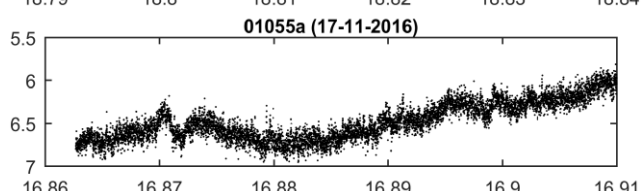
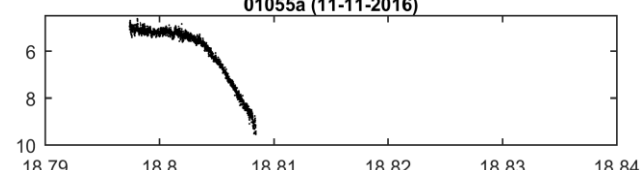
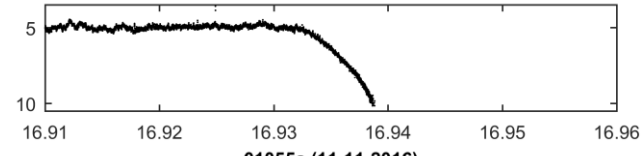
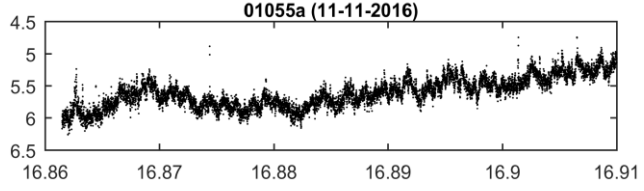
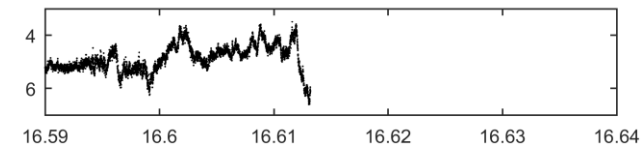
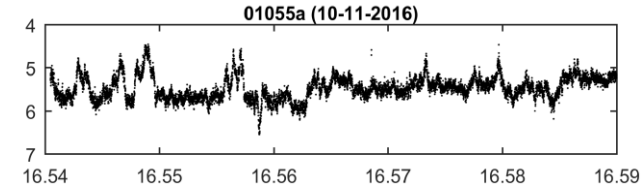
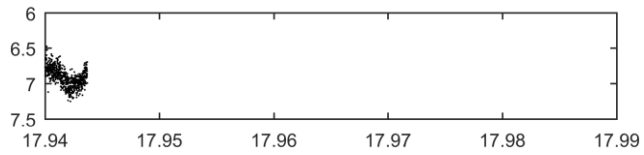
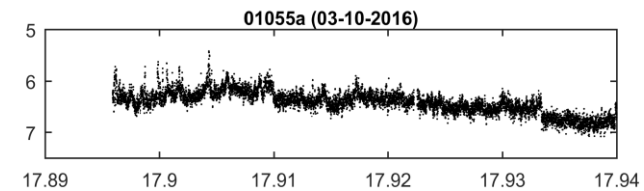
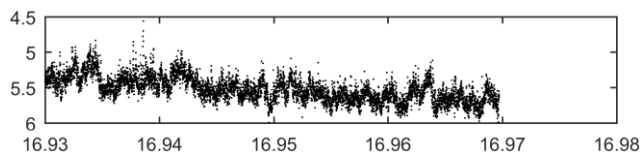


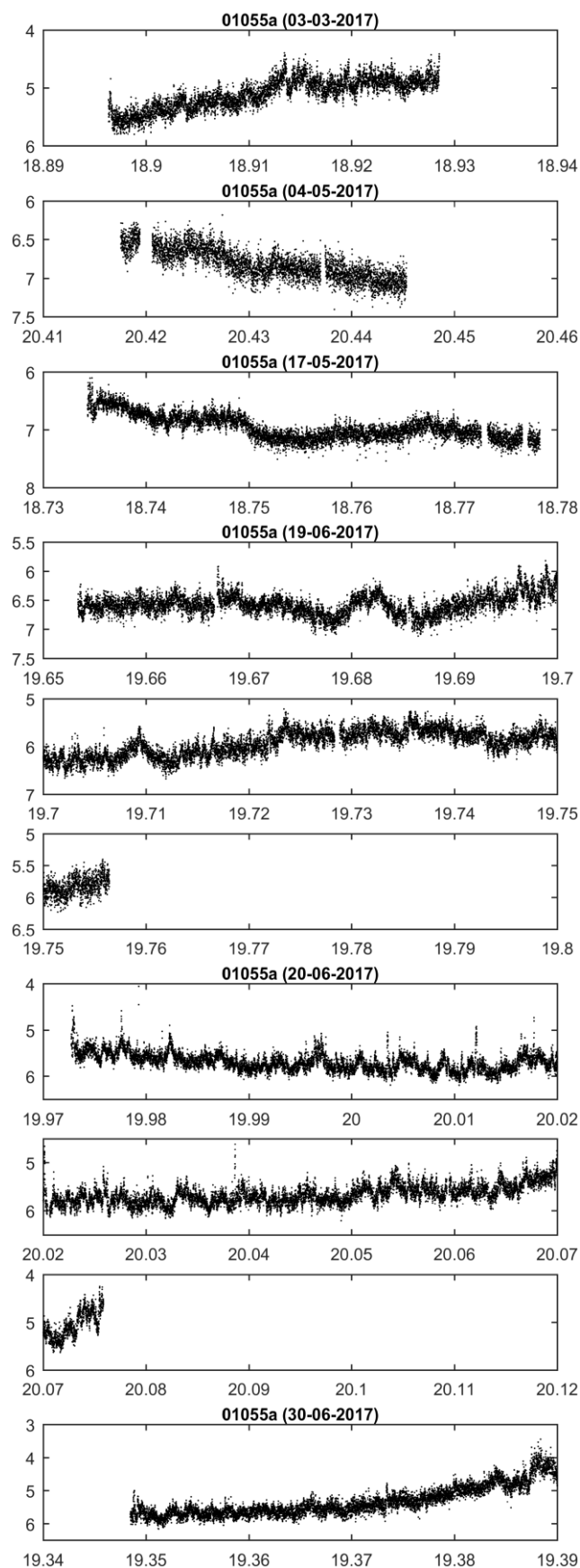
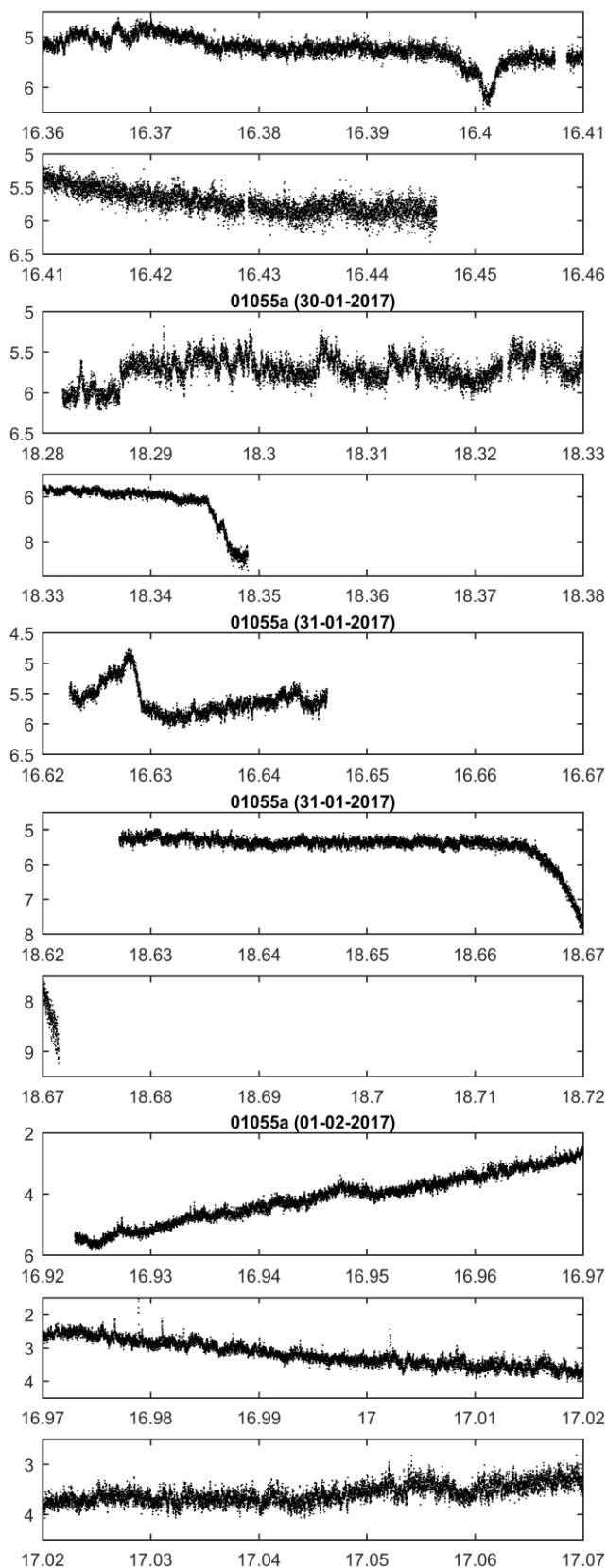
JASON 1

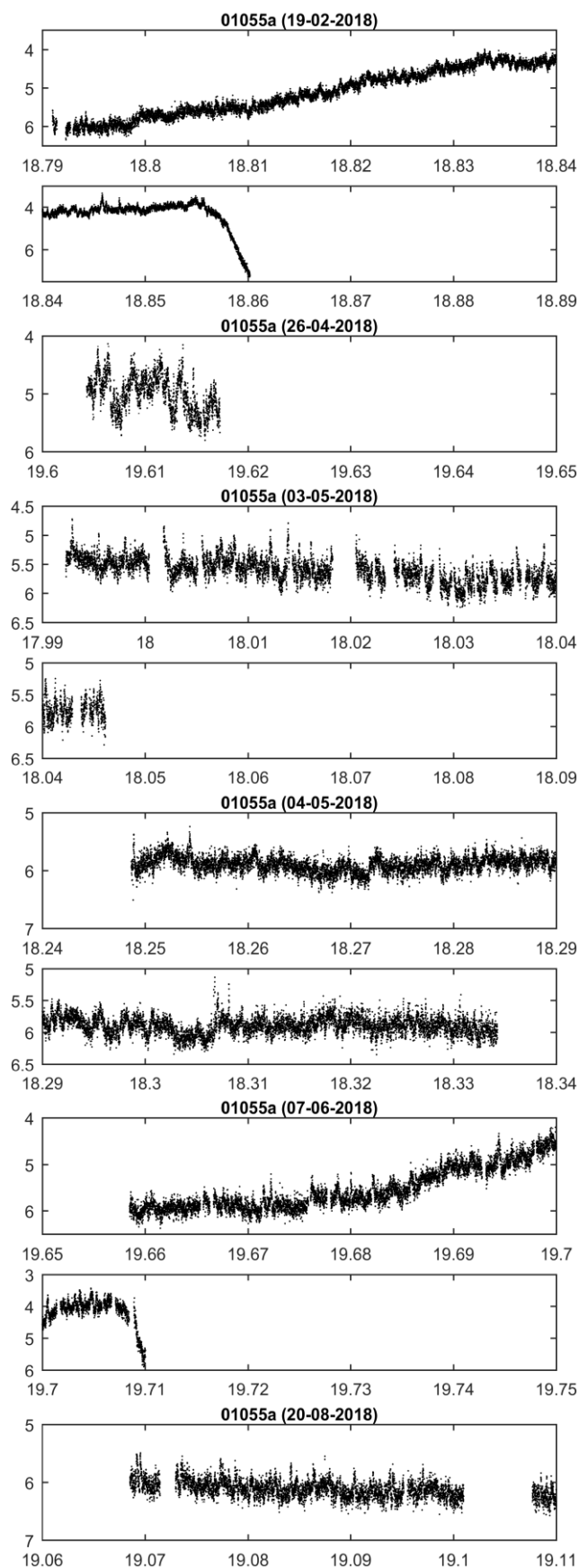
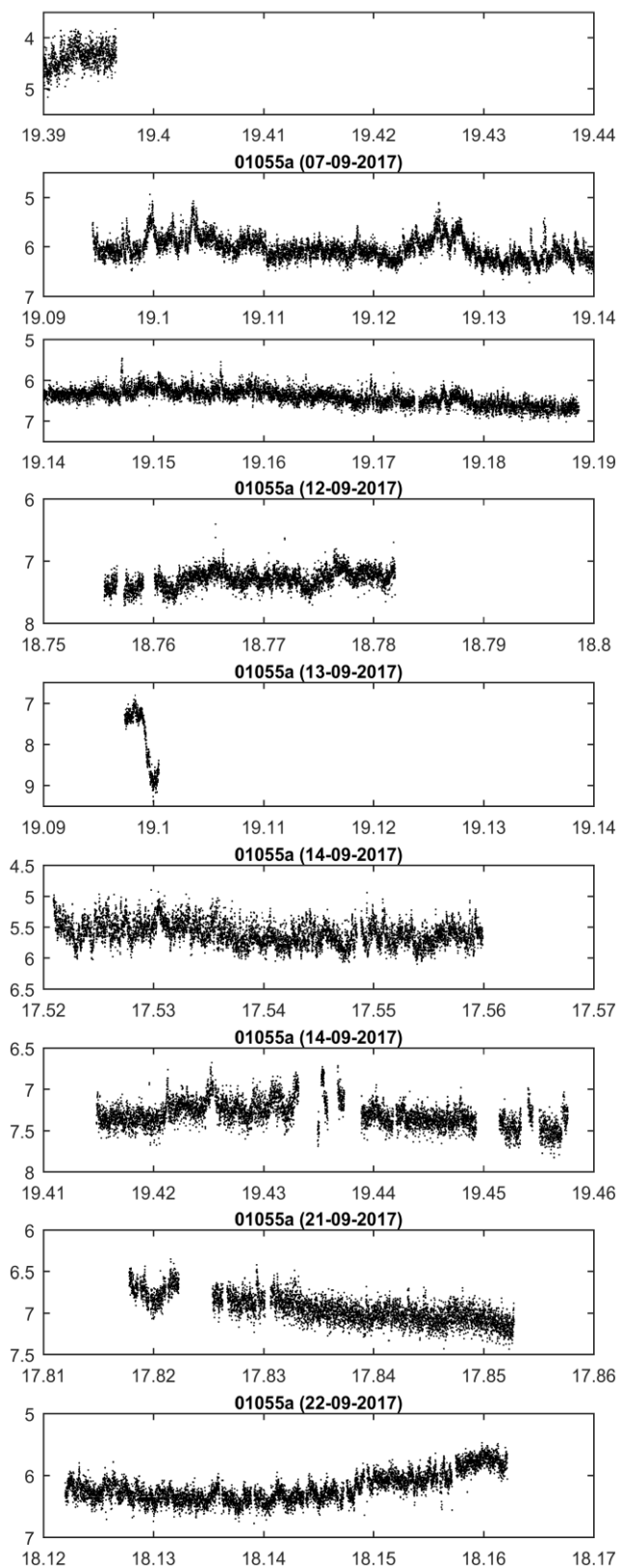


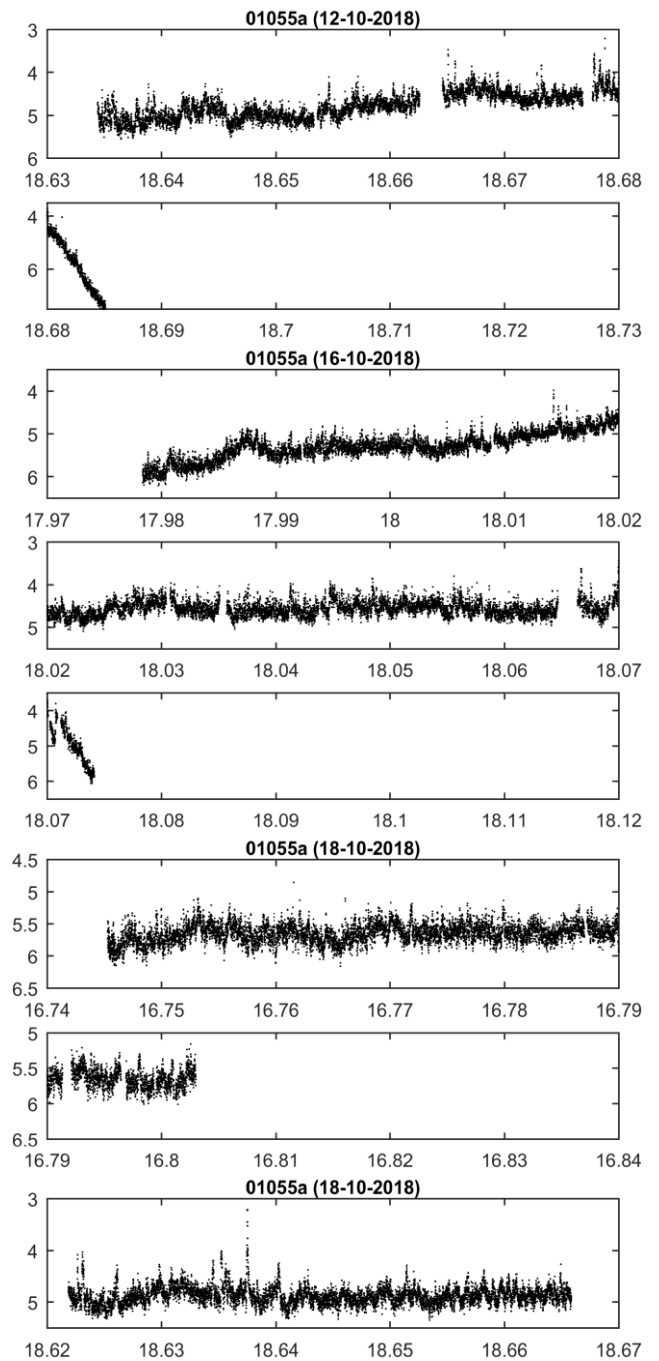
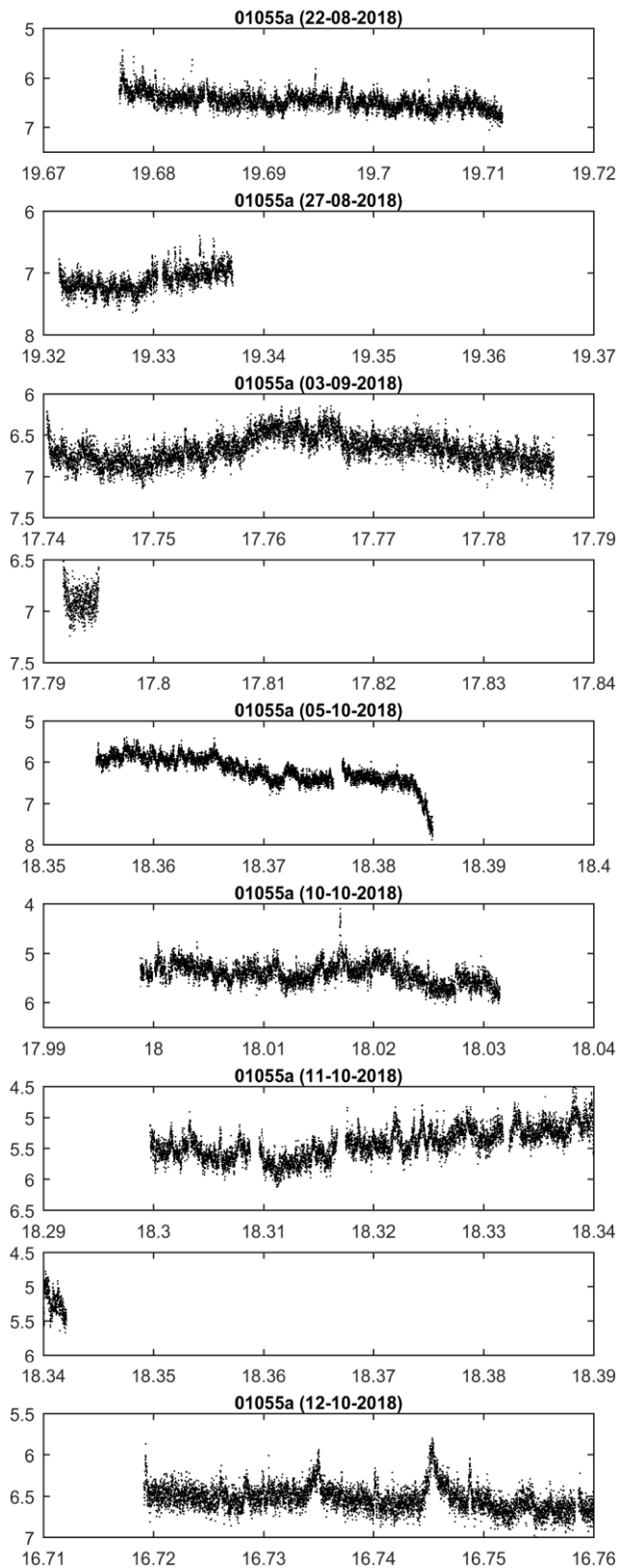
NORAD ID: 26997
 Int'l Code: 2001-055A
 Dimensions:
 Initial orbit:
 Perigee: 1320 km
 Apogee: 1328 km
 Inclination: 66.0°
 Period: 112.11 min
 Eccentricity: 0.0005
 Launch date: 2001-12-07
 Source: United States (US)











IRIDIUM 95

NORAD ID: 27375

Int'l Code: 2002-005D

Dimensions: box 1m x 1m x 3.5m

+ 2 panels

Initial orbit:

Perigee: 664 km

Apogee: 681 km

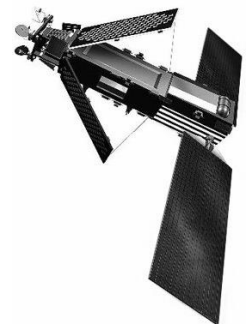
Inclination: 86.5°

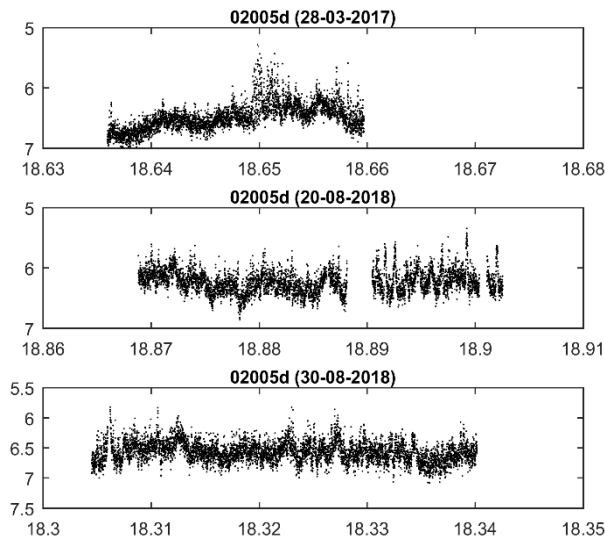
Period: 98.19 min

Eccentricity: 0.001

Launch date: 2002-02-11

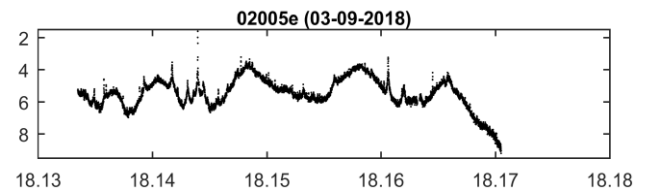
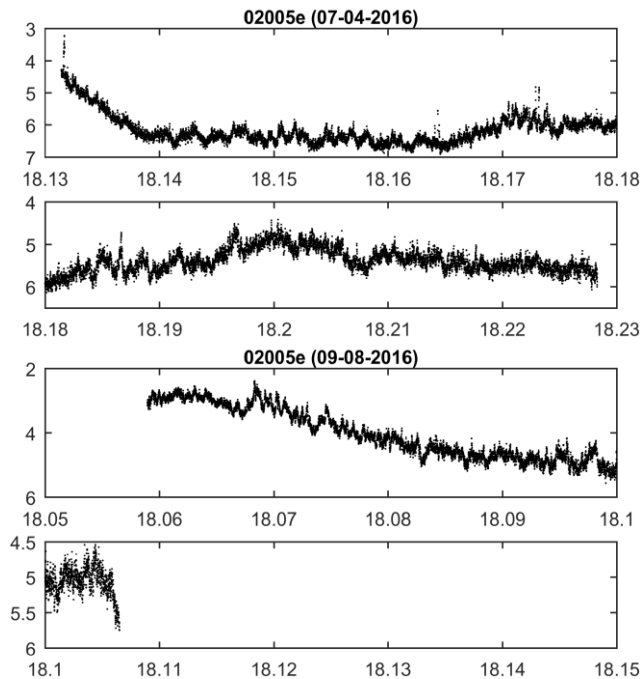
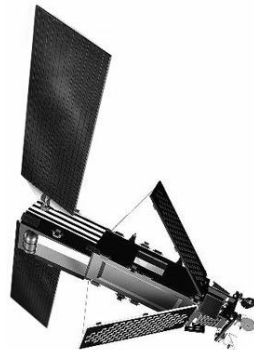
Source: United States (US)





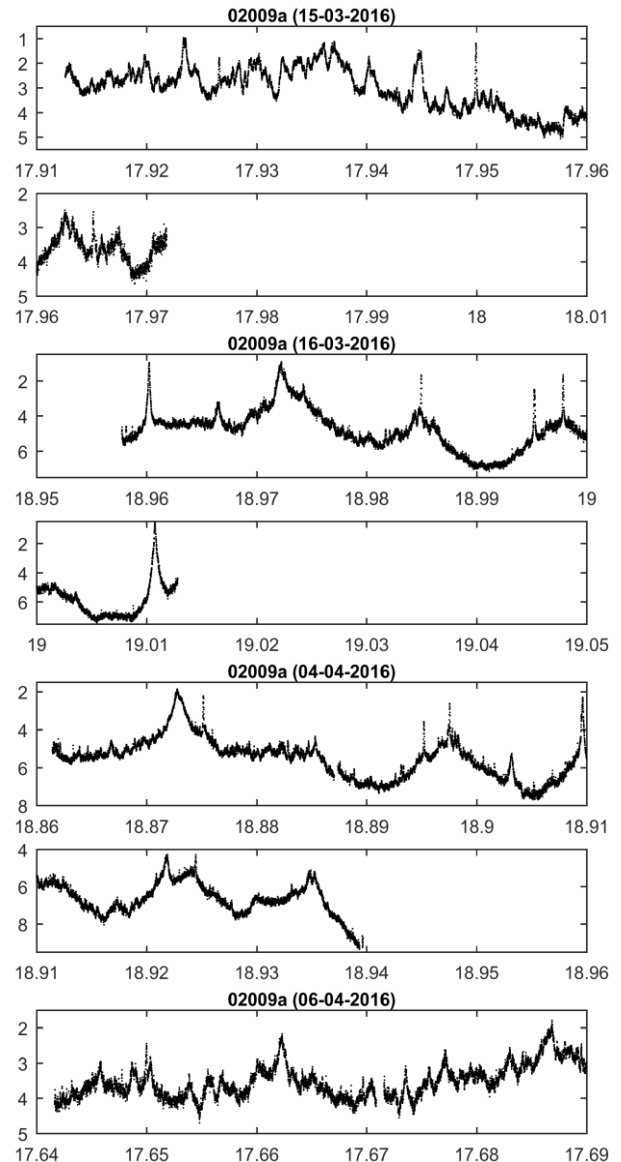
IRIDIUM 96

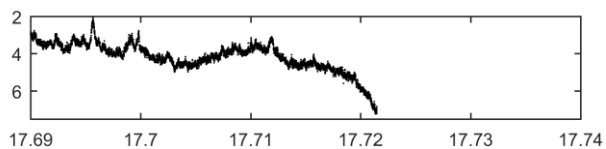
NORAD ID: 27376
 Int'l Code: 2002-005E
 Dimensions: box + 2 panels,
 1m across, 3.5m long
 Initial orbit:
 Perigee: 782 km
 Apogee: 787 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.000349
 Launch date: 2002-02-11
 Source: United States (US)



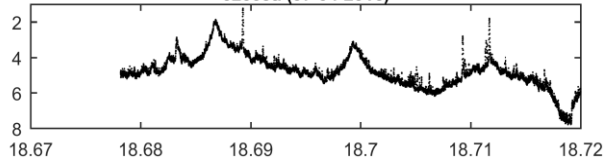
ENVISAT

NORAD ID: 27386
 Int'l Code: 2002-009A
 Dimensions: cylindrical 6m x 2m
 Initial orbit:
 Perigee: 784 km
 Apogee: 790 km
 Inclination: 98.5°
 Period: 100.60 min
 Eccentricity: 0.0004
 Launch date: 2002-03-01
 Source: European Space Agency (ESA)

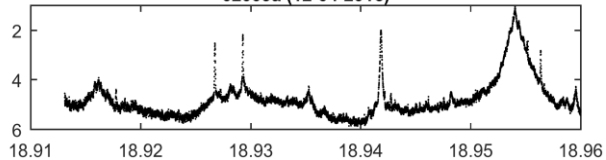




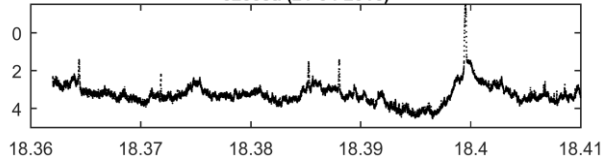
02009a (07-04-2016)



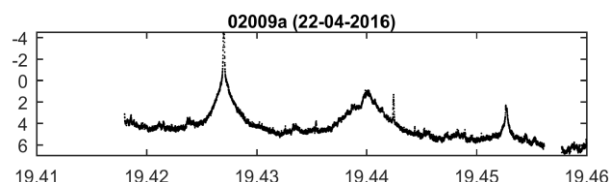
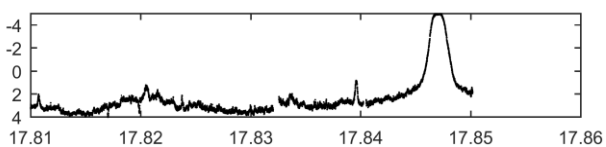
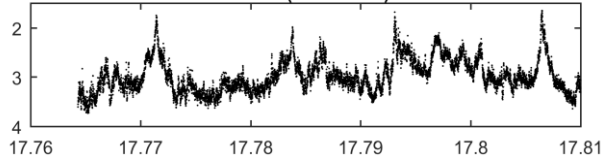
02009a (12-04-2016)



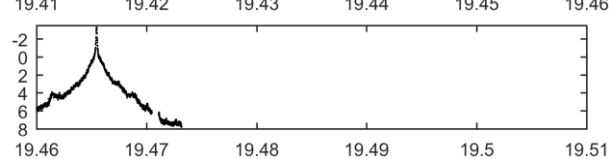
02009a (21-04-2016)



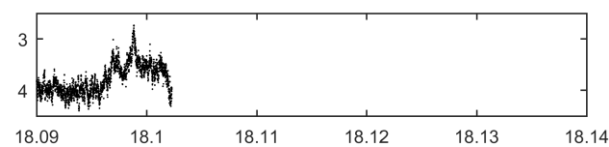
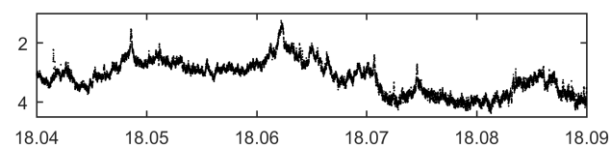
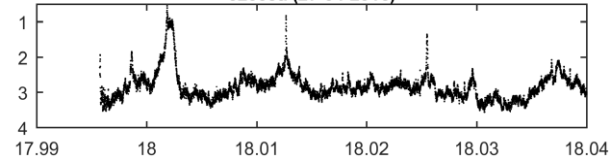
02009a (22-04-2016)



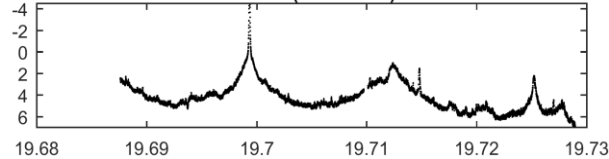
02009a (22-04-2016)



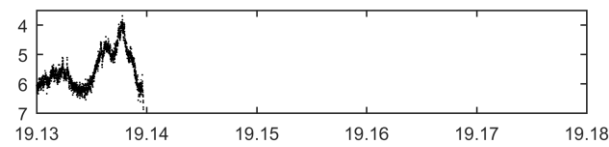
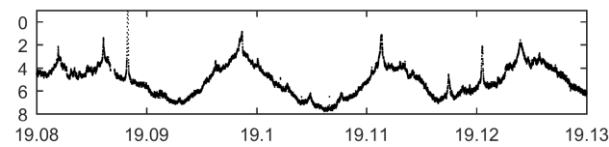
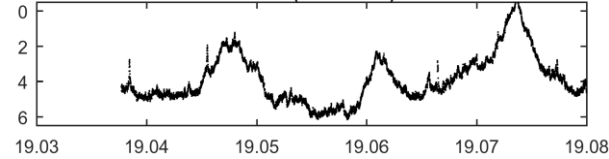
02009a (27-04-2016)



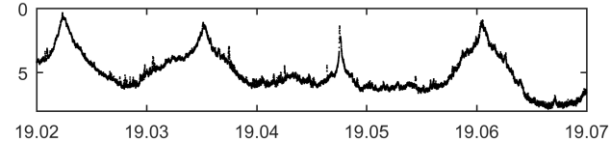
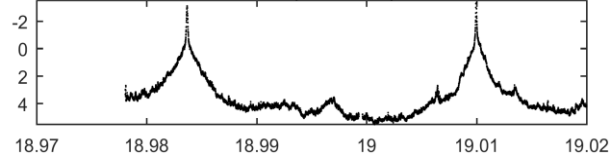
02009a (27-04-2016)

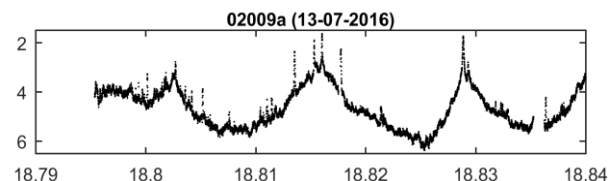
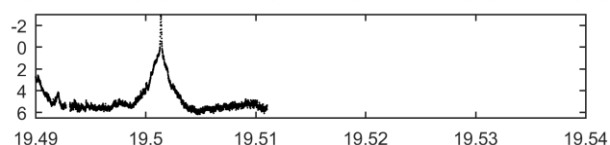
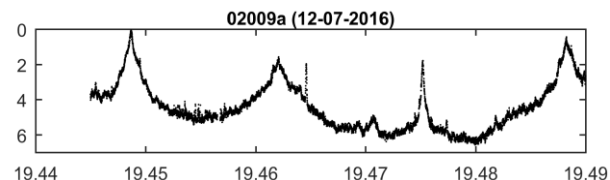
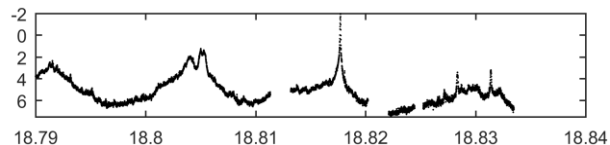
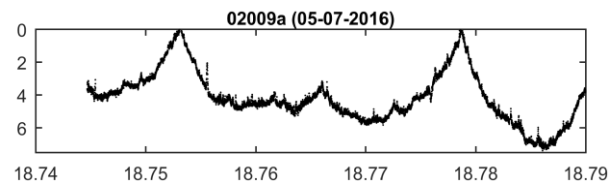
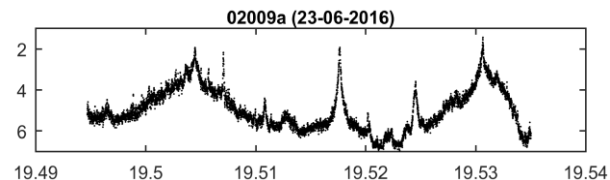
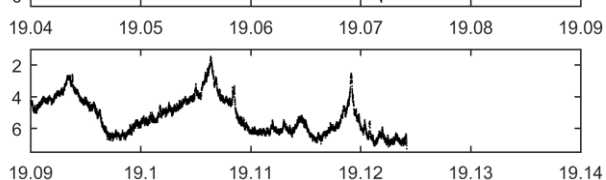
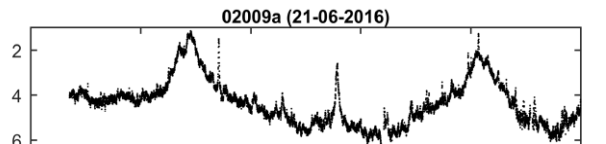
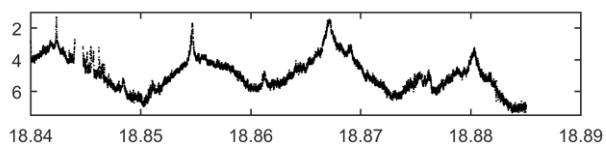
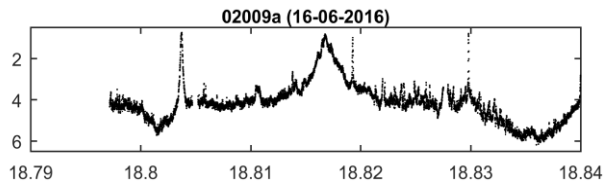
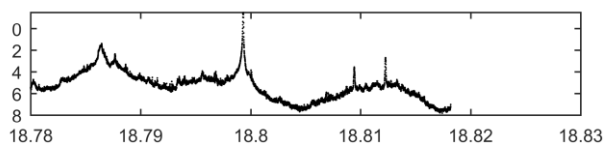
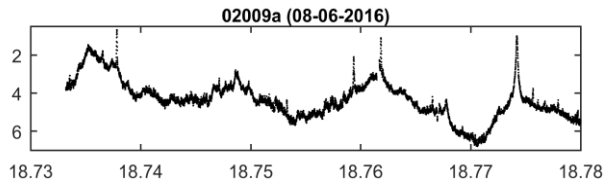
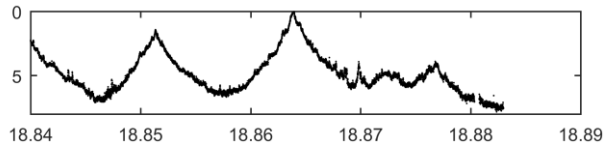
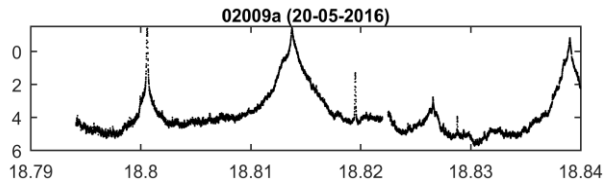
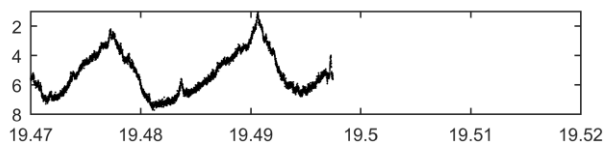
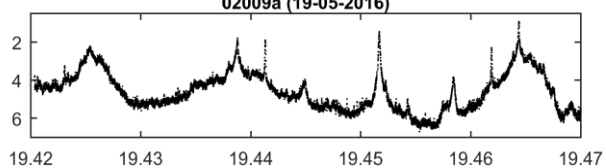
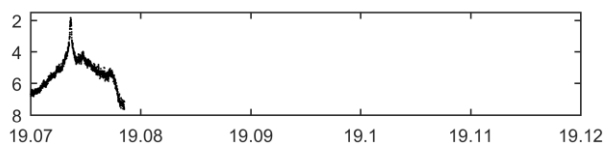


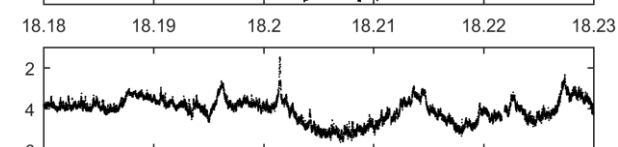
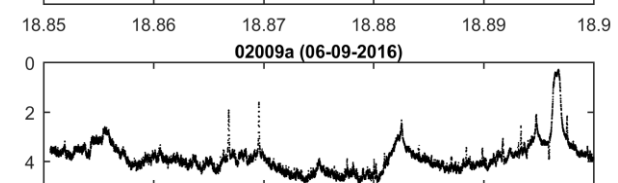
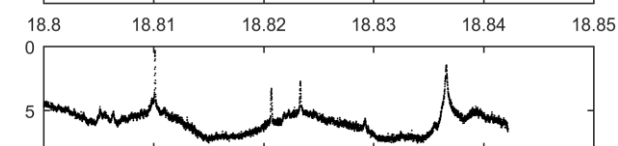
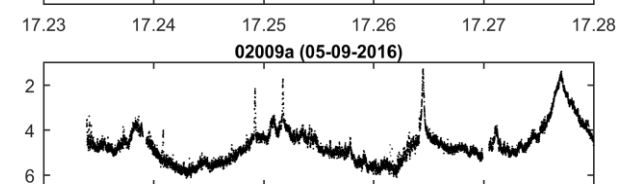
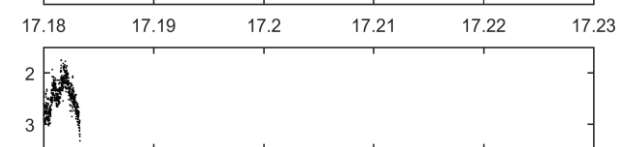
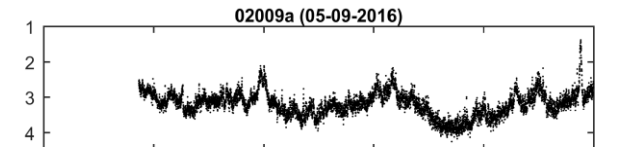
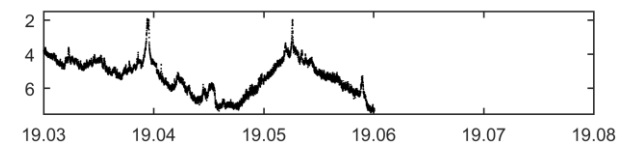
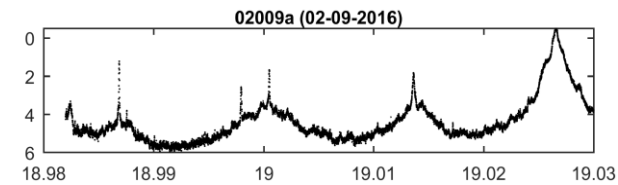
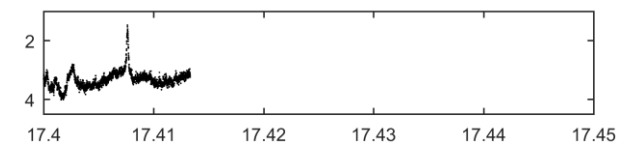
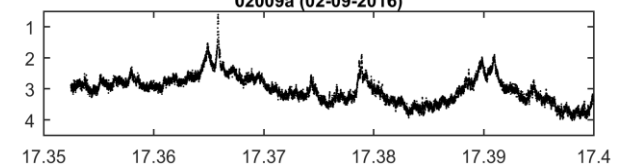
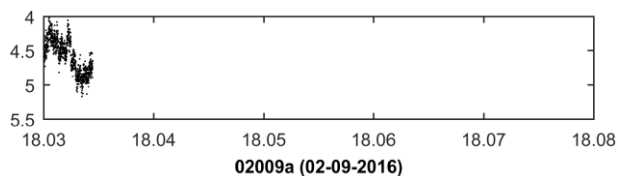
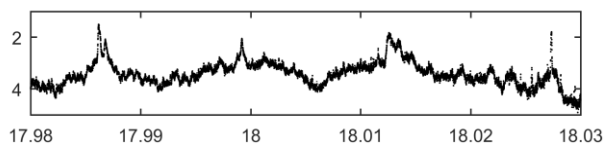
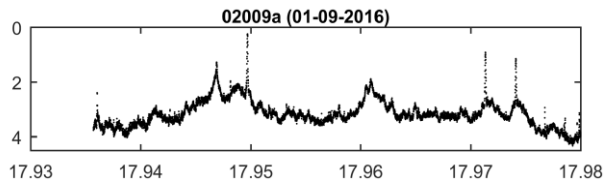
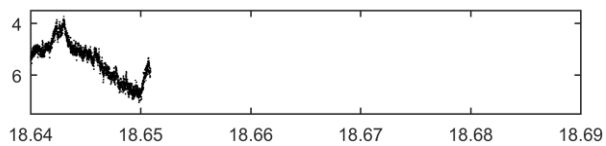
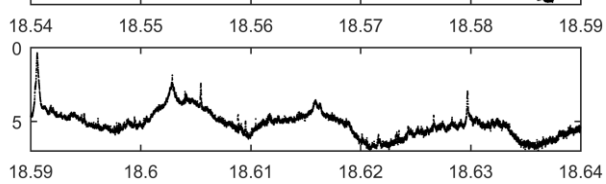
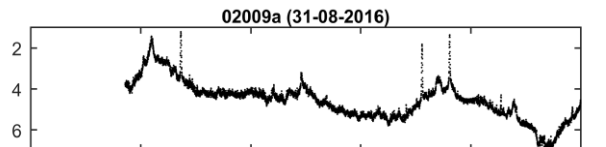
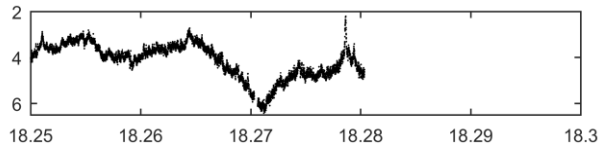
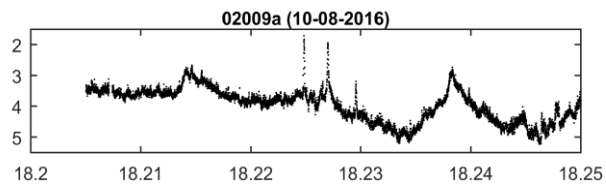
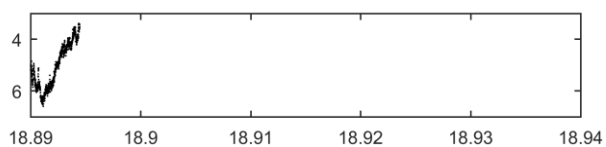
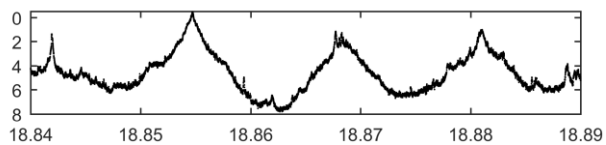
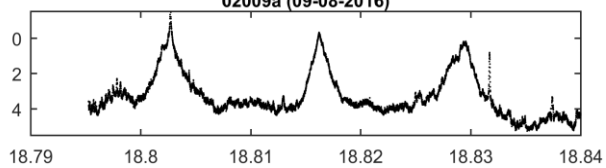
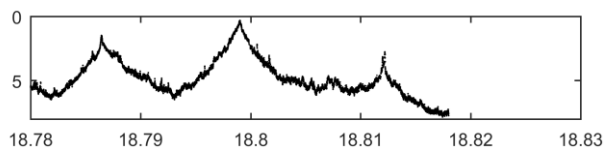
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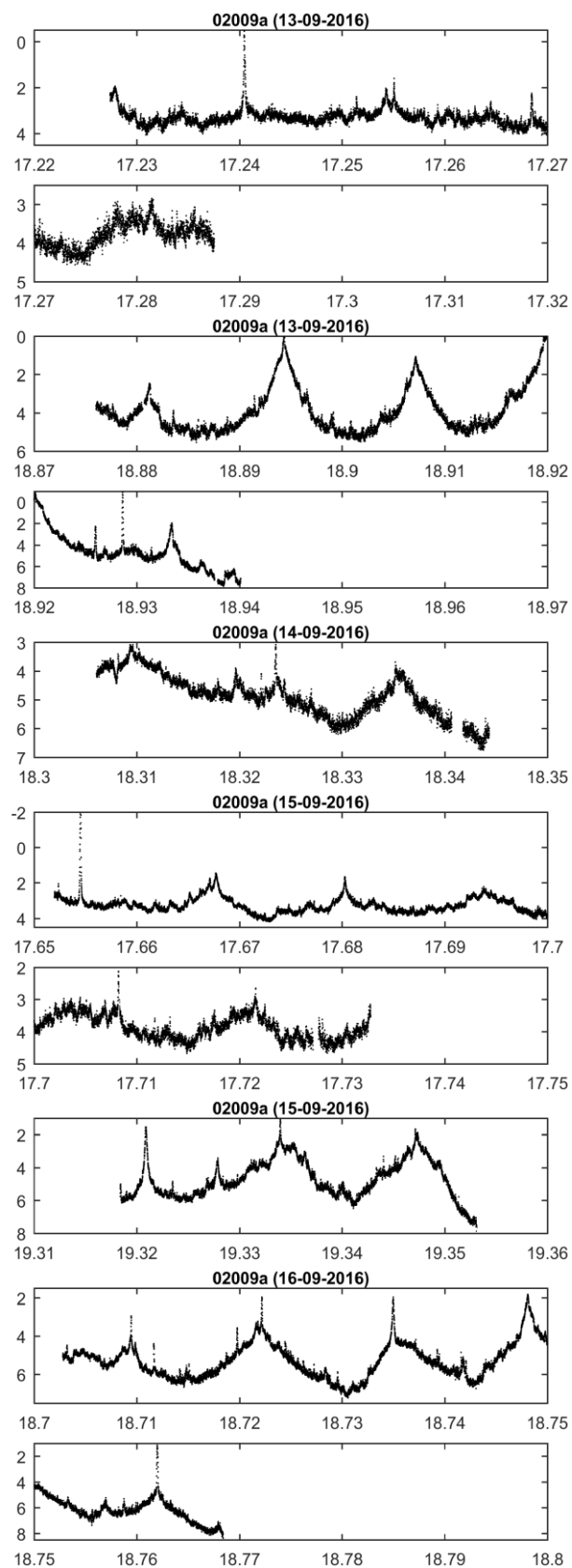
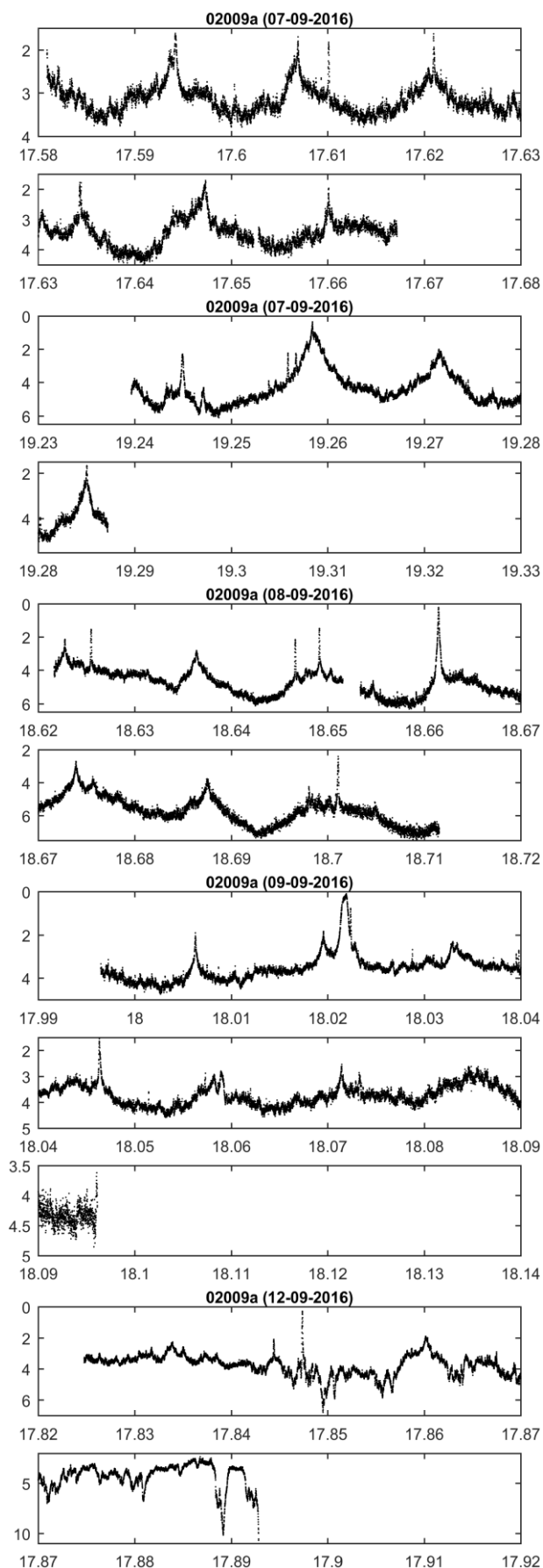


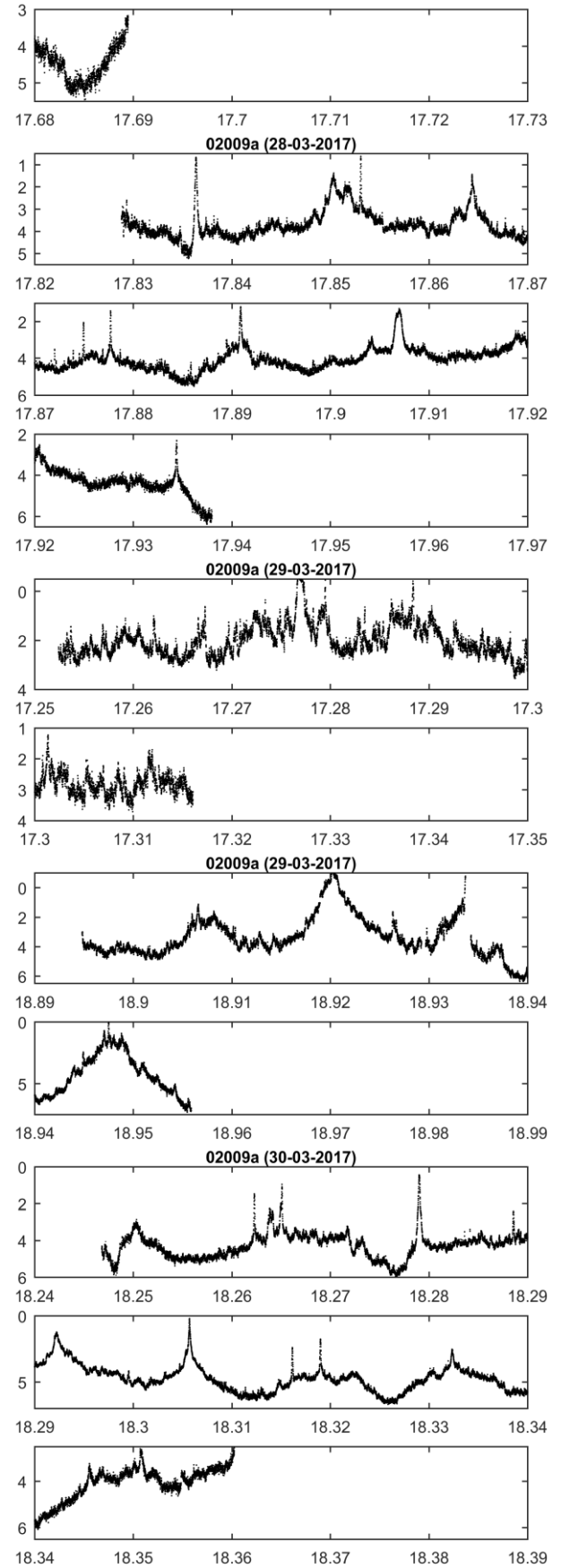
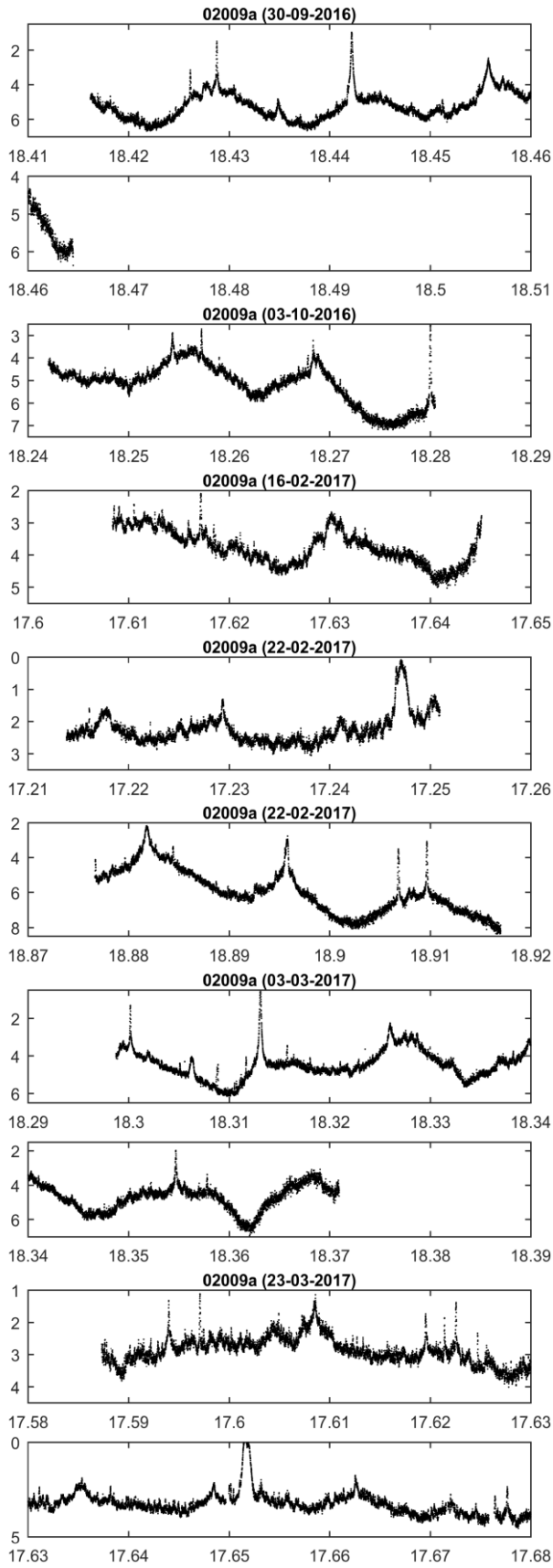
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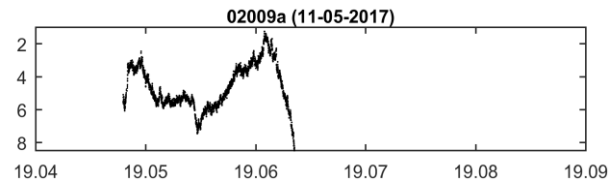
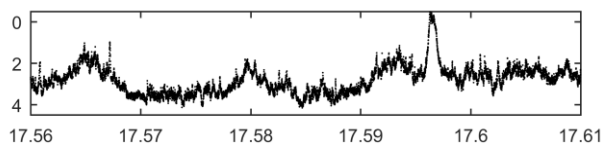


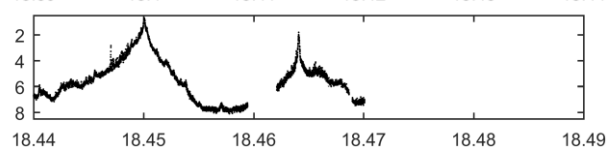
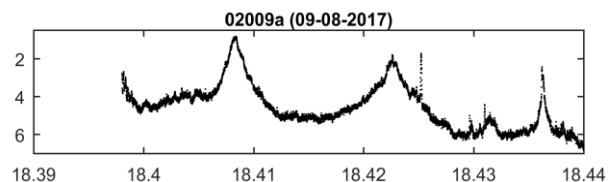
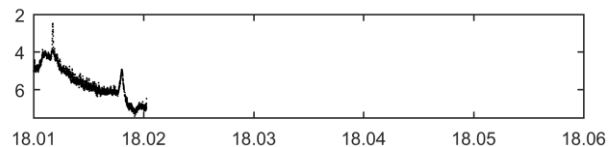
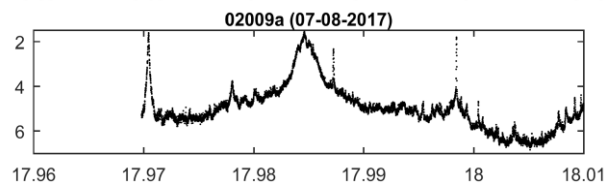
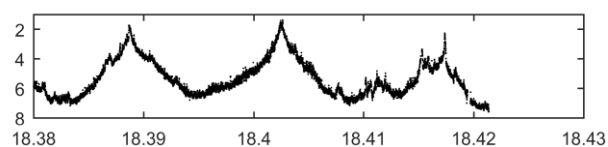
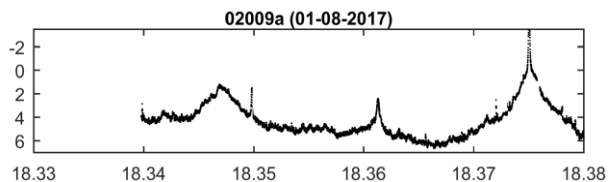
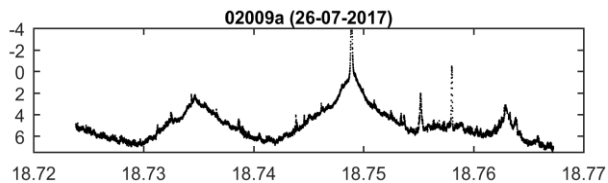
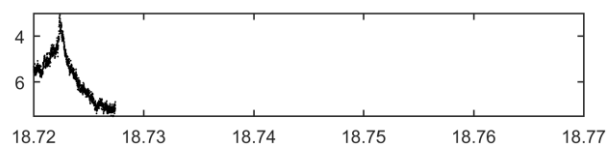
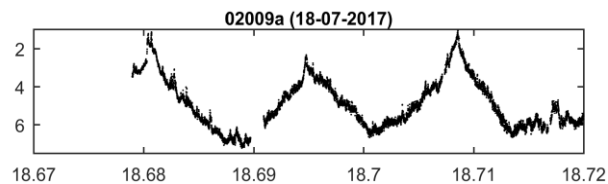
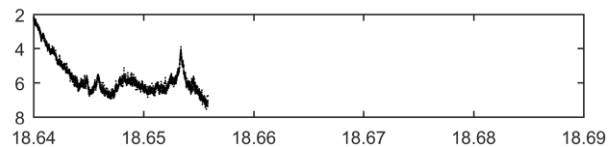
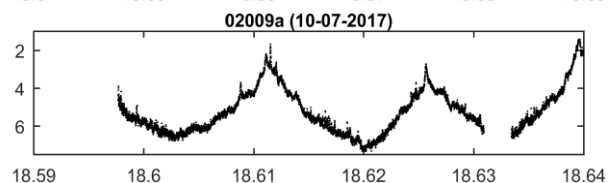
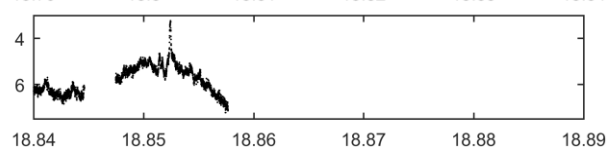
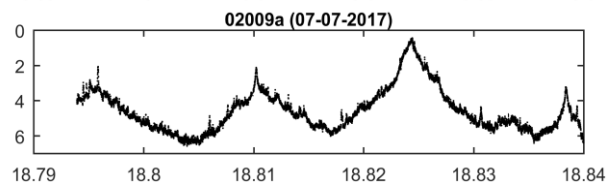
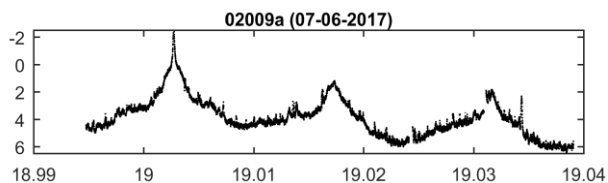
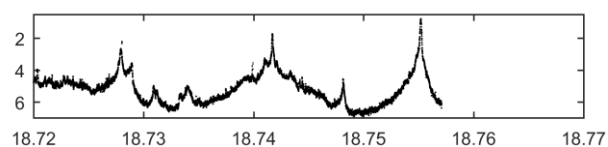
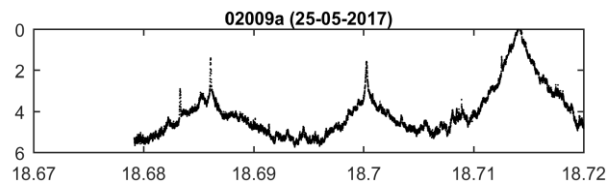
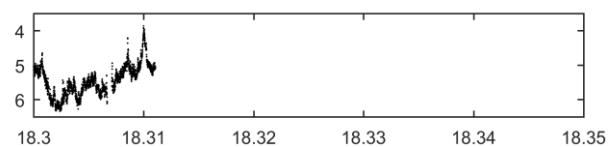
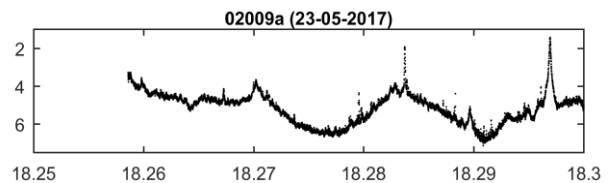
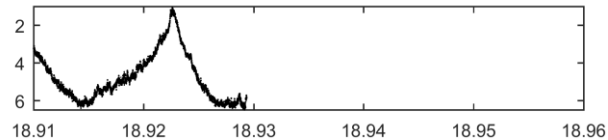
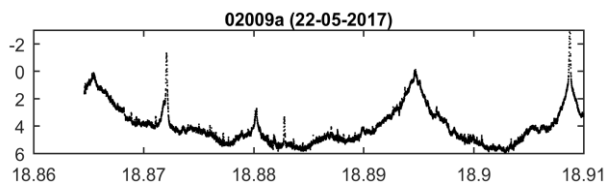


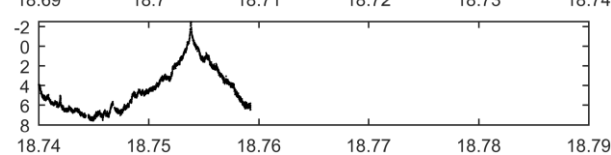
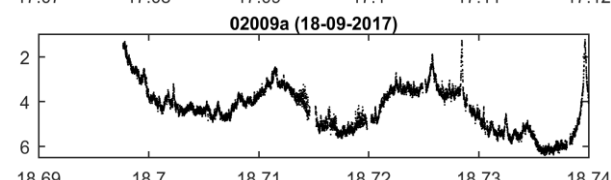
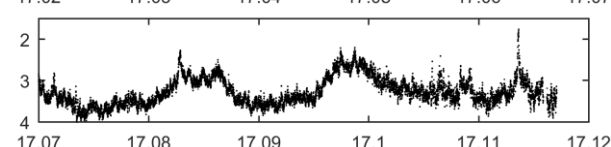
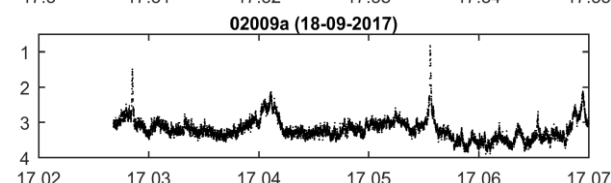
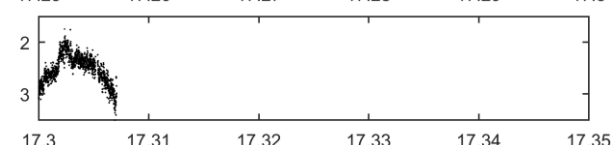
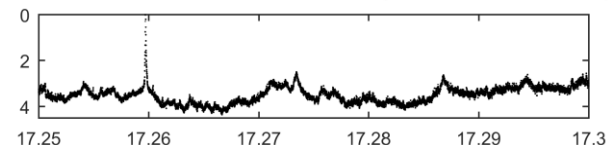
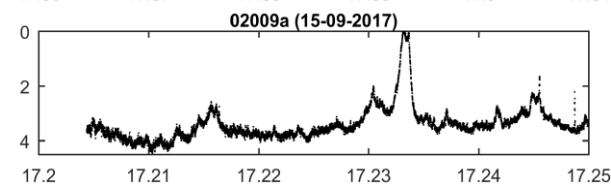
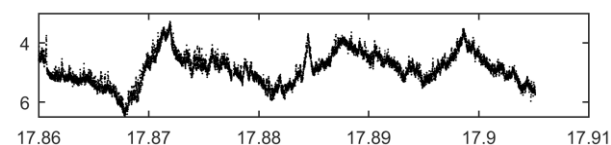
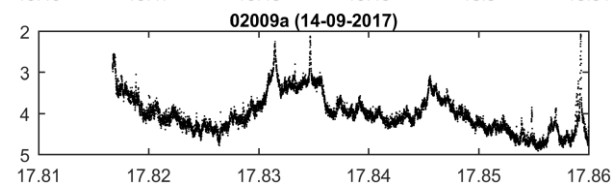
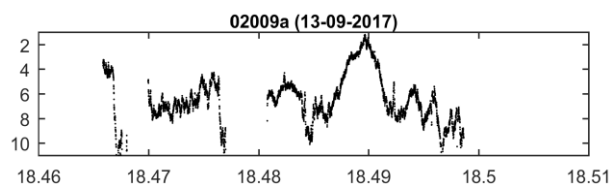
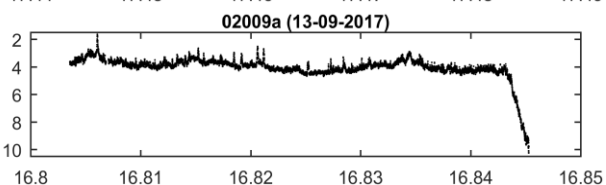
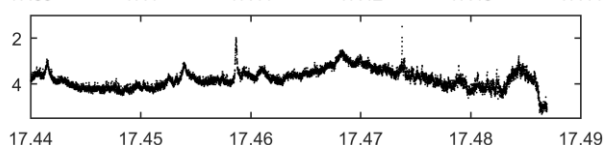
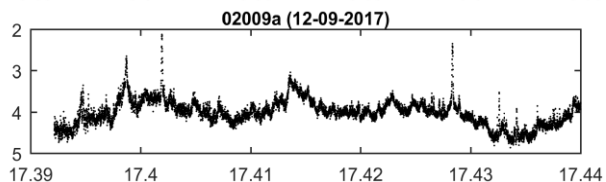
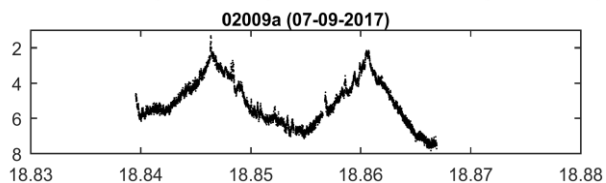
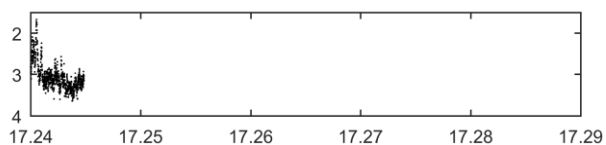
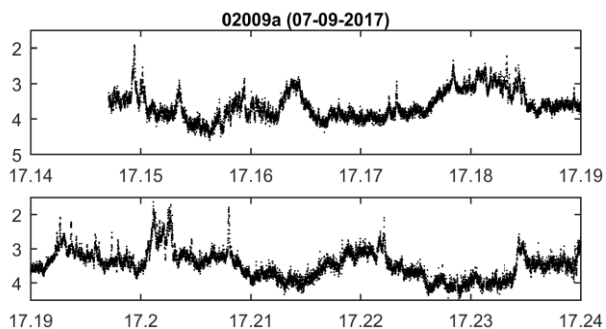
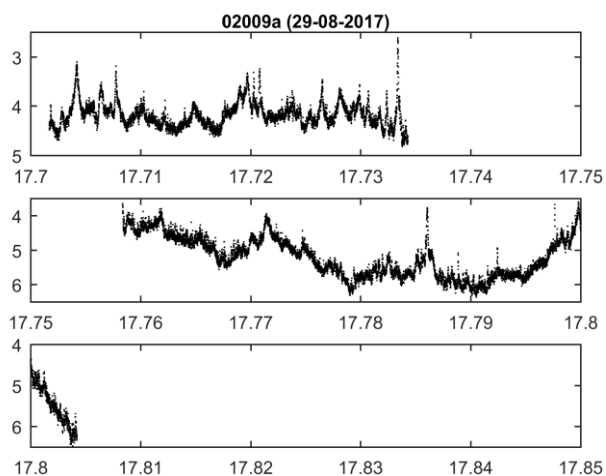


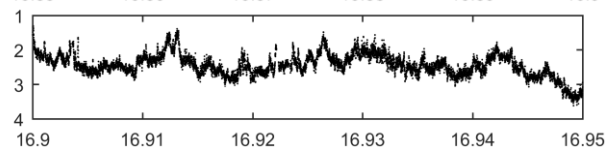
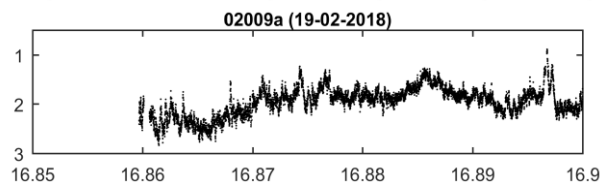
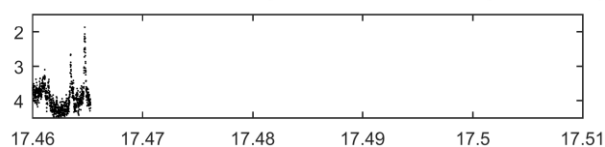
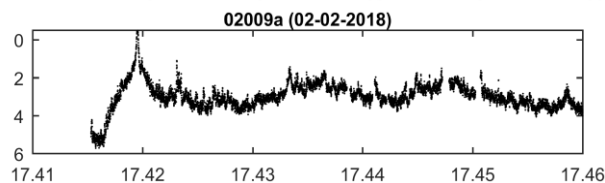
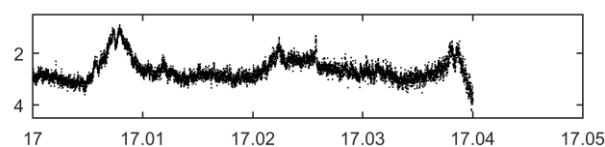
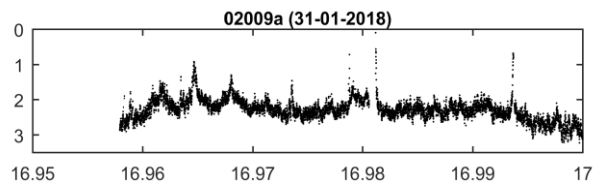
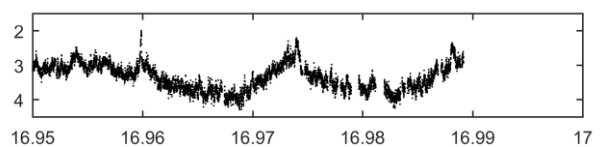
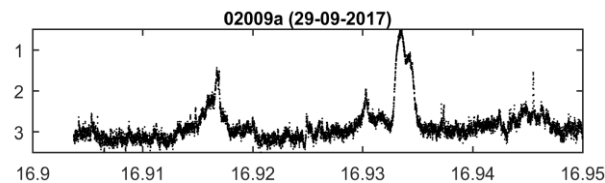
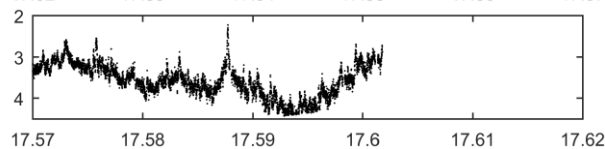
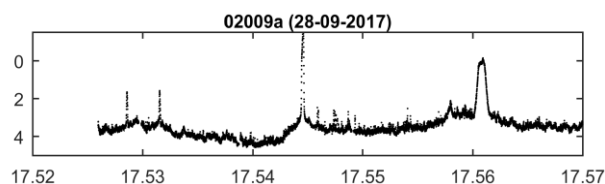
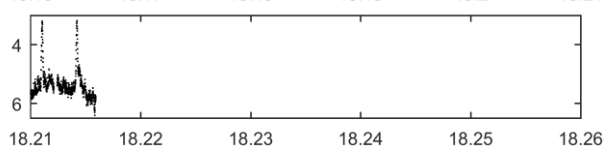
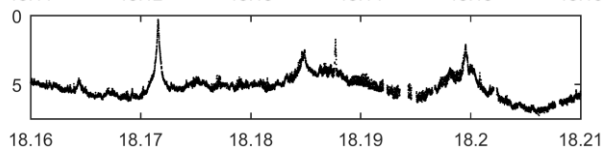
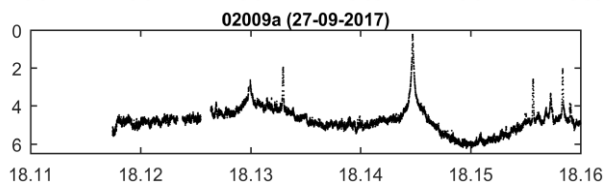
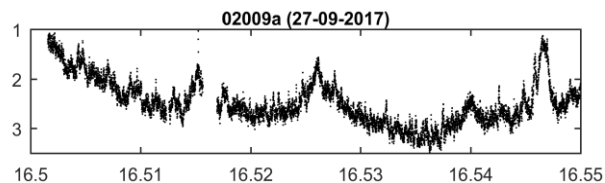
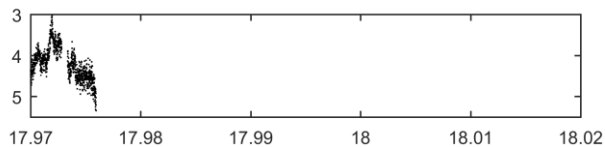
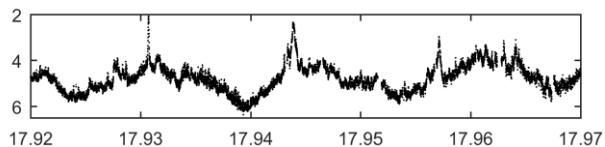
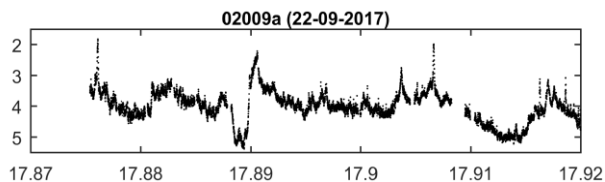
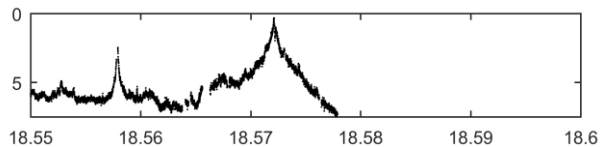
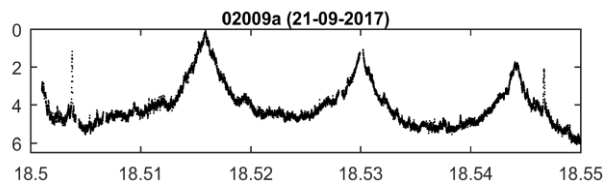
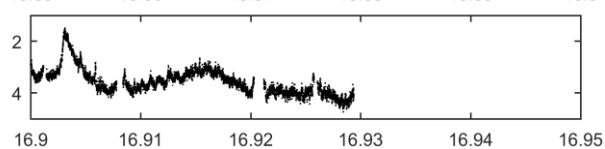
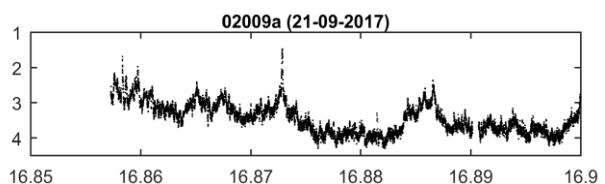


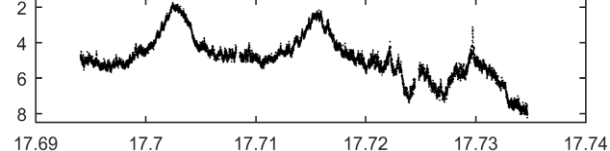
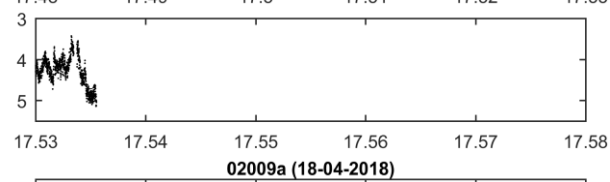
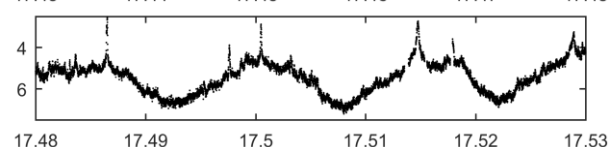
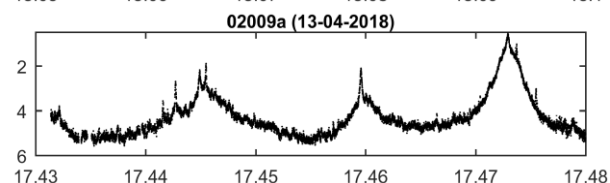
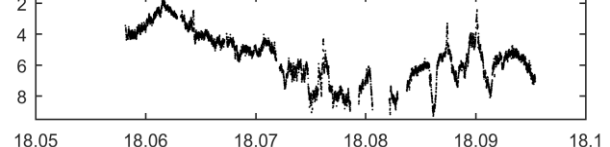
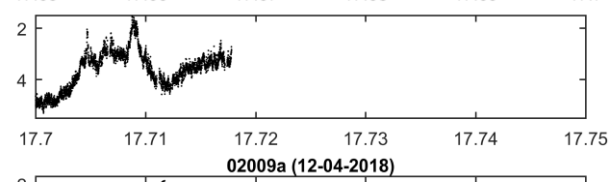
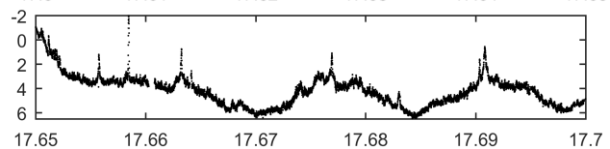
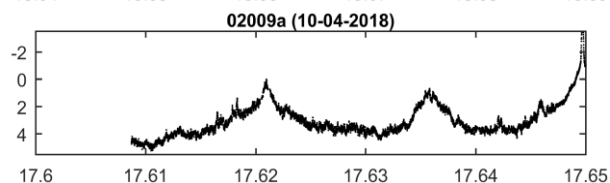
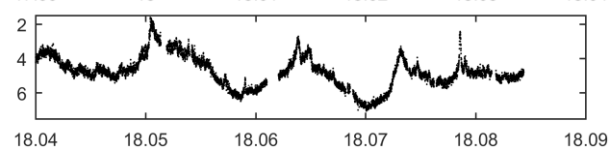
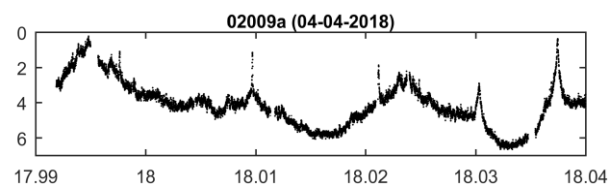
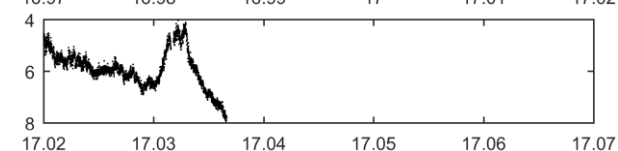
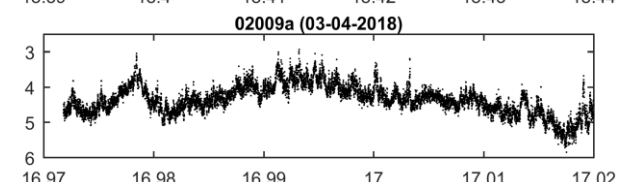
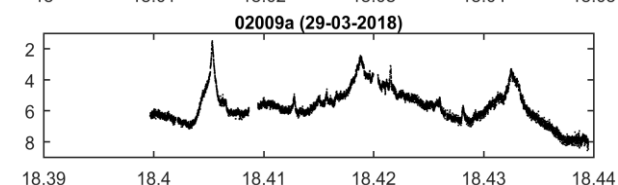
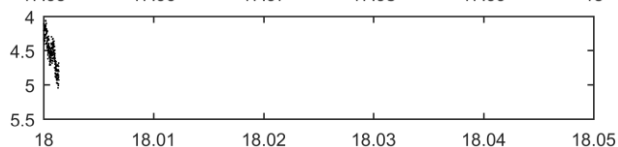
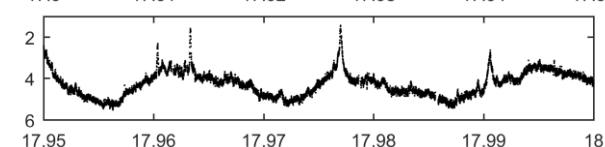
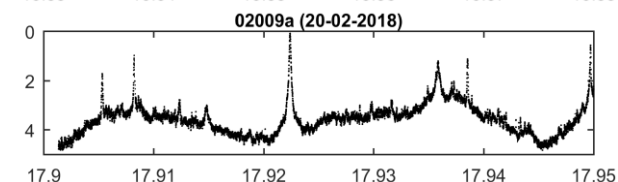
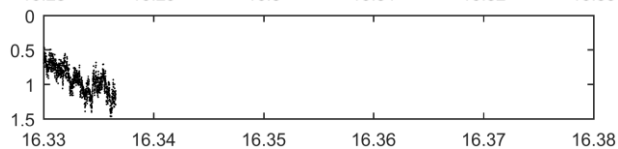
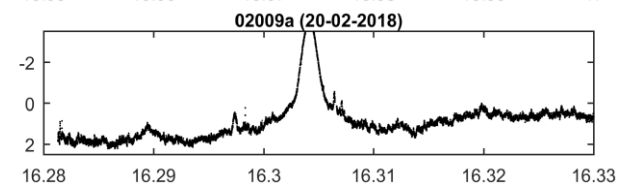
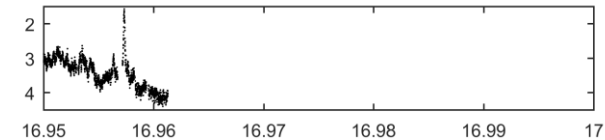
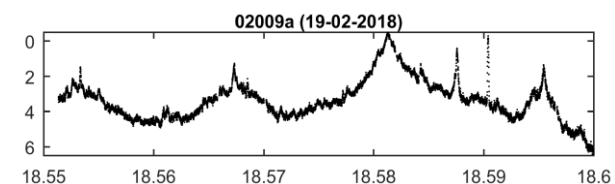


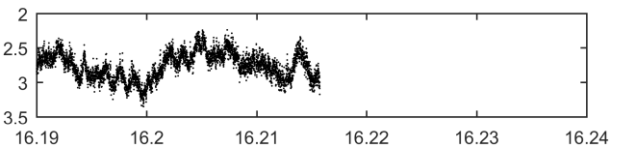
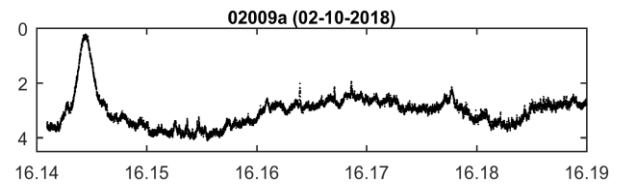
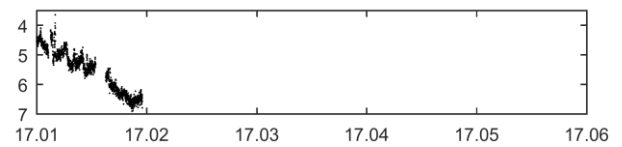
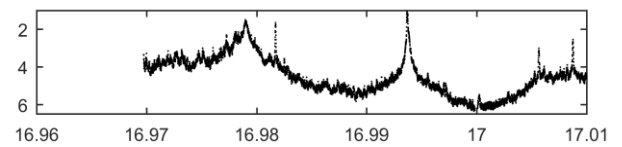
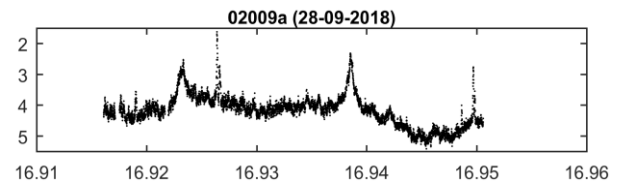
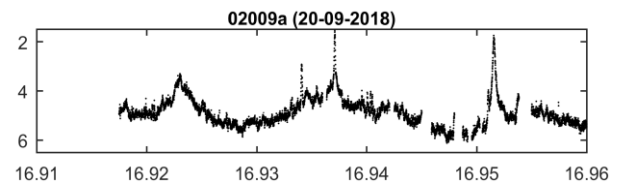
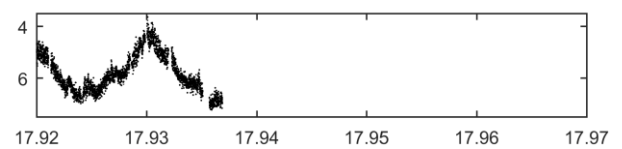
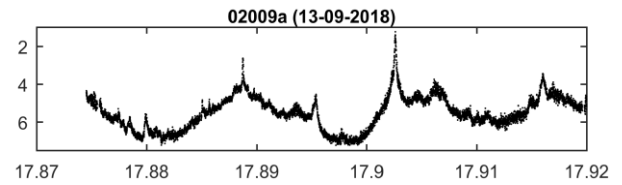
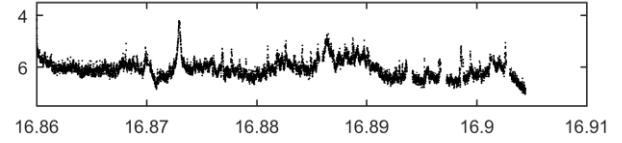
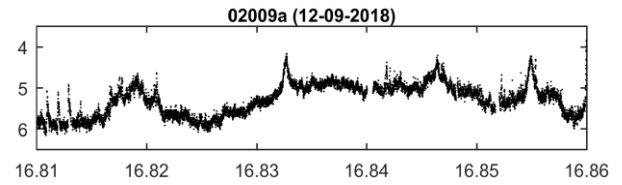
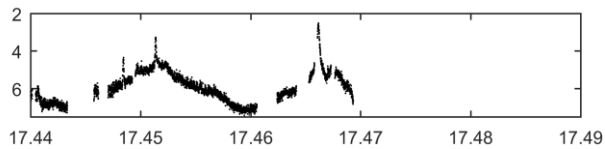
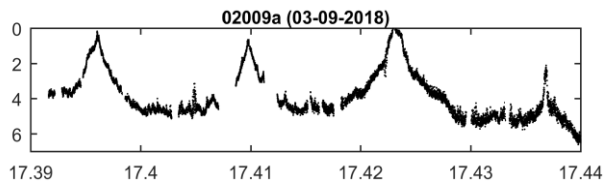
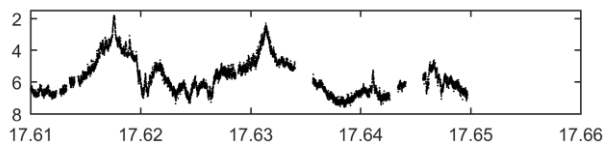
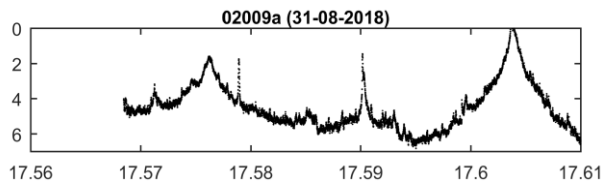
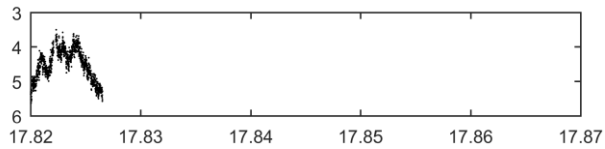
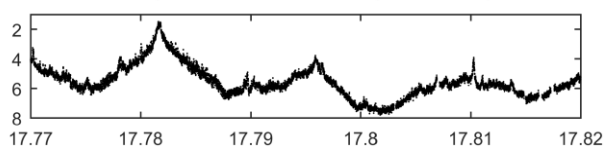
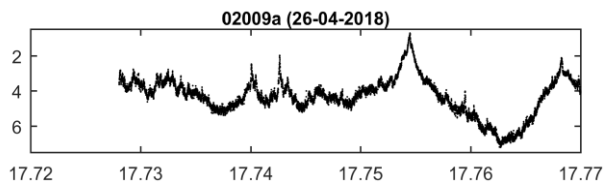
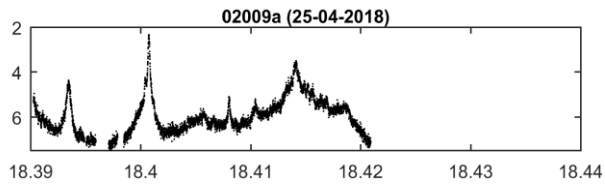
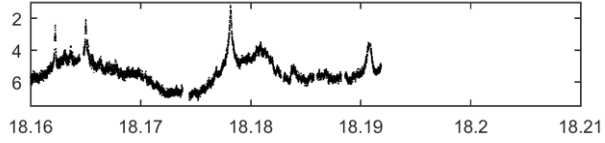
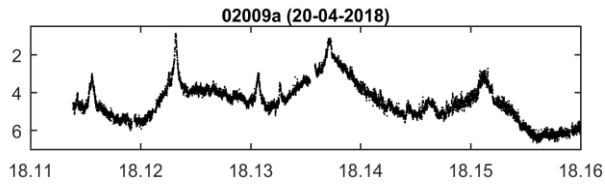


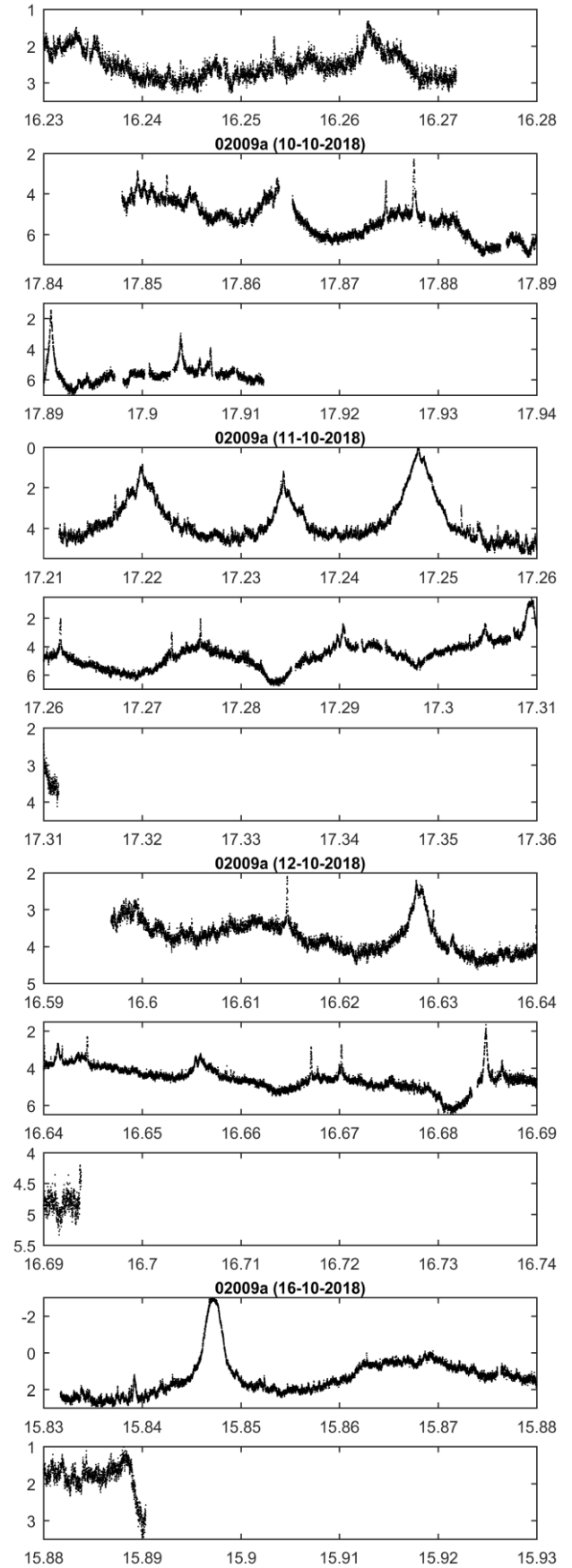
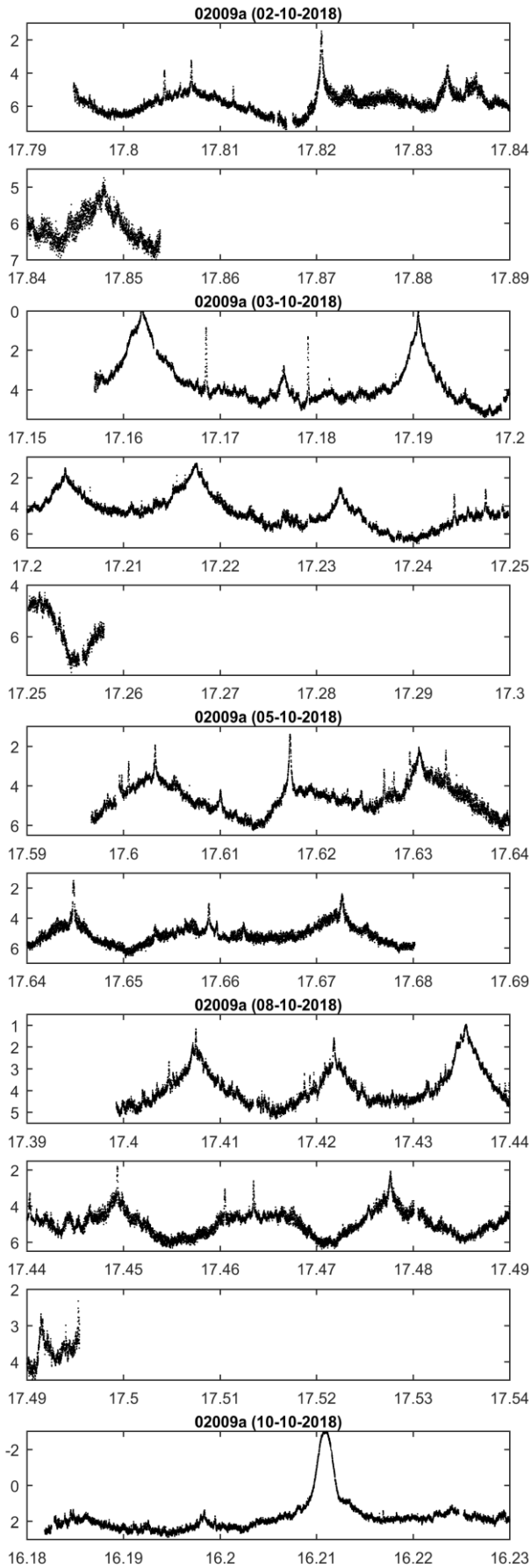


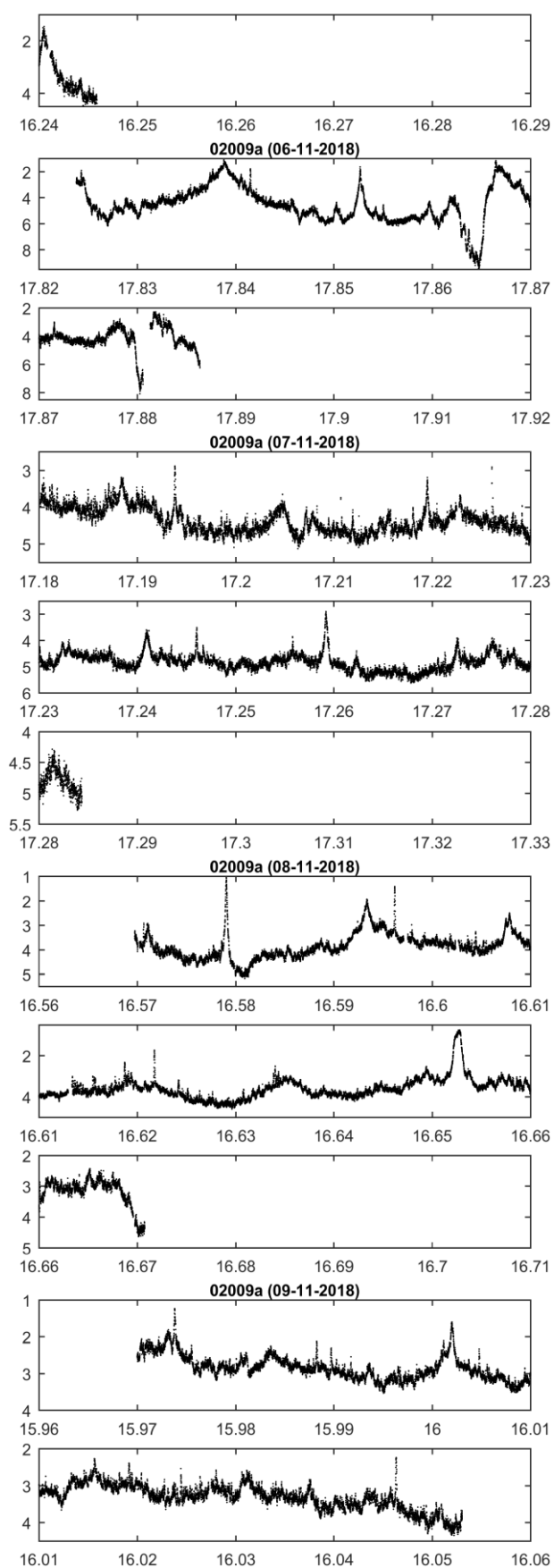
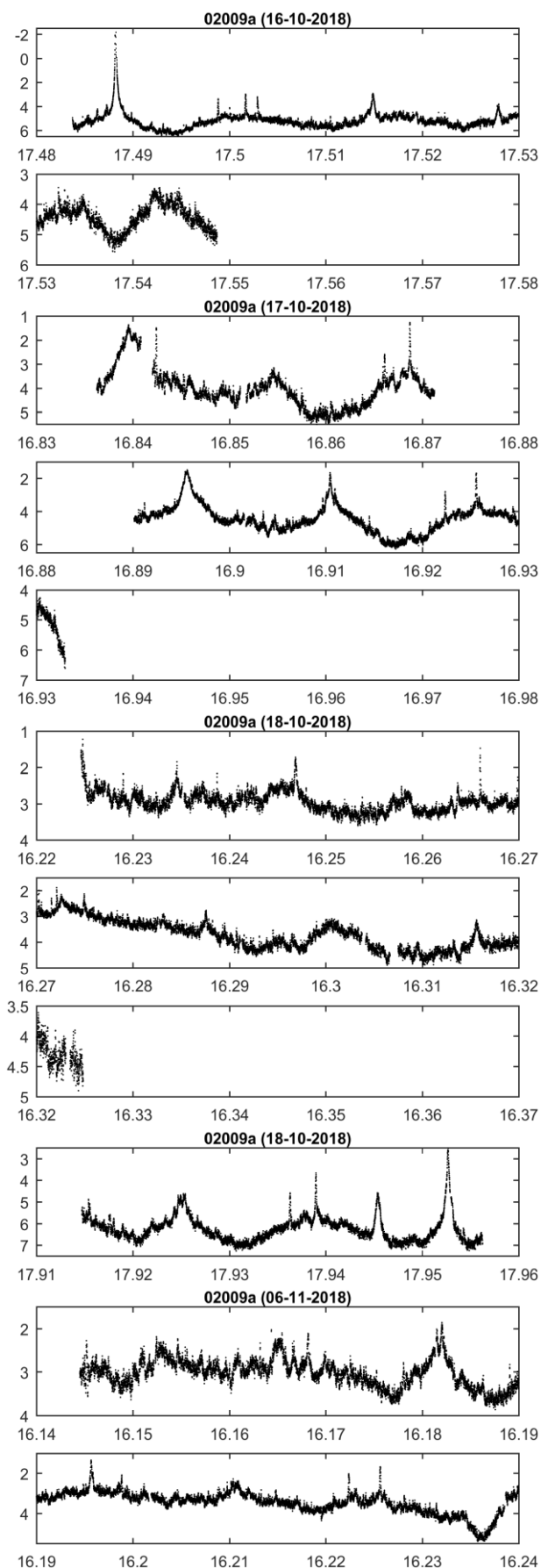


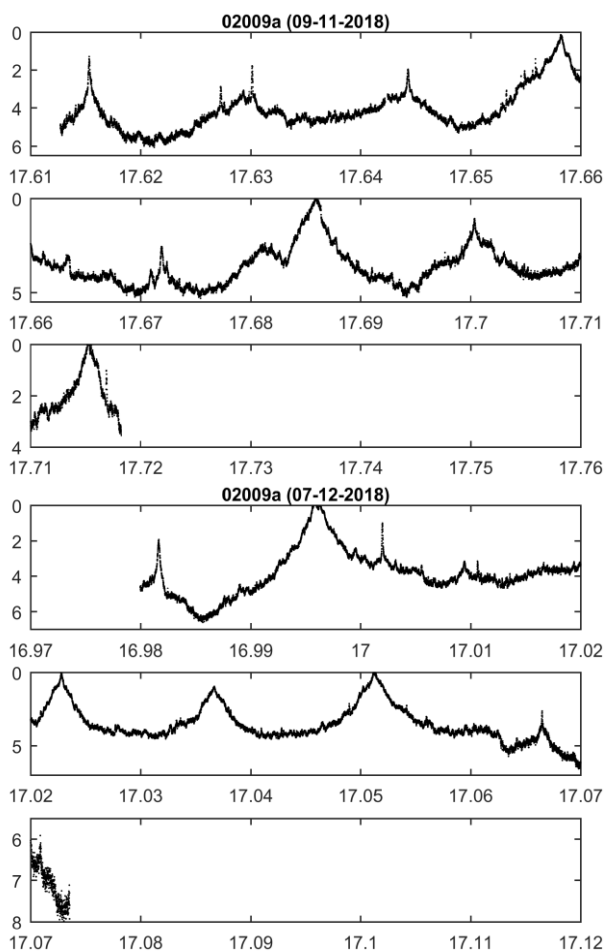






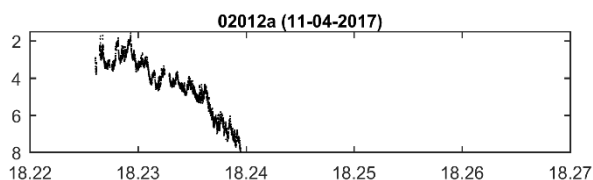






GRACE 1

NORAD ID: 27391
 Int'l Code: 2002-012A
 Dimensions:
 Initial orbit:
 Perigee: 482 km
 Apogee: 506 km
 Inclination: 89.0°
 Period: 94.49 min
 Eccentricity: 0.002
 Launch date: 2002-03-17
 Decay date: 2018-03-10
 Source: United States (US)

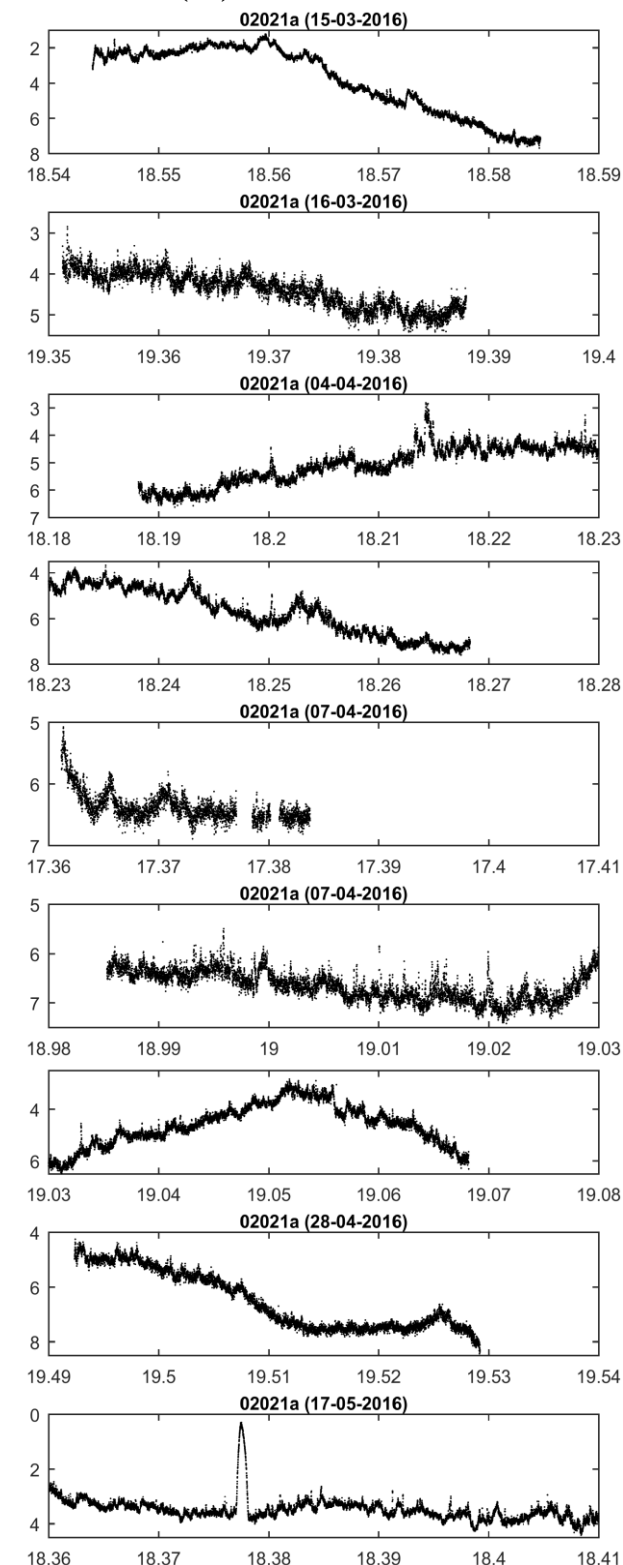


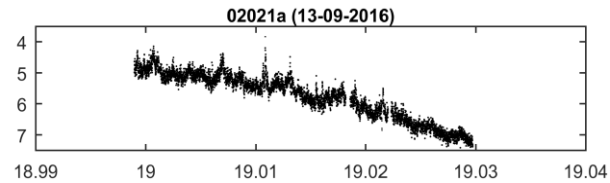
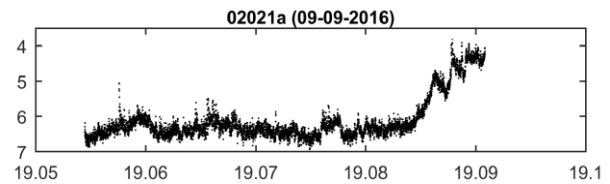
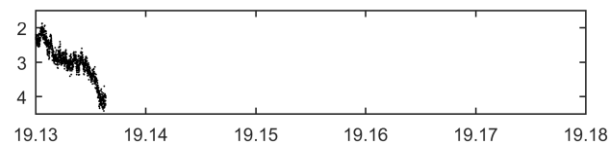
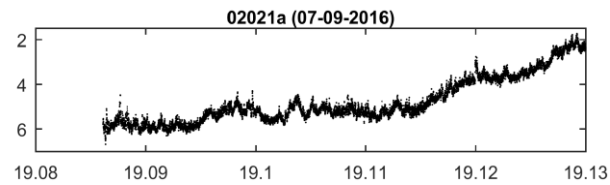
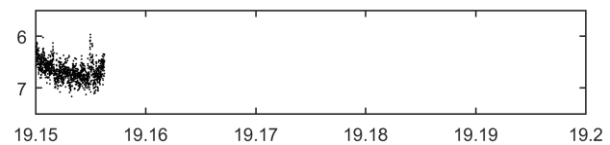
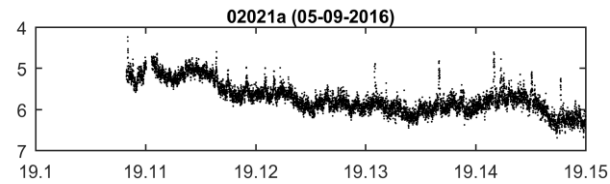
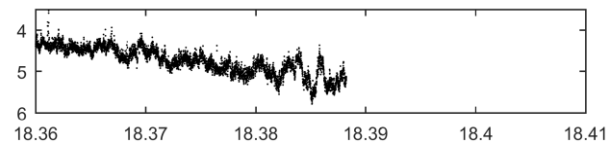
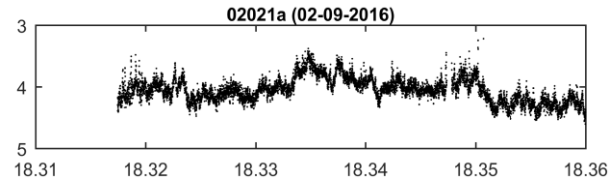
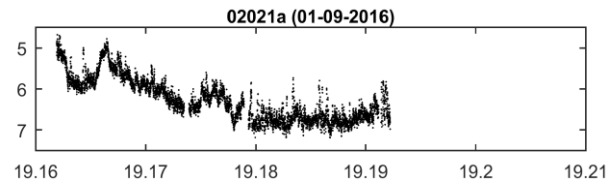
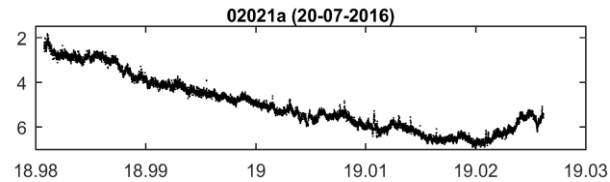
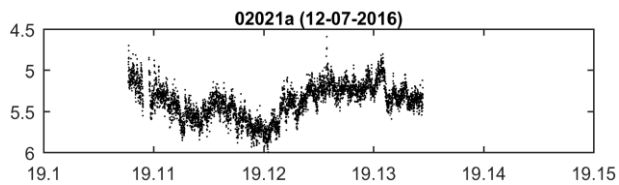
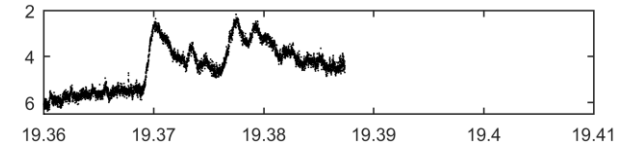
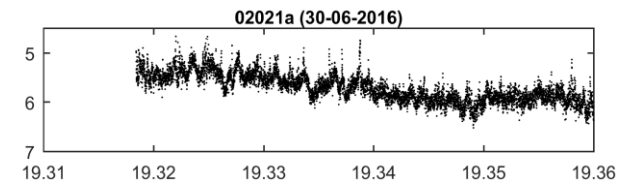
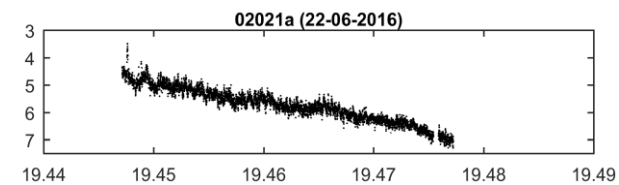
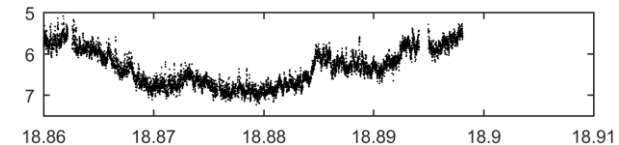
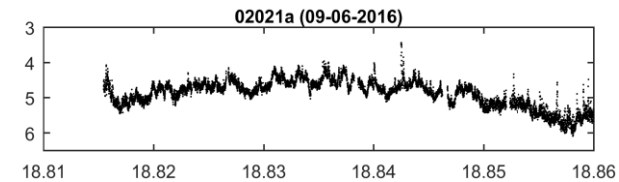
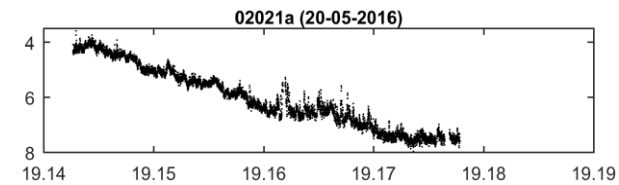
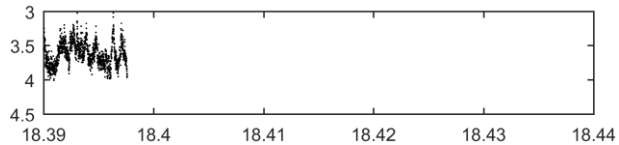
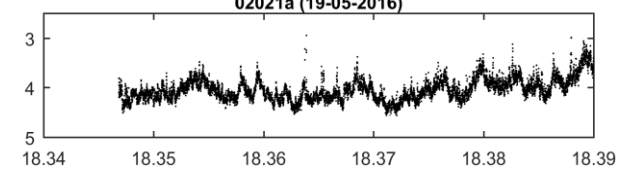
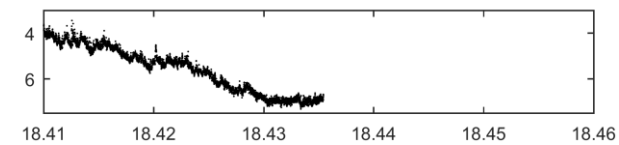
SPOT 5

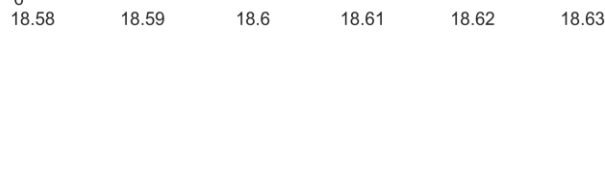
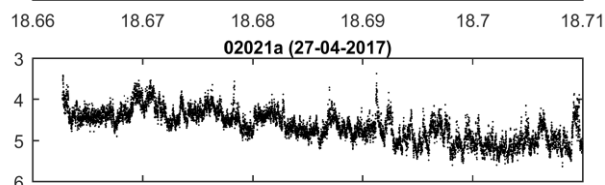
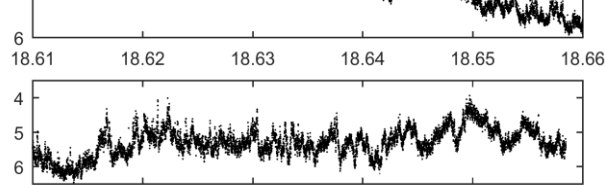
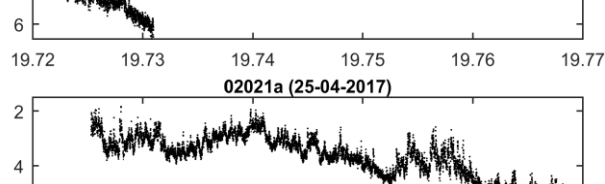
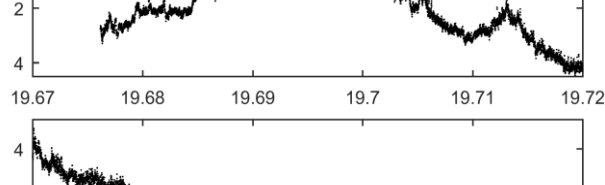
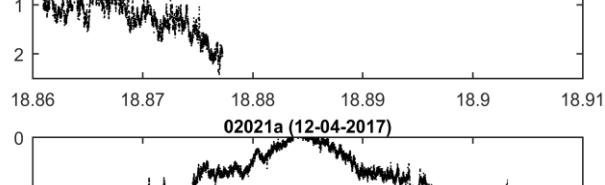
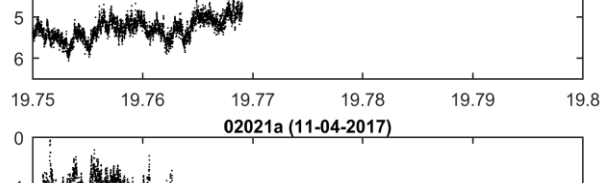
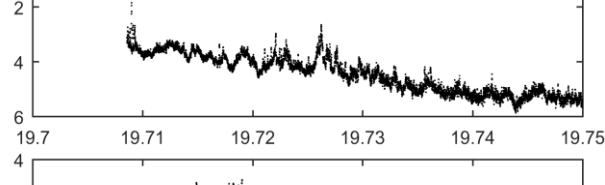
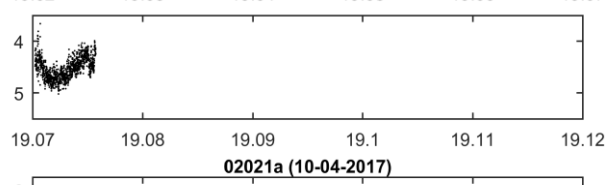
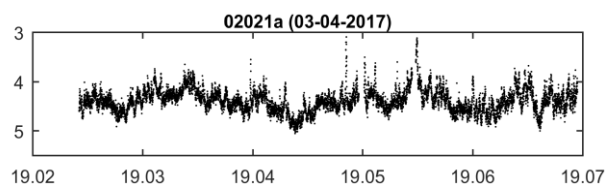
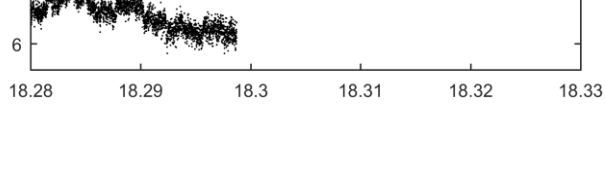
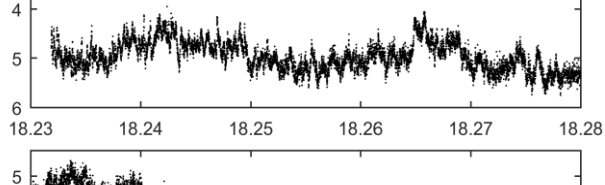
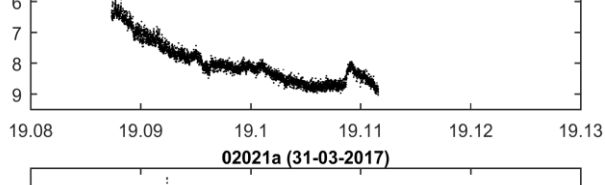
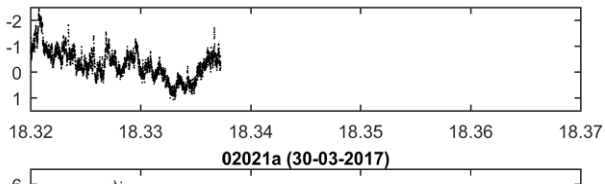
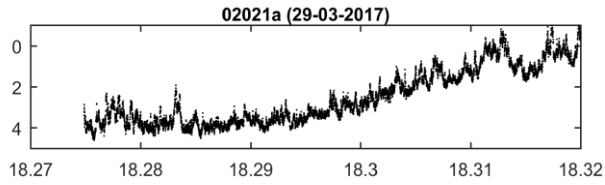
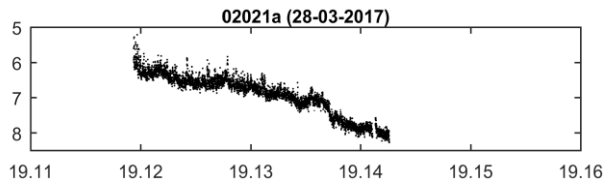
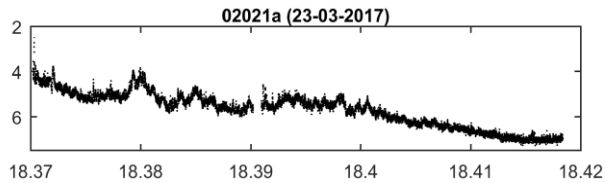
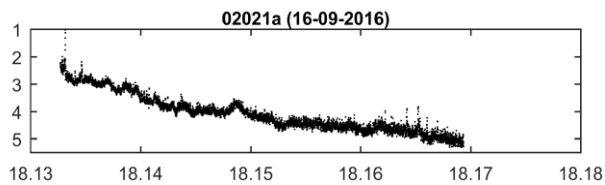
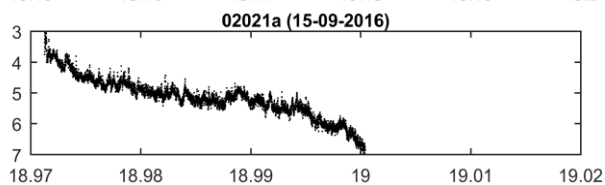
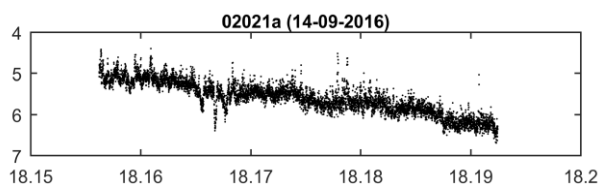
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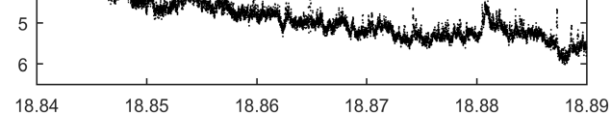
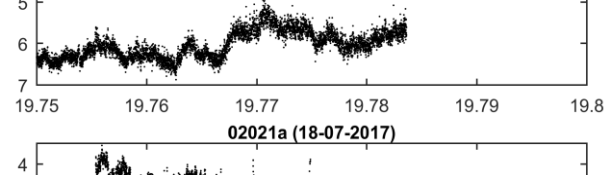
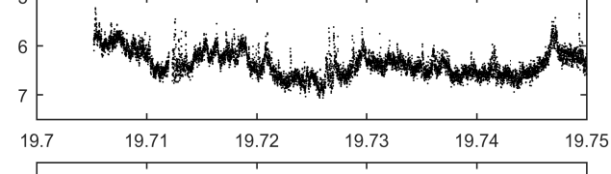
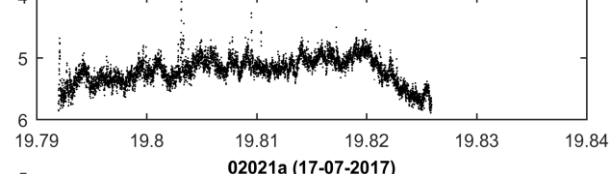
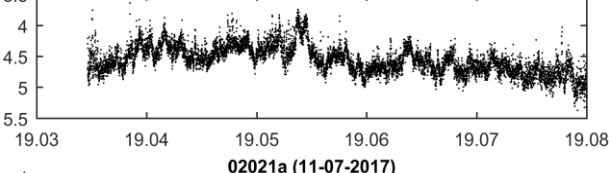
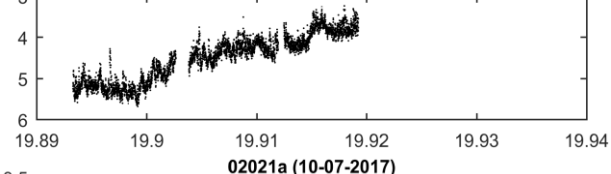
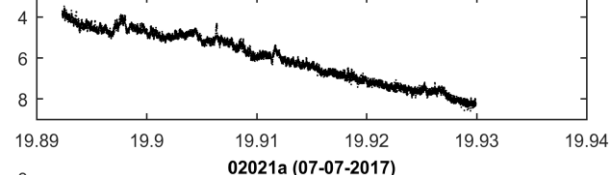
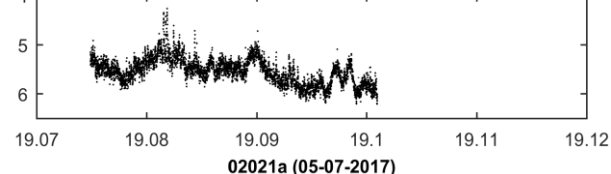
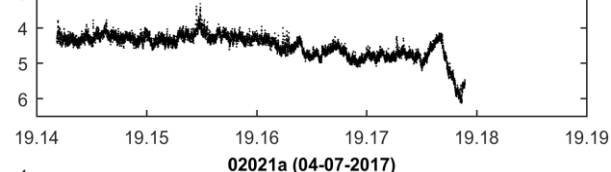
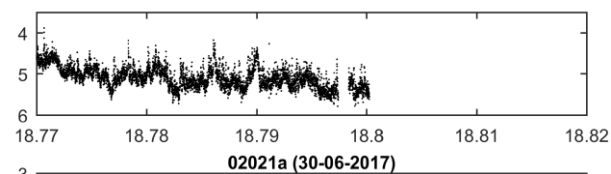
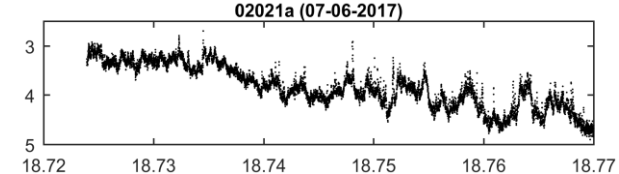
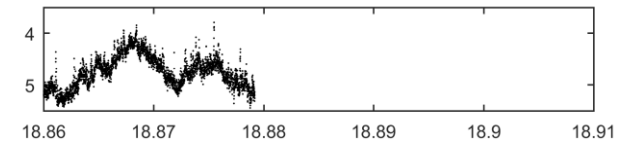
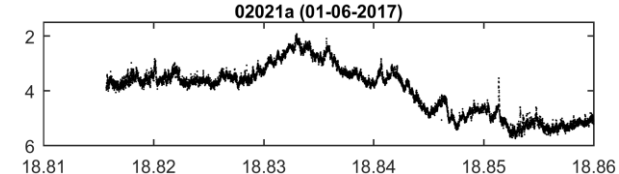
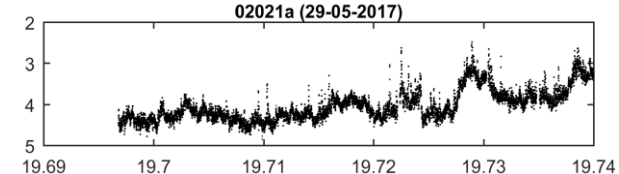
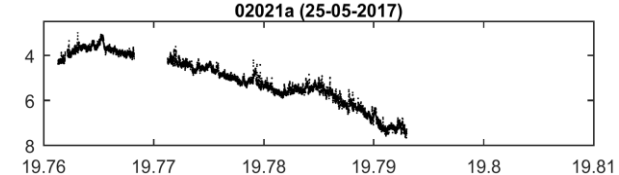
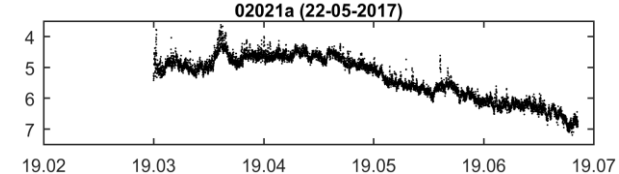
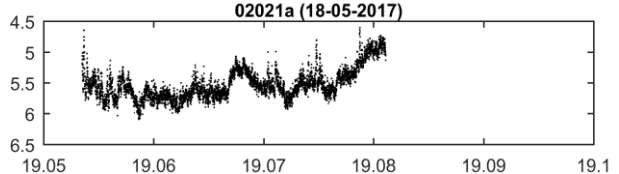
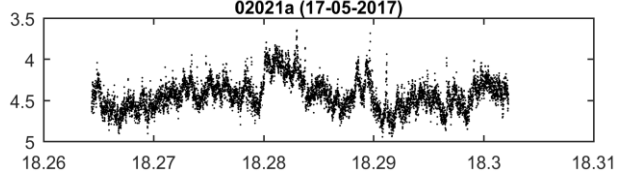
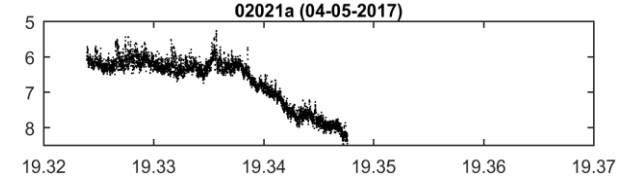
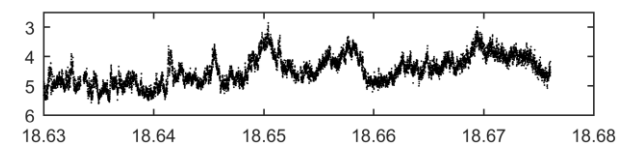


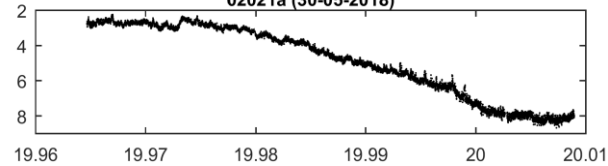
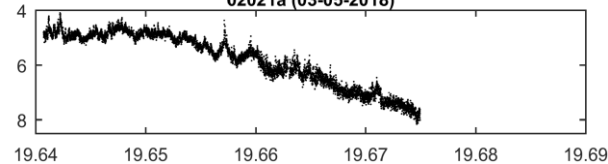
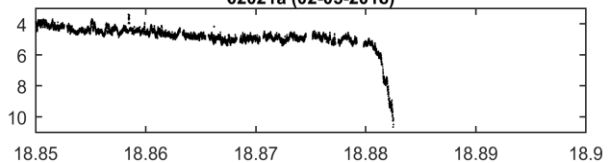
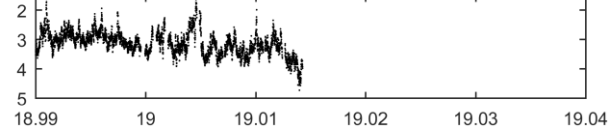
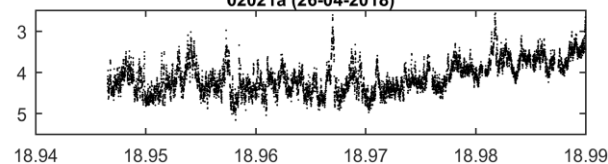
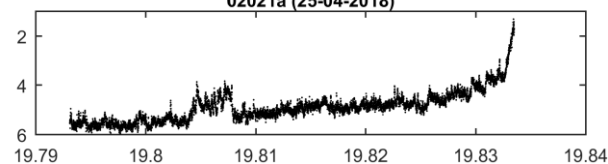
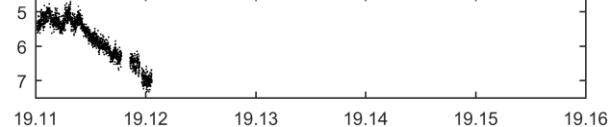
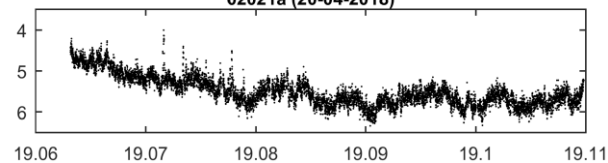
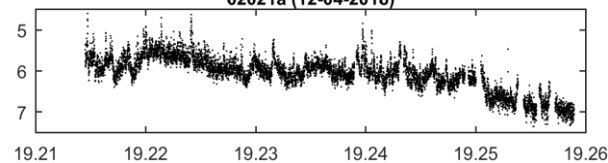
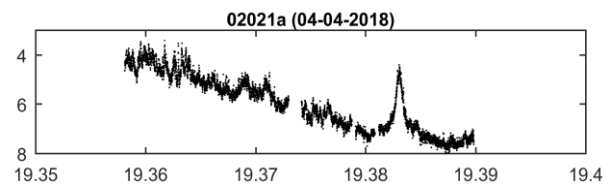
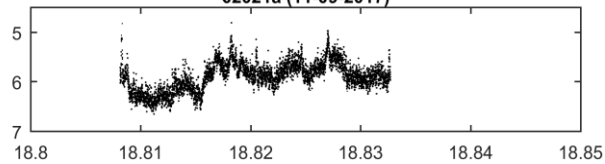
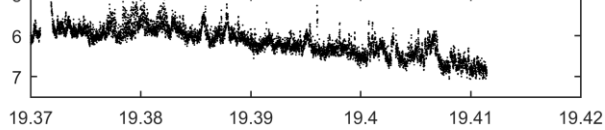
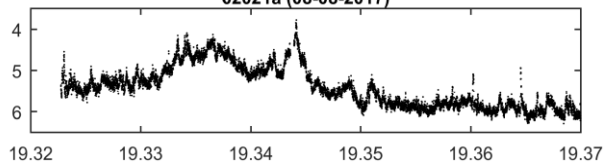
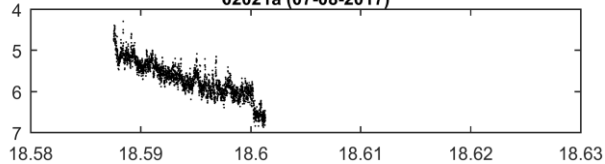
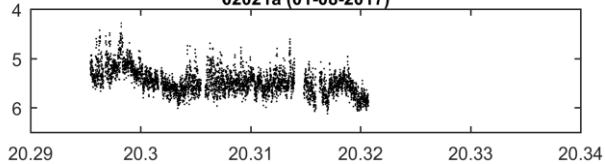
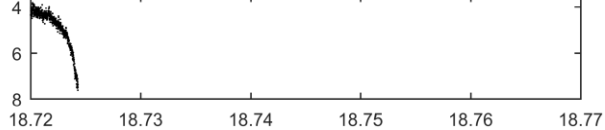
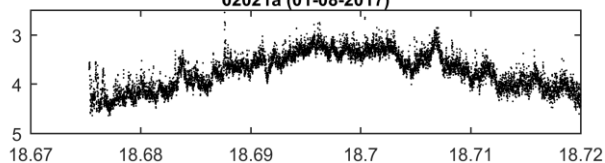
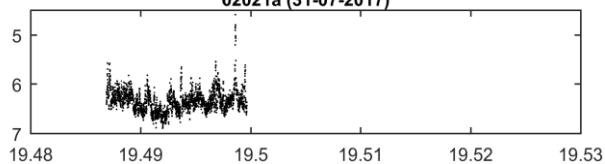
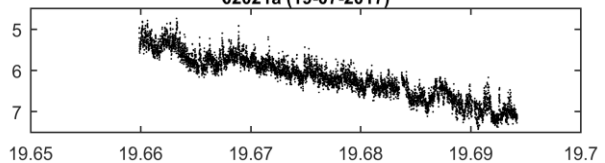
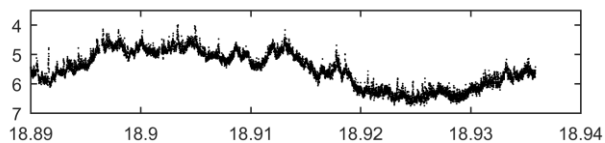
Perigee: 816 km
 Apogee: 818 km
 Inclination: 98.7°
 Period: 101.23 min
 Eccentricity: 0.00014
 Launch date: 2002-05-04
 Source: France (FR)

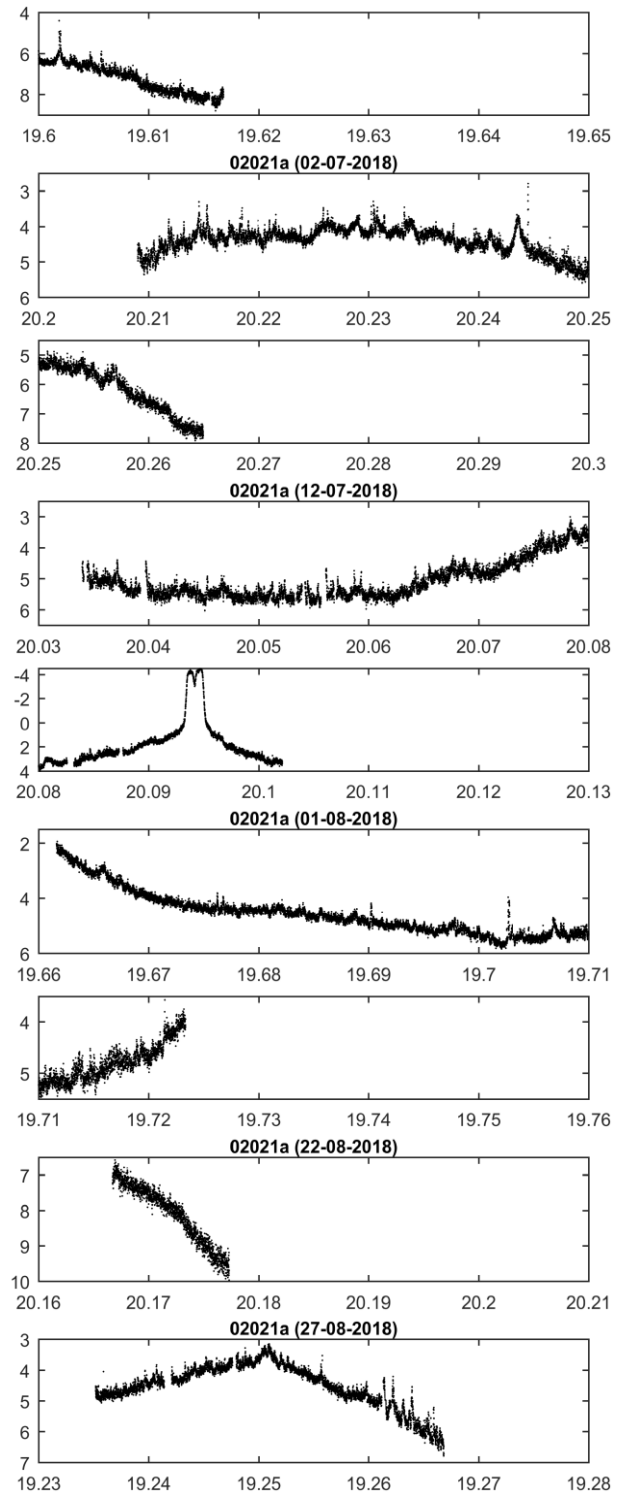
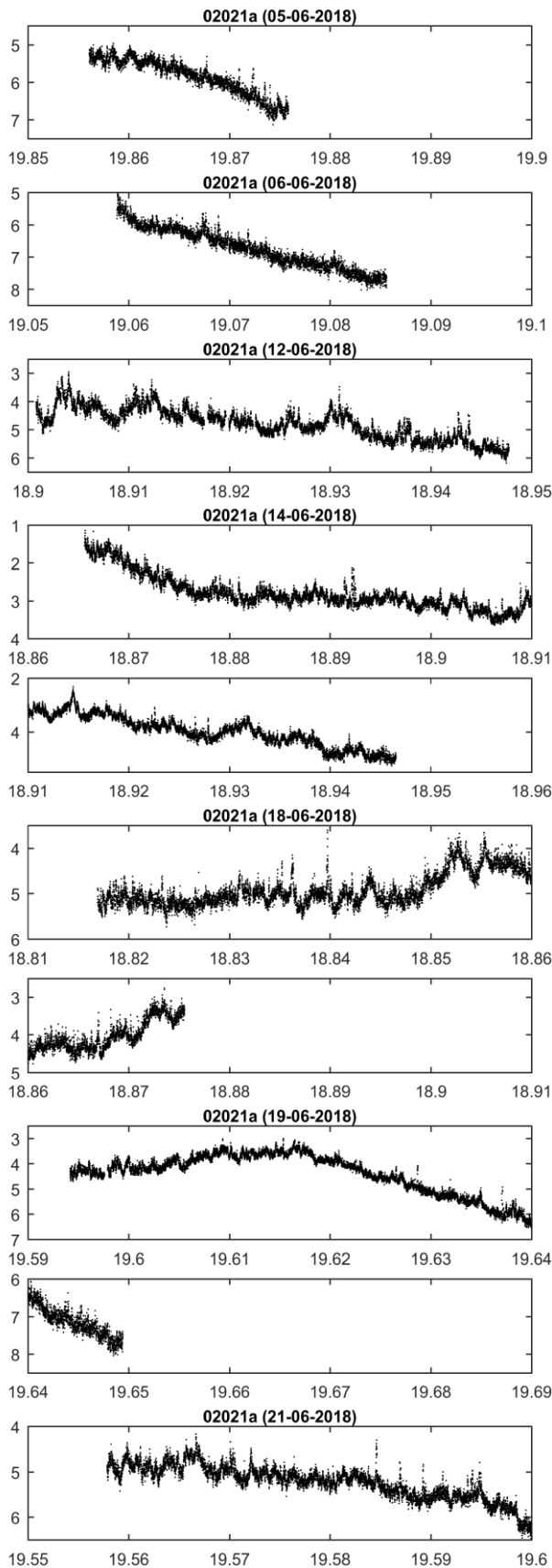








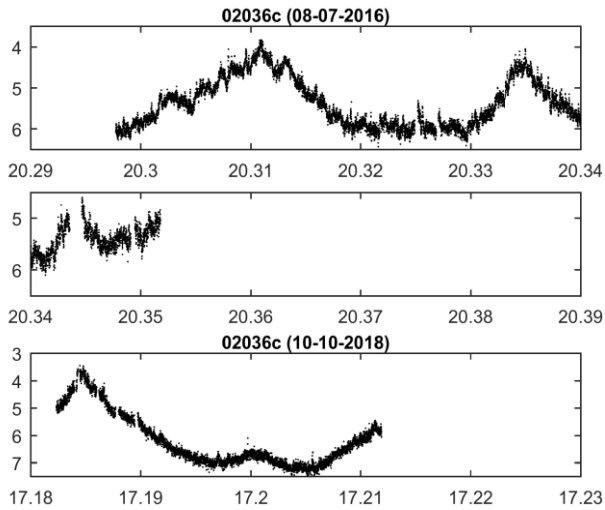




SL-8 R/B (S3M)
(COSMOS 2390 ROCKET)
KOSMOS-3M (2nd stage)
 NORAD ID: 27466
 Int'l Code: 2002-036C
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1468 km
 Apogee: 1509 km

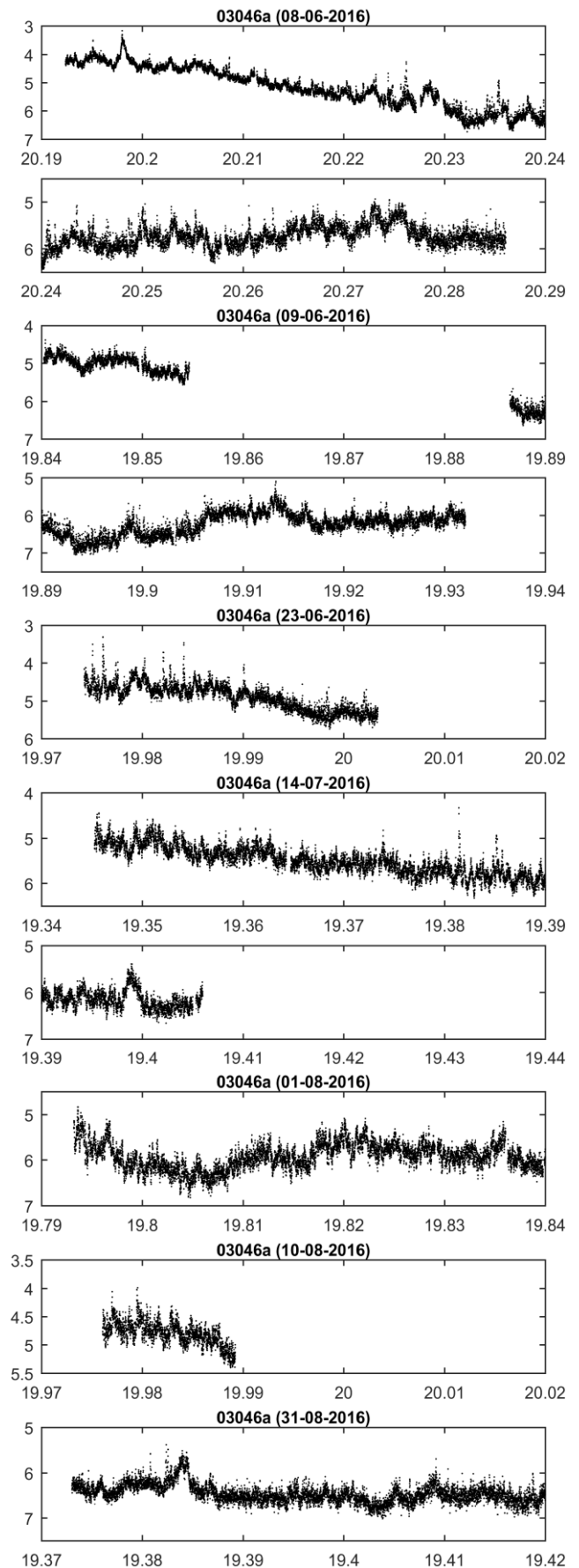
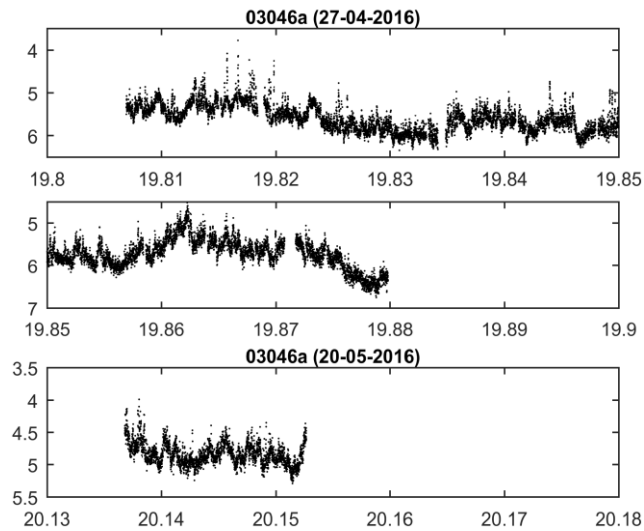


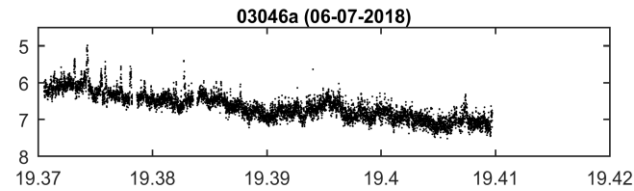
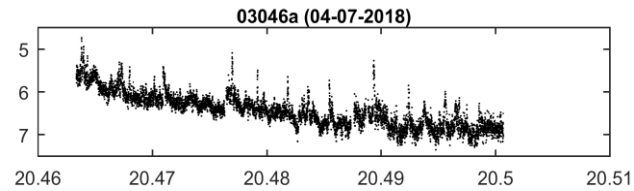
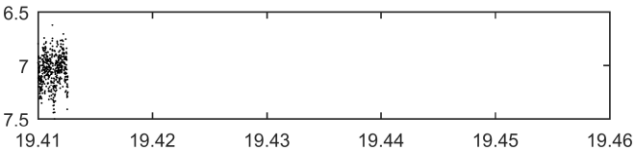
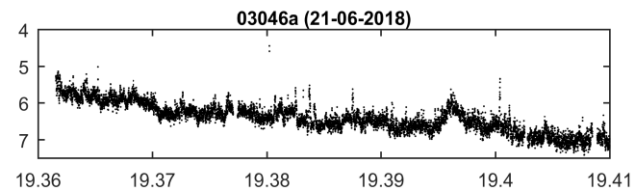
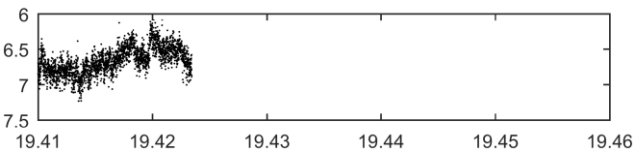
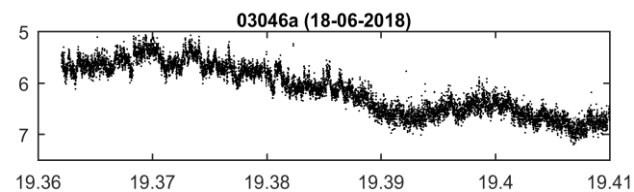
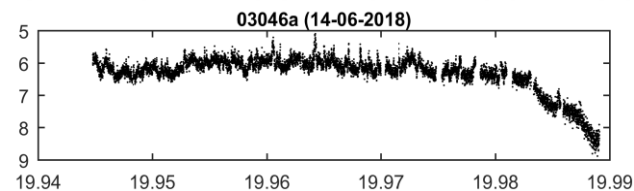
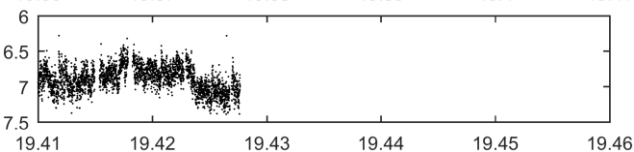
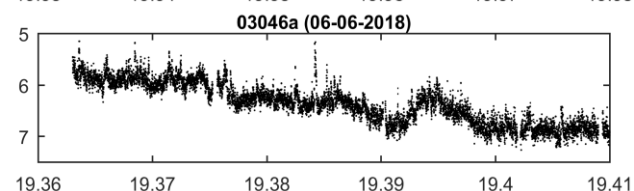
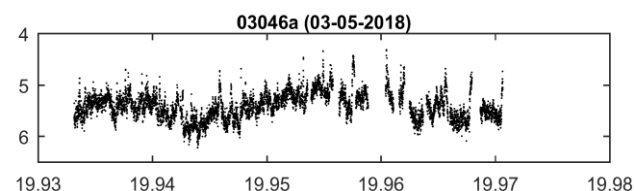
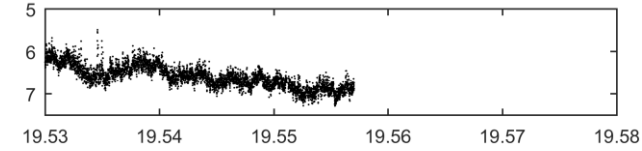
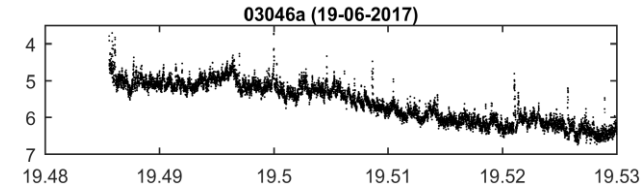
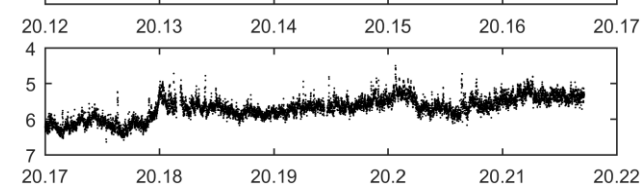
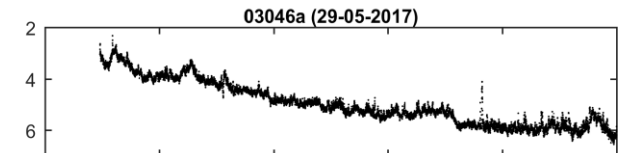
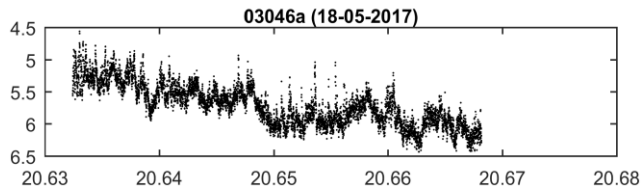
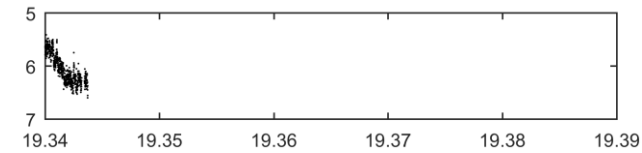
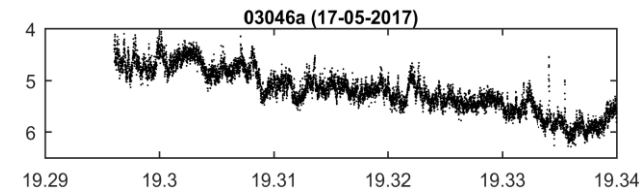
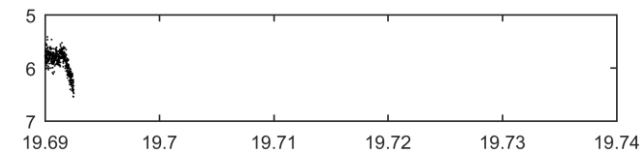
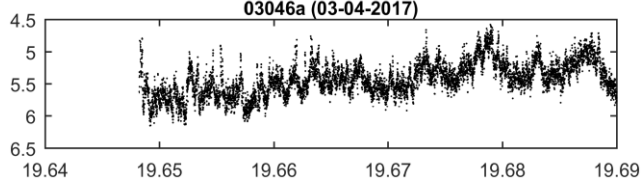
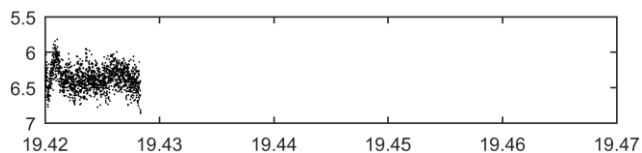
Inclination: 82.4°
 Period: 115.73 min
 Eccentricity: 0.00261
 Launch date: 2002-07-08
 Source: Commonwealth of Independent States (former USSR) (CIS)

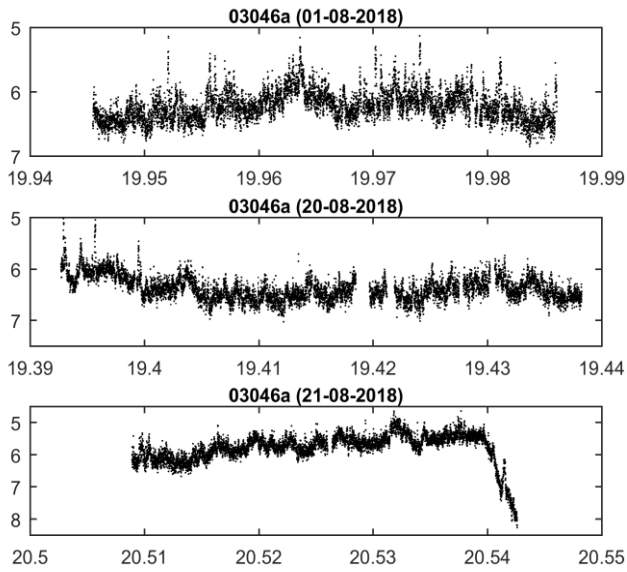


IRS P6

NORAD ID: 28051
 Int'l Code: 2003-046A
 Dimensions:
 Initial orbit:
 Perigee: 802 km
 Apogee: 875 km
 Inclination: 98.7°
 Period: 101.68 min
 Eccentricity: 0.00506
 Launch date: 2003-10-17
 Source: India (IND)







NOSS 3-2 (1) (USA 173)

NORAD ID: 28095

Int'l Code: 2003-054A

Dimensions:

Initial orbit:

Perigee: 1013 km

Apogee: 1200 km

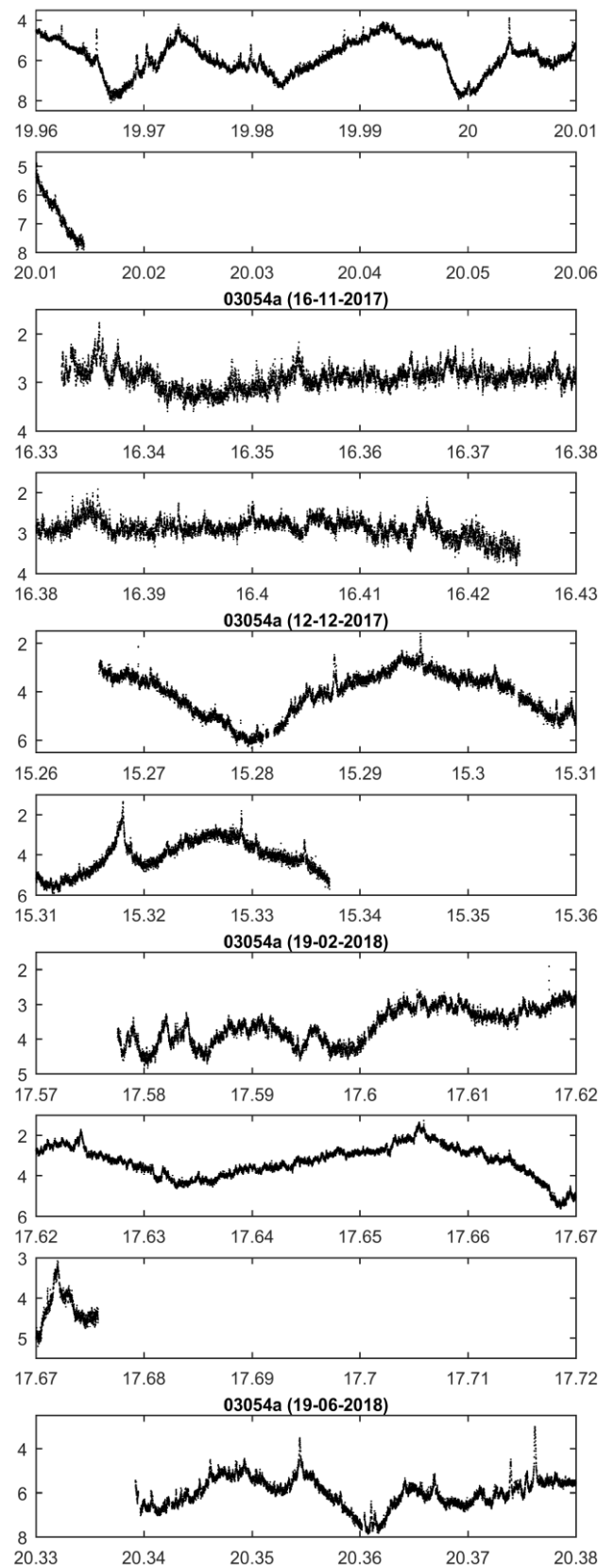
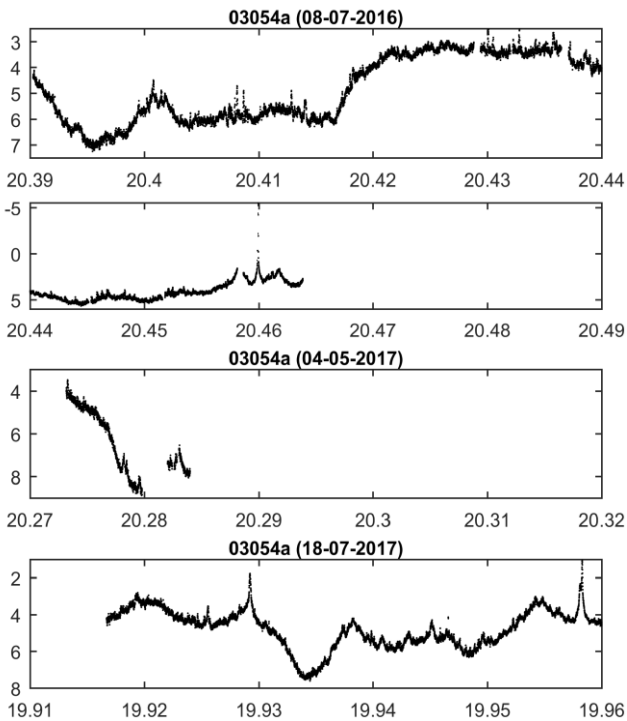
Inclination: 63.4°

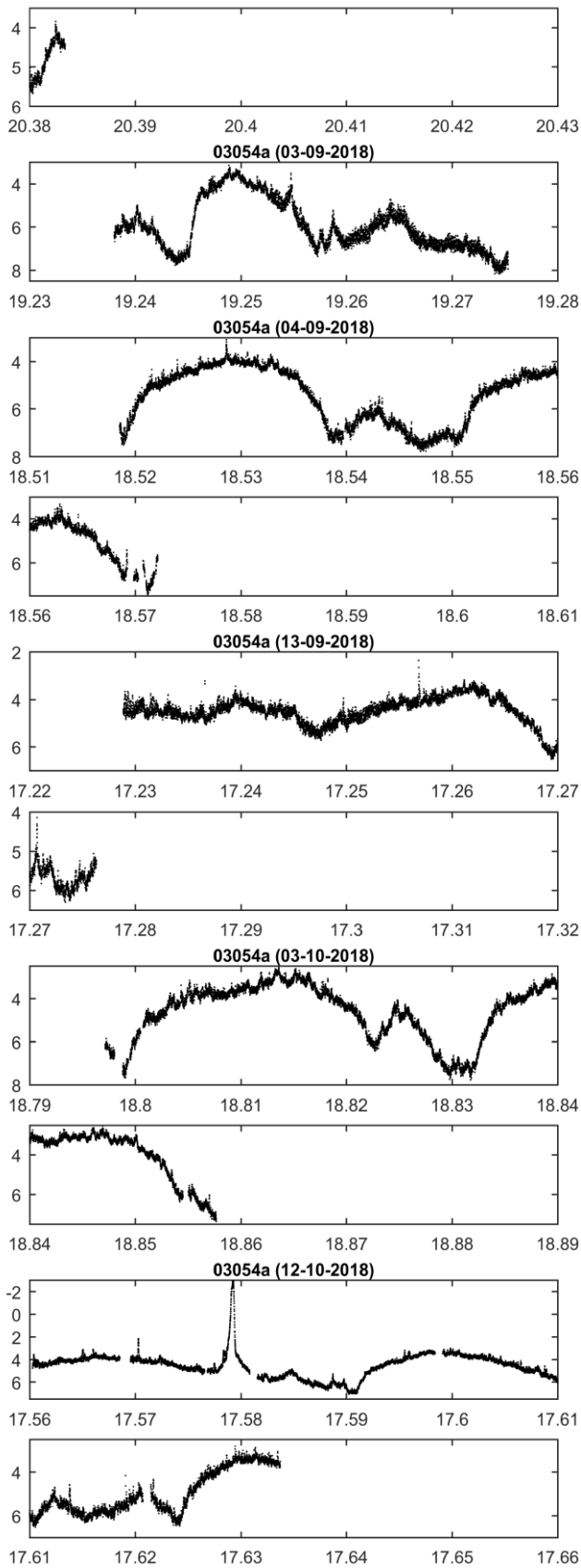
Period: 107.40 min

Eccentricity: 0.0125

Launch date: 2003-12-02

Source: United States (US)





Int'l Code: 2003-054C

Dimensions:

Initial orbit:

Perigee: 1011 km

Apogee: 1202 km

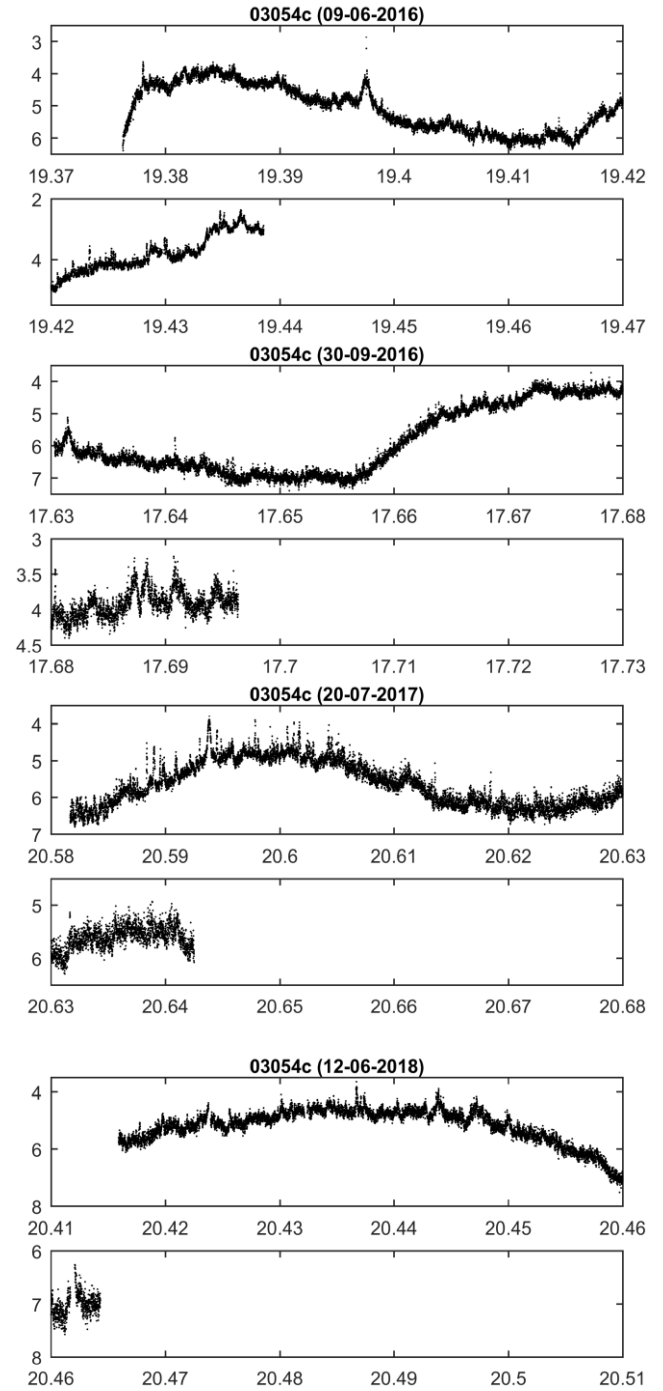
Inclination: 63.4°

Period: 107.4 min

Eccentricity: 0.01277

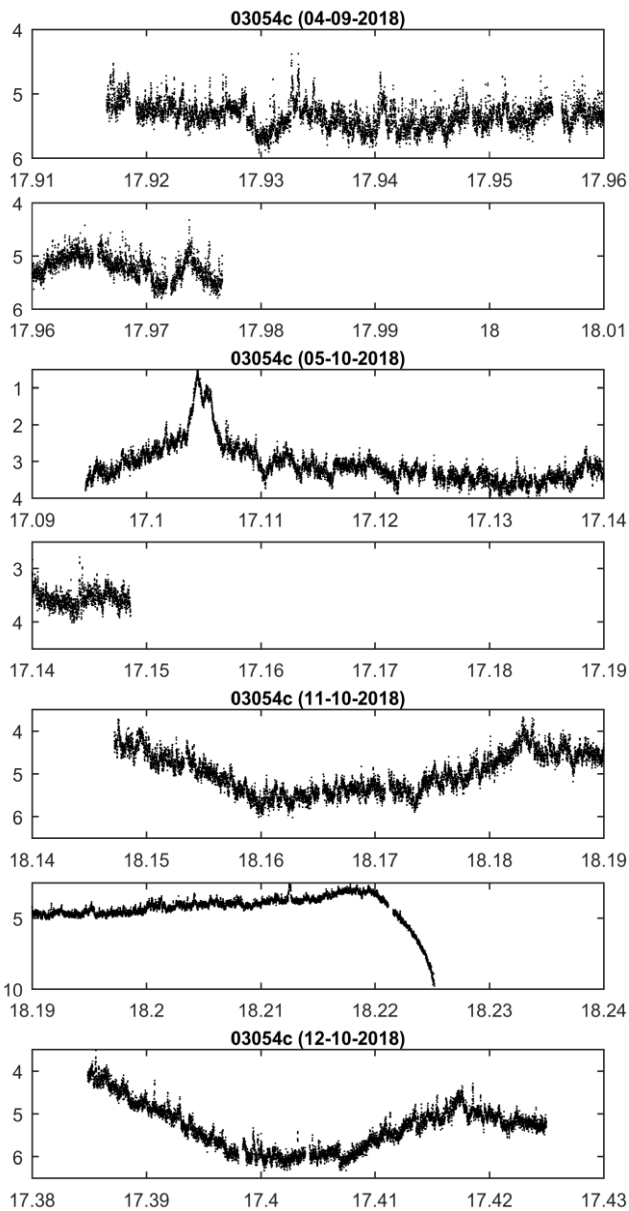
Launch date: 2003-12-02

Source: United States (US)

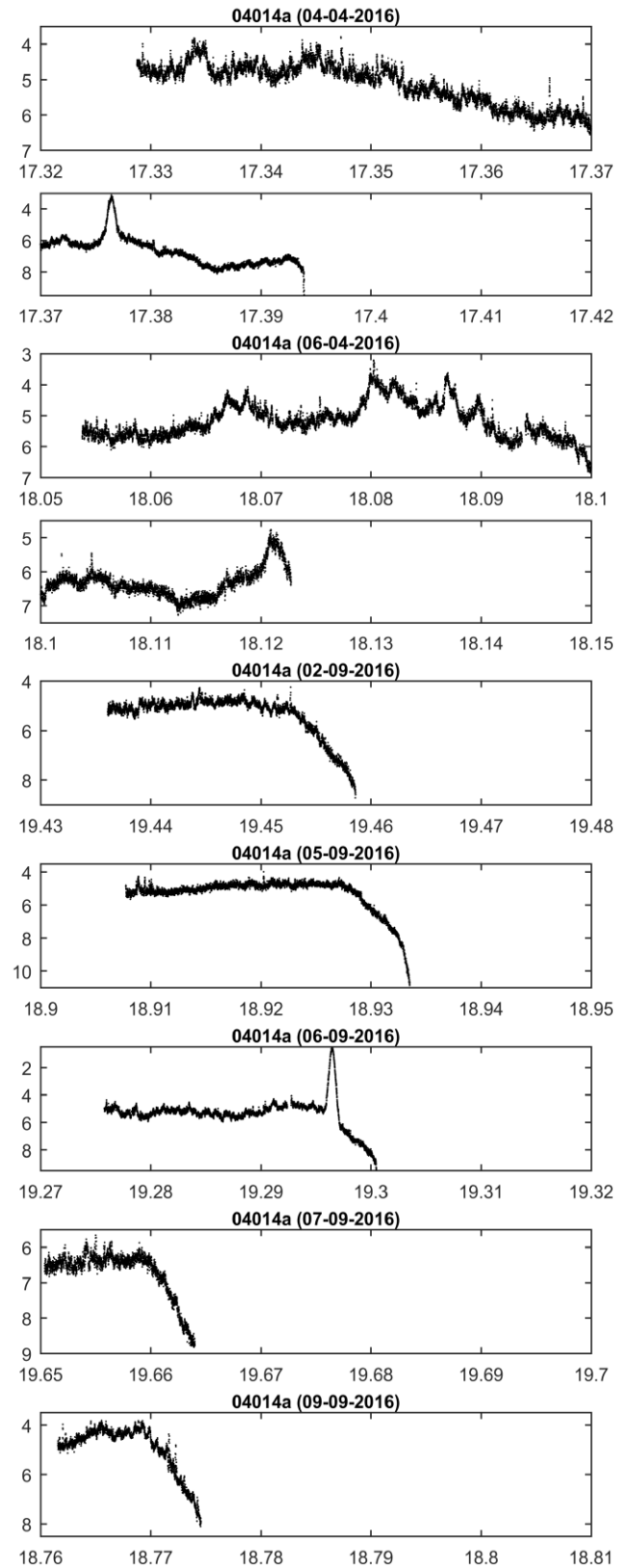


USA 173 P/L 2 (NOSS 3-2 (2))

NORAD ID: 28097



Source: United States (US)



GRAVITY PROBE B (GP-B)

NORAD ID: 28230

Int'l Code: 2004-014A

Dimensions:

Initial orbit:

Perigee: 641 km

Apogee: 645 km

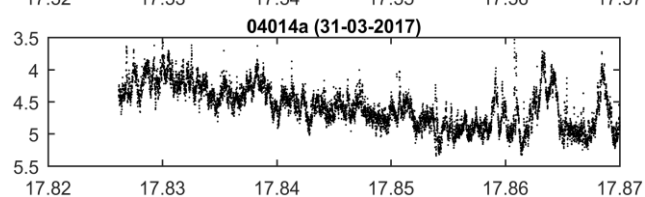
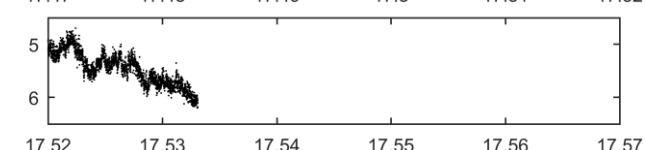
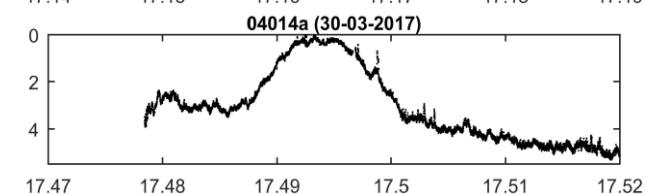
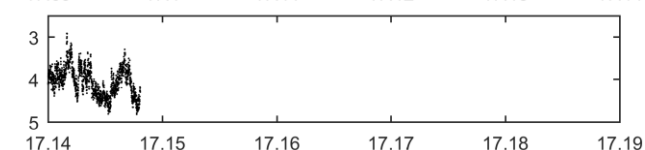
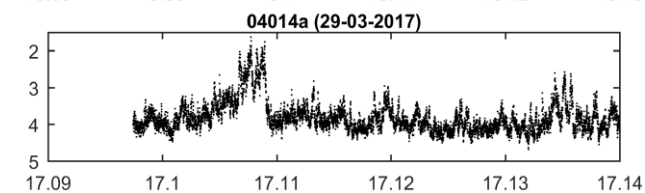
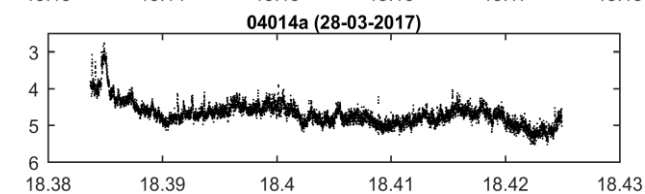
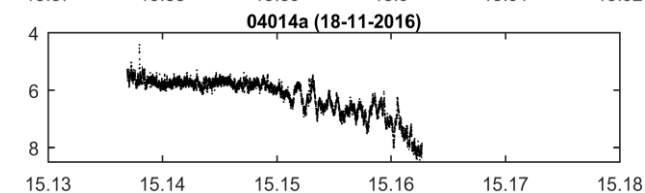
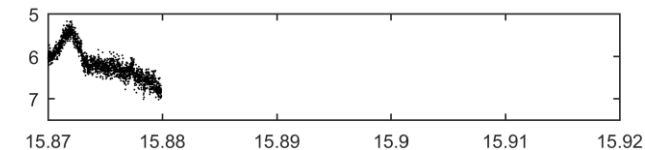
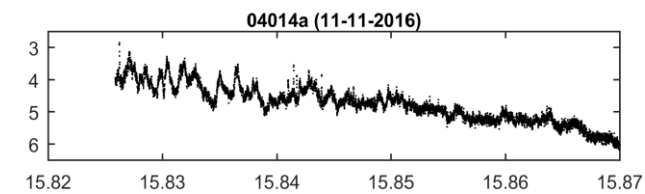
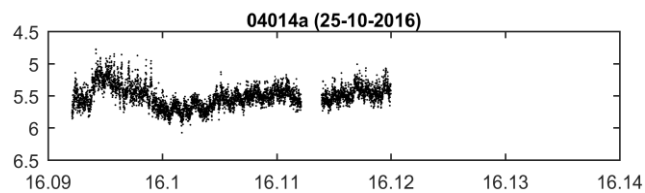
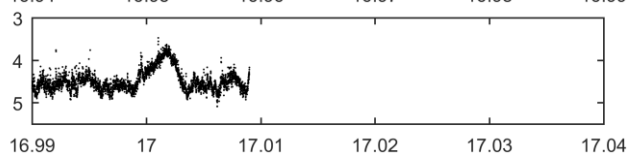
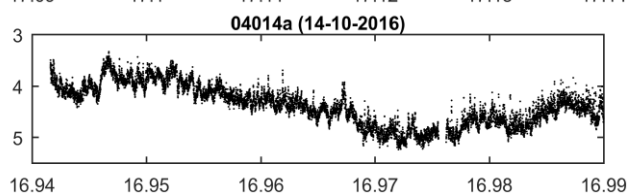
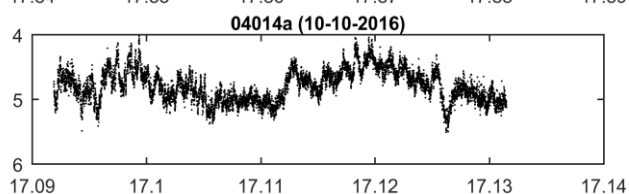
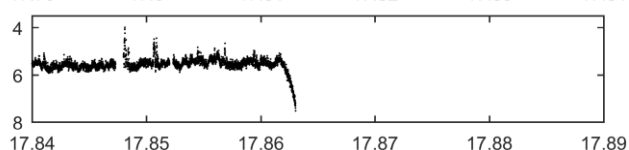
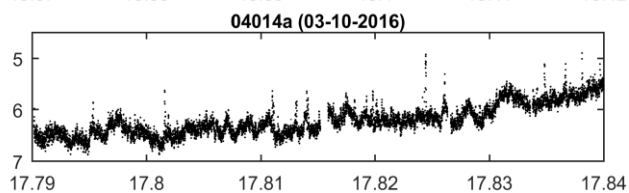
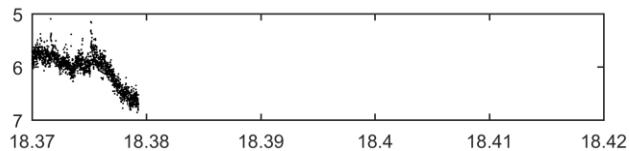
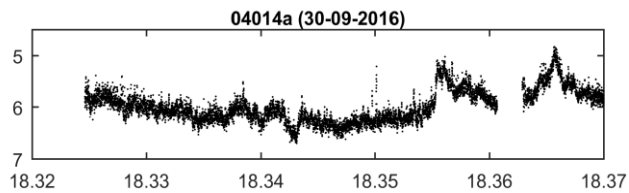
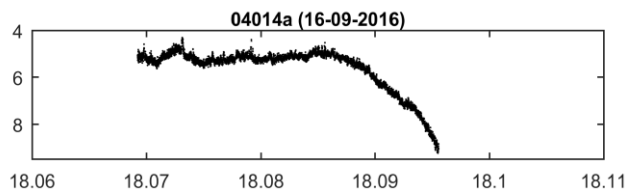
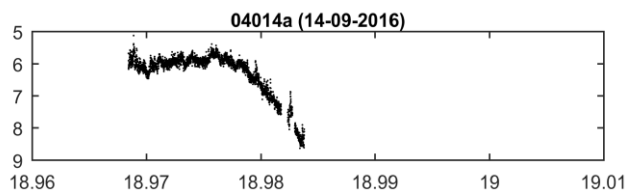
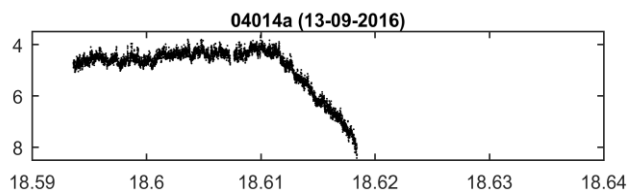
Inclination: 90.01°

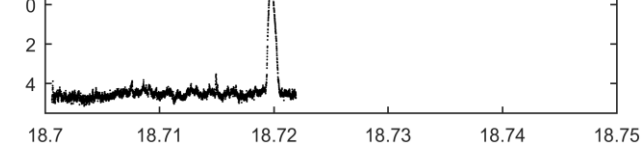
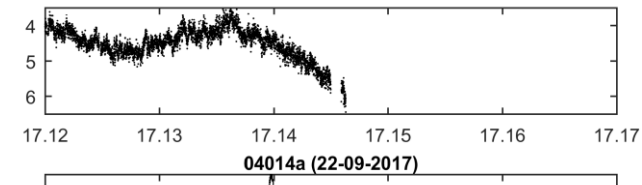
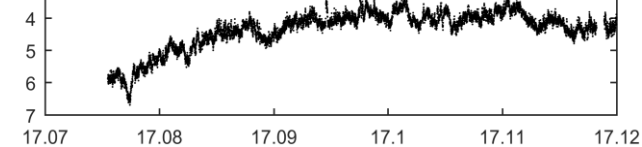
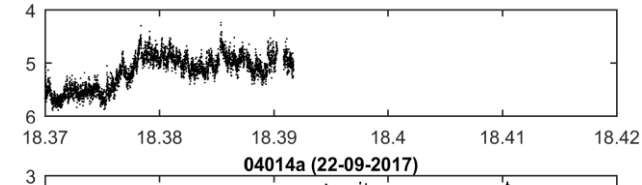
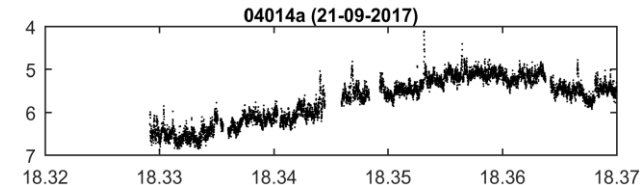
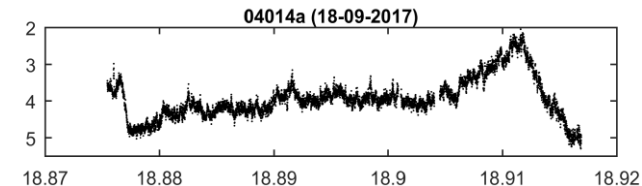
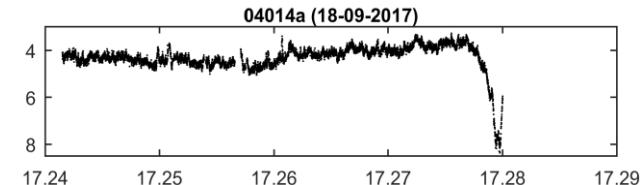
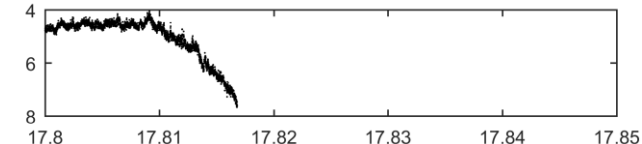
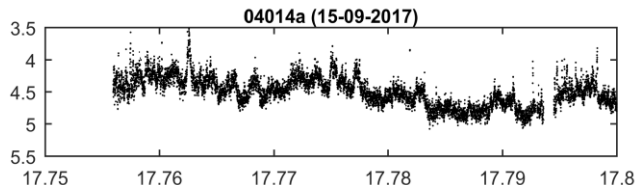
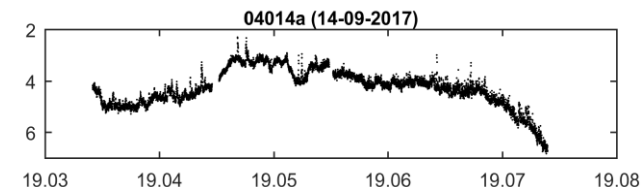
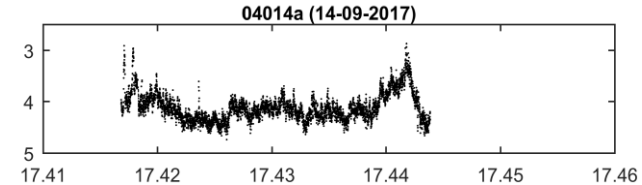
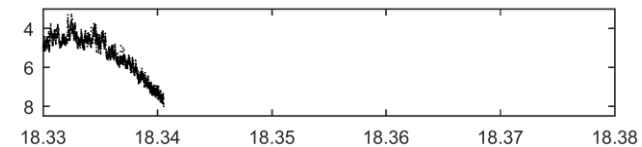
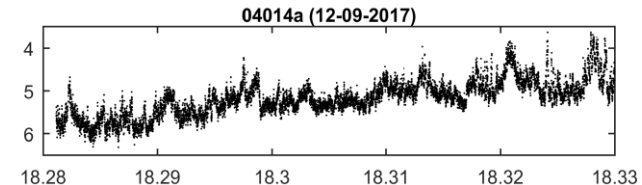
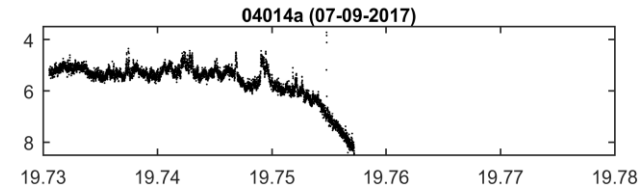
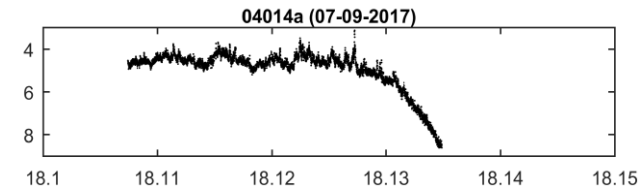
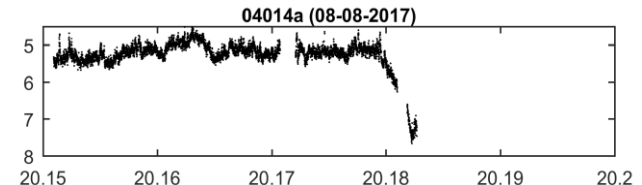
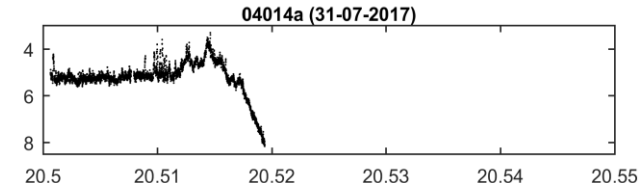
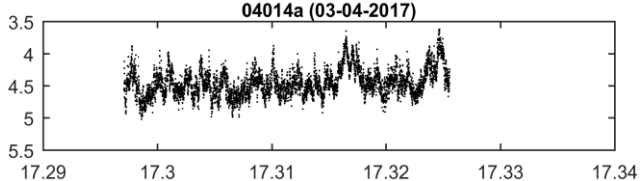
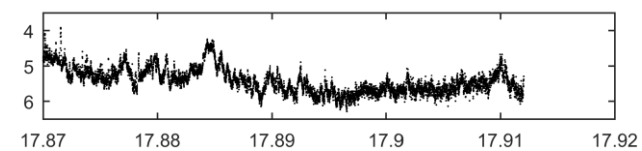
Period: 97.59 min

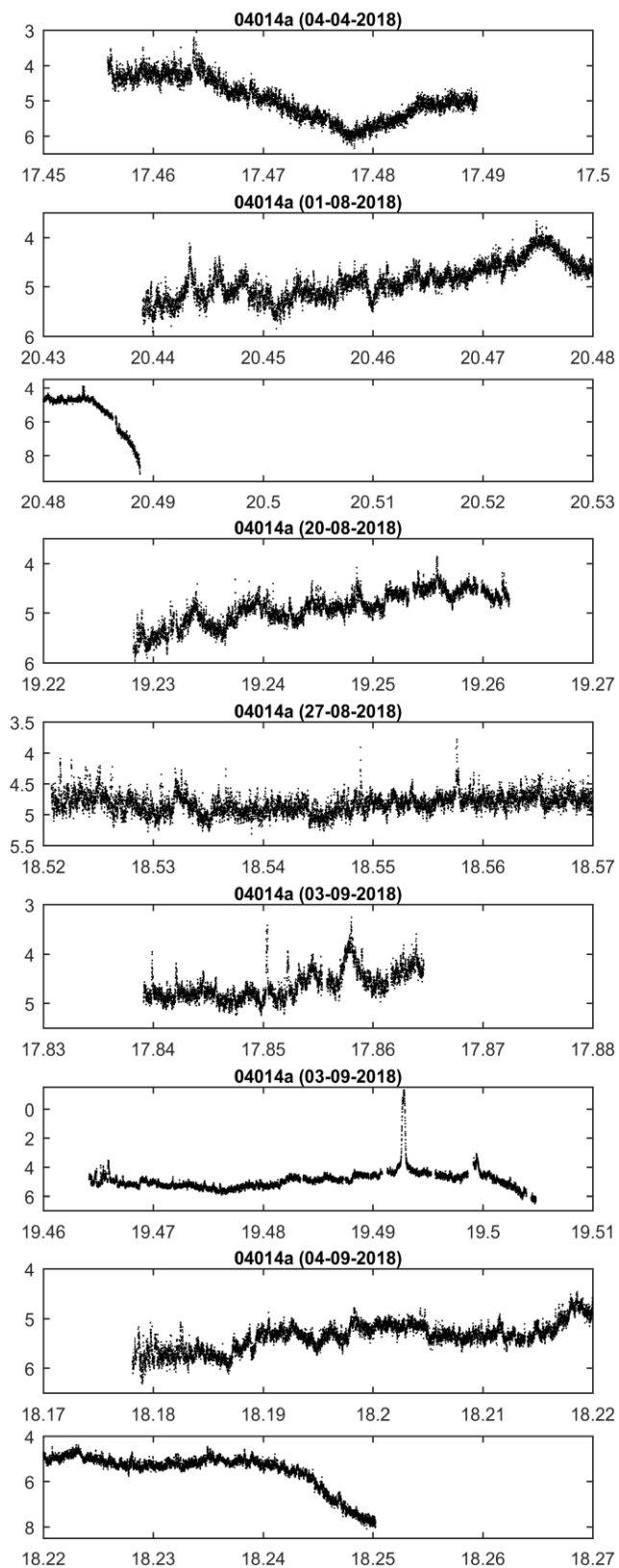
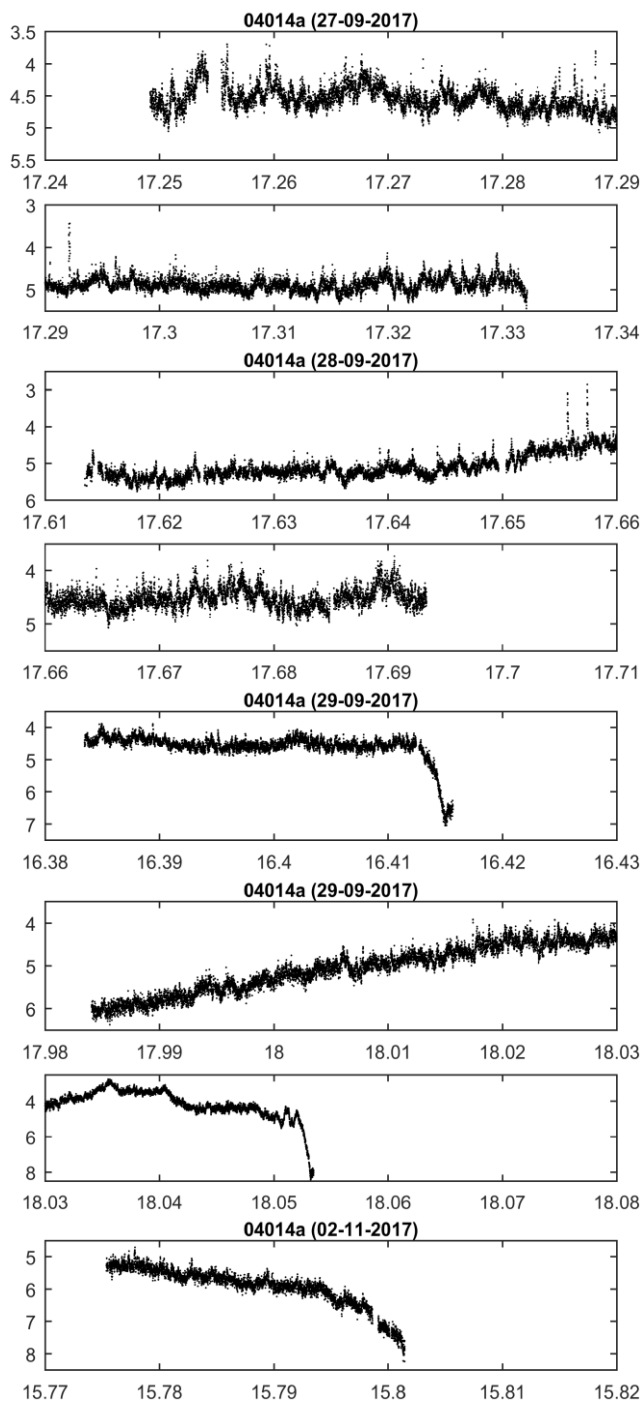
Eccentricity: 0.0003

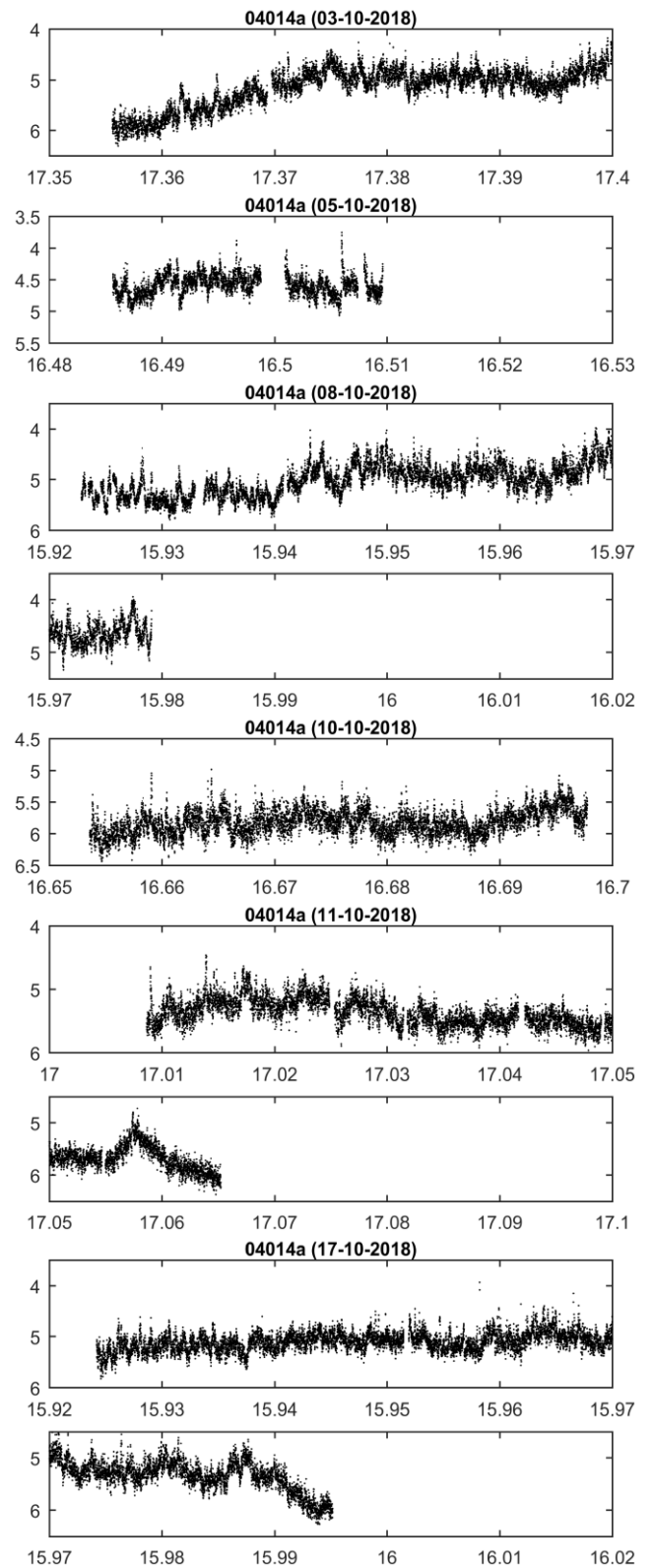
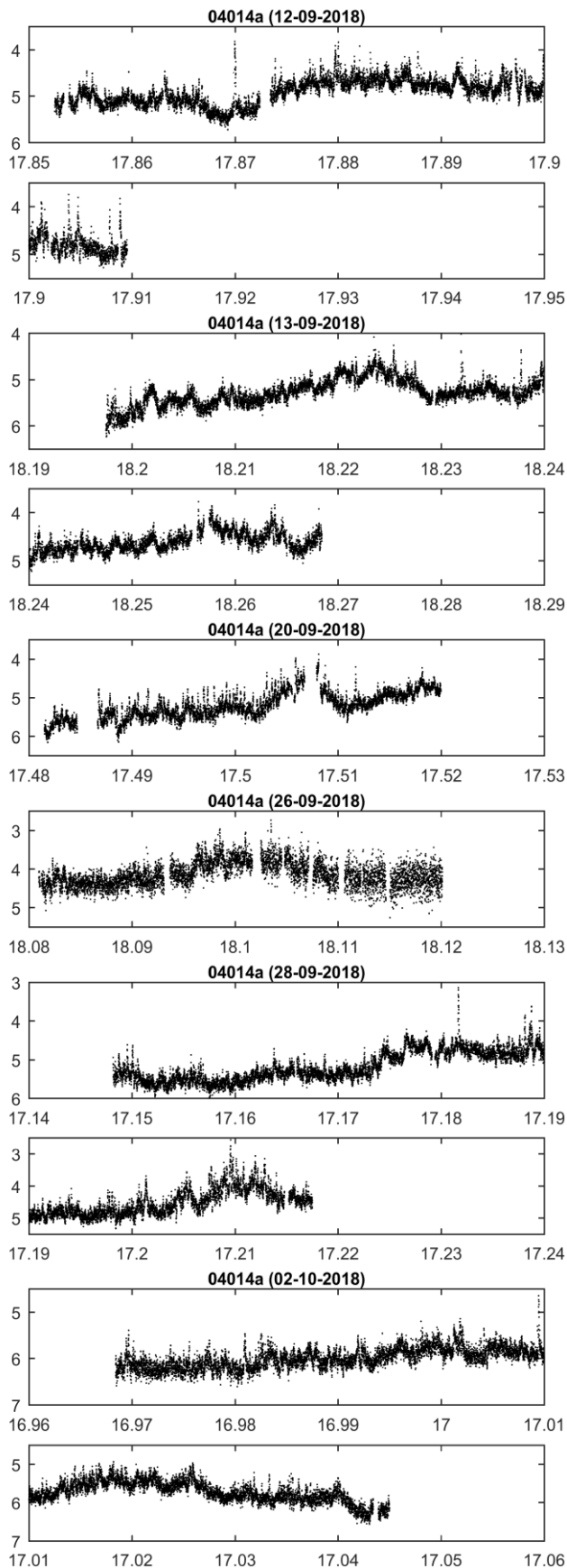
Launch date: 2004-04-20











ROCSAT 2
(FORMOSAT-2)
 NORAD ID: 28254
 Int'l Code: 2004-018A
 Dimensions: 6-sided box



Initial orbit:

Perigee: 721 km

Apogee: 743 km

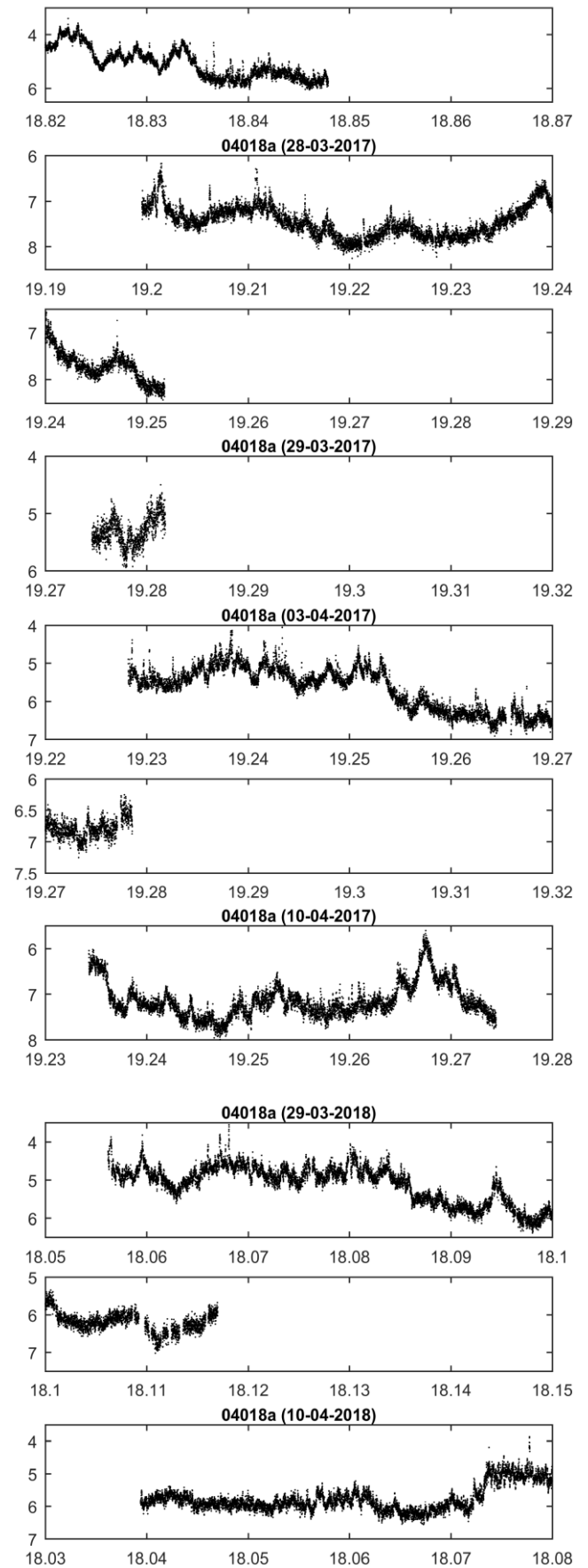
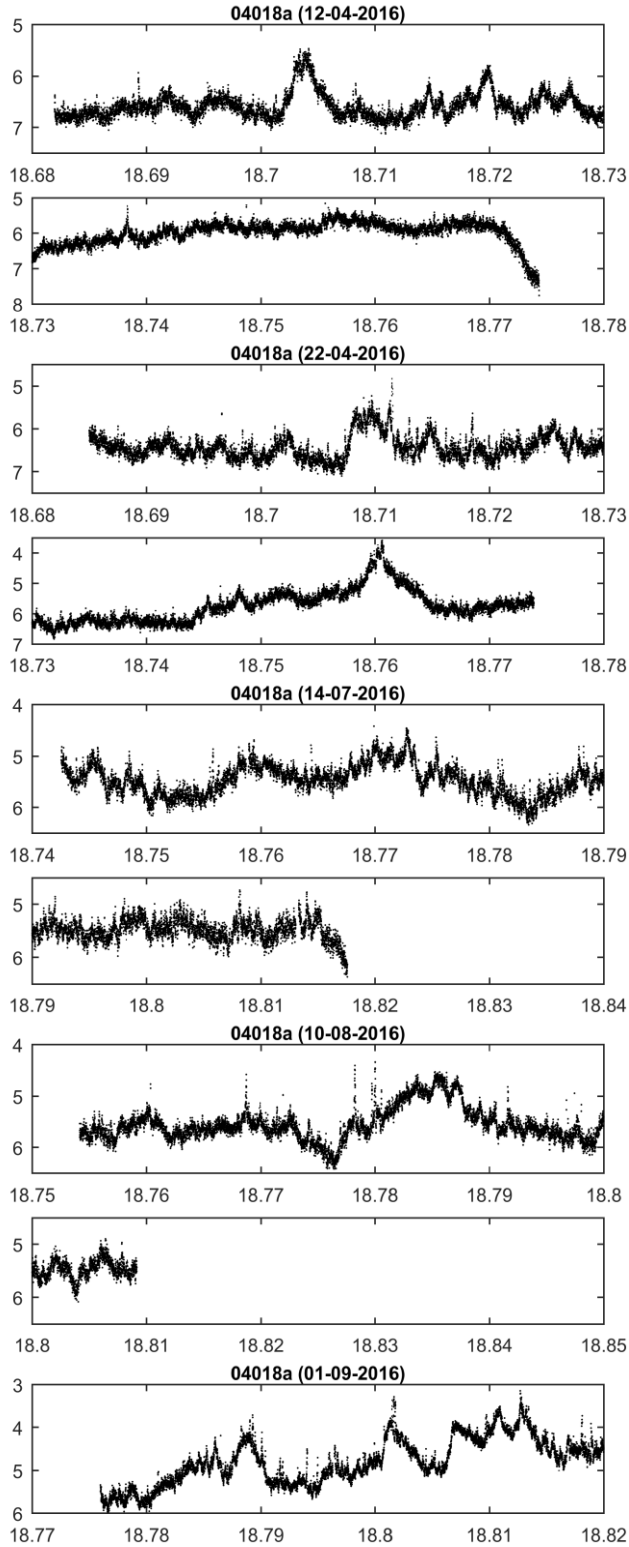
Inclination: 99.11°

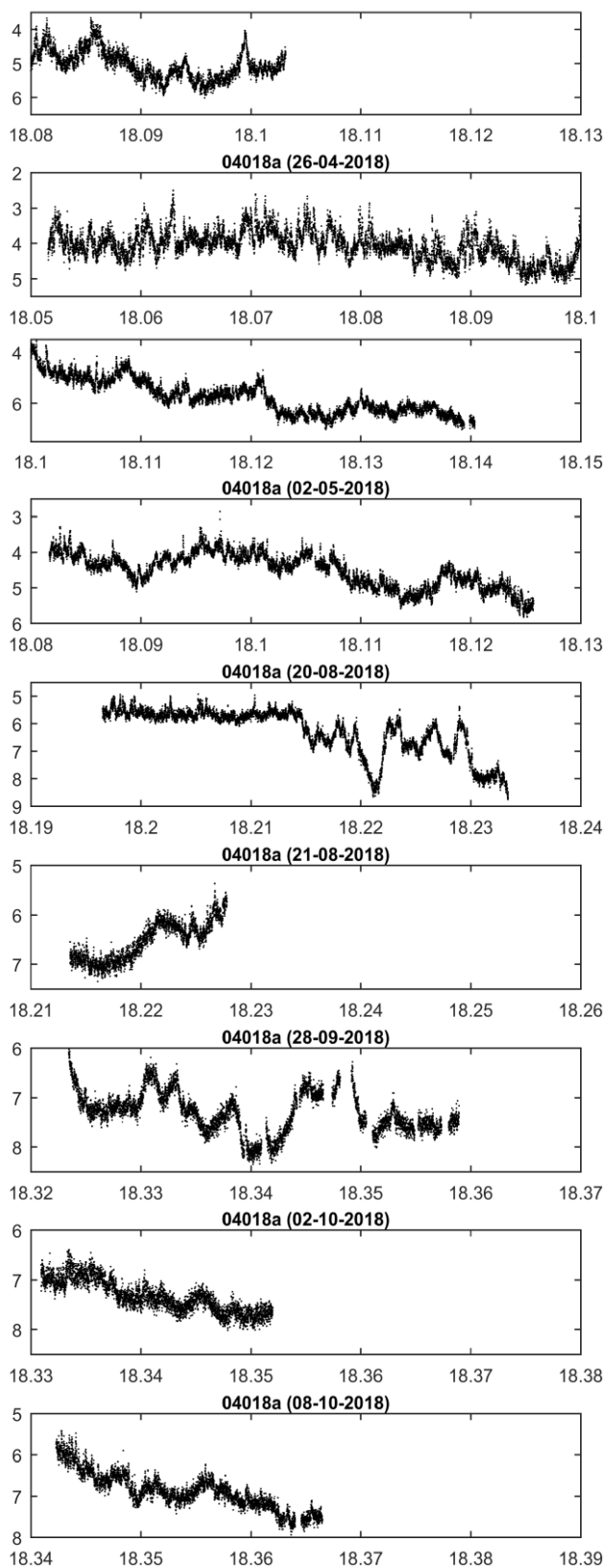
Period: 99.43 min

Eccentricity: 0.002

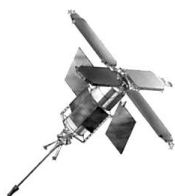
Launch date: 2004-05-20

Source: Taiwan (Republic of China) (ROC)





COSMOS 2406
(TSELINA-2)
 NORAD ID: 28352
 Int'l Code: 2004-021A



Dimensions: cylinder +2 panels

Initial orbit:

Perigee: 847 km

Apogee: 865 km

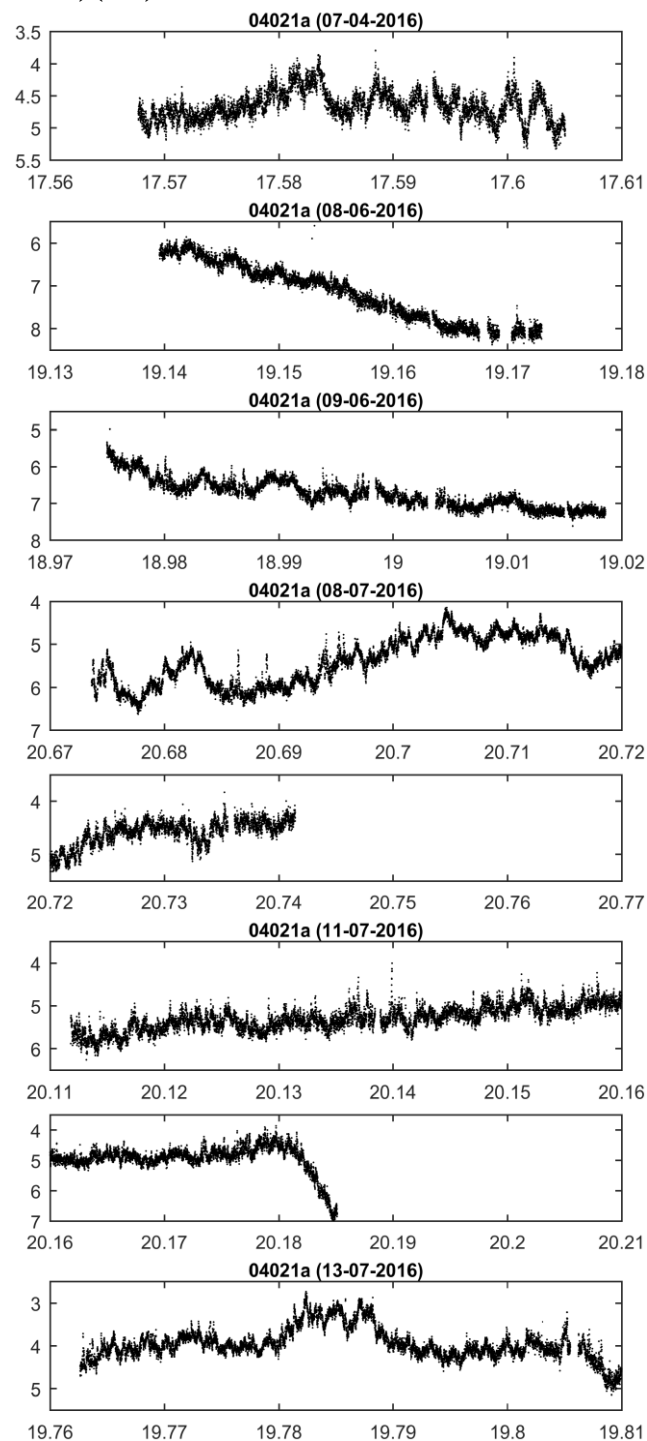
Inclination: 71.01°

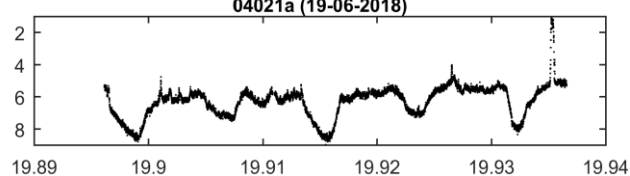
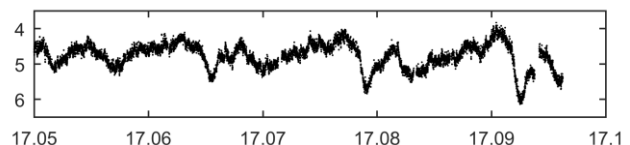
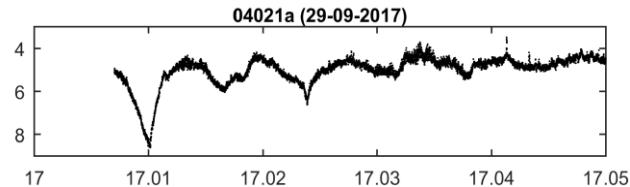
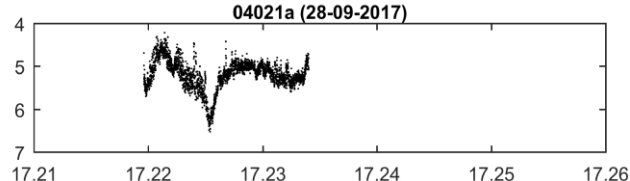
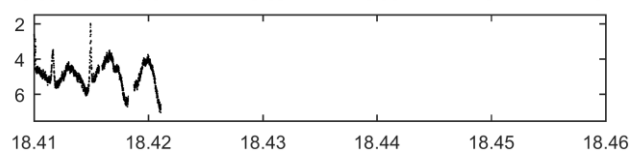
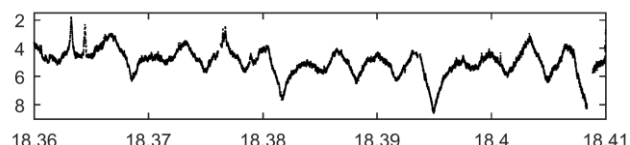
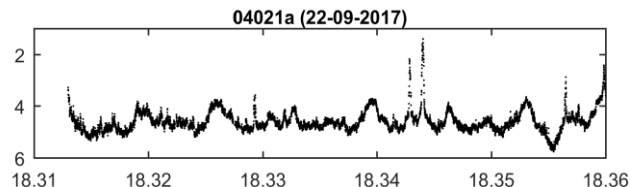
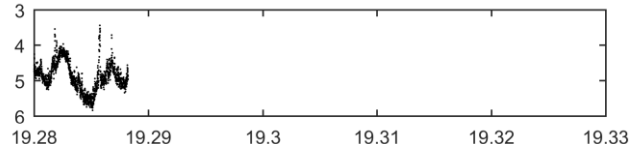
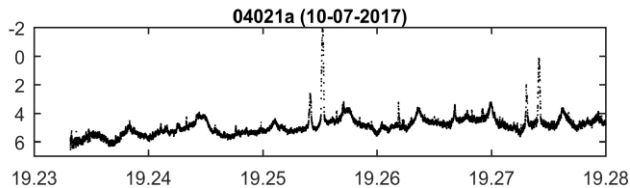
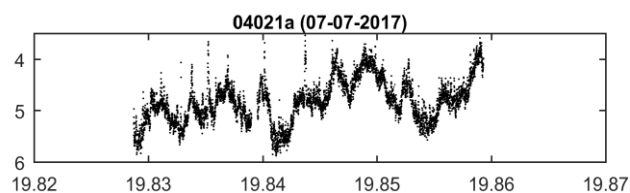
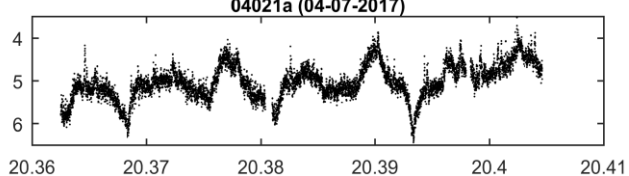
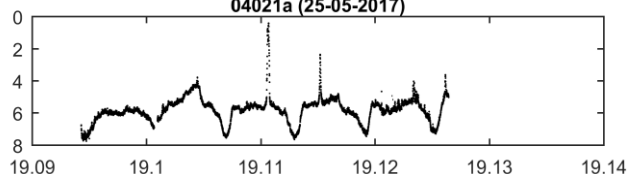
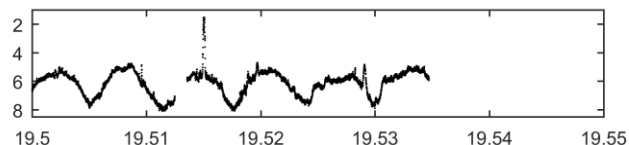
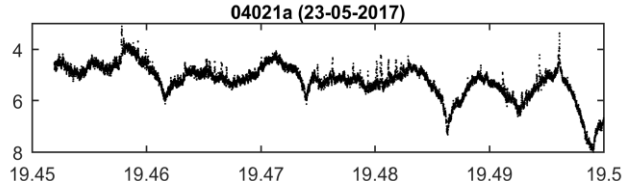
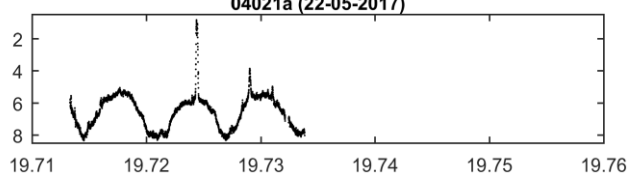
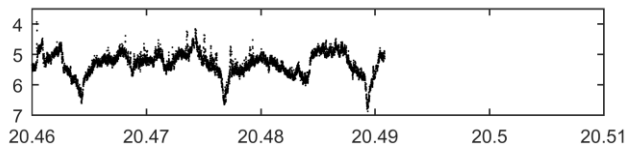
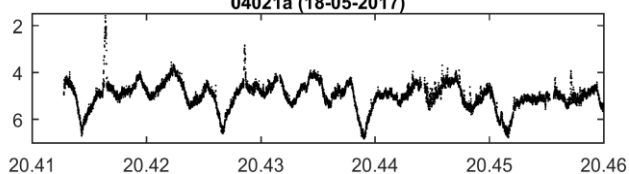
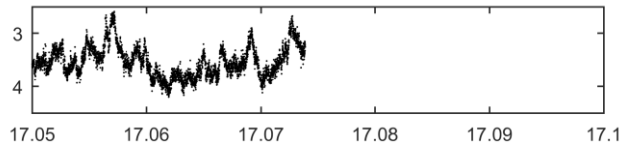
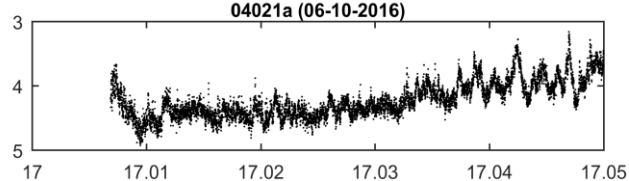
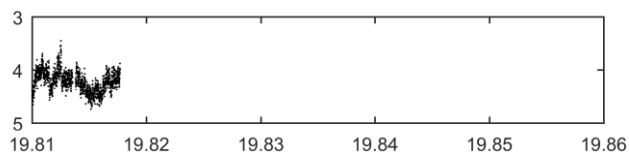
Period: 102.06 min

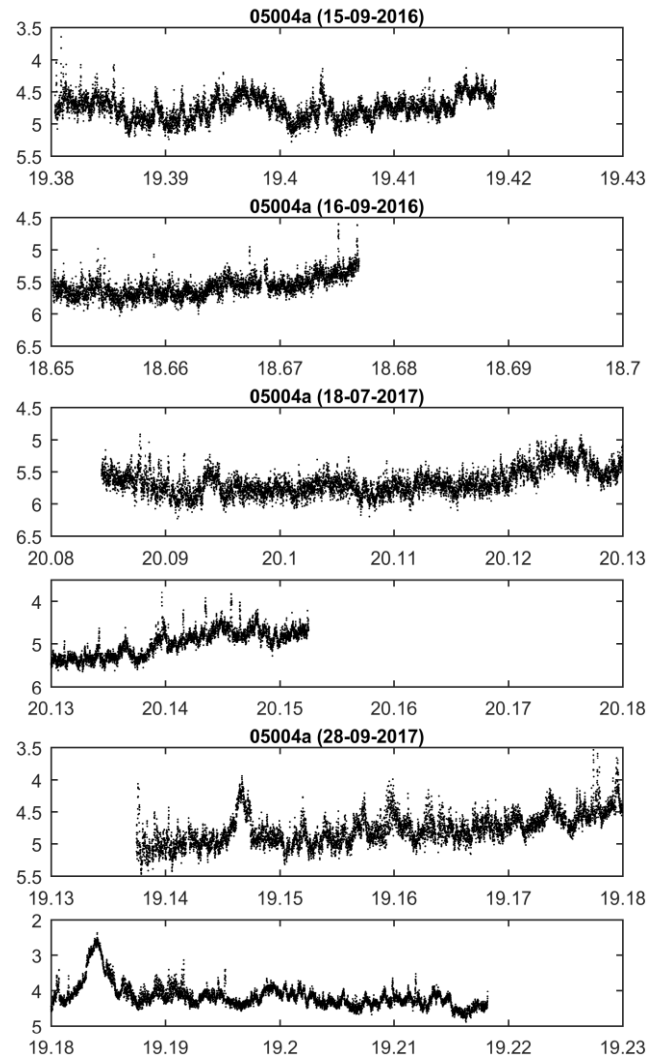
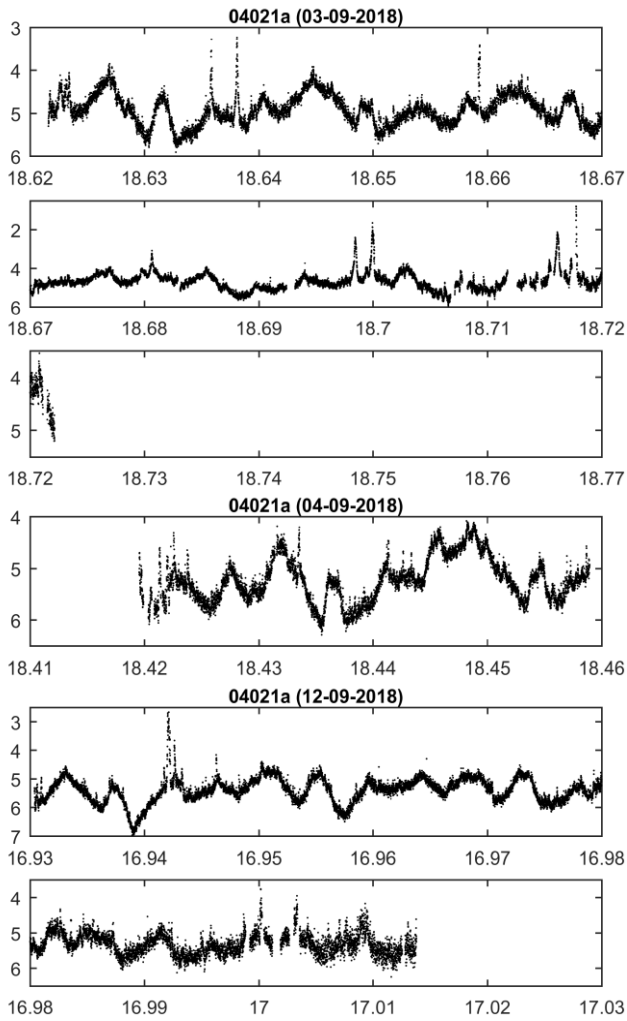
Eccentricity: 0.001

Launch date: 2004-06-10

Source: Commonwealth of Independent States (former USSR) (CIS)







USA 181 (NOSS C3-1)

NORAD ID: 28537

Int'l Code: 2005-004A

Dimensions:

Initial orbit:

Perigee: 1011 km

Apogee: 1209 km

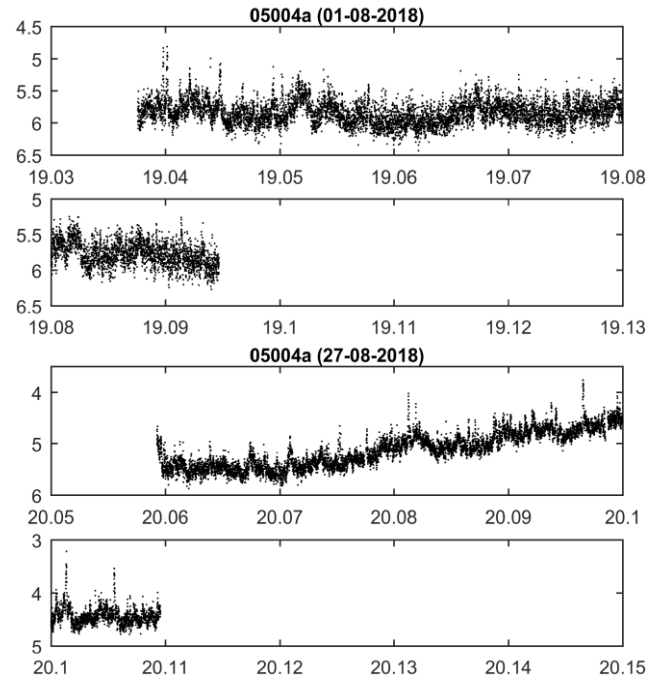
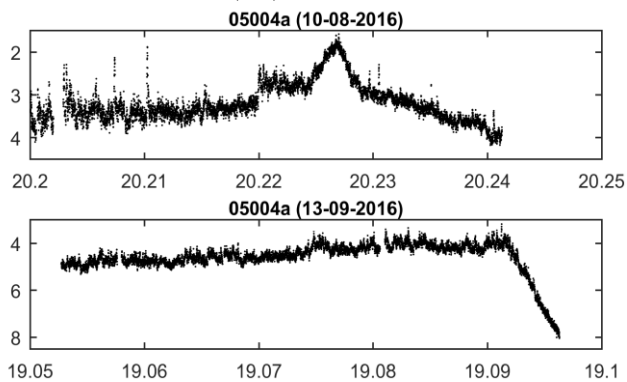
Inclination: 63.4°

Period: 107.47 min

Eccentricity: 0.0132

Launch date: 2005-02-03

Source: United States (US)



USA 181 DEB (NOSS-3 3B)

NORAD ID: 28541

Int'l Code: 2005-004C

Dimensions:

Initial orbit:

Perigee: 1011 km

Apogee: 1209 km

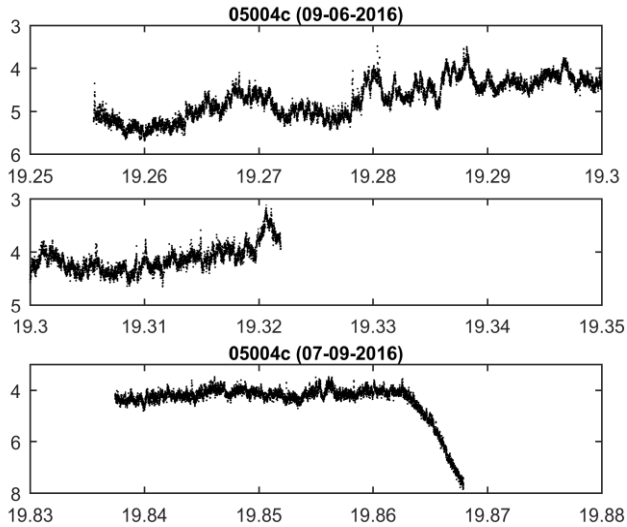
Inclination: 63.4°

Period: 107.47 min

Eccentricity: 0.01323

Launch date: 2005-02-03

Source: United States (US)



USA 182 (LACROSSE 5)

NORAD ID: 28646

Int'l Code: 2005-016A

Dimensions: cylindrical 12m long

4m dia 45m span

Initial orbit:

Perigee: 712 km

Apogee: 718 km

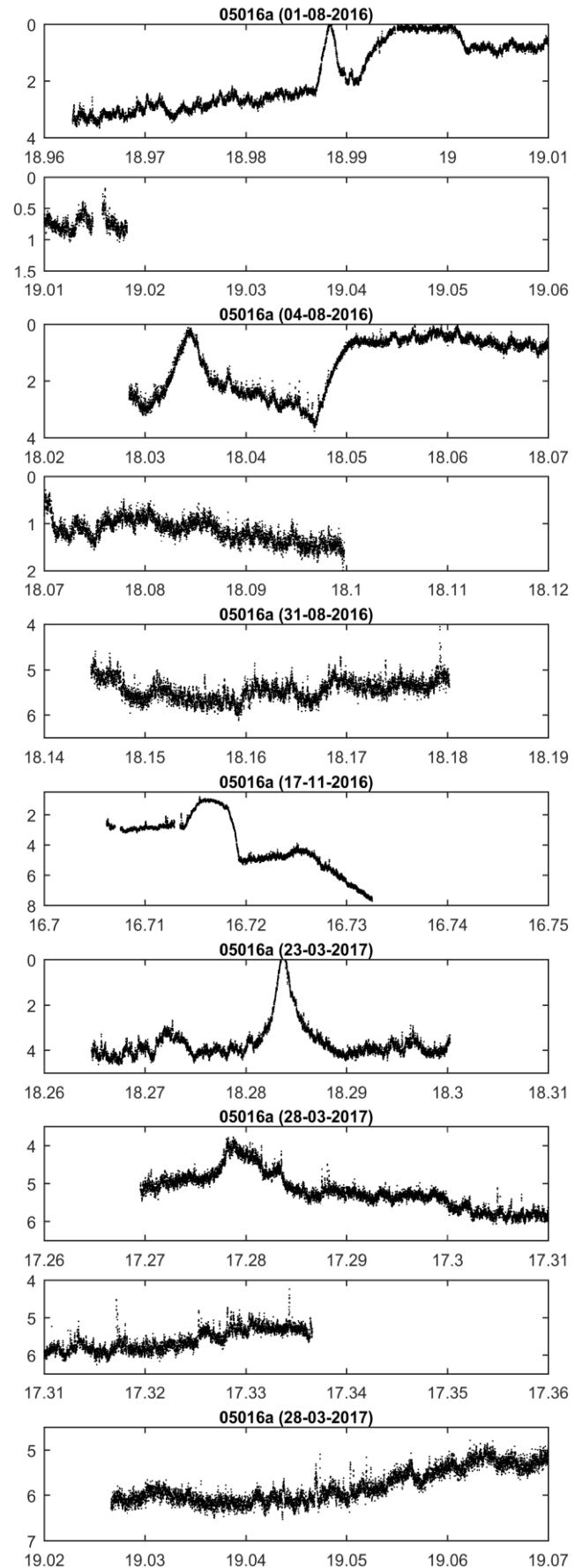
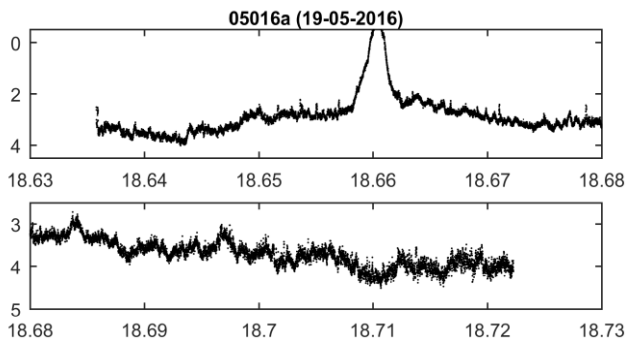
Inclination: 57.0°

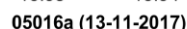
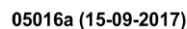
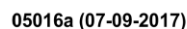
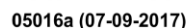
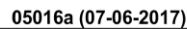
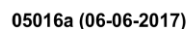
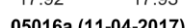
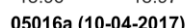
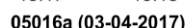
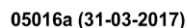
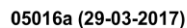
Period: 99.08 min

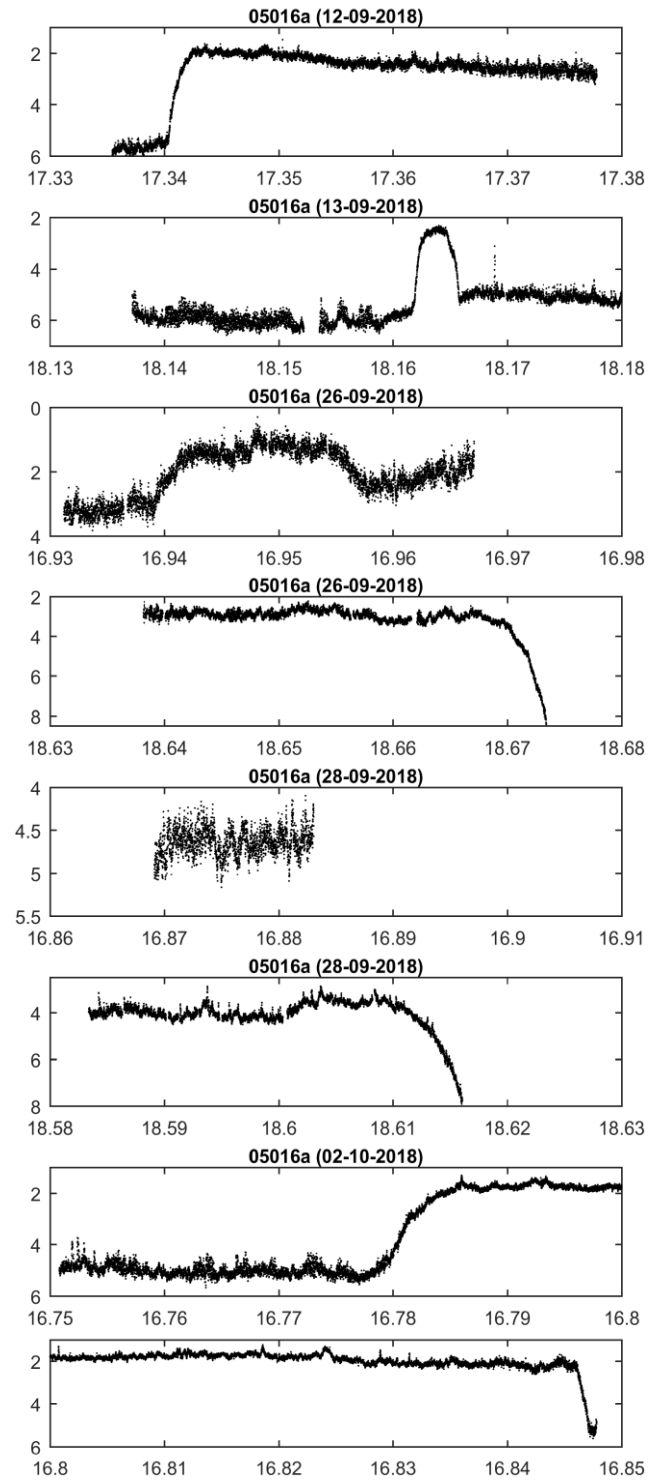
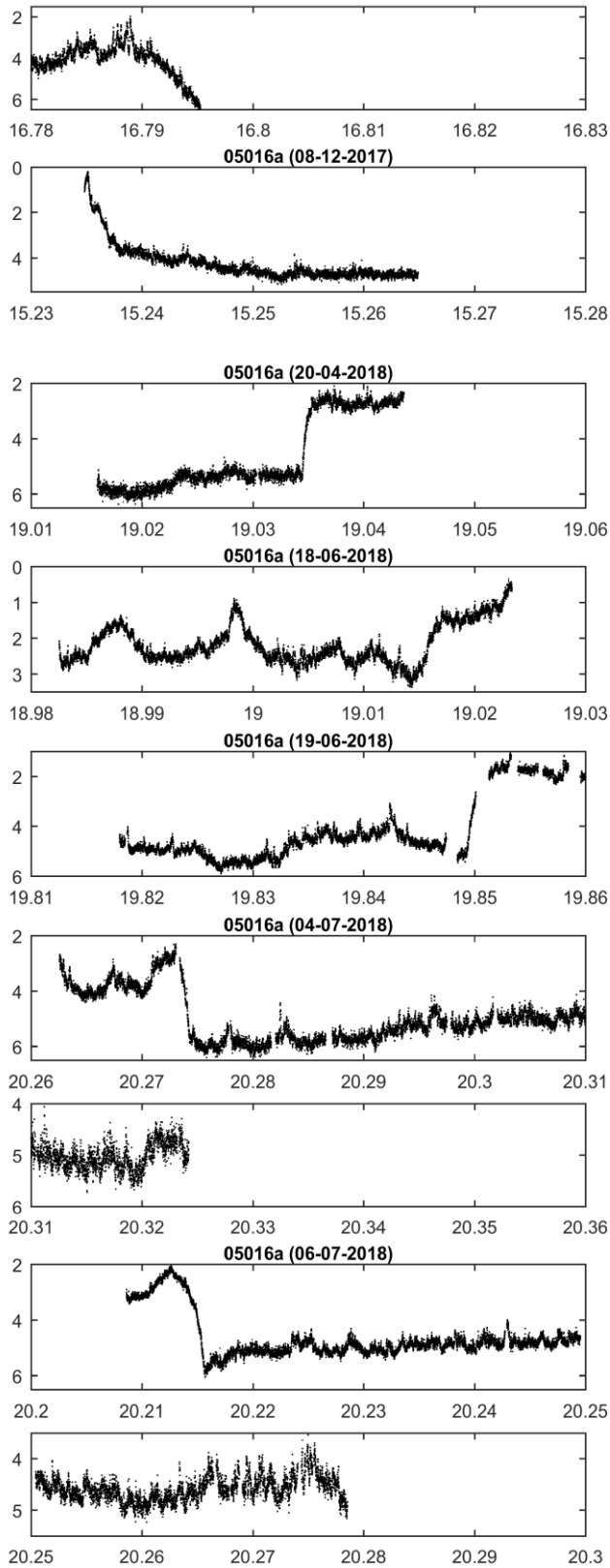
Eccentricity: 0.00042

Launch date: 2005-04-30

Source: United States (US)







IRS-P5 (CARTOSAT-1)

NORAD ID: 28649

Int'l Code: 2005-017A

Dimensions:

Initial orbit:

Perigee: 607 km

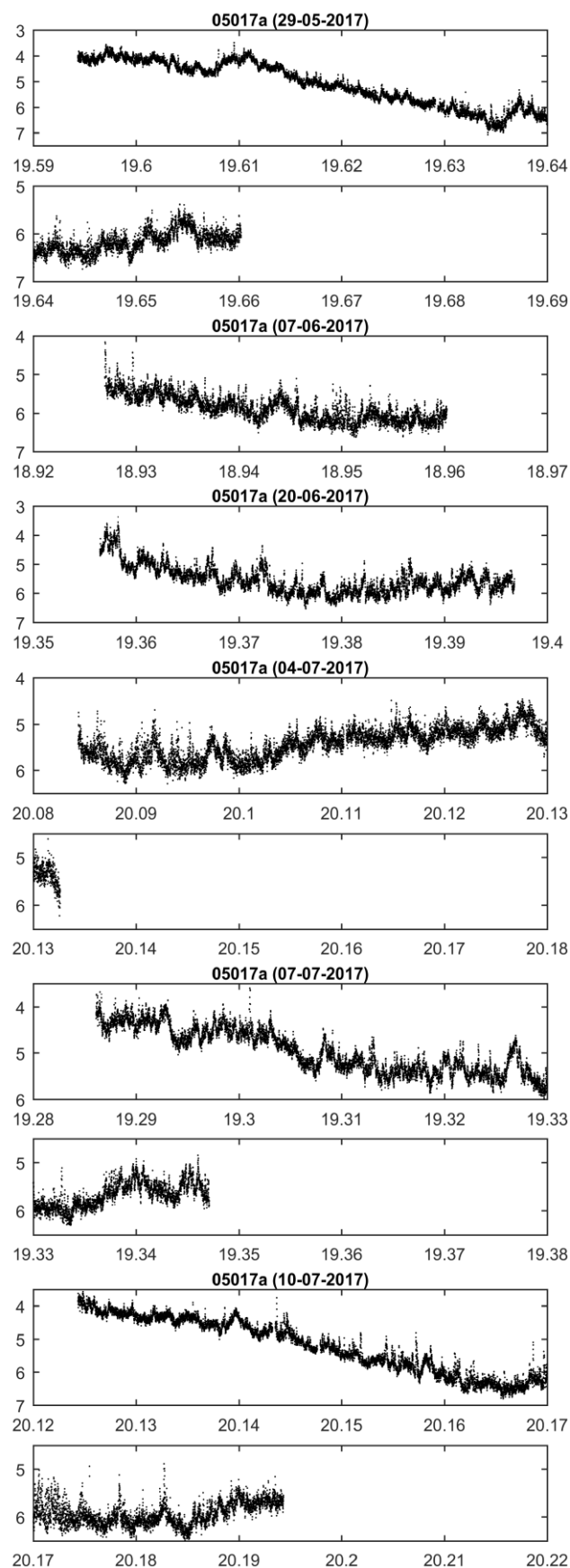
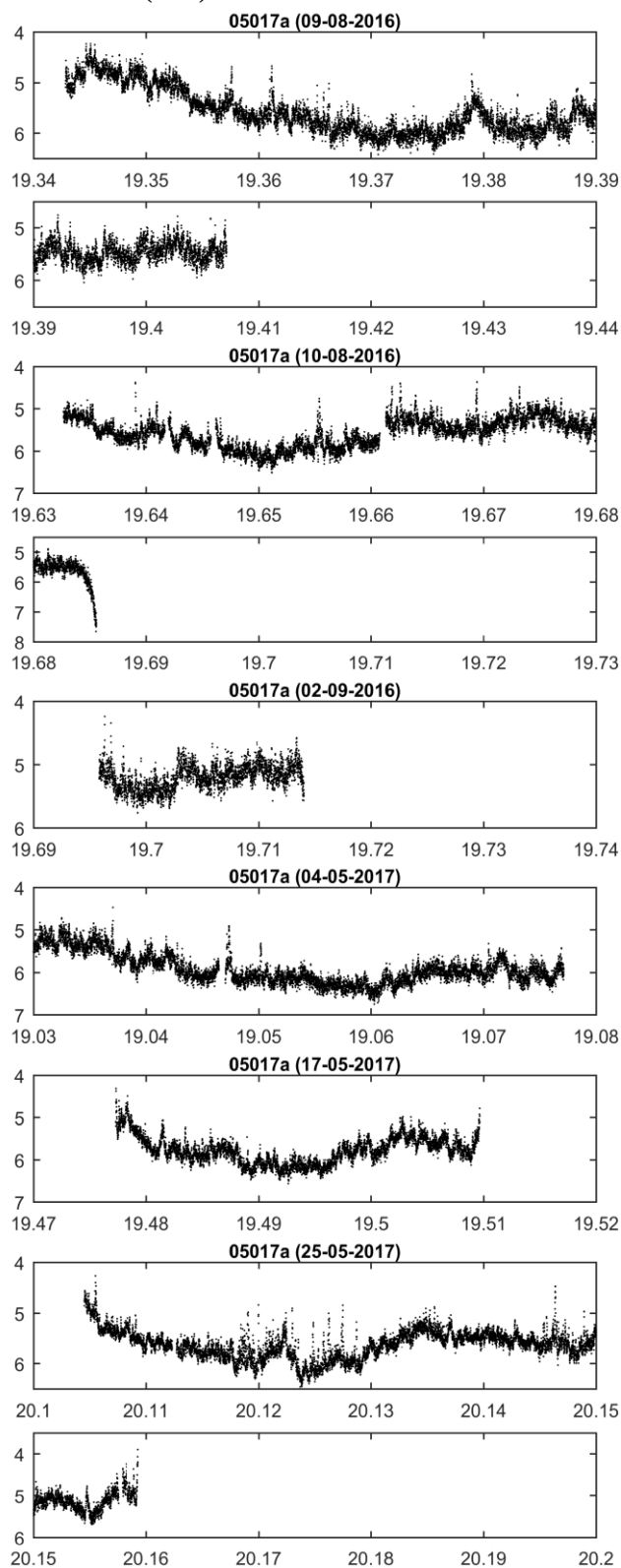
Apogee: 717 km

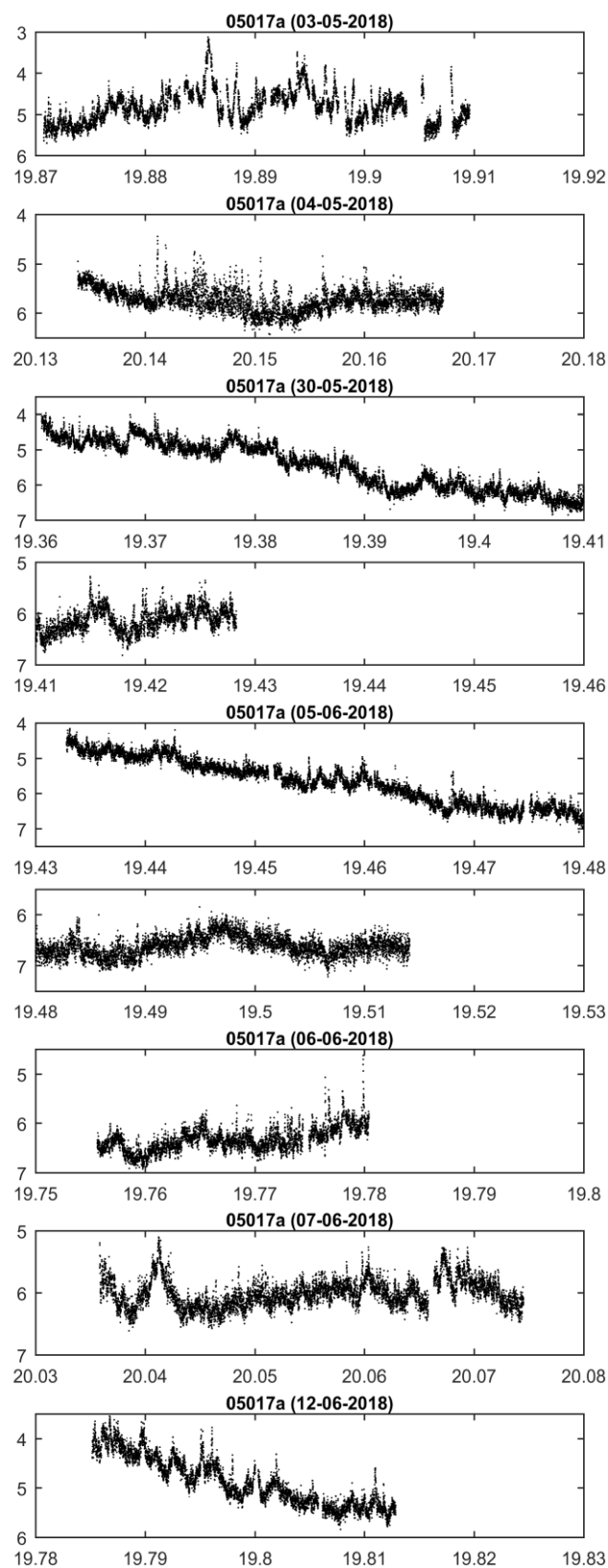
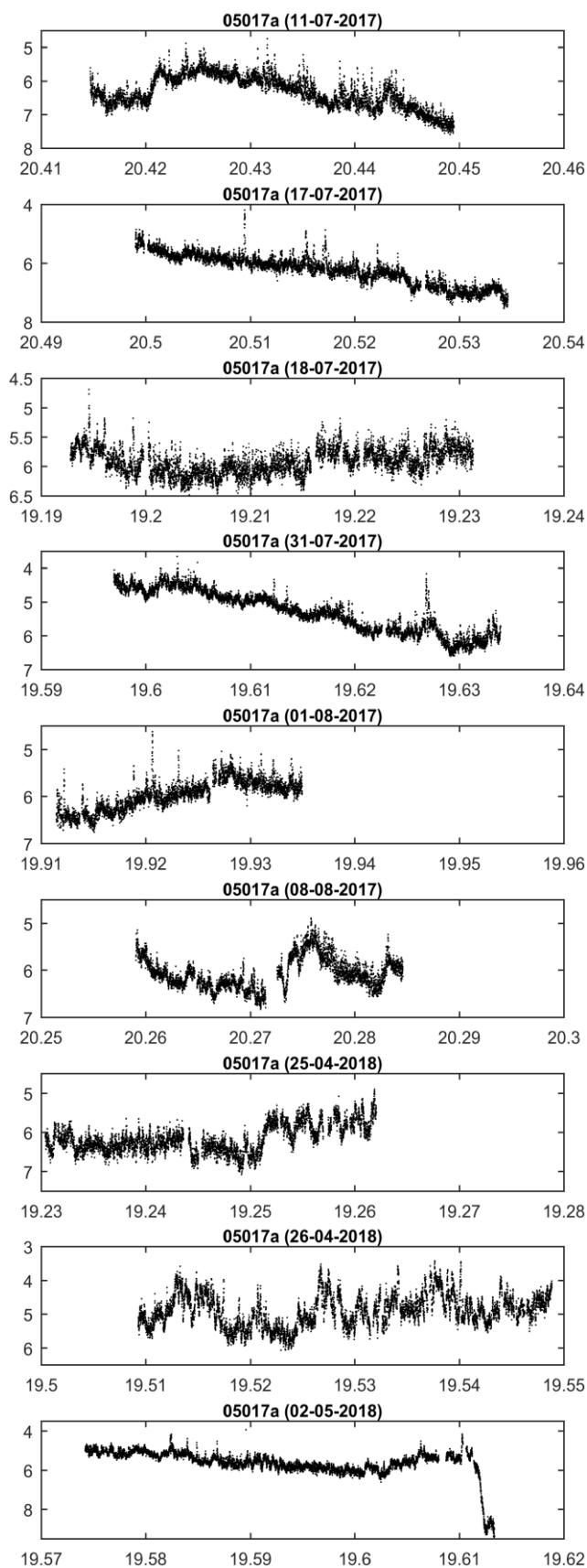
Inclination: 97.82°

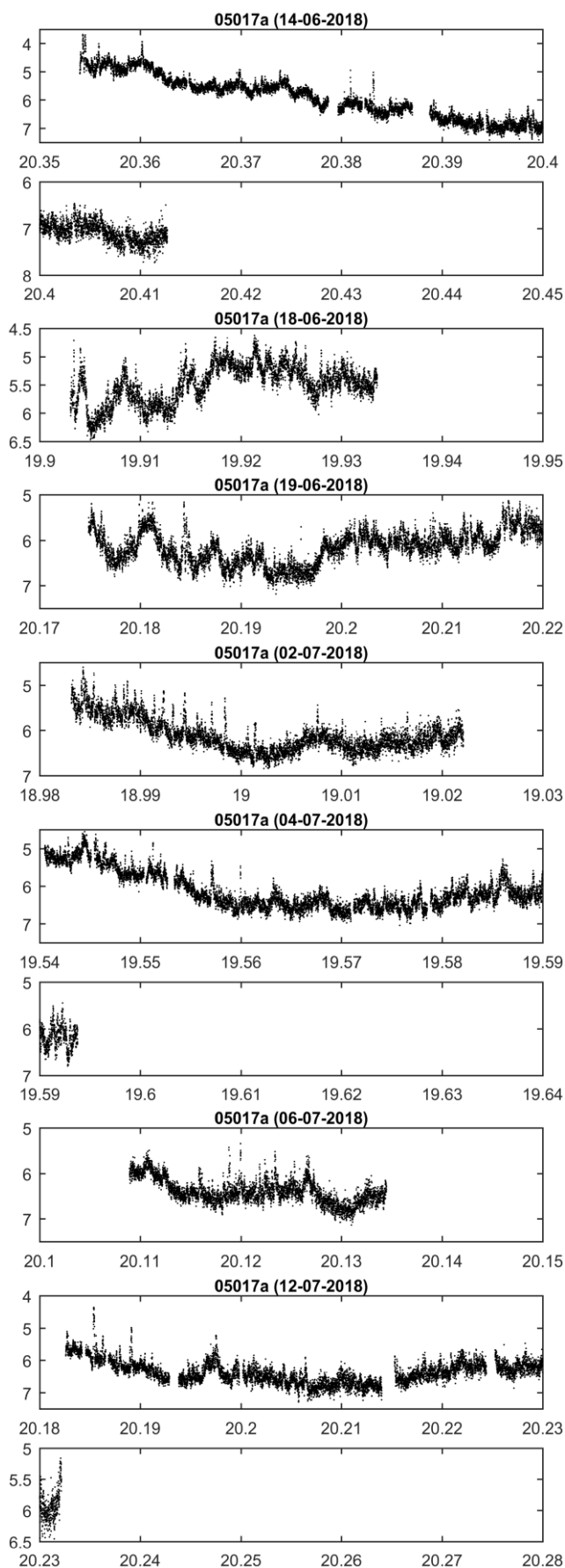
Period: 97.98 min



Eccentricity: 0.008
Launch date: 2005-05-05
Source: India (IND)







NOAA 18 (NOAA N)

NORAD ID: 28654

Int'l Code: 2005-018A

Dimensions: cylindrical 4.2m long

1.88m dia

Initial orbit:

Perigee: 846 km

Apogee: 866 km

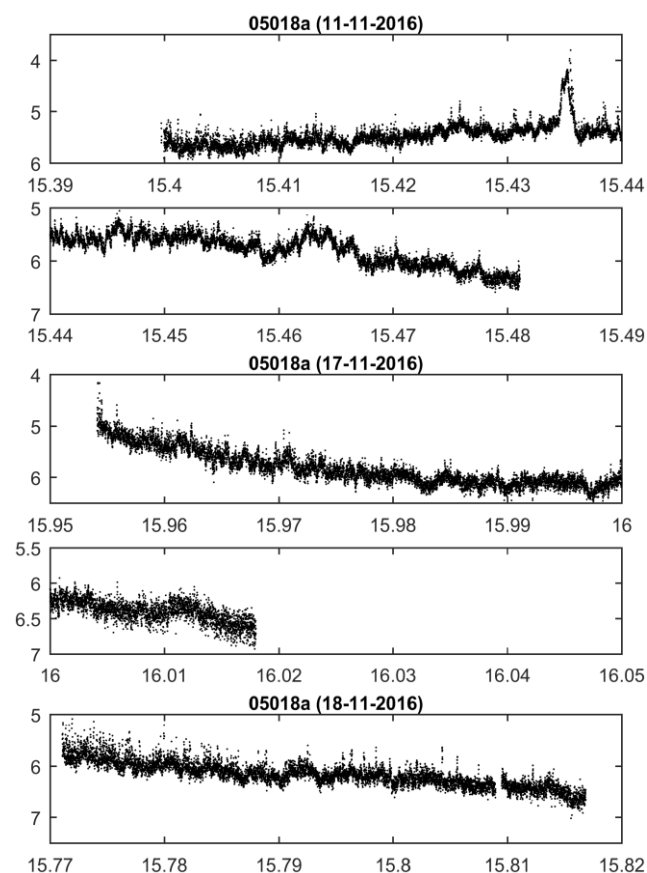
Inclination: 98.74°

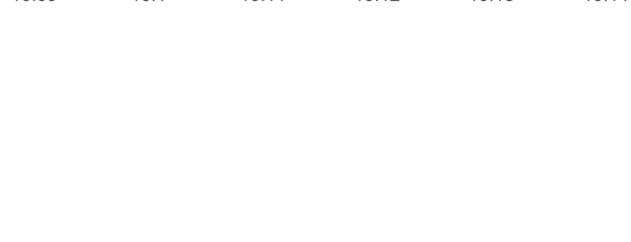
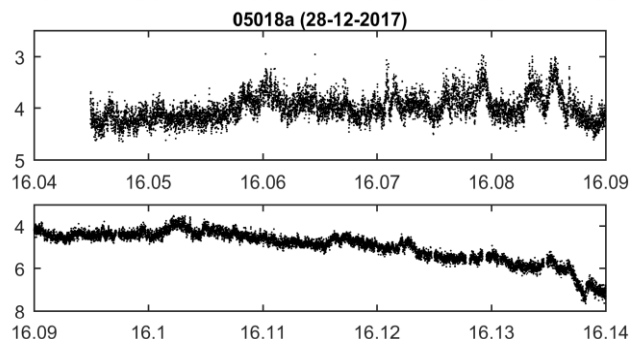
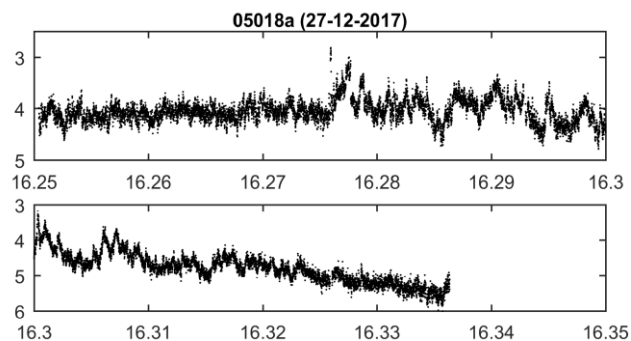
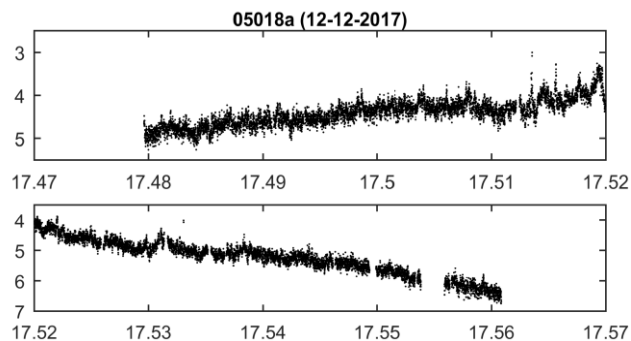
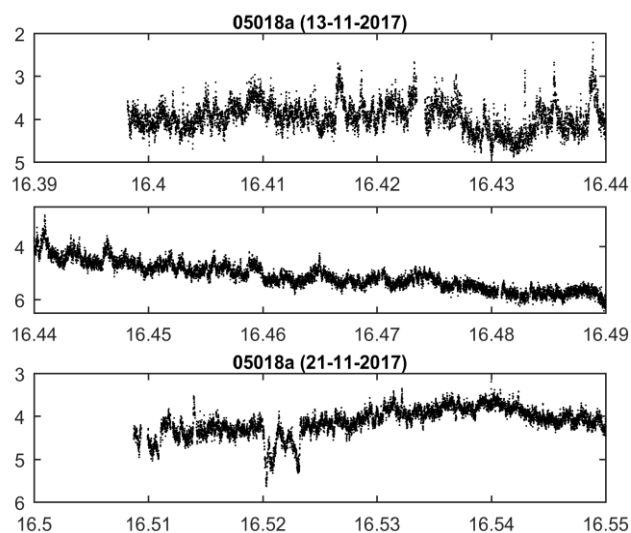
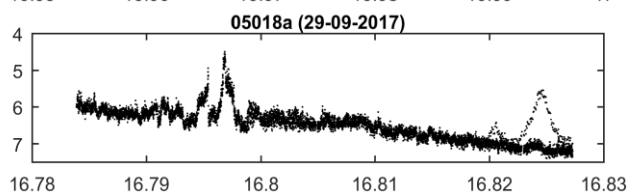
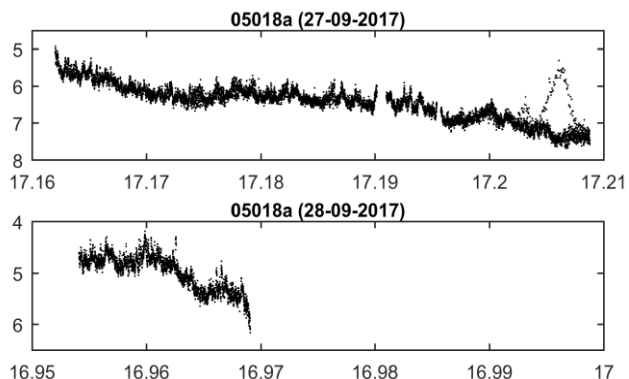
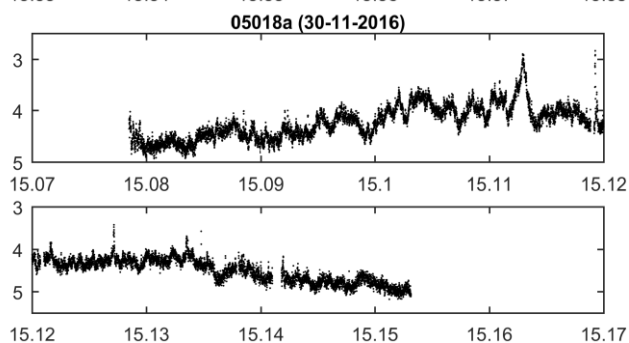
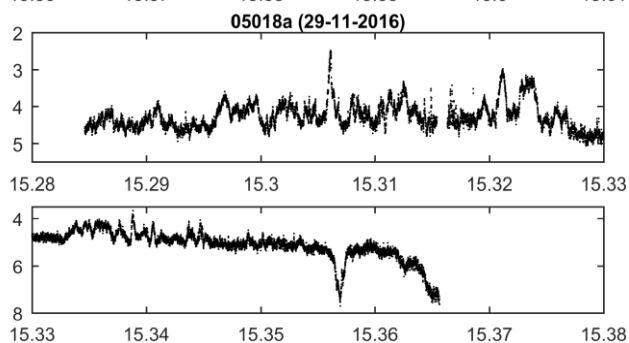
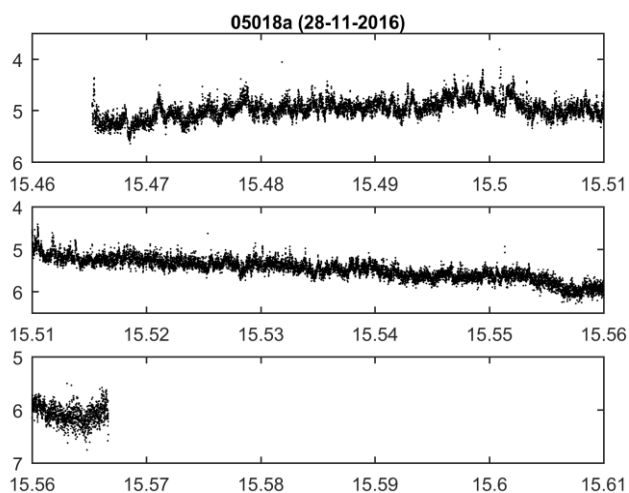
Period: 102.07 min

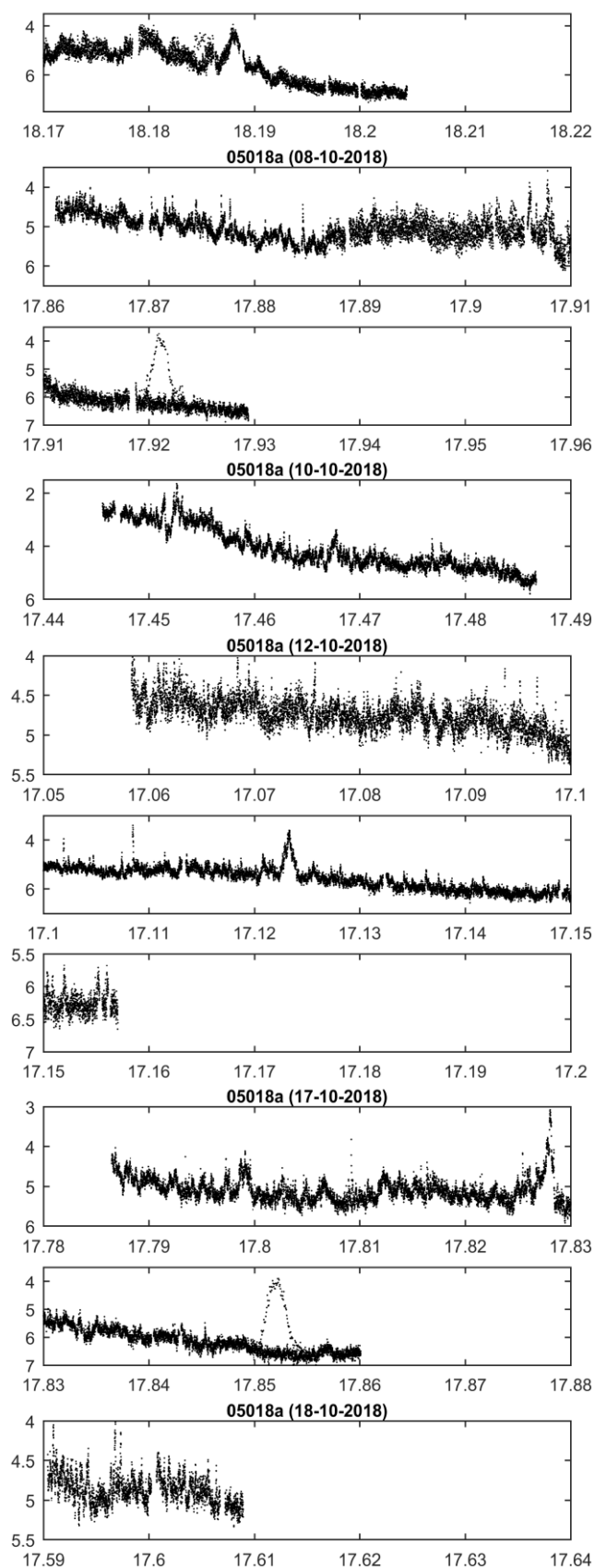
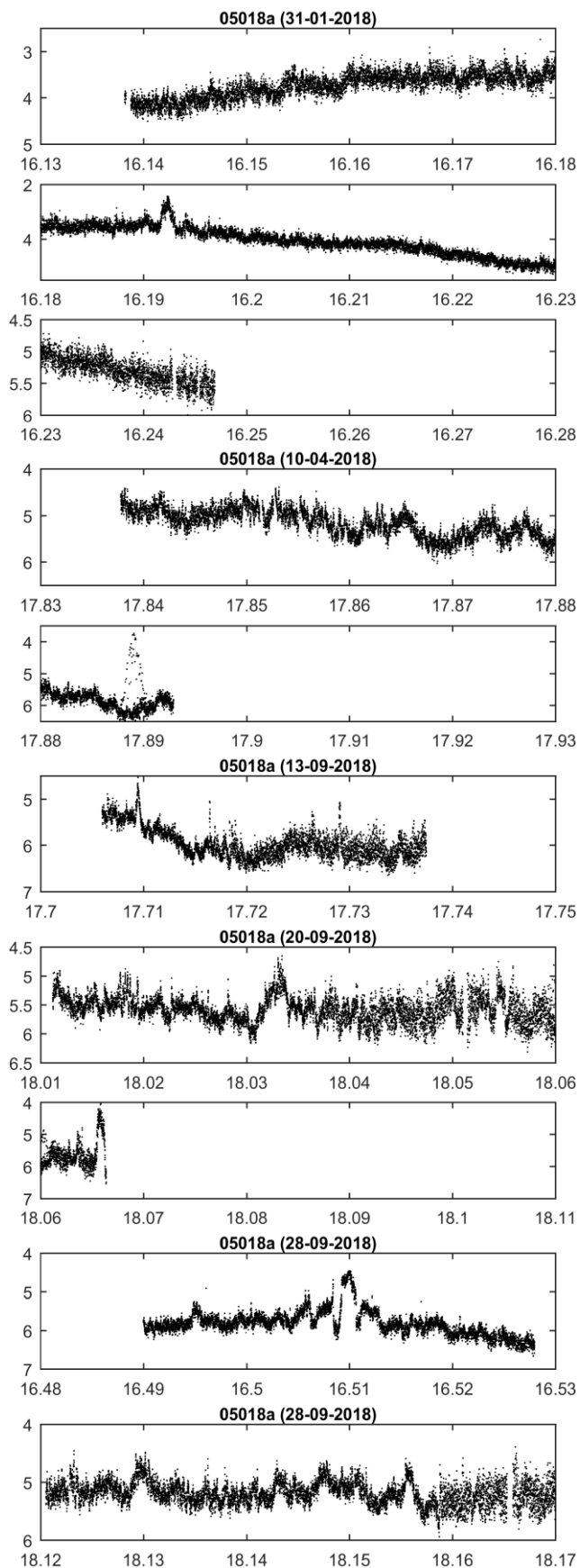
Eccentricity: 0.001

Launch date: 2005-05-20

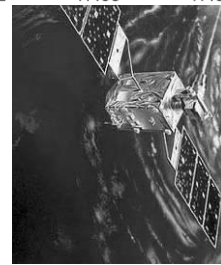
Source: United States (US)



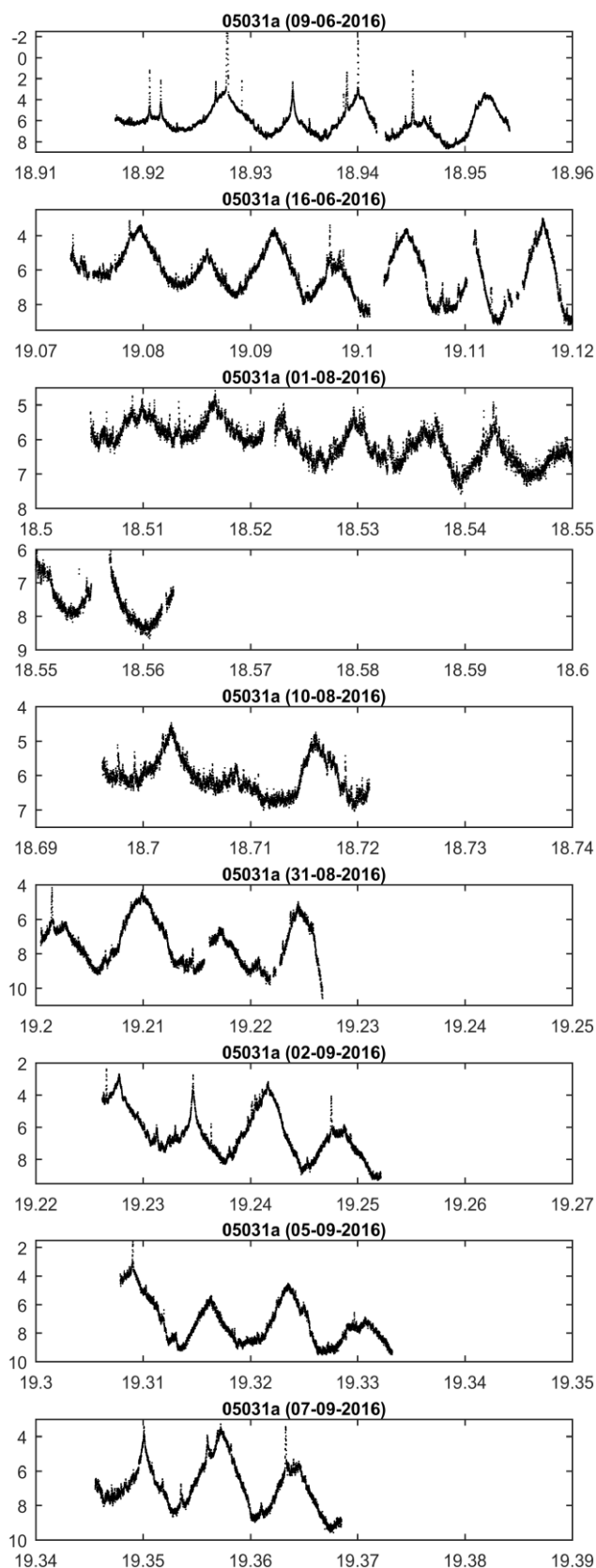
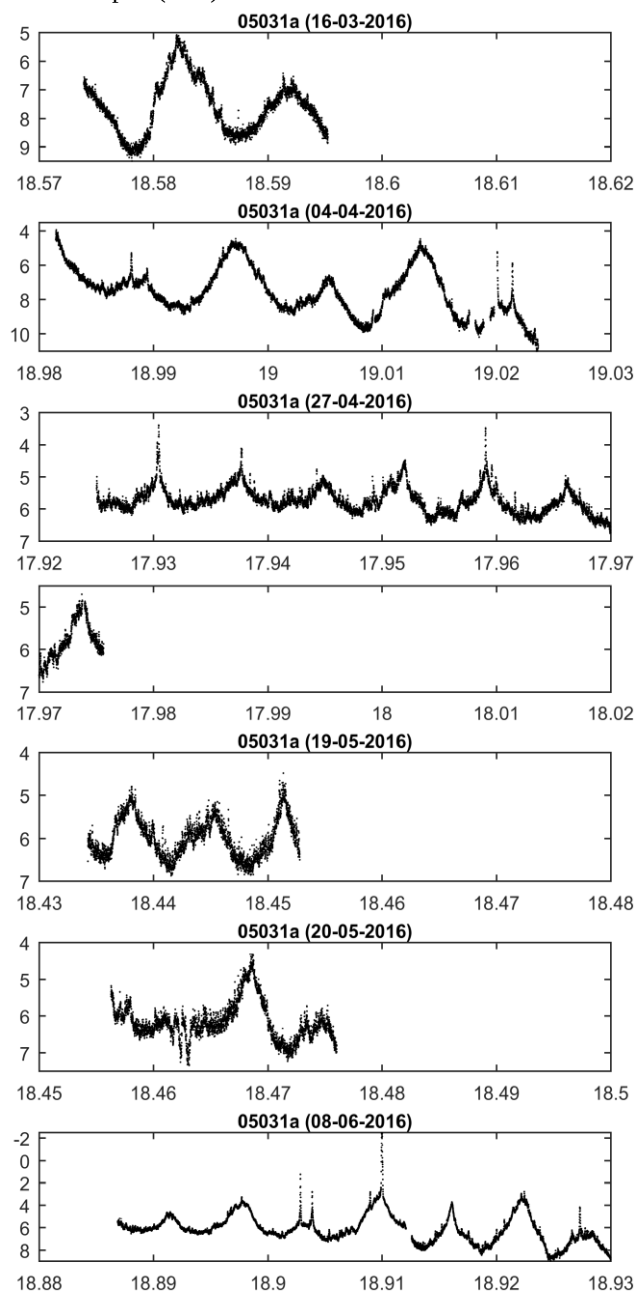


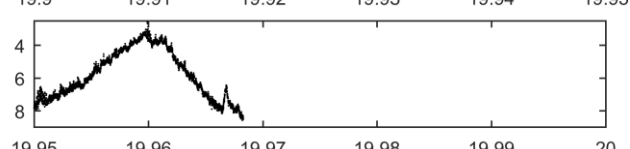
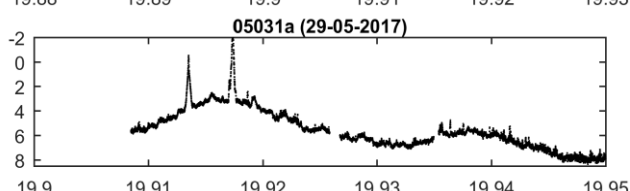
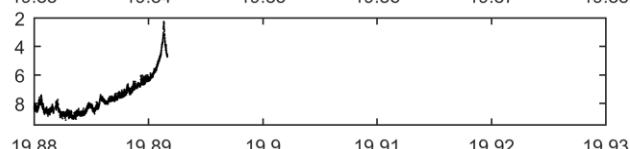
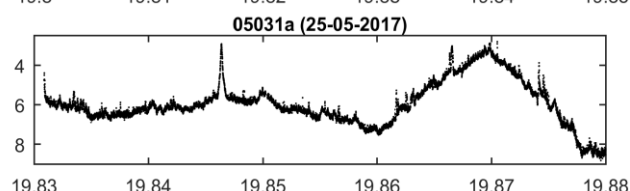
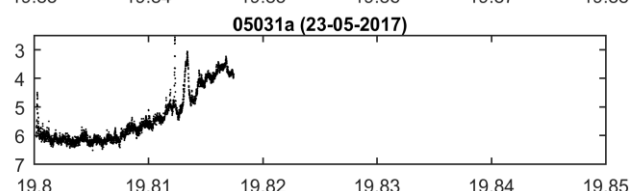
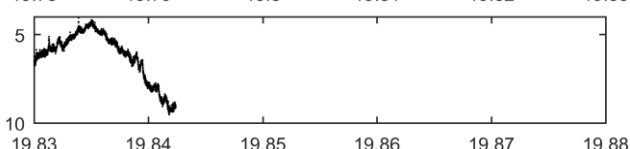
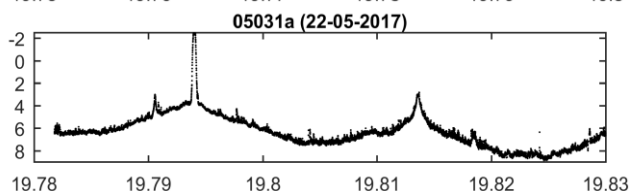
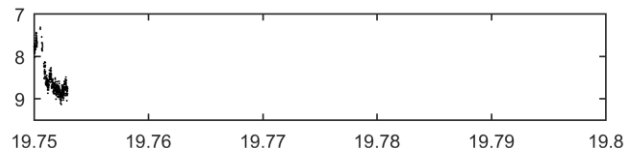
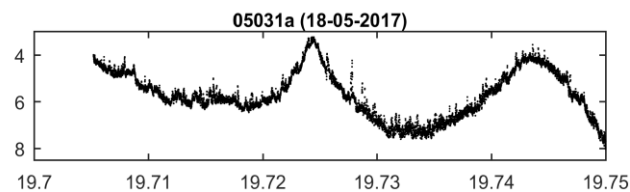
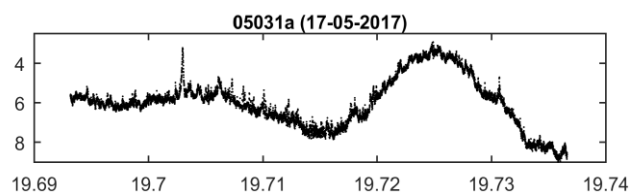
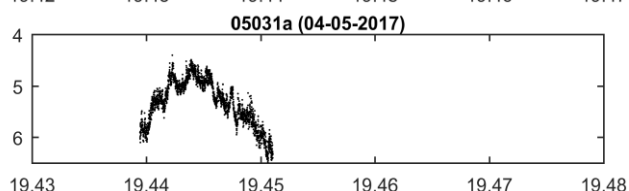
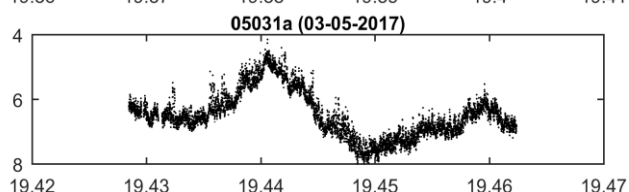
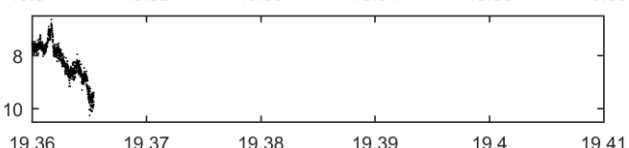
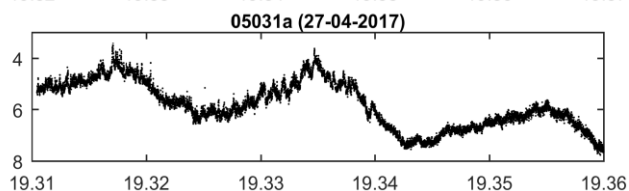
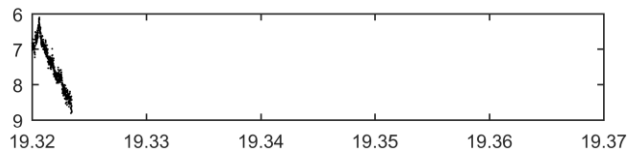
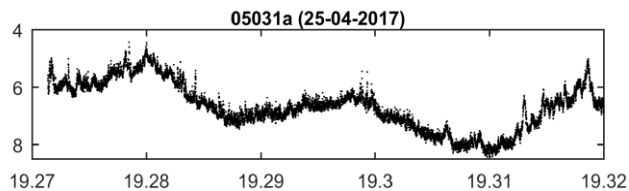
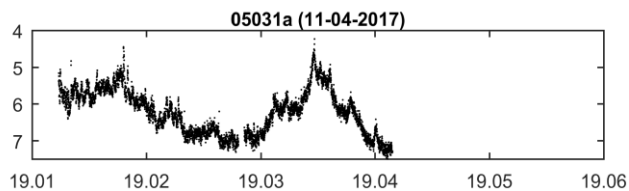
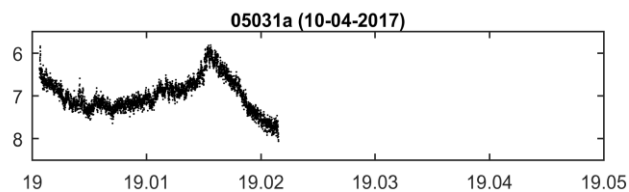
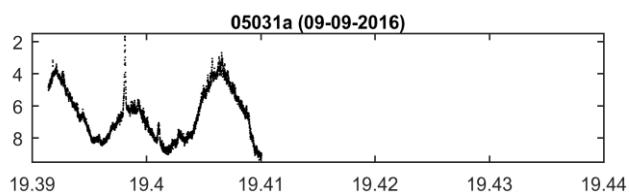


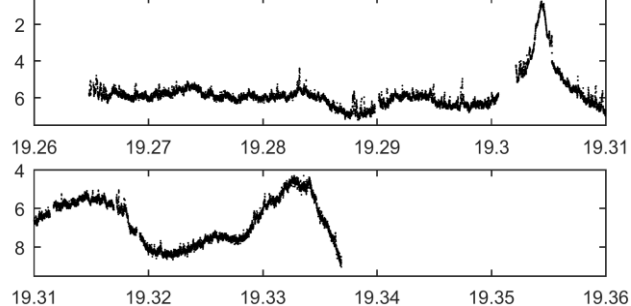
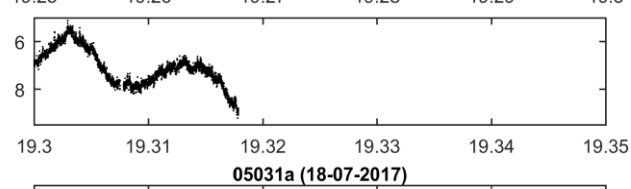
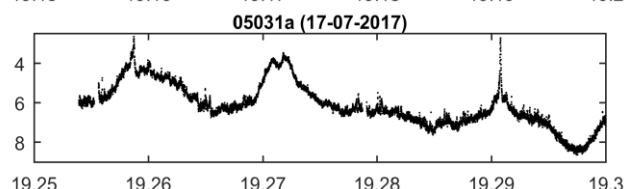
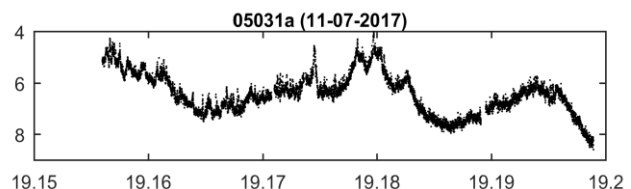
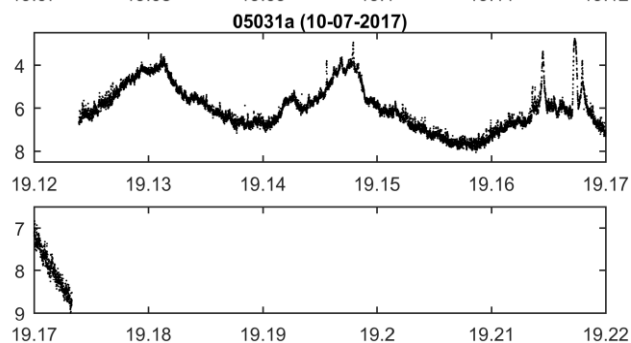
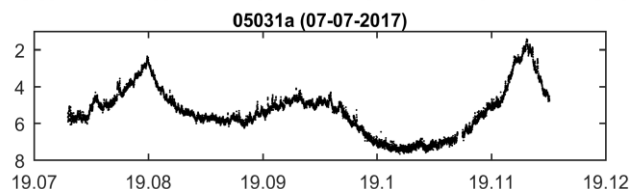
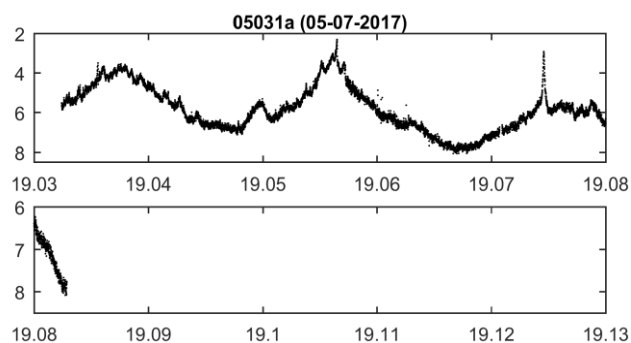
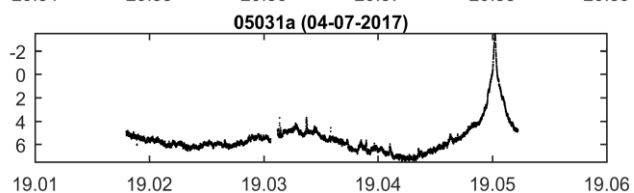
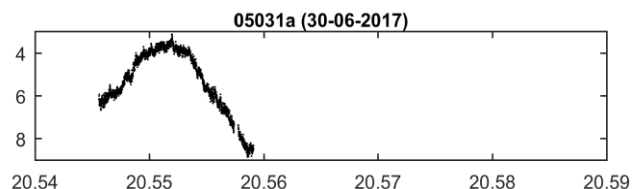
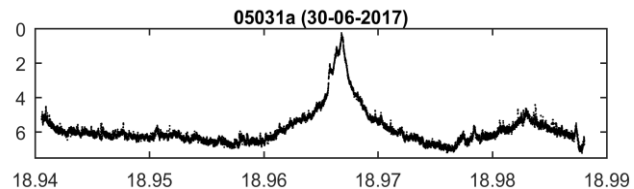
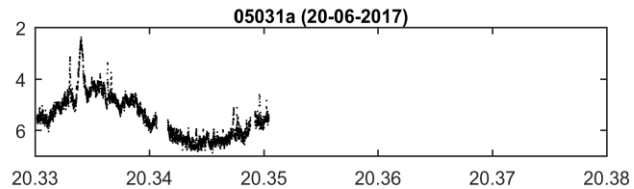
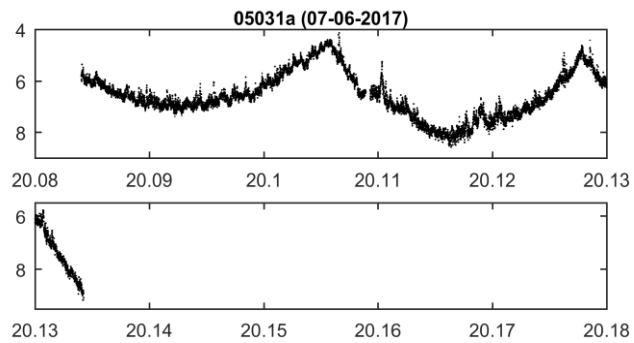
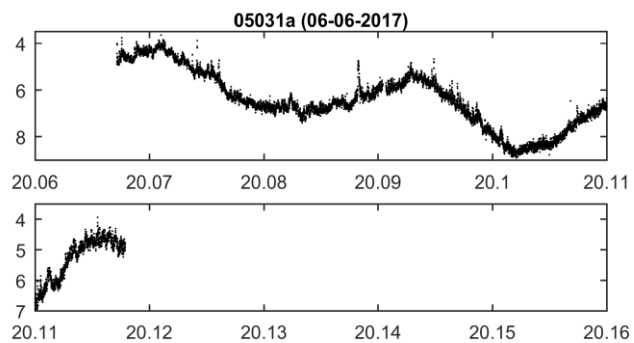
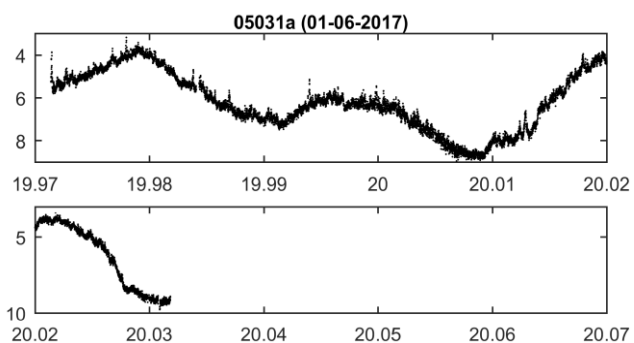
KIRARI (OICETS)
NORAD ID: 28809

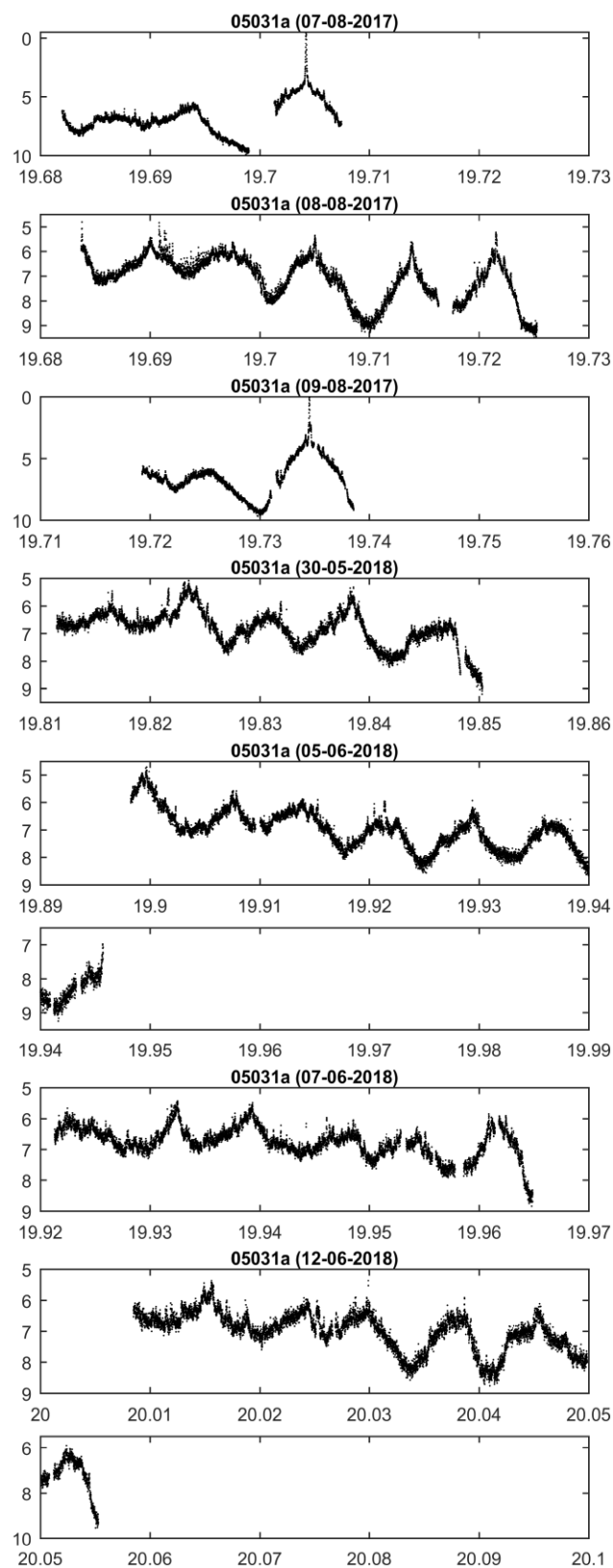
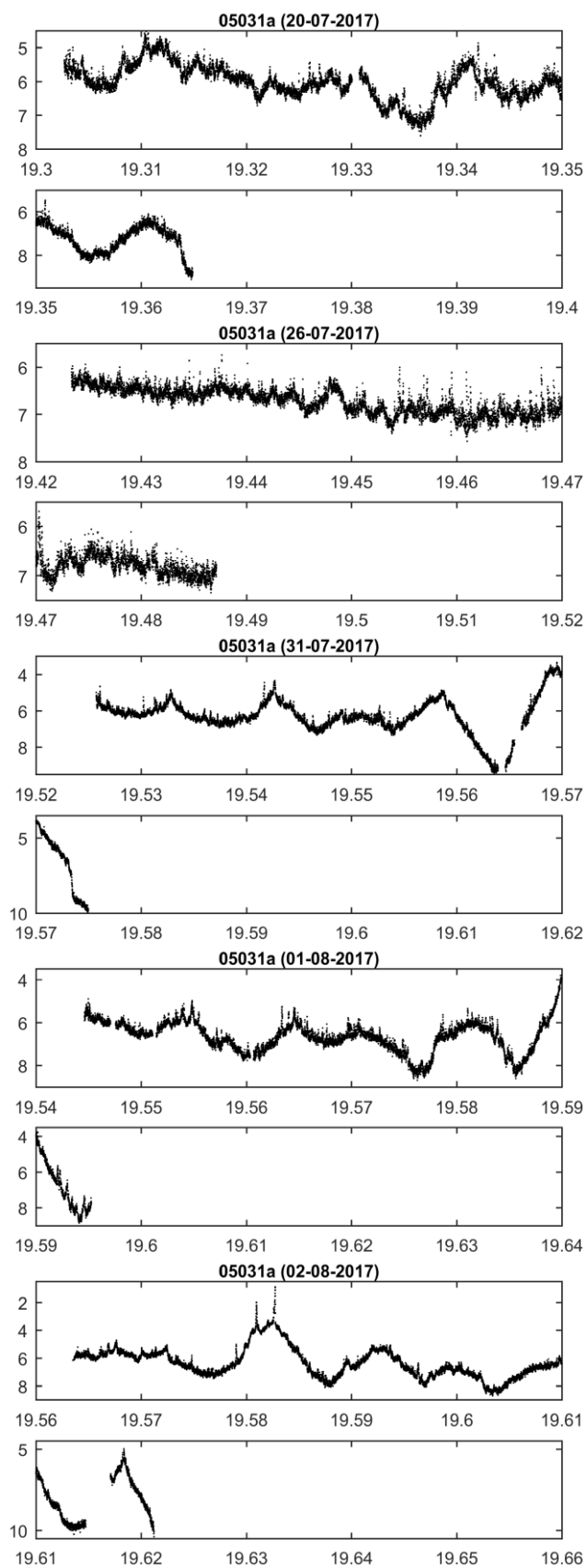


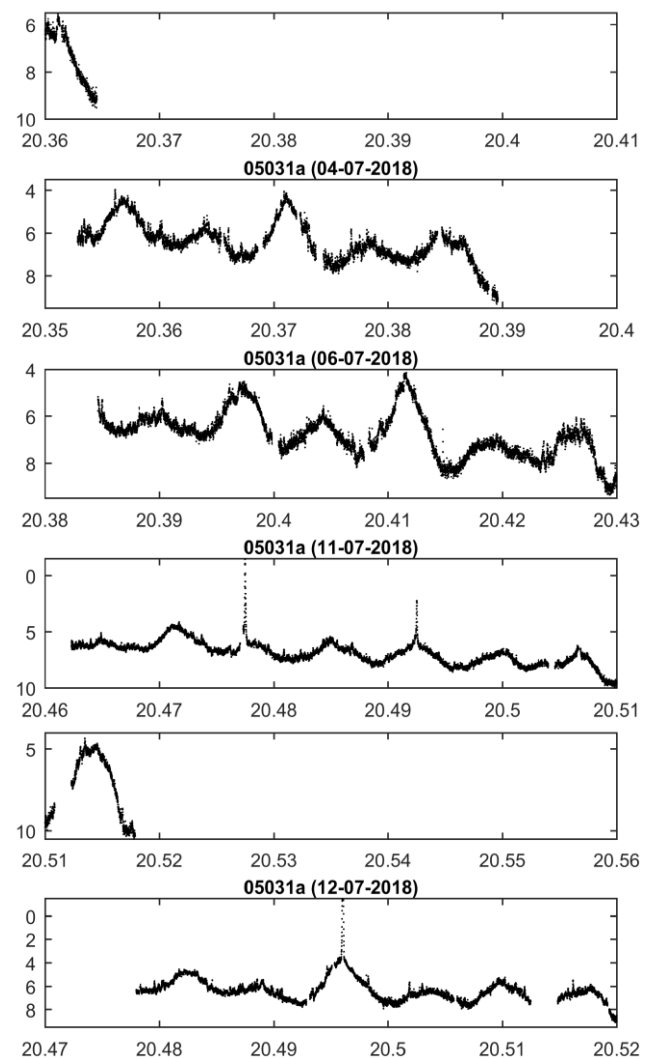
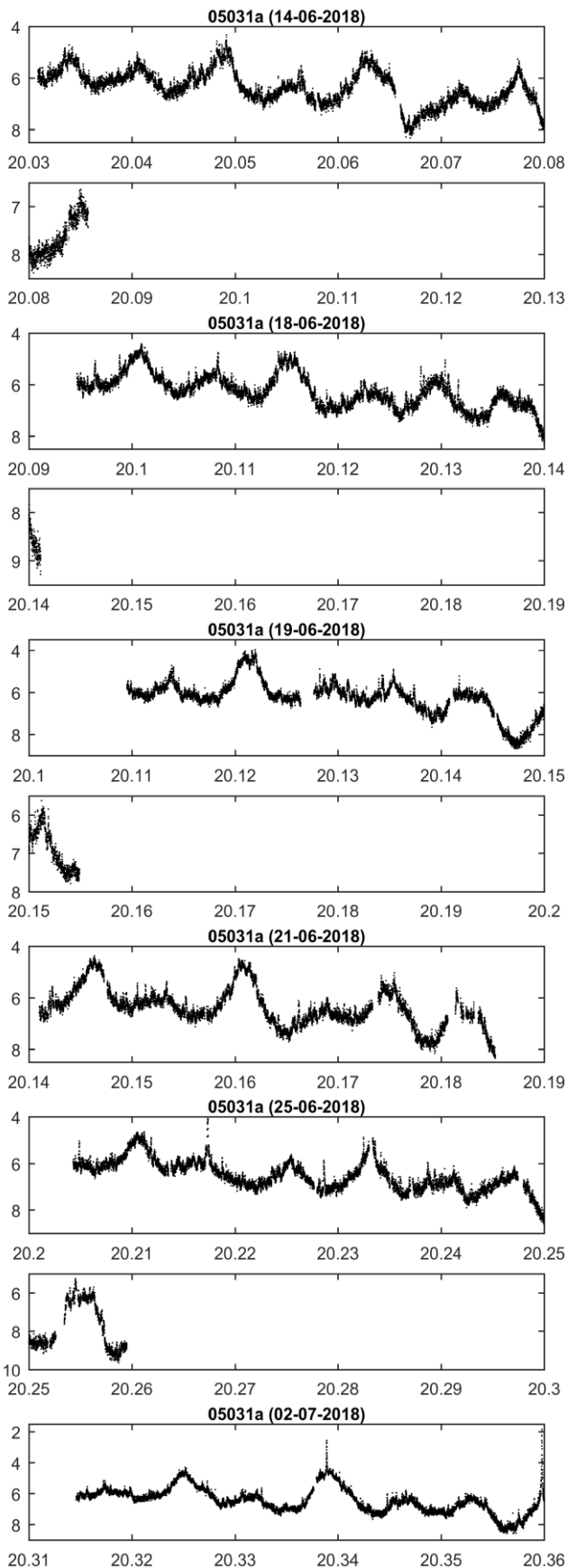
Int'l Code: 2005-031A
 Dimensions: box 0.78m x 1.1m
 x 1.5m, 9.36m span
 Initial orbit:
 Perigee: 597 km
 Apogee: 612 km
 Inclination: 97.83°
 Period: 96.78 min
 Eccentricity: 0.001
 Launch date: 2005-08-23
 Source: Japan (JPN)











MONITOR-E 1

NORAD ID: 28822

Int'l Code: 2005-032A

Dimensions:

Initial orbit:

Perigee: 524 km

Apogee: 544 km

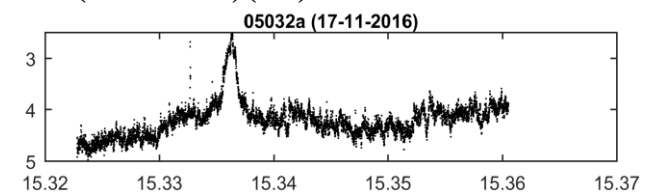
Inclination: 97.56°

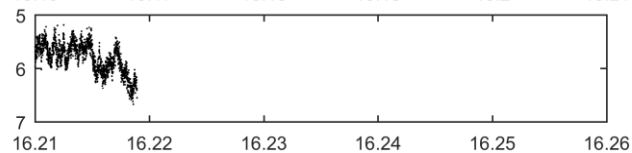
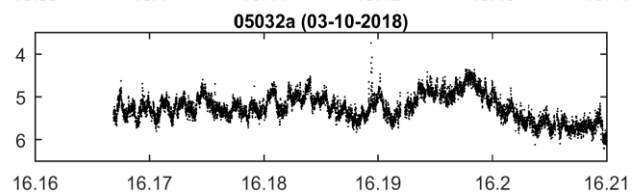
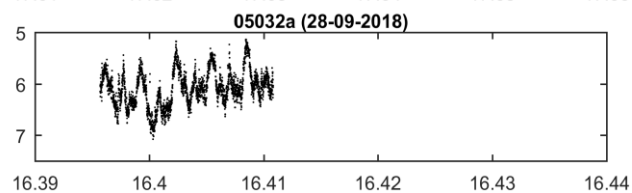
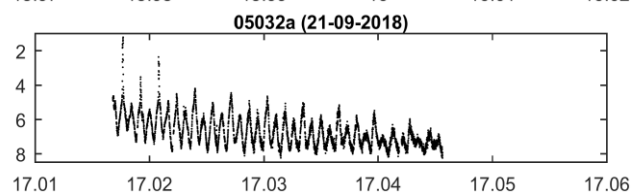
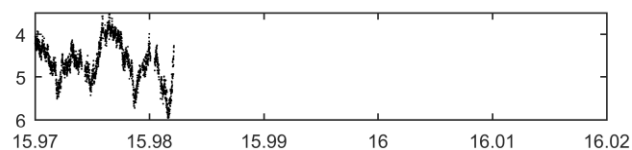
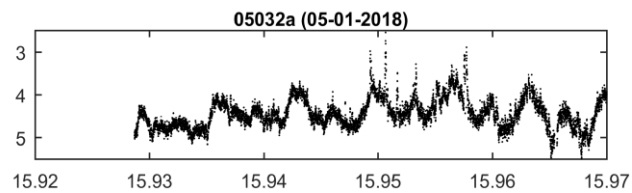
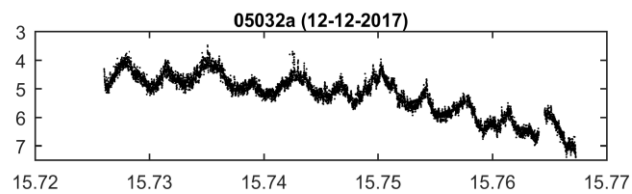
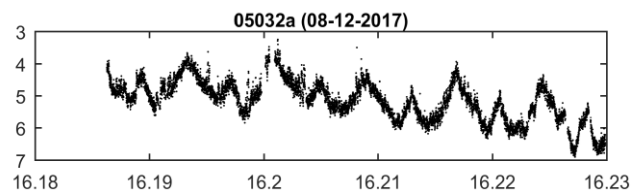
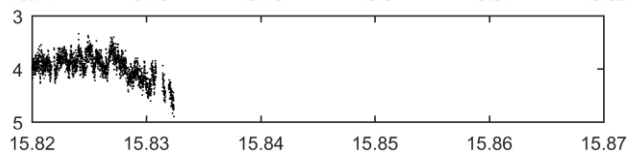
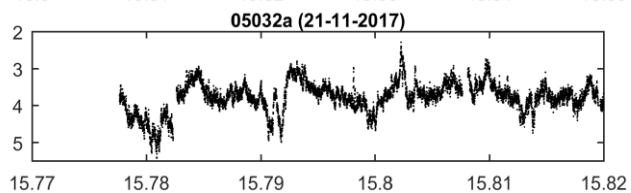
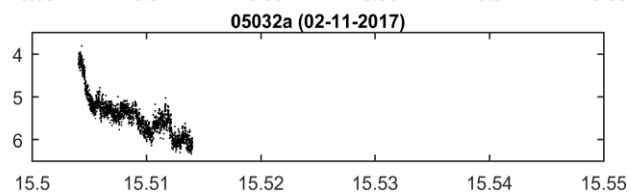
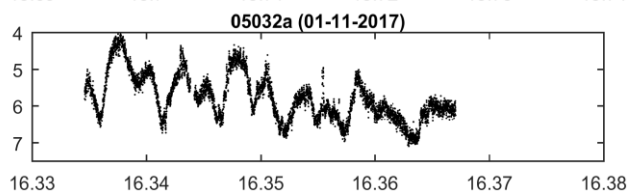
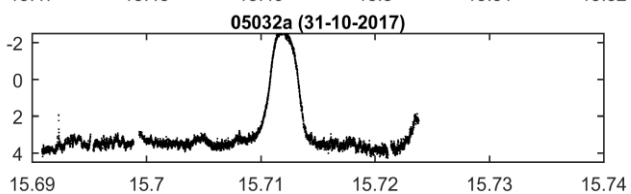
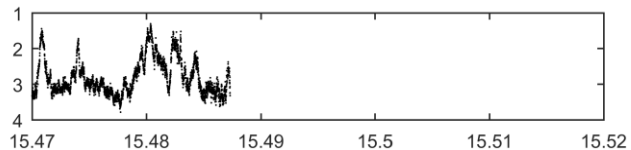
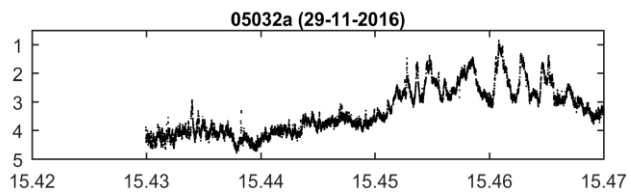
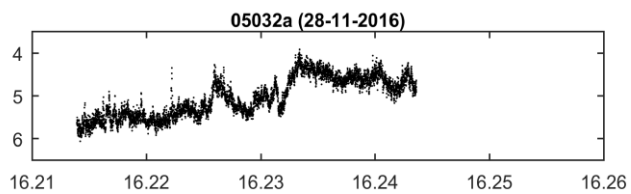
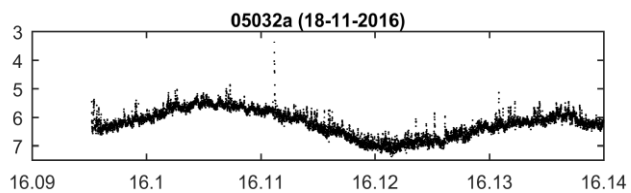
Period: 95.32 min

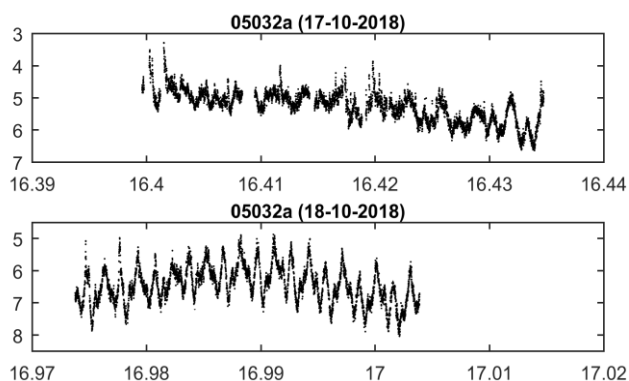
Eccentricity: 0.001

Launch date: 2005-08-26

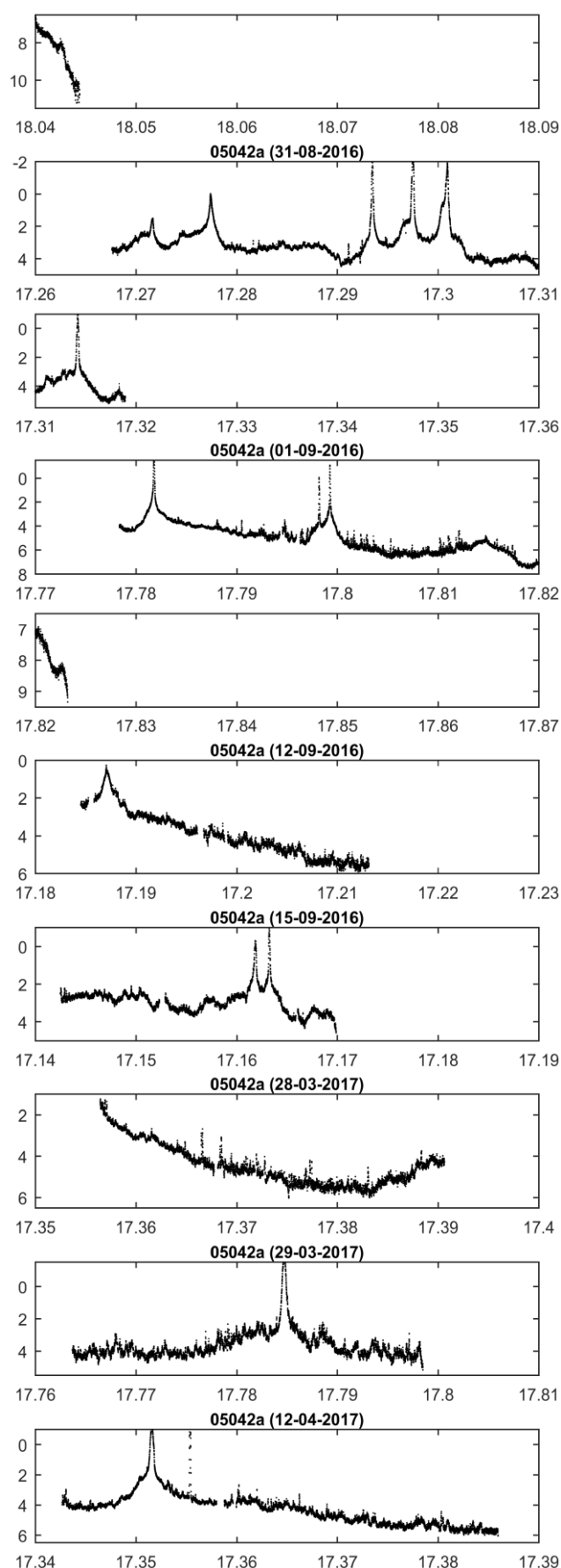
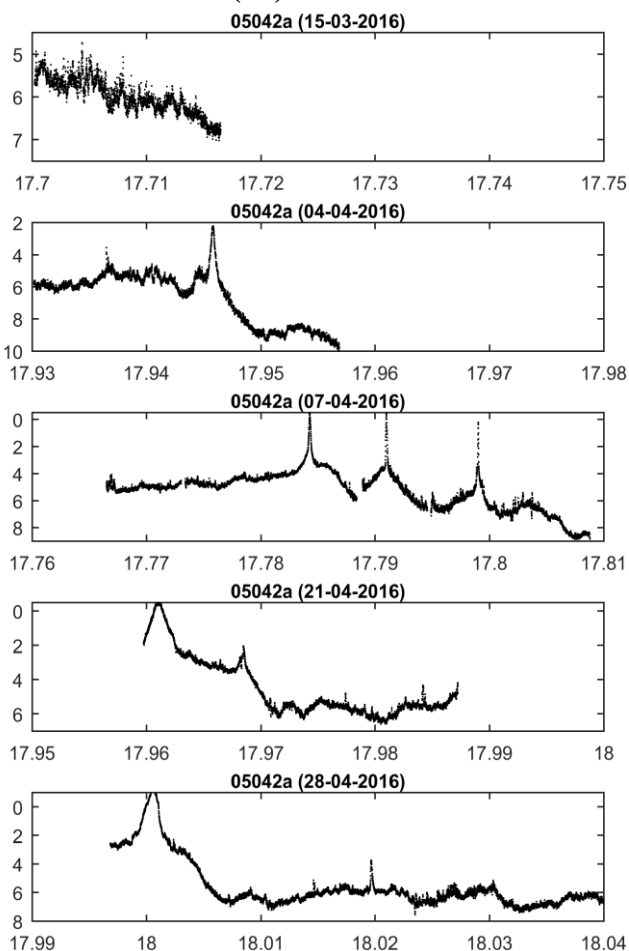
Source: Commonwealth of Independent States (former USSR) (CIS)

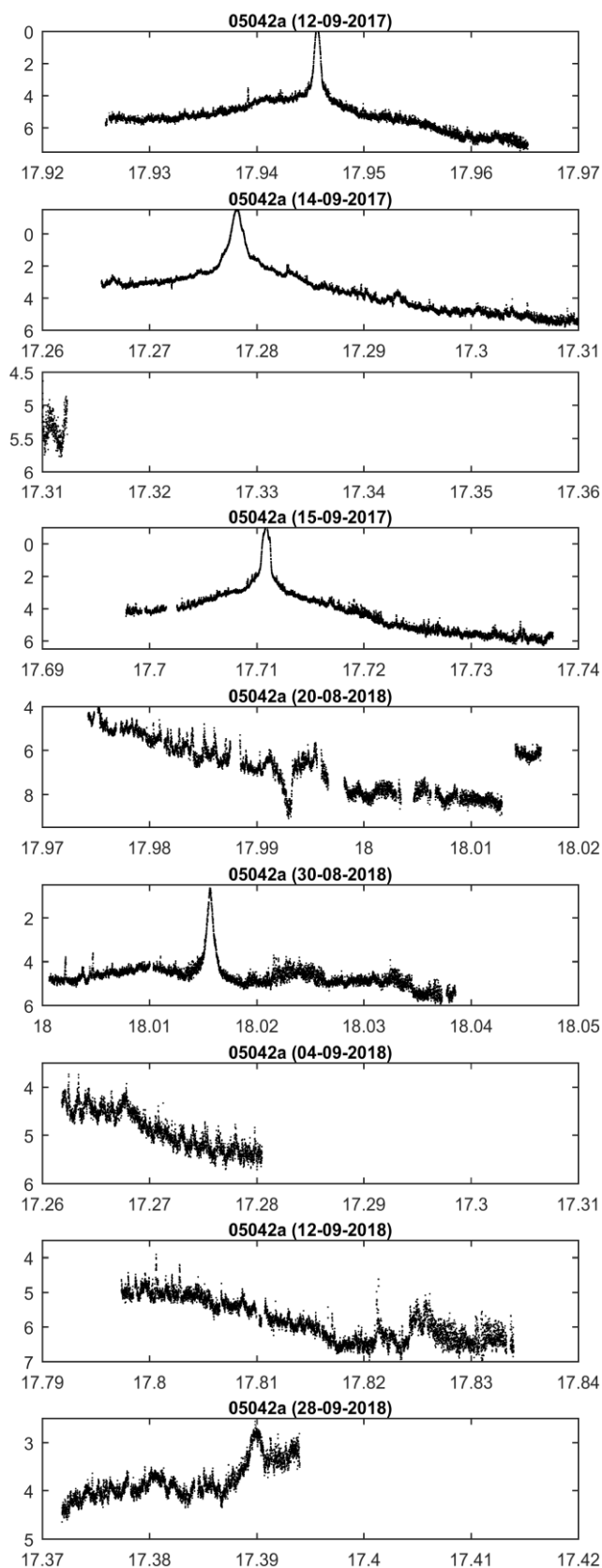




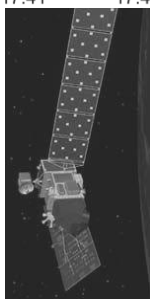


USA 186
(NRO-L 20, KH-12 5)
 NORAD ID: 28888
 Int'l Code: 2005-042A
 Dimensions:
 Initial orbit:
 Perigee: 264 km
 Apogee: 1050 km
 Inclination: 97.8°
 Period: 97.87 min
 Eccentricity: 0.0559
 Launch date: 2005-10-19
 Source: United States (US)

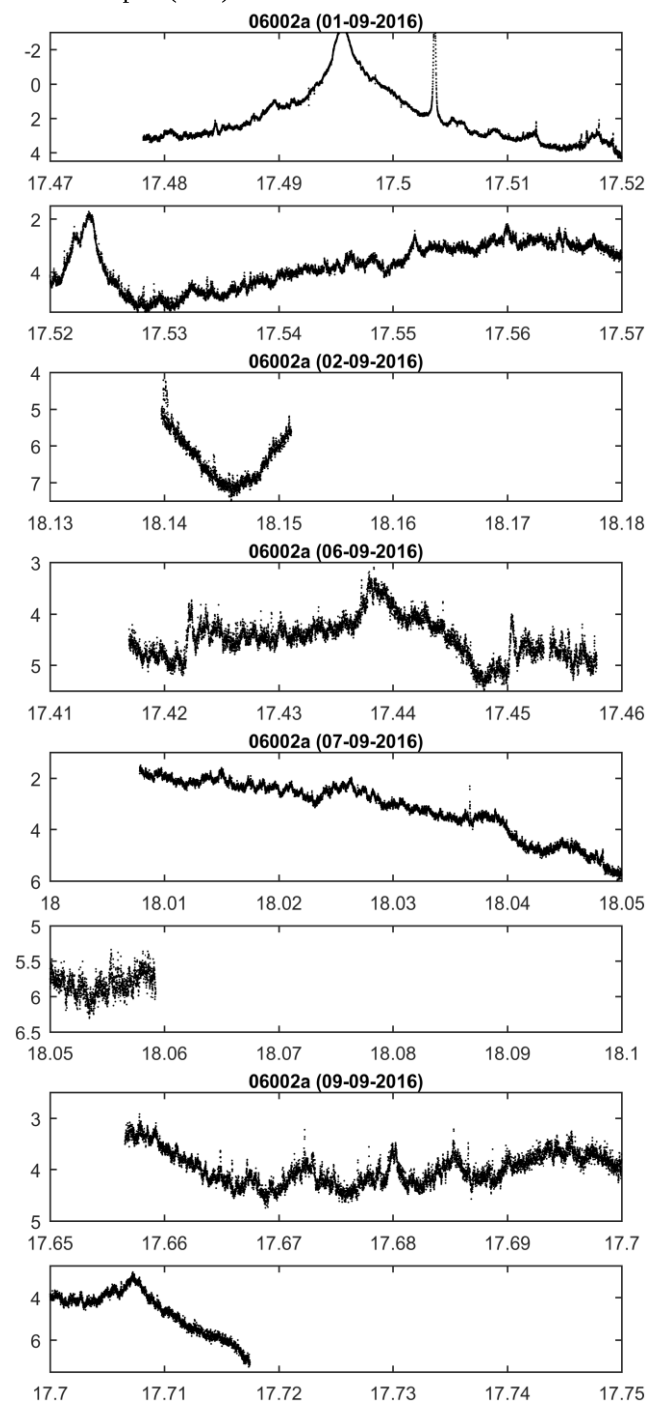


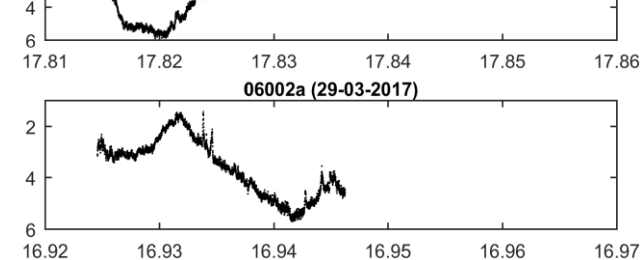
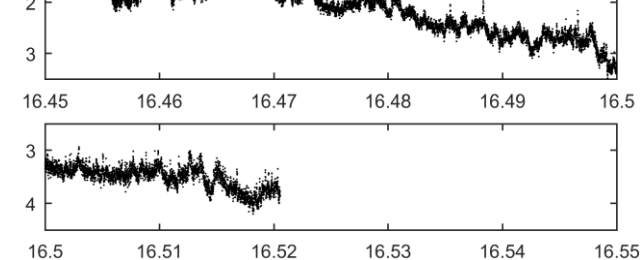
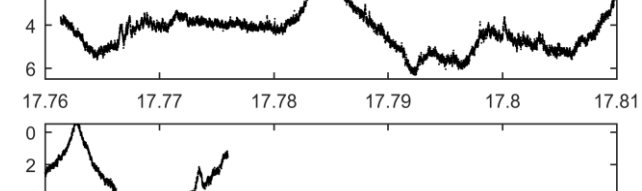
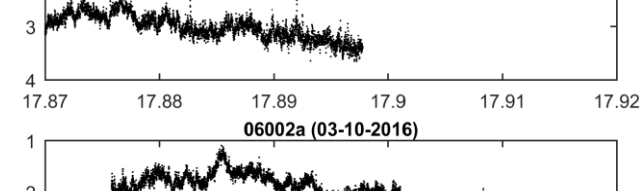
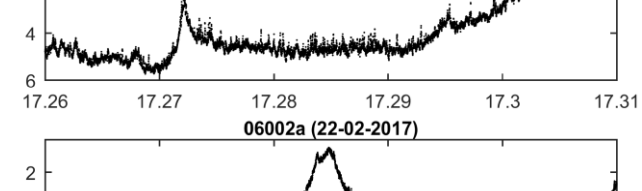
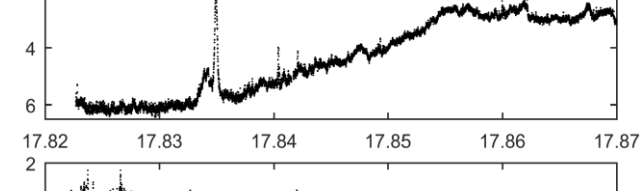
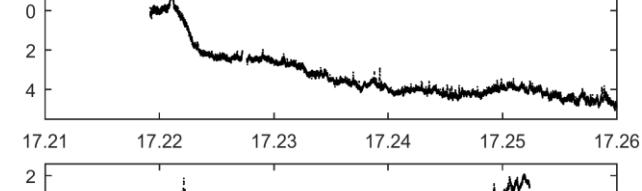
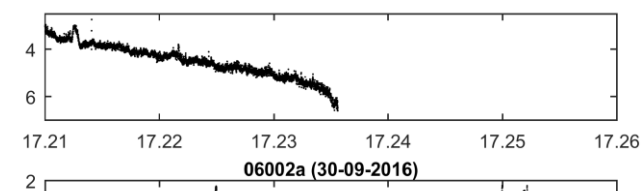
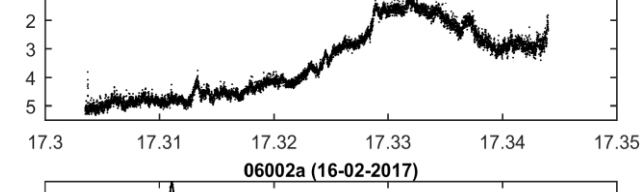
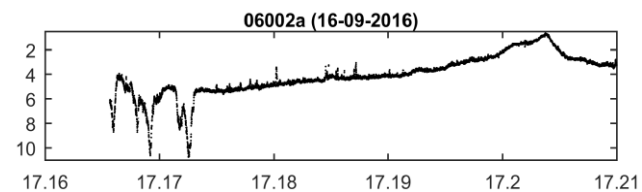
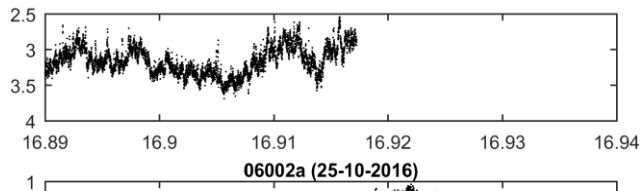
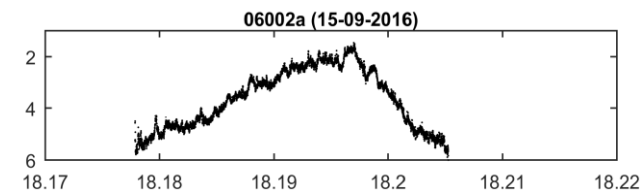
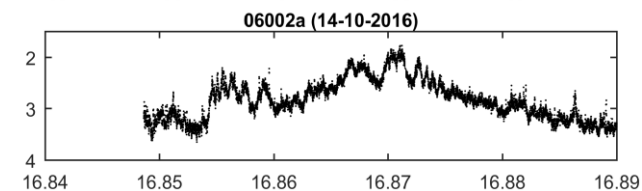
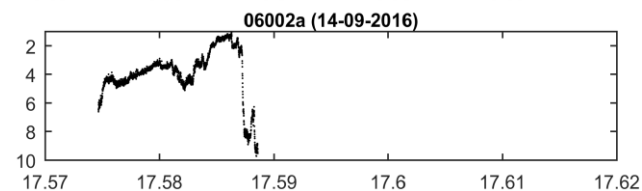
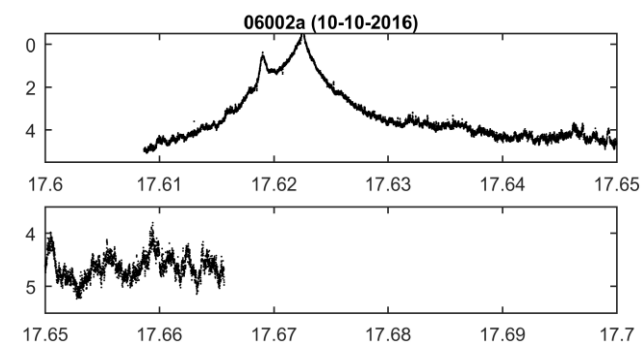
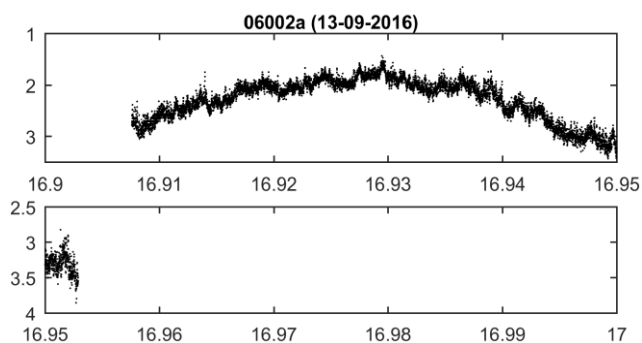


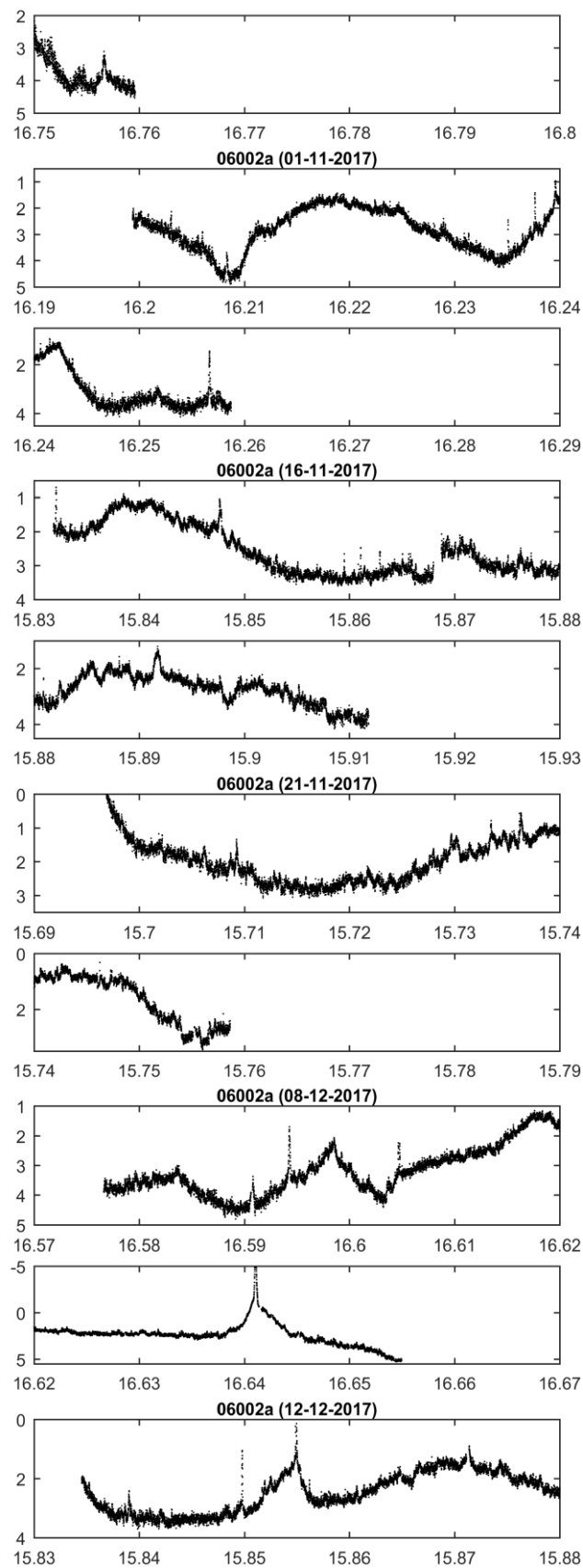
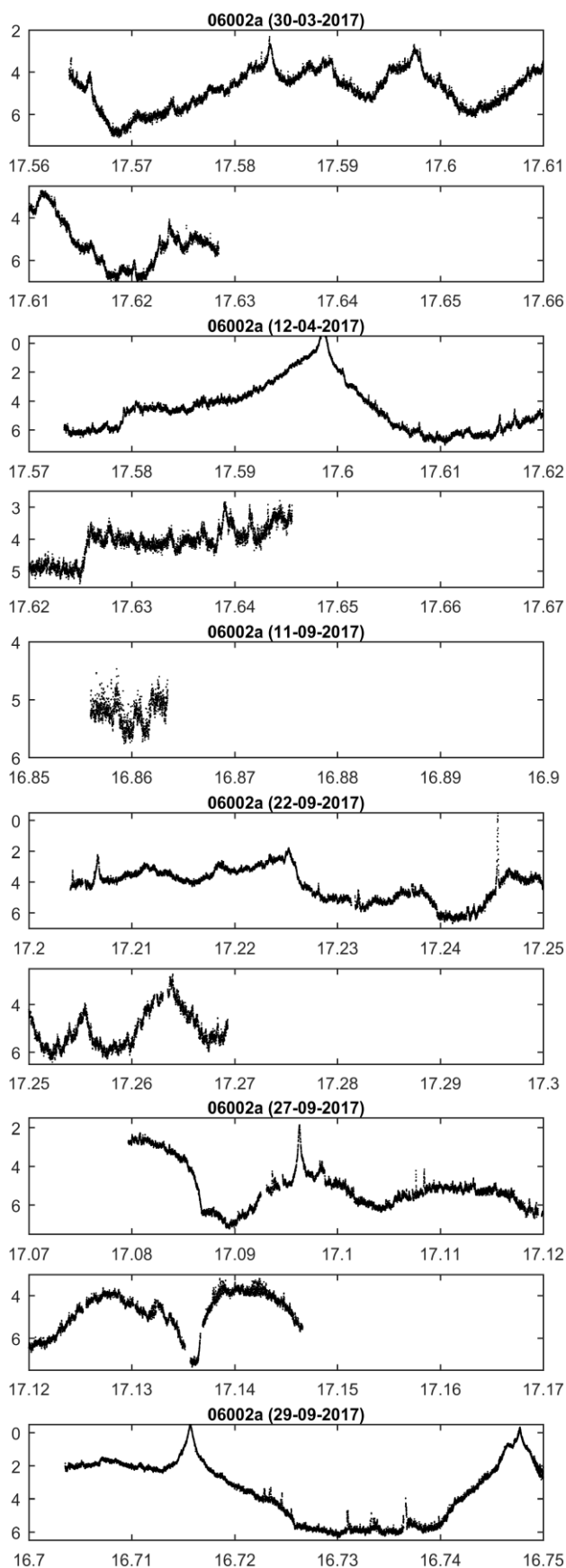
ALOS (DAICHI)
(Advanced Land Observing Satellite)
 NORAD ID: 28931

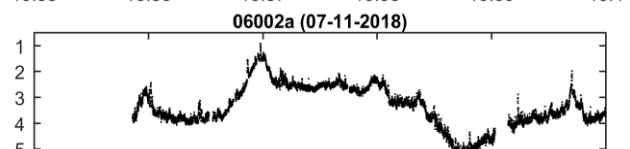
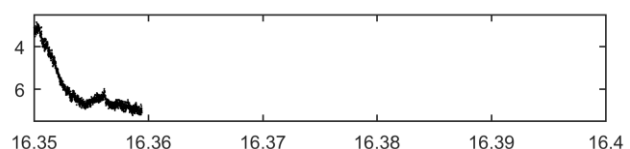
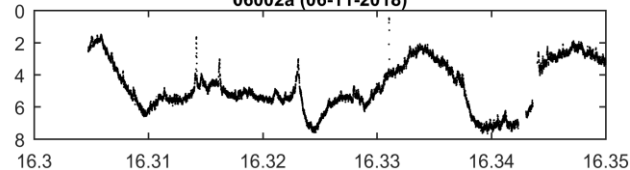
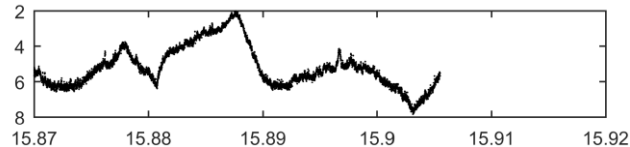
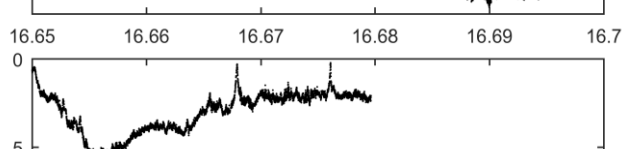
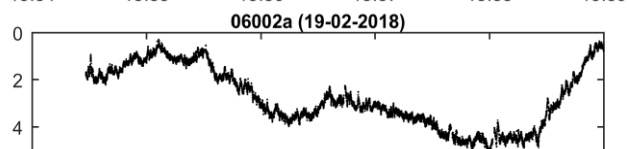
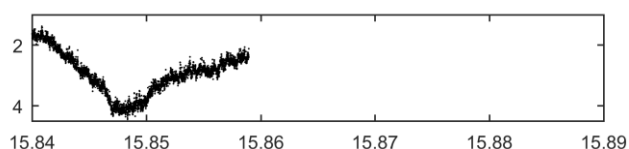
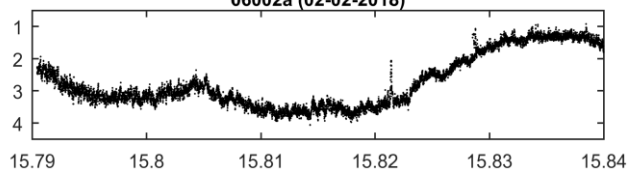
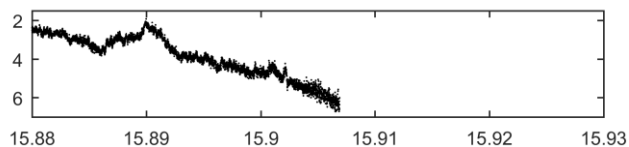


Int'l Code: 2006-002A
 Dimensions: box 6.5m x 3.5m x 4.5m,
 palsar 8.9m x 3.1m, solar array 22m x 3m
 Initial orbit:
 Perigee: 695 km
 Apogee: 697 km
 Inclination: 98.23°
 Period: 98.68 min
 Eccentricity: 0.0001
 Launch date: 2006-01-24
 Source: Japan (JPN)









RESURS DK-1

NORAD ID: 29228

Int'l Code: 2006-021A

Dimensions:

Initial orbit:

Perigee: 355 km

Apogee: 585 km

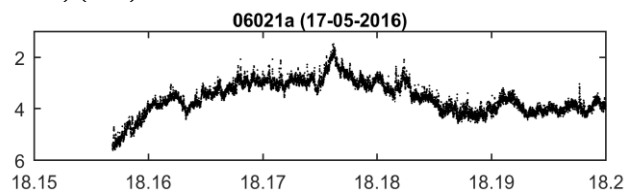
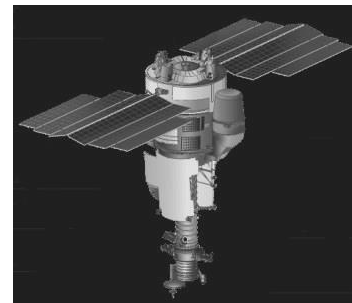
Inclination: 69.94°

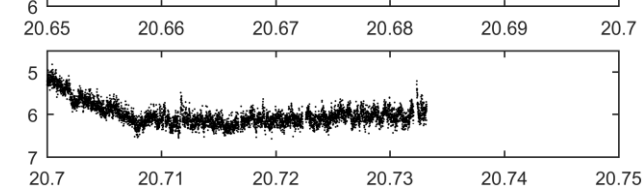
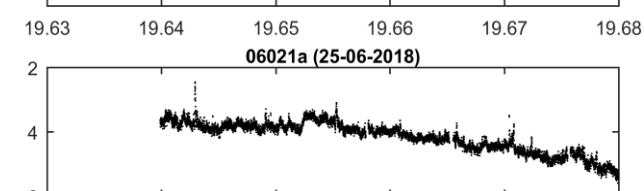
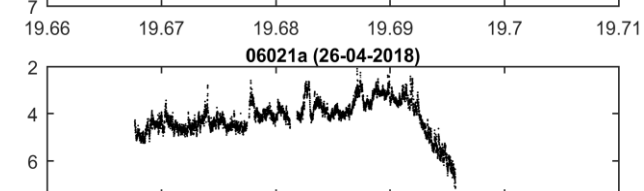
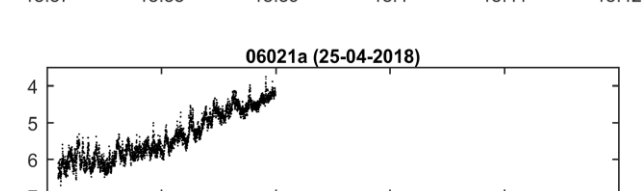
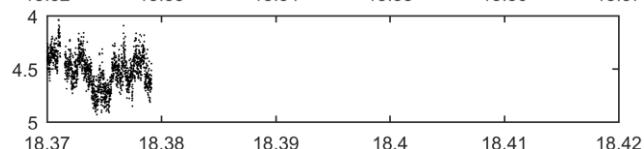
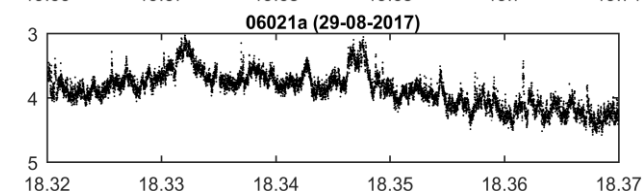
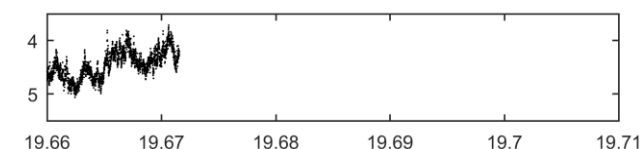
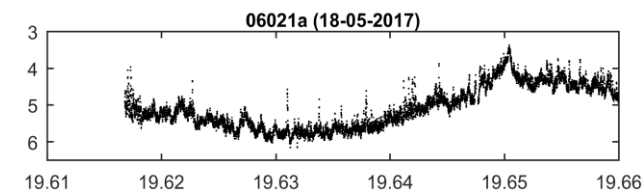
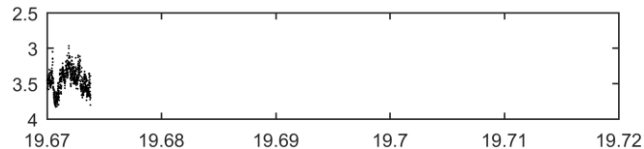
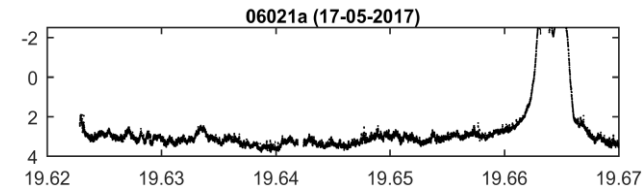
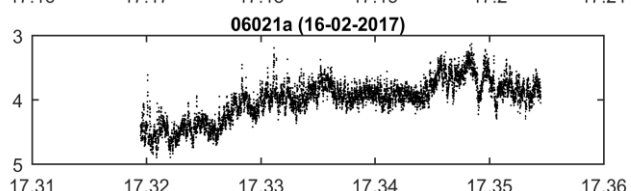
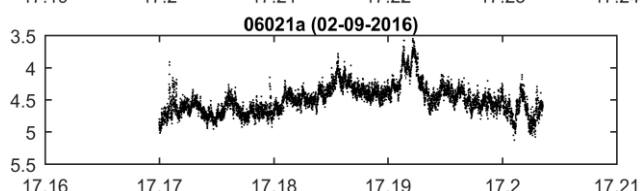
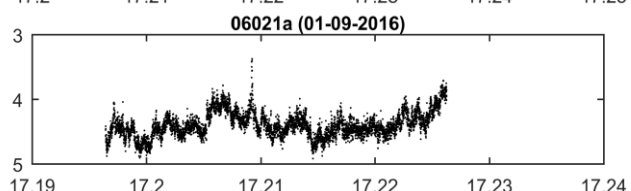
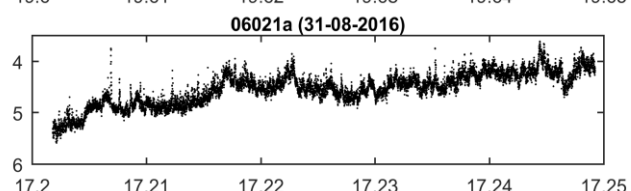
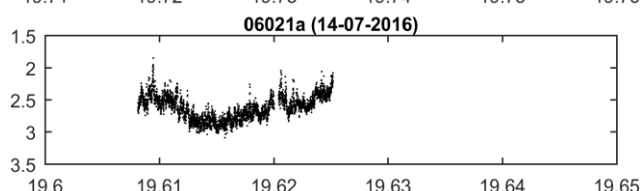
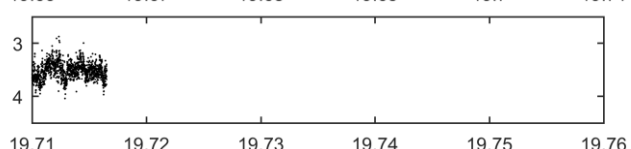
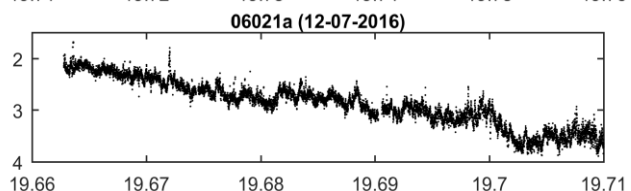
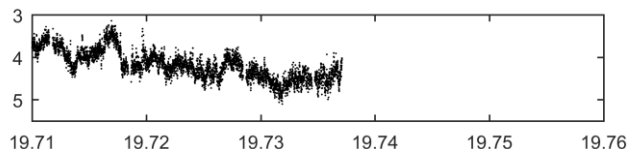
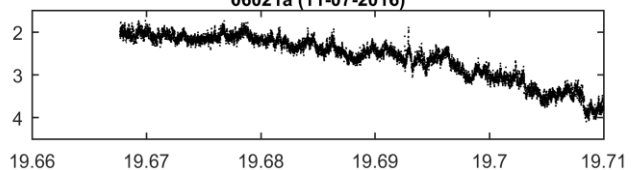
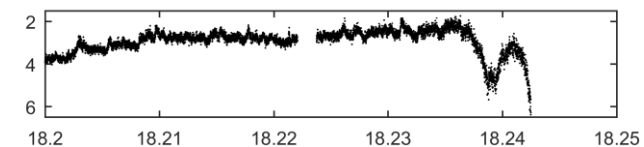
Period: 94.00 min

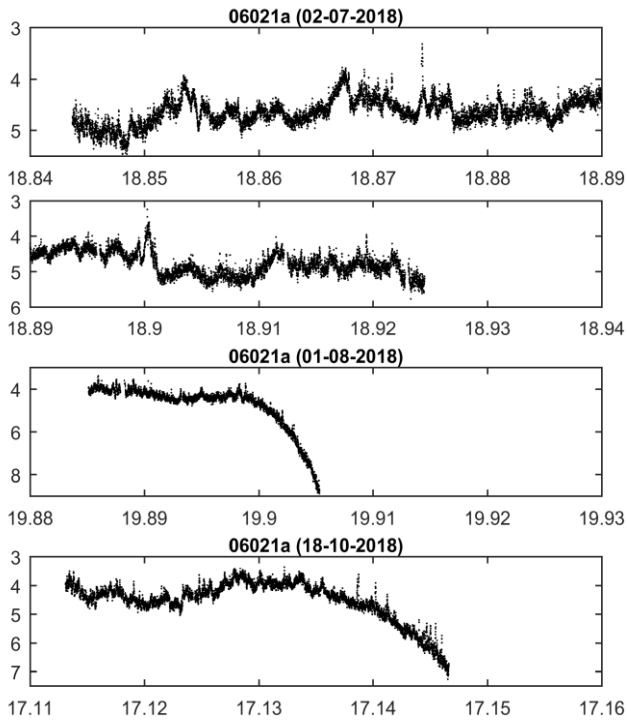
Eccentricity: 0.017

Launch date: 2006-06-15

Source: Commonwealth of Independent States (former USSR) (CIS)







GENESIS 1

NORAD ID: 29252

Int'l Code: 2006-029A

Dimensions: inflatable
cylinder 4.5m long, 2.4m dia

Initial orbit:

Perigee: 555 km

Apogee: 561 km

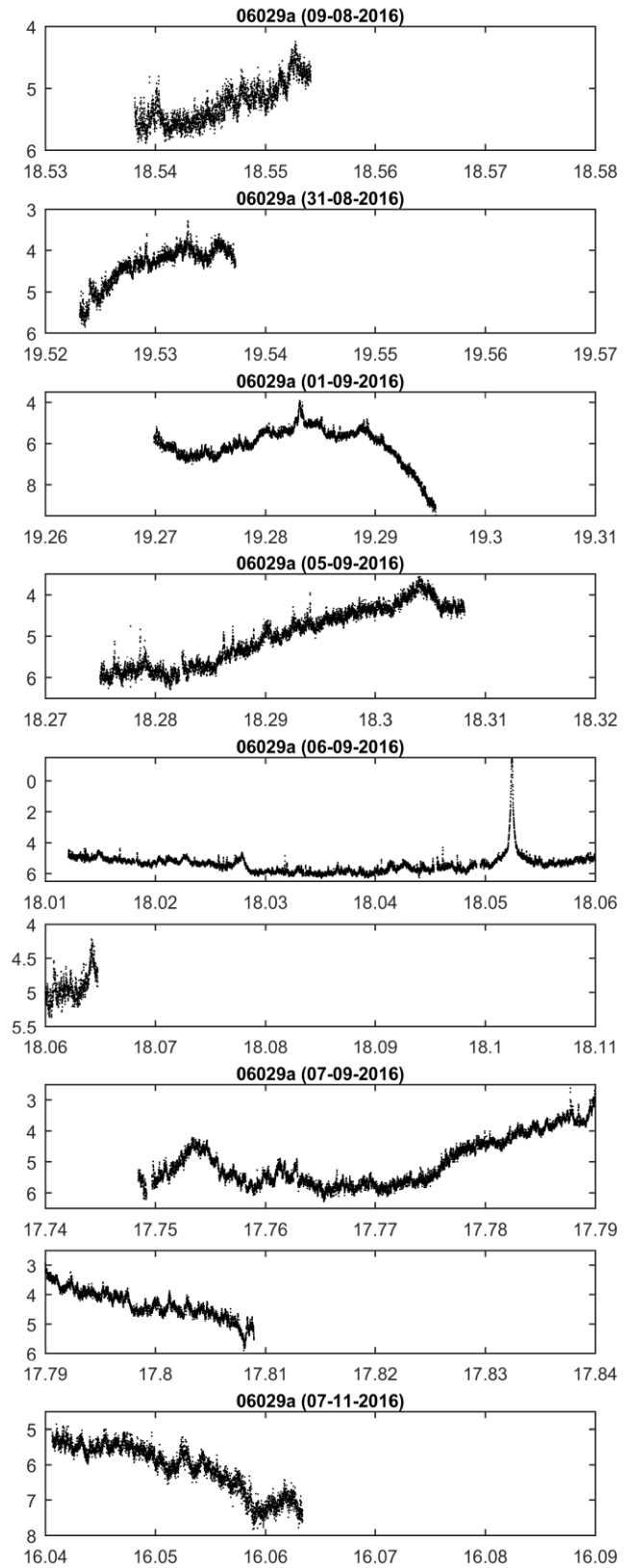
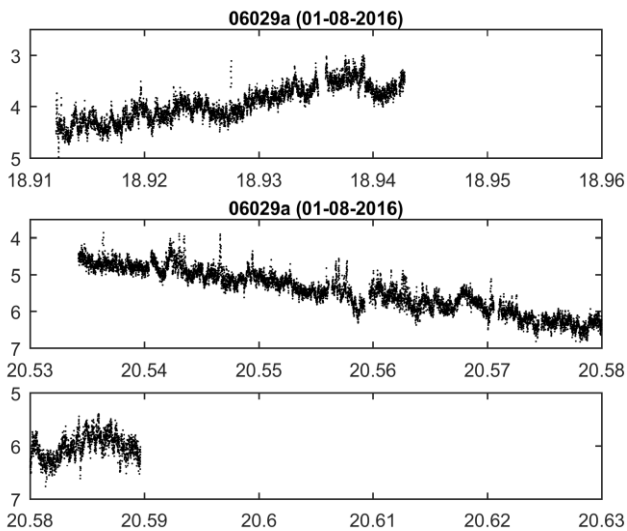
Inclination: 64.51°

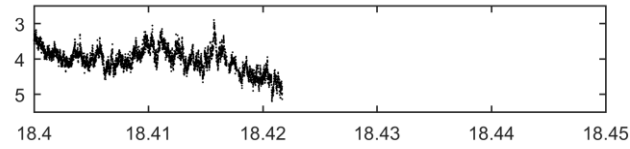
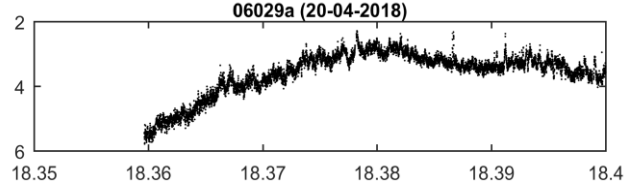
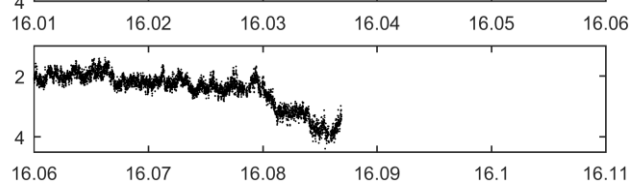
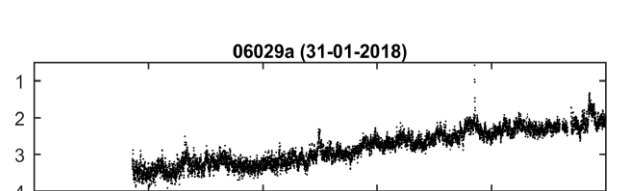
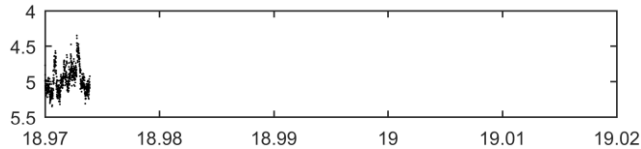
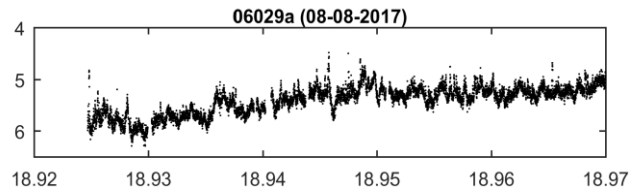
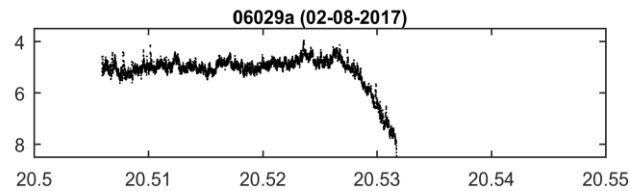
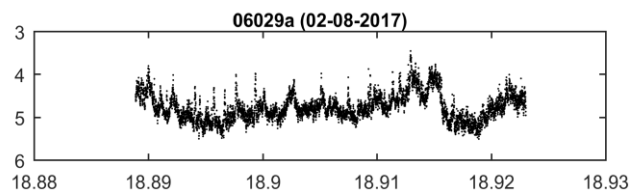
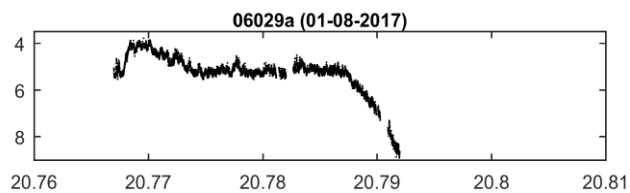
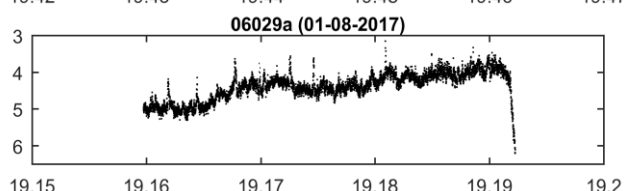
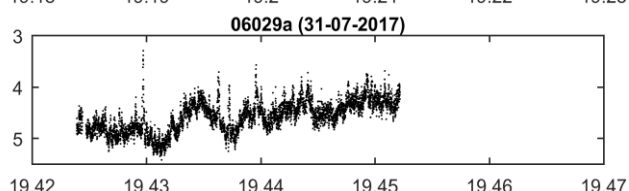
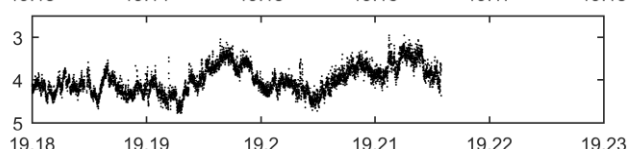
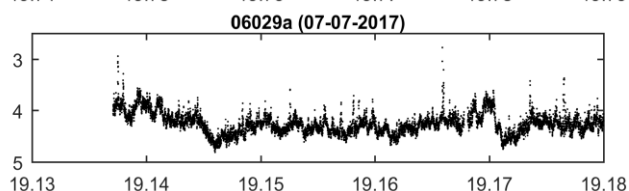
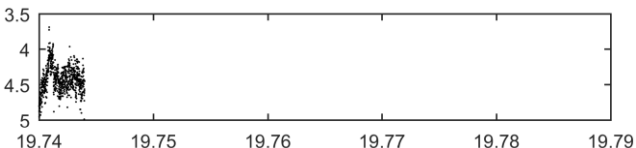
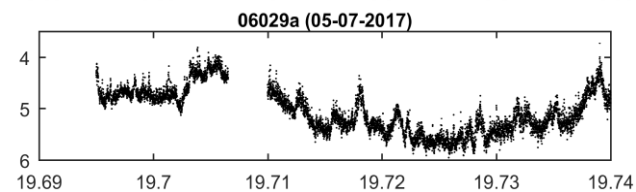
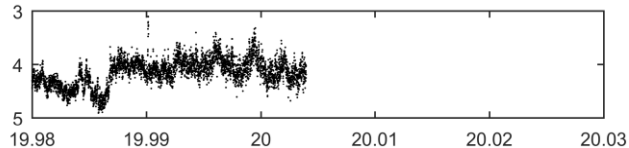
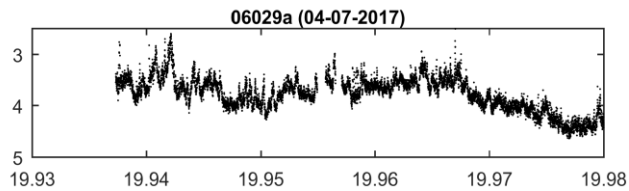
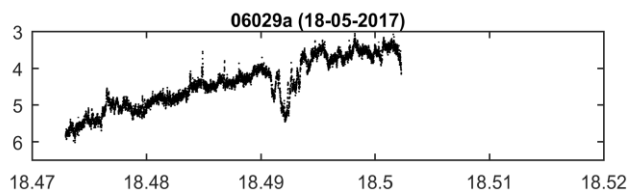
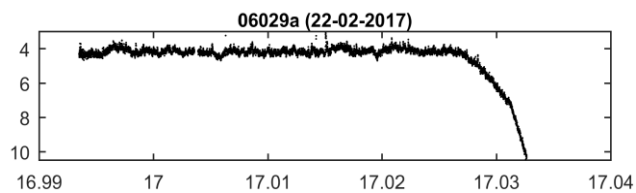
Period: 95.82 min

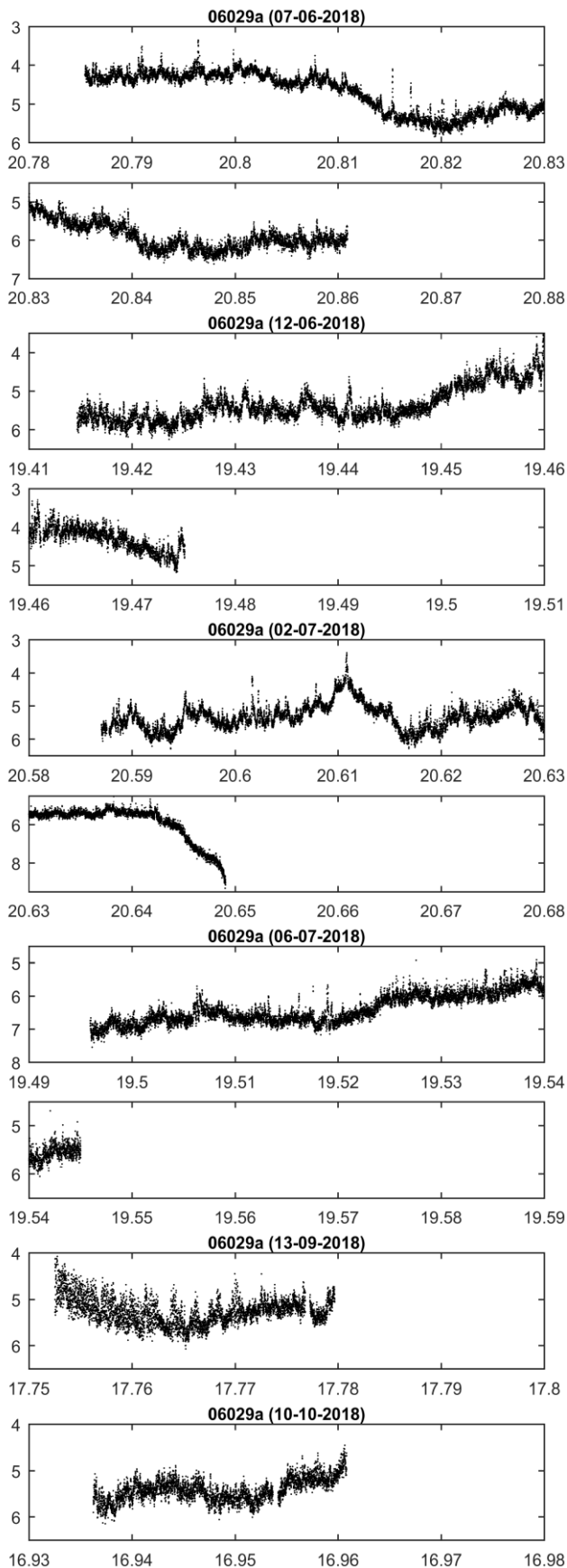
Eccentricity: 0.0005

Launch date: 2006-07-12

Source: United States (US)







KOMPSAT 2

NORAD ID: 29268

Int'l Code: 2006-031A

Dimensions: hexagonal + 2 panels

2.5m long 2m dia, 6.8m span

Initial orbit:

Perigee: 679 km

Apogee: 701 km

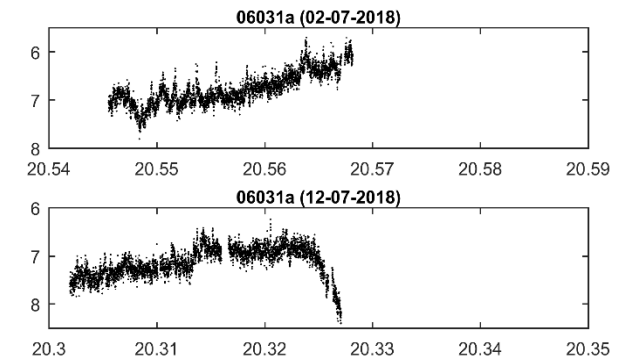
Inclination: 98.14°

Period: 98.57 min

Eccentricity: 0.002

Launch date: 2006-07-28

Source: South Korea (SKOR)



HAIYANG 1B

NORAD ID: 31113

Int'l Code: 2007-010A

Dimensions:

Initial orbit:

Perigee: 782 km

Apogee: 814 km

Inclination: 98.62°

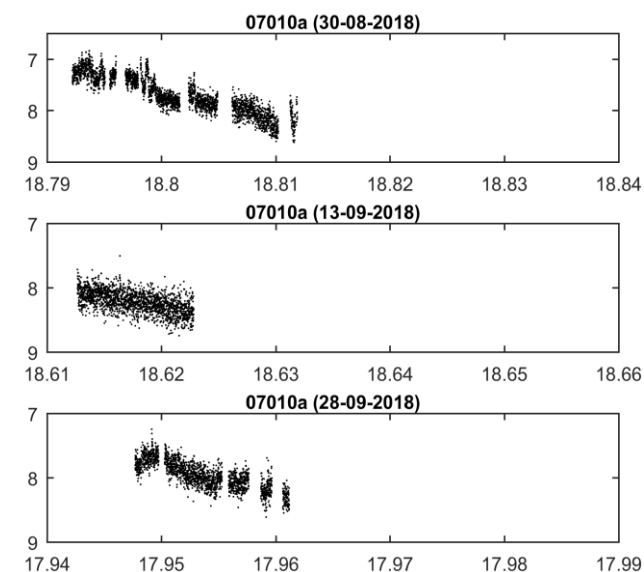
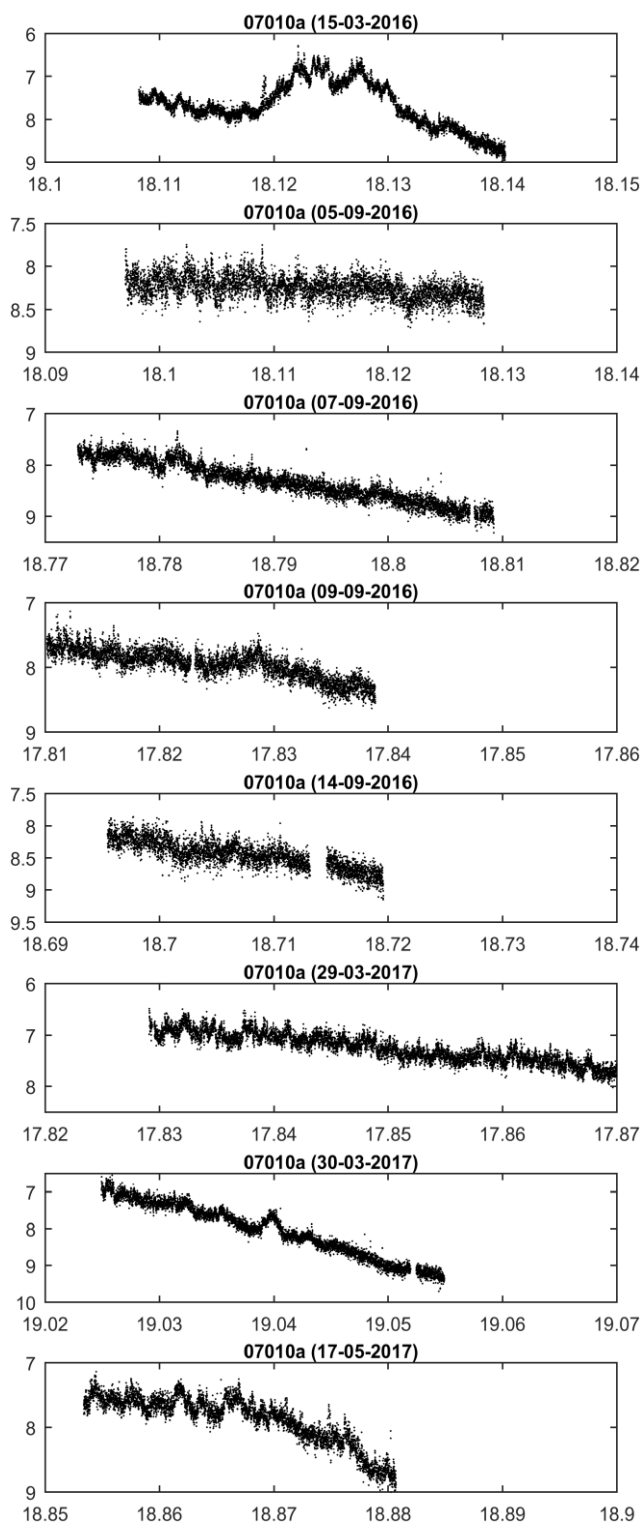
Period: 100.83 min

Eccentricity: 0.002

Launch date: 2007-04-11

Source: People's Republic of China (PRC)





DNEPR plume shield (GDS)

NORAD ID: 31120

Int'l Code: 2007-012D

Dimensions:

Initial orbit:

Perigee: 649 km

Apogee: 660 km

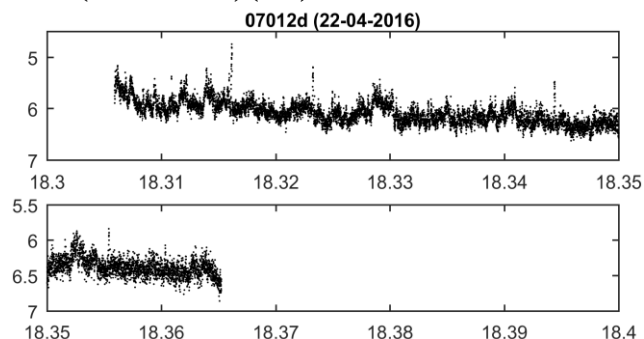
Inclination: 98.09°

Period: 97.83 min

Eccentricity: 0.0008

Launch date: 2007-04-17

Source: Commonwealth of Independent States (former USSR) (CIS)



DNEPR-1 (3rd stage) (R-36M2 DS)

NORAD ID: 31123

Int'l Code: 2007-012G

Dimensions:

Initial orbit:

Perigee: 625 km

Apogee: 1079 km

Inclination: 98.08°

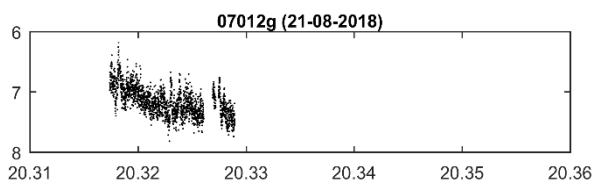
Period: 101.98 min

Eccentricity: 0.031

Launch date: 2007-04-17

Source: Commonwealth of Independent States (former USSR) (CIS)





SKYMED 1 (COSMO 1)

NORAD ID: 31598

Int'l Code: 2007-023A

Dimensions:

Initial orbit:

Perigee: 622 km

Apogee: 625 km

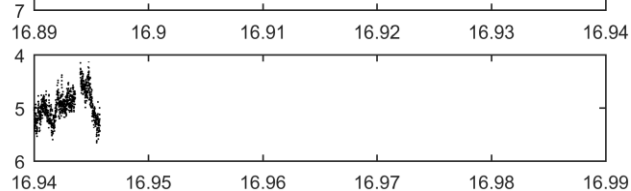
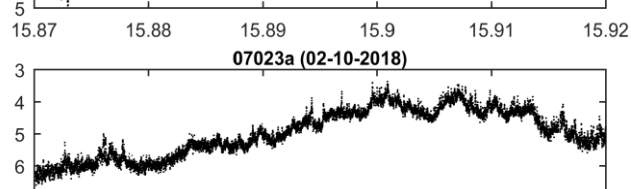
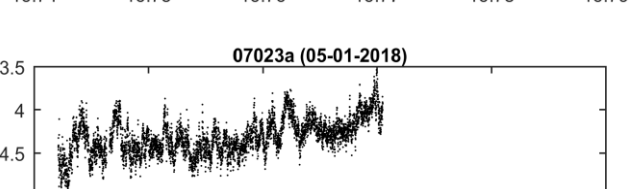
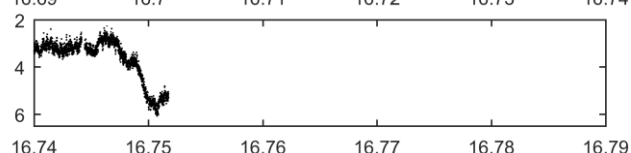
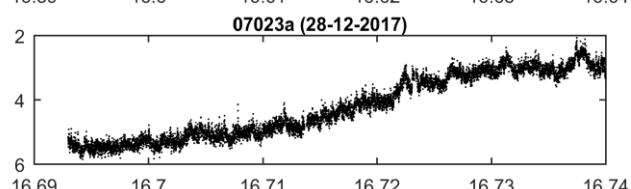
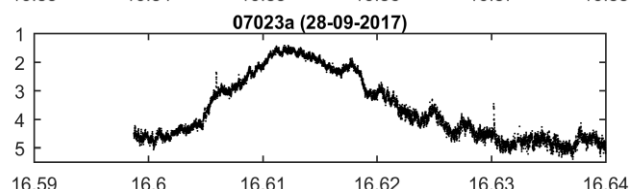
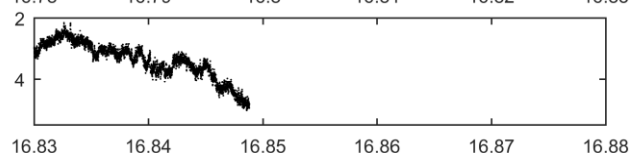
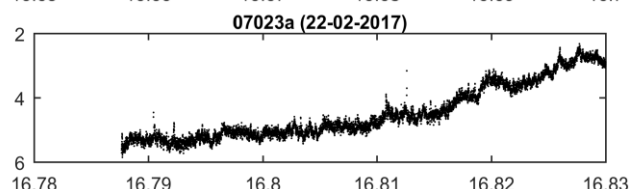
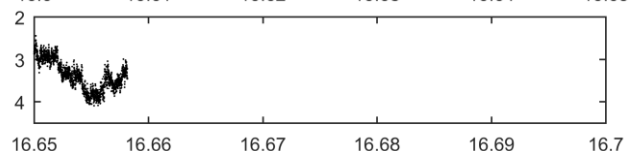
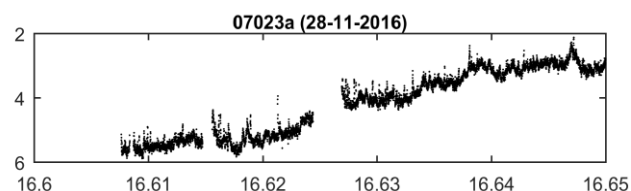
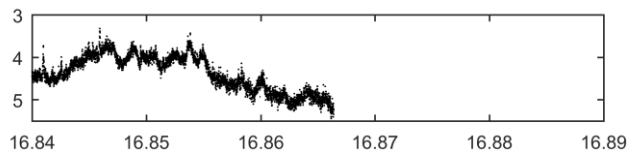
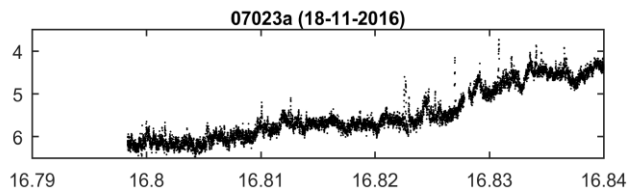
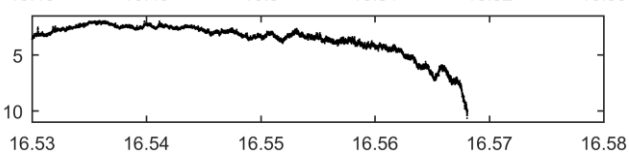
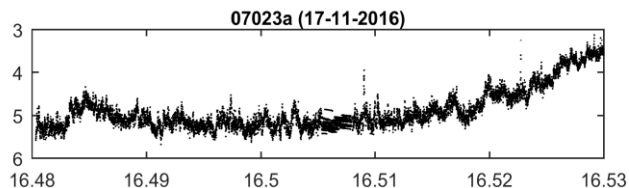
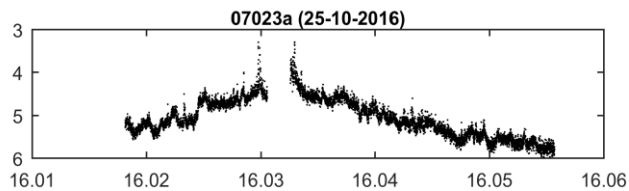
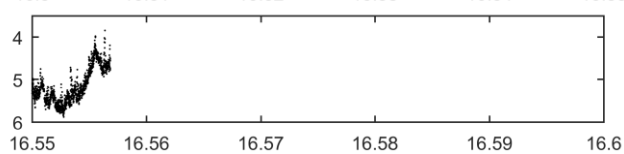
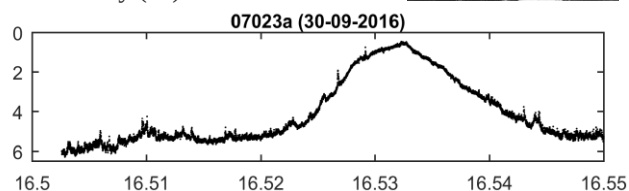
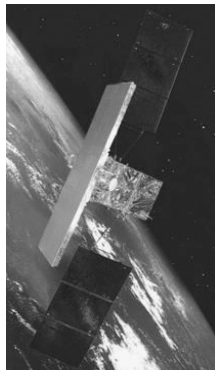
Inclination: 97.86°

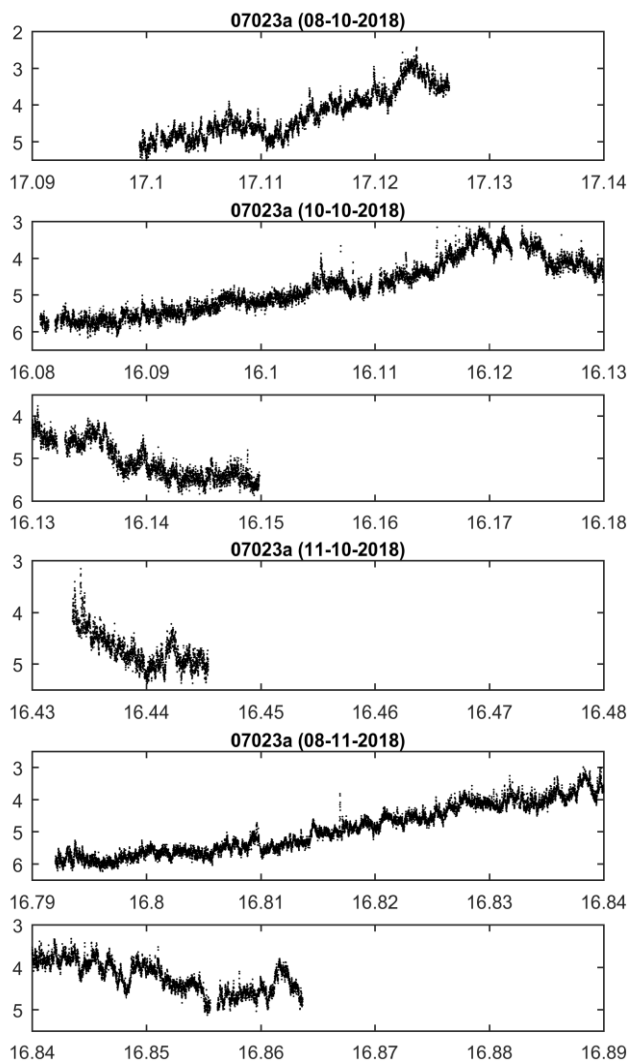
Period: 97.18 min

Eccentricity: 0.0002

Launch date: 2007-06-08

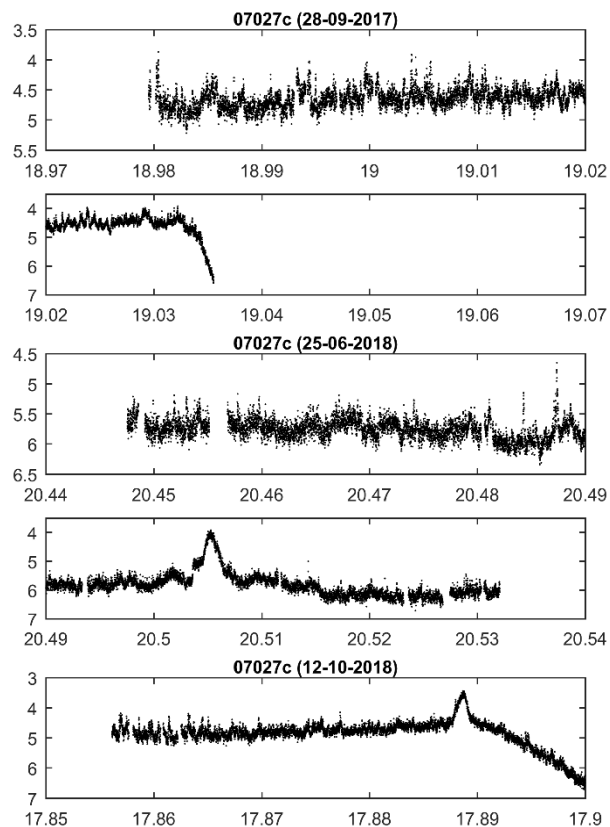
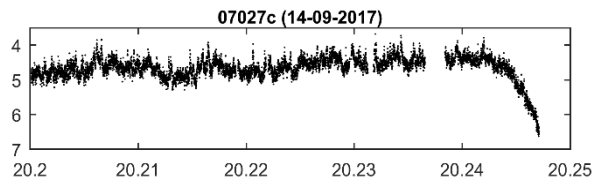
Source: Italy (IT)





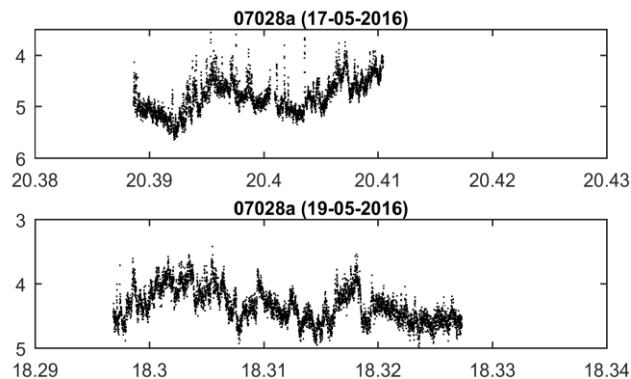
NOSS 3-4 C (USA 194 DEB)

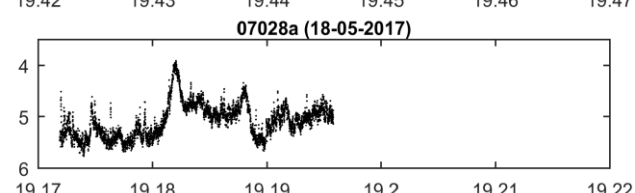
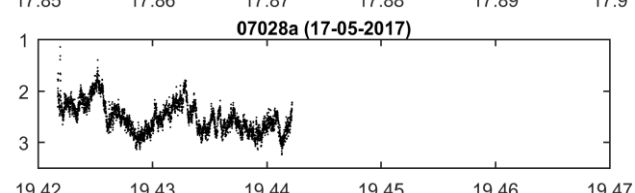
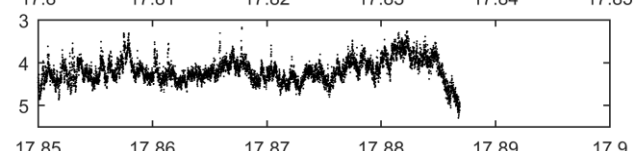
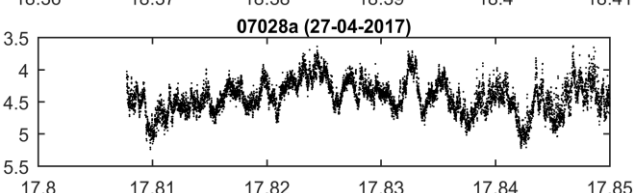
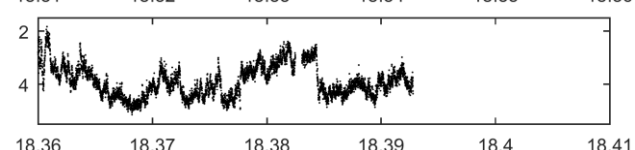
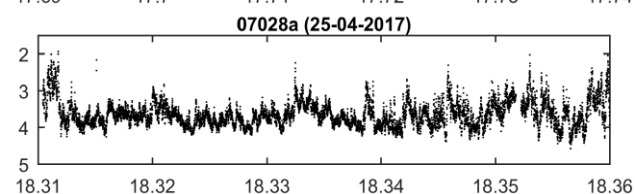
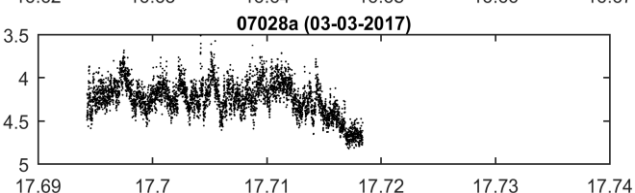
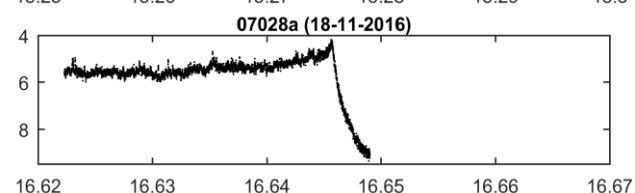
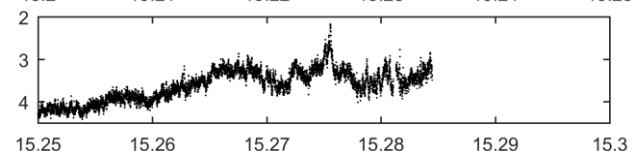
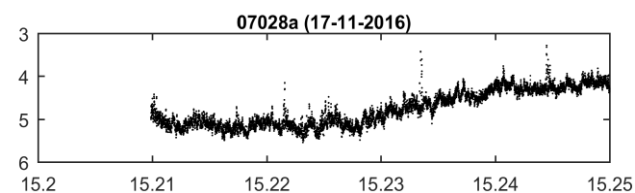
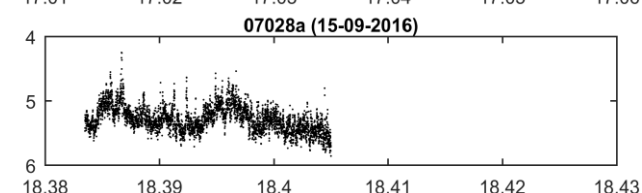
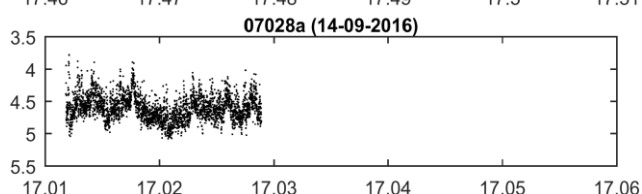
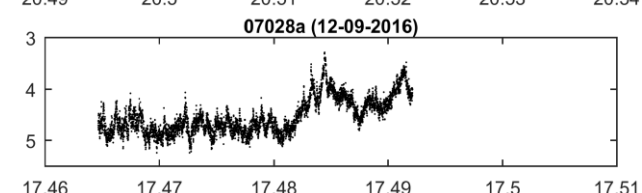
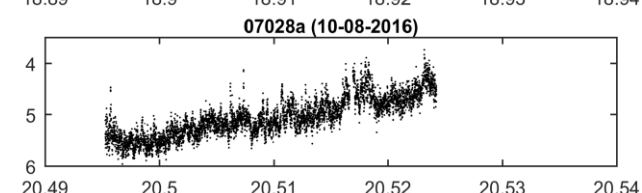
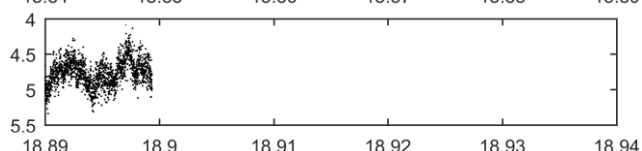
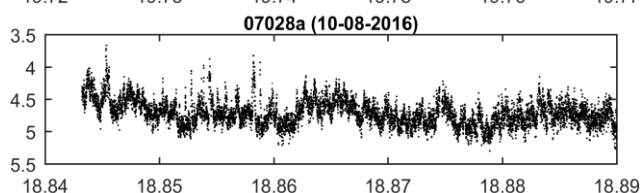
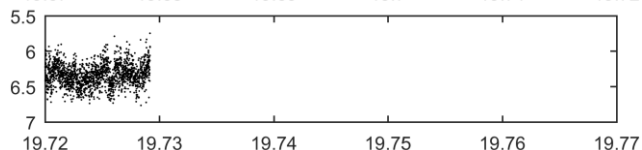
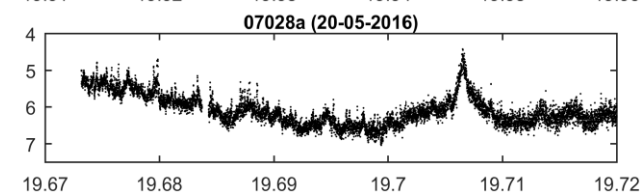
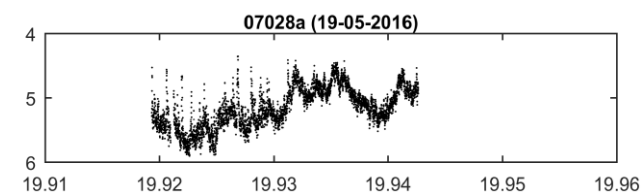
NORAD ID: 31708
 Int'l Code: 2007-027C
 Dimensions:
 Initial orbit:
 Perigee: 847 km
 Apogee: 1183 km
 Inclination: 62.66°
 Period: 105.45 min
 Eccentricity: 0.023
 Launch date: 2007-06-15
 Source: United States (US)

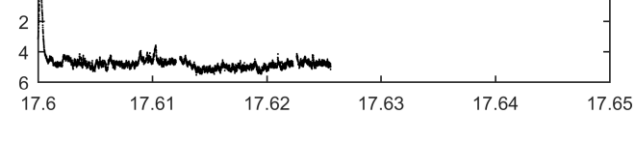
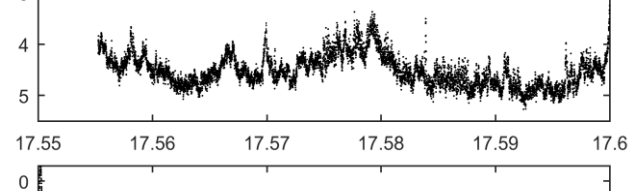
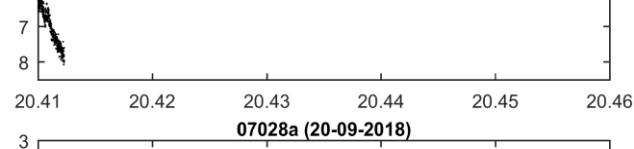
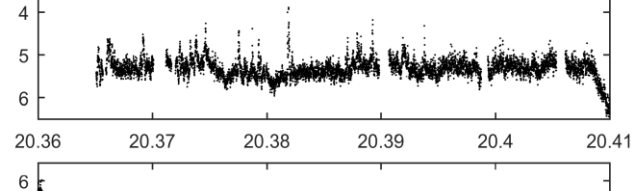
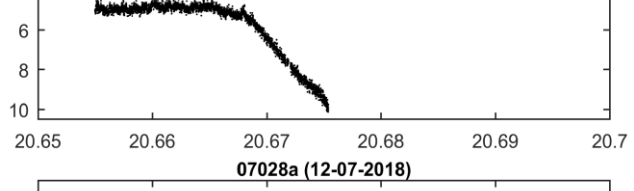
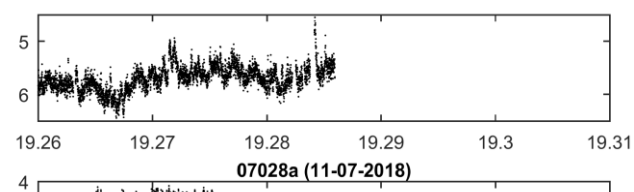
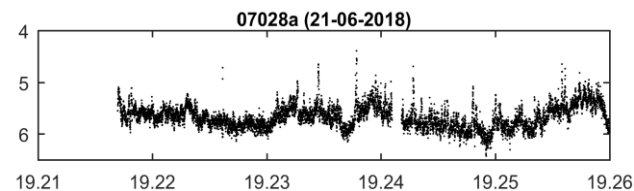
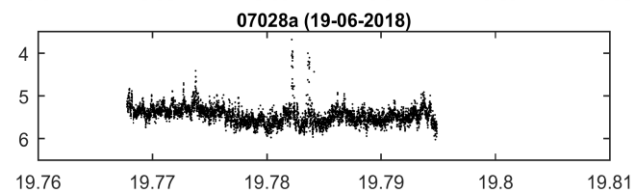
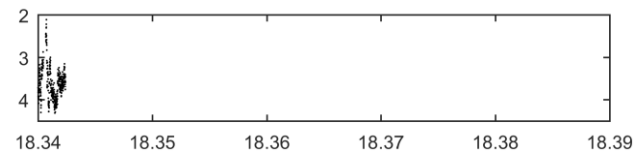
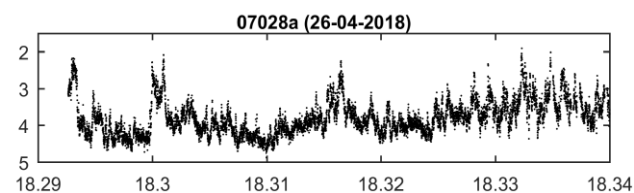
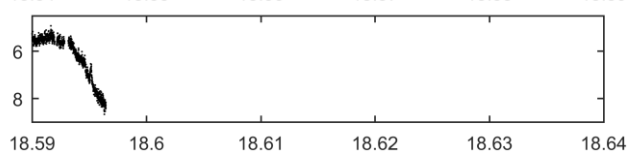
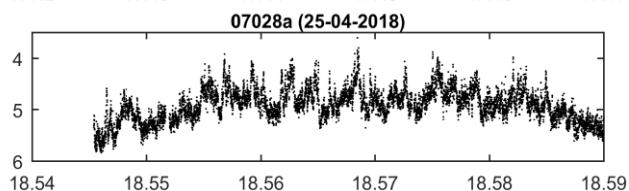
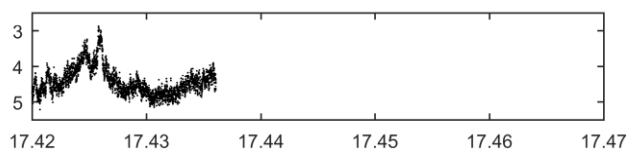
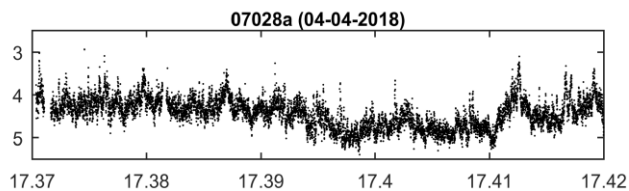
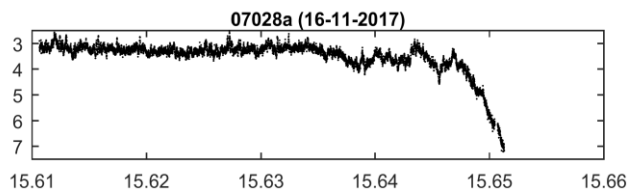
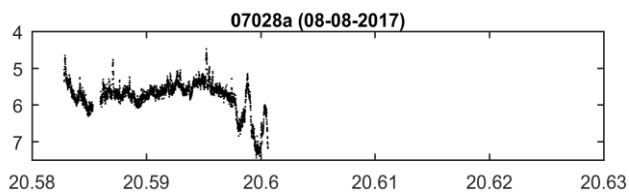
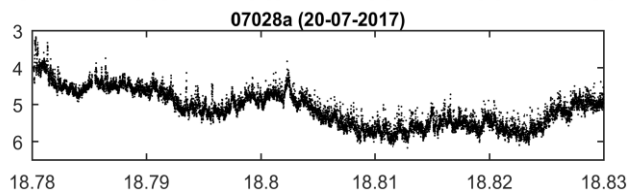
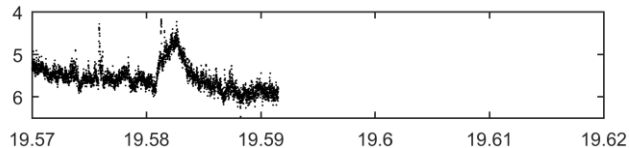
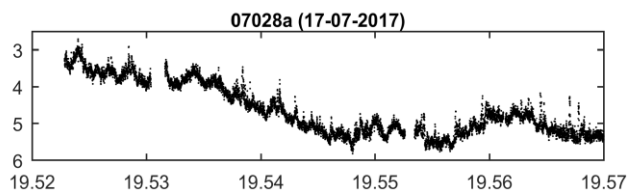
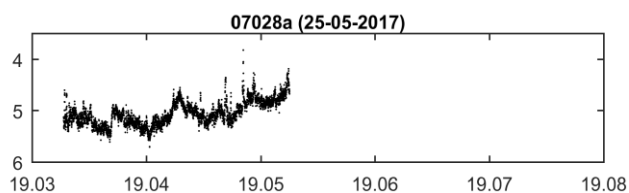


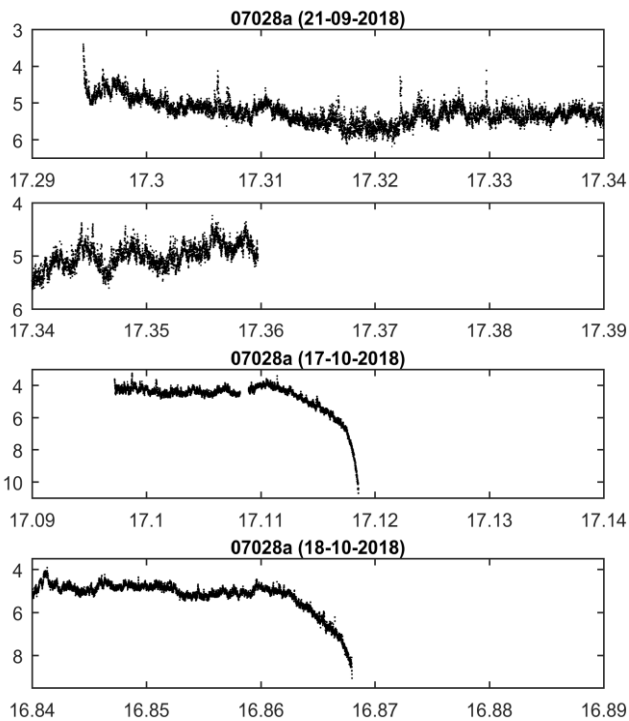
GENESIS 2

NORAD ID: 31789
 Int'l Code: 2007-028A
 Dimensions: inflatable
 cylinder 4.4m long 2.54m dia
 Initial orbit:
 Perigee: 553 km
 Apogee: 563 km
 Inclination: 64.51°
 Period: 95.82 min
 Eccentricity: 0.007
 Launch date: 2007-06-28
 Source: United States (US)









DNEPR PLUME SHIELD (GDS)

NORAD ID: 31791

Int'l Code: 2007-028C

Dimensions:

Initial orbit:

Perigee: 533 km

Apogee: 556 km

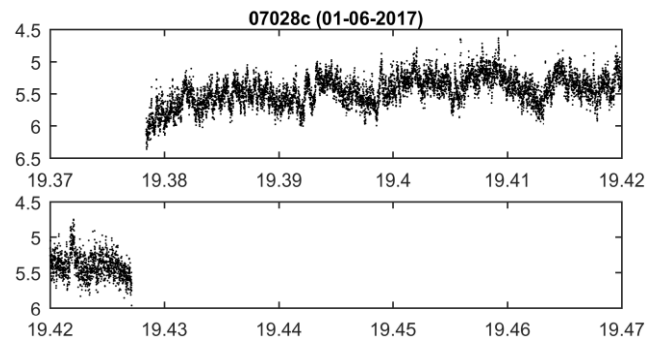
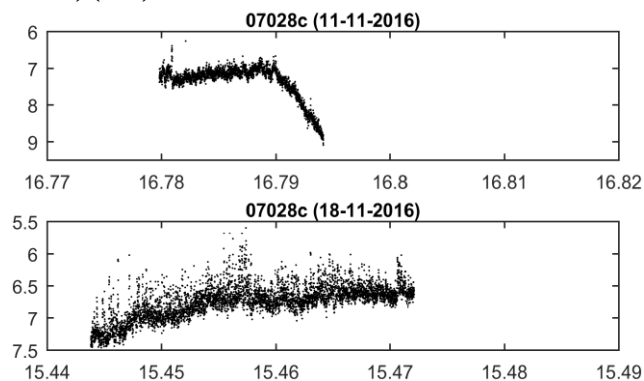
Inclination: 64.51°

Period: 95.53 min

Eccentricity: 0.002

Launch date: 2007-06-28

Source: Commonwealth of Independent States (former USSR) (CIS)



COSMOS 2428

(TSELINA-2)

NORAD ID: 31792

Int'l Code: 2007-029A

Dimensions:

Initial orbit:

Perigee: 848 km

Apogee: 856 km

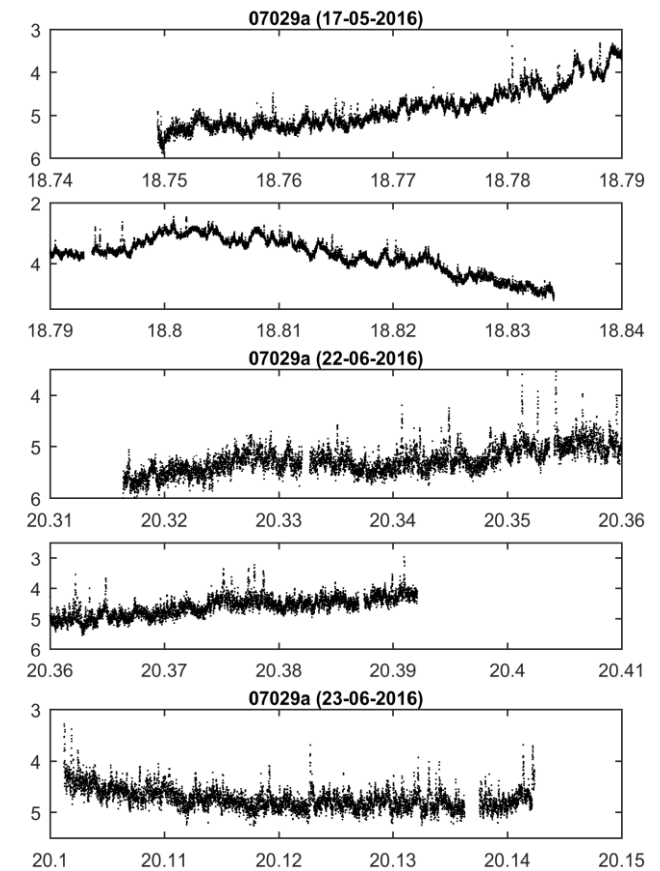
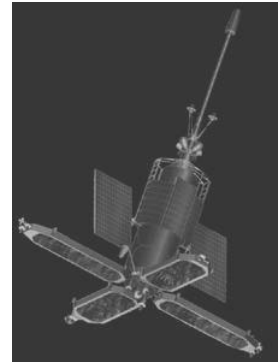
Inclination: 70.99°

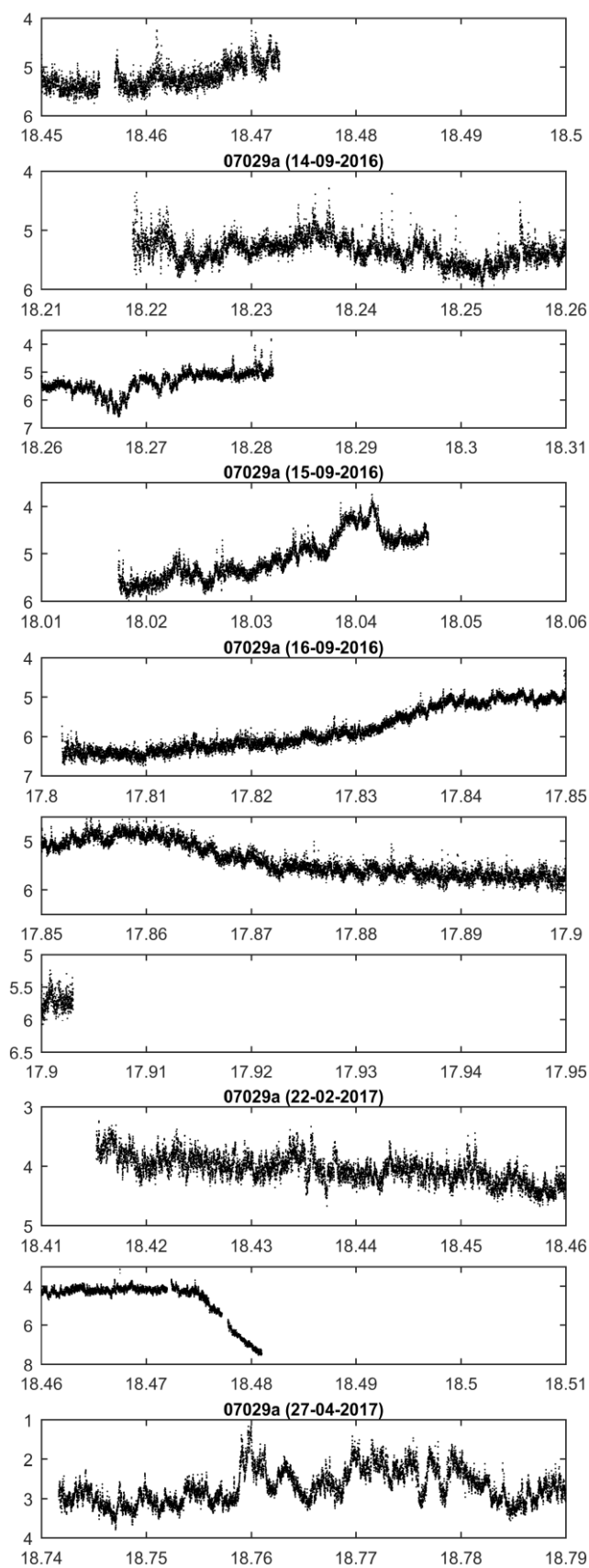
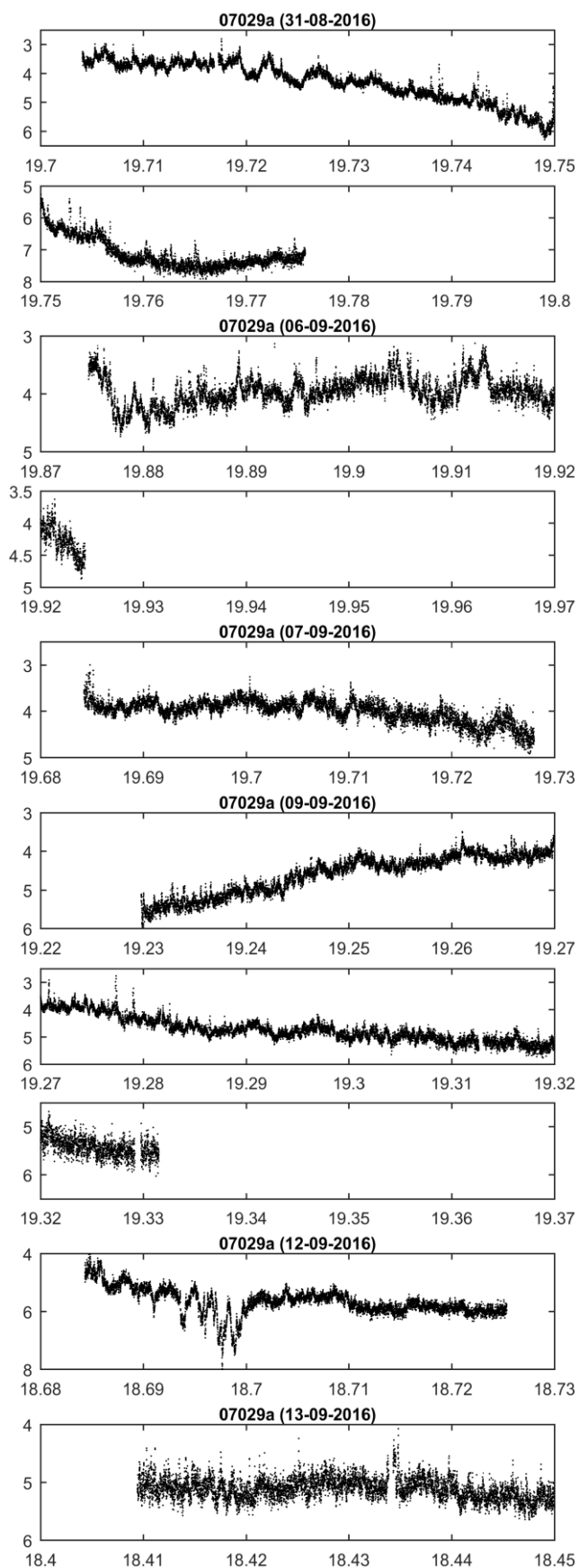
Period: 101.97 min

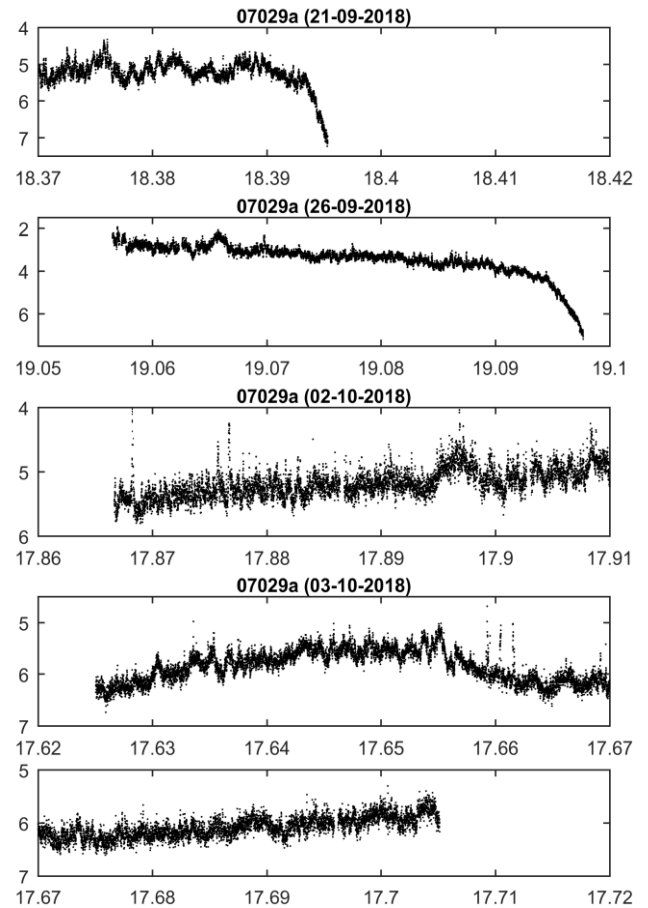
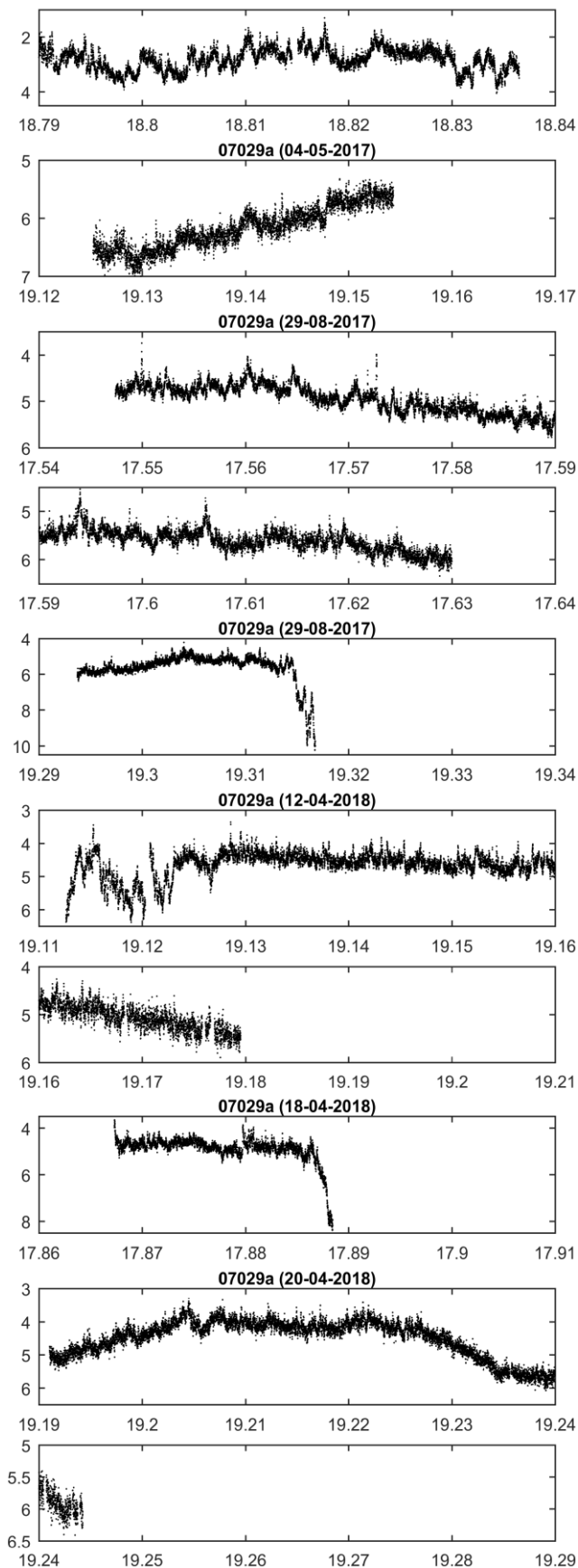
Eccentricity: 0.0005

Launch date: 2007-06-29

Source: Commonwealth of Independent States (former USSR) (CIS)







ZENIT-2M (2nd stage)

NORAD ID: 31793

Int'l Code: 2007-029B

Dimensions: cylinder 10.41m long

3.9m dia

Initial orbit:

Perigee: 836 km

Apogee: 851 km

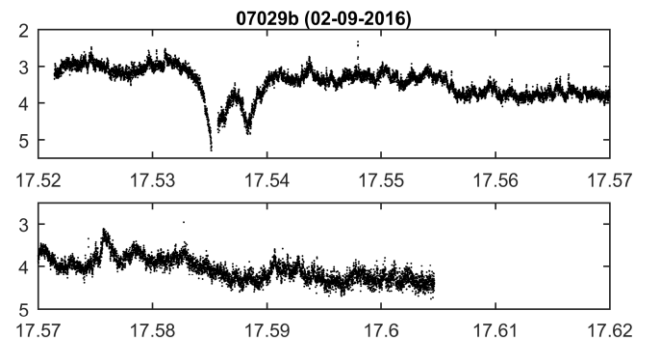
Inclination: 70.9°

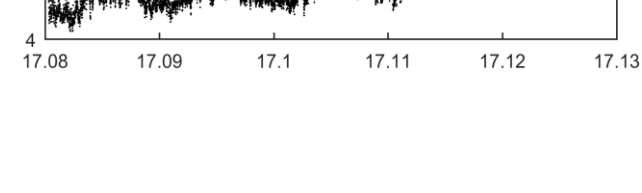
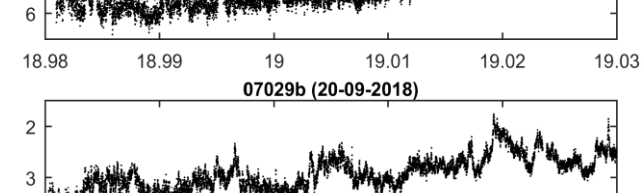
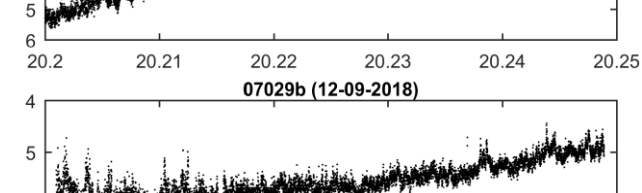
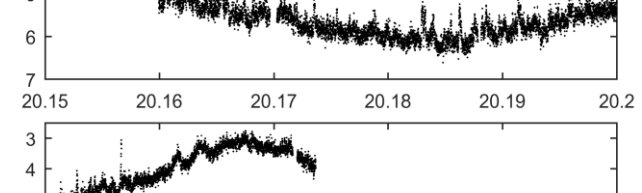
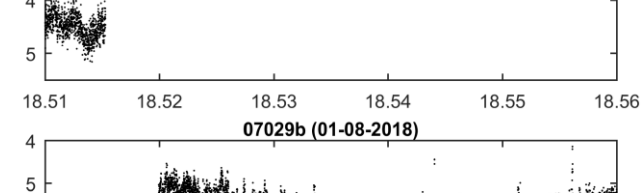
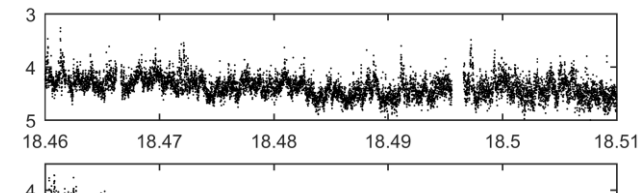
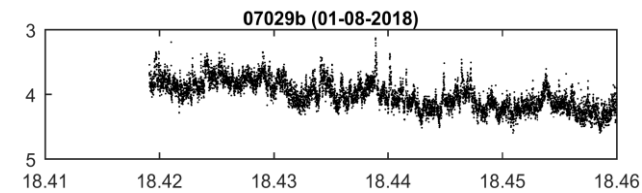
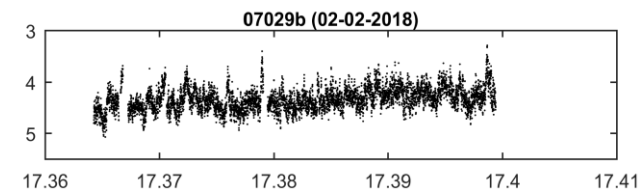
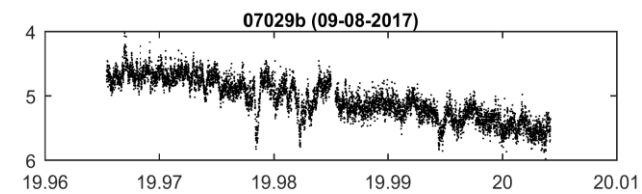
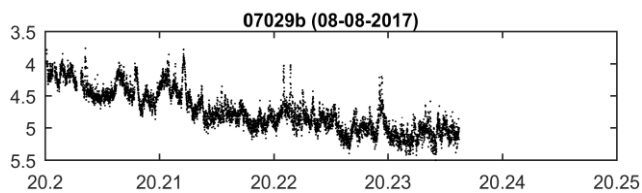
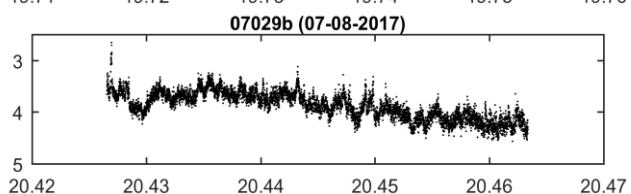
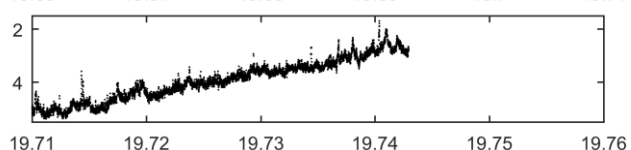
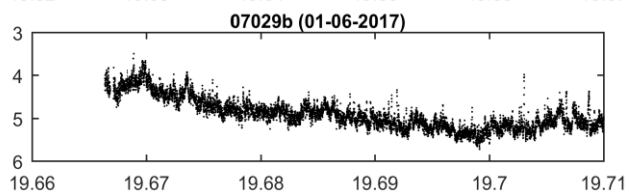
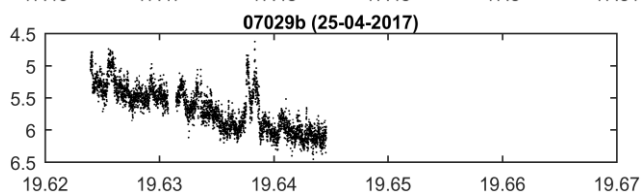
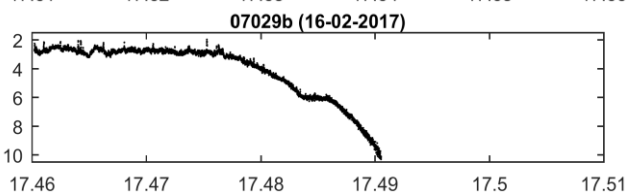
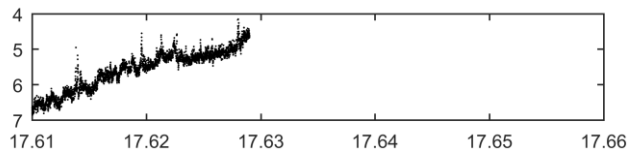
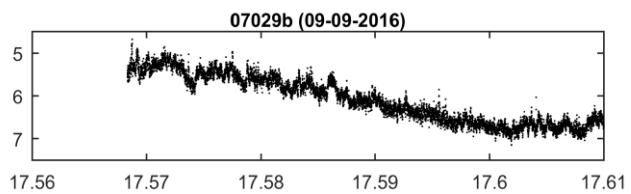
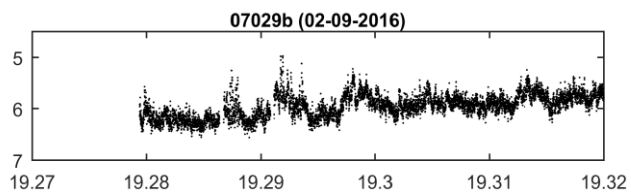
Period: 101.82 min

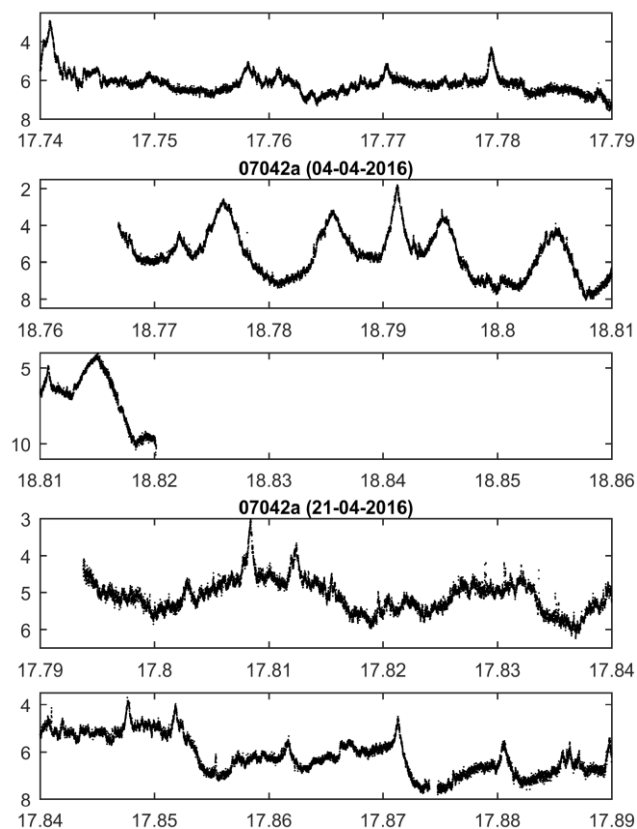
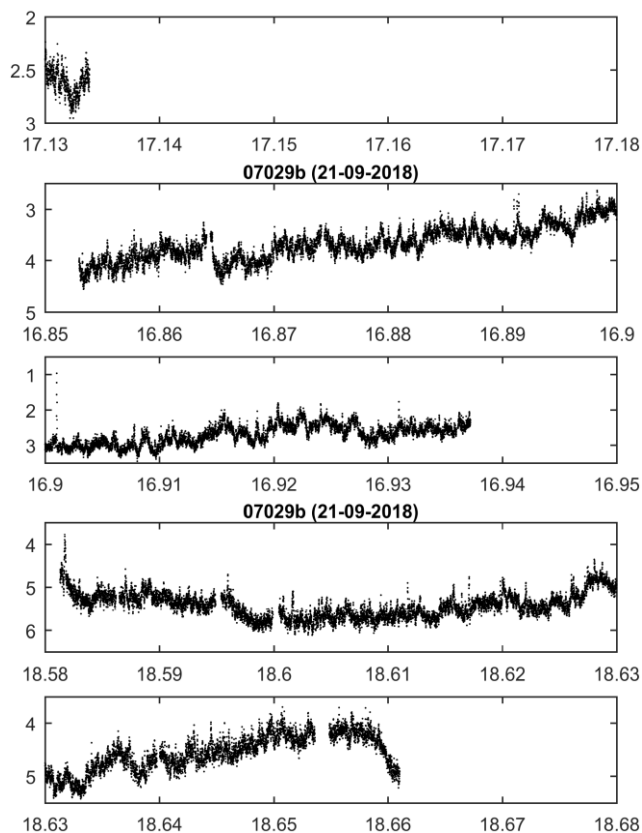
Eccentricity: 0.001

Launch date: 2007-06-29

Source: Commonwealth of Independent States (former USSR) (CIS)







ZI YUAN 1-2B (CBERS 2B)

NORAD ID: 32062

Int'l Code: 2007-042A

Dimensions: box 1.8m x 2.0m x 2.2m

panel 6.3m x 2.6m

Initial orbit:

Perigee: 767 km

Apogee: 770 km

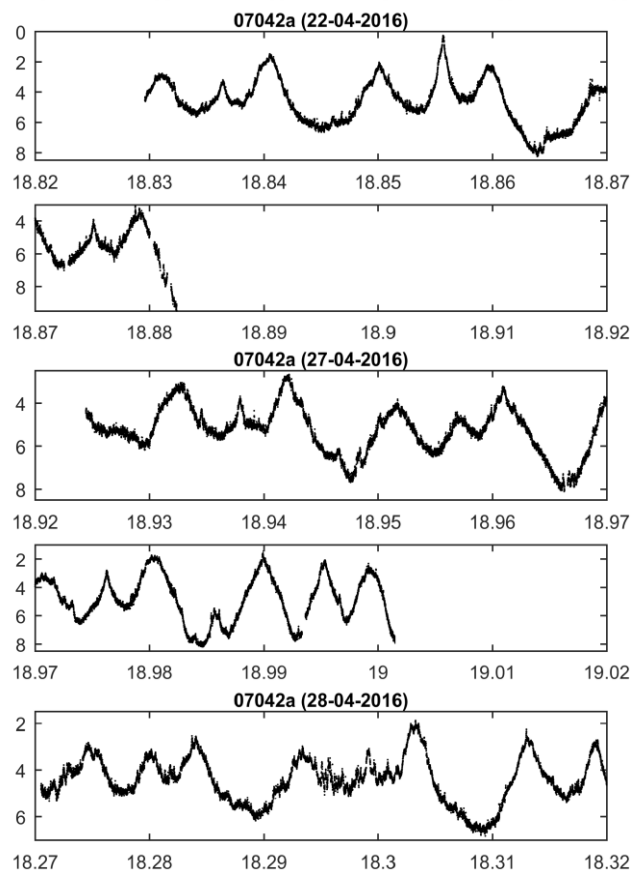
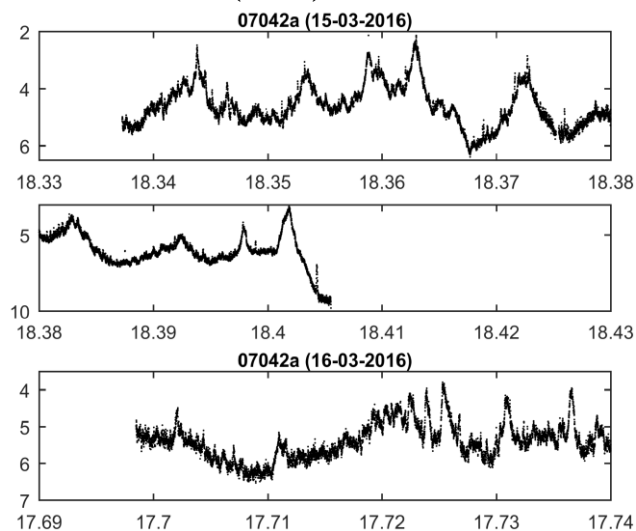
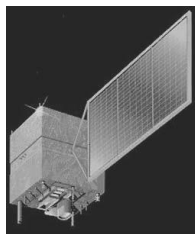
Inclination: 98.54°

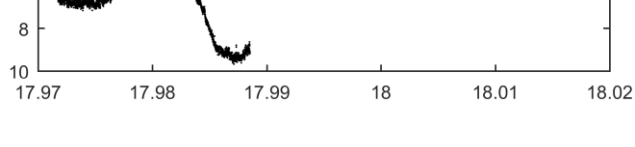
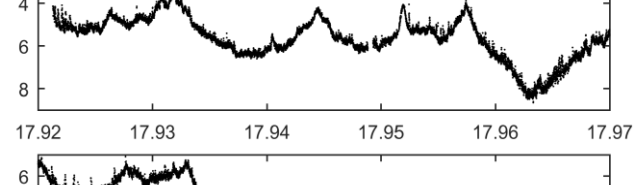
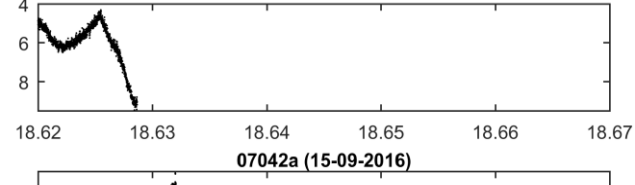
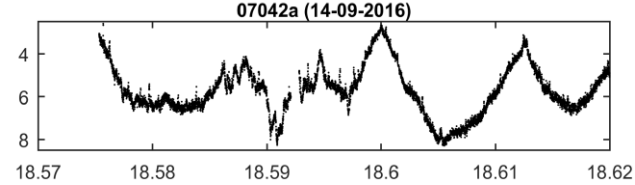
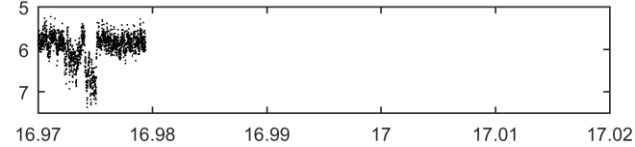
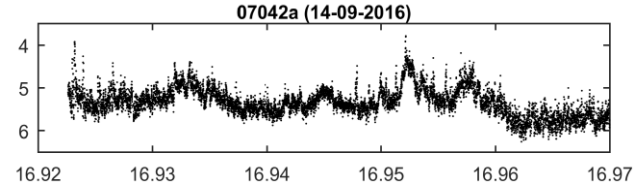
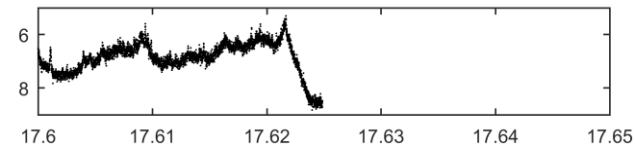
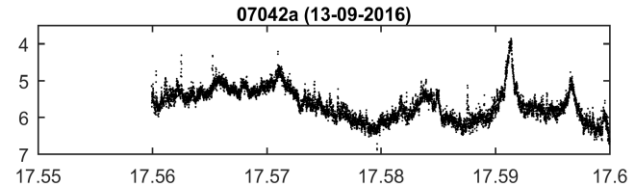
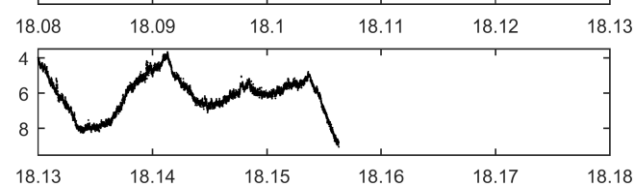
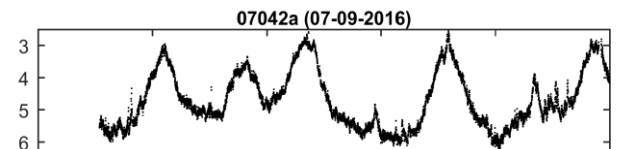
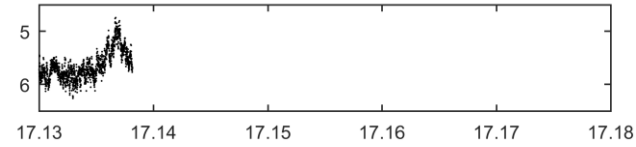
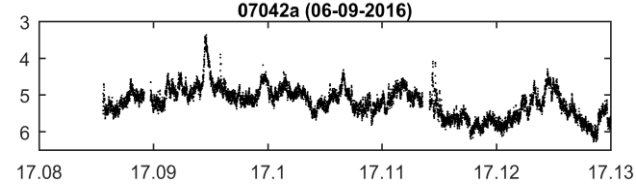
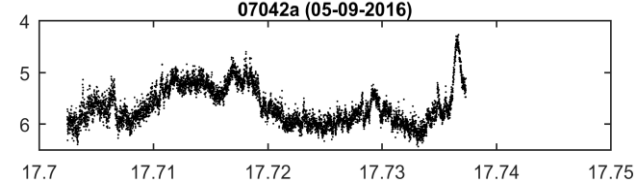
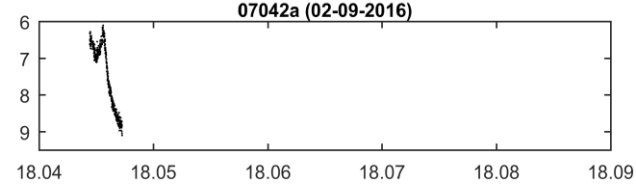
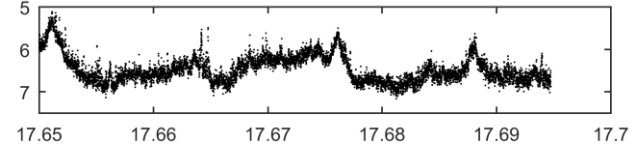
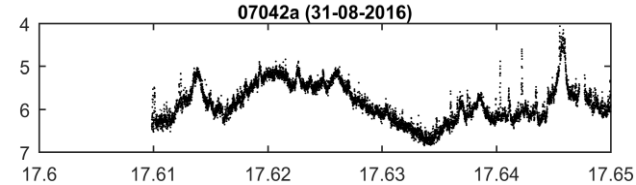
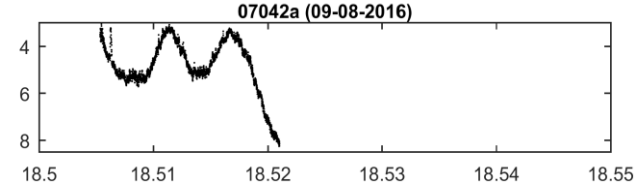
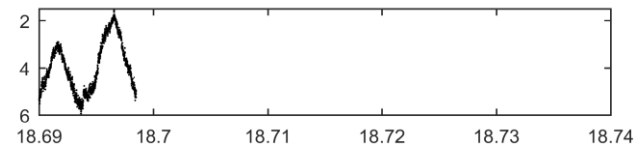
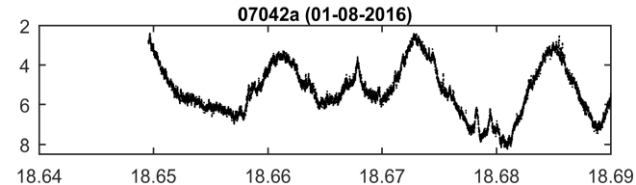
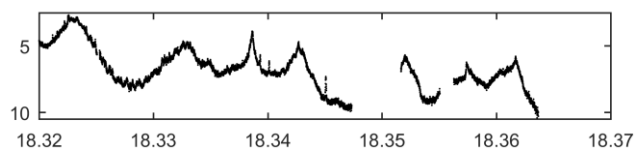
Period: 100.22 min

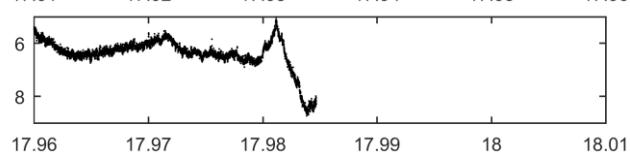
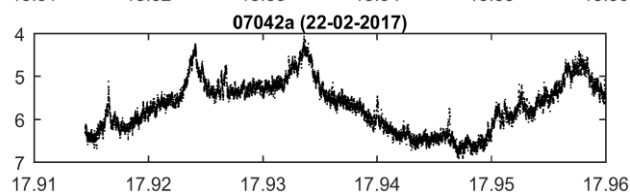
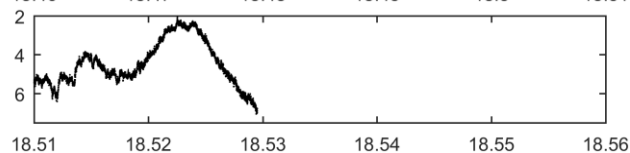
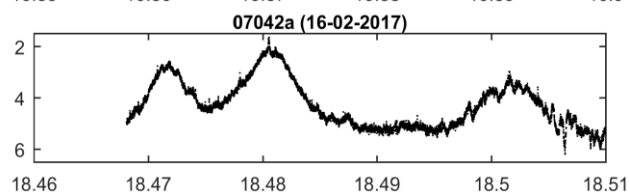
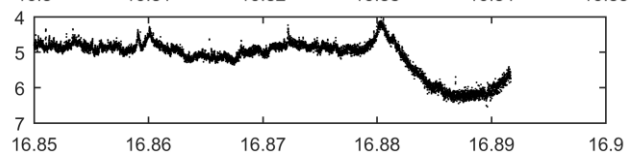
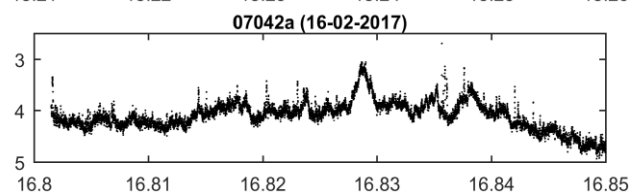
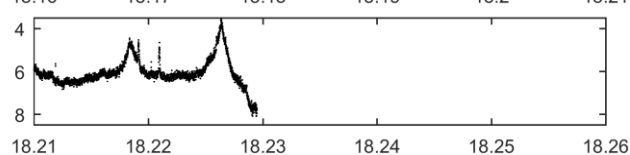
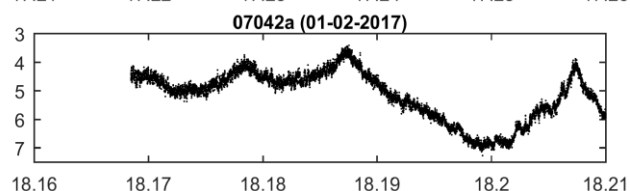
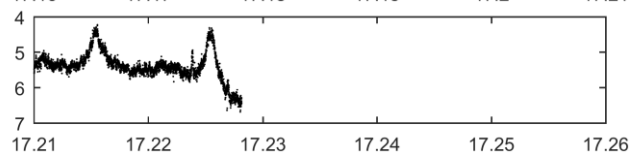
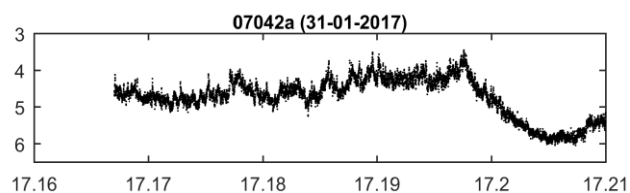
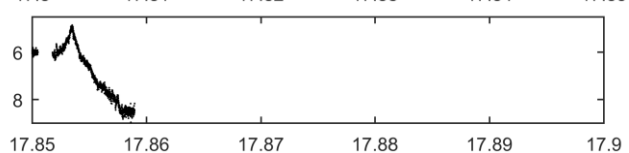
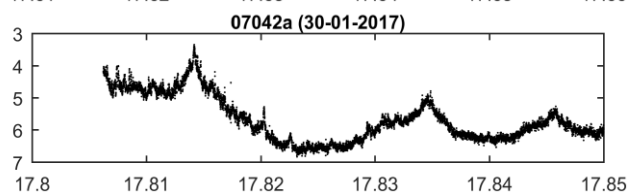
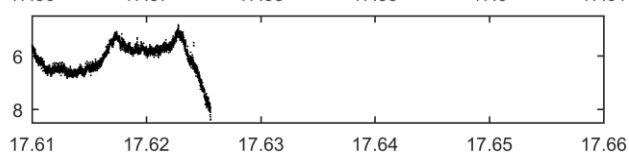
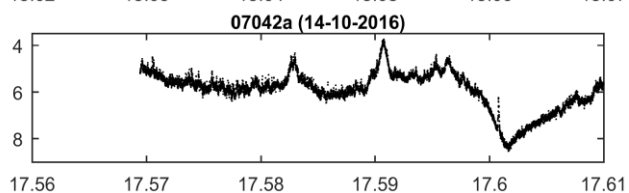
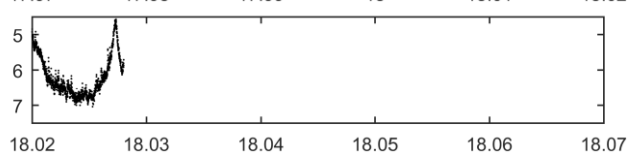
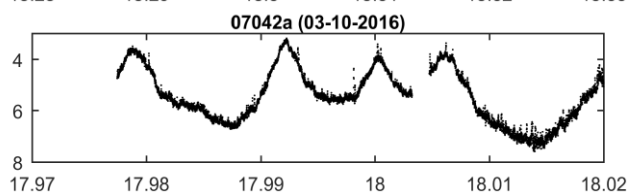
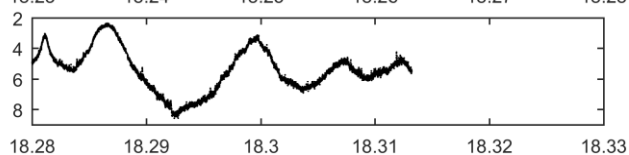
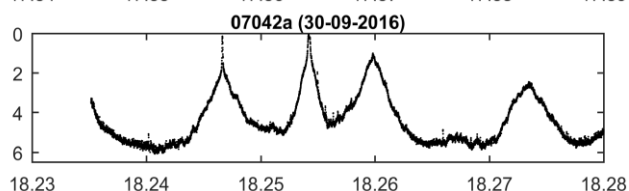
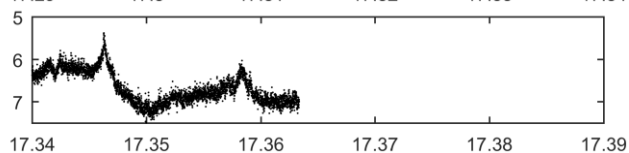
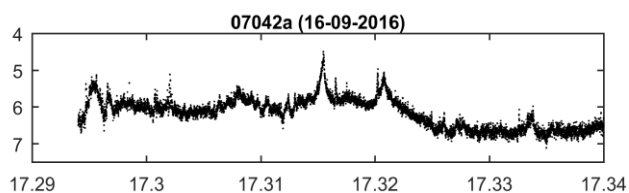
Eccentricity: 0.0002

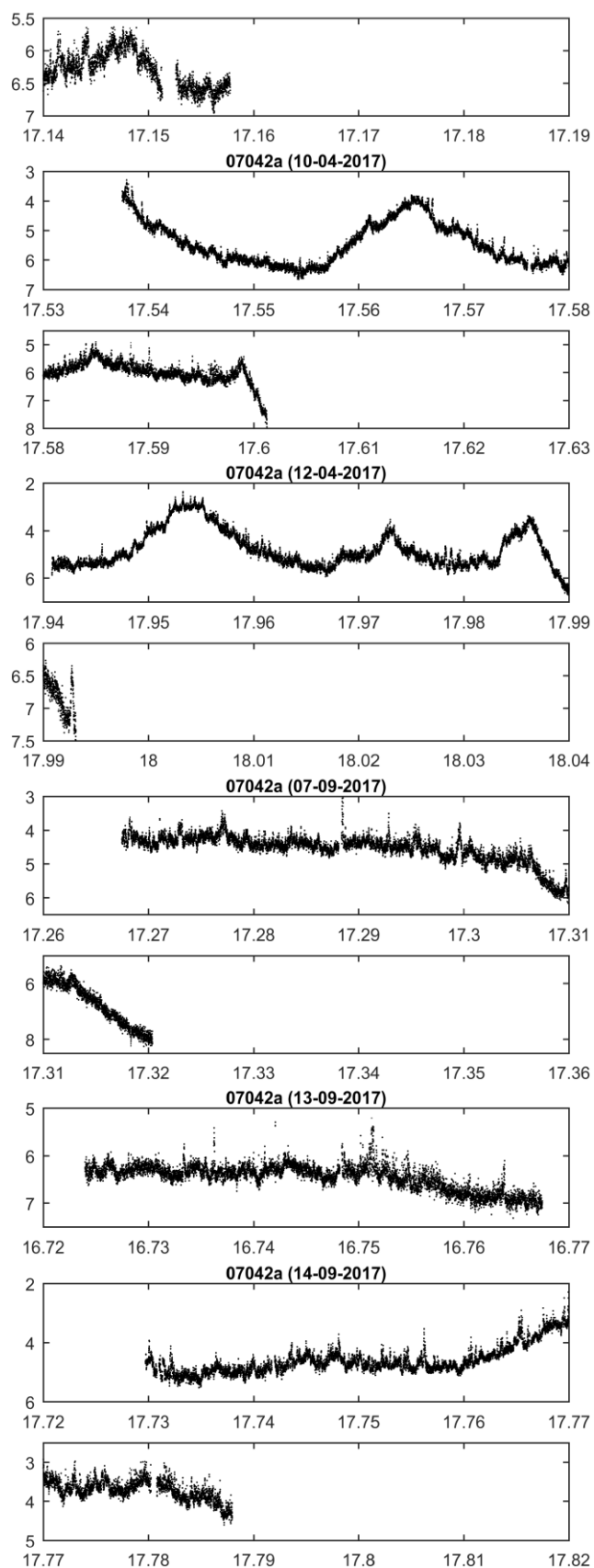
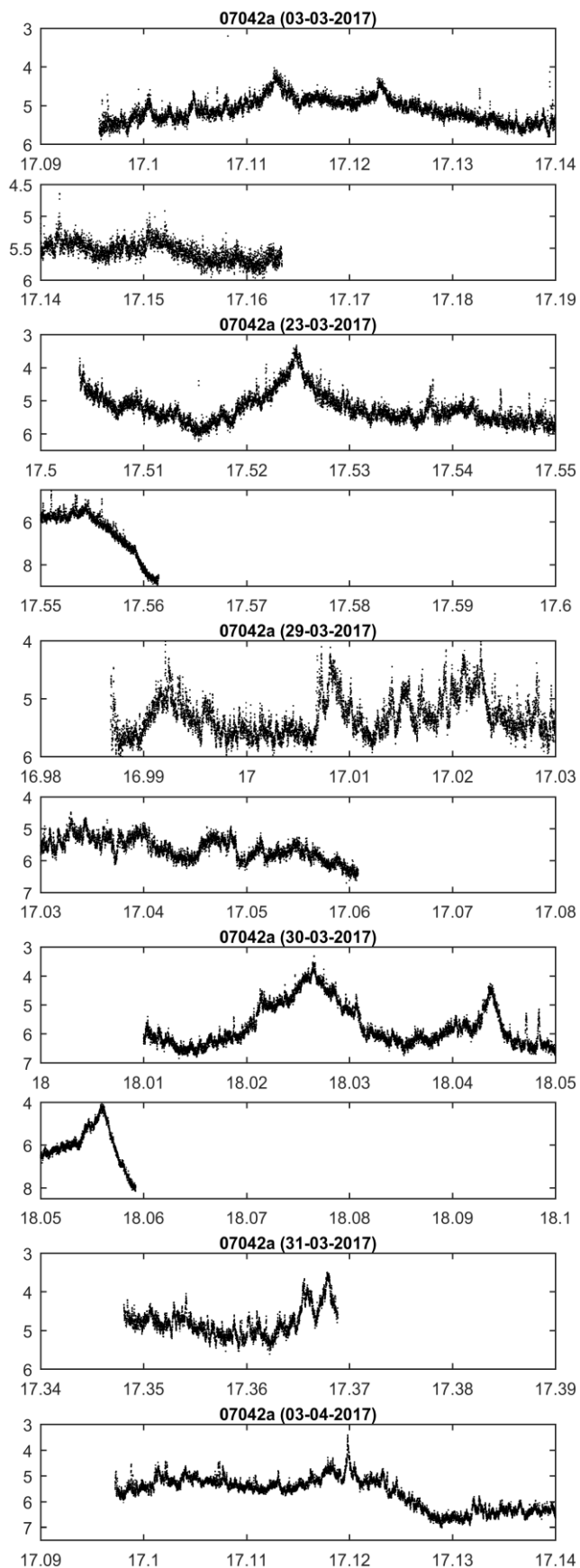
Launch date: 2007-09-19

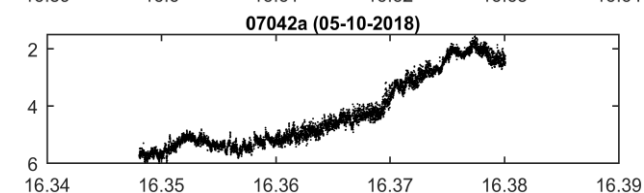
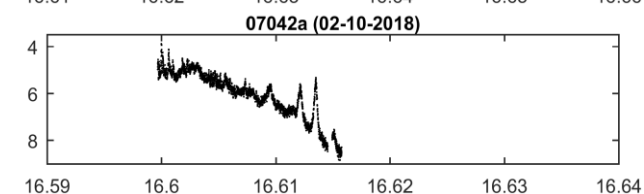
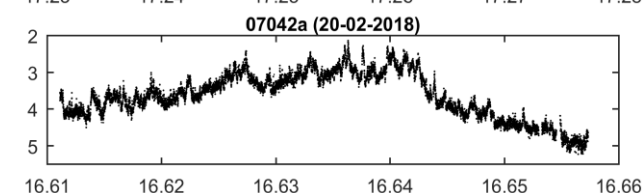
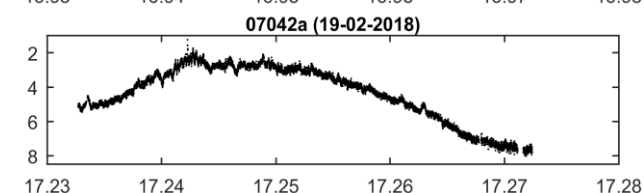
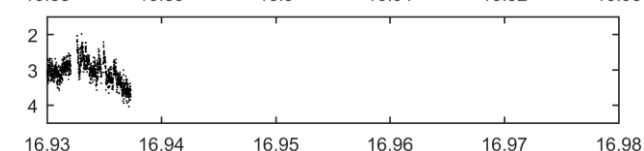
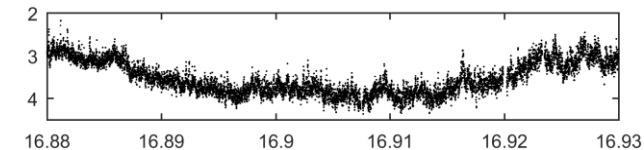
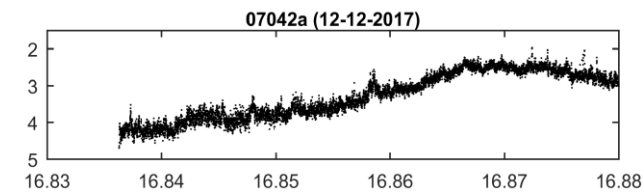
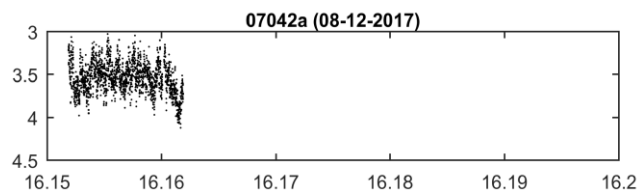
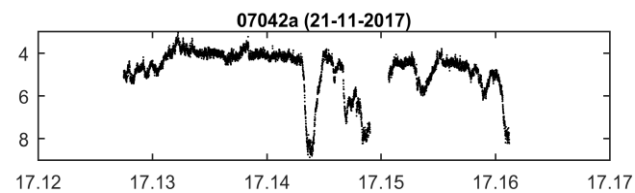
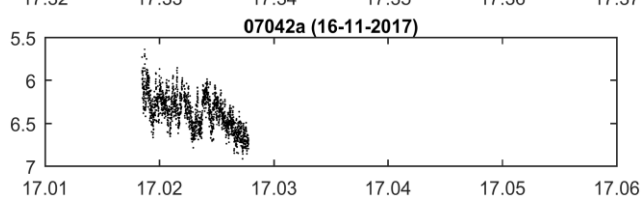
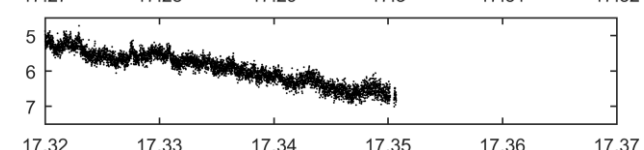
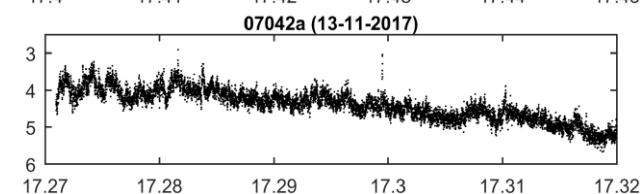
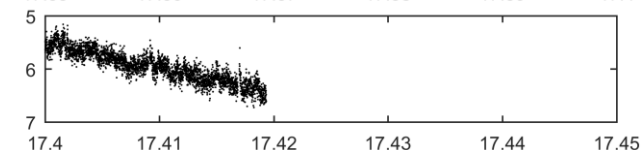
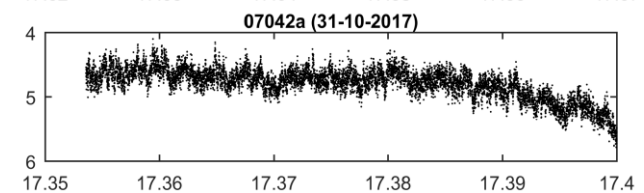
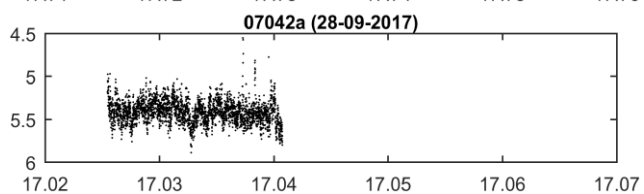
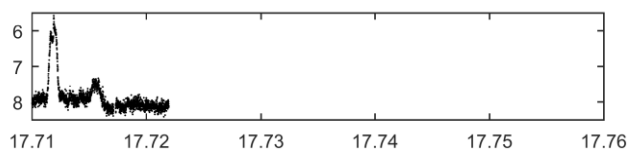
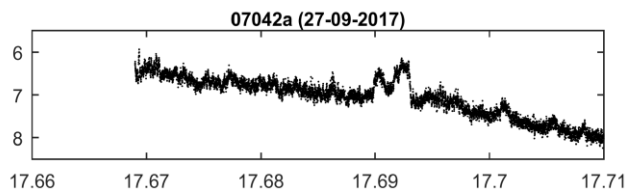
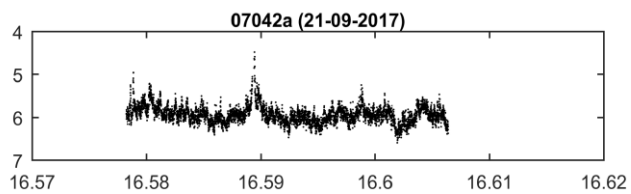
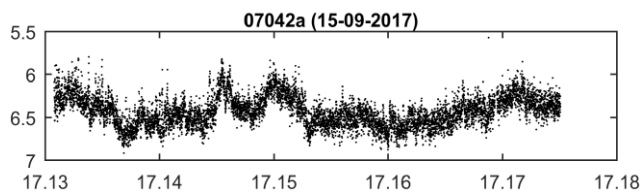
Source: China/Brazil (CHBZ)

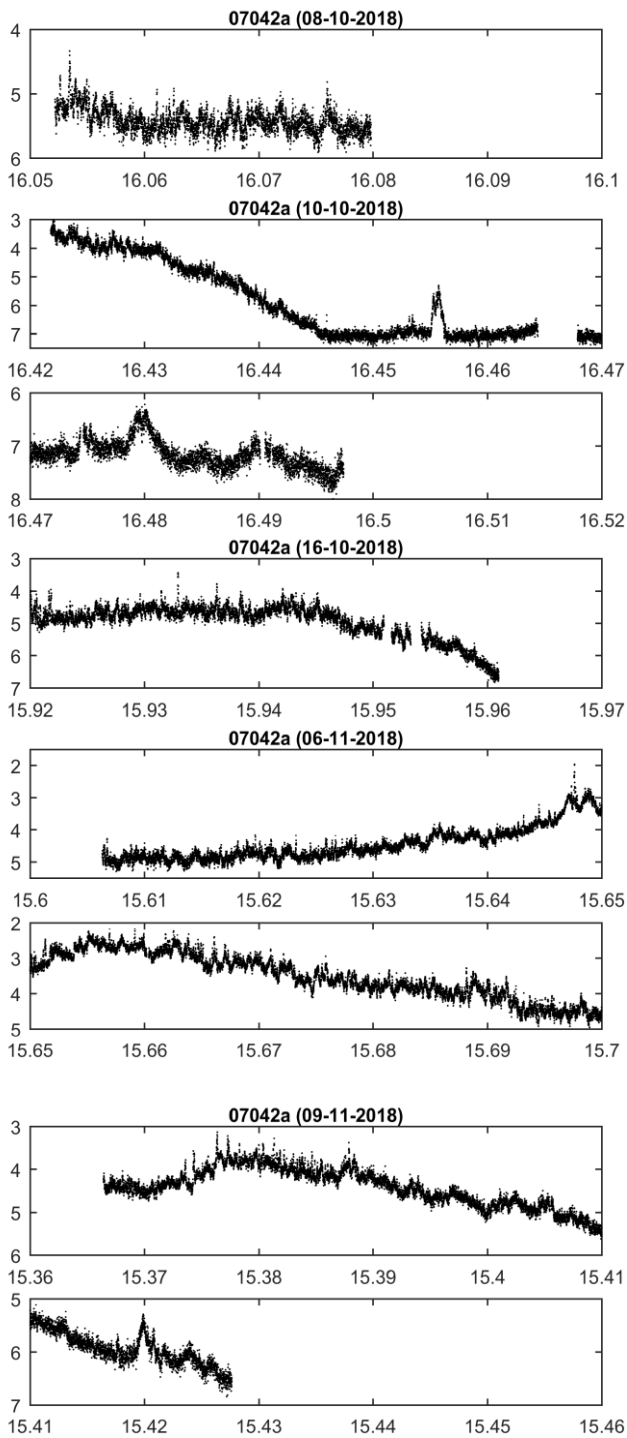




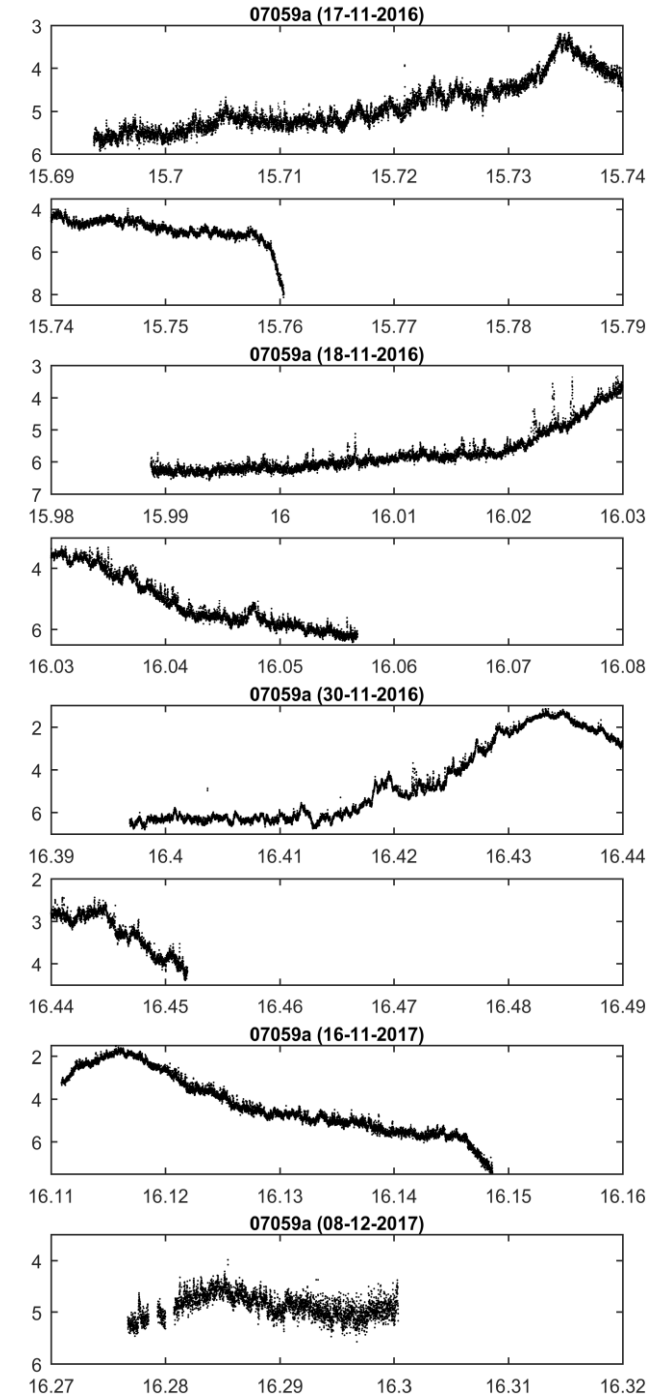






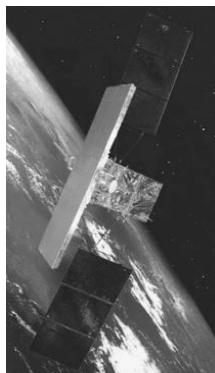


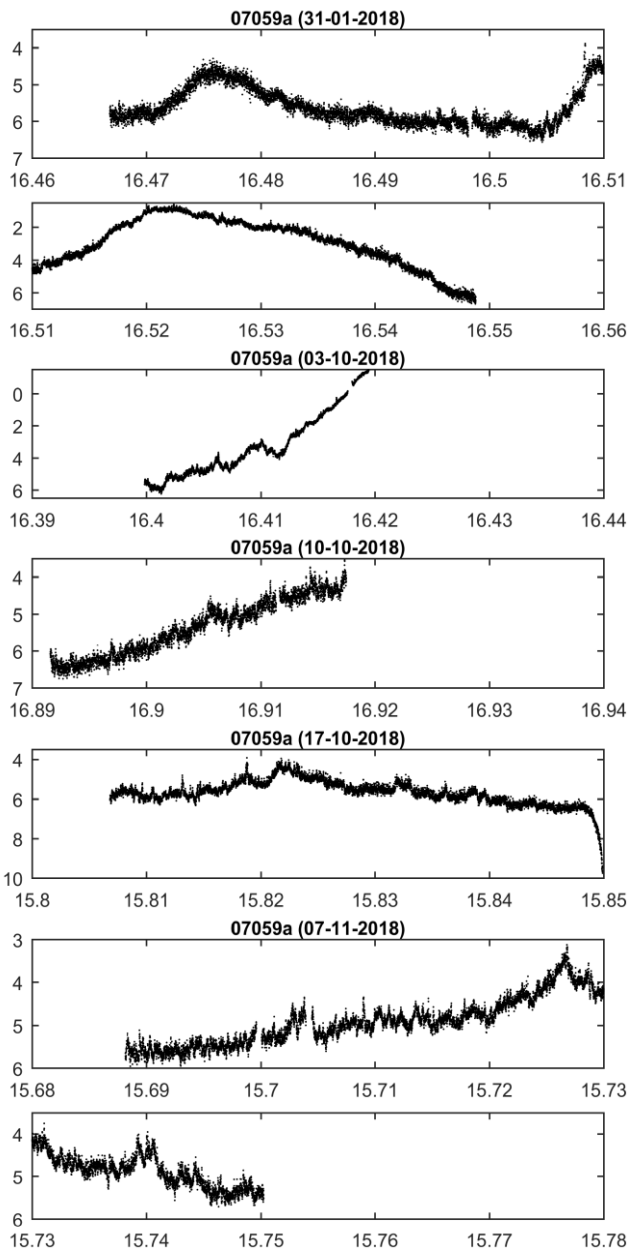
Apogee: 622 km
 Inclination: 97.86°
 Period: 97.13 min
 Eccentricity: 0.0001
 Launch date: 2007-12-09
 Source: Italy (IT)



SKYMED 2 (COSMO 2)

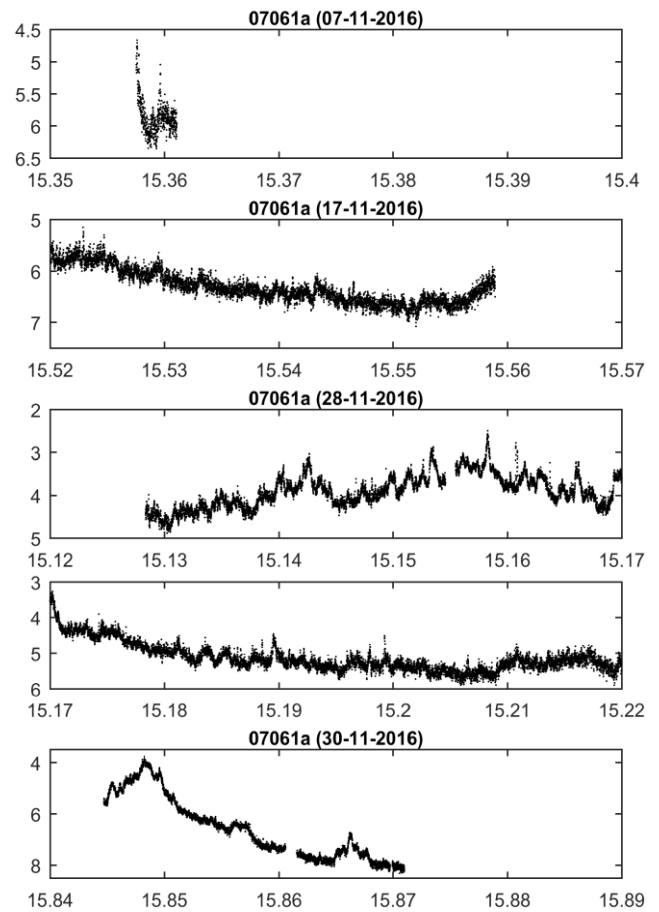
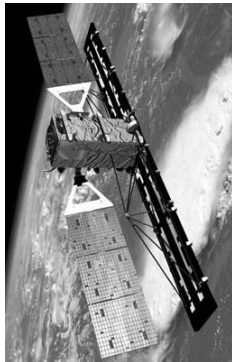
NORAD ID: 32376
 Int'l Code: 2007-059A
 Dimensions: cylinder
 5.88m x 2.44m
 Initial orbit:
 Perigee: 621 km





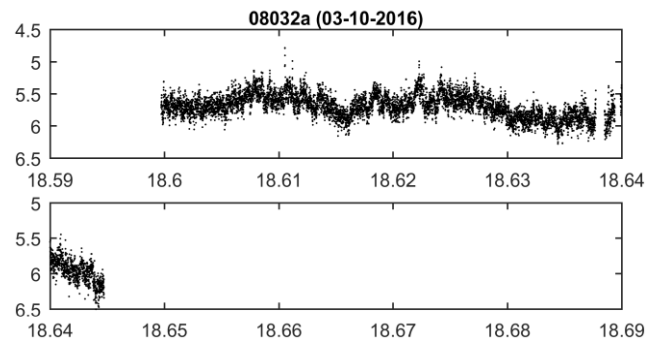
RADARSAT 2

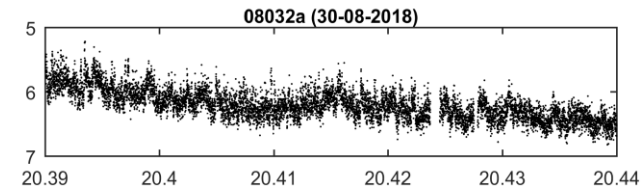
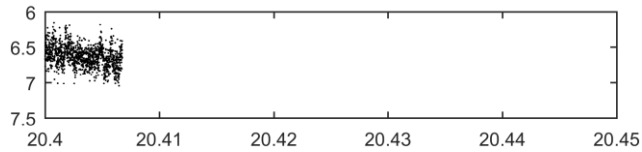
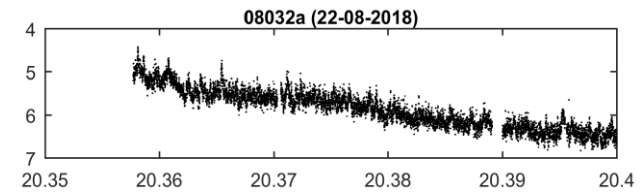
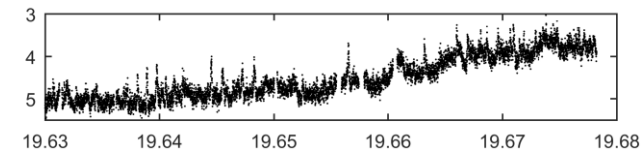
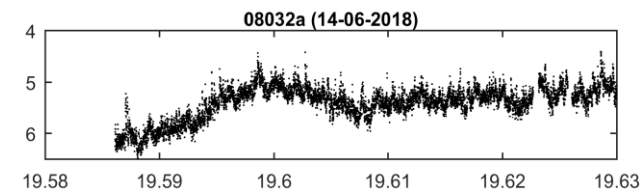
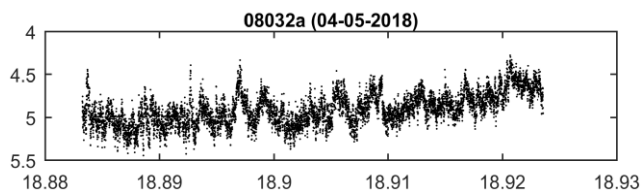
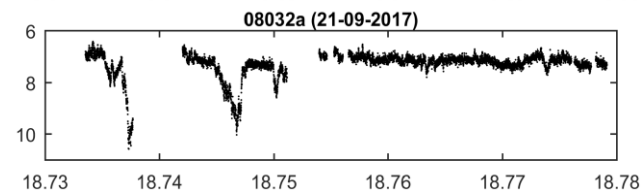
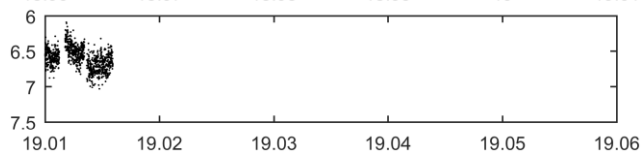
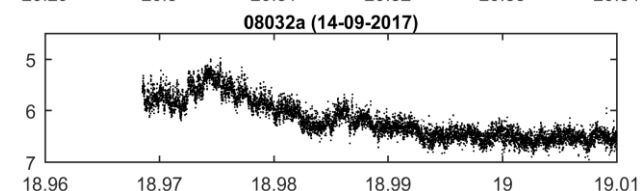
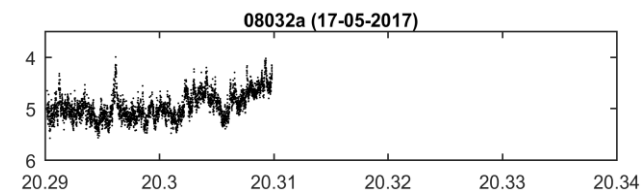
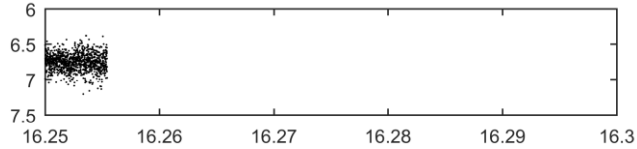
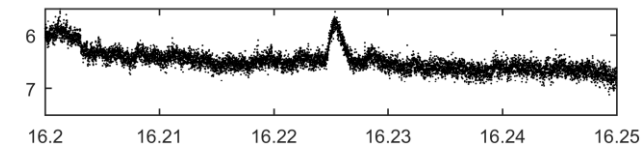
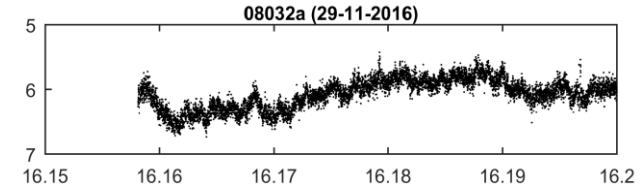
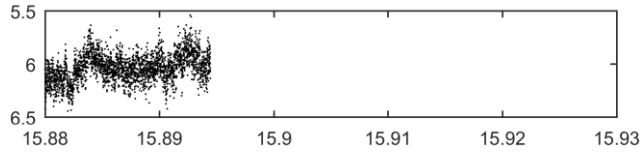
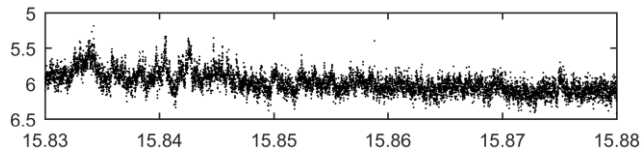
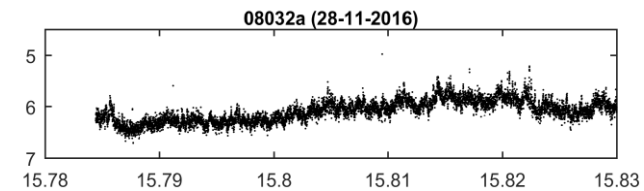
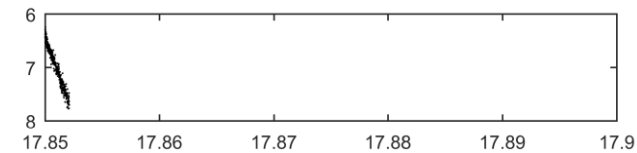
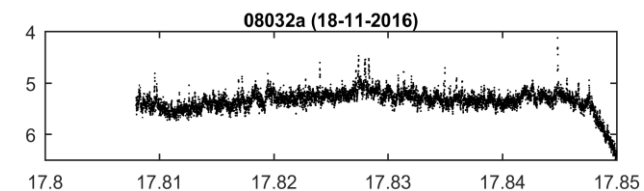
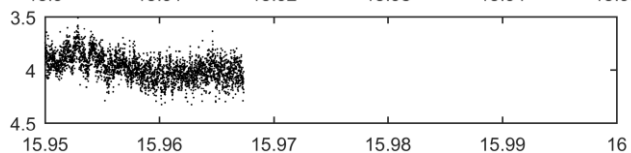
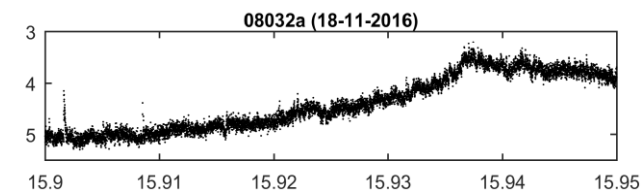
NORAD ID: 32382
 Int'l Code: 2007-061A
 Dimensions:
 Initial orbit:
 Perigee: 787 km
 Apogee: 802 km
 Inclination: 98.65°
 Period: 100.77 min
 Eccentricity: 0.001
 Launch date: 2007-12-14
 Source: Canada (CA)

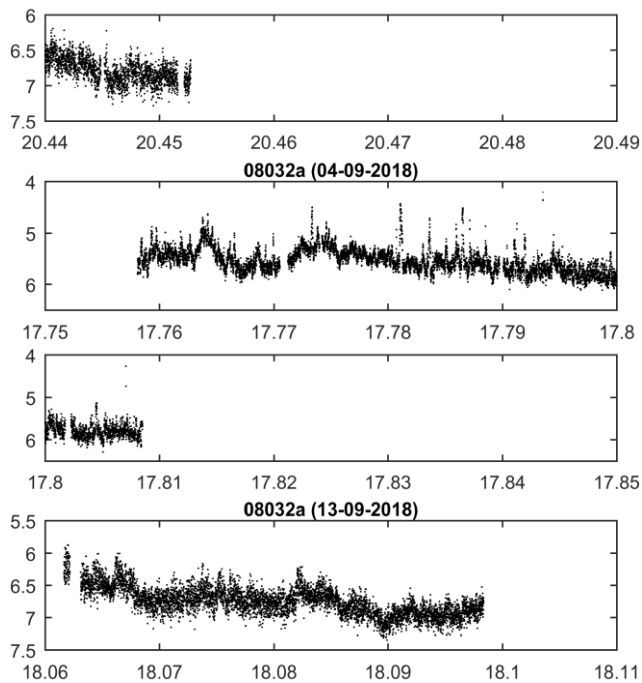


JASON 2 (OSTM)

NORAD ID: 33105
 Int'l Code: 2008-032A
 Dimensions: box+2 panels
 ~3m high
 Initial orbit:
 Perigee: 1329 km
 Apogee: 1335 km
 Inclination: 66.04°
 Period: 112.3 min
 Eccentricity: 0.0004
 Launch date: 2008-06-20
 Source: France (FR)







COSMOS 2441

(Persona #1, Kverts #1)

NORAD ID: 33272

Int'l Code: 2008-037A

Dimensions: cylinder + 2 panels
alongside ~7.5m long ~2.7m dia

Initial orbit:

Perigee: 714 km

Apogee: 732 km

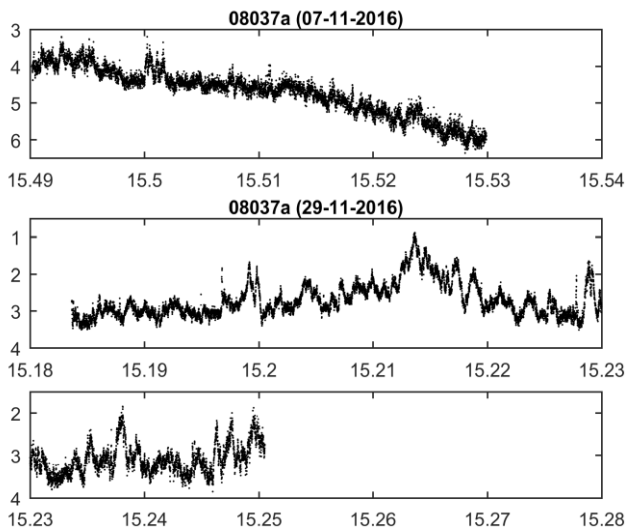
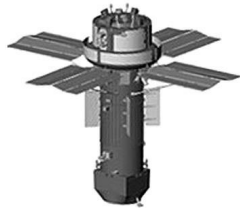
Inclination: 98.31°

Period: 99.25 min

Eccentricity: 0.001

Launch date: 2008-07-26

Source: Commonwealth of Independent States (former USSR) (CIS)



GEOEYE 1

NORAD ID: 33331

Int'l Code: 2008-042A

Dimensions:

cylindrical + 2 panels

Initial orbit:

Perigee: 668 km

Apogee: 687 km

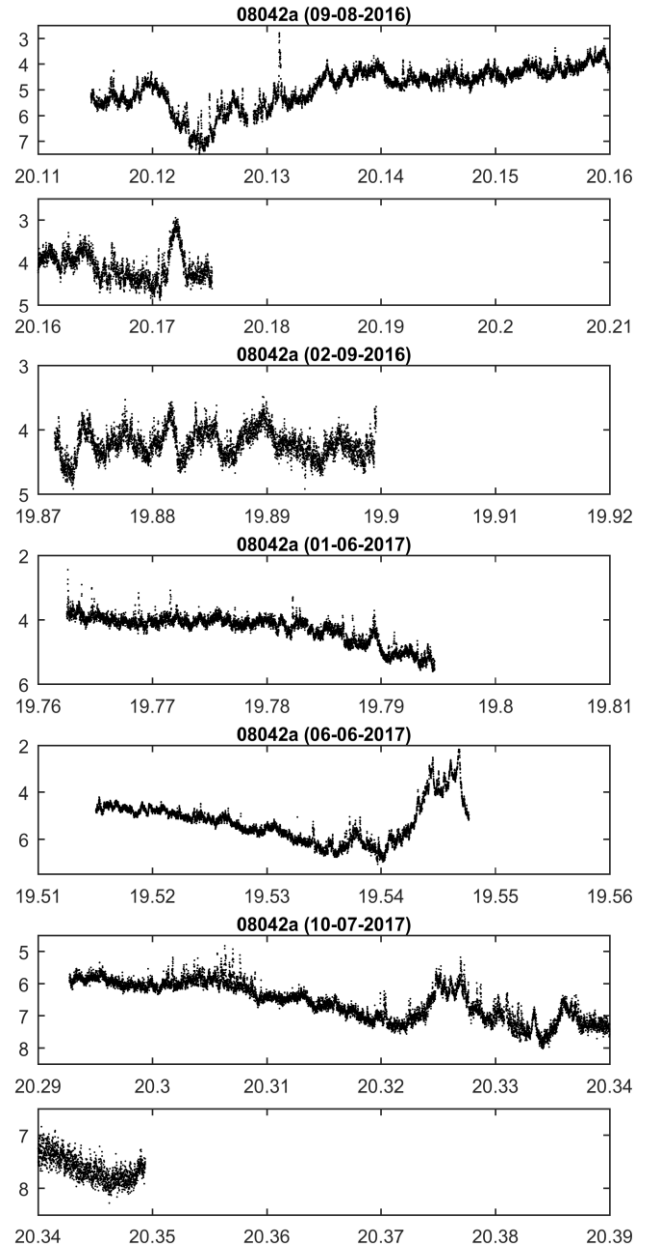
Inclination: 98.13°

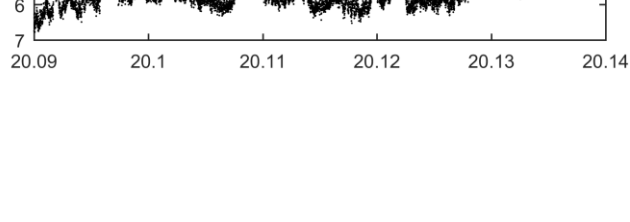
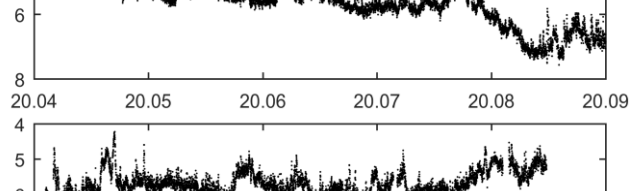
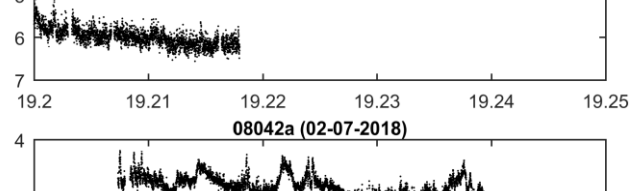
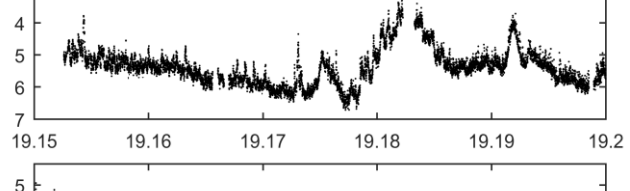
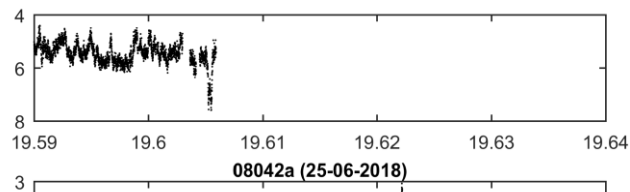
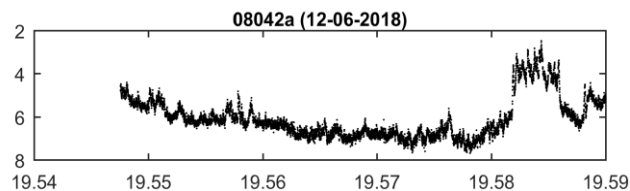
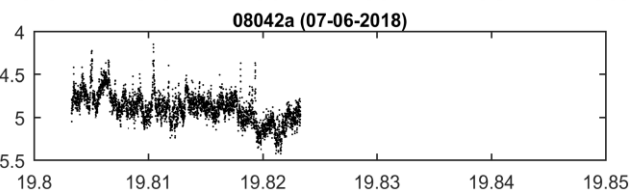
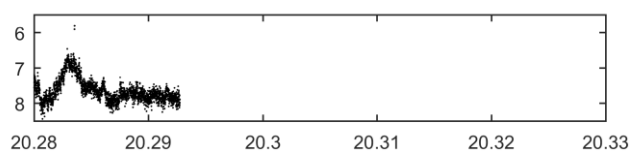
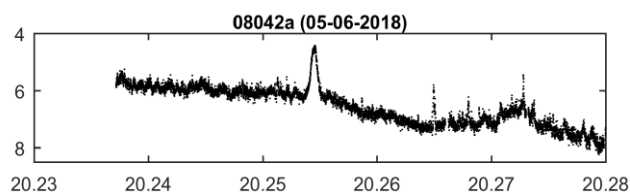
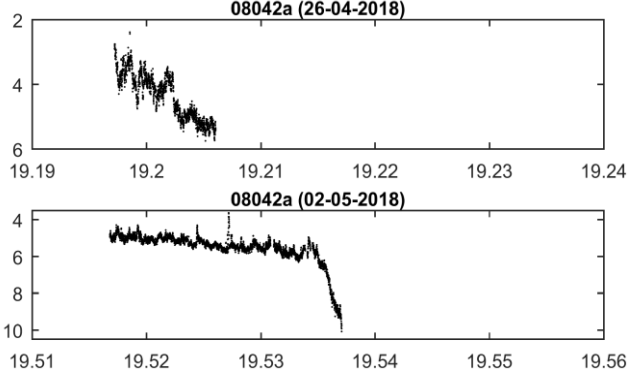
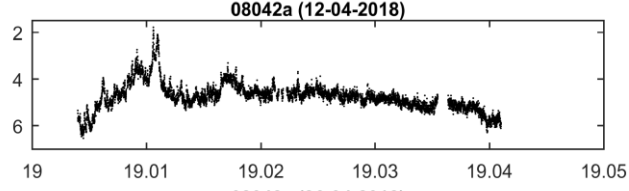
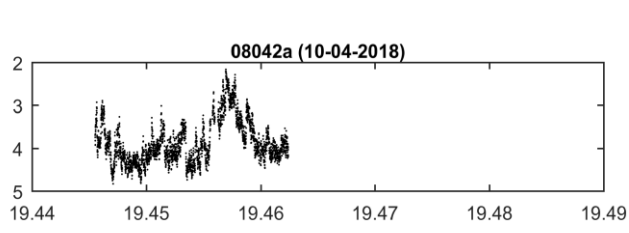
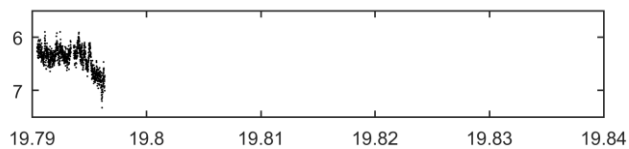
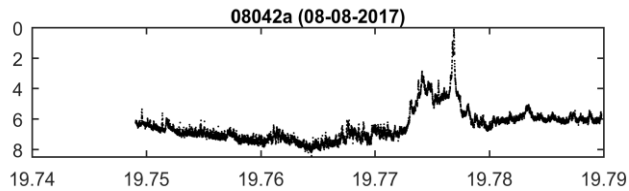
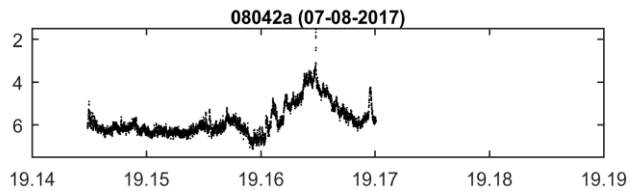
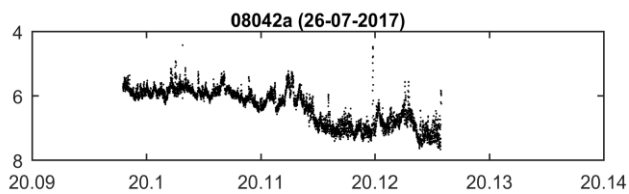
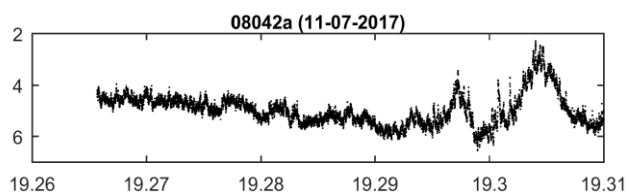
Period: 98.32 min

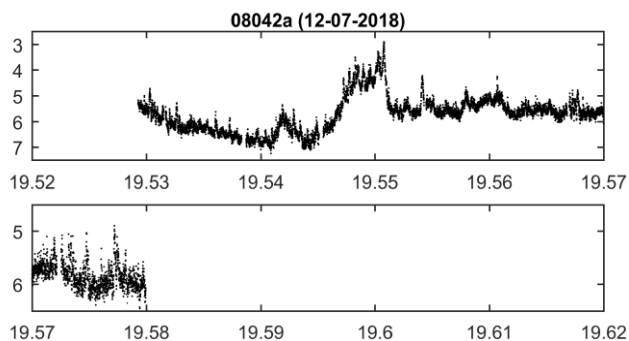
Eccentricity: 0.001

Launch date: 2008-09-06

Source: United States (US)







DNEPR PLUME SHIELD (GDS)

NORAD ID: 33398

Int'l Code: 2008-049C

Dimensions:

Initial orbit:

Perigee: 645 km

Apogee: 688 km

Inclination: 98.80°

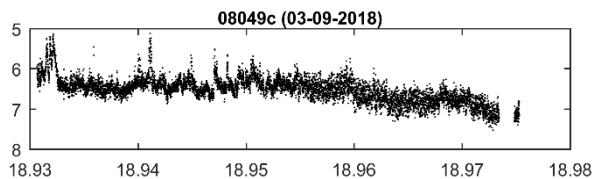
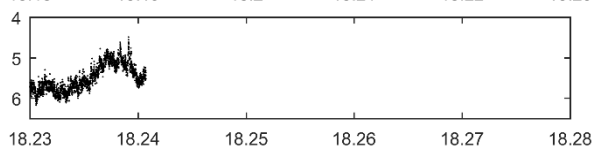
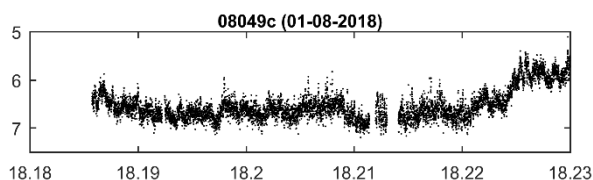
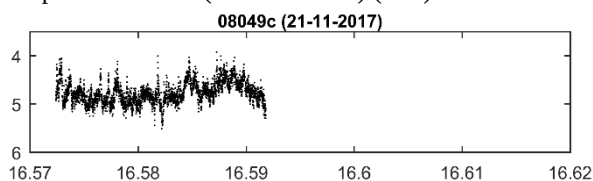
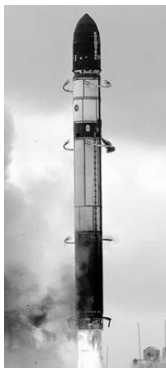
Period: 98.08 min

Eccentricity: 0.003

Launch date: 2008-10-01

Source: Commonwealth of

Independent States (former USSR) (CIS)



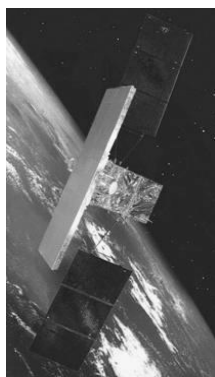
SKYMED 3 (COSMO 3)

NORAD ID: 33412

Int'l Code: 2008-054A

Dimensions: box +2 panels

Initial orbit:



Perigee: 621 km

Apogee: 624 km

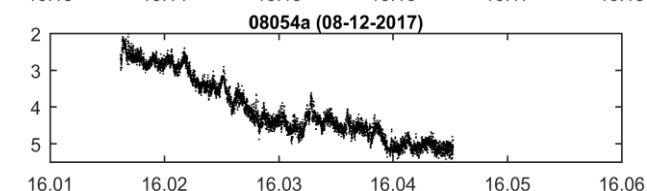
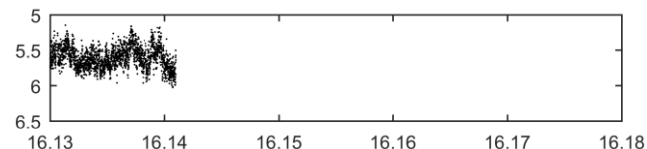
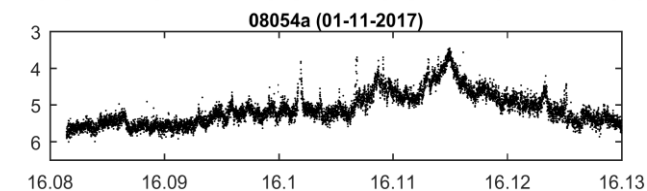
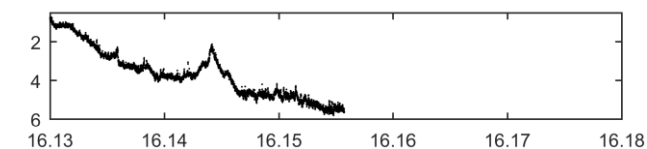
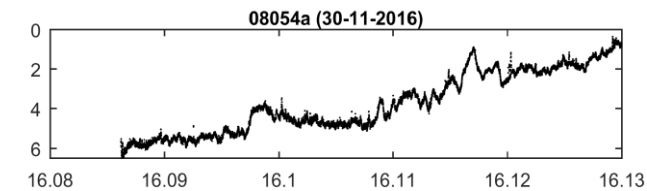
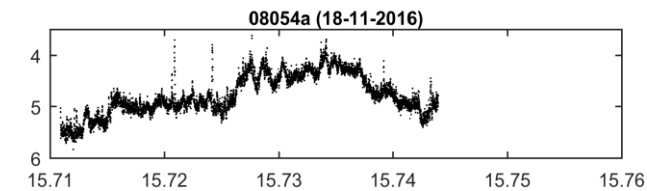
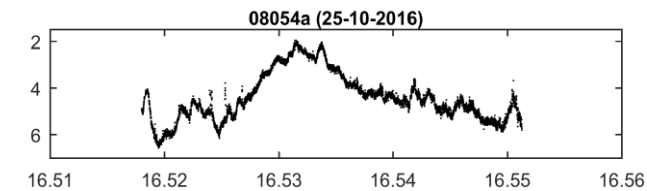
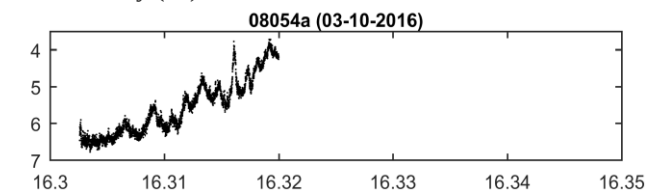
Inclination: 97.8°

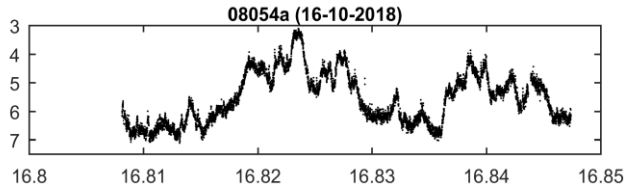
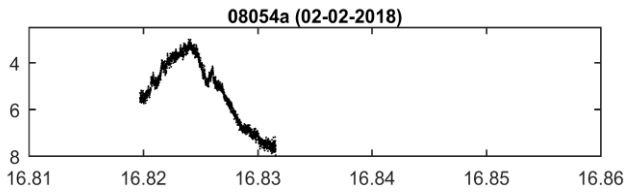
Period: 97.17 min

Eccentricity: 0.0002

Launch date: 2008-10-25

Source: Italy (IT)





WORLDVIEW 2

NORAD ID: 35946

Int'l Code: 2009-055A

Dimensions:

Initial orbit:

Perigee: 758 km

Apogee: 766 km

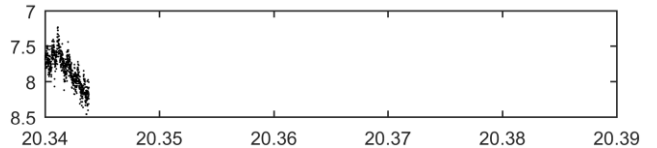
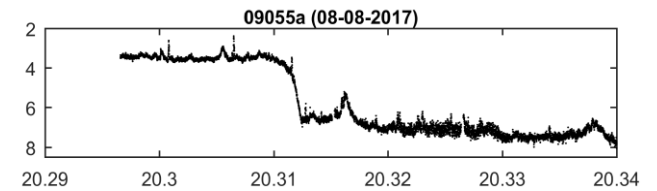
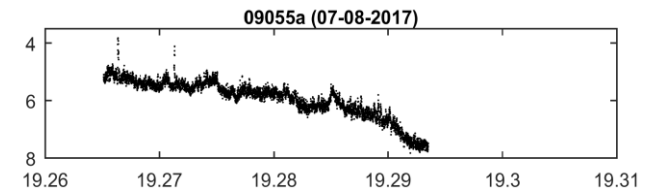
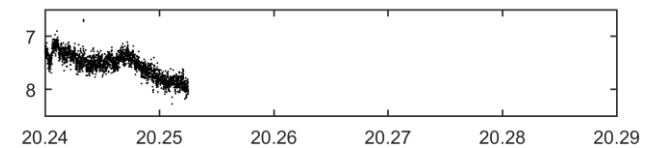
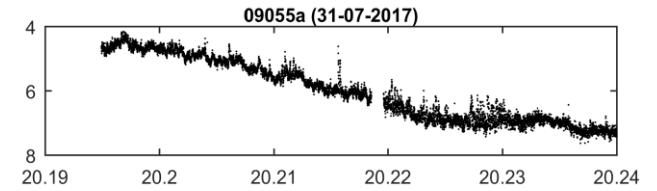
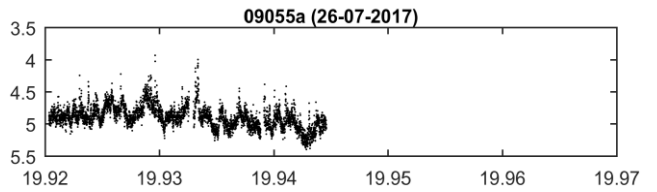
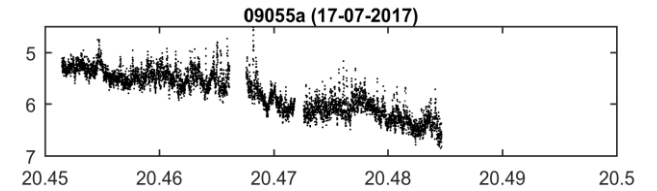
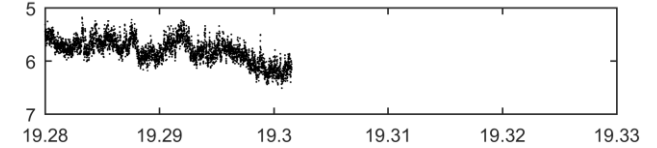
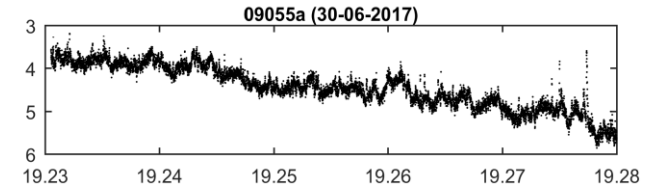
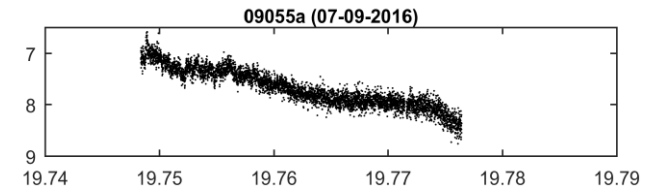
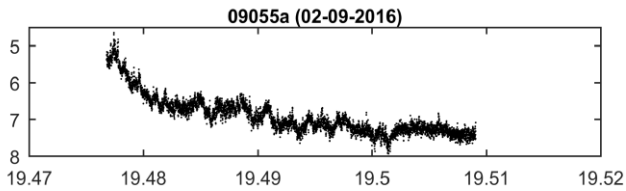
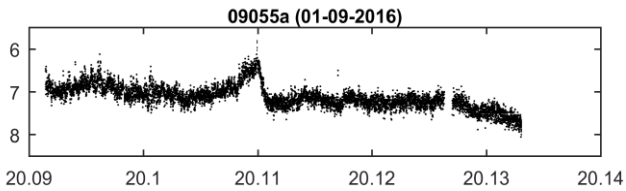
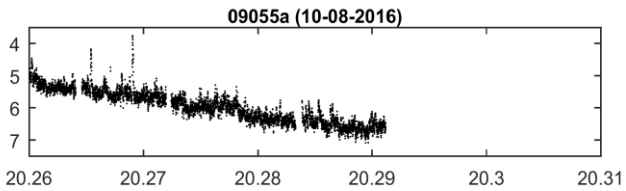
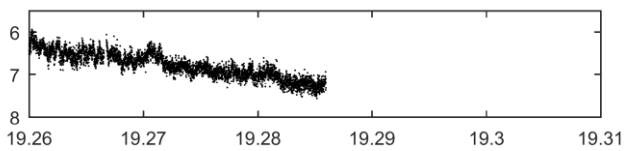
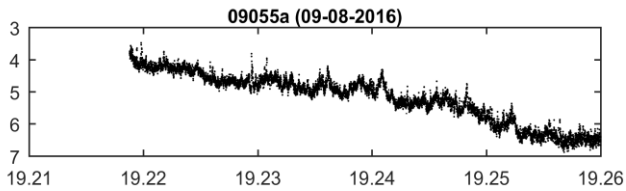
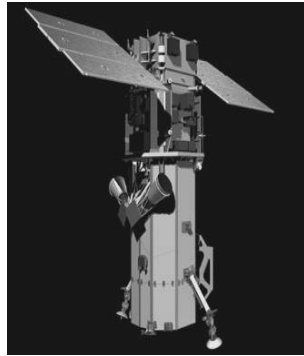
Inclination: 98.59°

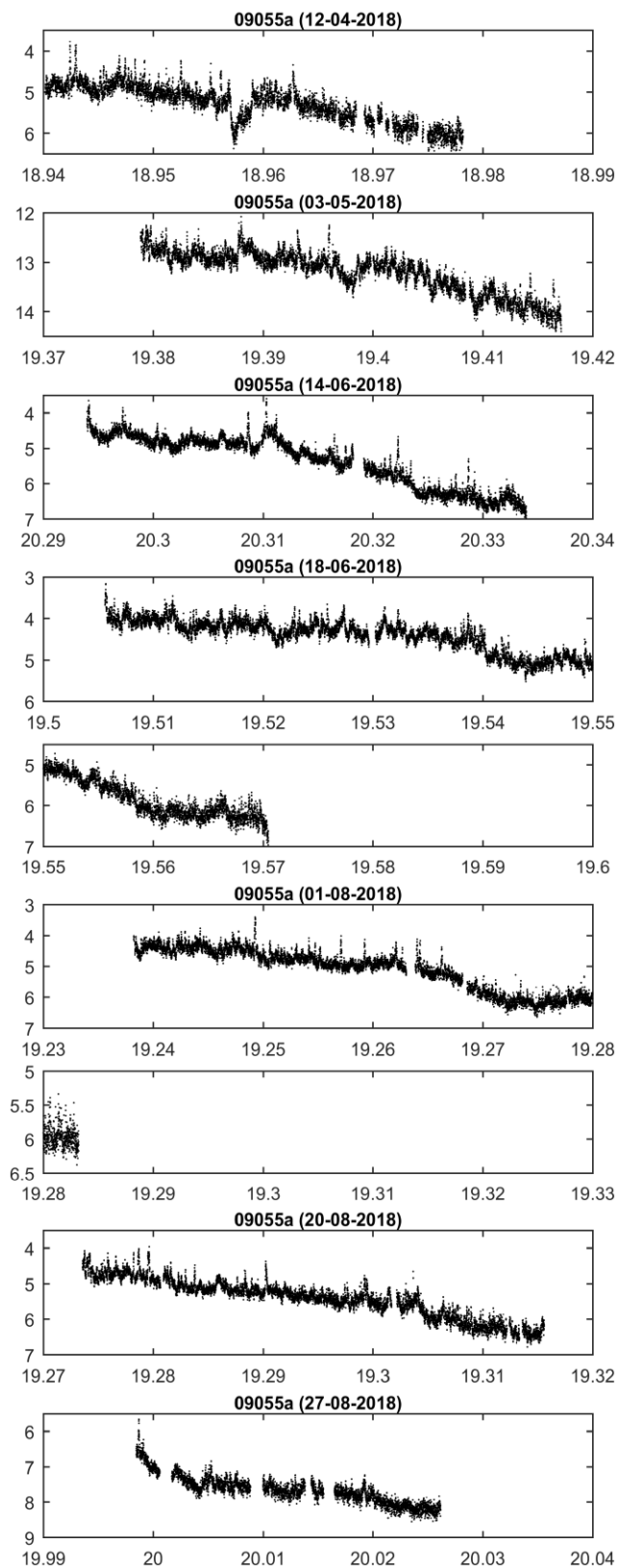
Period: 100.08 min

Eccentricity: 0.0006

Launch date: 2009-10-08

Source: United States (US)





Dimensions: box + 3 panels

Initial orbit:

Perigee: 758 km

Apogee: 760 km

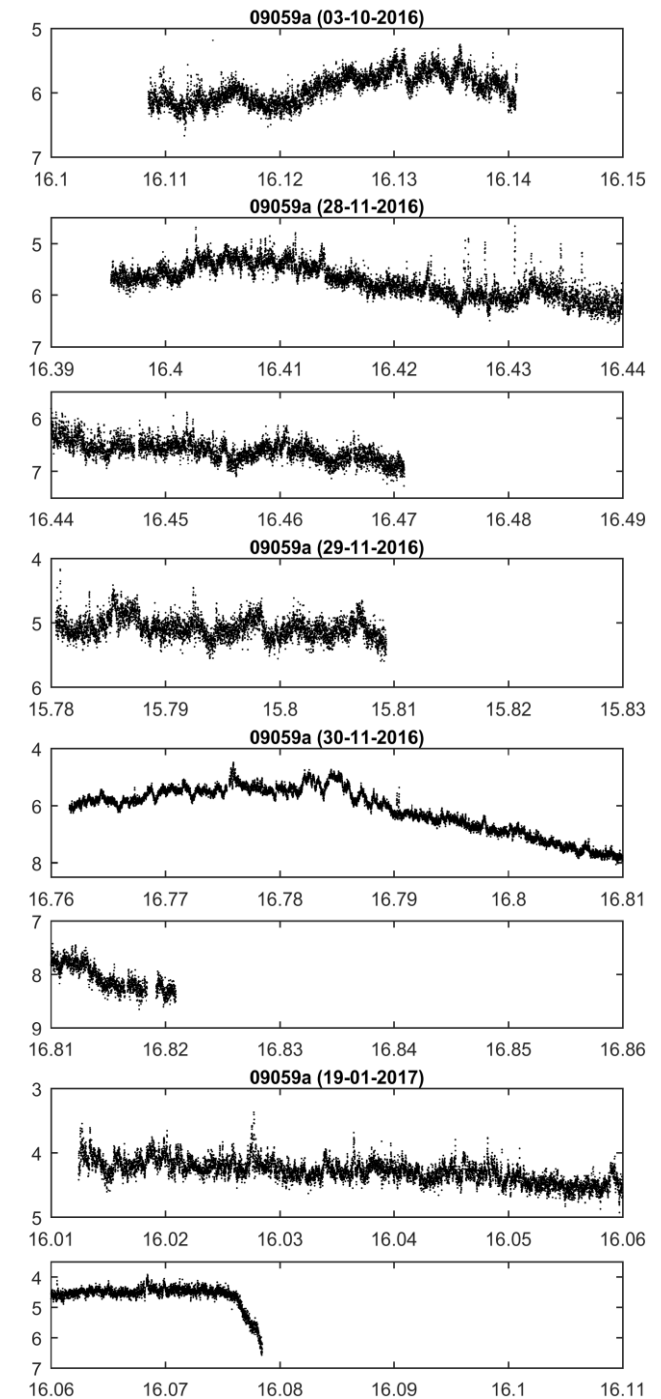
Inclination: 98.45°

Period: 100.02 min

Eccentricity: 0.0002

Launch date: 2009-11-02

Source: European Space Agency (ESA)

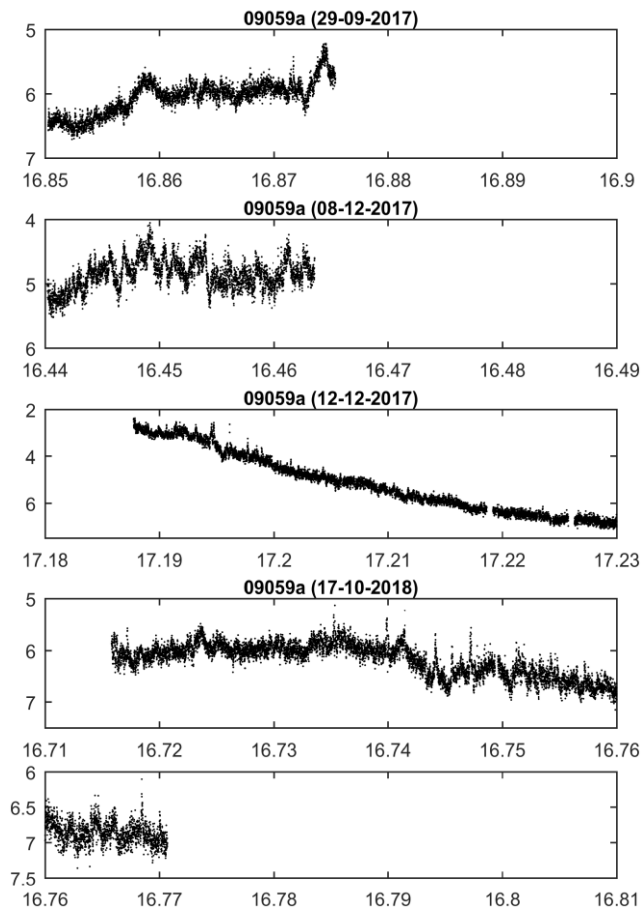


SMOS

NORAD ID: 36036

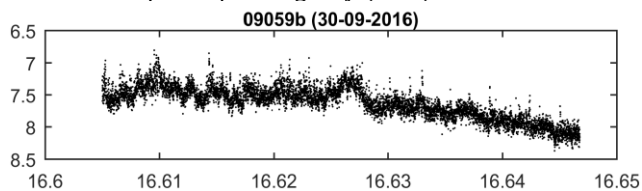
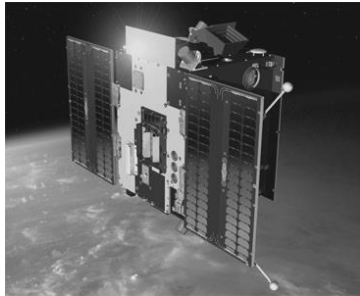
Int'l Code: 2009-059A





PROBA 2

NORAD ID: 36037
 Int'l Code: 2009-059B
 Dimensions:
 Initial orbit:
 Perigee: 710 km
 Apogee: 727 km
 Inclination: 98.3°
 Period: 99.17 min
 Eccentricity: 0.001
 Launch date: 2009-11-02



COSMOS 2455

(Lotos-S #1)

NORAD ID: 36095

Int'l Code: 2009-063A

Dimensions:

Initial orbit:

Perigee: 199 km

Apogee: 904 km

Inclination: 67.17°

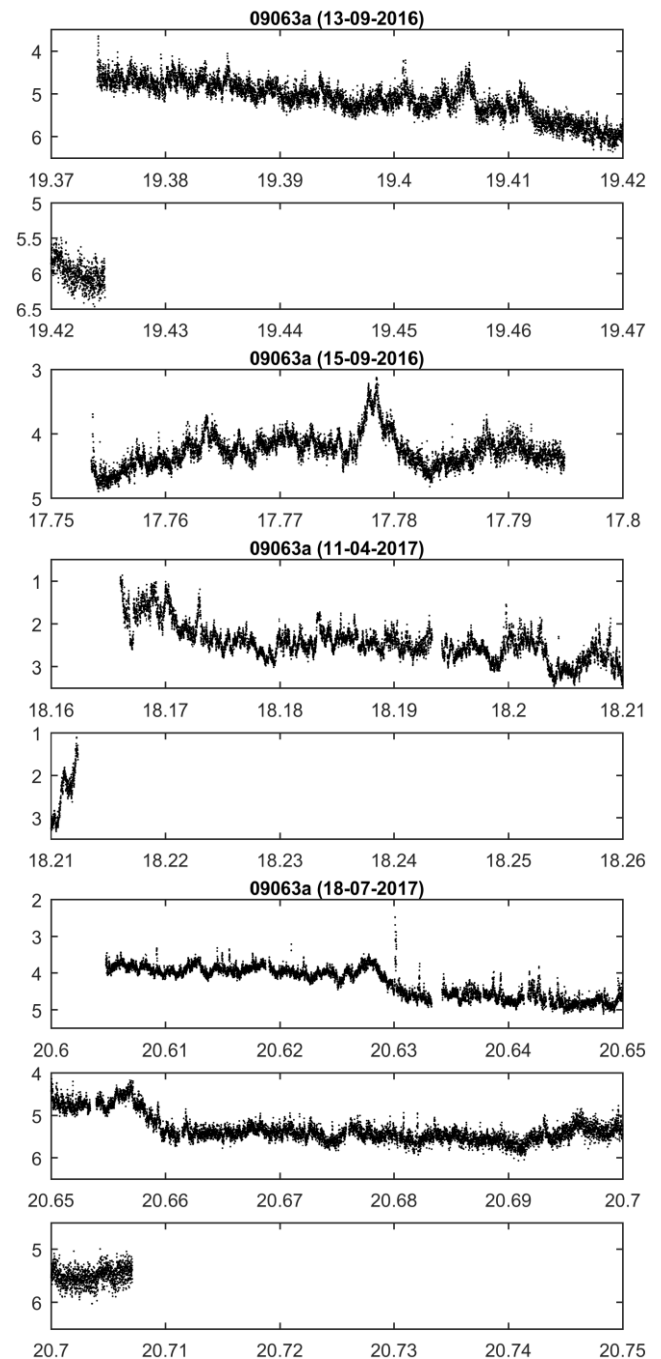
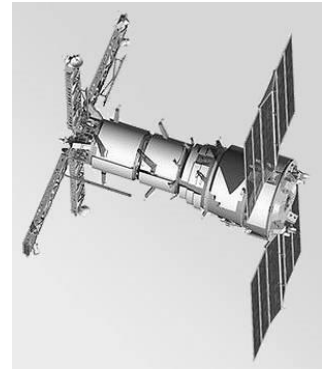
Period: 95.68 min

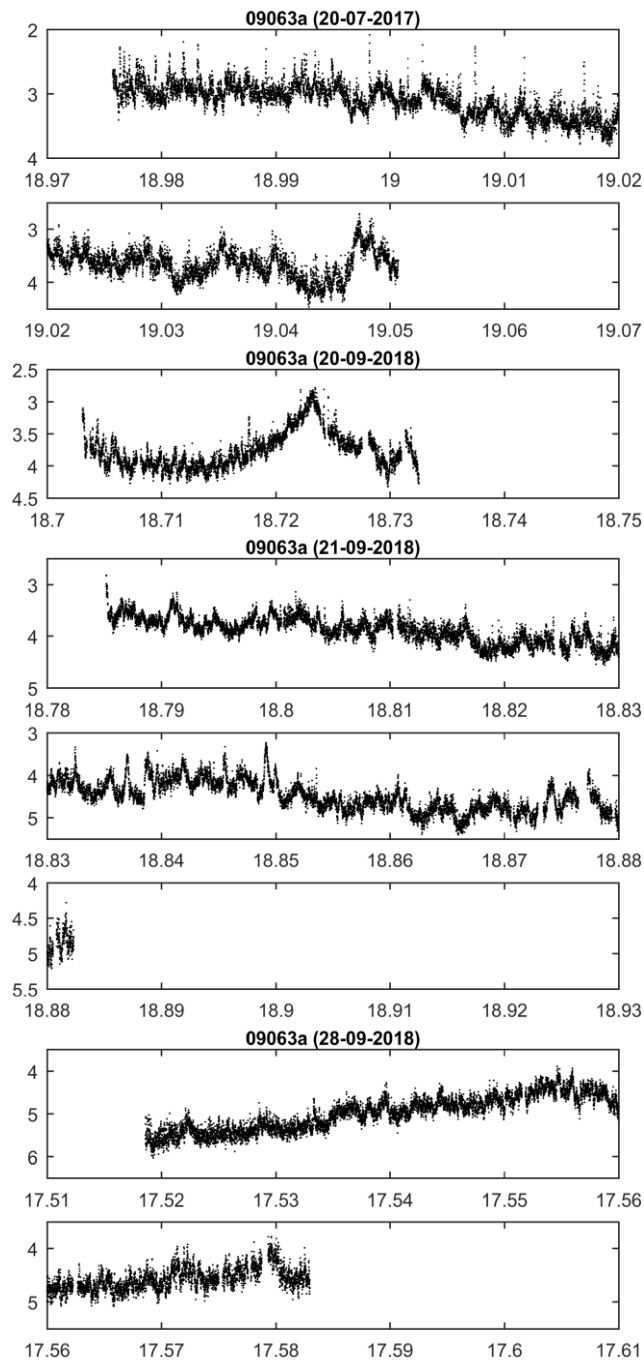
Eccentricity: 0.051

Launch date: 2009-11-20

Source: Commonwealth of

Independent States (former USSR) (CIS)



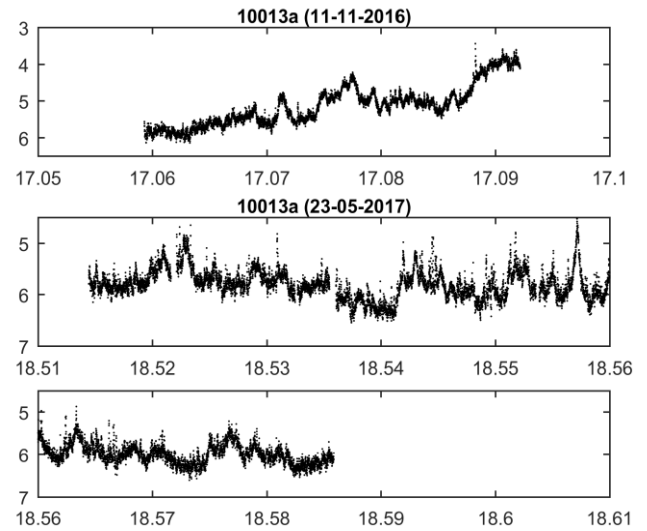


CRYOSAT 2

NORAD ID: 36508
 Int'l Code: 2010-013A
 Dimensions: box + roof
 4.6m long 2.4m wide 2.2m high
 Initial orbit:
 Perigee: 710 km
 Apogee: 726 km
 Inclination: 92.02°
 Period: 99.15 min
 Eccentricity: 0.001
 Launch date: 2010-04-08



Source: European Space Agency (ESA)



BPA 1/SL-24 R/B (Dnepr 3rd stage)

NORAD ID: 36600

Int'l Code: 2010-028C

Dimensions: drum ~1m long ~3m dia

Initial orbit:

Perigee: 714 km

Apogee: 1267 km

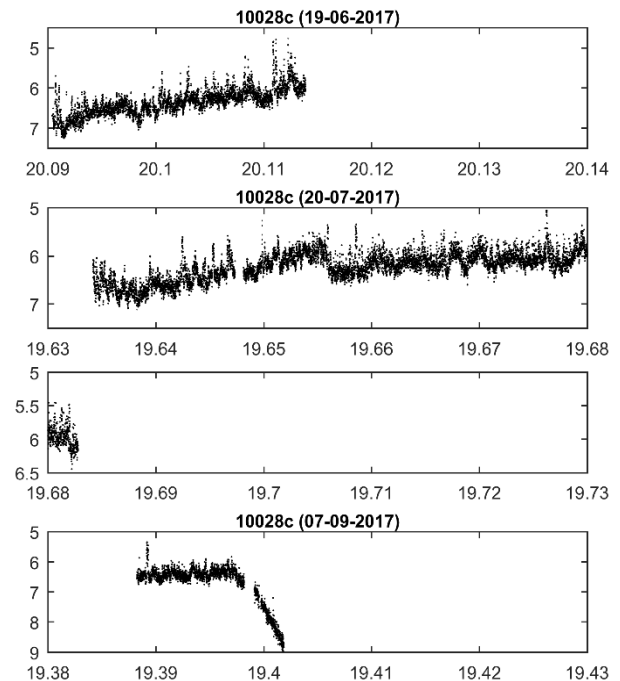
Inclination: 98.24°

Period: 104.92 min

Eccentricity: 0.038

Launch date: 2010-06-15

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-24 DEB

NORAD ID: 36602

Int'l Code: 2010-028E

Dimensions:

Initial orbit:

Perigee: 725 km

Apogee: 785 km

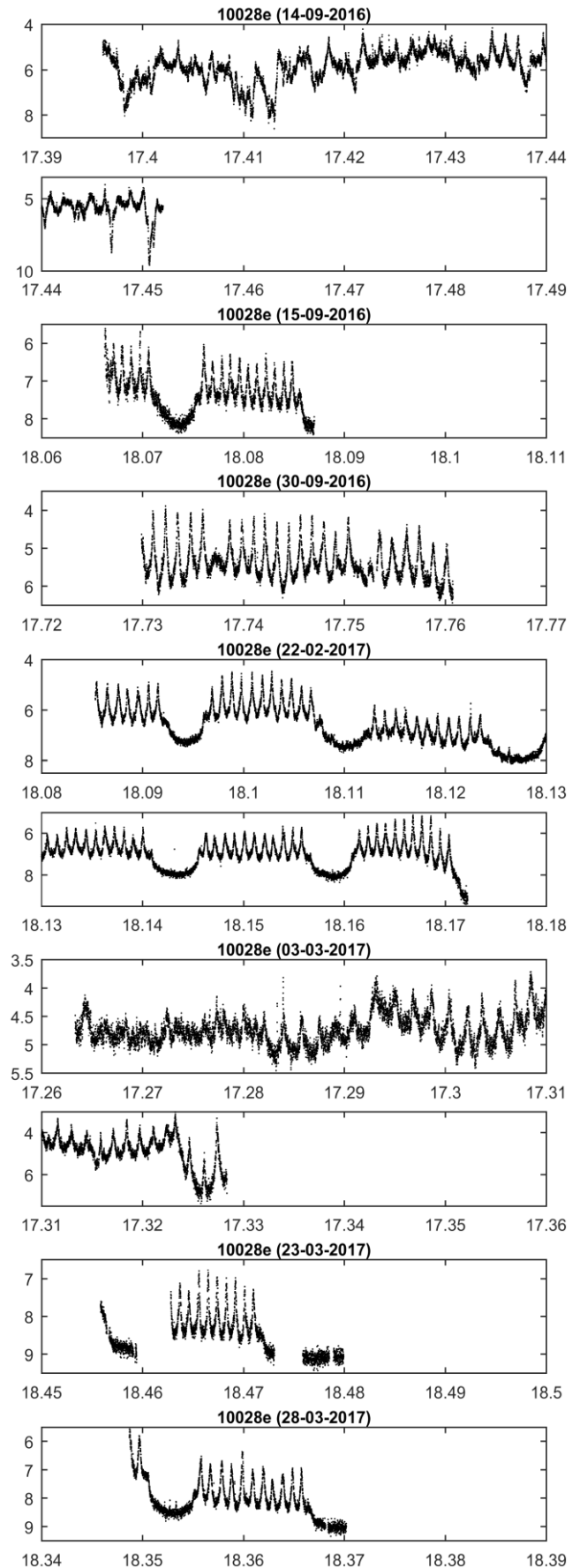
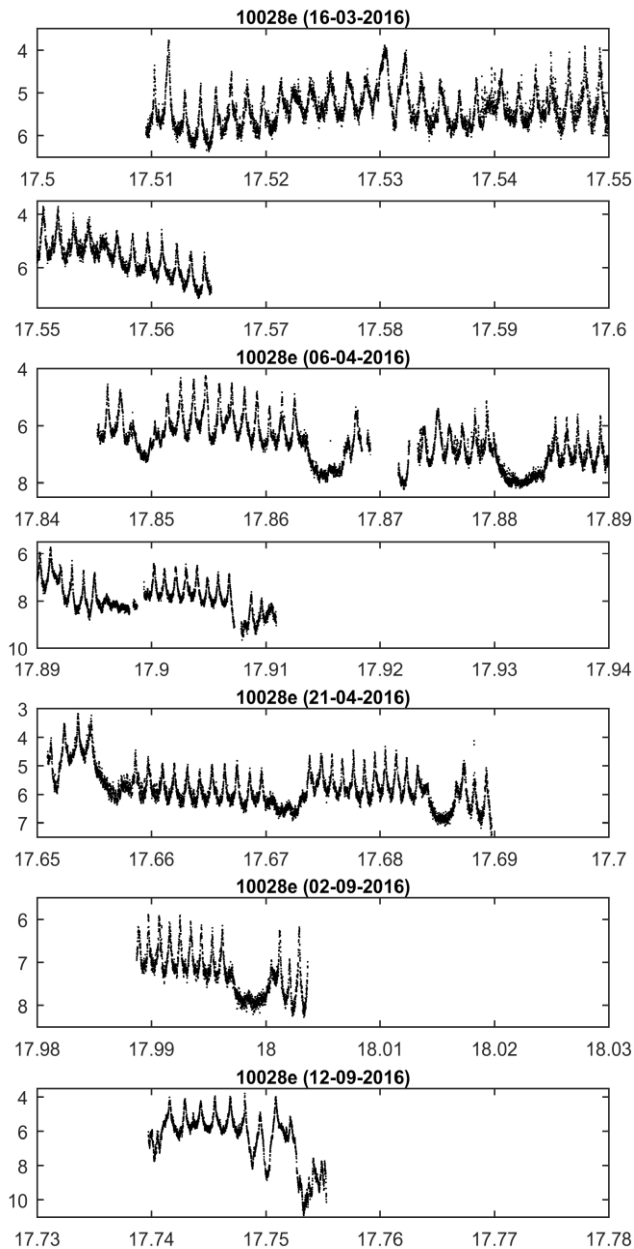
Inclination: 98.28°

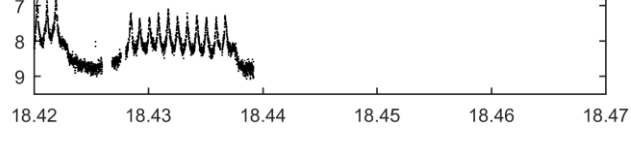
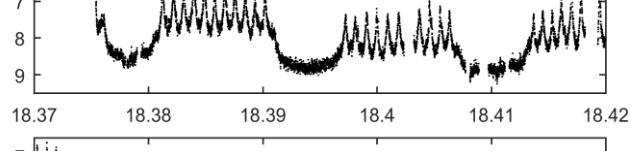
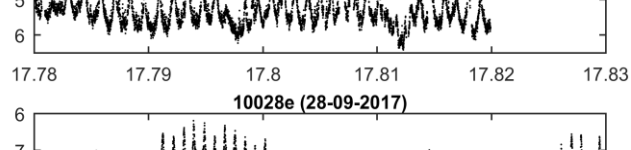
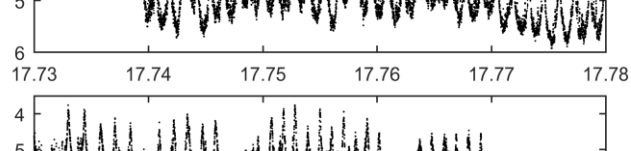
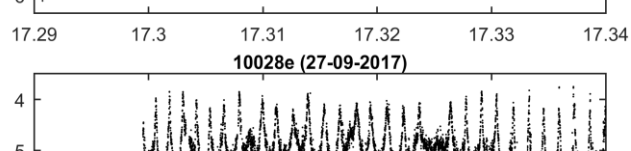
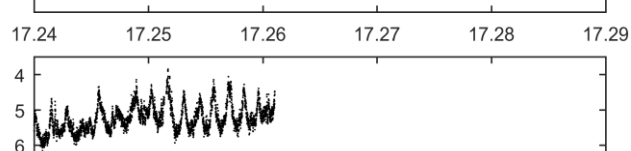
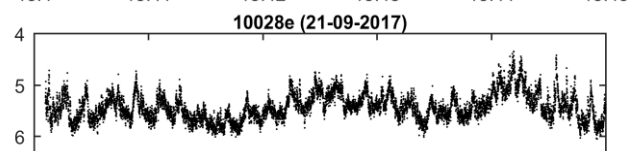
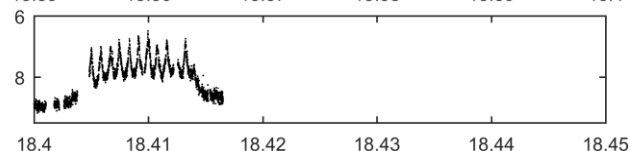
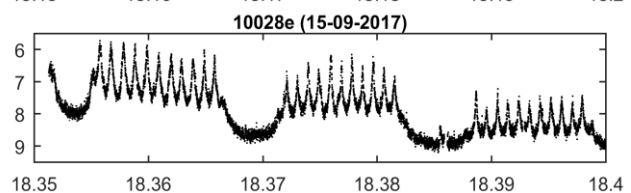
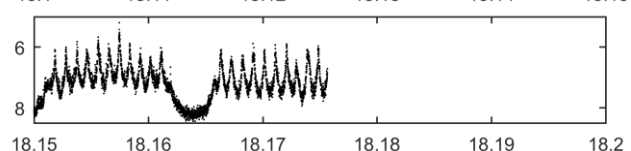
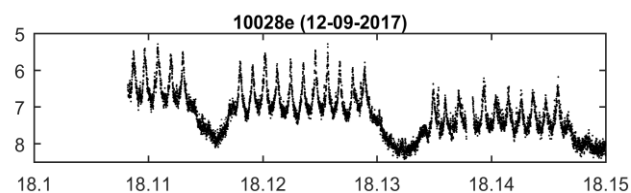
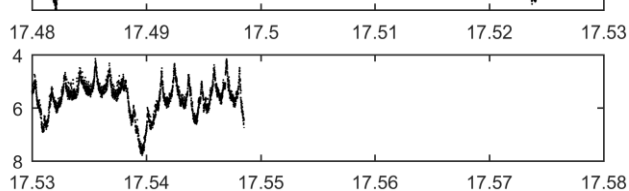
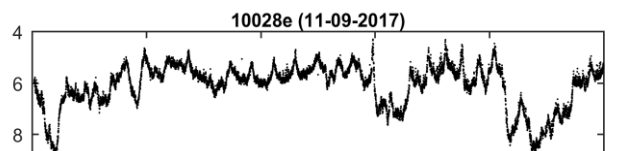
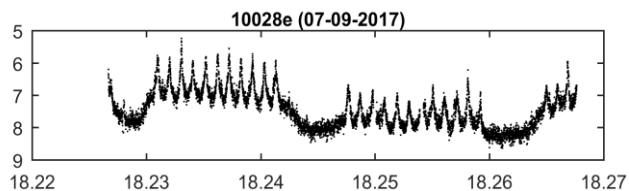
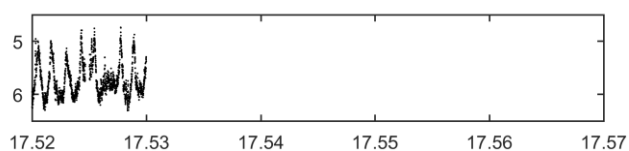
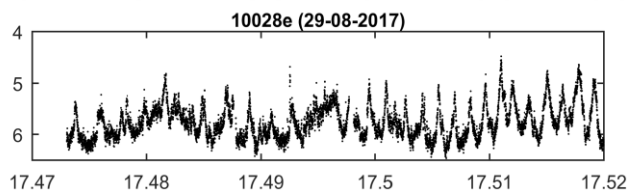
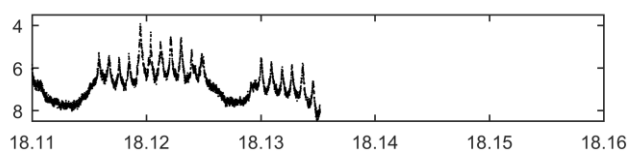
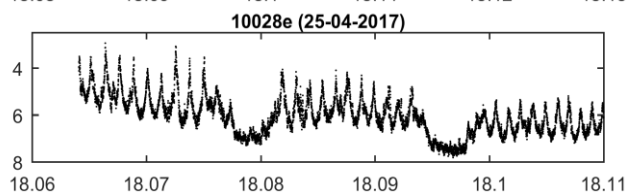
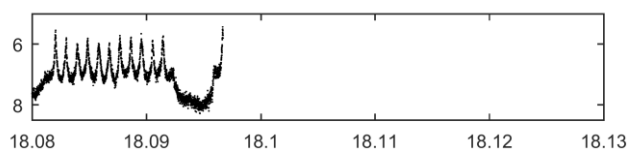
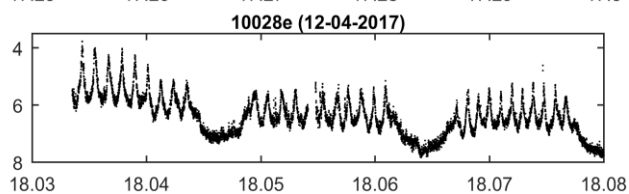
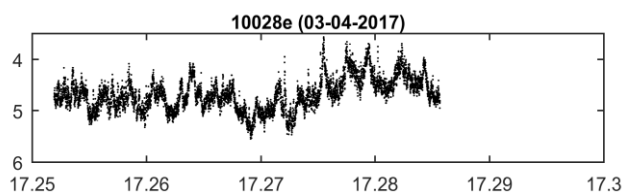
Period: 99.93 min

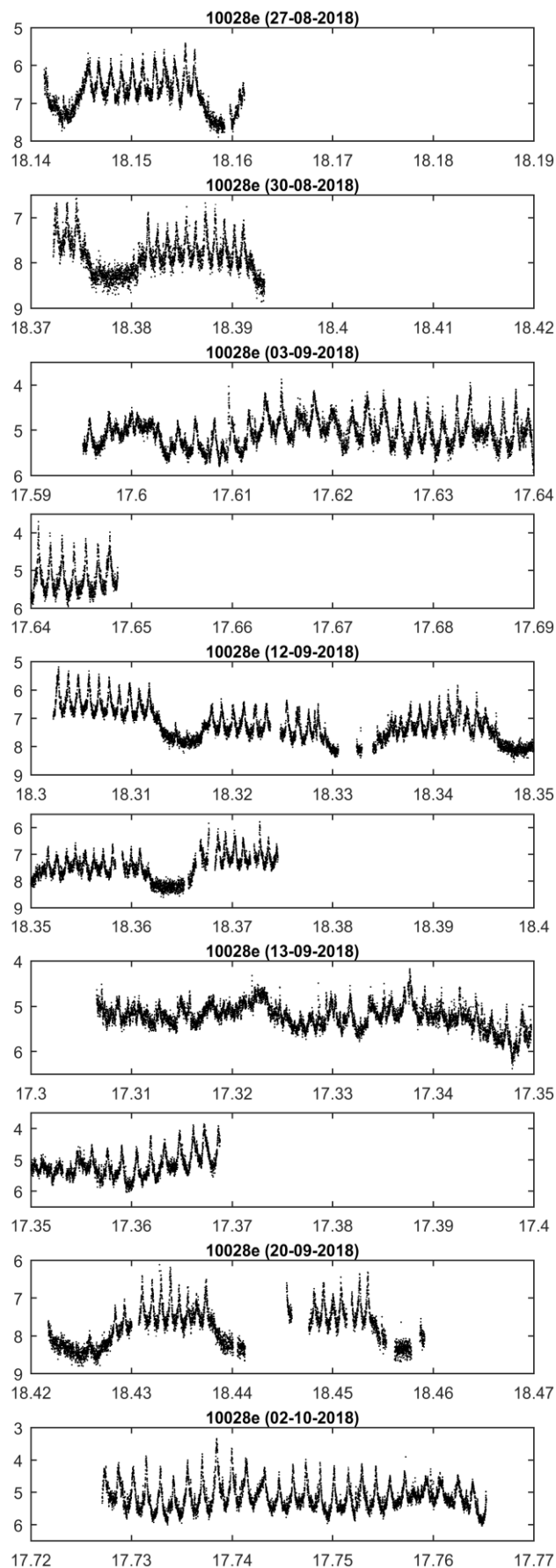
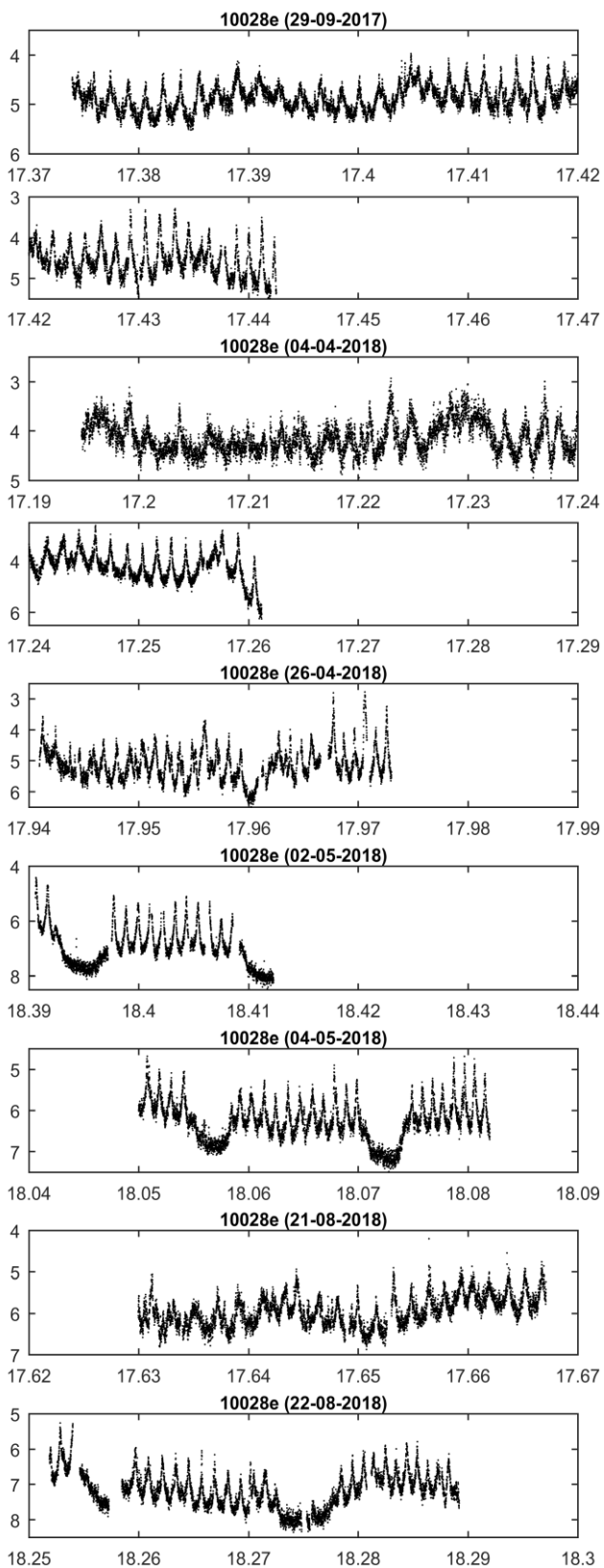
Eccentricity: 0.004

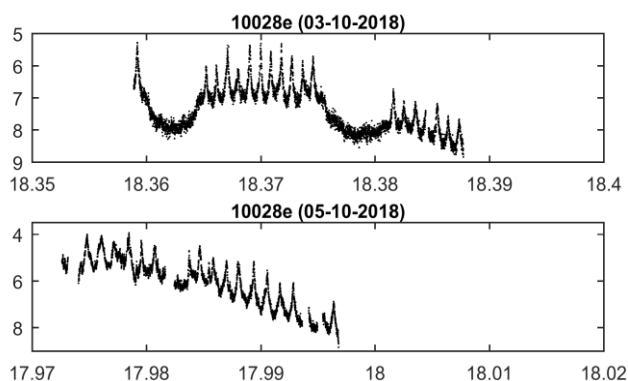
Launch date: 2010-06-15

Source: Commonwealth of Independent States (former USSR) (CIS)



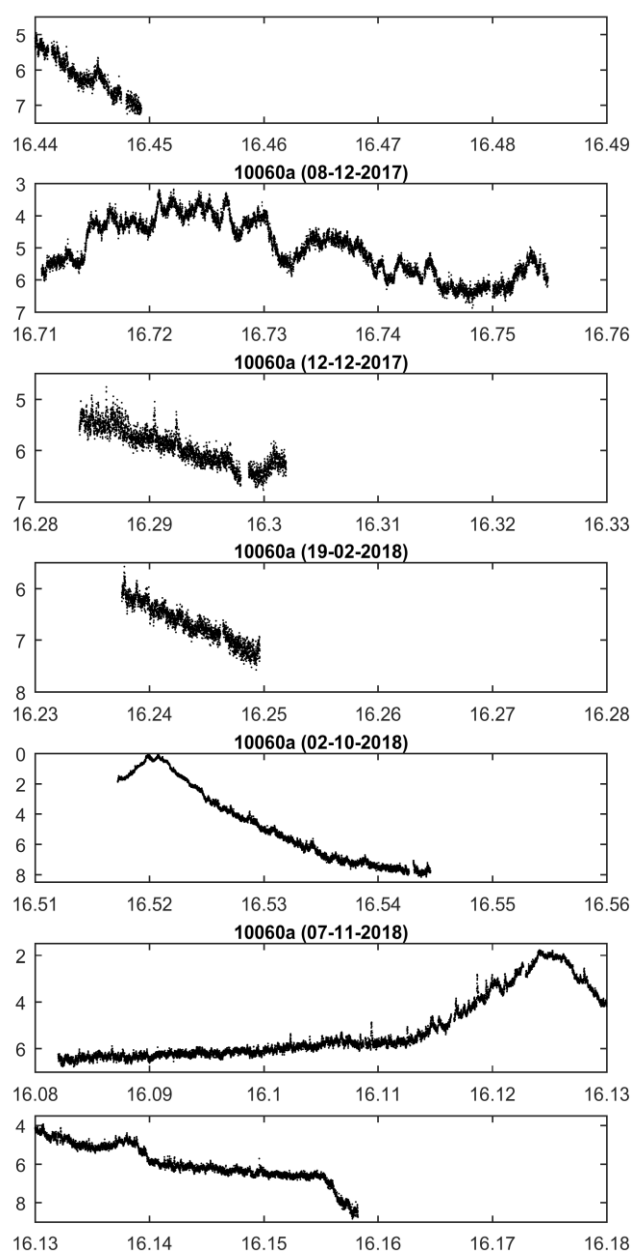
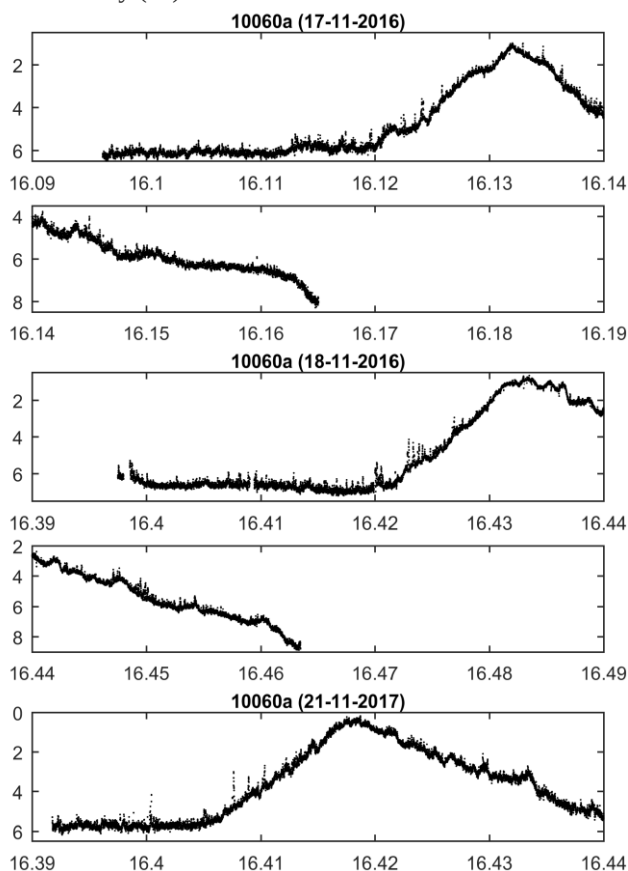
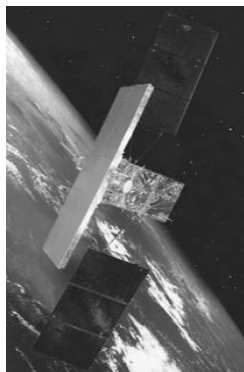






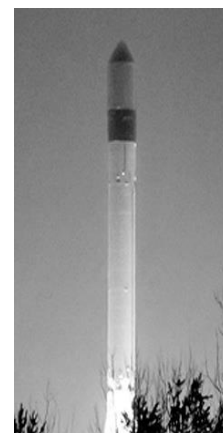
SKYMED 4 (COSMO 4)

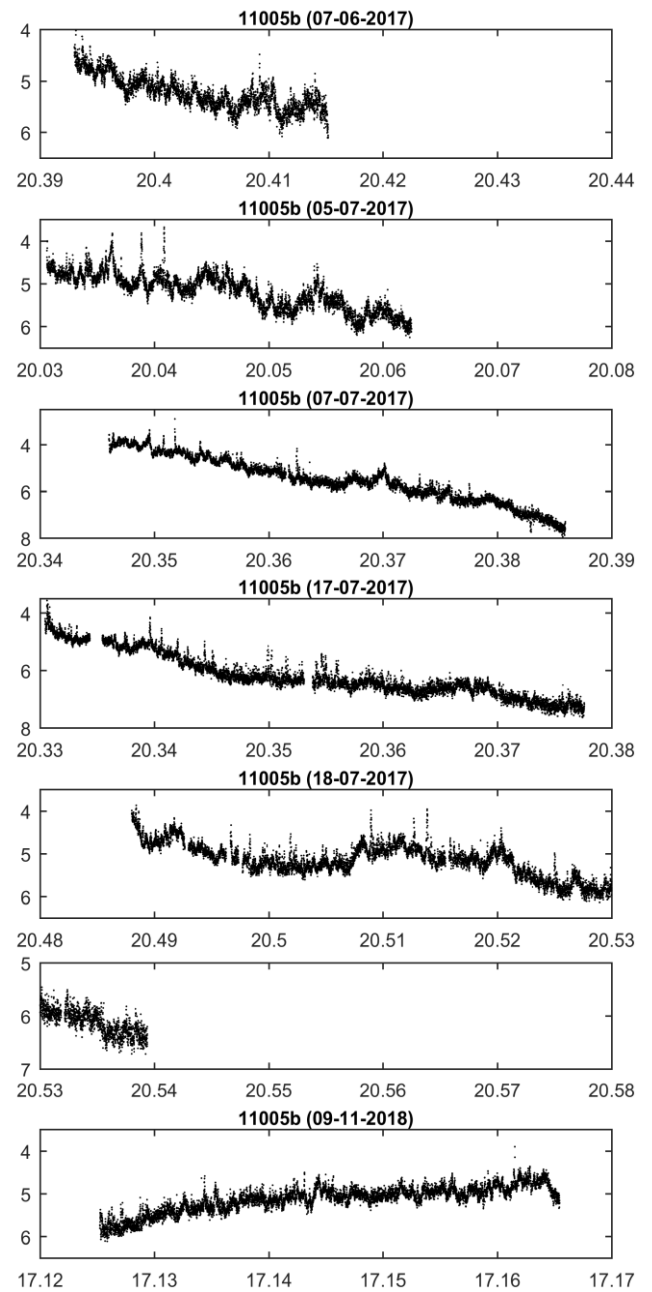
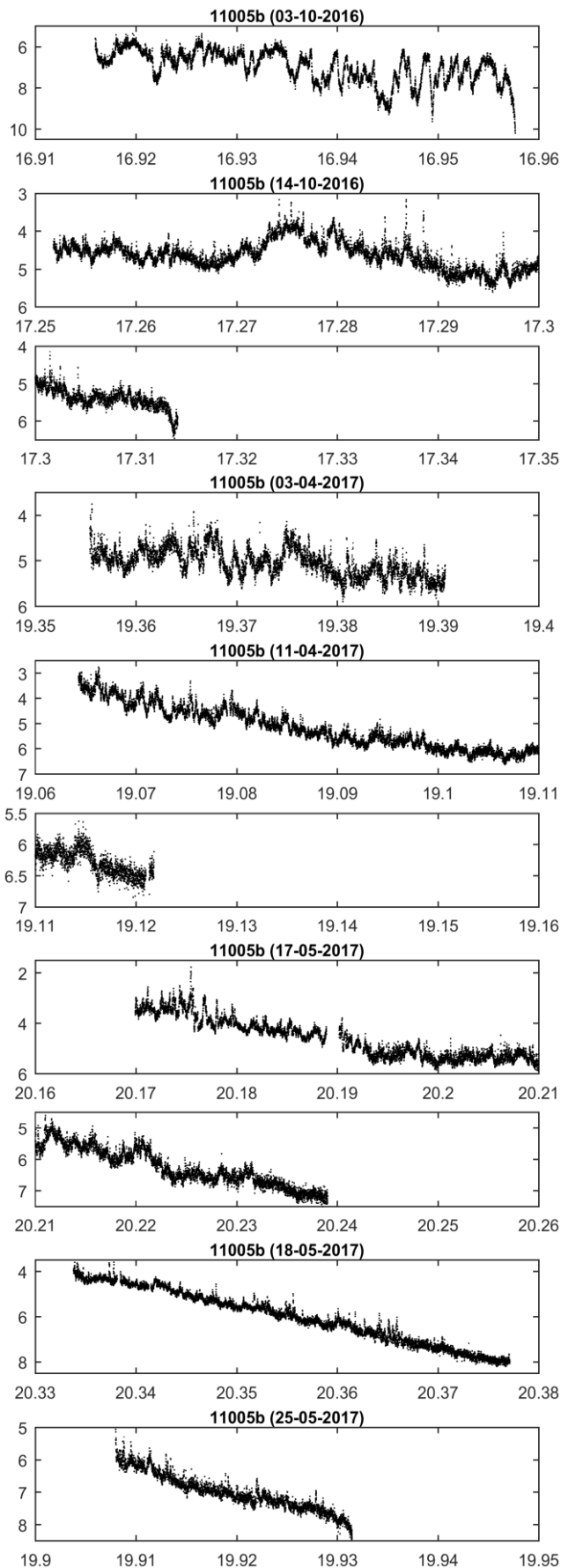
NORAD ID: 37216
 Int'l Code: 2010-060A
 Dimensions: box + 2 panels
 + SAR antenna
 Initial orbit:
 Perigee: 612 km
 Apogee: 614 km
 Inclination: 97.86°
 Period: 96.97 min
 Eccentricity: 0.0002
 Launch date: 2010-11-06
 Source: Italy (IT)



SL-19 R/B (3rd stage) (Rokot-KM) (KOSMOS 2470 (GEO-IK-2 1) ROKET)

NORAD ID: 37363
 Int'l Code: 2011-005B
 Dimensions: cylinder 3m long
 2.5m dia
 Initial orbit:
 Perigee: 318 km
 Apogee: 1050 km
 Inclination: 99.46°
 Period: 98.43 min
 Eccentricity: 0.052
 Launch date: 2011-02-01
 Source: Commonwealth of Independent States
 (former USSR) (CIS)





RESOURCESAT 2

NORAD ID: 37387

Int'l Code: 2011-015A

Dimensions: box + 2 panels

Initial orbit:

Perigee: 821 km

Apogee: 823 km

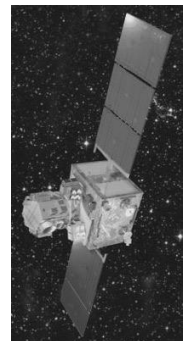
Inclination: 98.78°

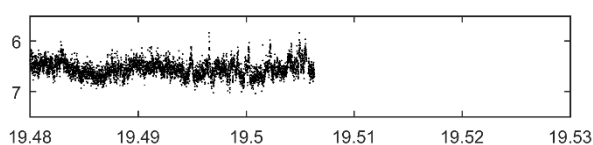
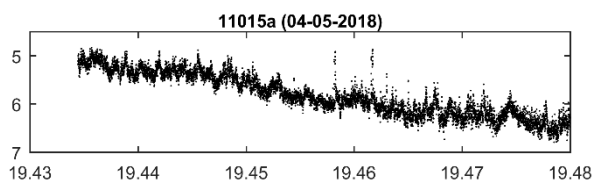
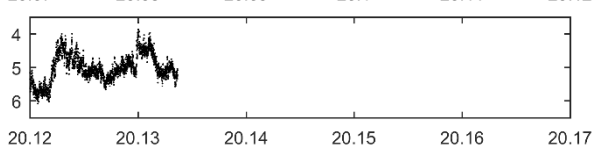
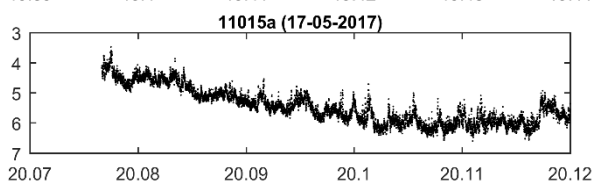
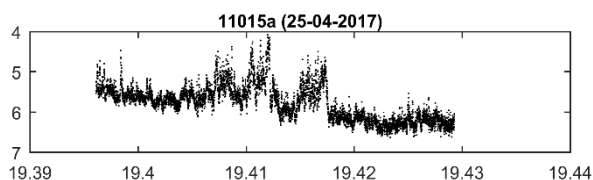
Period: 101.33 min

Eccentricity: 0.0002

Launch date: 2011-04-20

Source: India (IND)





PSLV R/B (4th stage)

NORAD ID: 37390

Int'l Code: 2011-015D

Dimensions: cylinder 2.6m long 2.8m dia

Initial orbit:

Perigee: 789 km

Apogee: 816 km

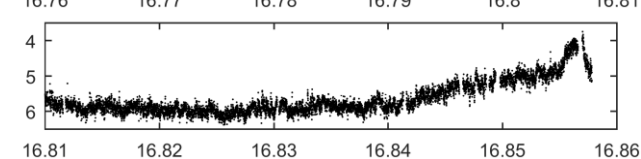
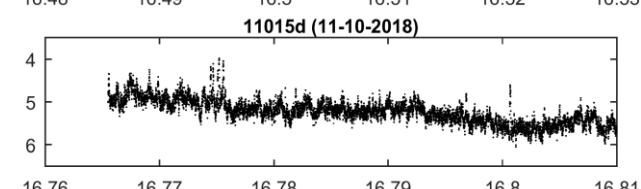
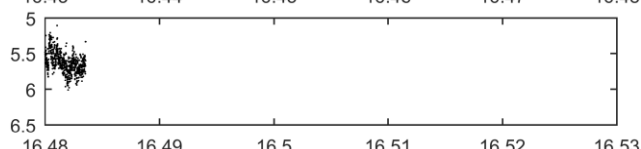
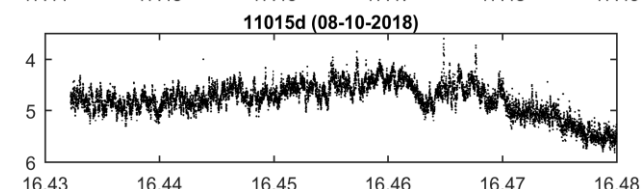
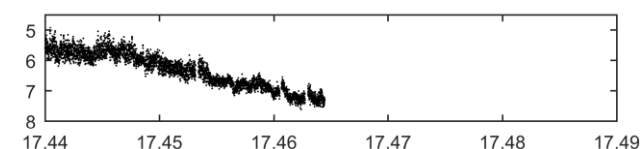
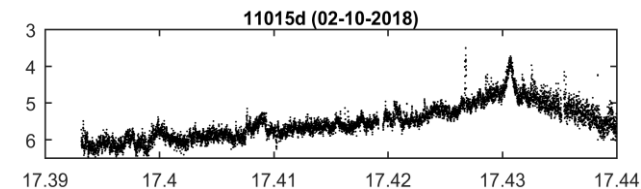
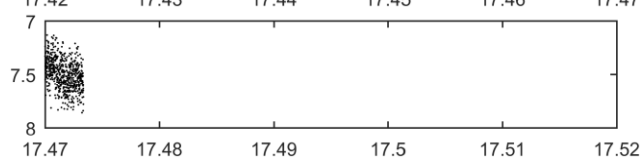
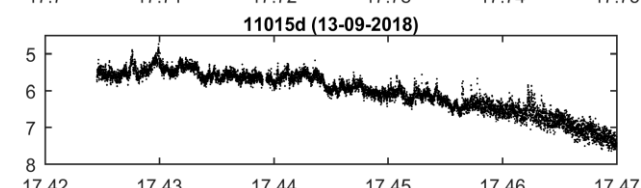
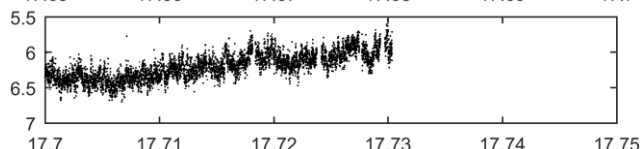
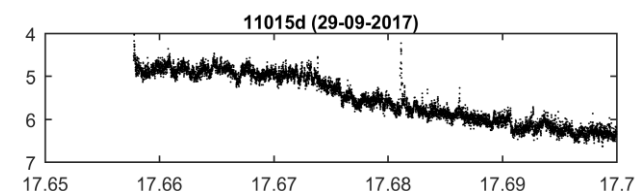
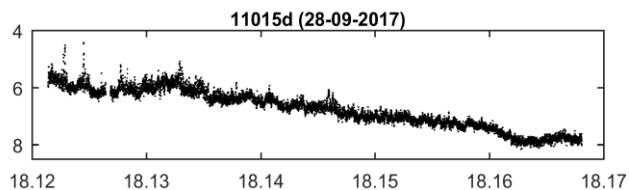
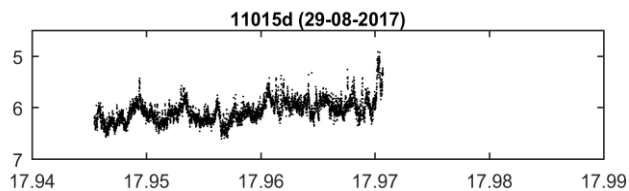
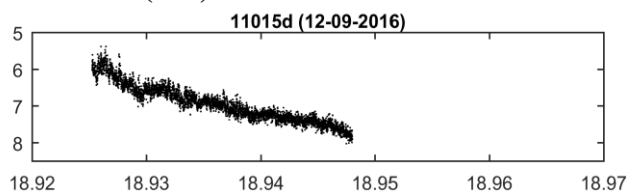
Inclination: 98.66°

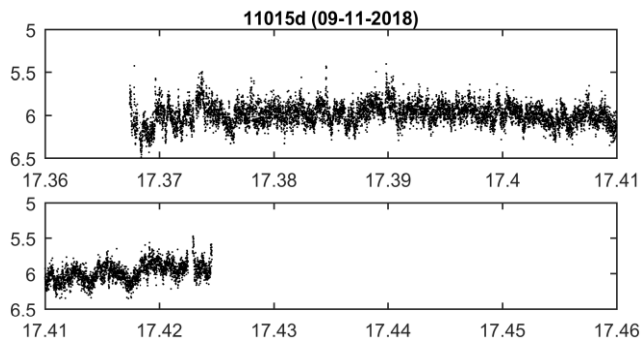
Period: 100.92 min

Eccentricity: 0.002

Launch date: 2011-04-20

Source: India (IND)





HAIYANG 2A

NORAD ID: 37781

Int'l Code: 2011-043A

Dimensions:

Initial orbit:

Perigee: 904 km

Apogee: 915 km

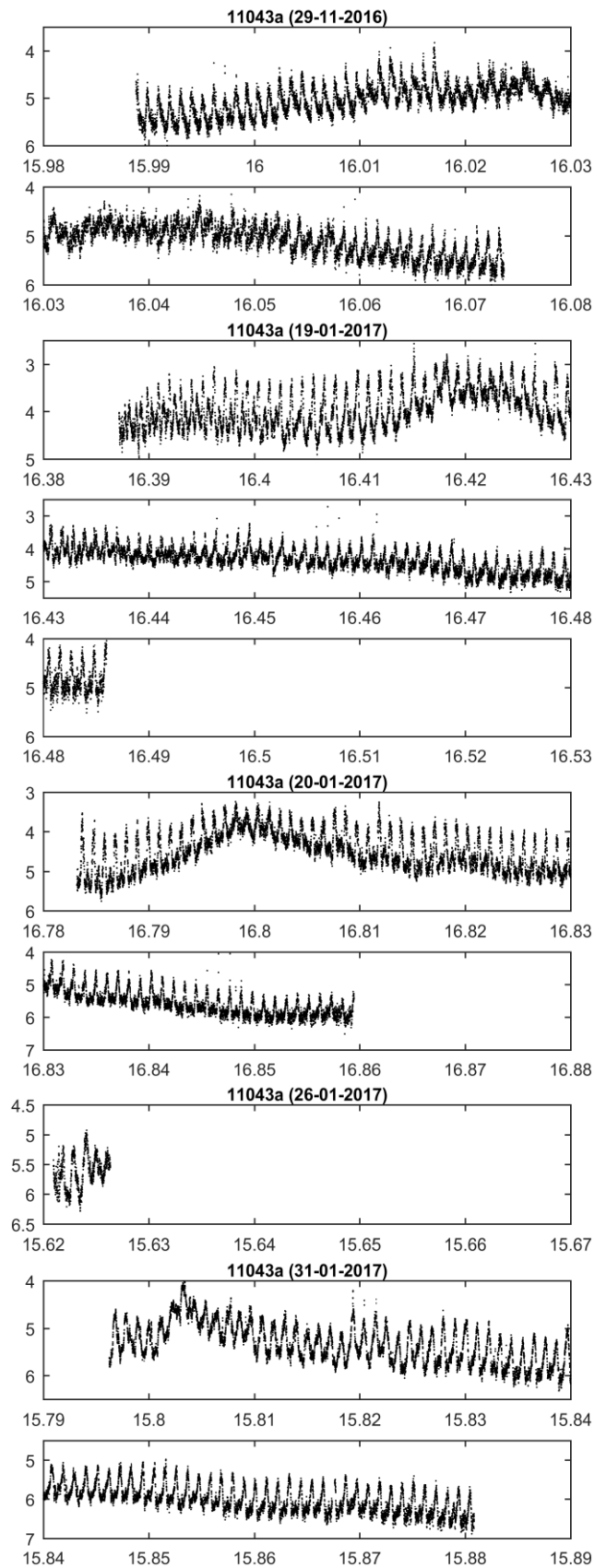
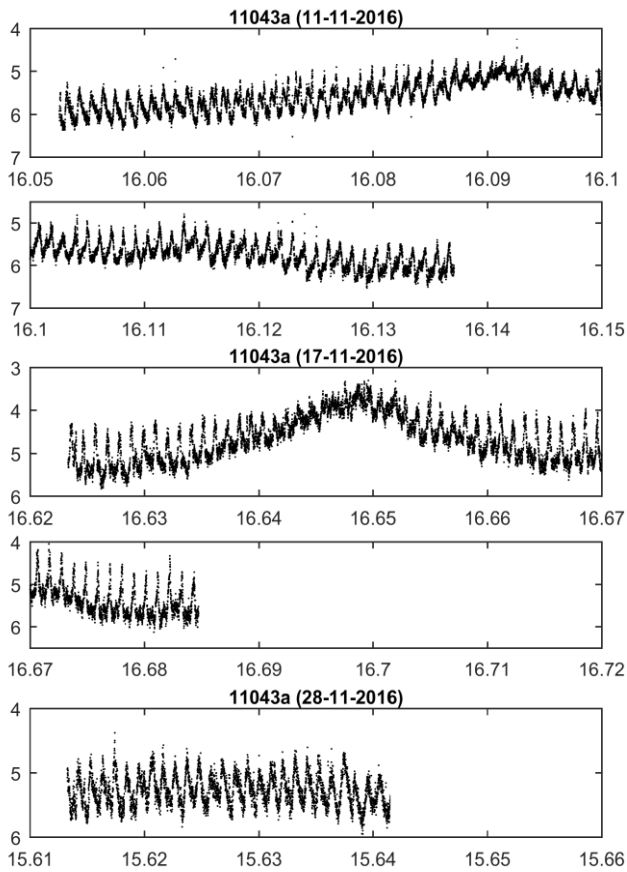
Inclination: 99.38°

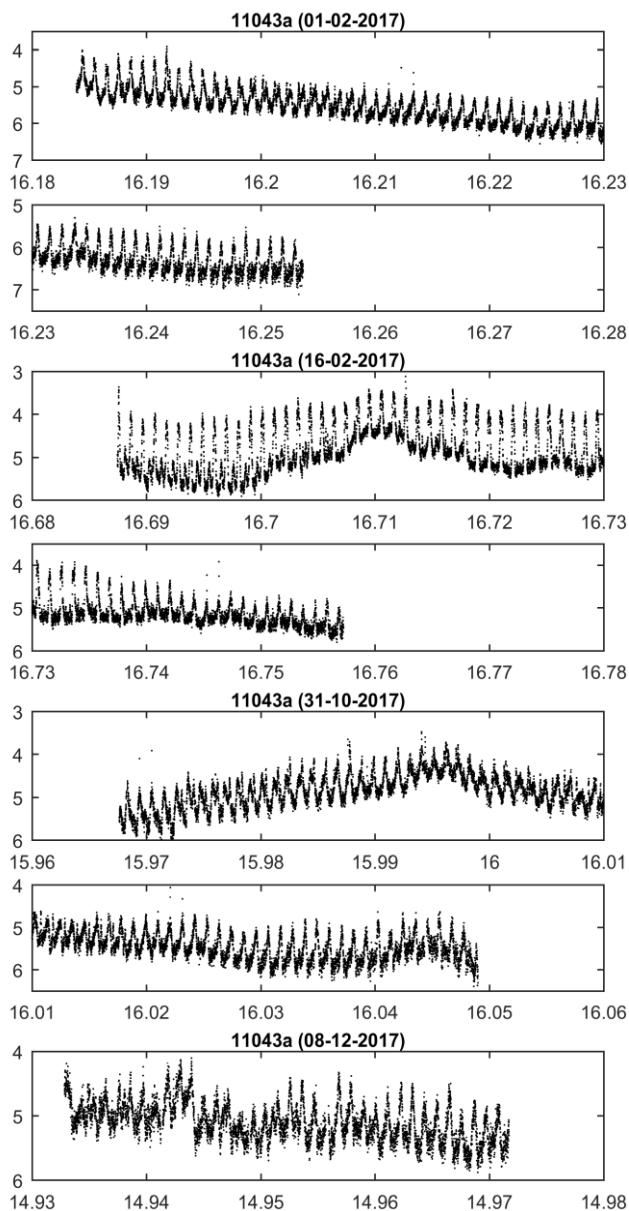
Period: 113.2 min

Eccentricity: 0.0008

Launch date: 2011-08-15

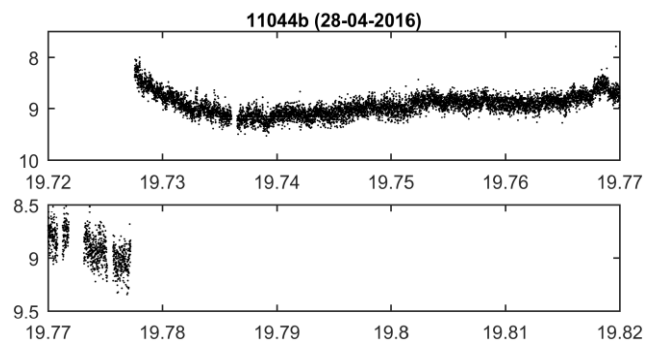
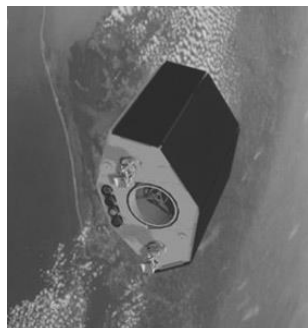
Source: People's Republic of China (PRC)





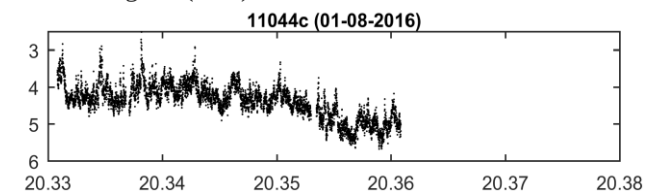
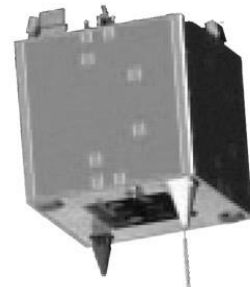
NIGERIASAT 2

NORAD ID: 37789
 Int'l Code: 2011-044B
 Dimensions: 7-sided box
 1.061m high, 0.815m
 width,
 0.899m length
 Initial orbit:
 Perigee: 697 km
 Apogee: 724 km
 Inclination: 98.28°
 Period: 99 min
 Eccentricity: 0.002
 Launch date: 2011-08-17
 Source: Nigeria (NIG)



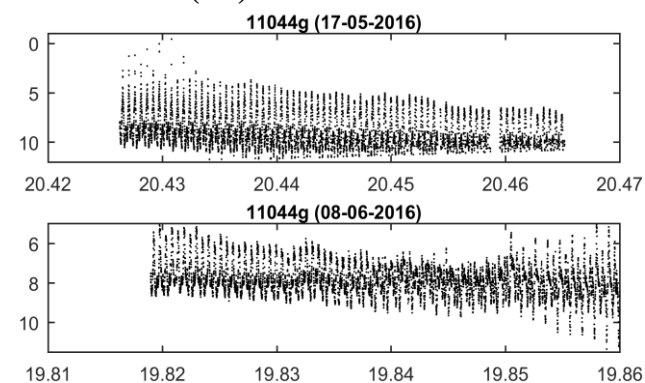
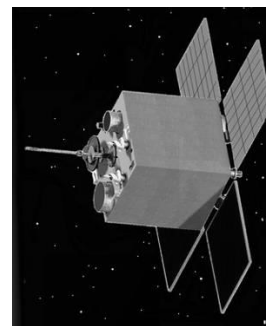
NIGERIASAT X (NX)

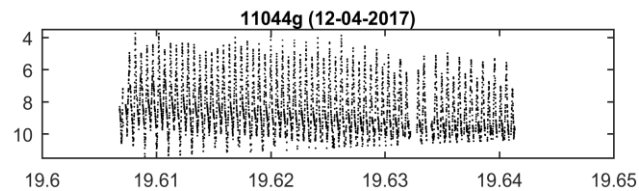
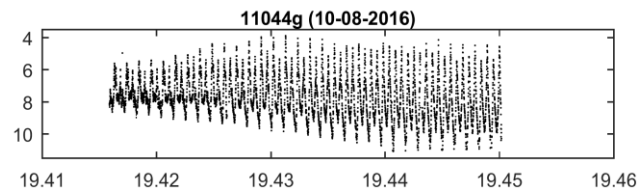
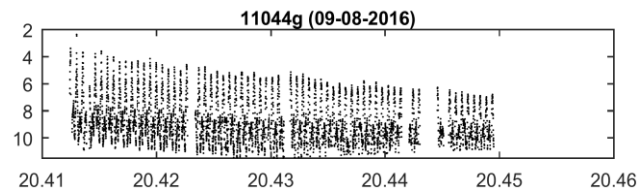
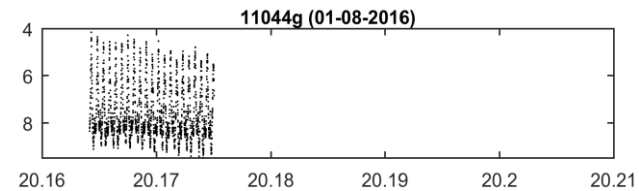
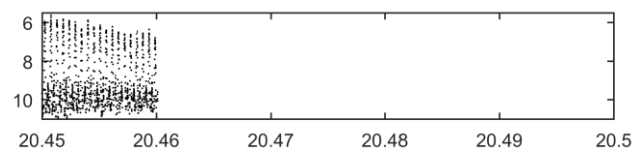
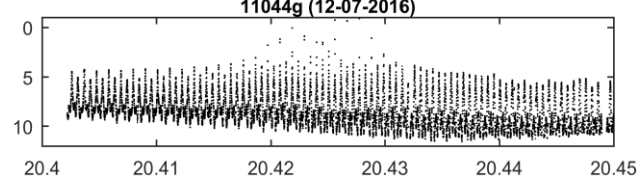
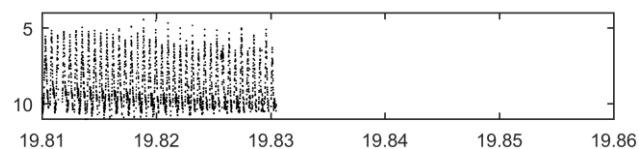
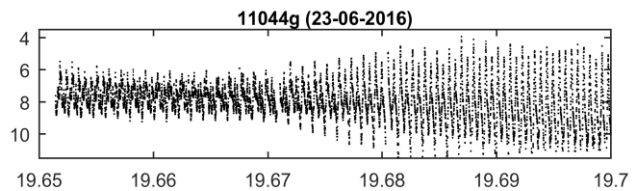
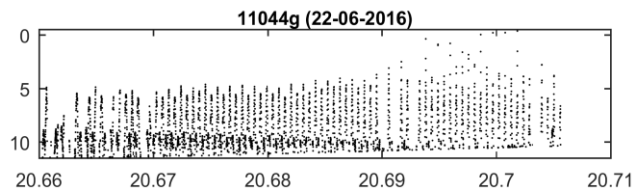
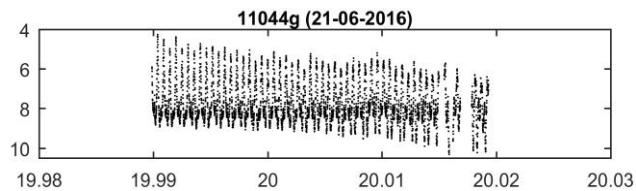
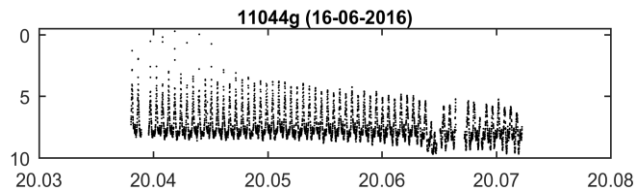
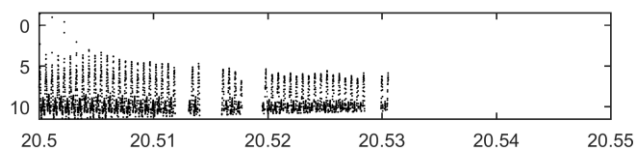
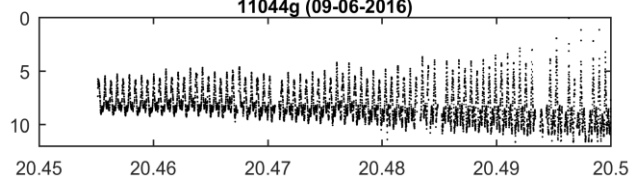
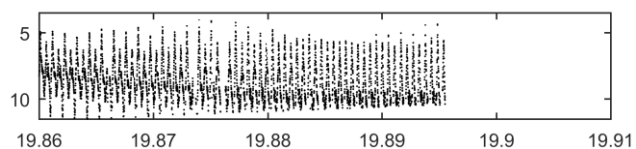
NORAD ID: 37790
 Int'l Code: 2011-044C
 Dimensions: cube
 Initial orbit:
 Perigee: 653 km
 Apogee: 700 km
 Inclination: 98.27°
 Period: 98.28 min
 Eccentricity: 0.003
 Launch date: 2011-08-17
 Source: Nigeria (NIG)

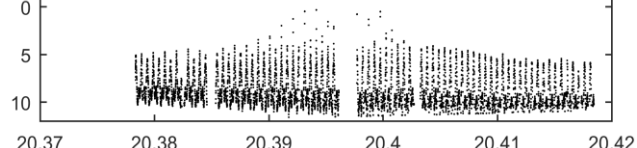
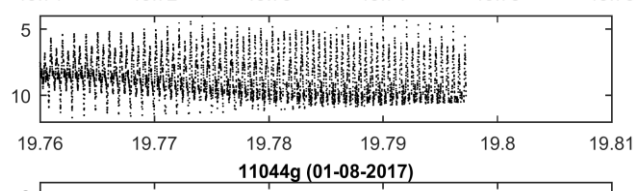
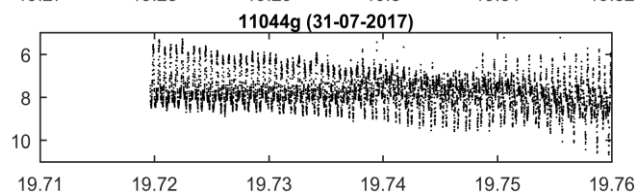
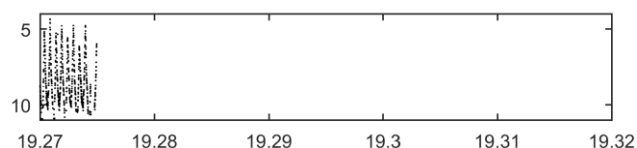
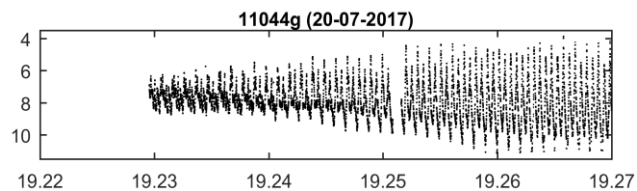
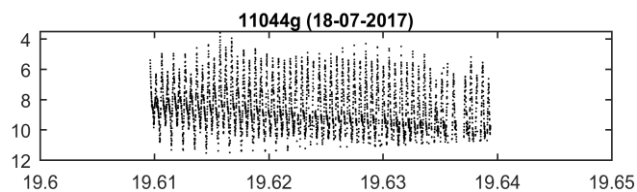
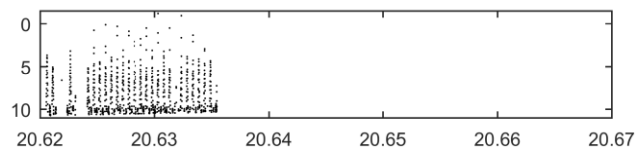
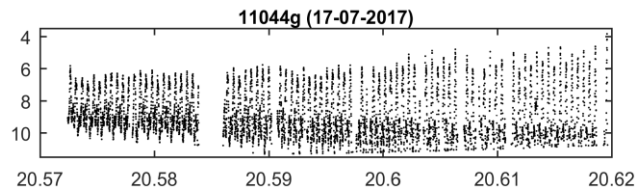
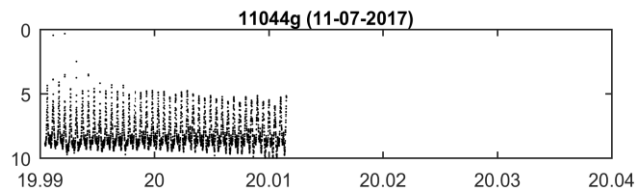
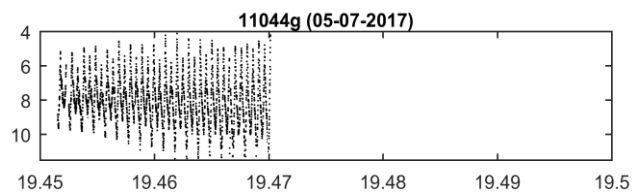
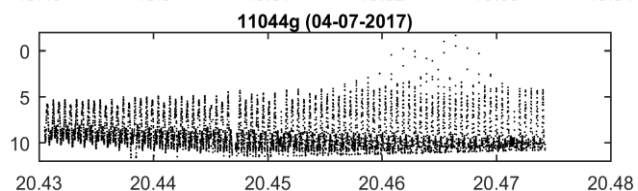
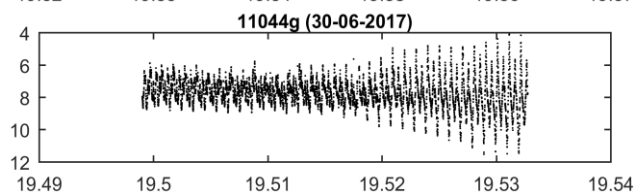
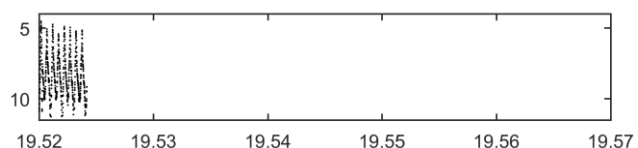
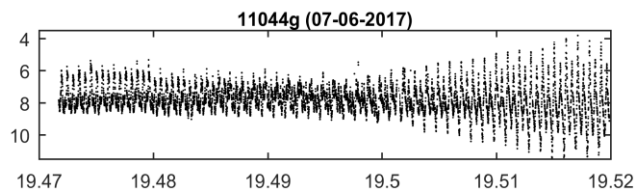
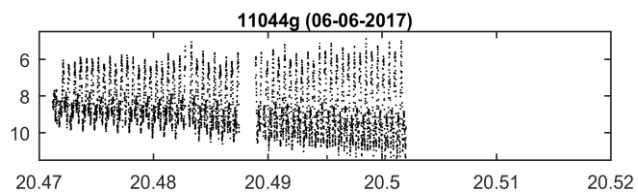
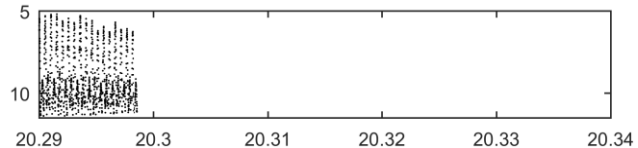
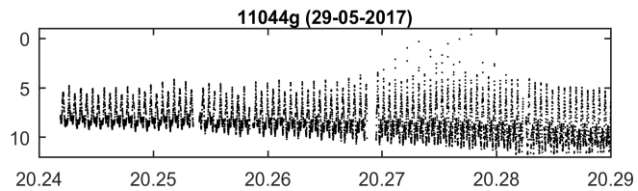
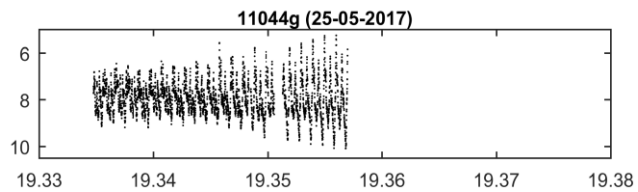
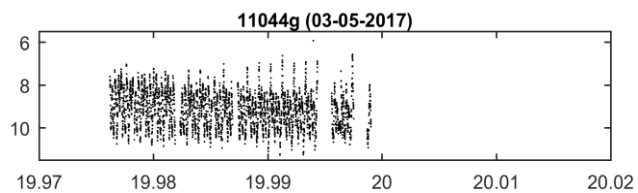


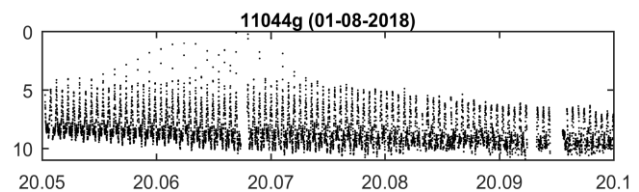
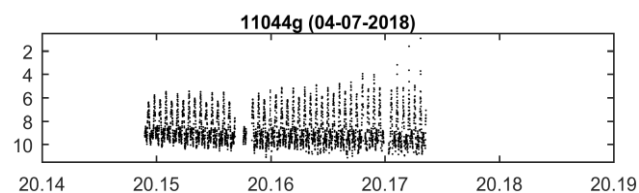
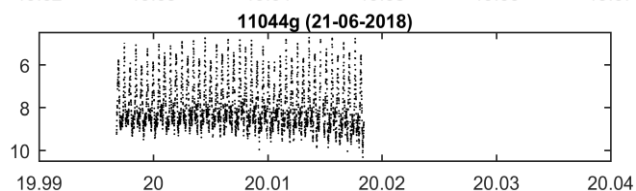
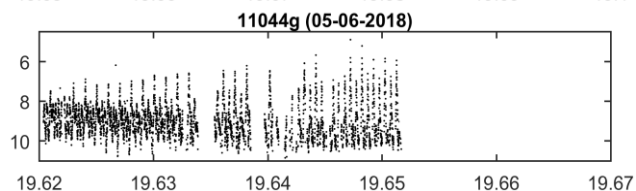
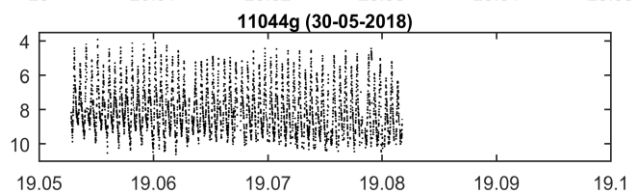
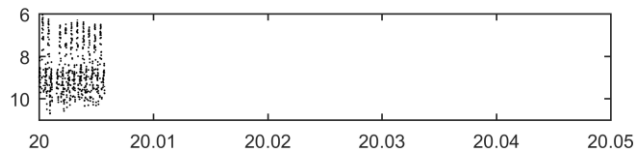
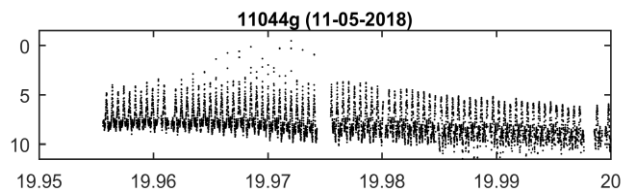
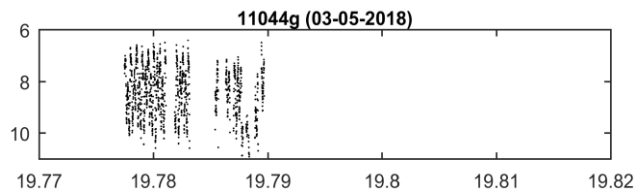
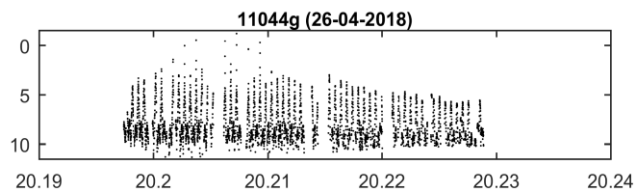
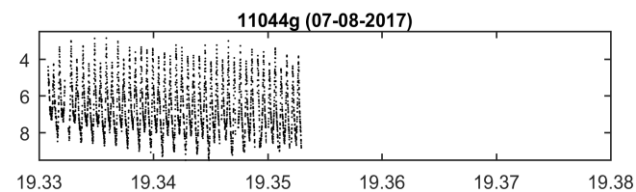
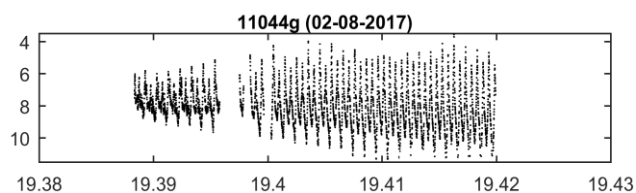
SICH 2

NORAD ID: 37794
 Int'l Code: 2011-044G
 Dimensions: box + 4 panels
 Initial orbit:
 Perigee: 684 km
 Apogee: 702 km
 Inclination: 98.26°
 Period: 98.63 min
 Eccentricity: 0.001
 Launch date: 2011-08-17
 Source: Ukraine (UA)









BPA-2/SL-24 R/B (Dnepr 3rd stage)

NORAD ID: 37795

Int'l Code: 2011-044H

Dimensions: cylinder 3.05m dia

Initial orbit:

Perigee: 689 km

Apogee: 1292 km

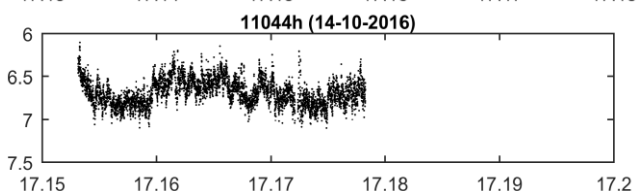
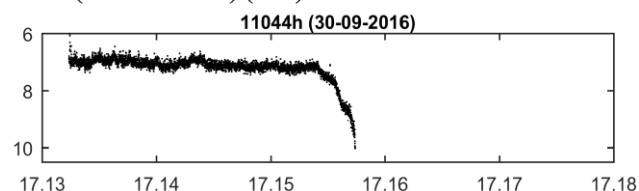
Inclination: 98.22°

Period: 104.92 min

Eccentricity: 0.041

Launch date: 2011-08-17

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-24 DEB (Fragment of Satellite)

NORAD ID: 37796

Int'l Code: 2011-044J

Dimensions:

Initial orbit:

Perigee: 692 km

Apogee: 710 km

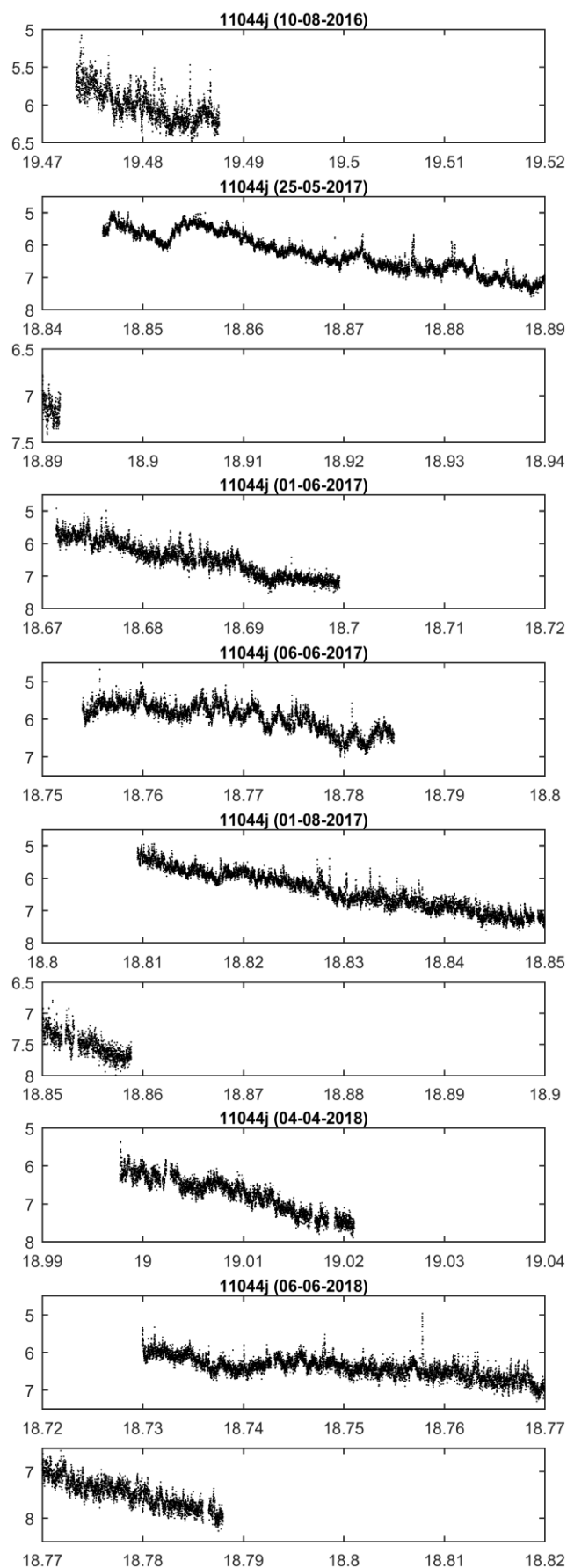
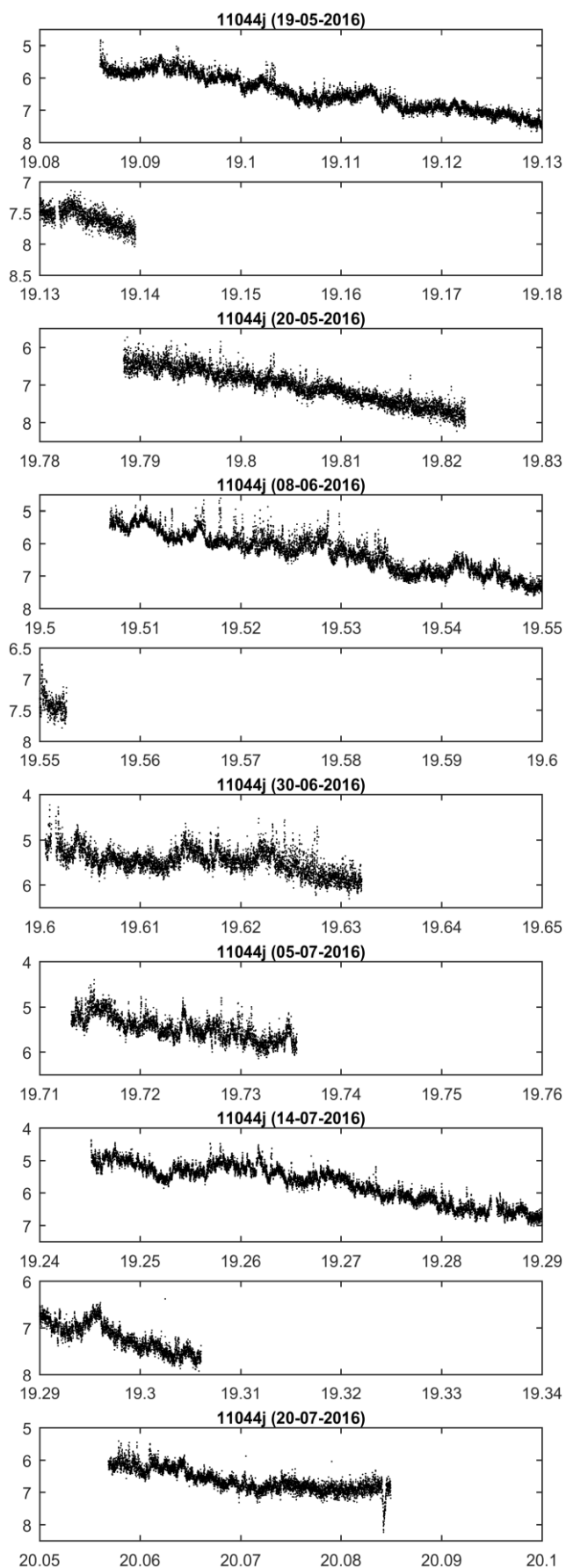
Inclination: 98.26°

Period: 98.78 min

Eccentricity: 0.001

Launch date: 2011-08-17

Source: Commonwealth of Independent States (former USSR) (CIS)



ZY 3 (ZIYUAN 3)

NORAD ID: 38046

Int'l Code: 2012-001A

Dimensions: box + 2 panels

Initial orbit:

Perigee: 493 km

Apogee: 502 km

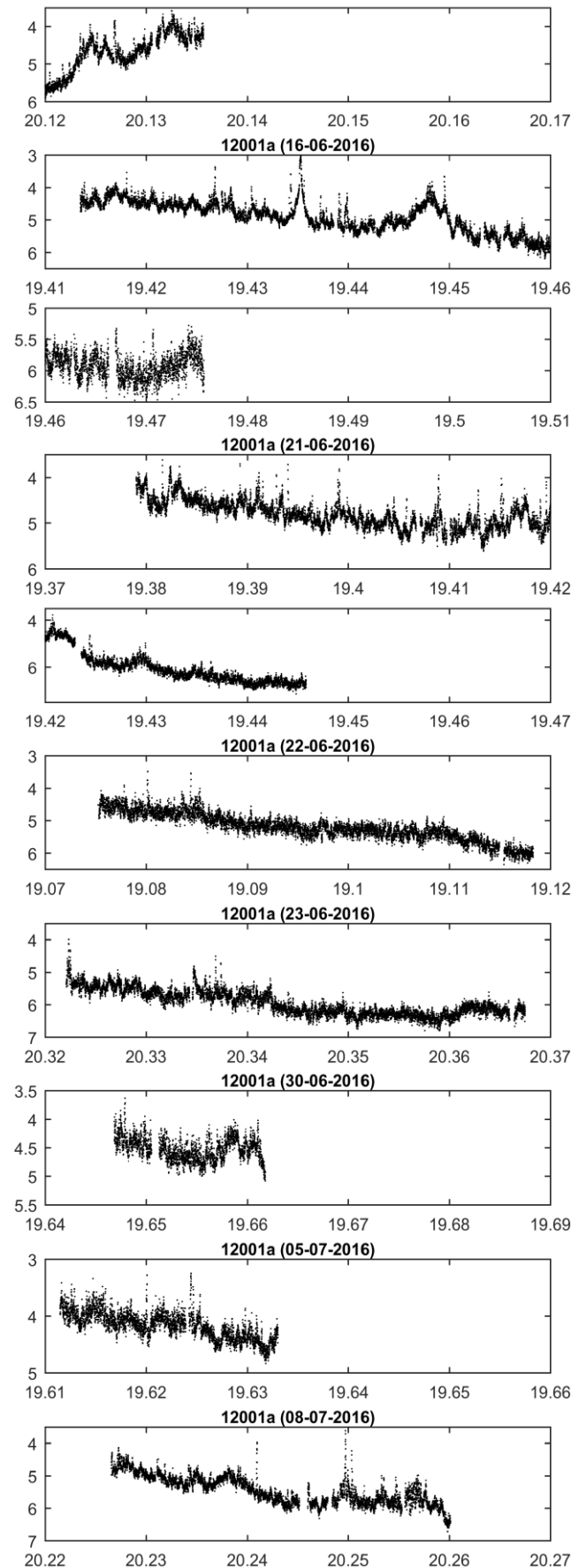
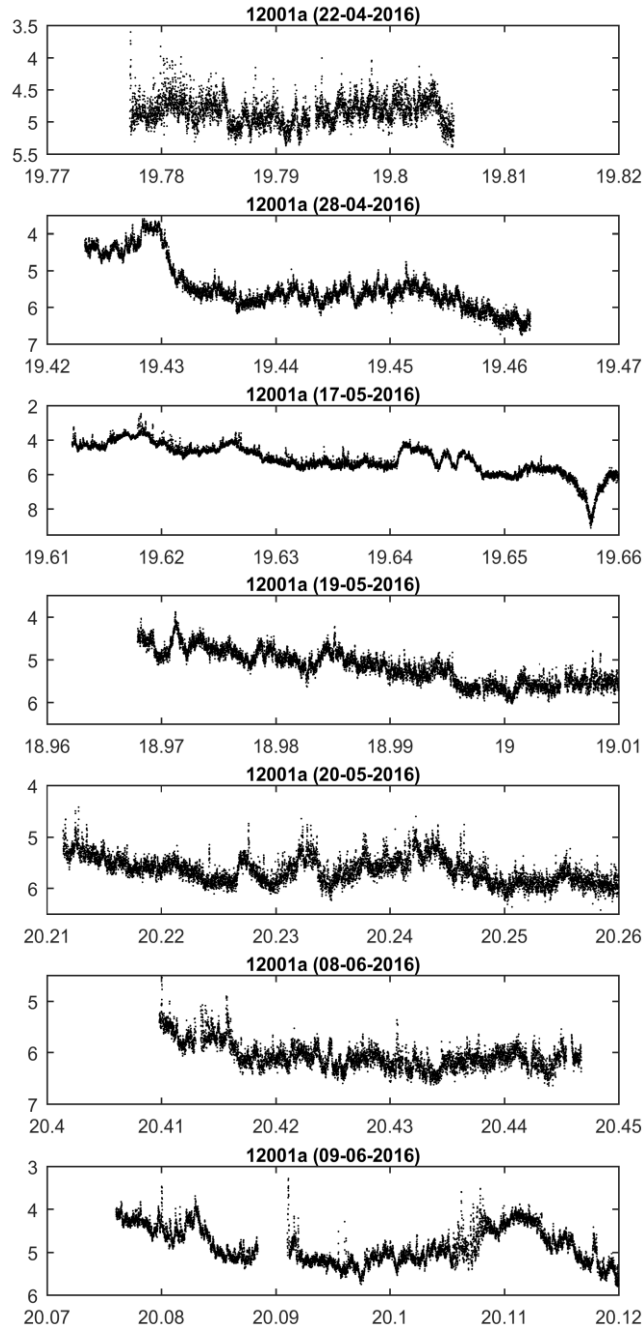
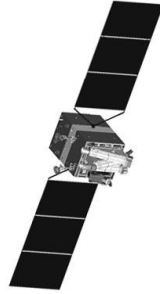
Inclination: 97.48°

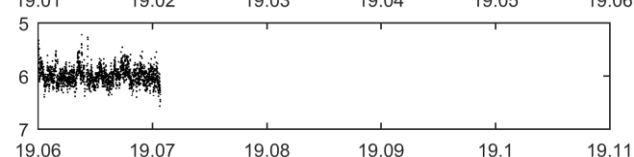
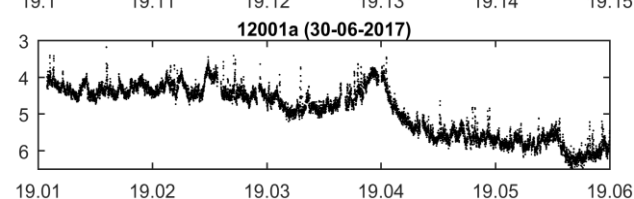
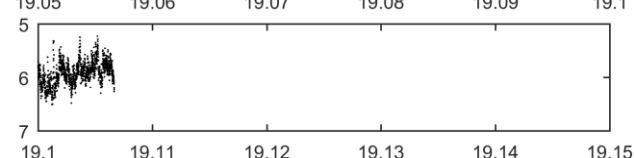
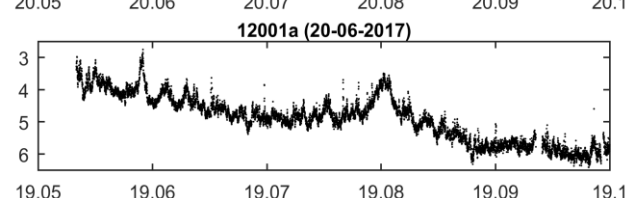
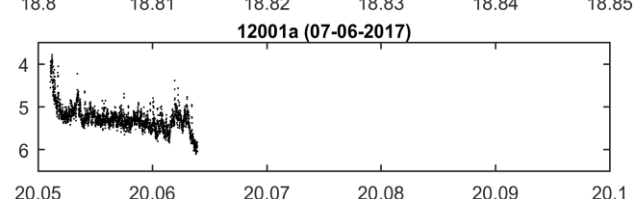
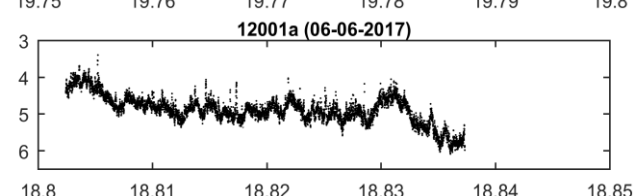
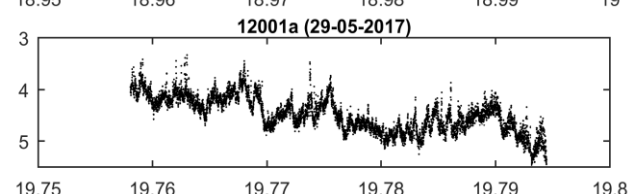
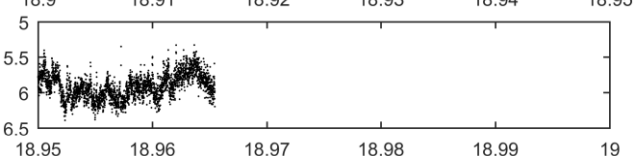
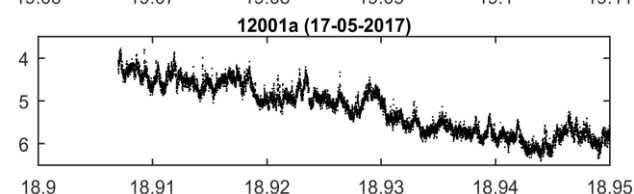
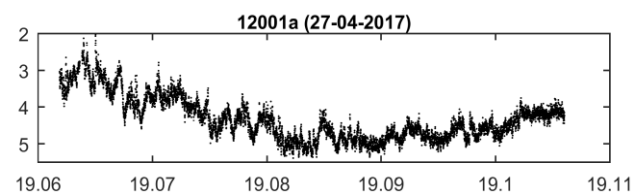
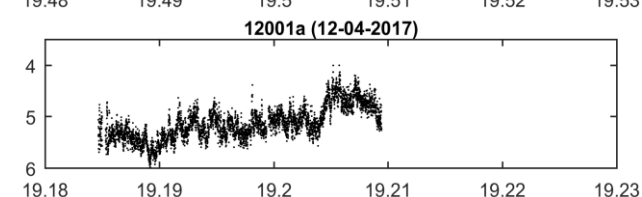
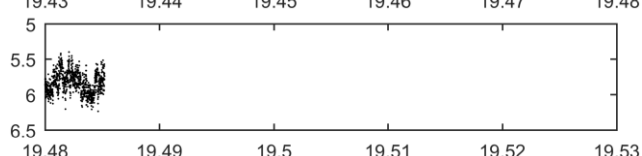
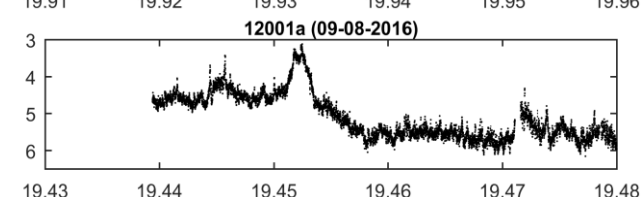
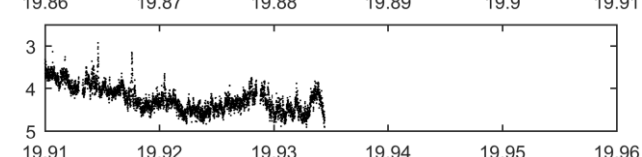
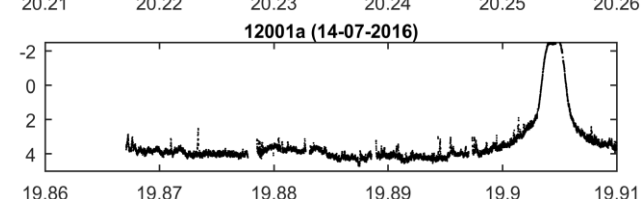
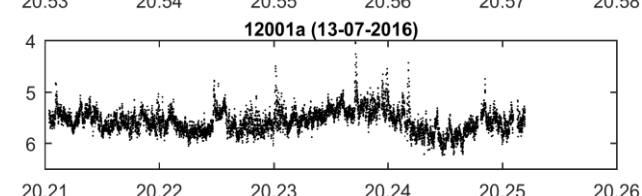
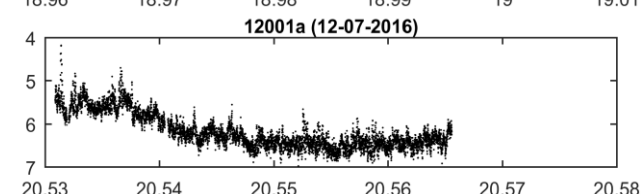
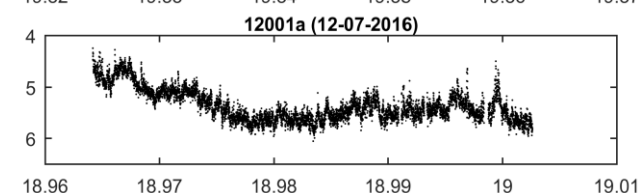
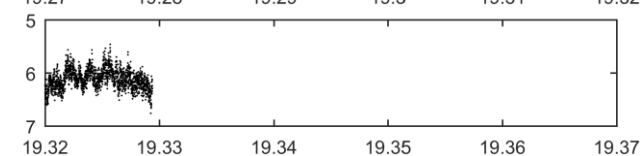
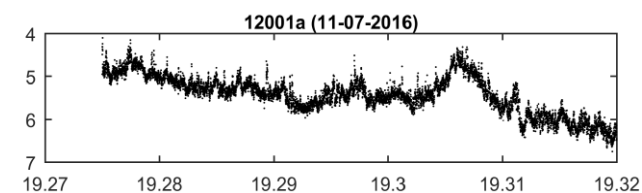
Period: 94.57 min

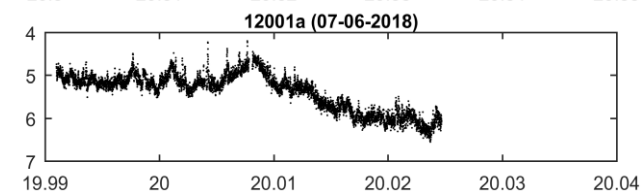
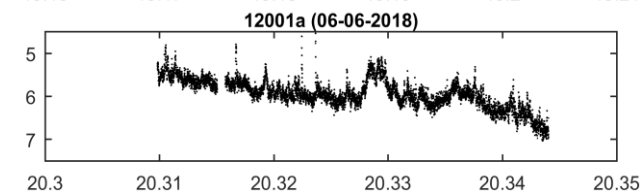
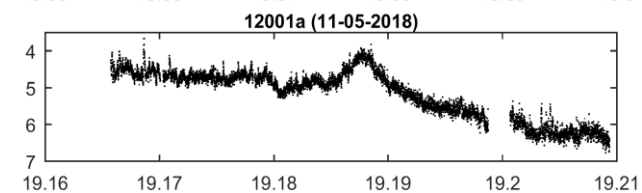
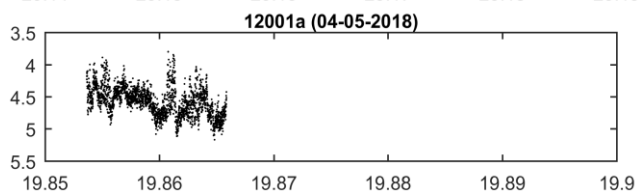
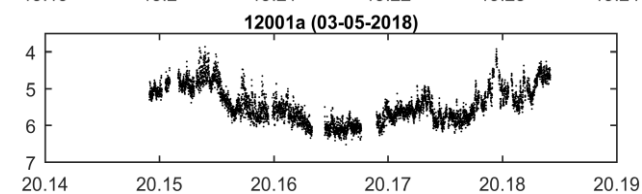
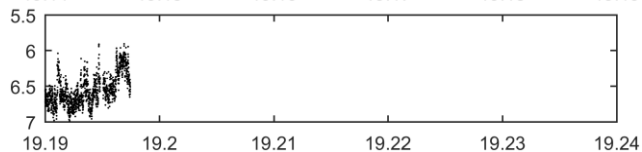
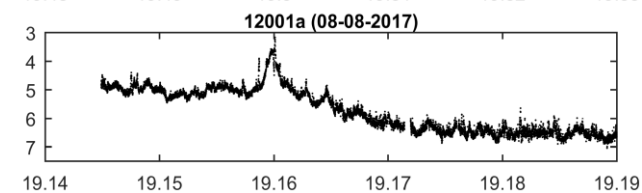
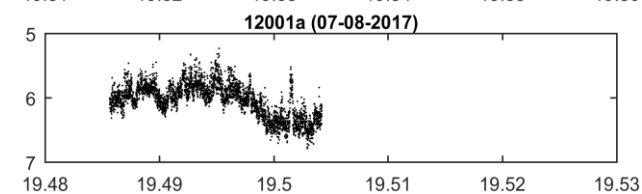
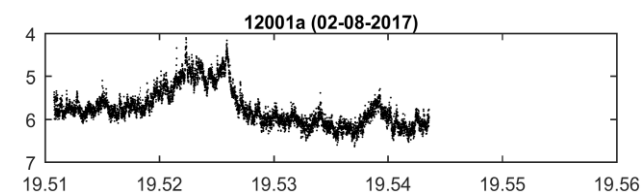
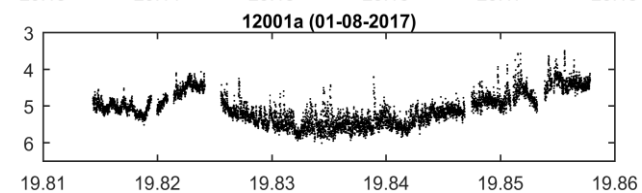
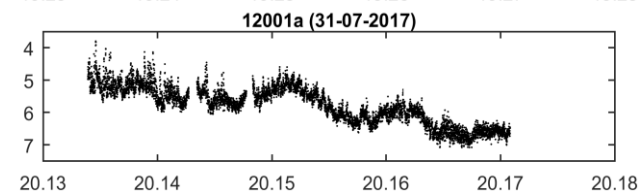
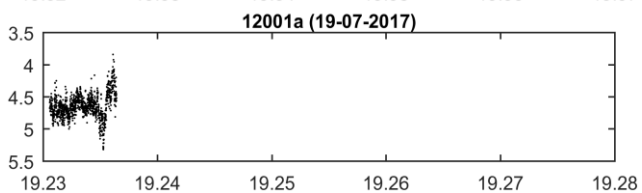
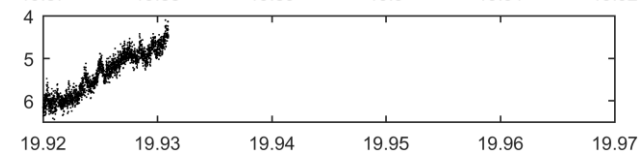
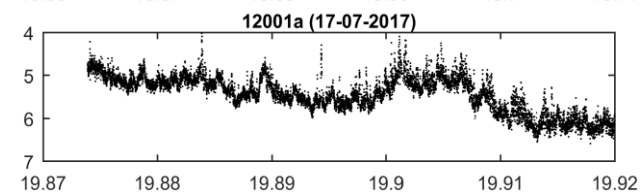
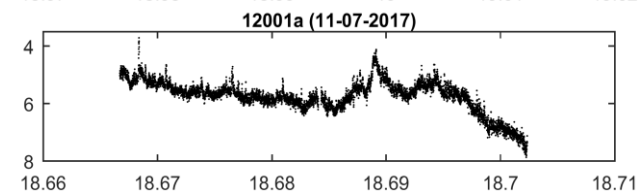
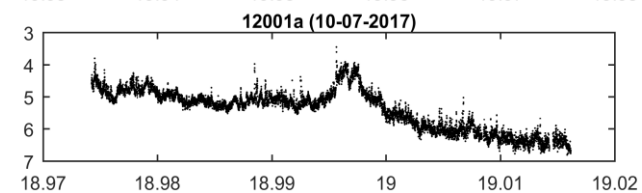
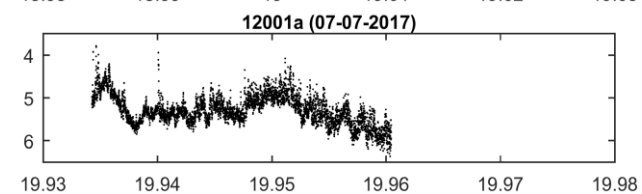
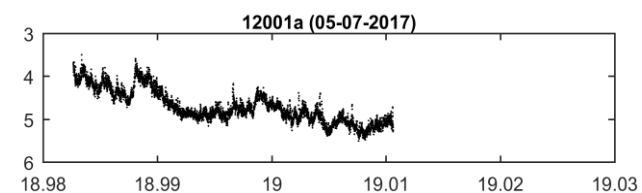
Eccentricity: 0.0006

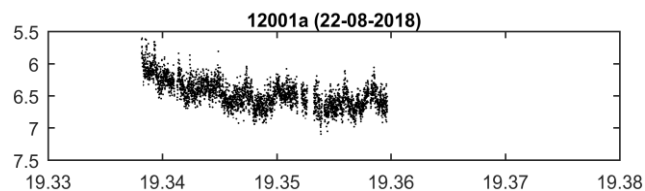
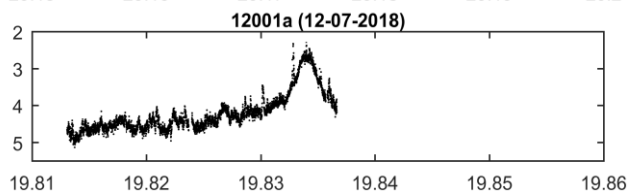
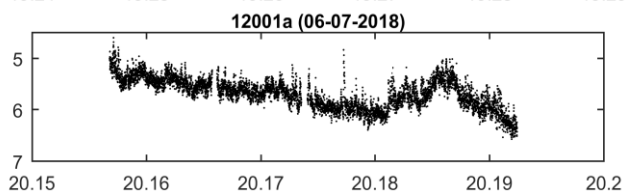
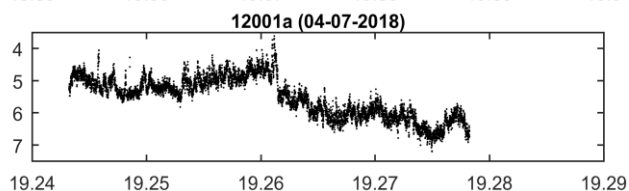
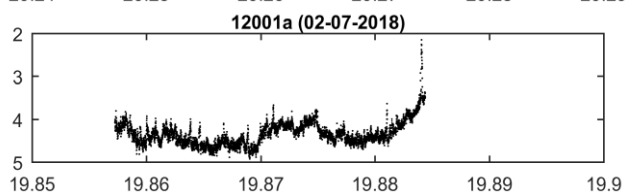
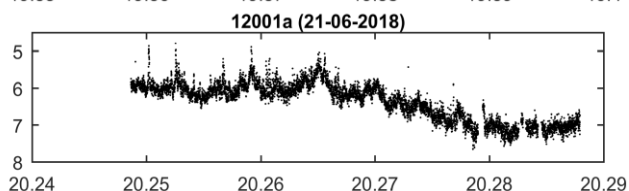
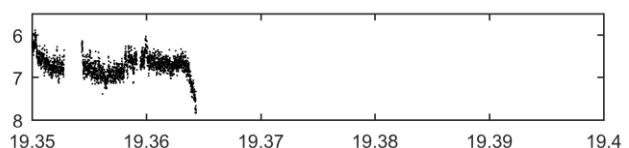
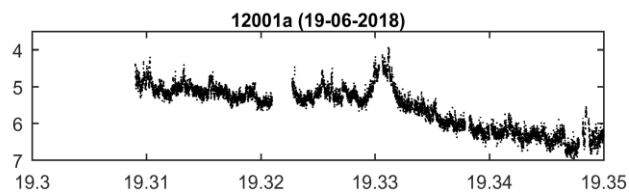
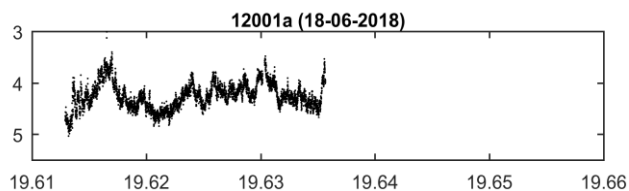
Launch date: 2012-01-09

Source: People's Republic of China (PRC)









TELKOM 3

NORAD ID: 38744

Int'l Code: 2012-044A

Dimensions:

Initial orbit:

Perigee: 266 km

Apogee: 5013 km

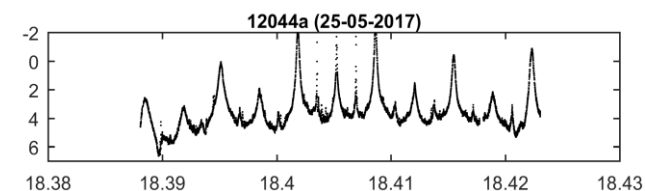
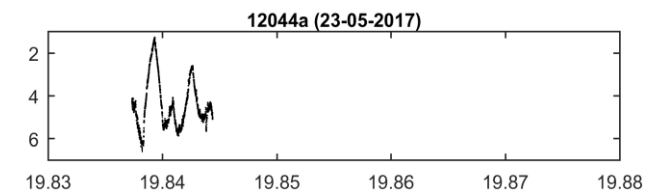
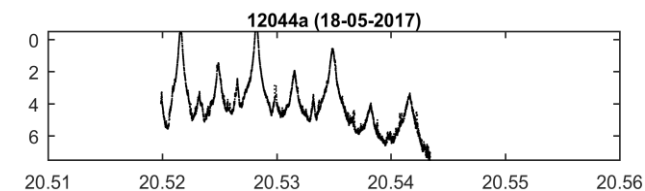
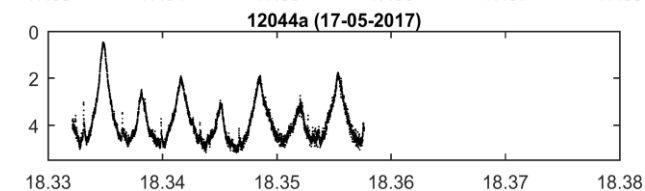
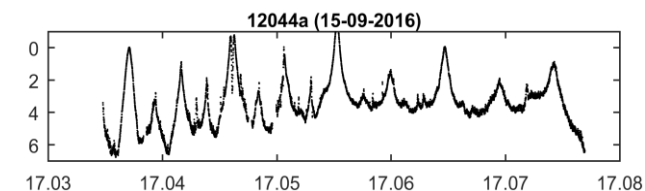
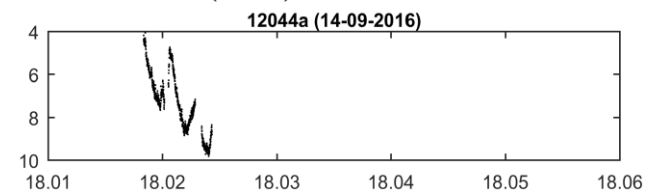
Inclination: 49.92°

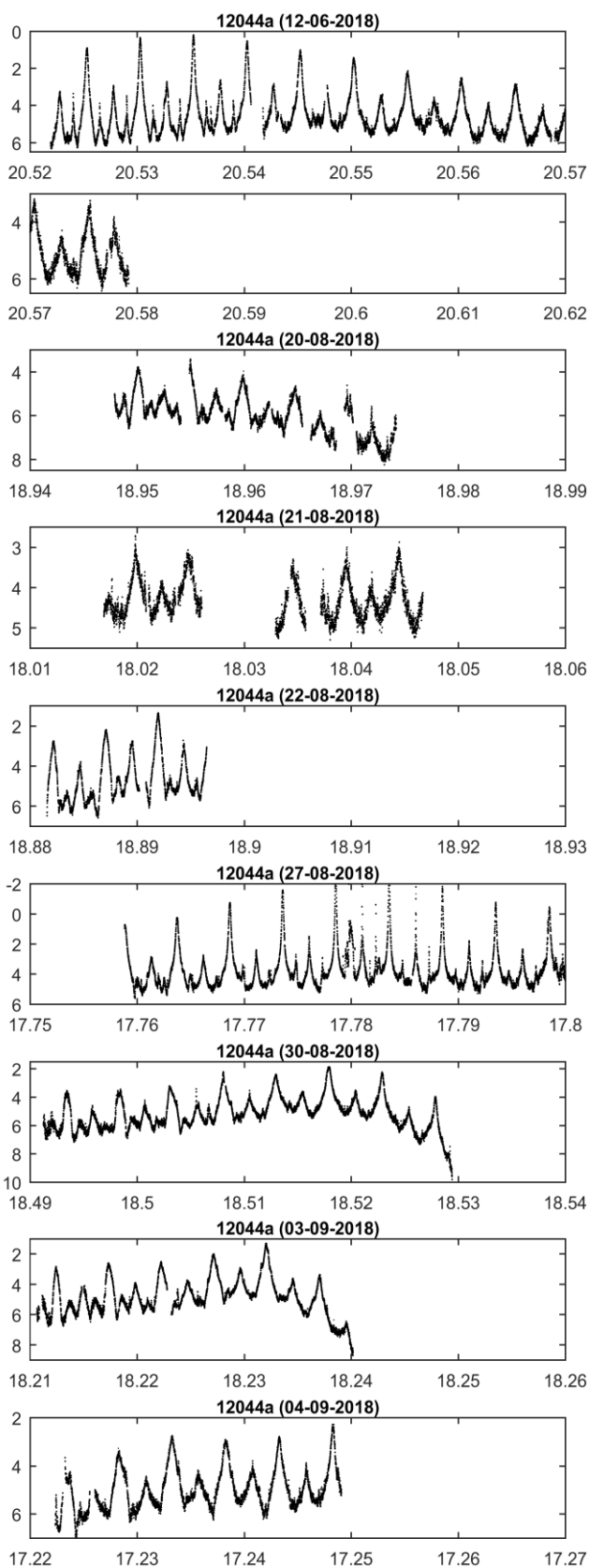
Period: 142.05 min

Eccentricity: 0.263

Launch date: 2012-08-06

Source: Indonesia (INDO)

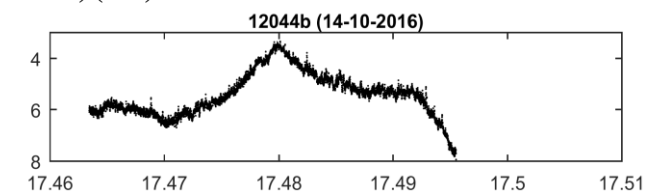




EXPRESS MD2
NORAD ID: 38745

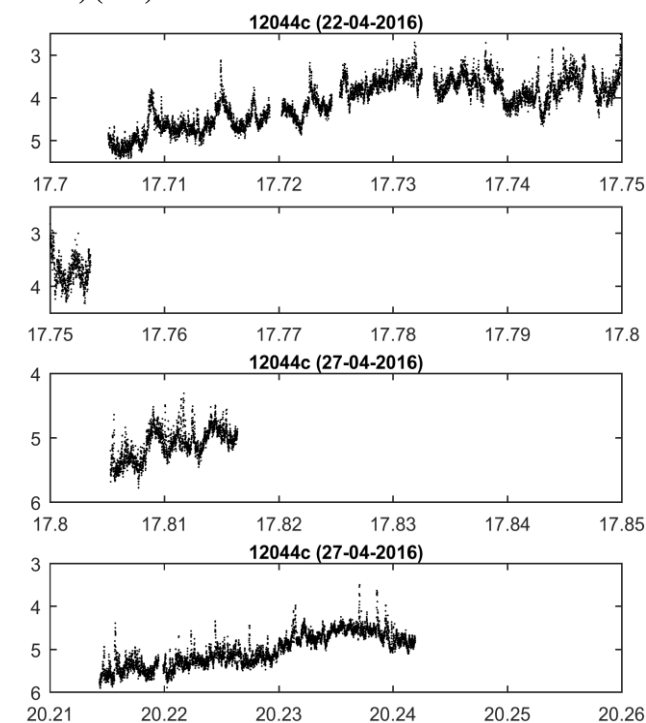


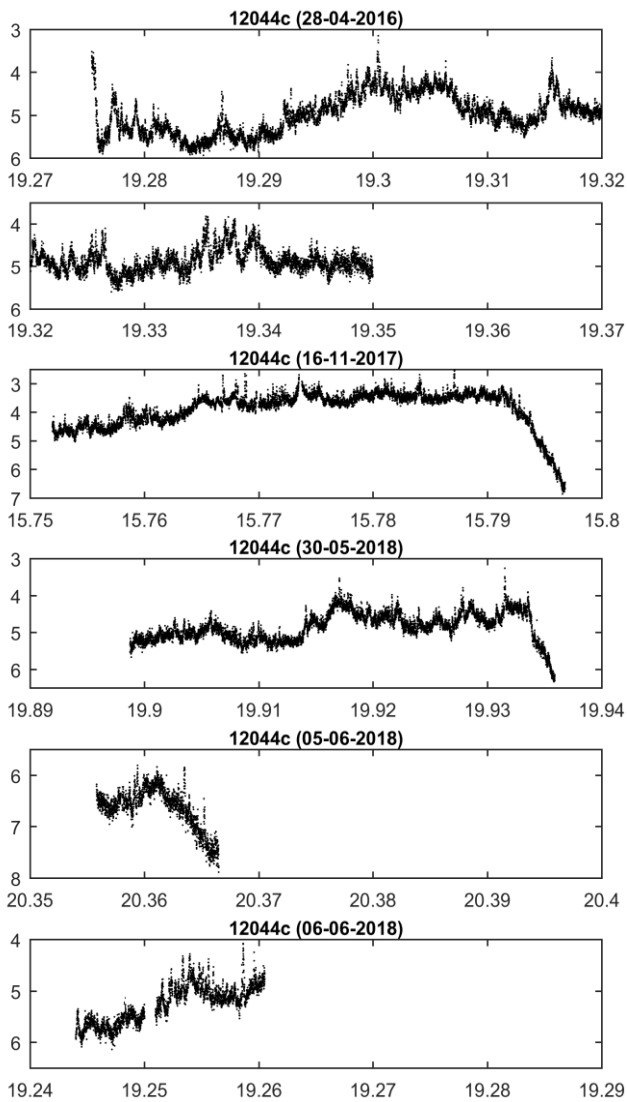
Int'l Code: 2012-044B
Dimensions: box + 2 panels
Initial orbit:
Perigee: 266 km
Apogee: 5013 km
Inclination: 49.91°
Period: 142.03 min
Eccentricity: 0.263
Launch date: 2012-08-06
Source: Commonwealth of Independent States (former USSR) (CIS)



BREEZE-M R/B (Proton-M)

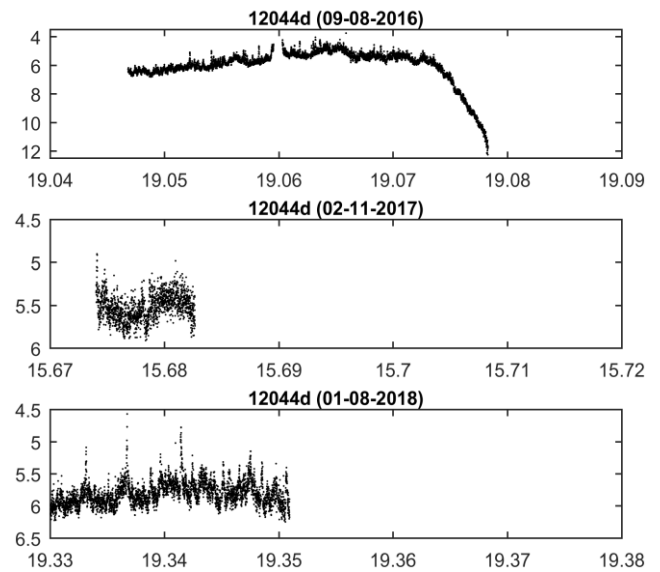
NORAD ID: 38746
Int'l Code: 2012-044C
Dimensions: stubby cylinder 2.62m long
~2.4m dia
Initial orbit:
Perigee: 266 km
Apogee: 5015 km
Inclination: 49.91°
Period: 142.07 min
Eccentricity: 0.263
Launch date: 2012-08-06
Source: Commonwealth of Independent States (former USSR) (CIS)





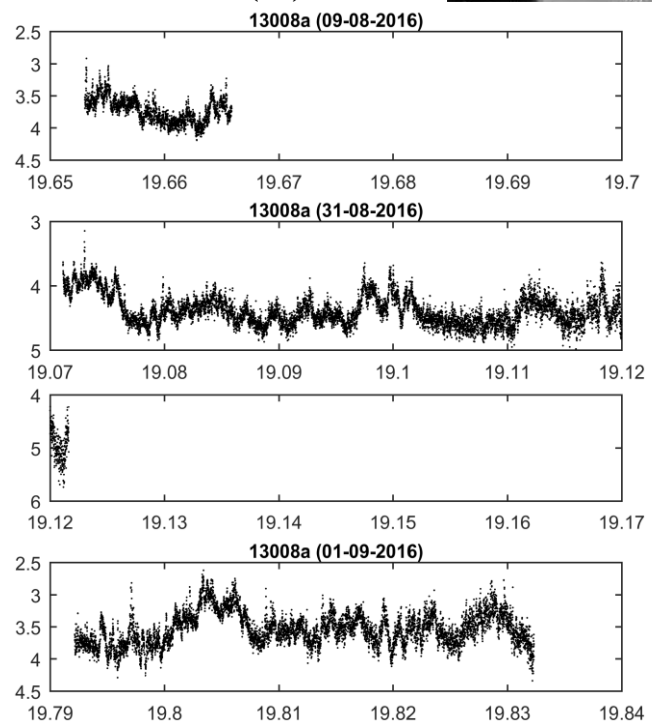
BREEZE-M DEB

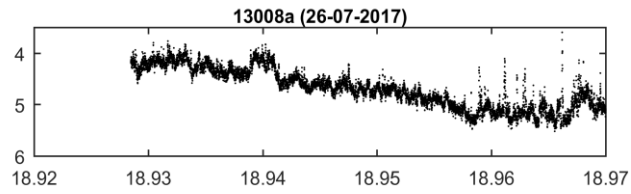
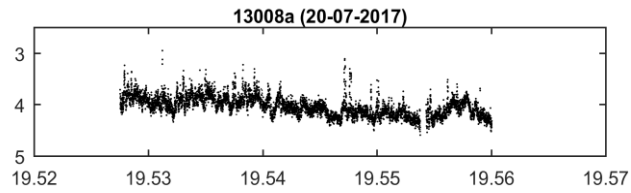
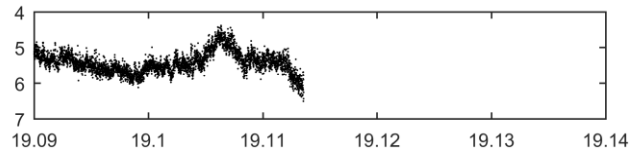
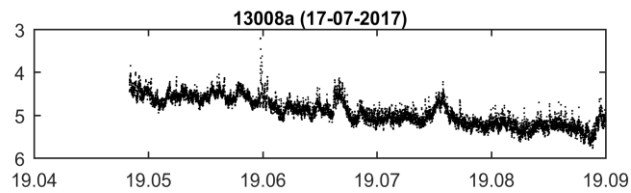
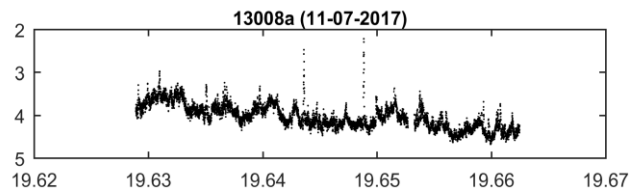
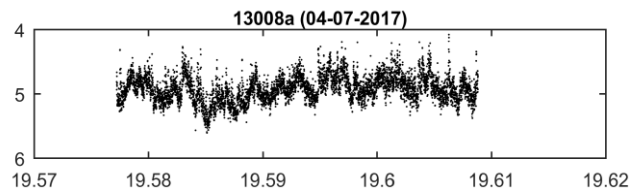
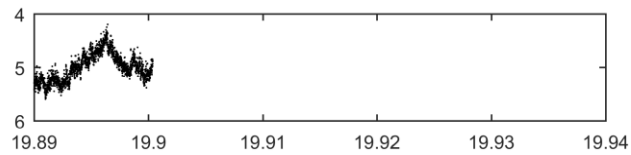
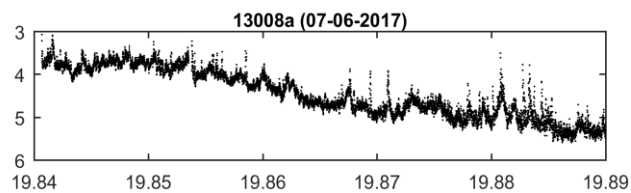
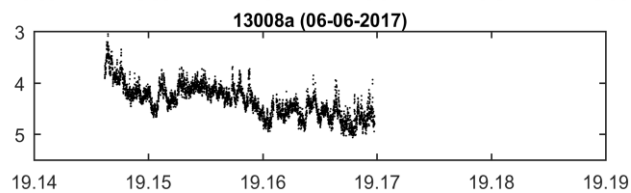
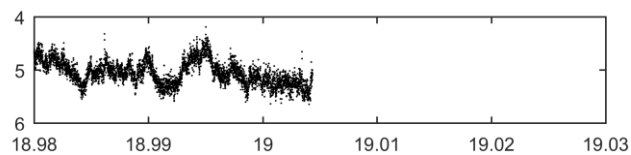
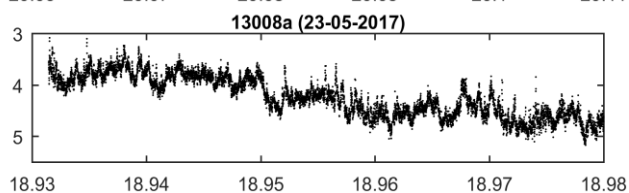
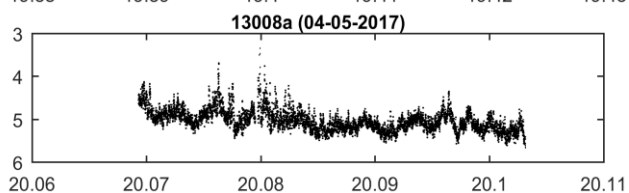
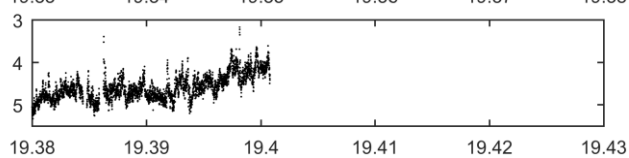
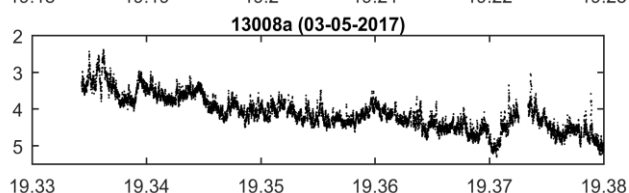
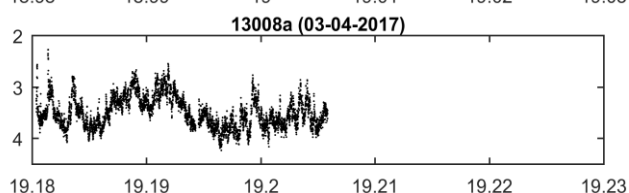
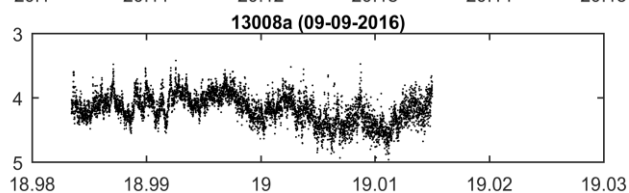
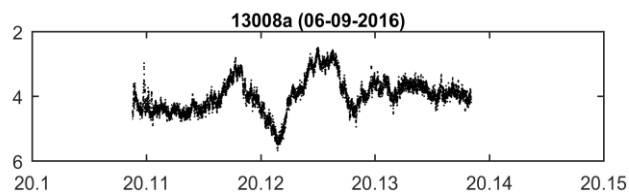
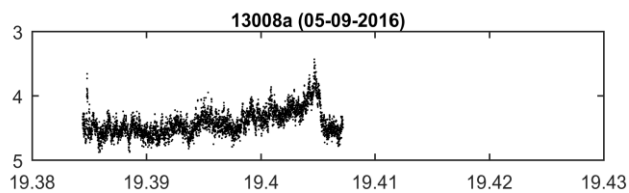
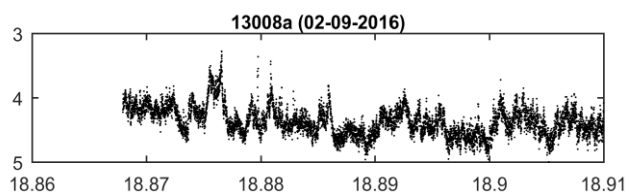
NORAD ID: 38747
 Int'l Code: 2012-044D
 Dimensions: torus 2.1m long
 4.1m dia 0.8m cross
 Initial orbit:
 Perigee: 266 km
 Apogee: 5017 km
 Inclination: 49.91°
 Period: 142.08 min
 Eccentricity: 0.263
 Launch date: 2012-08-06
 Source: Commonwealth of Independent States (former USSR) (CIS)

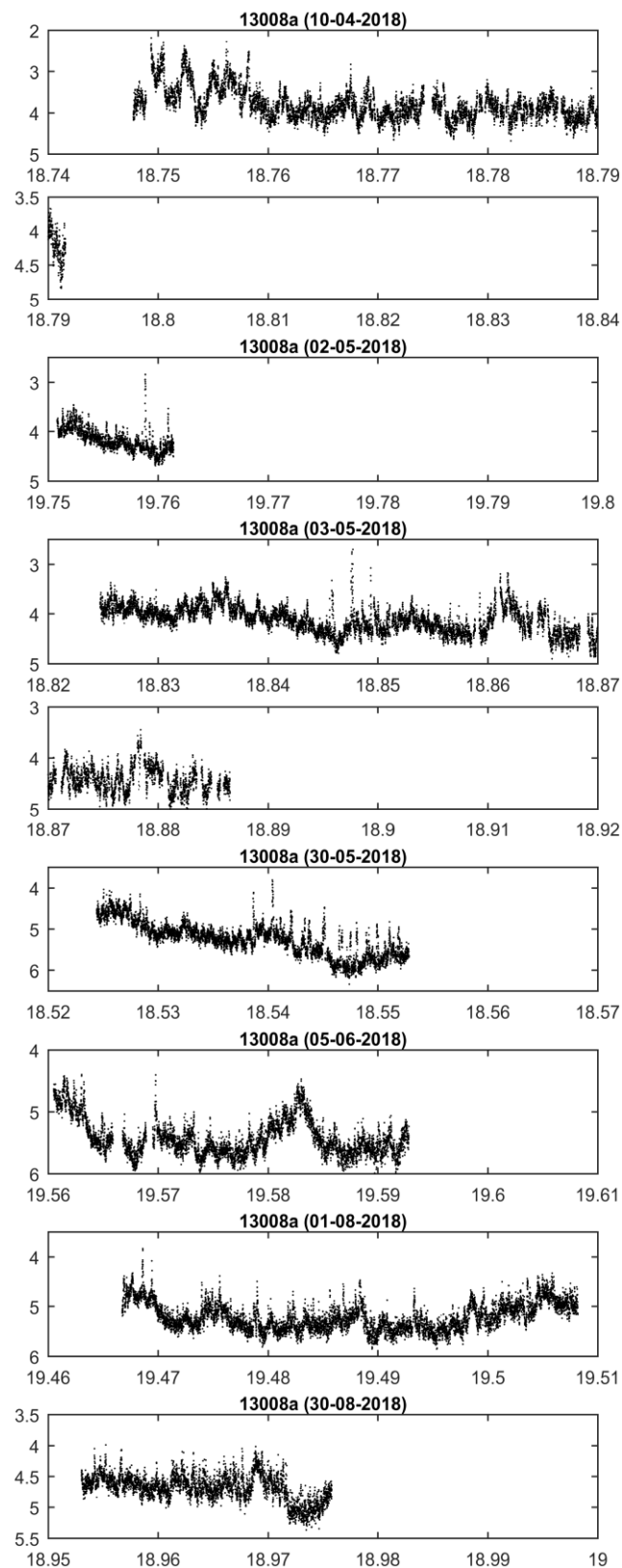
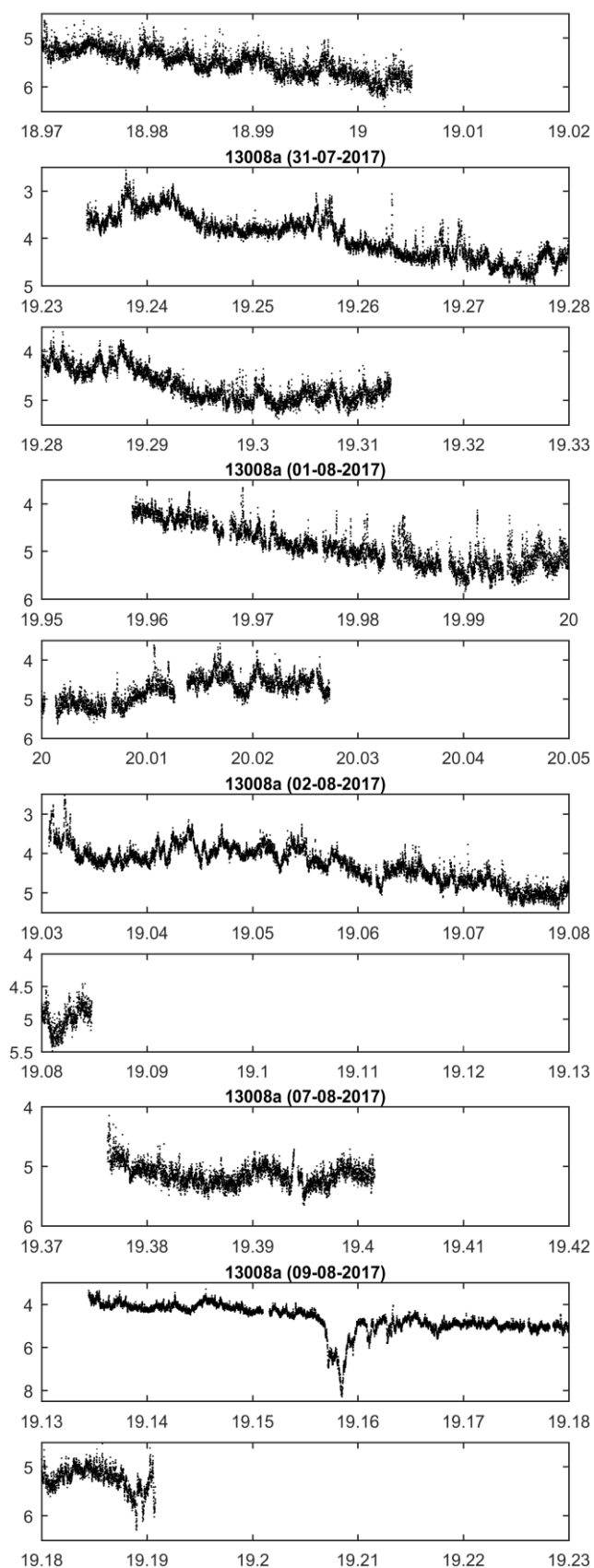


LANDSAT 8

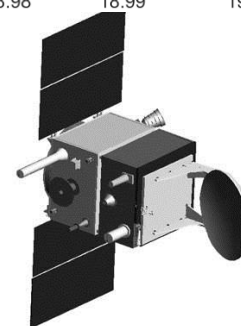
NORAD ID: 39084
 Int'l Code: 2013-008A
 Dimensions: box + panel 9m span
 Initial orbit:
 Perigee: 667 km
 Apogee: 684 km
 Inclination: 98.25°
 Period: 98.25 min
 Eccentricity: 0.001
 Launch date: 2013-02-11
 Source: United States (US)



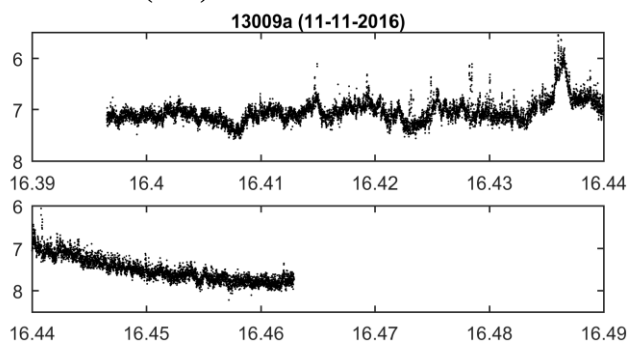




SARAL 1

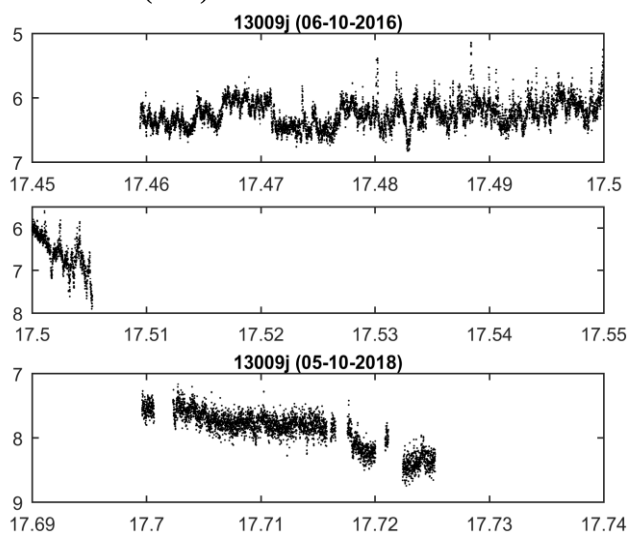


NORAD ID: 39086
 Int'l Code: 2013-009A
 Dimensions: box + 2 panels
 Initial orbit:
 Perigee: 776 km
 Apogee: 784 km
 Inclination: 98.52°
 Period: 100.45 min
 Eccentricity: 0.0006
 Launch date: 2013-02-25
 Source: India (IND)



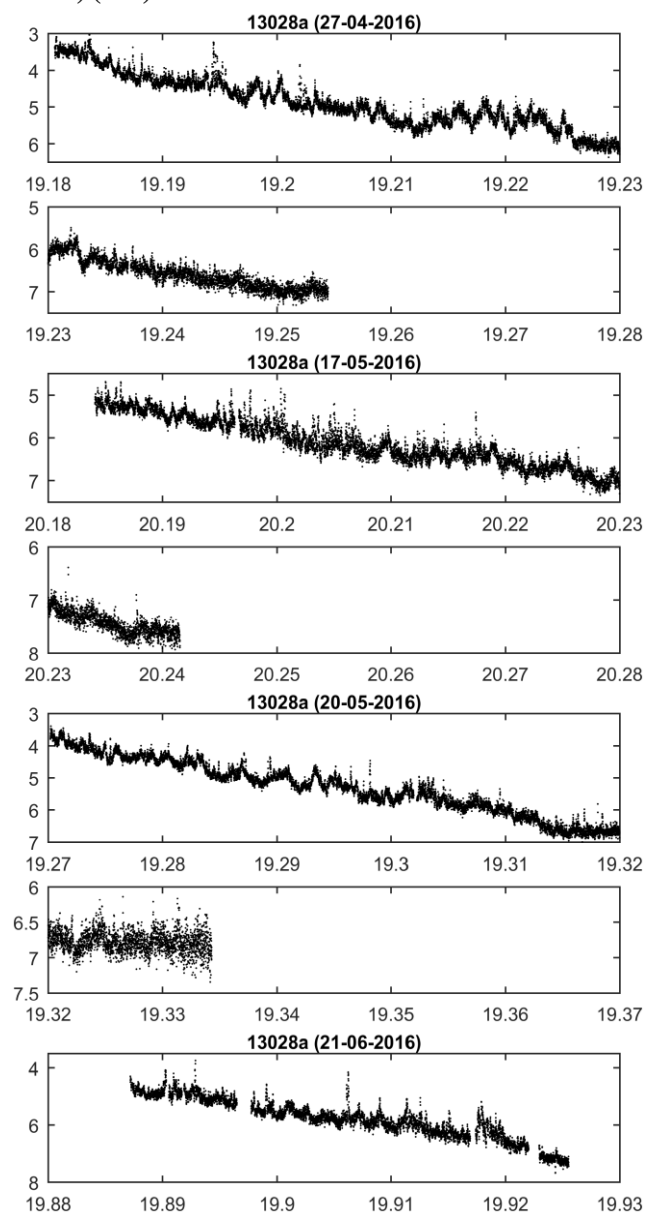
PSLV DEB

NORAD ID: 39094
 Int'l Code: 2013-009J
 Dimensions: bowl
 Initial orbit:
 Perigee: 770 km
 Apogee: 783 km
 Inclination: 98.61°
 Period: 100.38 min
 Eccentricity: 0.0009
 Launch date: 2013-02-25
 Source: India (IND)

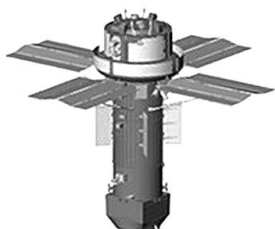


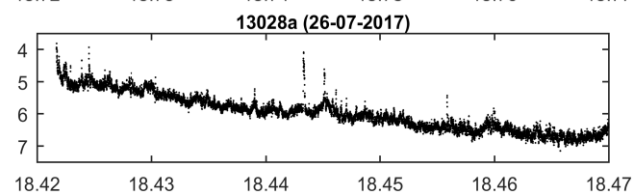
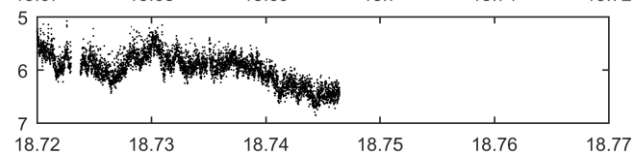
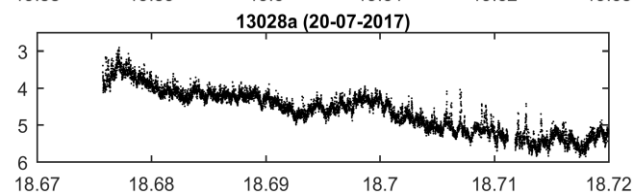
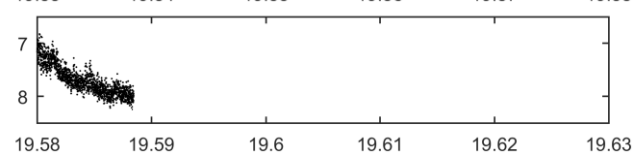
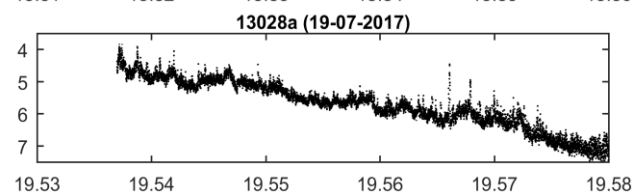
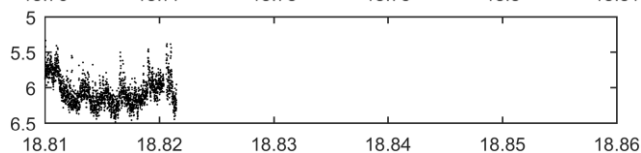
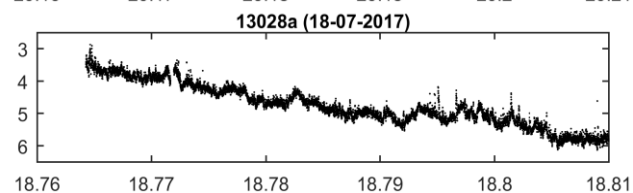
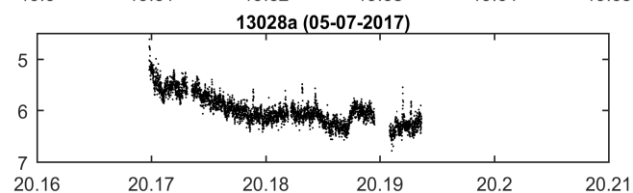
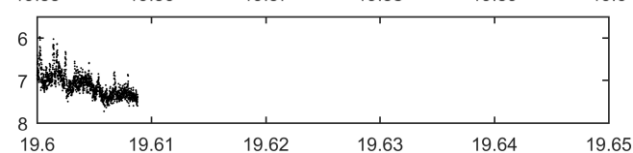
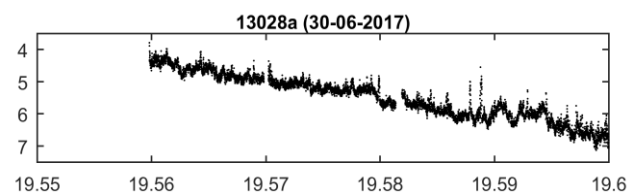
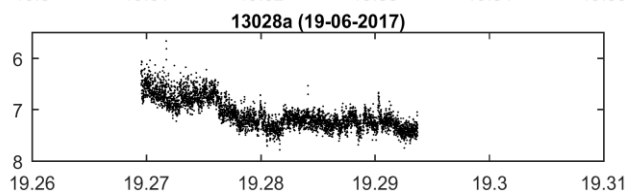
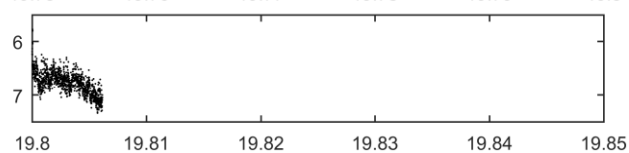
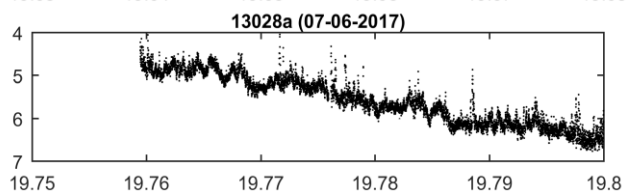
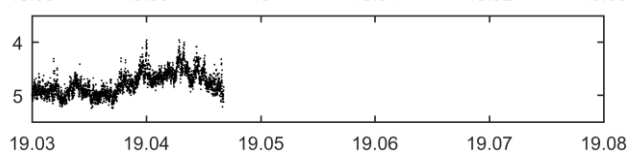
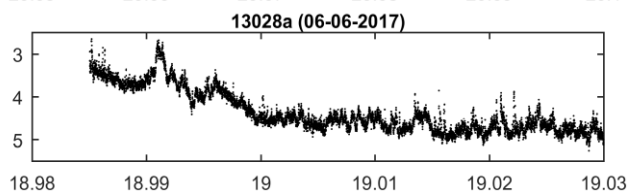
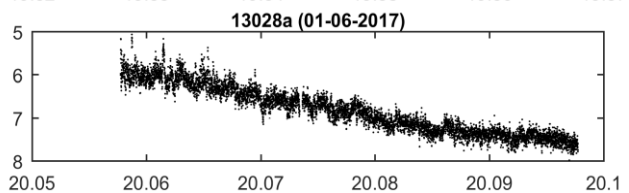
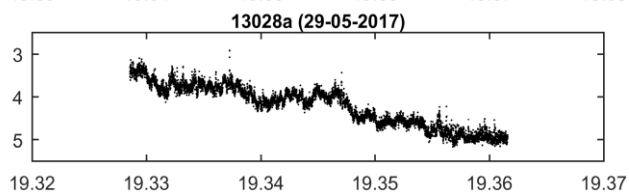
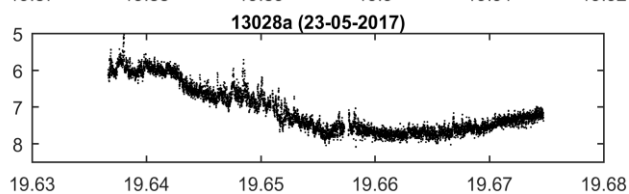
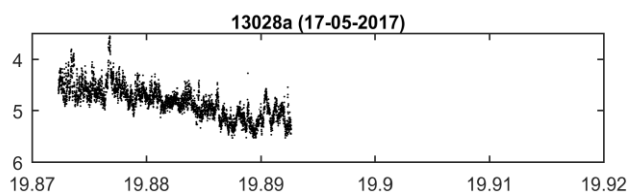
(PERSONA 2) (KVARTS 2)

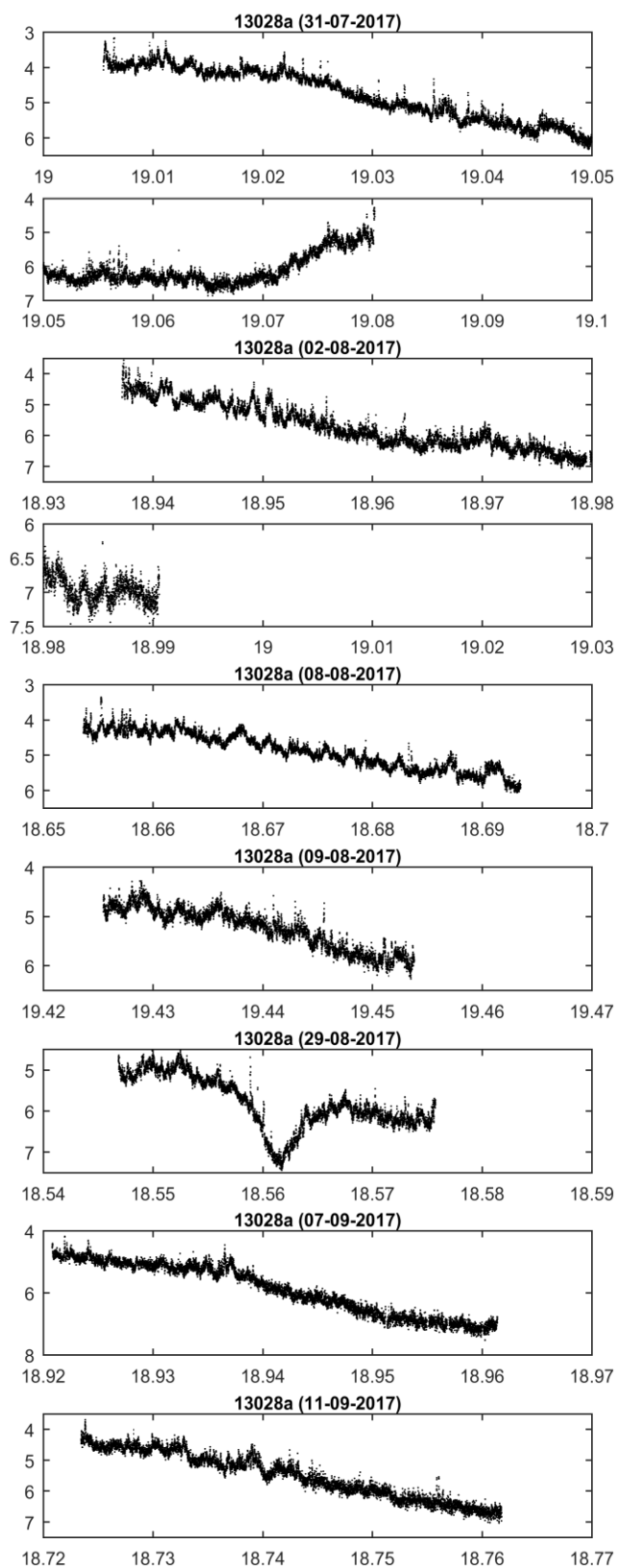
NORAD ID: 39177
 Int'l Code: 2013-028A
 Dimensions: cylinder
 + 2 panels (?)
 Initial orbit:
 Perigee: 711 km
 Apogee: 732 km
 Inclination: 98.2°
 Period: 99.2 min
 Eccentricity: 0.00148
 Launch date: 2013-06-07
 Source: Commonwealth of Independent States (former USSR) (CIS)

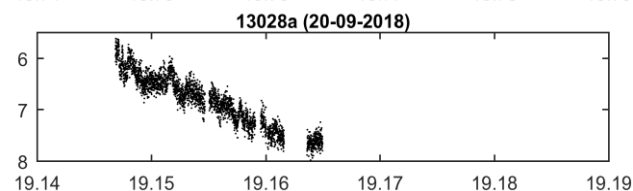
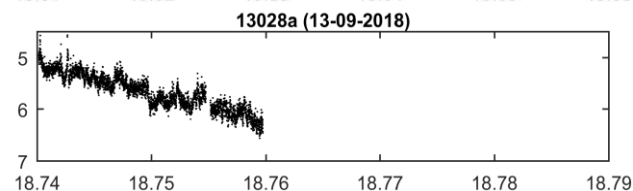
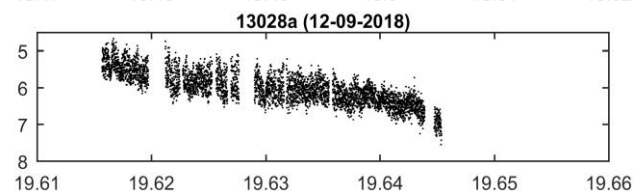
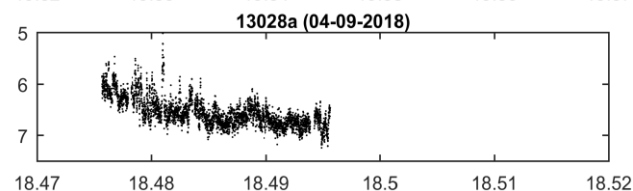
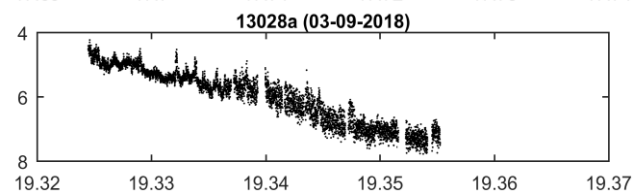
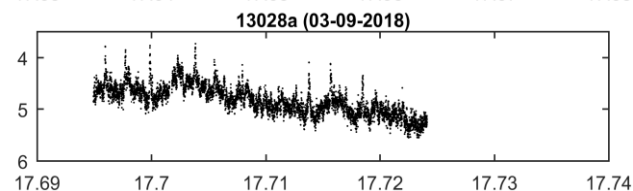
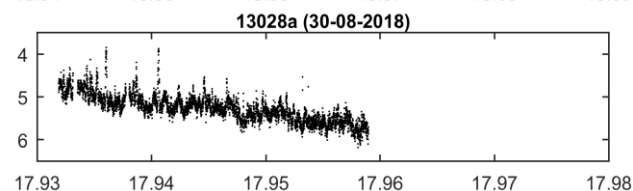
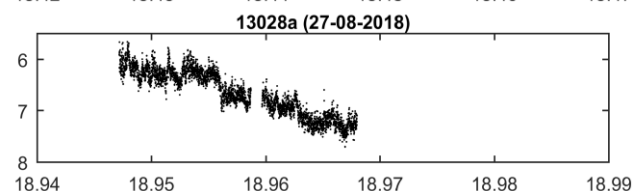
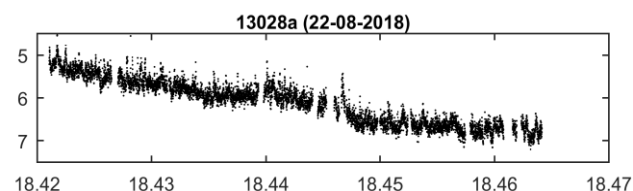
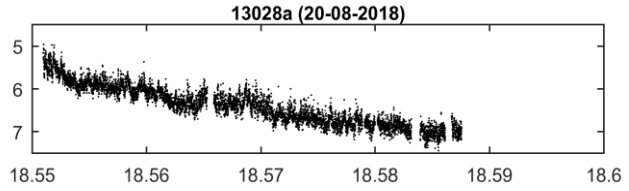
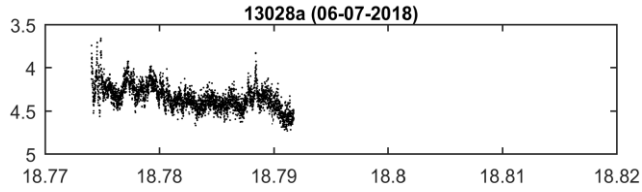
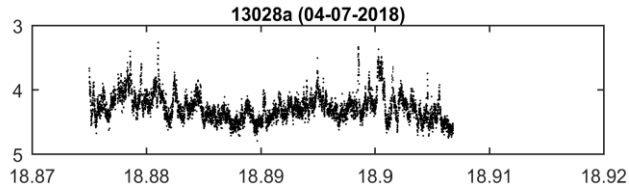
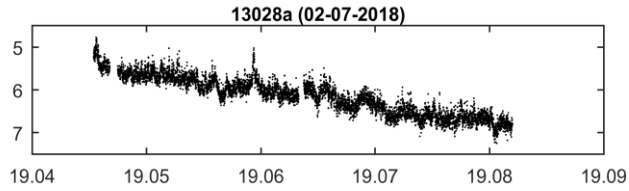
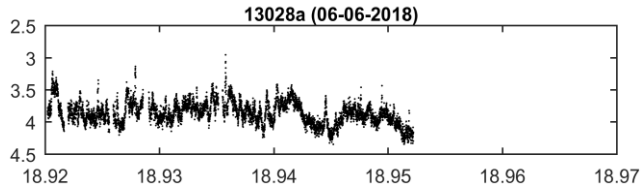
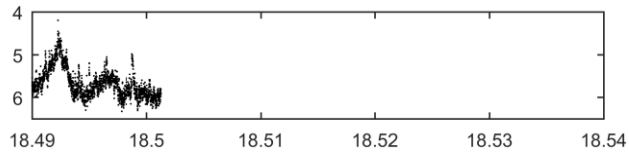
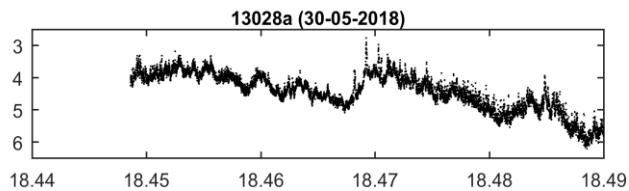
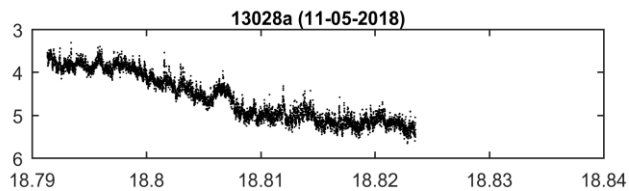
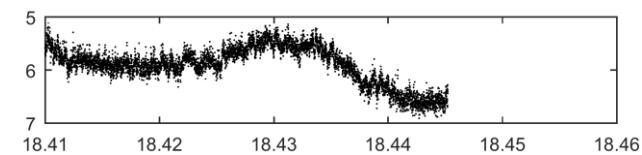


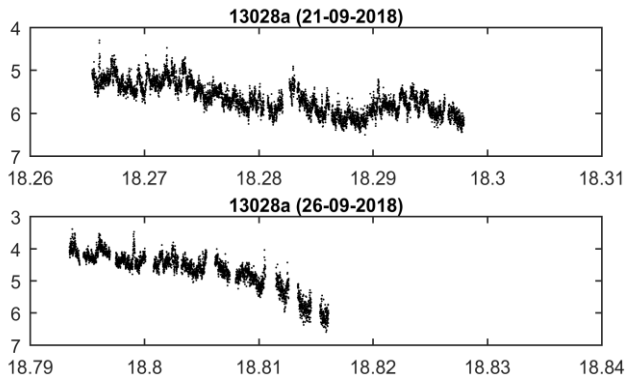
COSMOS 2486











RESURS P1

NORAD ID: 39186

Int'l Code: 2013-030A

Dimensions: cylinder + 2 panels

Initial orbit:

Perigee: 246 km

Apogee: 455 km

Inclination: 97.29°

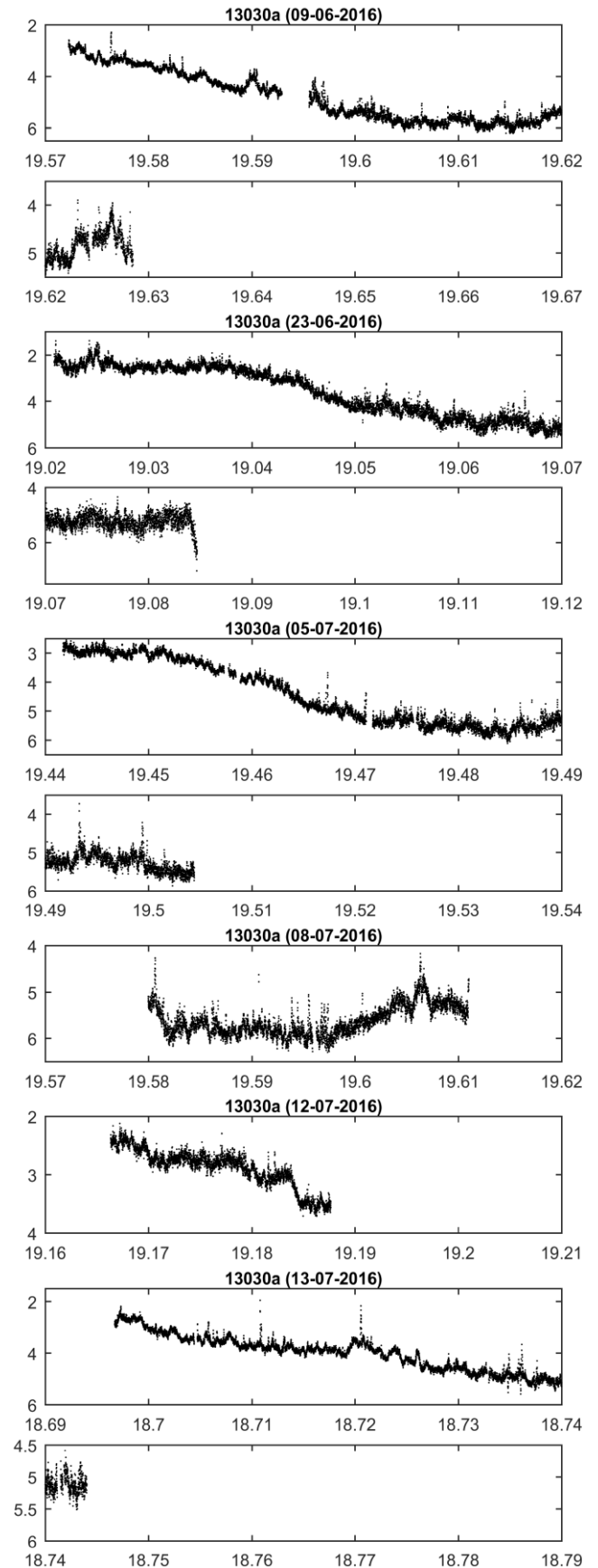
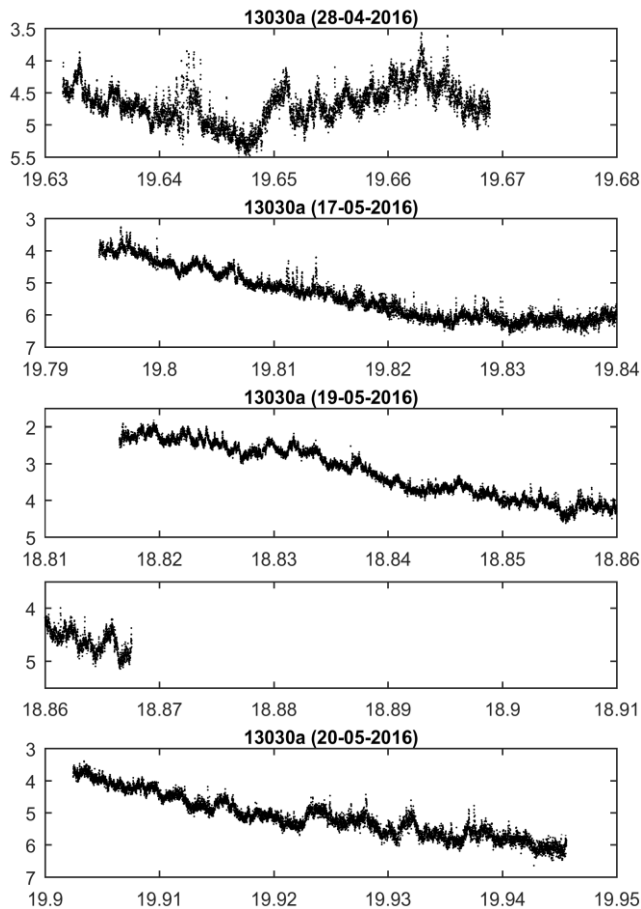
Period: 91.55 min

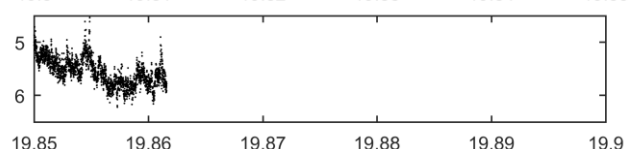
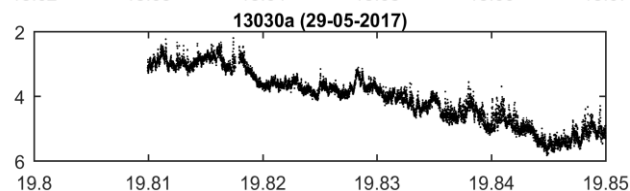
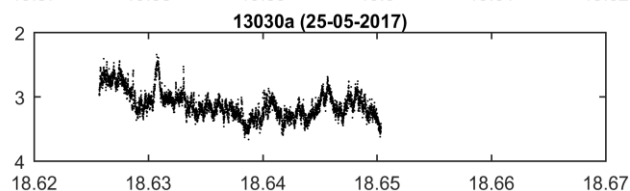
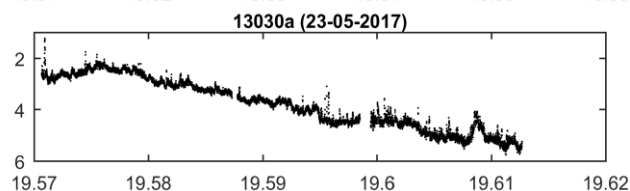
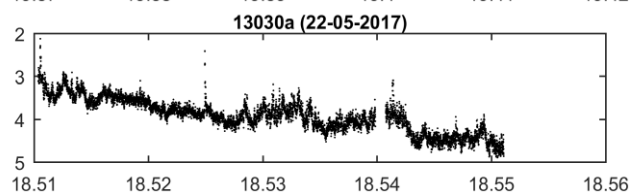
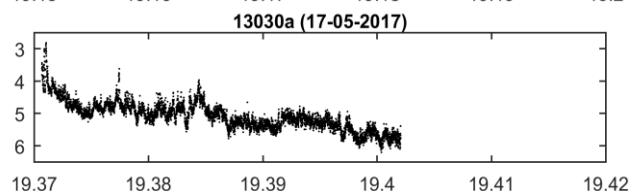
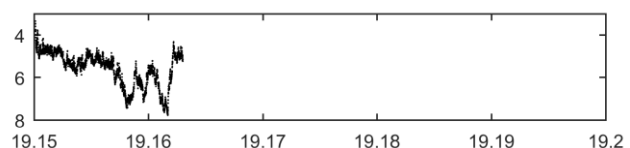
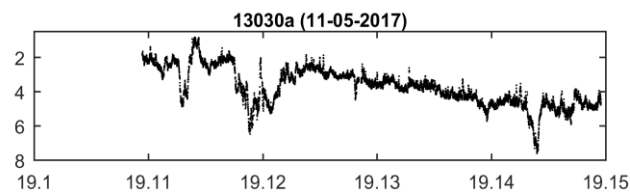
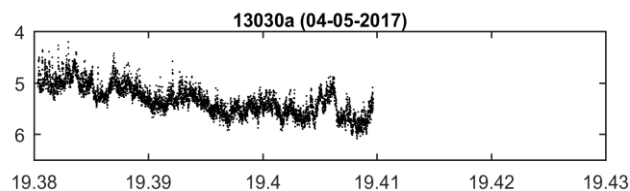
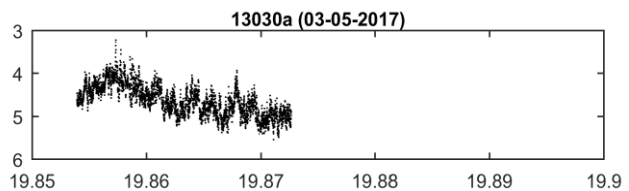
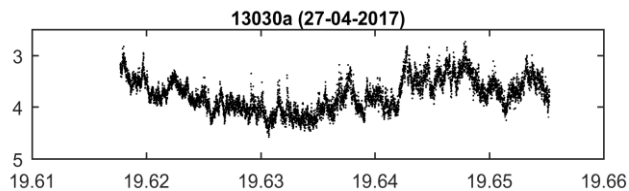
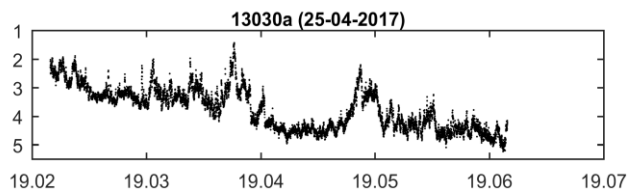
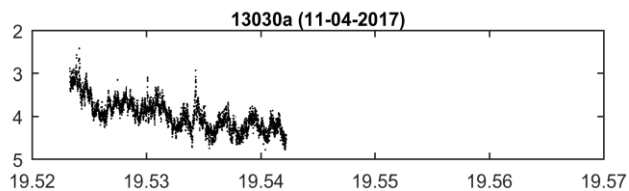
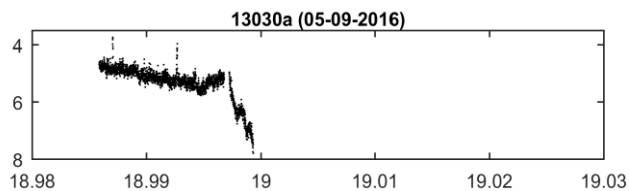
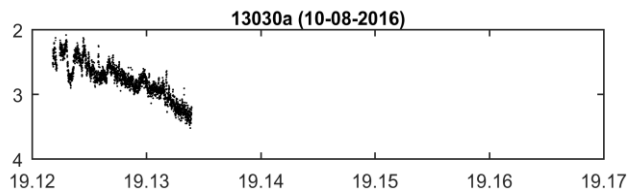
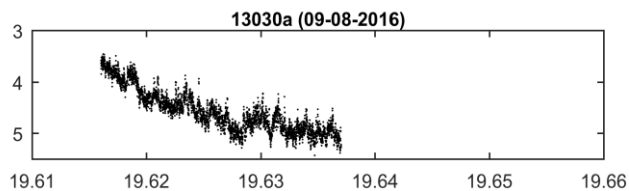
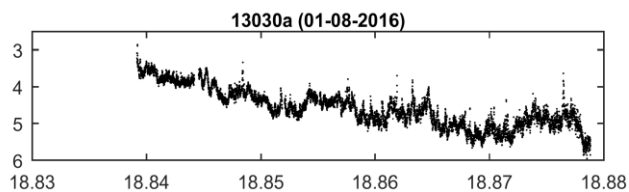
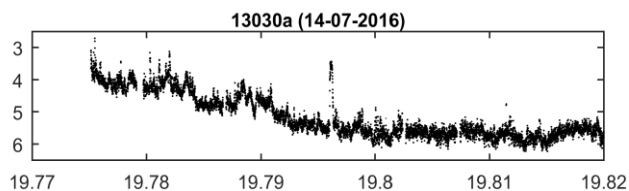
Eccentricity: 0.016

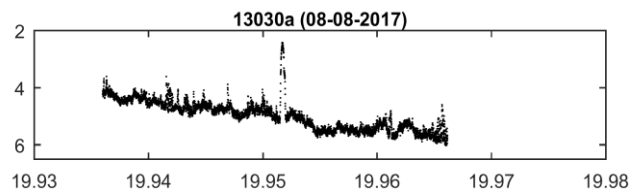
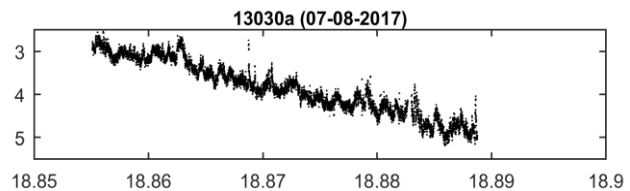
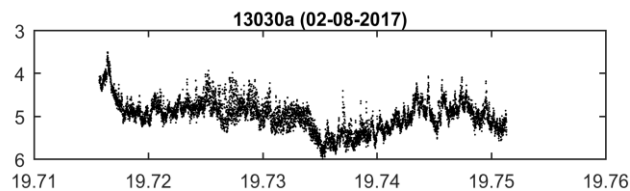
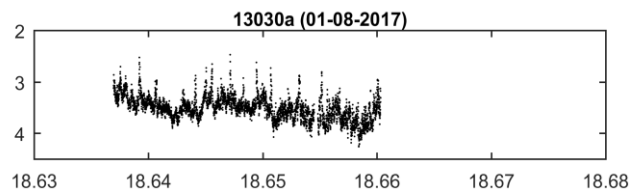
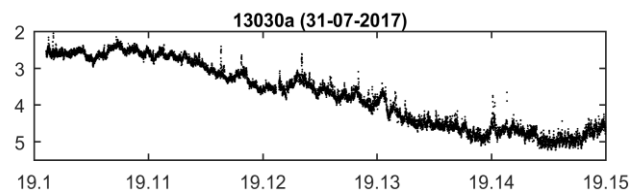
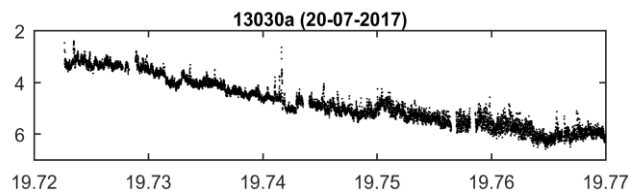
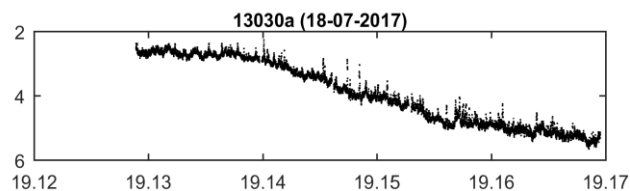
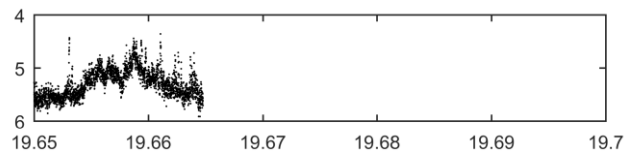
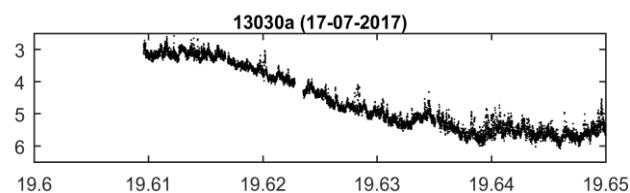
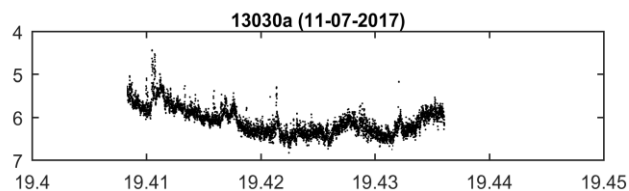
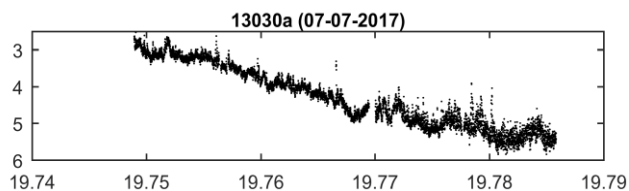
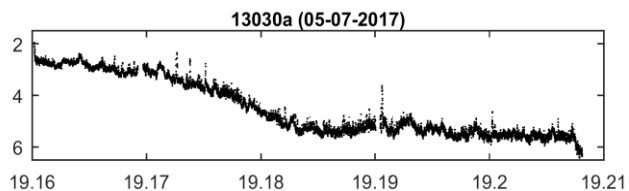
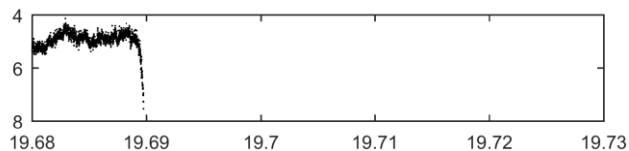
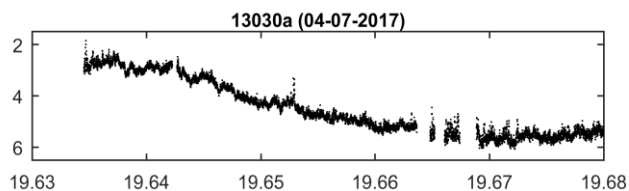
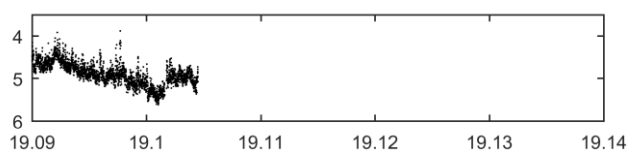
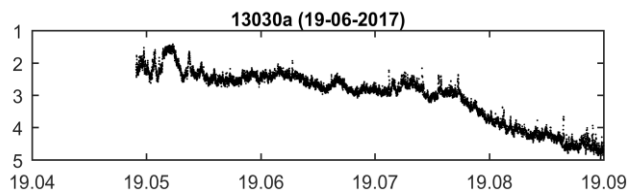
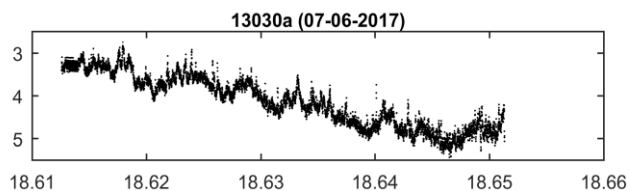
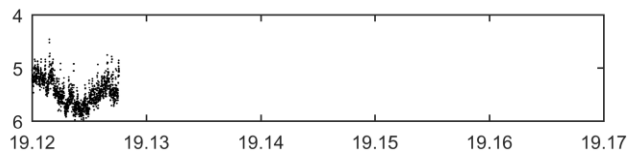
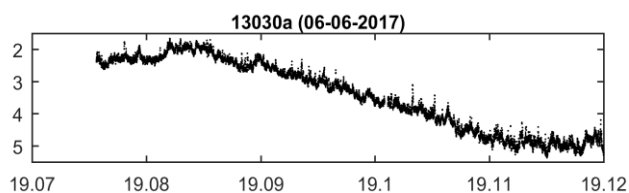
Launch date: 2013-06-25

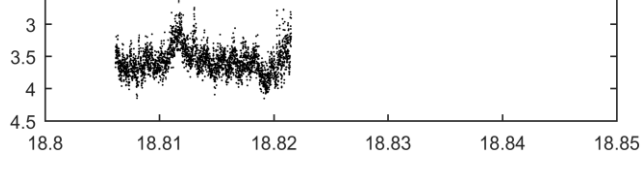
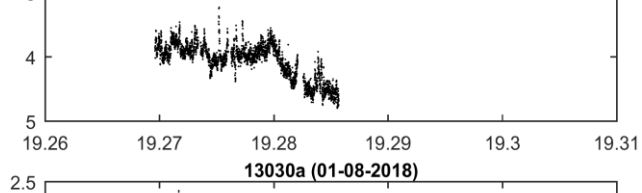
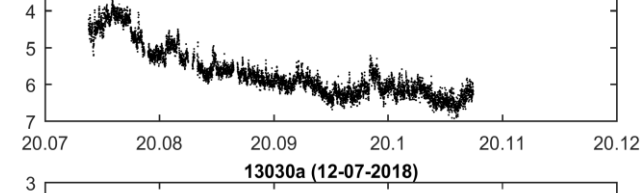
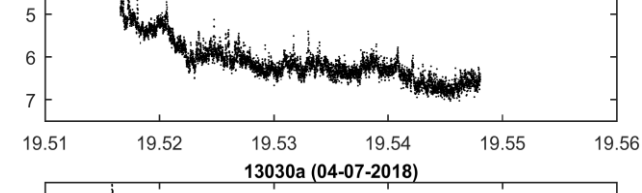
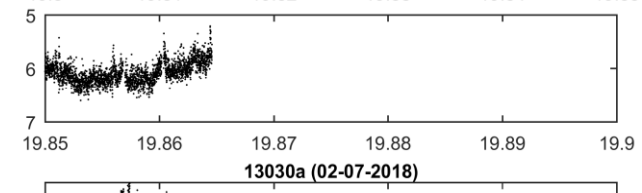
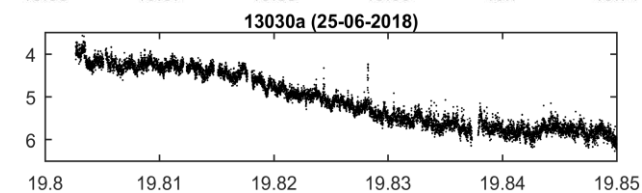
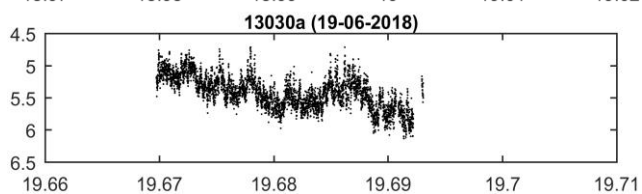
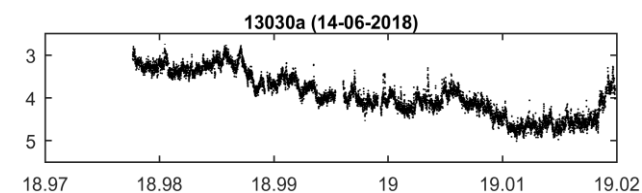
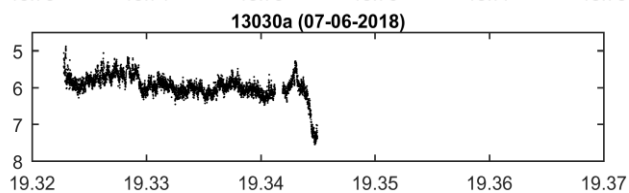
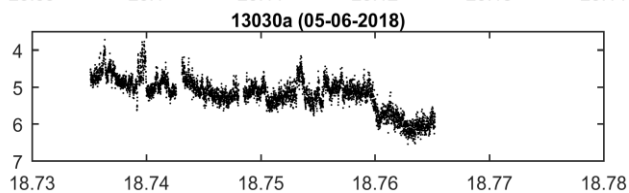
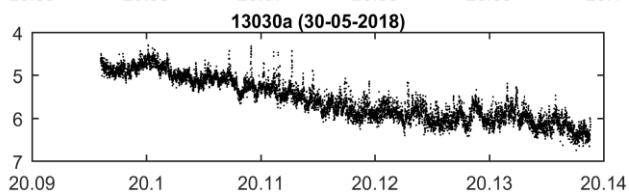
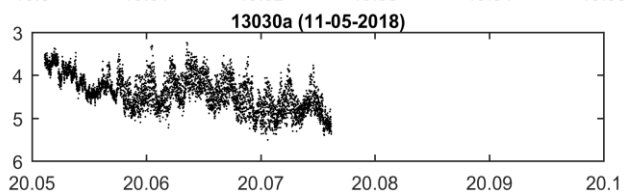
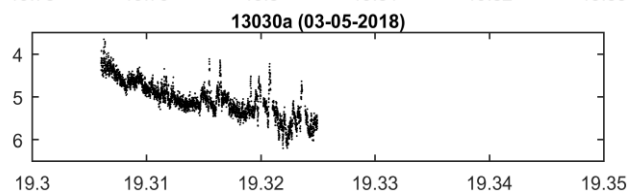
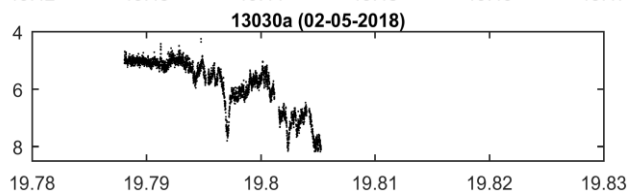
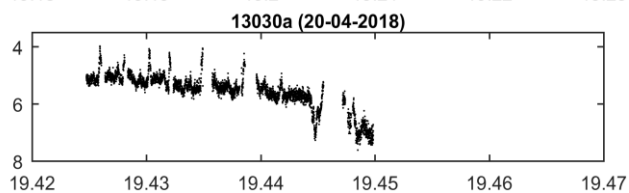
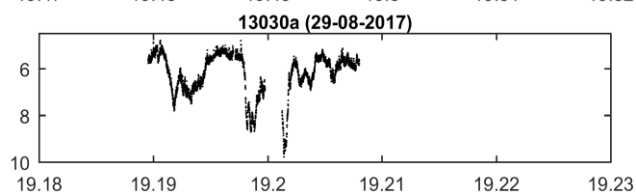
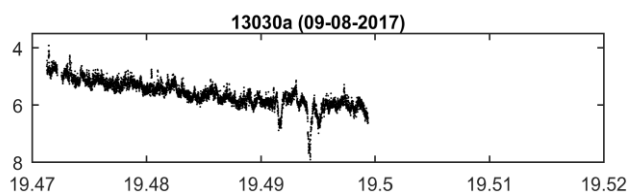
Source: Commonwealth of

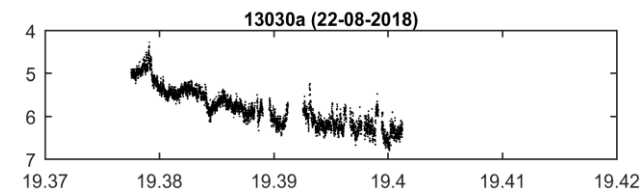
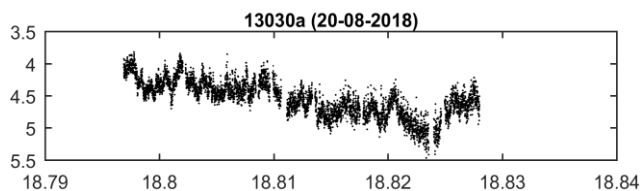
Independent States (former USSR) (CIS)











COSMOS 2487

(Kondor #1)

NORAD ID: 39194

Int'l Code: 2013-032A

Dimensions:

Initial orbit:

Perigee: 453 km

Apogee: 544 km

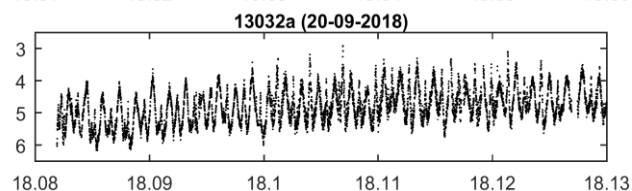
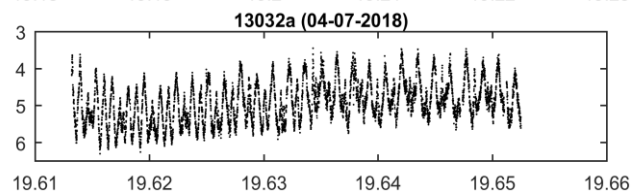
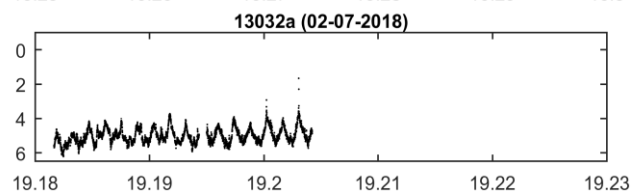
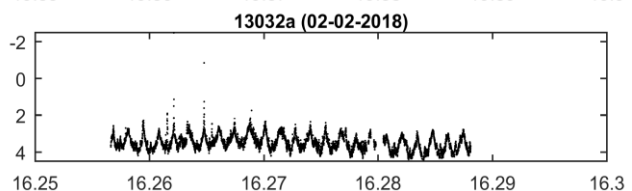
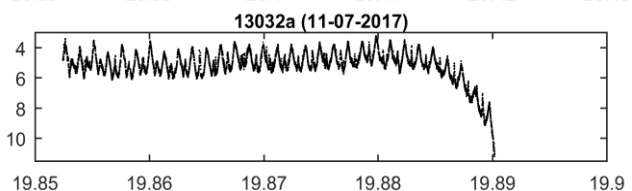
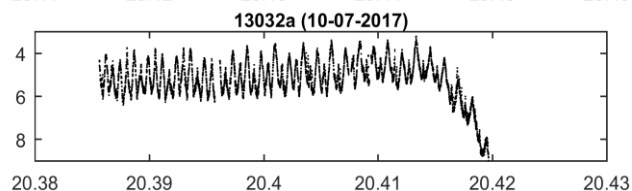
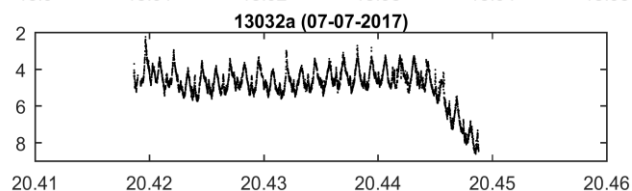
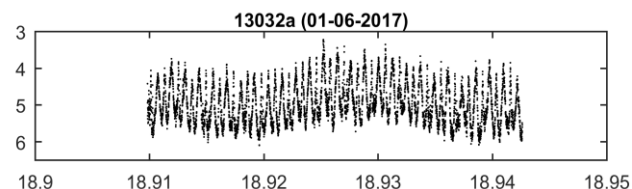
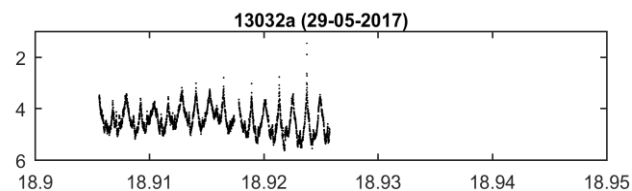
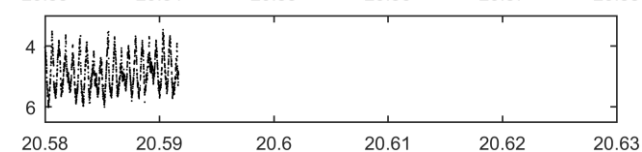
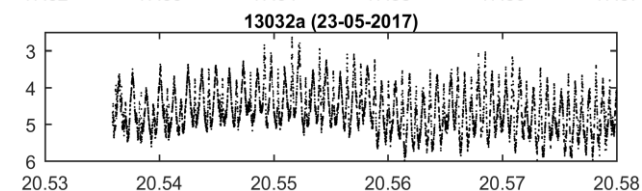
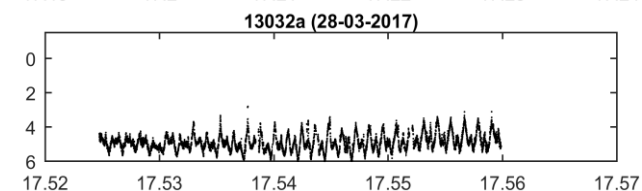
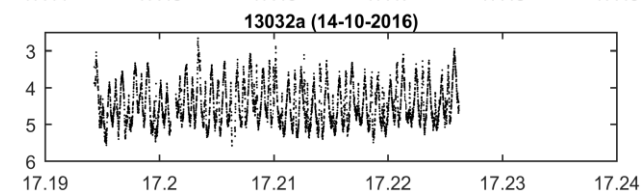
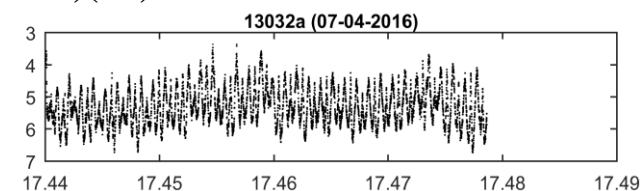
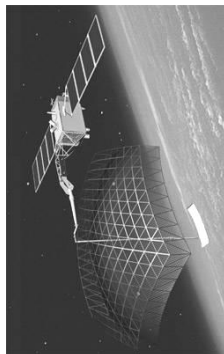
Inclination: 74.90°

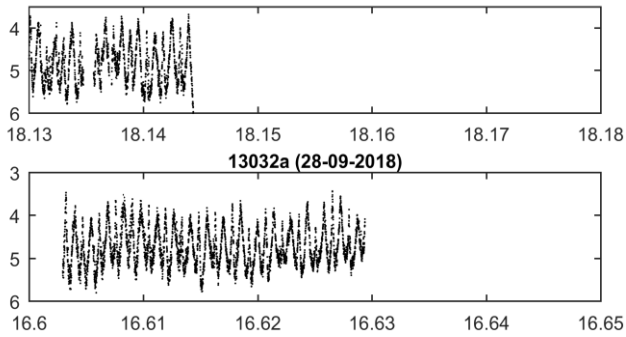
Period: 94.92 min

Eccentricity: 0.007

Launch date: 2013-06-27

Source: Commonwealth of Independent States (former USSR) (CIS)





IRIS (SMEX 12)

NORAD ID: 39197

Int'l Code: 2013-033A

Dimensions: cylinder + 2 panels

3.17m x 1.82m x 5.45m

Initial orbit:

Perigee: 620 km

Apogee: 663 km

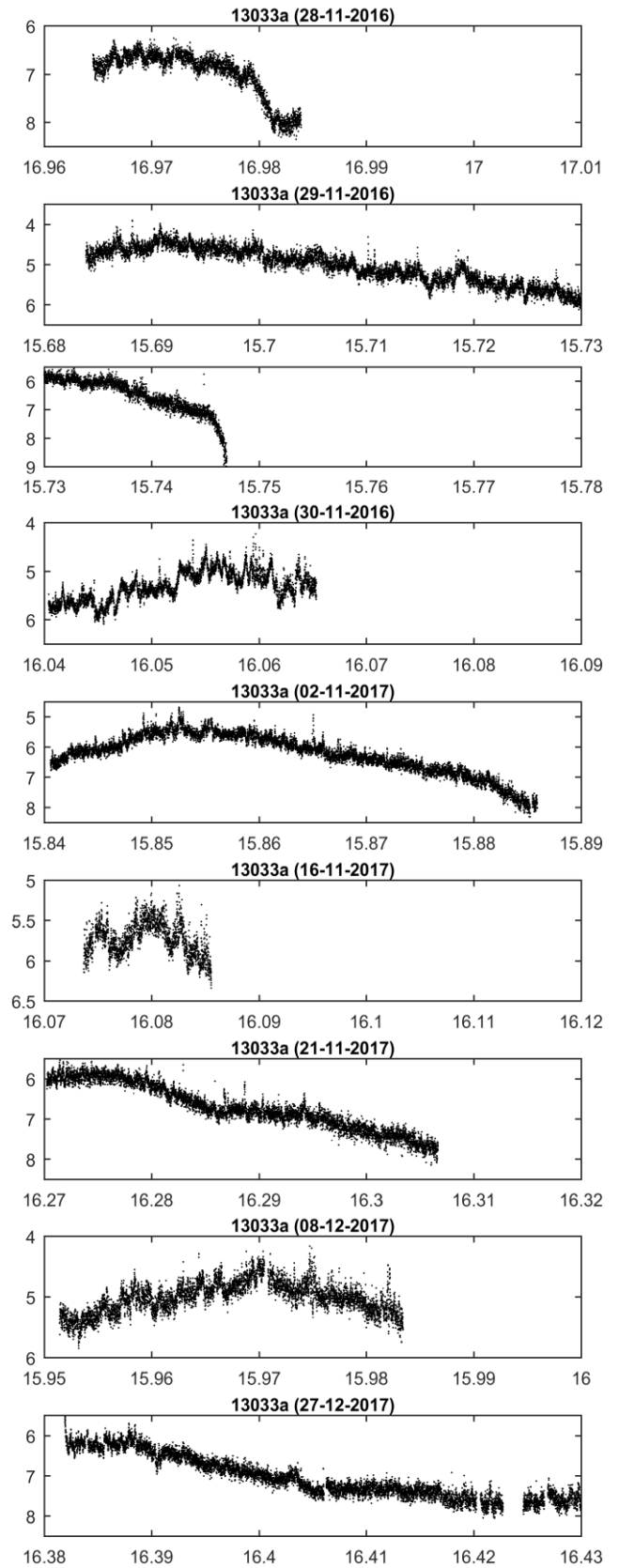
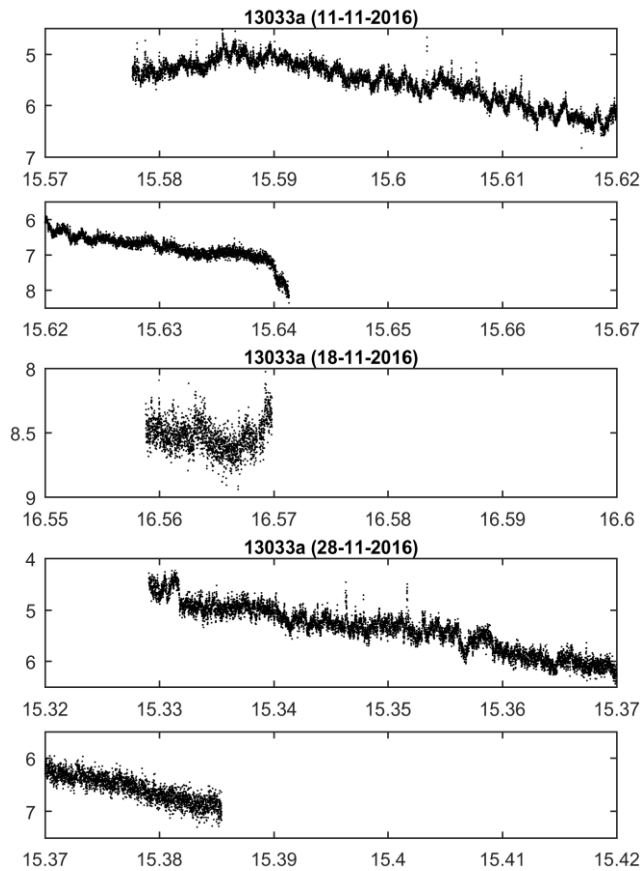
Inclination: 97.91°

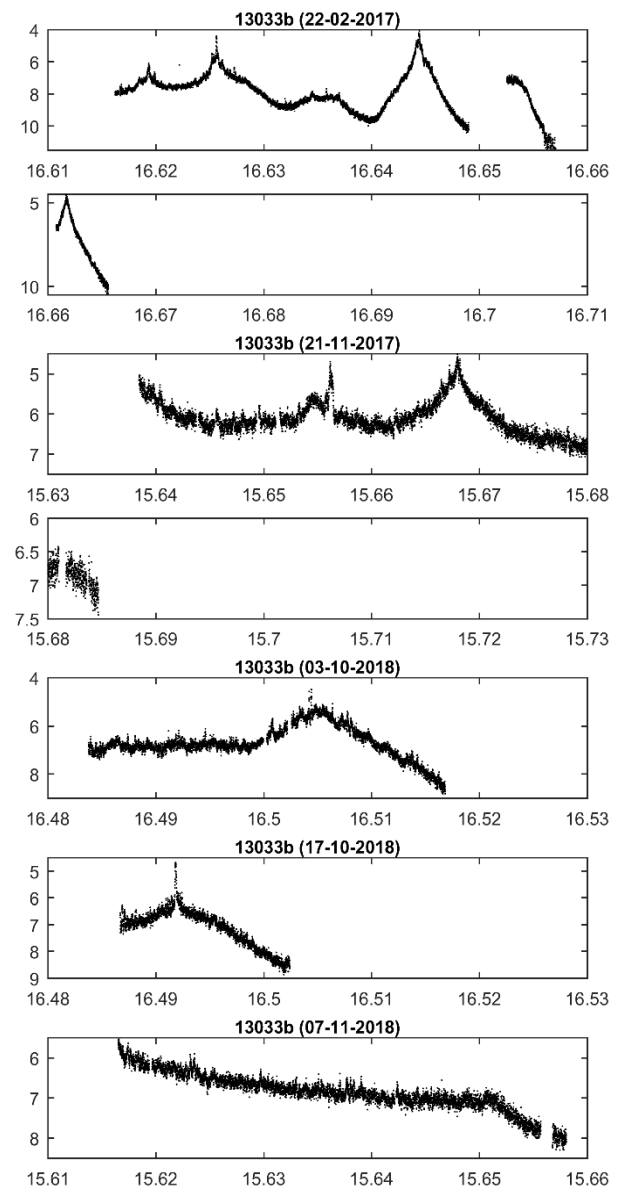
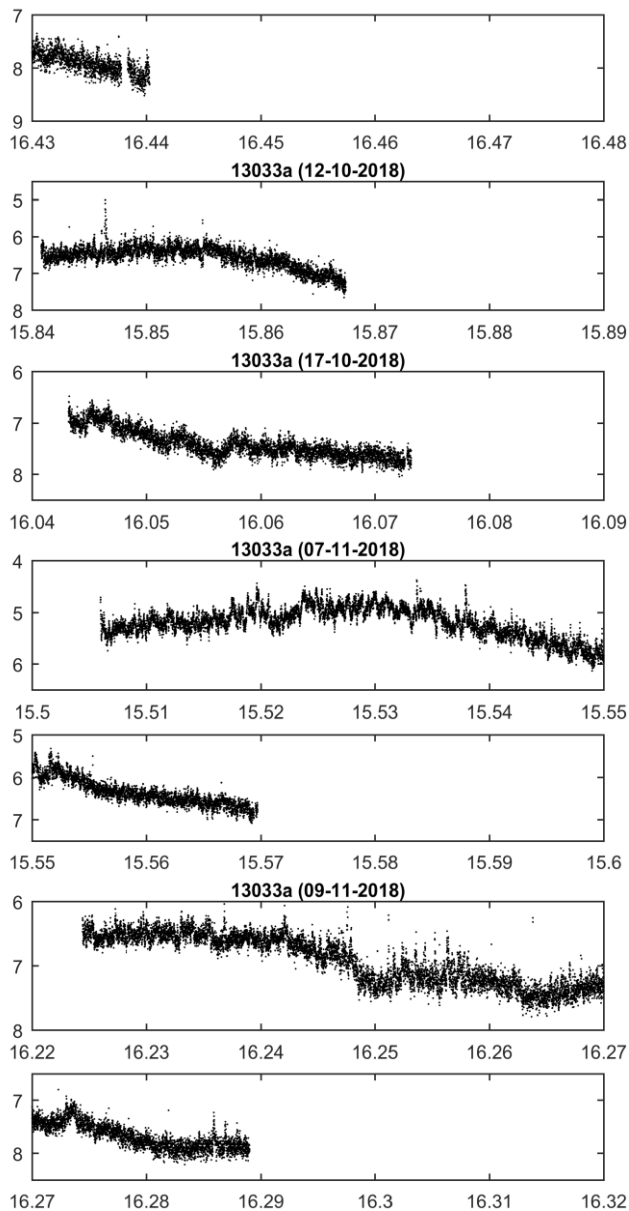
Period: 97.55 min

Eccentricity: 0.003

Launch date: 2013-06-28

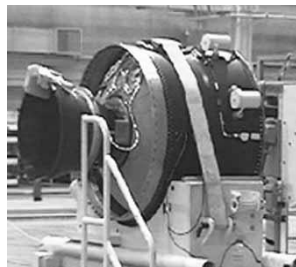
Source: United States (US)





PEGASUS-XL (3rd stage) (ORION 38)

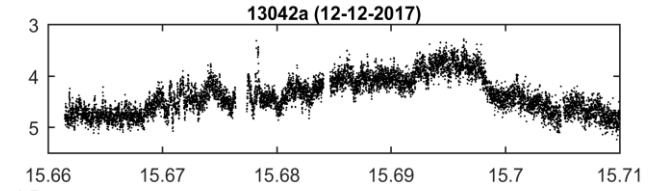
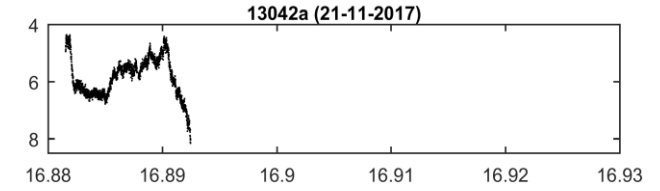
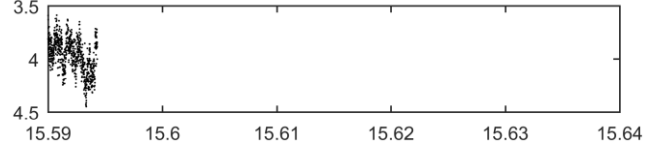
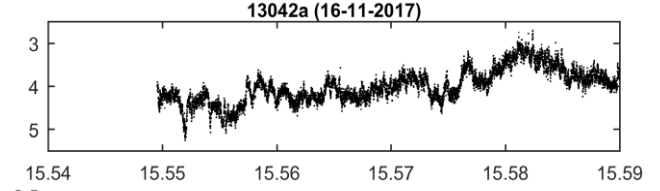
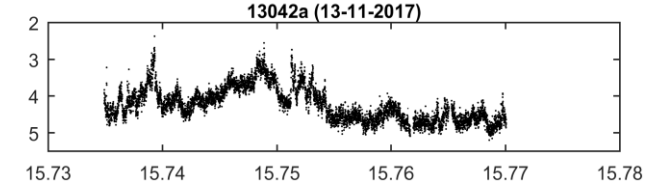
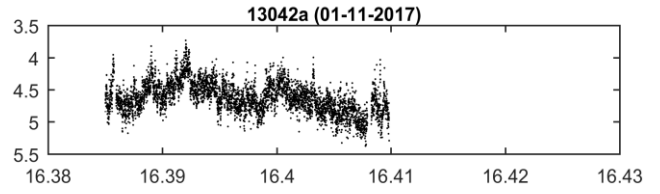
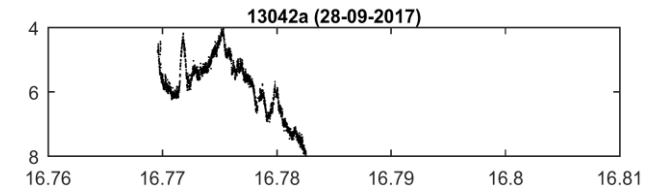
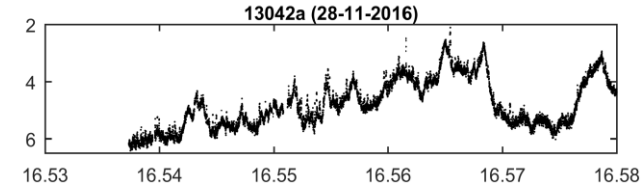
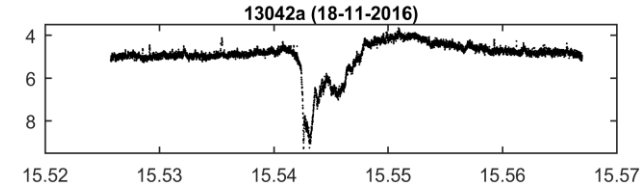
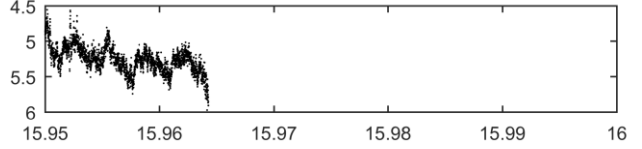
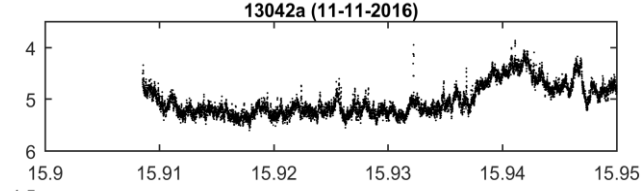
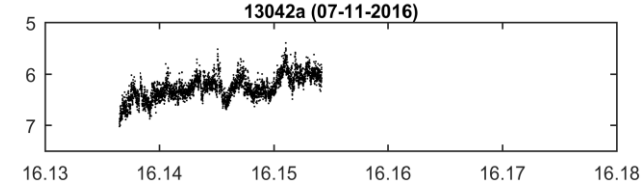
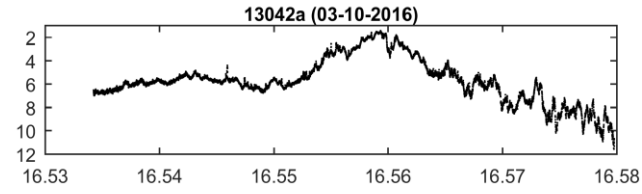
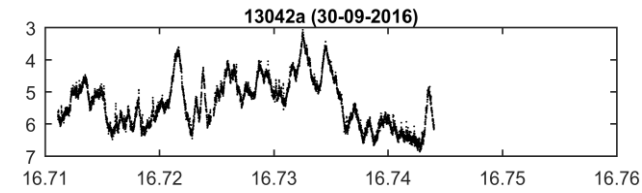
NORAD ID: 39198
Int'l Code: 2013-033B
Dimensions: cylinder
1.34m long 0.97m dia
Initial orbit:
Perigee: 620 km
Apogee: 656 km
Inclination: 97.91°
Period: 97.48 min
Eccentricity: 0.003
Launch date: 2013-06-28
Source: United States (US)

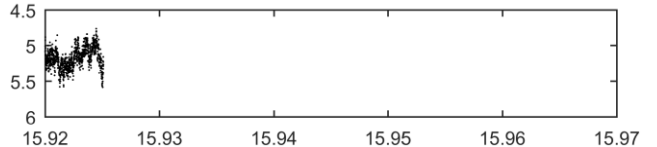
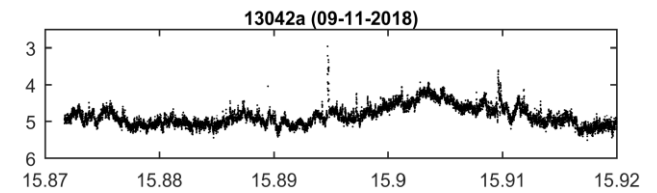
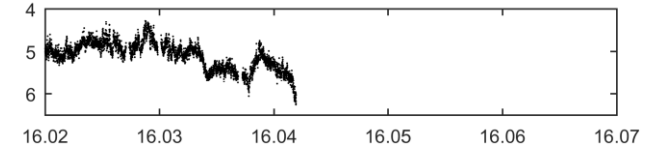
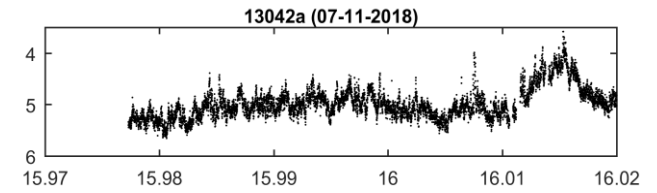
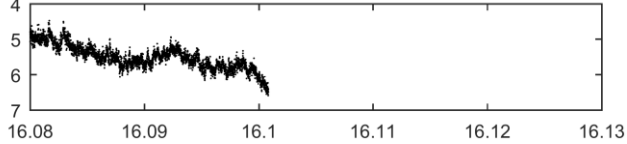
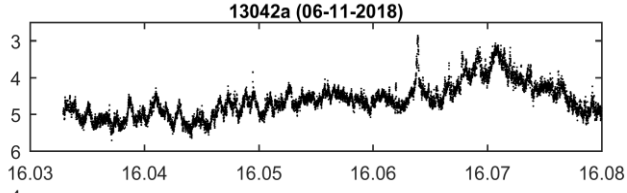
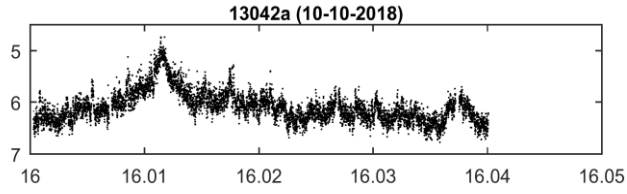
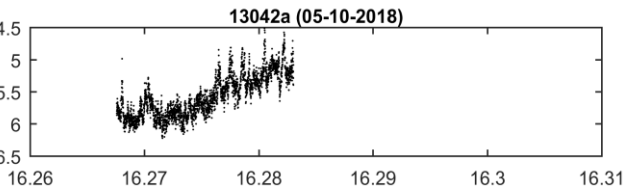
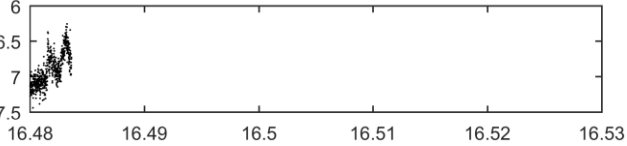
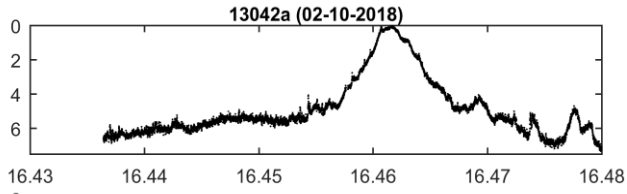
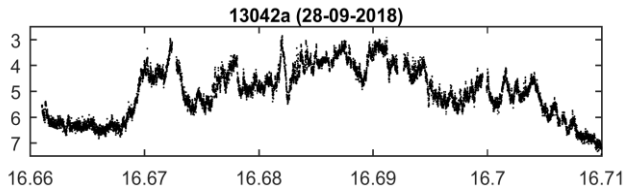
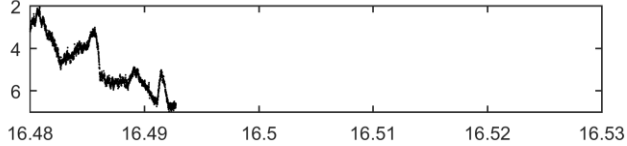
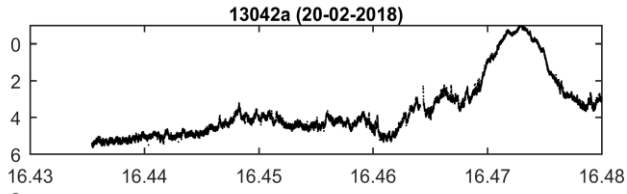
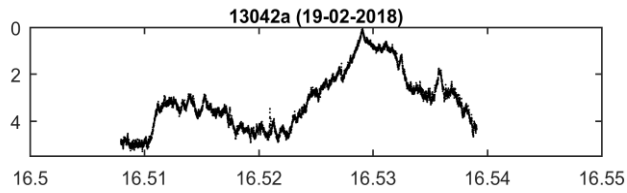


KOMPSAT 5 (ARIRANG 5)

NORAD ID: 39227
Int'l Code: 2013-042A
Dimensions: octagonal cylinder
+2 panels + radar panel
Initial orbit:
Perigee: 533 km
Apogee: 552 km
Inclination: 97.6°
Period: 95.48 min
Eccentricity: 0.001
Launch date: 2013-08-22
Source: South Korea (SKOR)







NROL-65 (USA 245)

NORAD ID: 39232

Int'l Code: 2013-043A

Dimensions: stubby cylinder

Initial orbit:

Perigee: 263 km

Apogee: 989 km

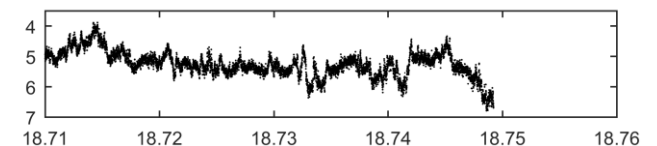
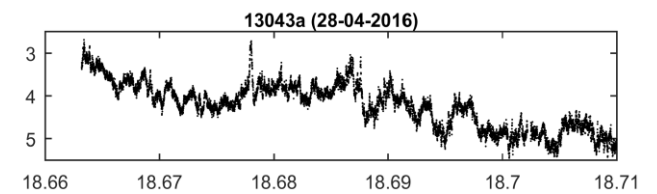
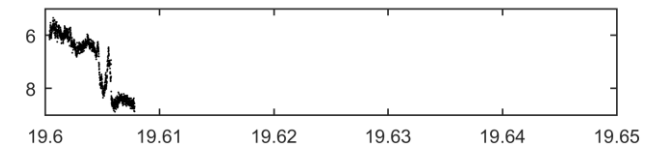
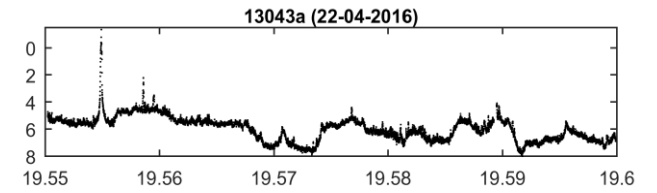
Inclination: 97.94°

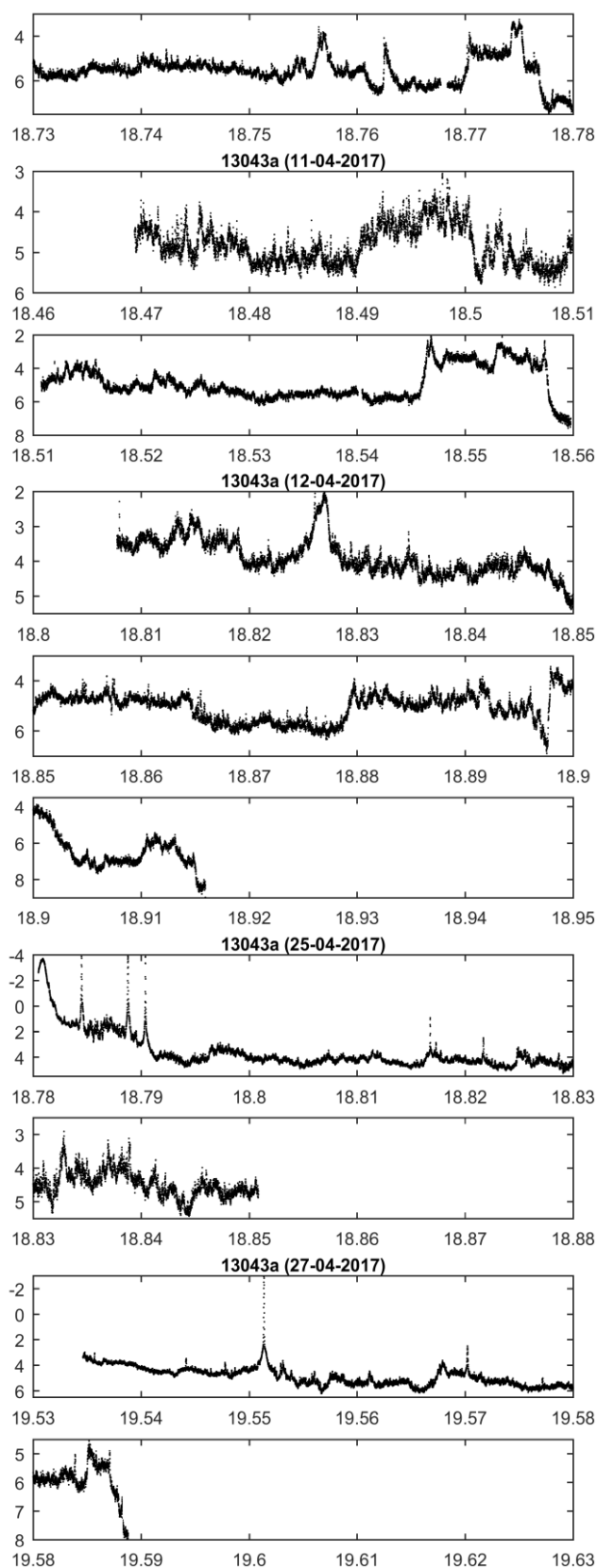
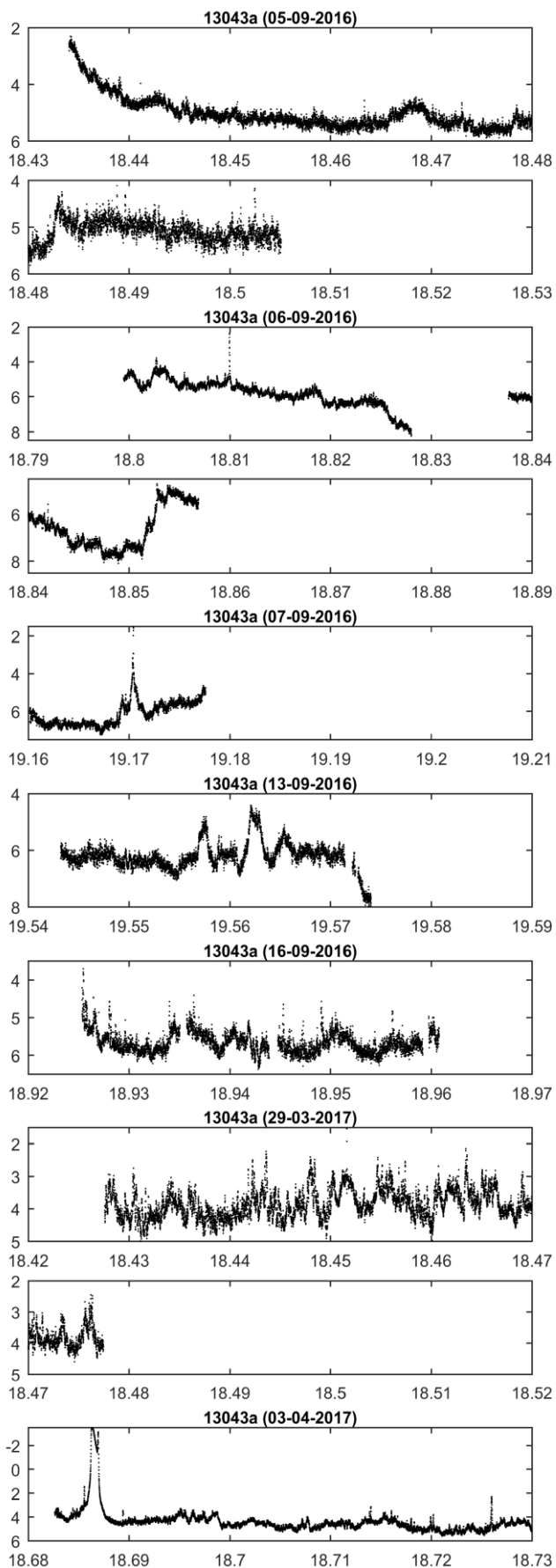
Period: 97.23 min

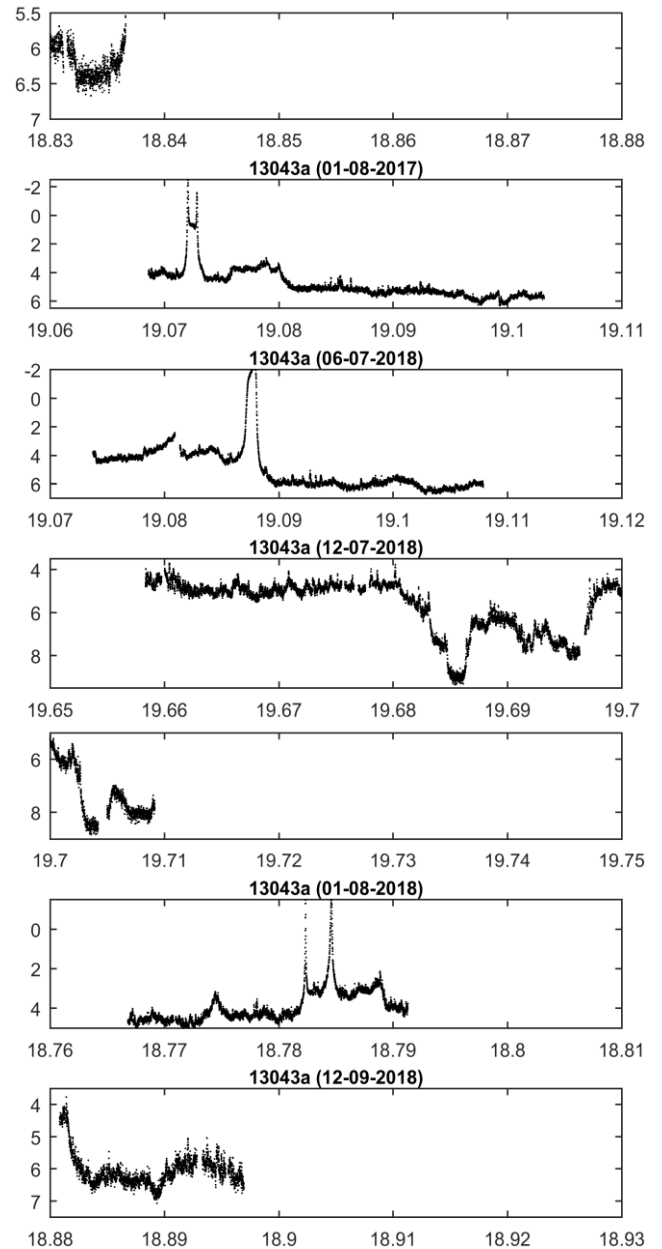
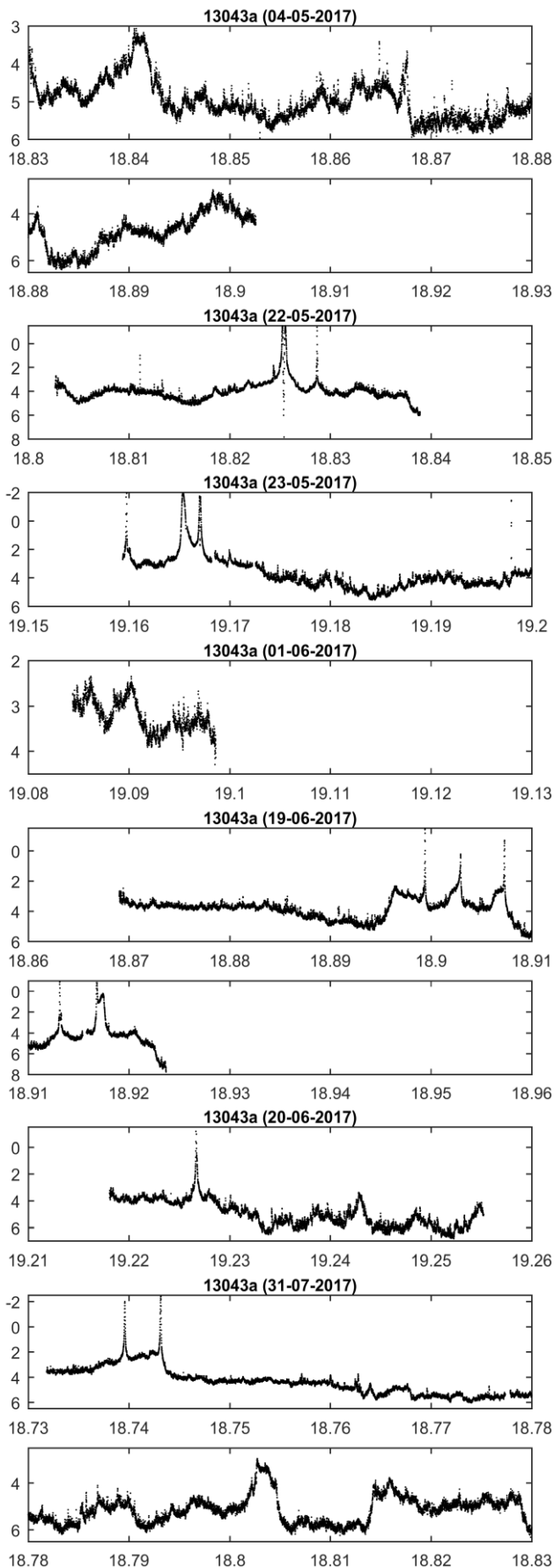
Eccentricity: 0.052

Launch date: 2013-08-28

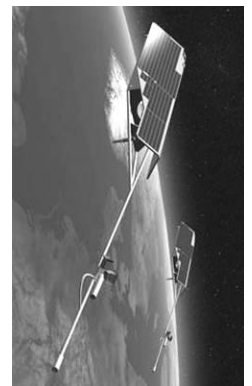
Source: United States (US)

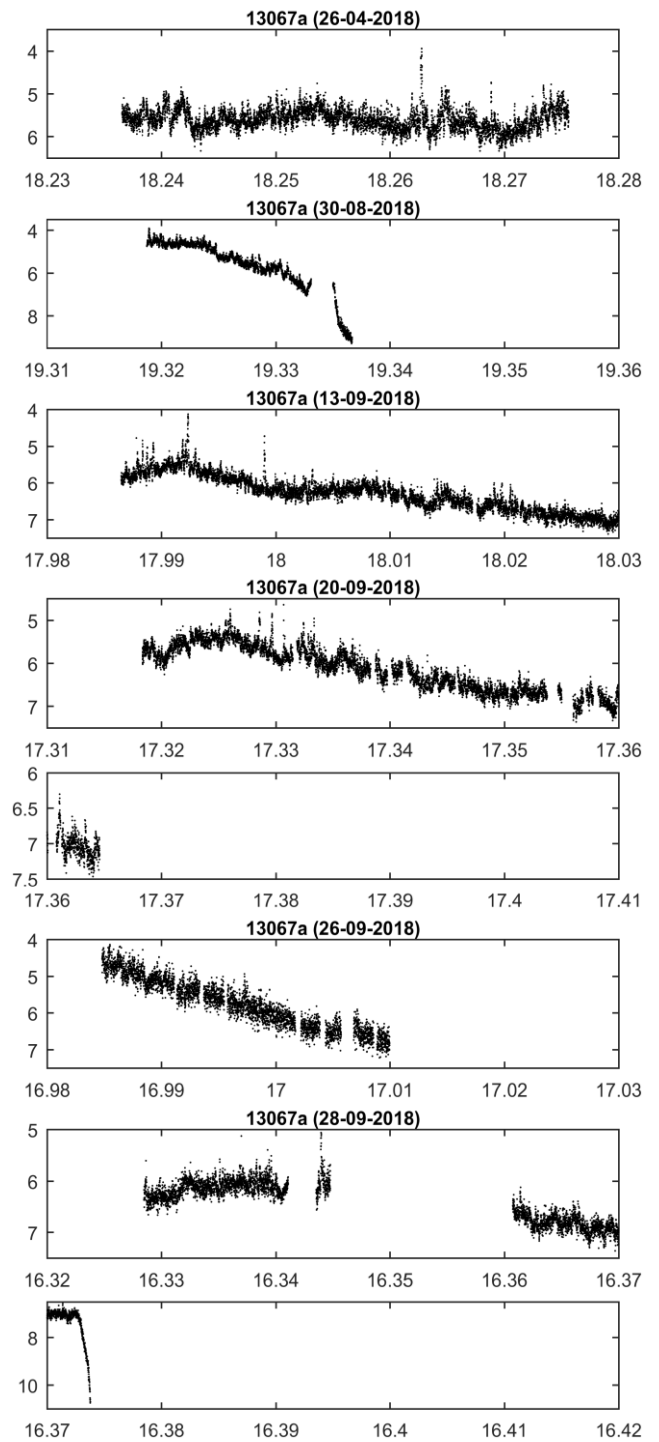
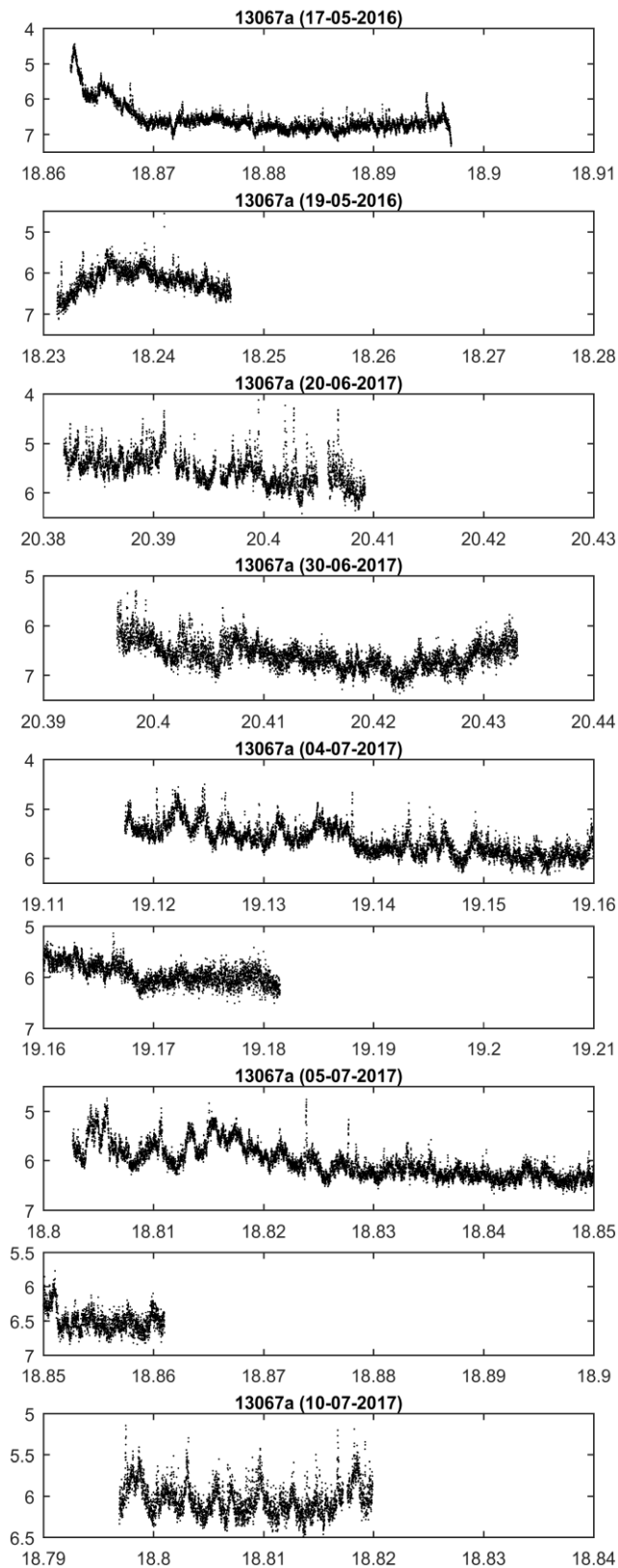






SWARM B (FM-2)
(EARTH EXPLORER 5)
 NORAD ID: 39451
 Int'l Code: 2013-067A
 Dimensions: trapezoidal + boom
 9.1m x 1.5m x 0.85m, 4m long
 Initial orbit:
 Perigee: 490 km
 Apogee: 501 km
 Inclination: 87.55°
 Period: 94.52 min
 Eccentricity: 0.0008
 Launch date: 2013-11-22
 Source: European Space Agency (ESA)





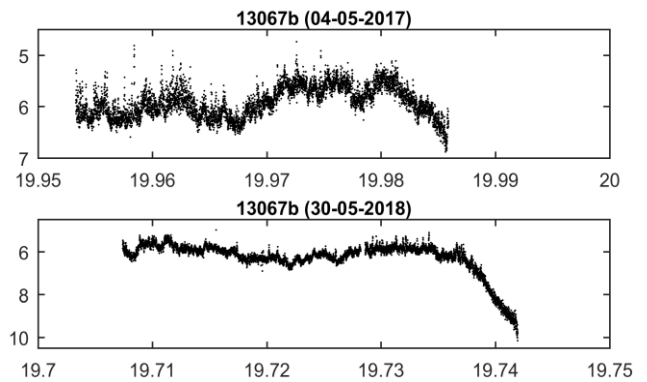
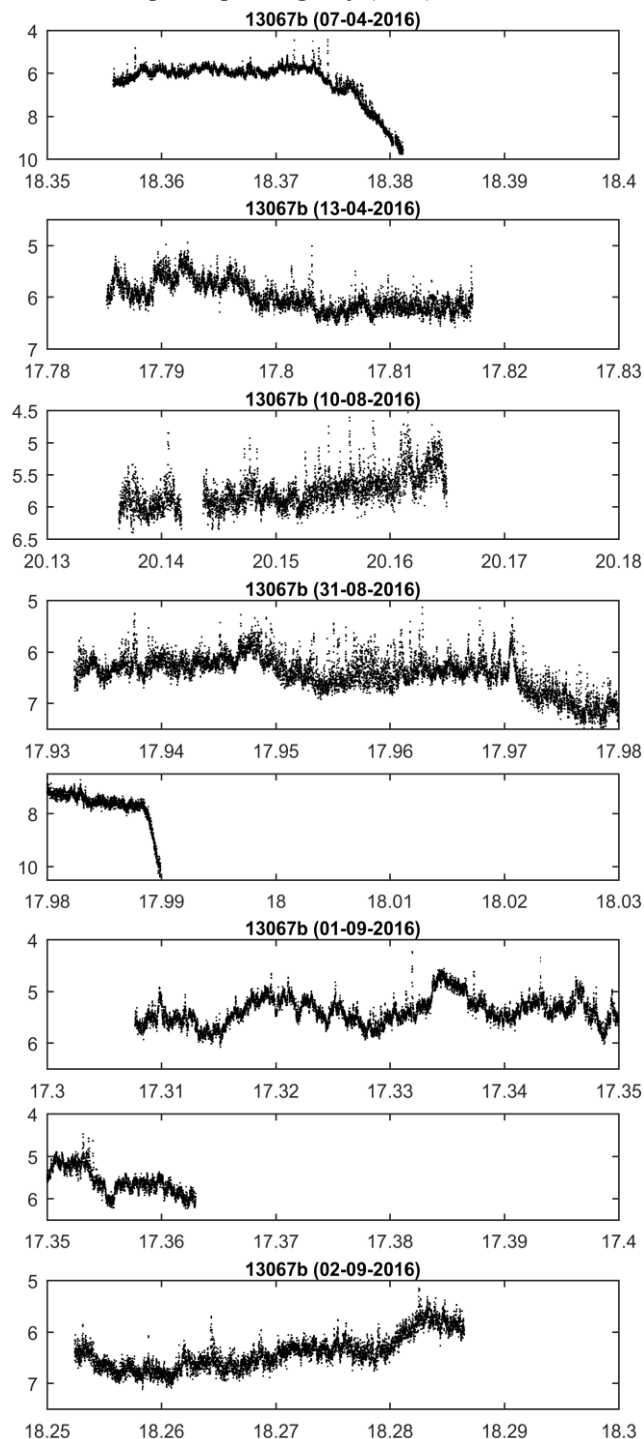
SWARM A (FM-1)
(EARTH EXPLORER 5)
 NORAD ID: 39452
 Int'l Code: 2013-067B
 Dimensions: trapezoidal + boom
 9.1m x 1.5m x 0.85m, 4m long
 Initial orbit:
 Perigee: 489 km
 Apogee: 501 km
 Inclination: 87.55°
 Period: 94.52 min



Eccentricity: 0.0009

Launch date: 2013-11-22

Source: European Space Agency (ESA)



SWARM C (FM-3)

(EARTH EXPLORER 5)

NORAD ID: 39453

Int'l Code: 2013-067C

Dimensions: trapezoidal + boom
9.1m x 1.5m x 0.85m, 4m long

Initial orbit:

Perigee: 490 km

Apogee: 501 km

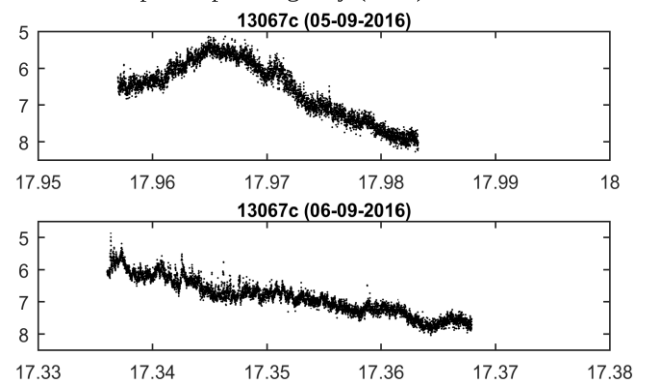
Inclination: 87.55°

Period: 94.52 min

Eccentricity: 0.0008

Launch date: 2013-11-22

Source: European Space Agency (ESA)



GPM

NORAD ID: 39574

Int'l Code: 2014-009C

Dimensions: box + 2 panels
6.5m x 4.9m 11.6m span

Initial orbit:

Perigee: 380 km

Apogee: 384 km

Inclination: 65.01°

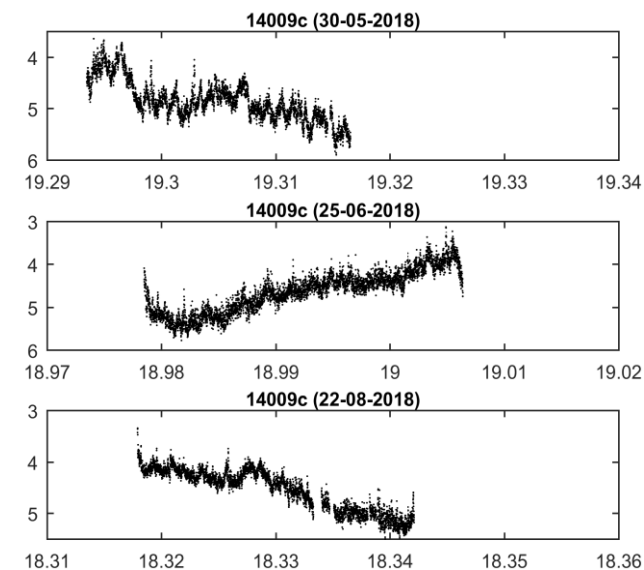
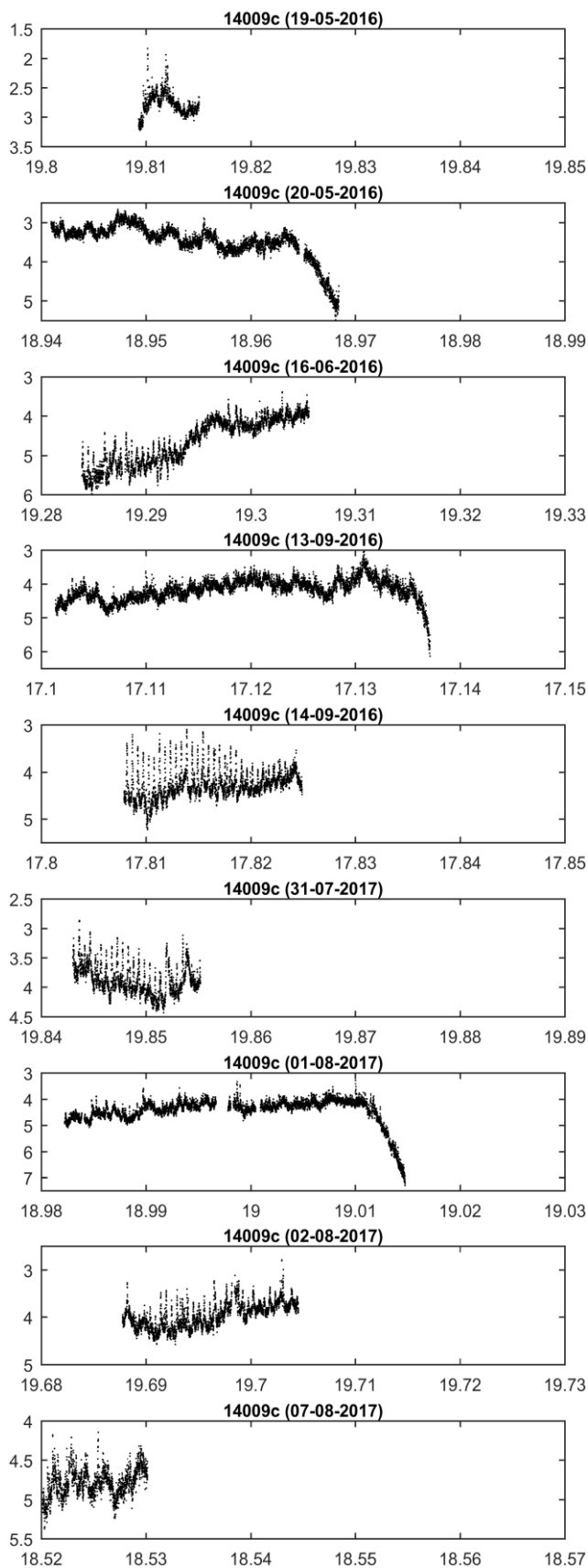
Period: 92.18 min

Eccentricity: 0.0003

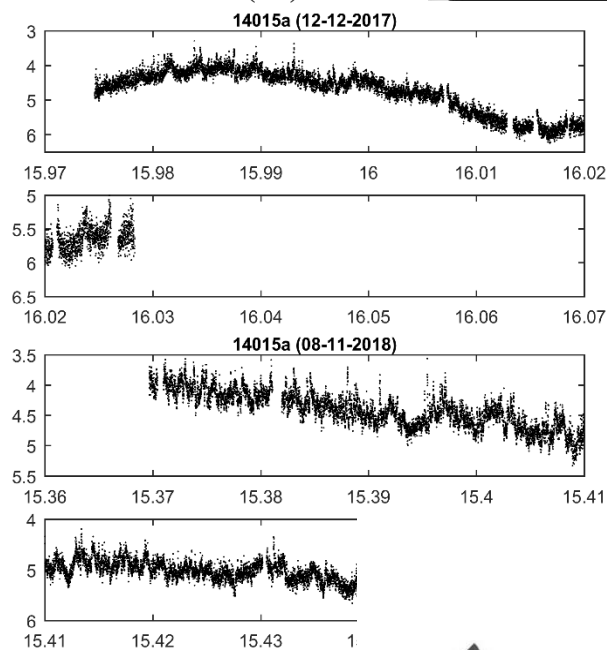
Launch date: 2014-02-27

Source: Japan (JPN)





DMSP 5D-3 F19 (USA 249)
 NORAD ID: 39630
 Int'l Code: 2014-015A
 Dimensions: box + panel 6.4m long
 1.2m dia
 Initial orbit:
 Perigee: 844 km
 Apogee: 847 km
 Inclination: 98.24°
 Period: 101.83 min
 Eccentricity: 0.0002
 Launch date: 2014-04-03
 Source: United States (US)



EGYPTSAT 2 (MISRAT 2)
 NORAD ID: 39678
 Int'l Code: 2014-021A
 Dimensions: hexagonal cylinder



+ 3 panels

Initial orbit:

Perigee: 436 km

Apogee: 702 km

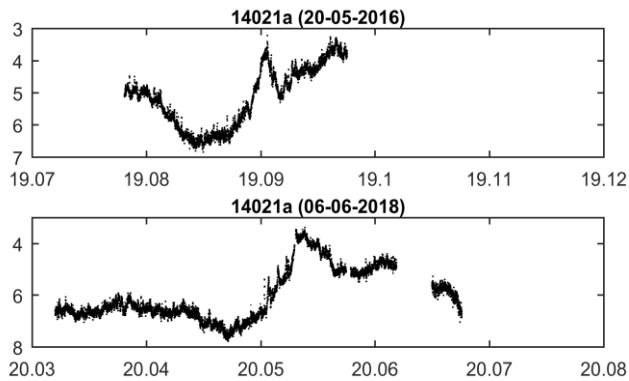
Inclination: 51.60°

Period: 96.05 min

Eccentricity: 0.019

Launch date: 2014-04-16

Source: Egypt (EGYP)



SL-4 R/B (SOYUZ-U 3rd stage)

NORAD ID: 39679

Int'l Code: 2014-021B

Dimensions: cylinder 8.1m long

2.66m dia

Initial orbit:

Perigee: 434 km

Apogee: 695 km

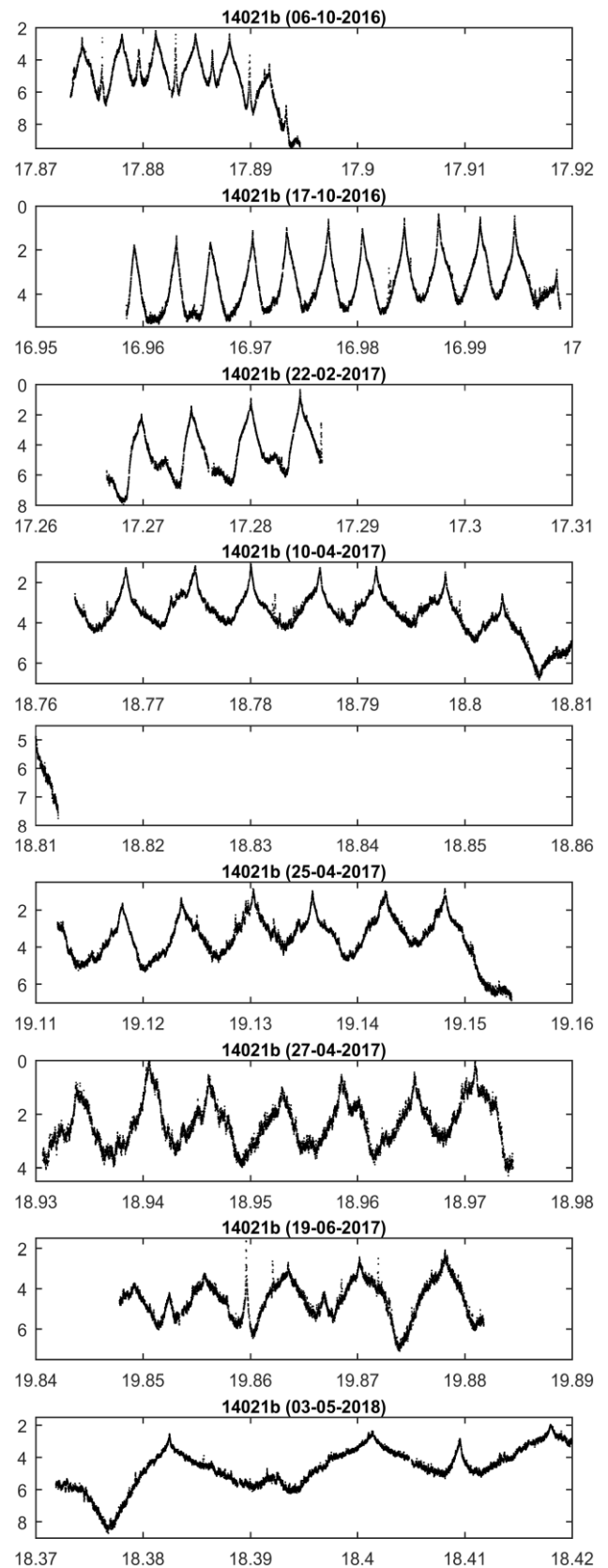
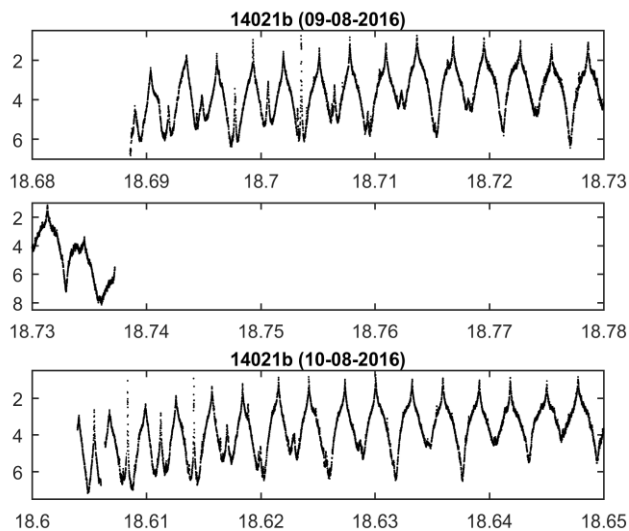
Inclination: 51.61°

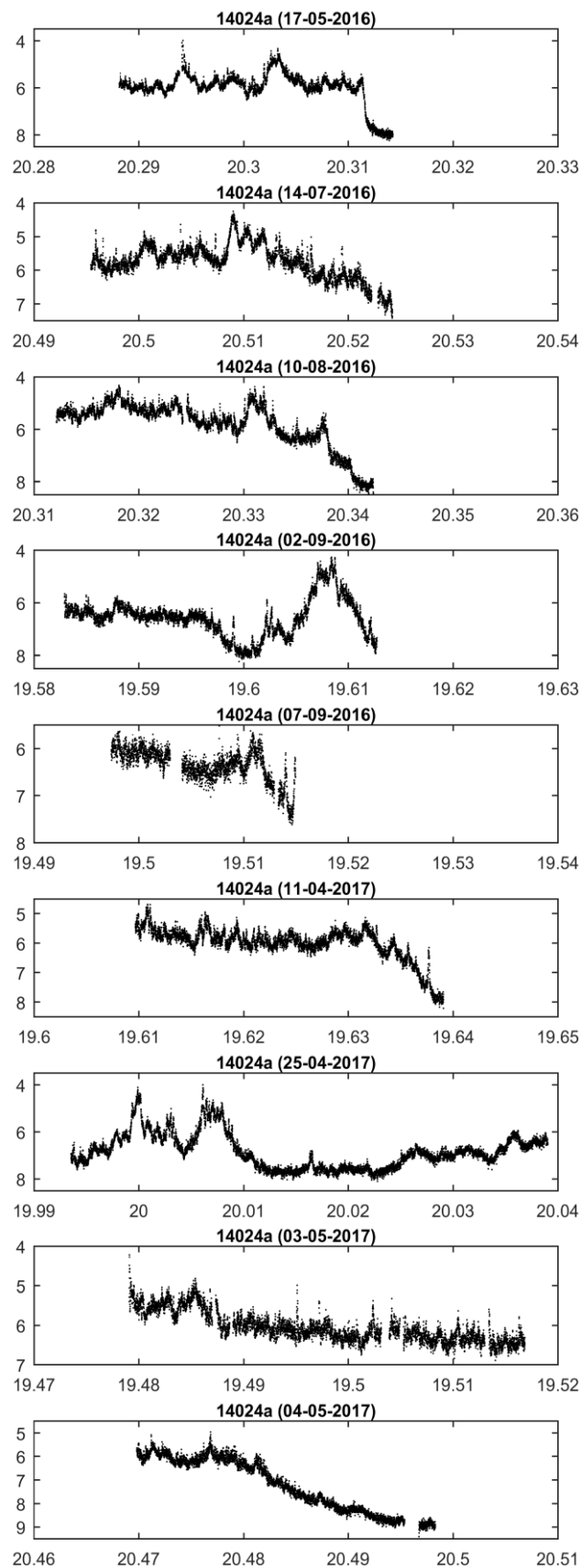
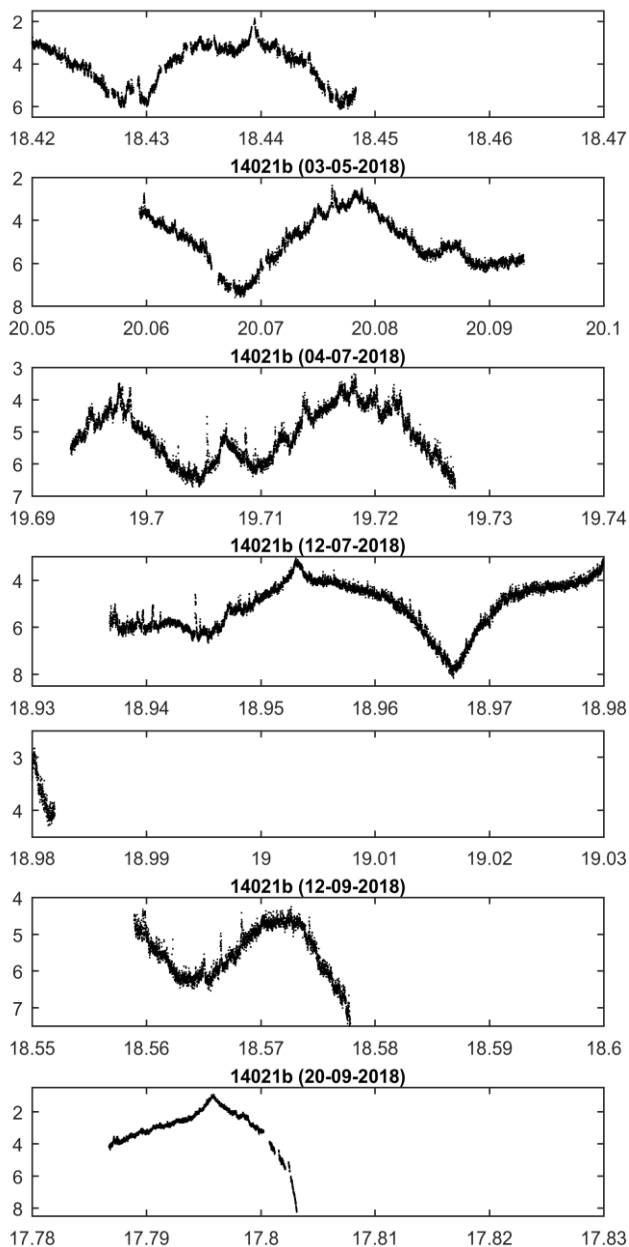
Period: 95.97 min

Eccentricity: 0.019

Launch date: 2014-04-16

Source: Commonwealth of
Independent States (former USSR)
(CIS)





KAZEOSAT 1 (DZZ-HR)

NORAD ID: 39731

Int'l Code: 2014-024A

Dimensions: hexagonal box

3.7m long + 3 panels

Initial orbit:

Perigee: 750 km

Apogee: 753 km

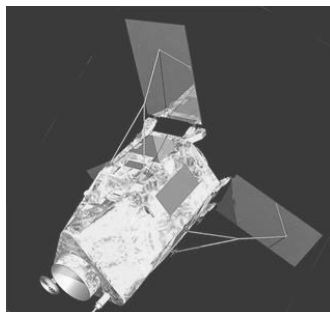
Inclination: 98.53°

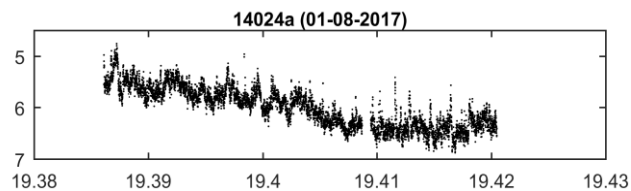
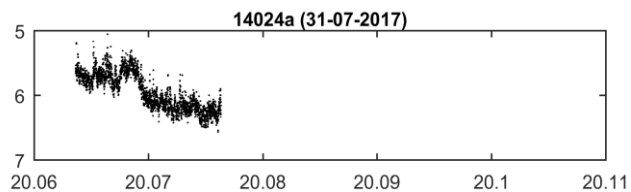
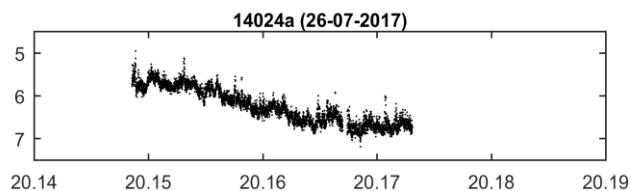
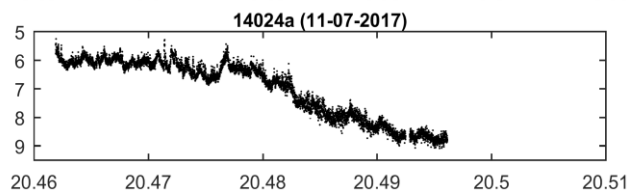
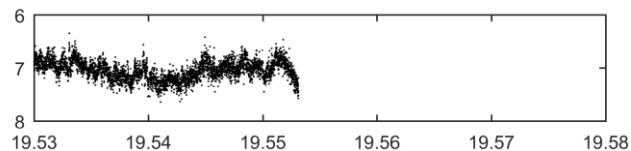
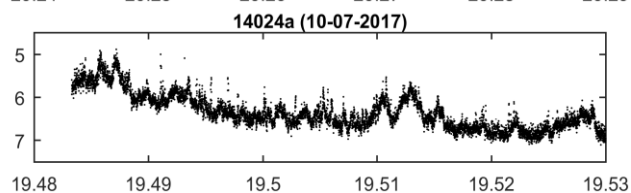
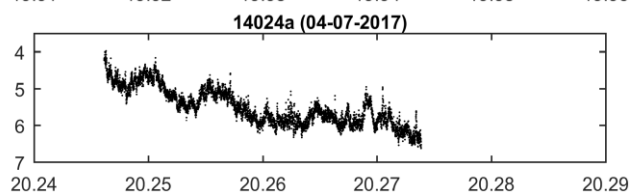
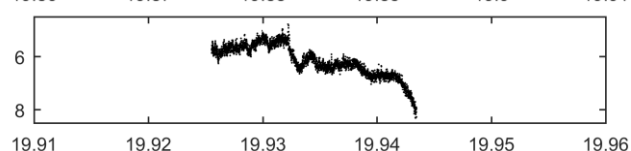
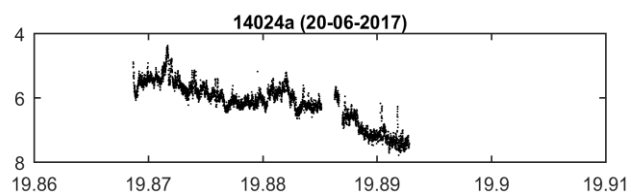
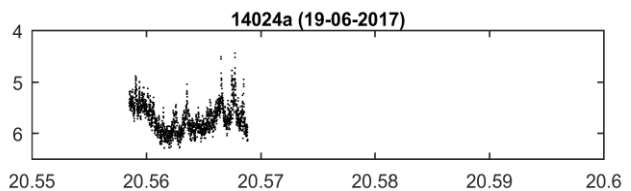
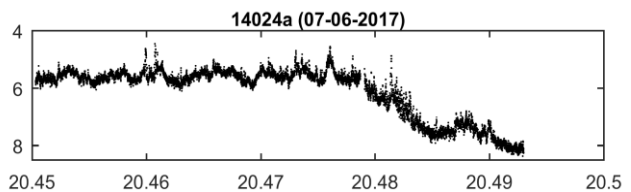
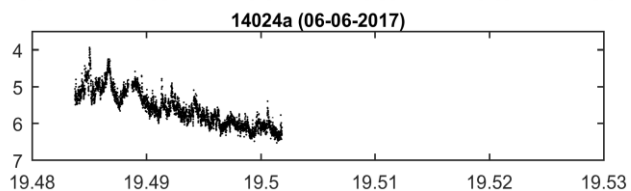
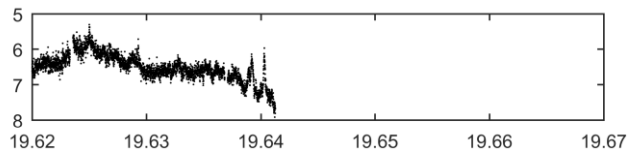
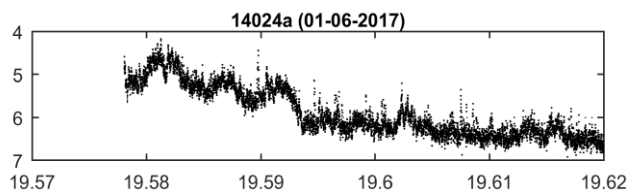
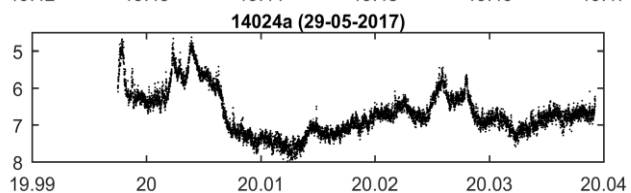
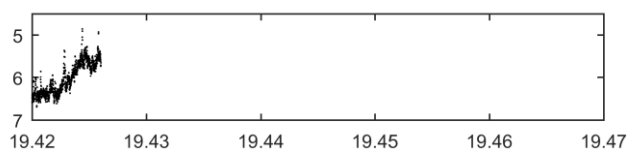
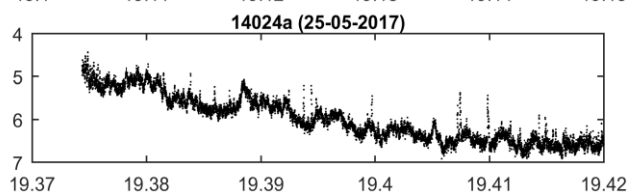
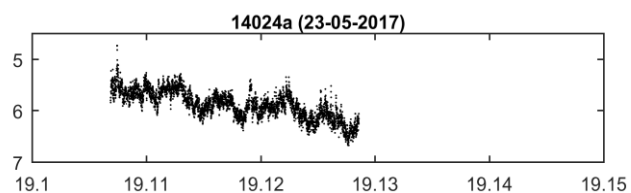
Period: 99.85 min

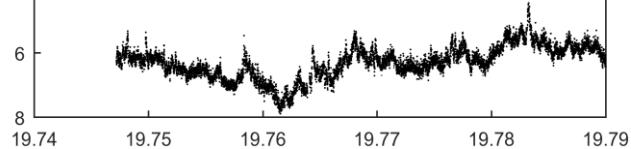
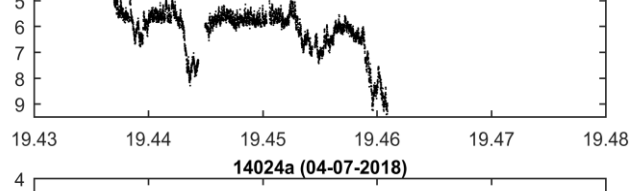
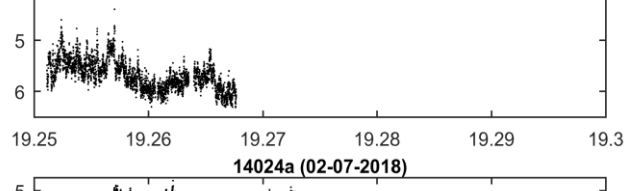
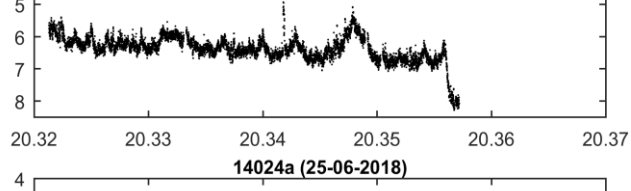
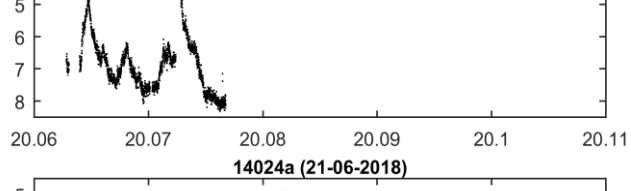
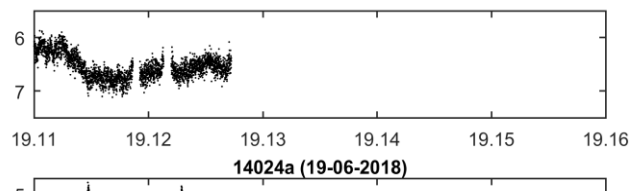
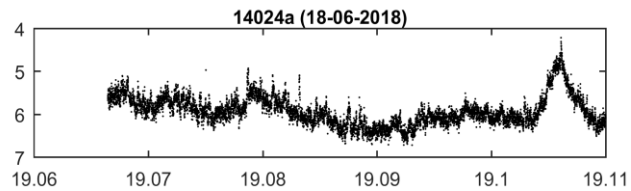
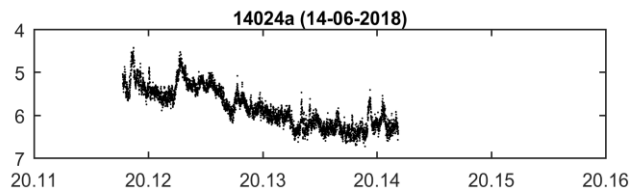
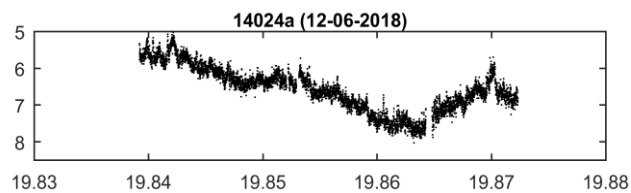
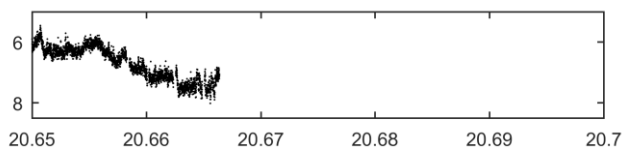
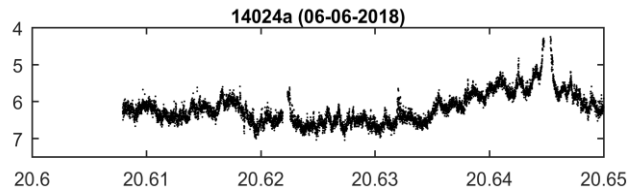
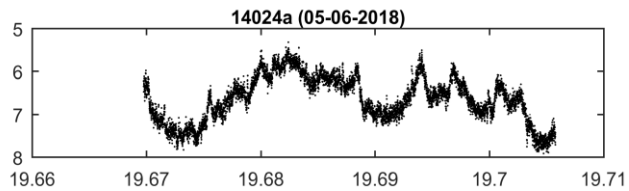
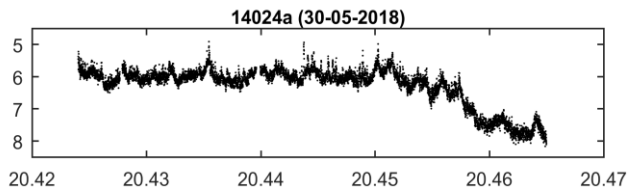
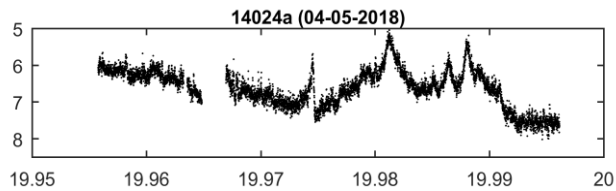
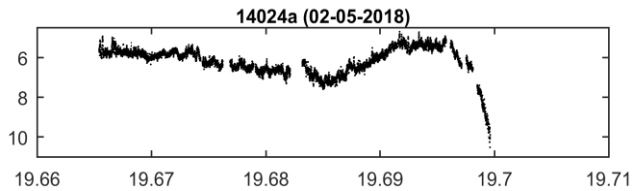
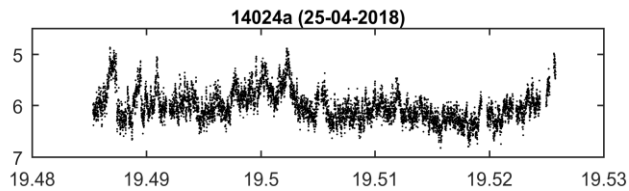
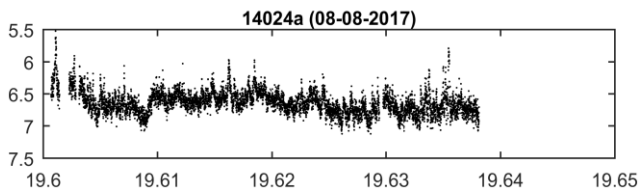
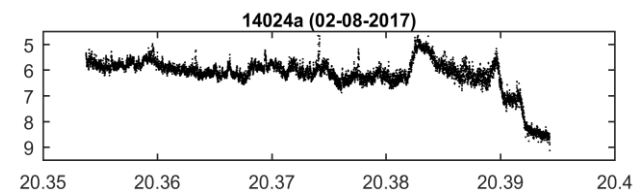
Eccentricity: 0.0003

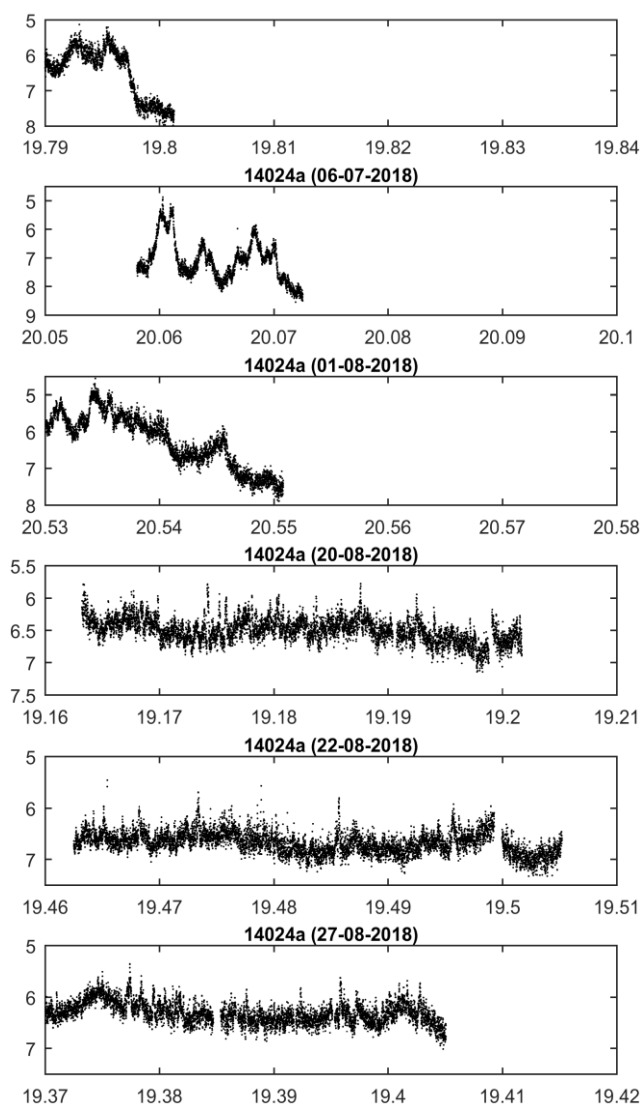
Launch date: 2014-04-30

Source: Kazakhstan (KAZ)



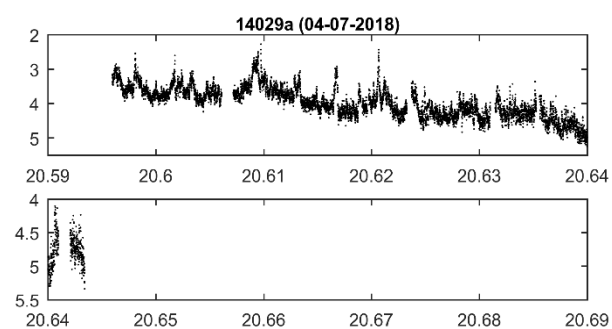
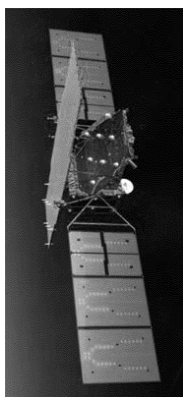






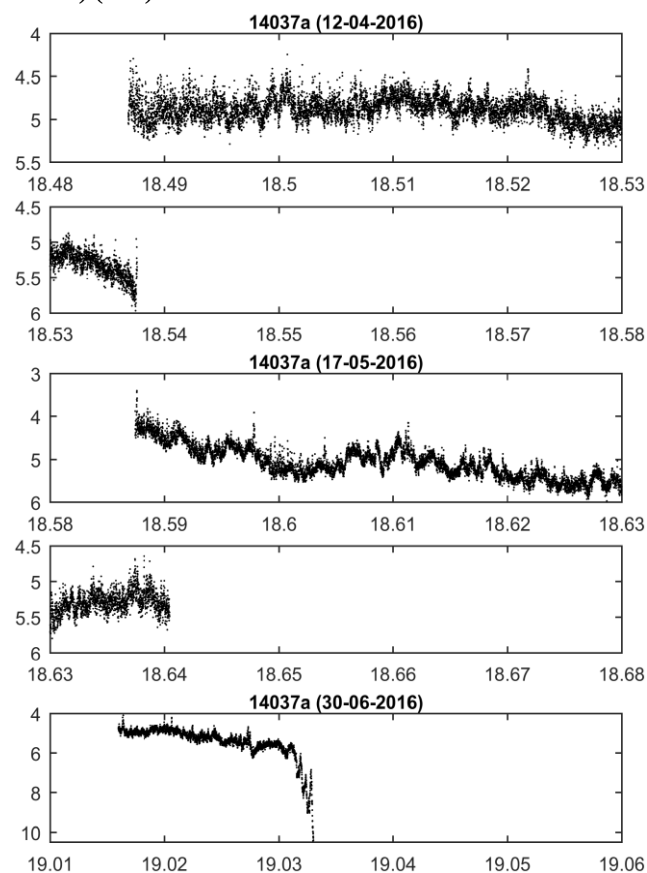
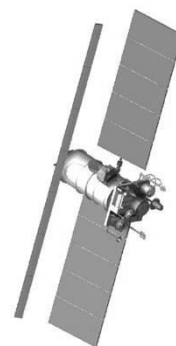
ALOS 2

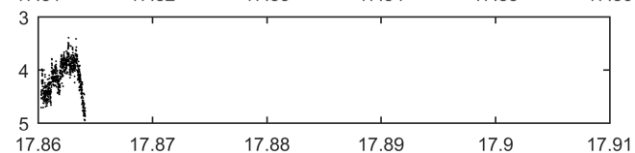
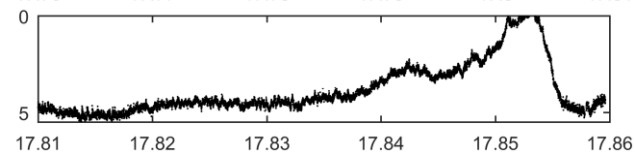
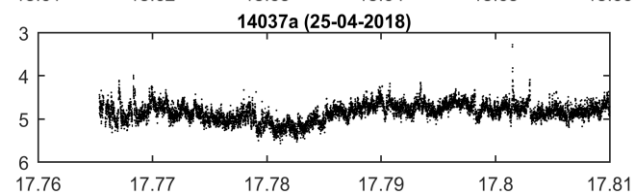
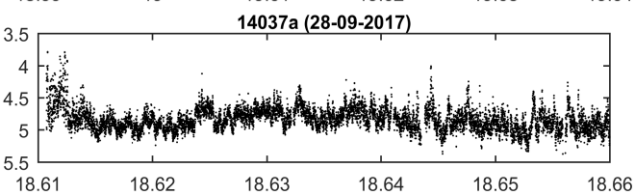
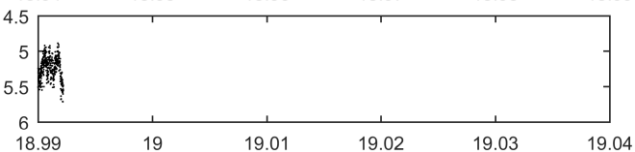
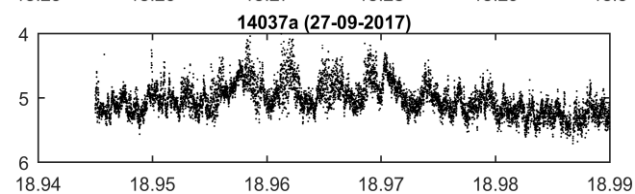
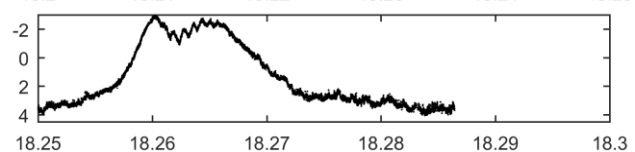
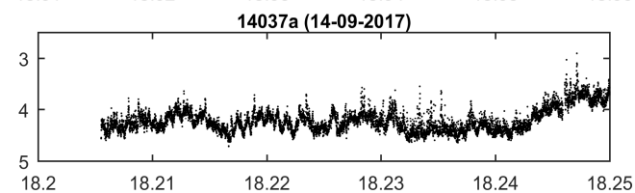
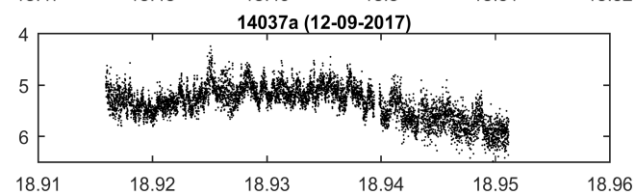
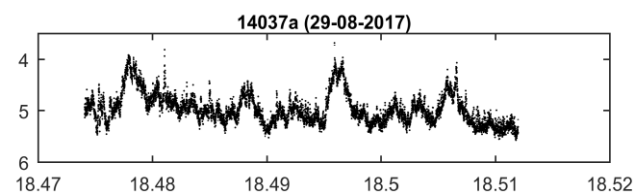
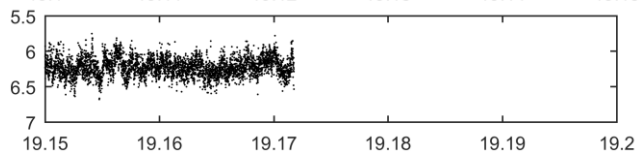
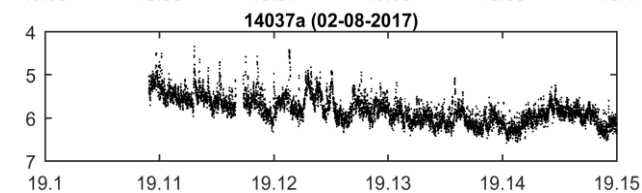
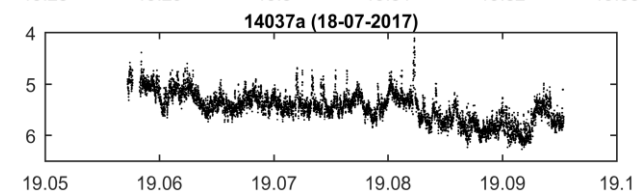
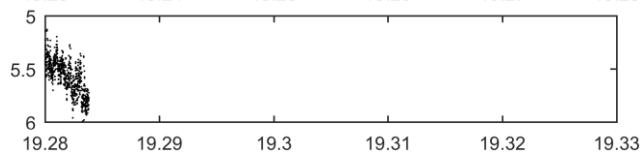
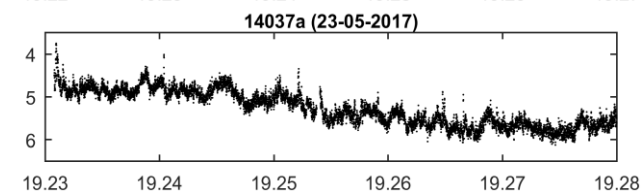
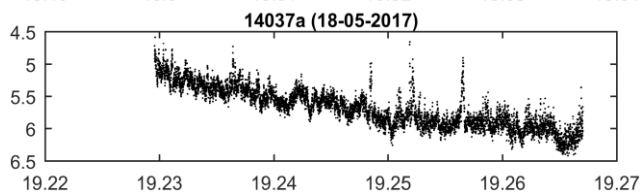
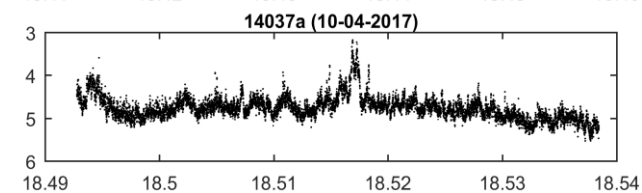
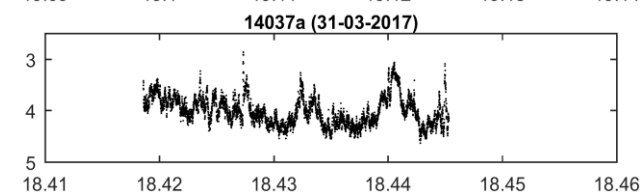
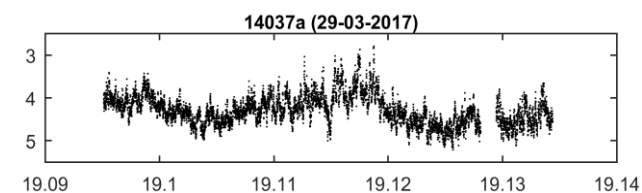
NORAD ID: 39766
 Int'l Code: 2014-029A
 Dimensions: triangular box 3.7m high
 + 2 panels 16.5m span + radar panel
 2.9m x 9.9m
 Initial orbit:
 Perigee: 629 km
 Apogee: 635 km
 Inclination: 97.88°
 Period: 97.35 min
 Eccentricity: 0.0004
 Launch date: 2014-05-24
 Source: Japan (JPN)

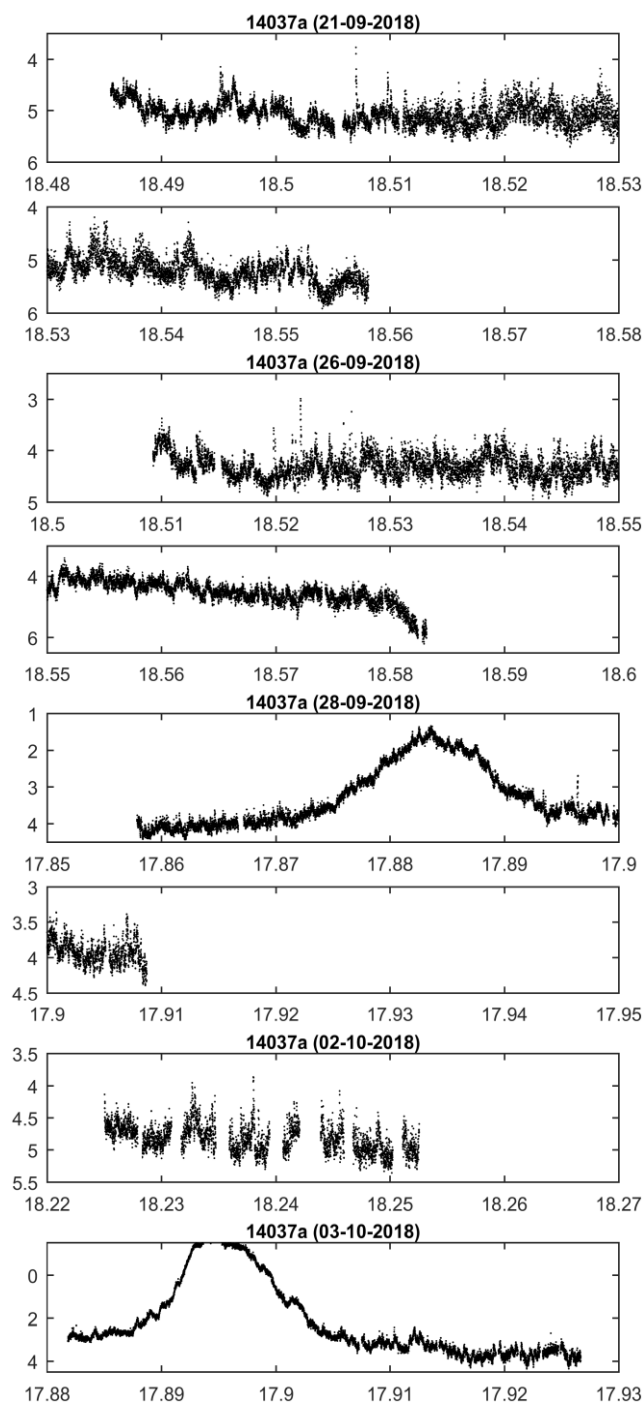


METEOR M2

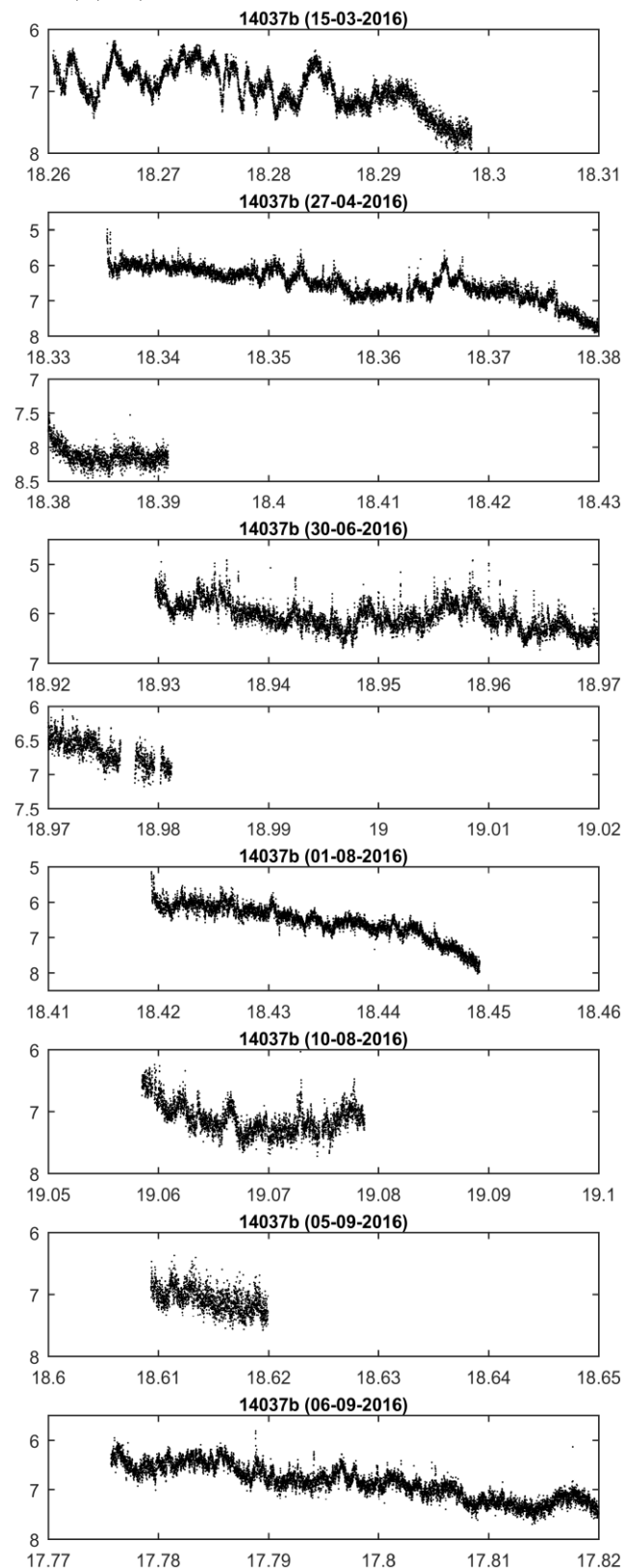
NORAD ID: 40069
 Int'l Code: 2014-037A
 Dimensions: cylinder + 2 panels
 + SAR ant.
 Initial orbit:
 Perigee: 818 km
 Apogee: 827 km
 Inclination: 98.80°
 Period: 101.35 min
 Eccentricity: 0.0007
 Launch date: 2014-07-08
 Source: Commonwealth of Independent States (former USSR) (CIS)





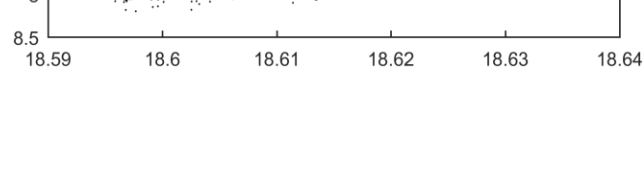
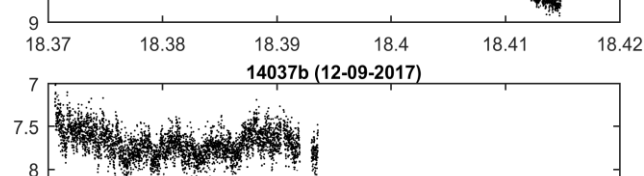
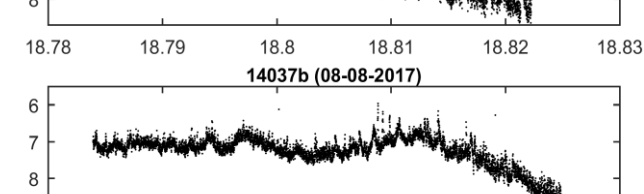
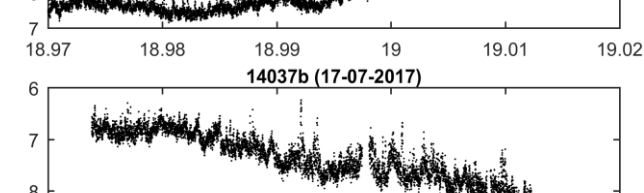
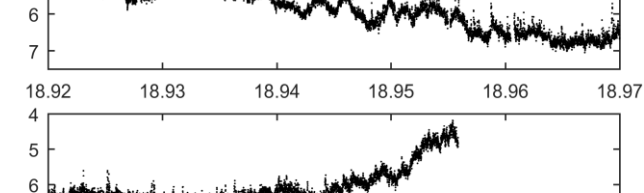
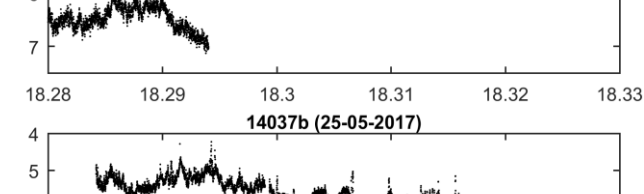
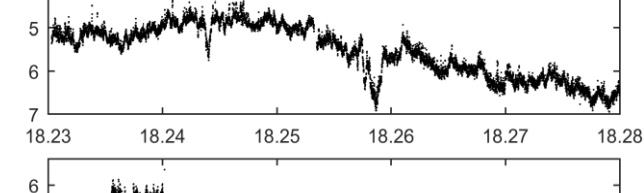
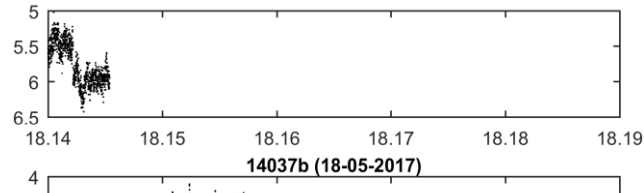
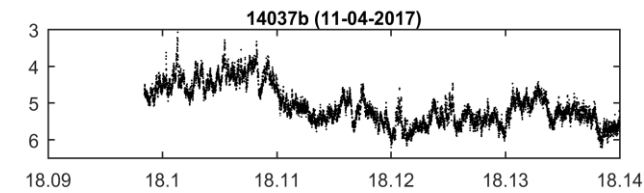
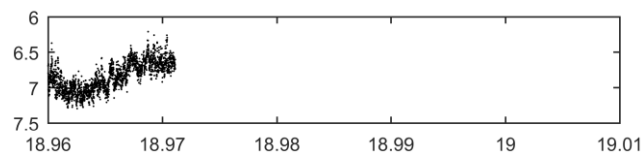
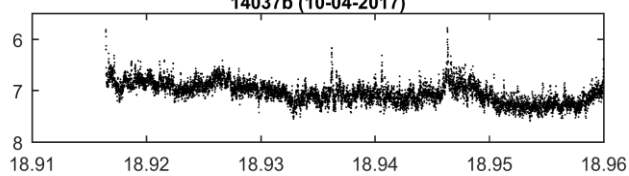
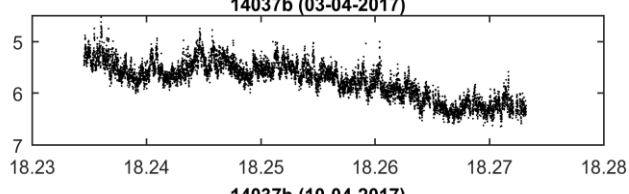
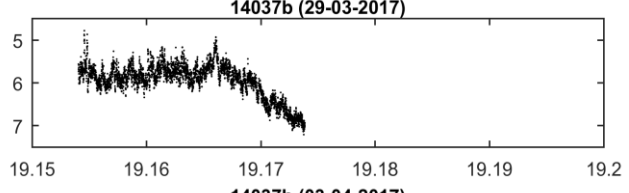
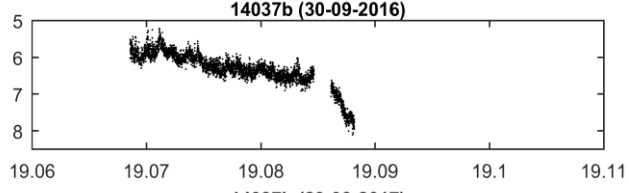
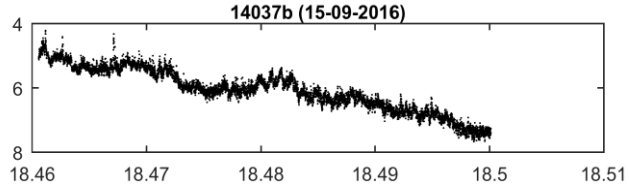
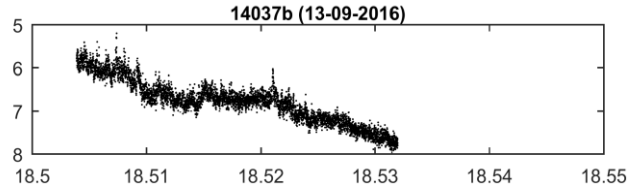
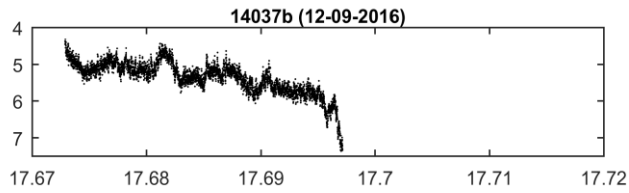
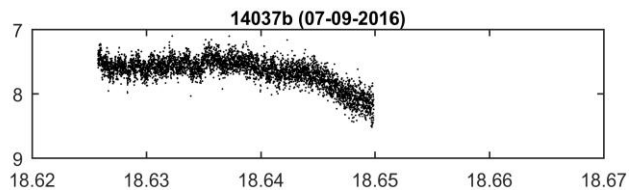
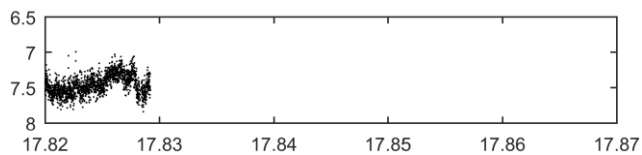


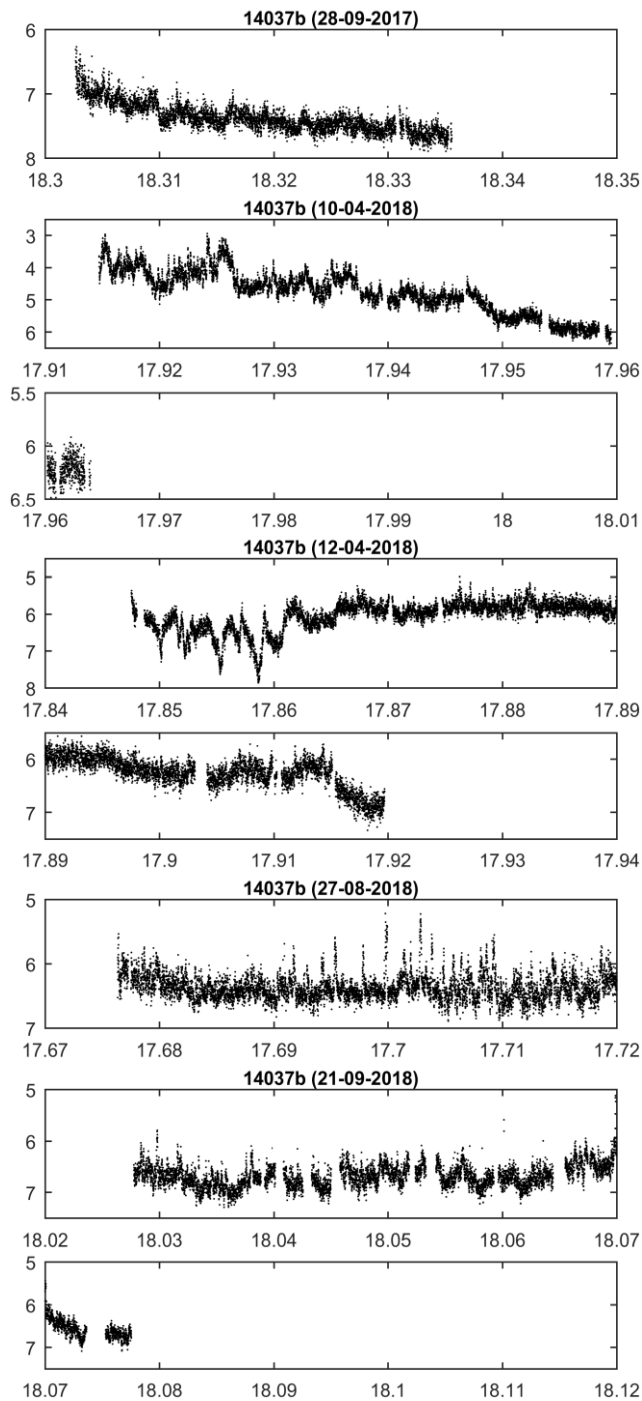
Source: Commonwealth of Independent States (former USSR) (CIS)



MKA PN2 (RELEK)
 NORAD ID: 40070
 Int'l Code: 2014-037B
 Dimensions: triangular
 box +3 panels
 Initial orbit:
 Perigee: 623 km
 Apogee: 819 km
 Inclination: 98.38°
 Period: 99.22 min
 Eccentricity: 0.014
 Launch date: 2014-07-08

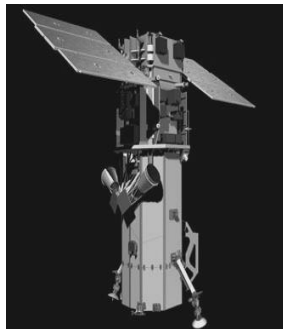




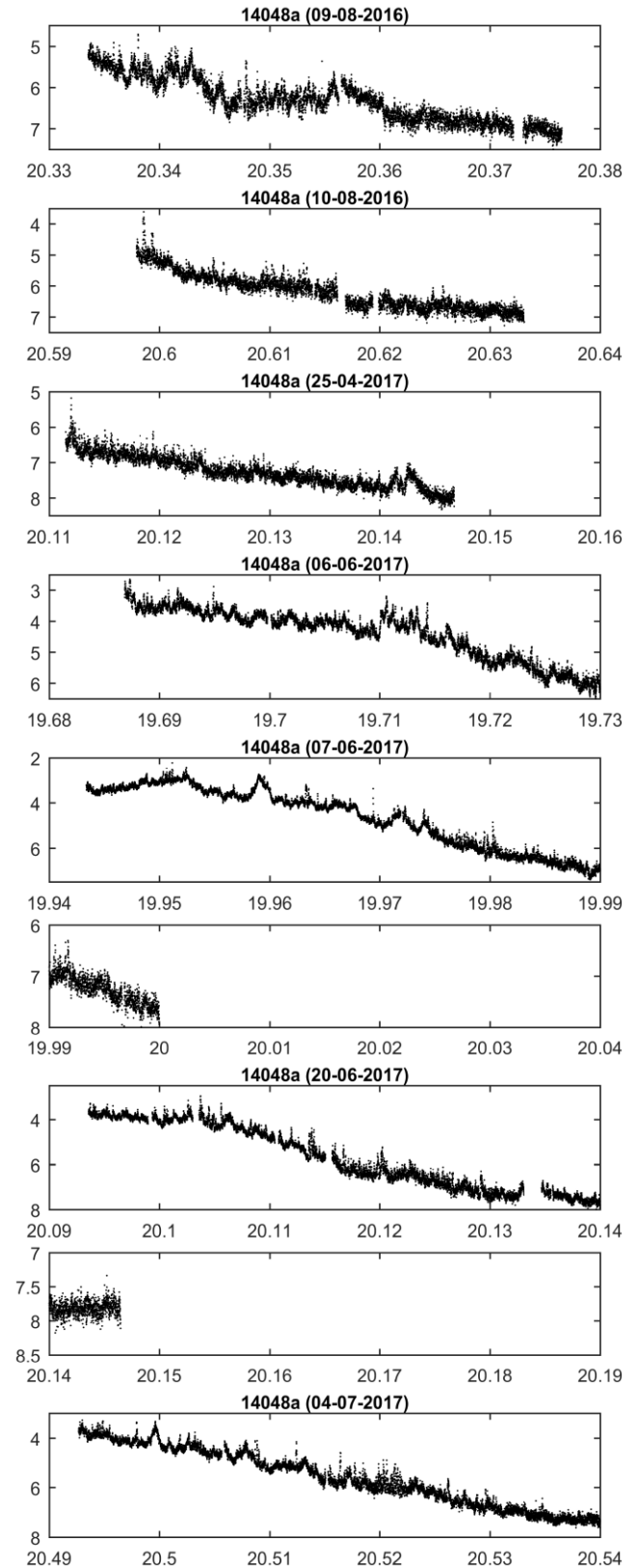


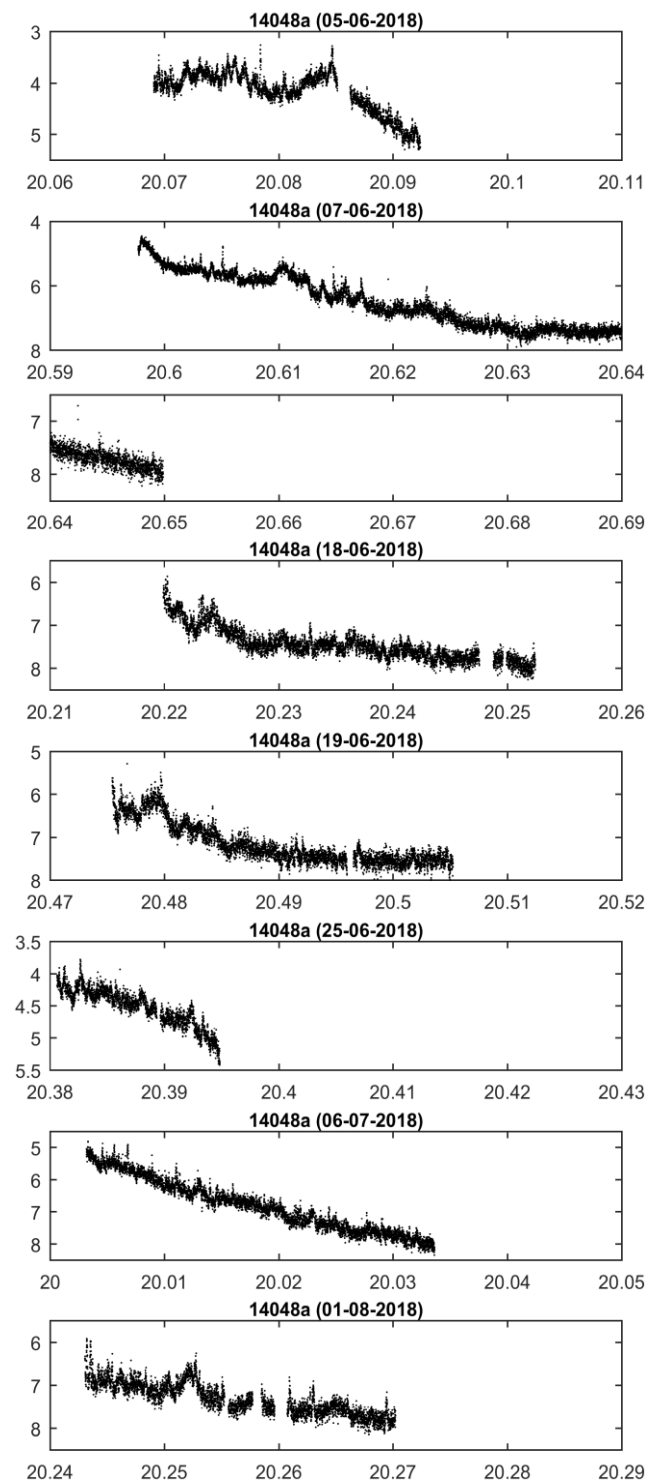
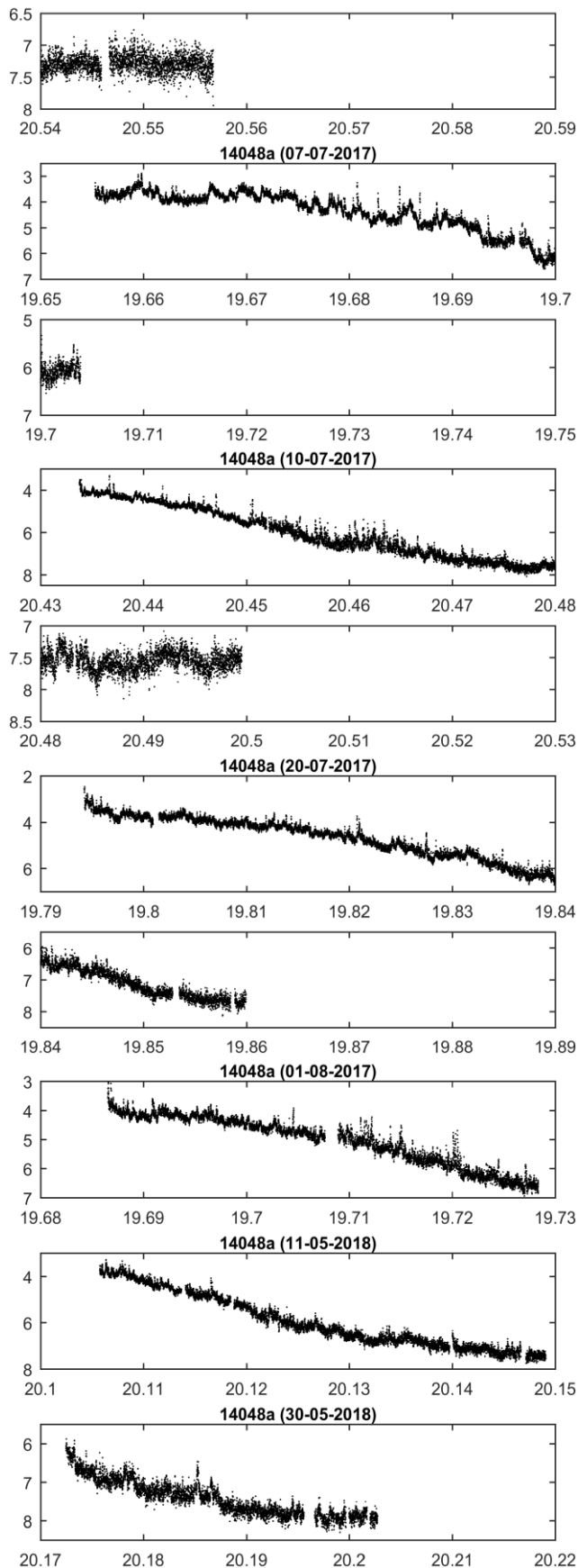
WORLDVIEW-3 (WV-3)

NORAD ID: 40115
 Int'l Code: 2014-048A
 Dimensions: box + cylinder
 + 2 panels 5.7m high 2.5m
 wide 7.1m span
 Initial orbit:
 Perigee: 609 km
 Apogee: 611 km
 Inclination: 97.99°
 Period: 96.90 min
 Eccentricity: 0.0002



Launch date: 2014-08-13
 Source: United States (US)





KONDOR E

NORAD ID: 40353

Int'l Code: 2014-084A

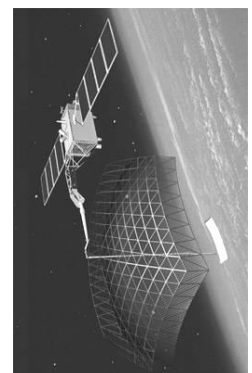
Dimensions: box + 2 panels
+ mesh dish 6m dia

Initial orbit:

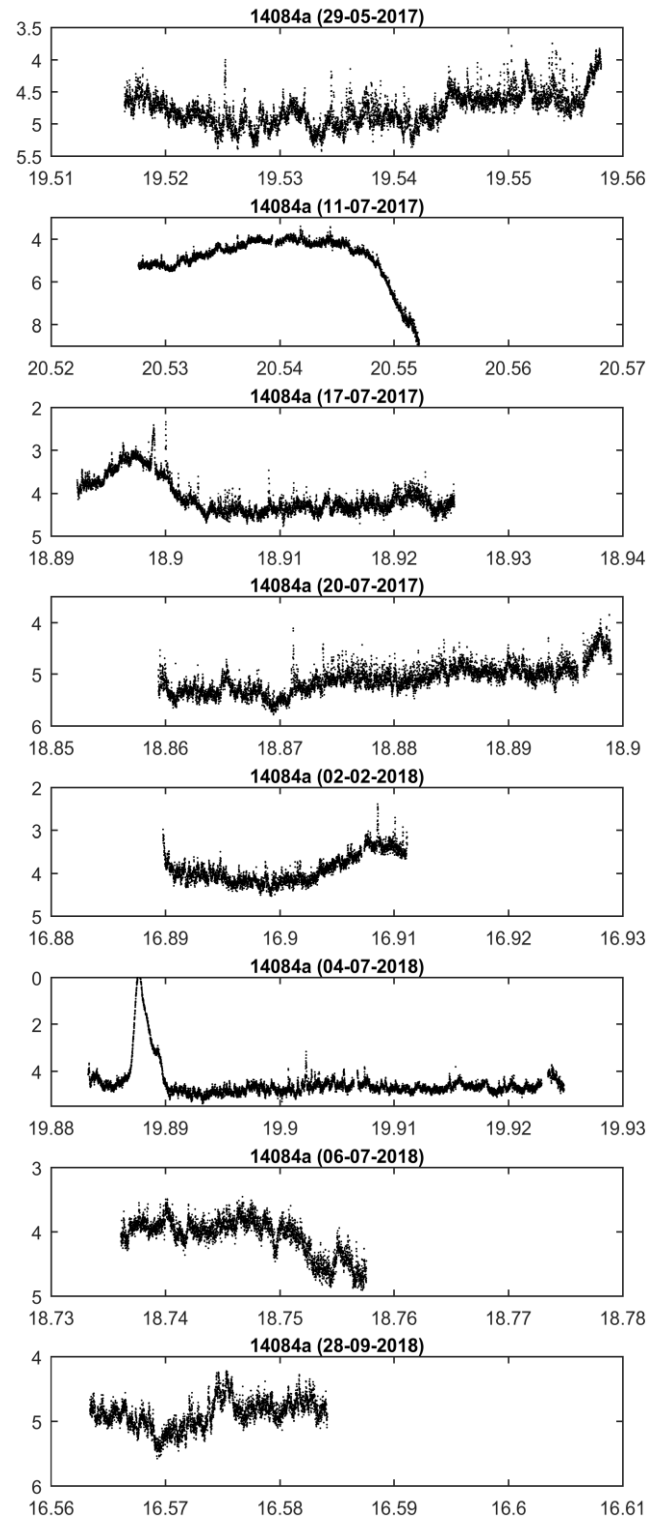
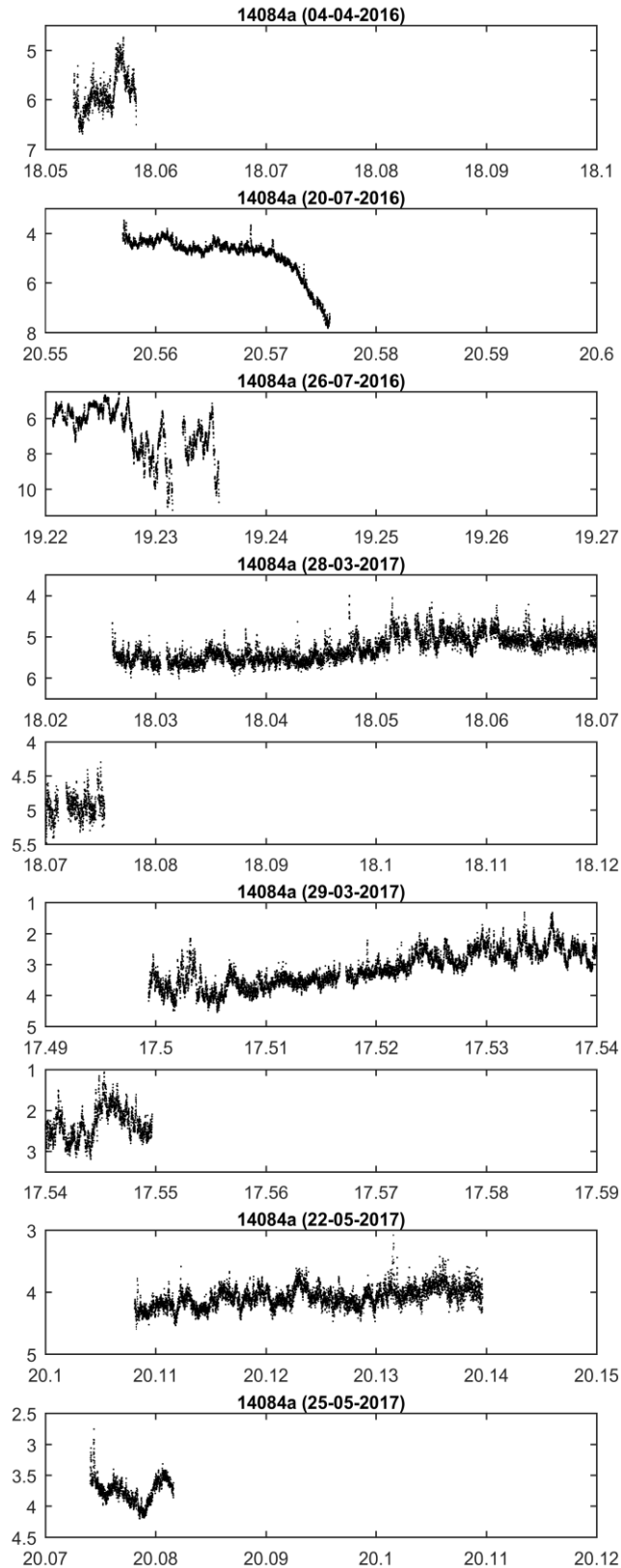
Perigee: 498 km

Apogee: 501 km

Inclination: 74.75°

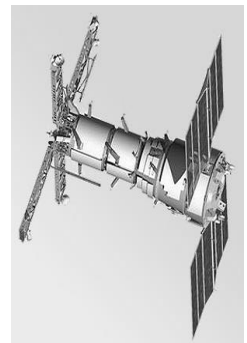


Period: 94.62 min
 Eccentricity: 0.0002
 Launch date: 2014-12-18
 Source: South Africa (SAFR)

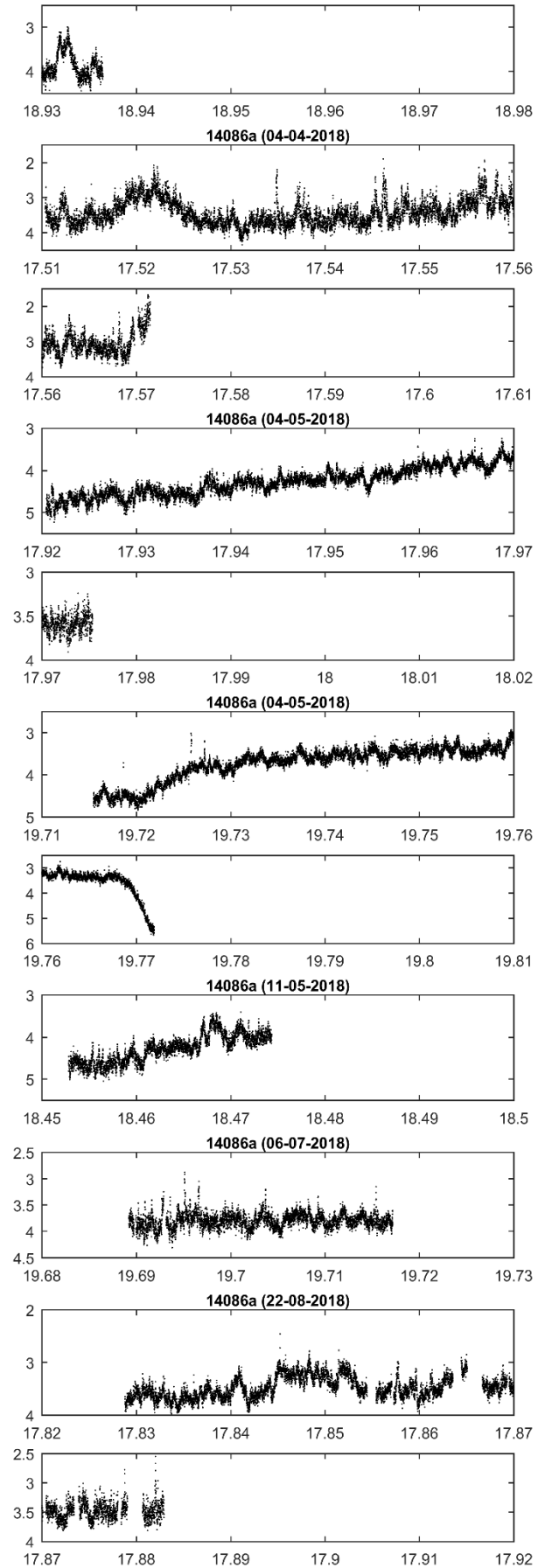
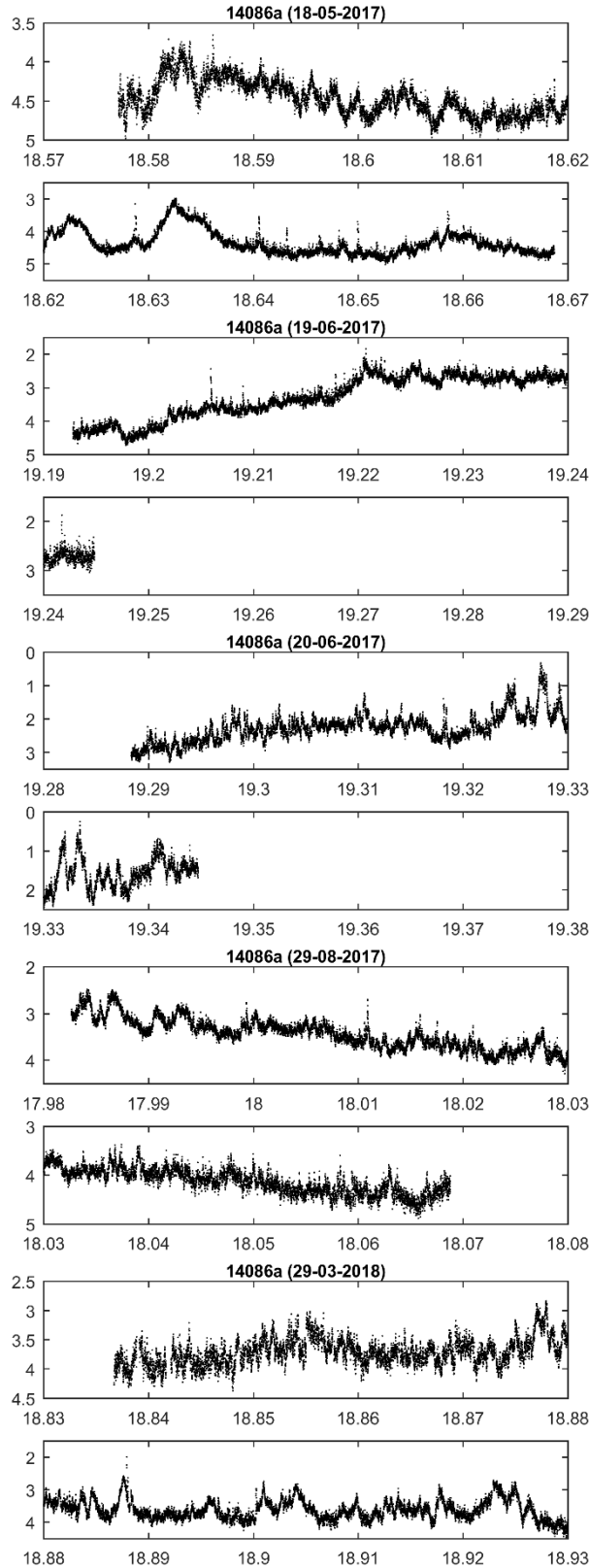


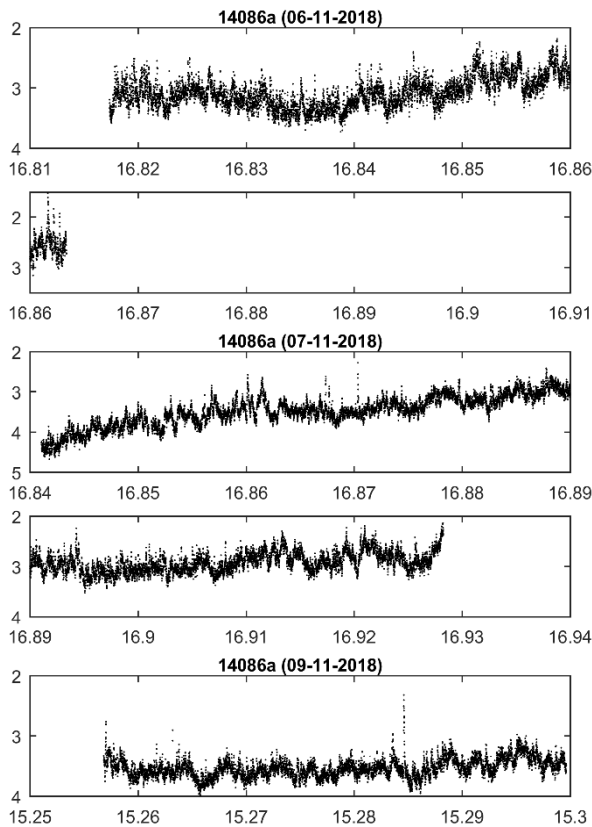
COSMOS 2502 (LOTOS-S1 #1)

NORAD ID: 40358
 Int'l Code: 2014-086A
 Dimensions: cone-cylinder +
 4 panels ~7m long 2.7m maxdia
 Initial orbit:
 Perigee: 238 km
 Apogee: 869 km



Inclination: 67.14°
 Period: 95.73 min
 Eccentricity: 0.046
 Launch date: 2014-12-25
 Source: Commonwealth of Independent States (former USSR) (CIS)





RESURS P2

NORAD ID: 40360

Int'l Code: 2014-087A

Dimensions: cone-cylinder +2 panels

7.93m long 2.72m dia 13m span

Initial orbit:

Perigee: 190 km

Apogee: 428 km

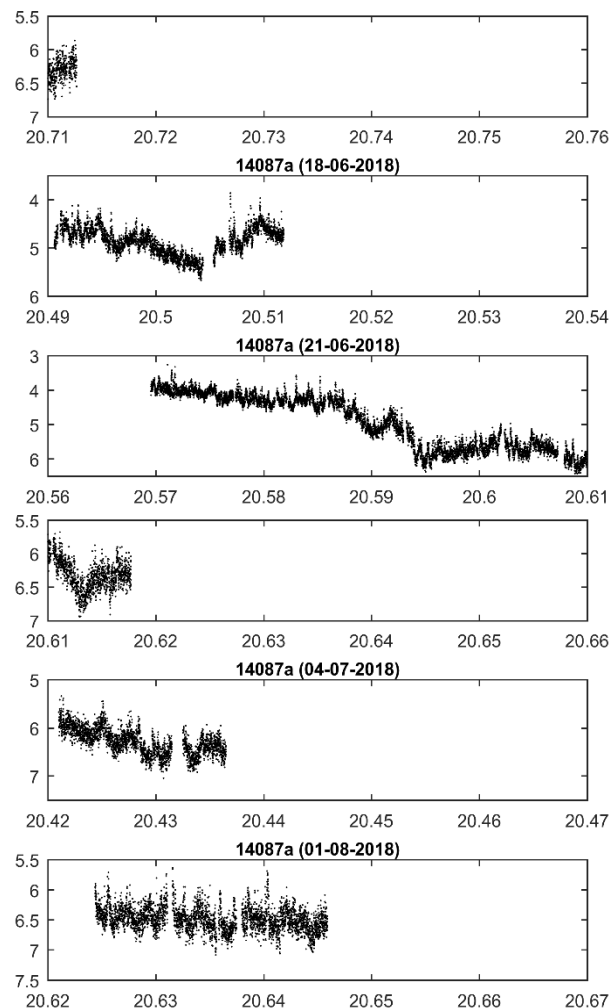
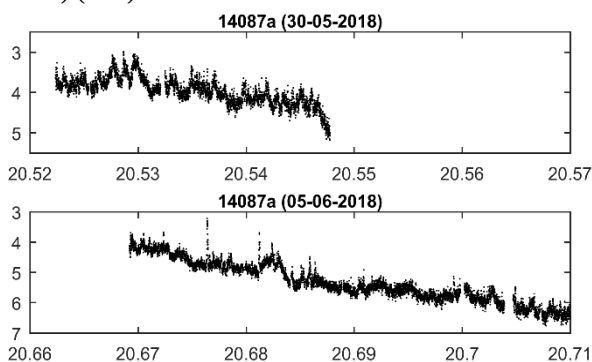
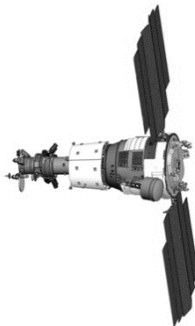
Inclination: 97.29°

Period: 90.70 min

Eccentricity: 0.018

Launch date: 2014-12-26

Source: Commonwealth of Independent States (former USSR) (CIS)



SL-24 R/B (DNEPR 3rd stage)

NORAD ID: 40541

Int'l Code: 2015-014C

Dimensions: cylinder 1m long 3m dia

Initial orbit:

Perigee: 523 km

Apogee: 1440 km

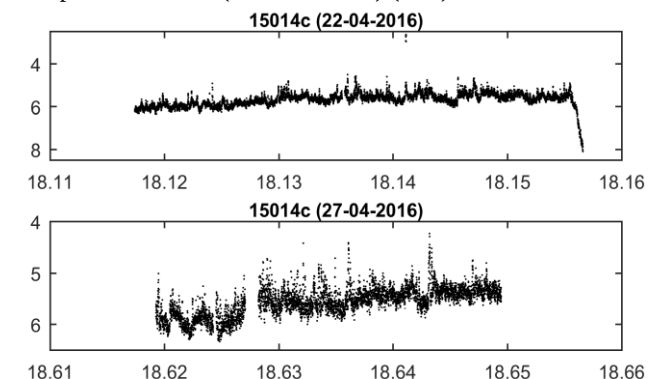
Inclination: 97.38°

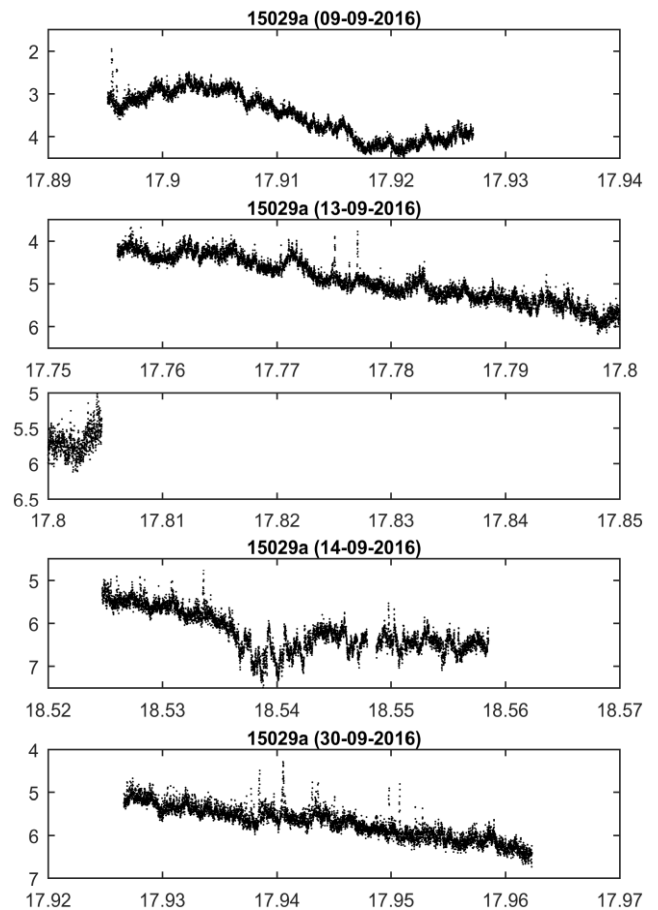
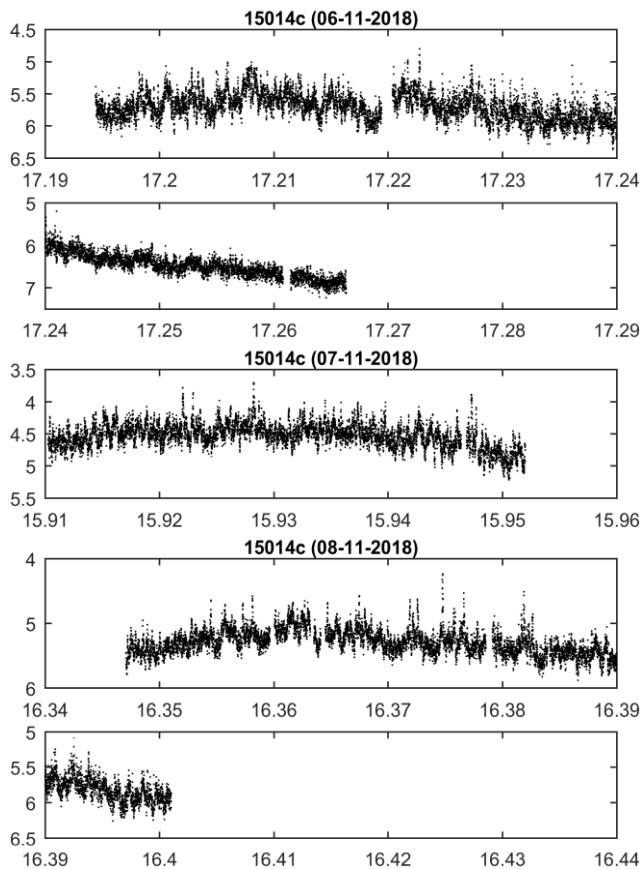
Period: 104.73 min

Eccentricity: 0.062

Launch date: 2015-03-25

Source: Commonwealth of Independent States (former USSR) (CIS)





COSMOS 2506 (KVARTS, PERSONA 1)

NORAD ID: 40699

Int'l Code: 2015-029A

Dimensions: cone-cylinder

+

4 panels 6.5m long 2.7m dia

Initial orbit:

Perigee: 186 km

Apogee: 703 km

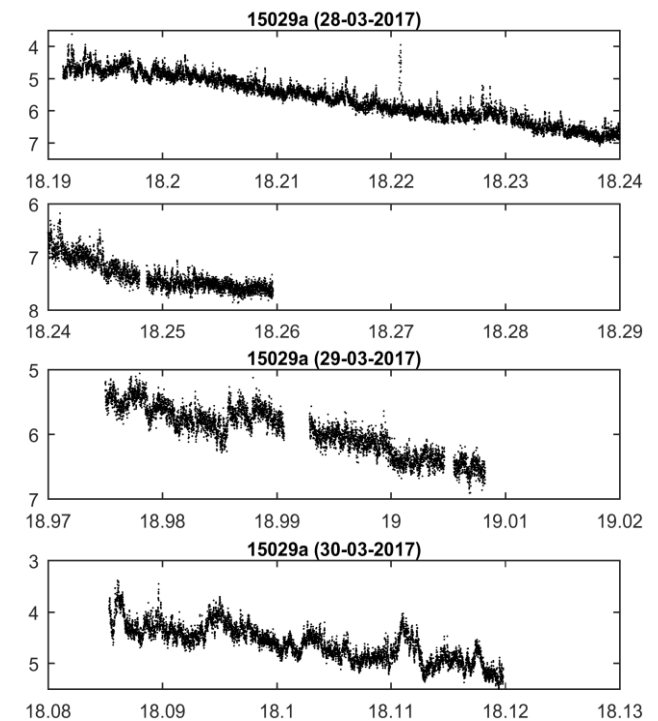
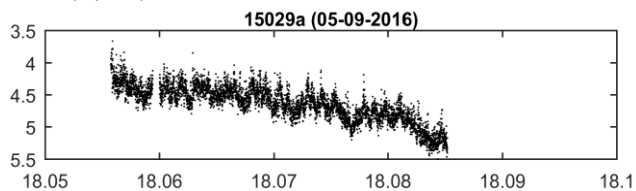
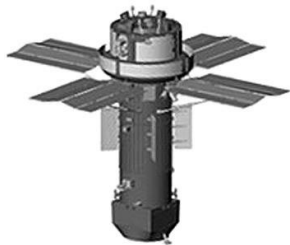
Inclination: 98.31°

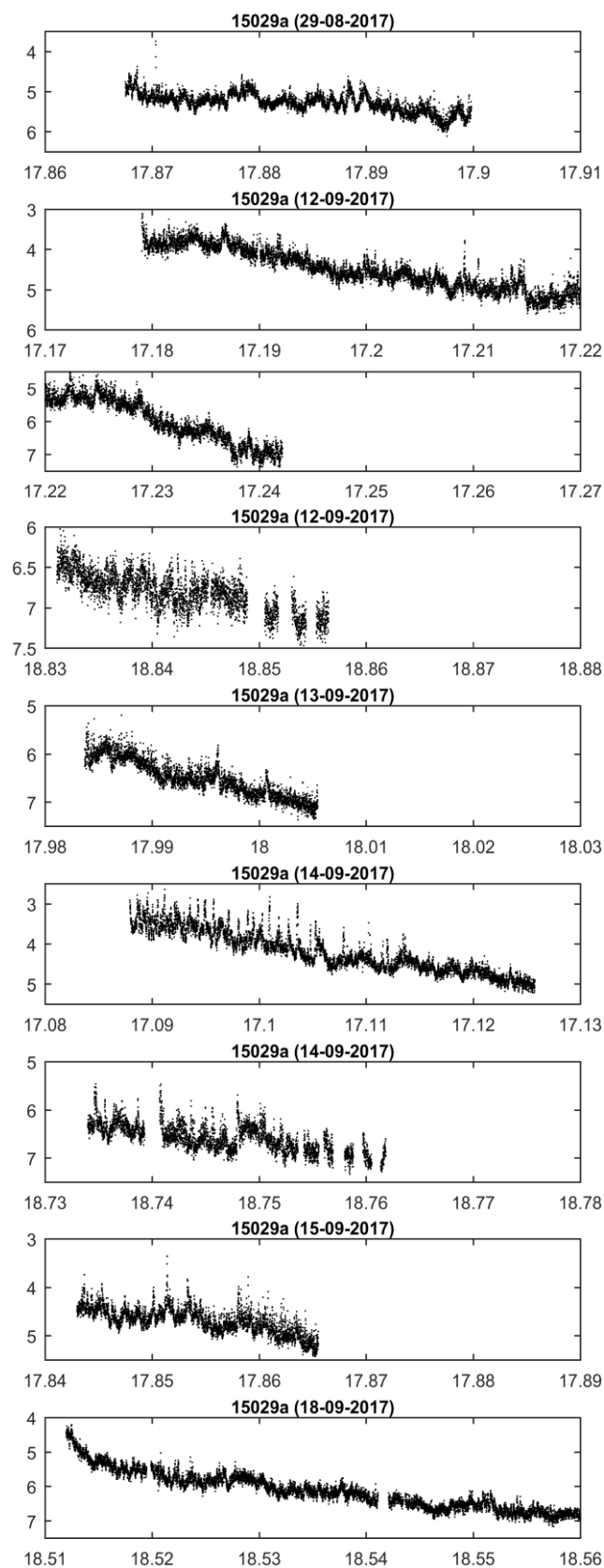
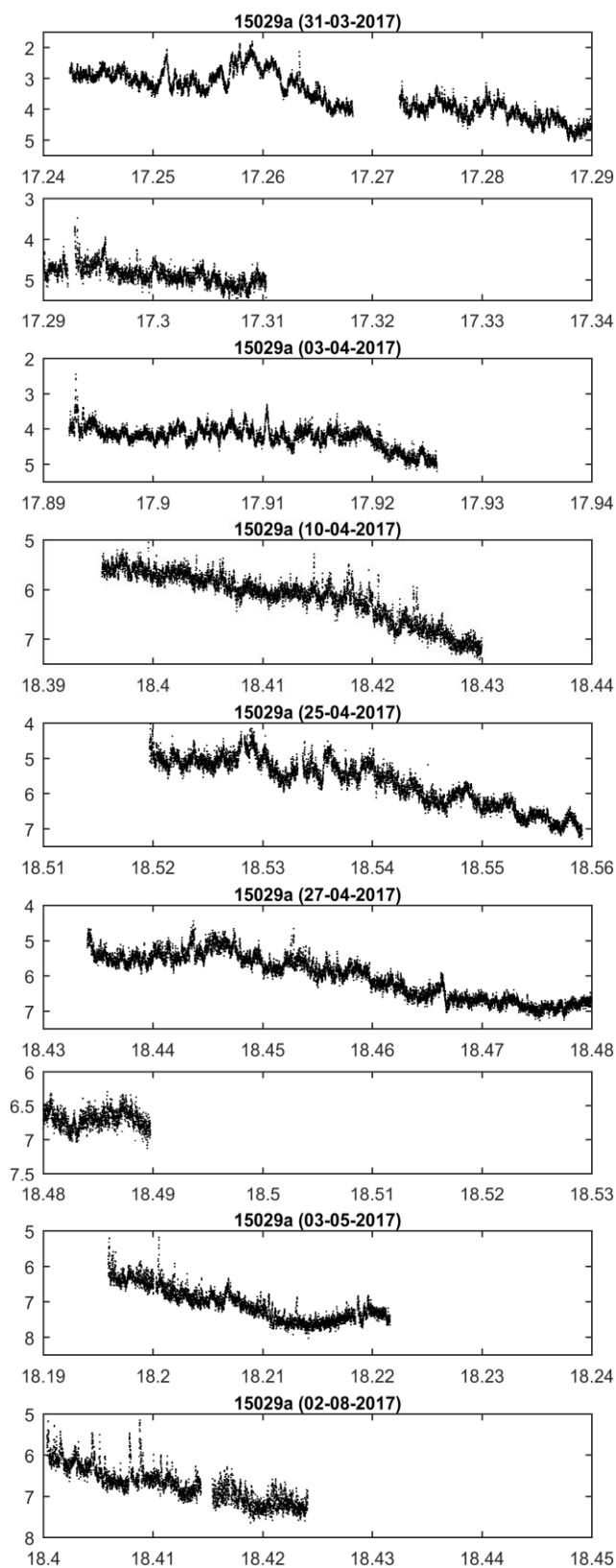
Period: 93.48 min

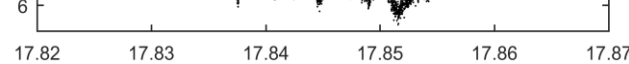
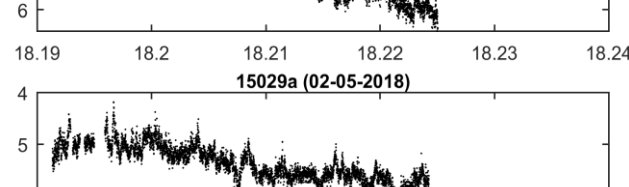
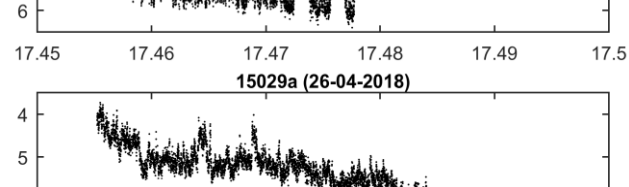
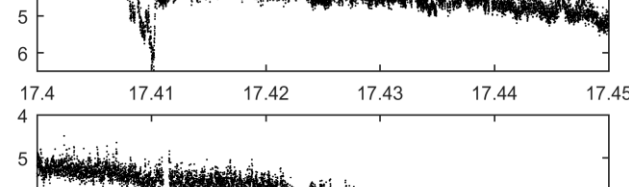
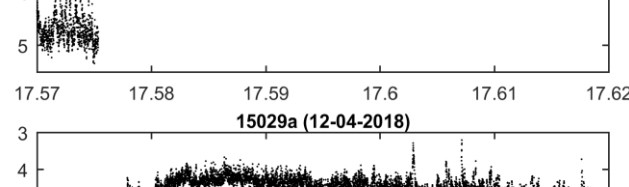
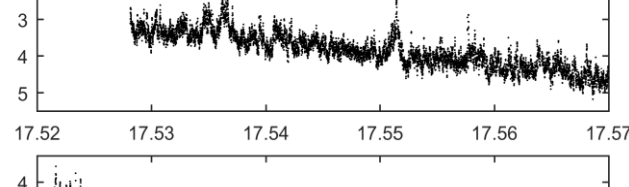
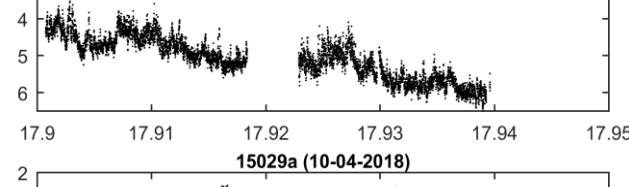
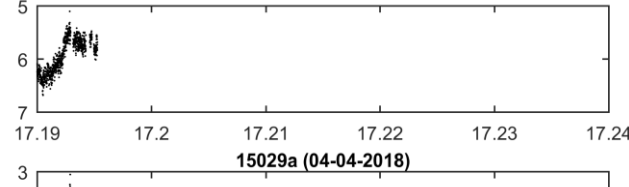
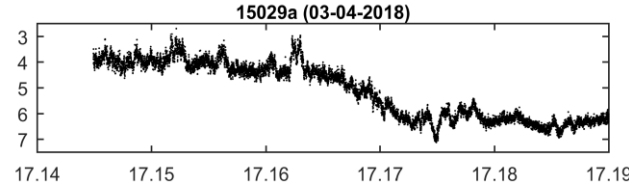
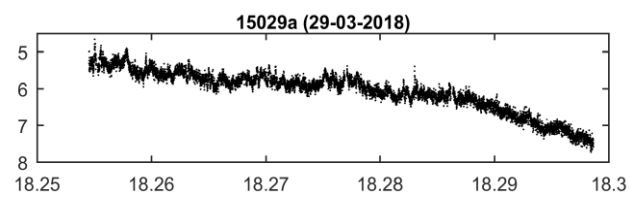
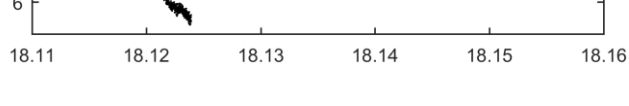
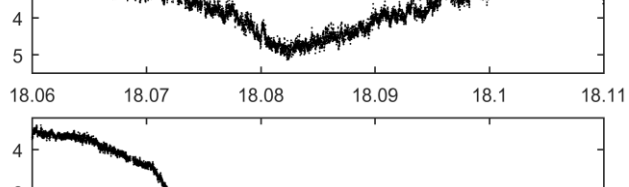
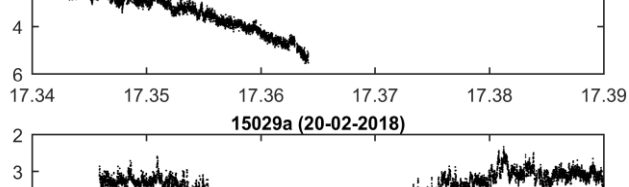
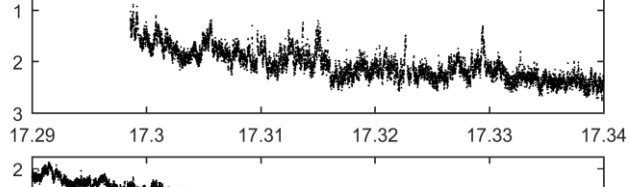
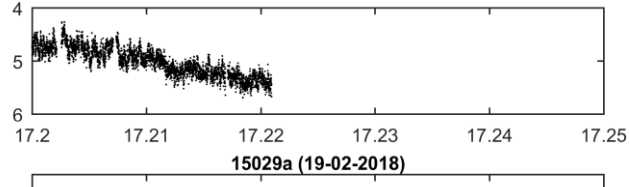
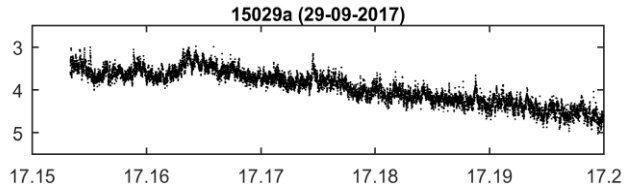
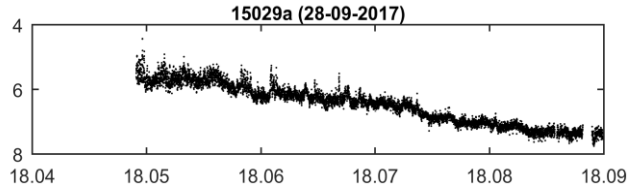
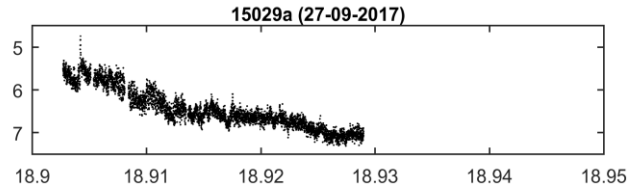
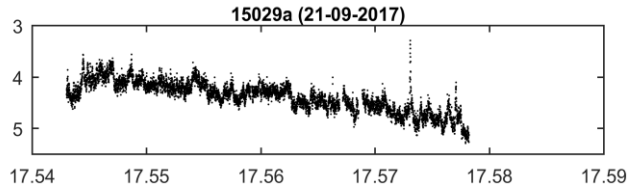
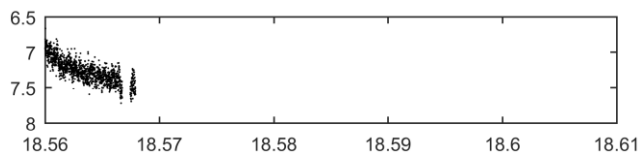
Eccentricity: 0.038

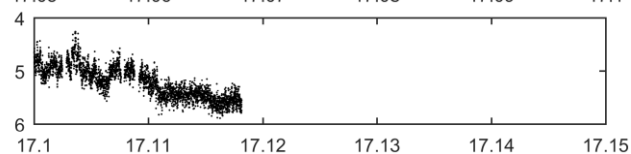
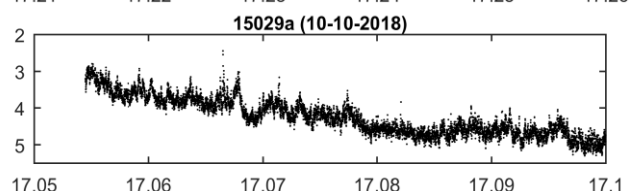
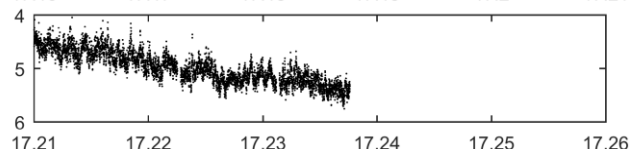
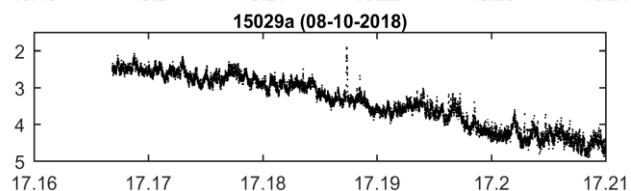
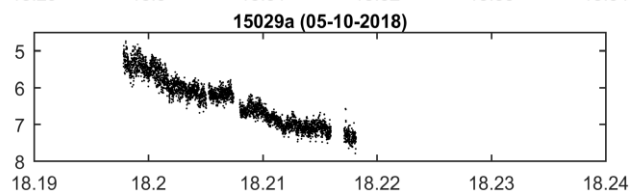
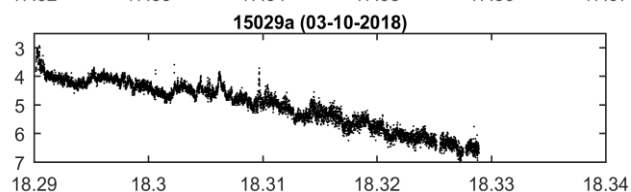
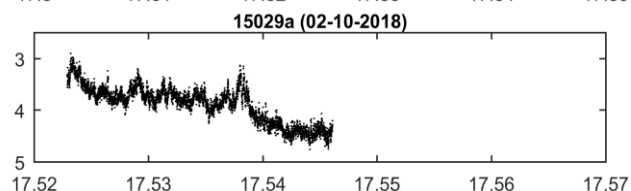
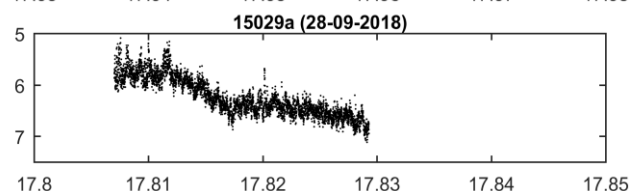
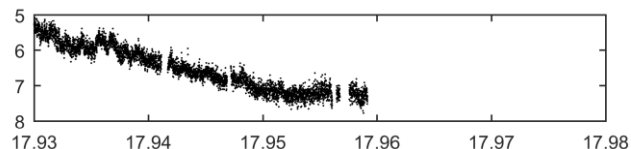
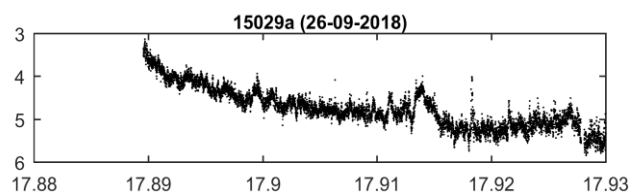
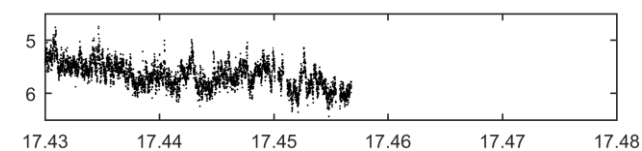
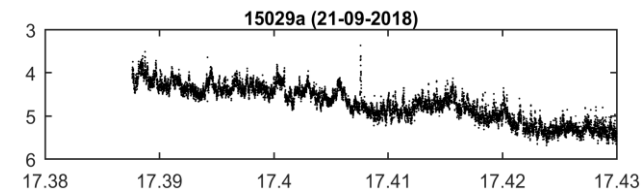
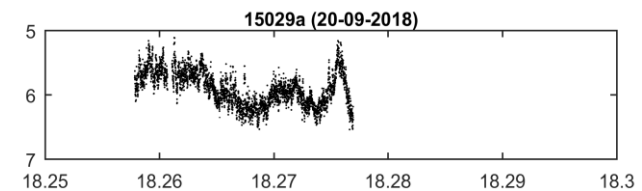
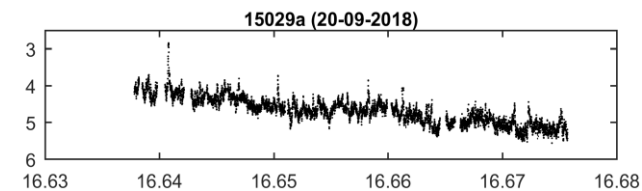
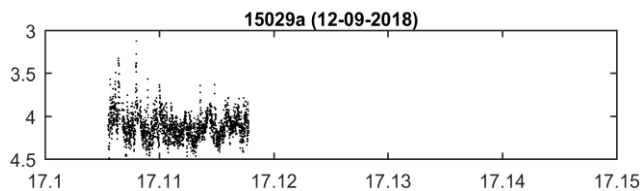
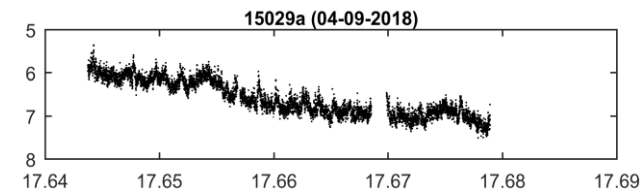
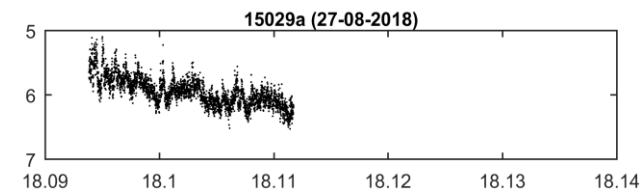
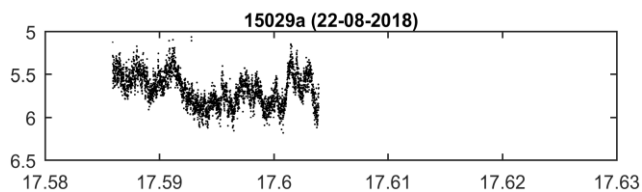
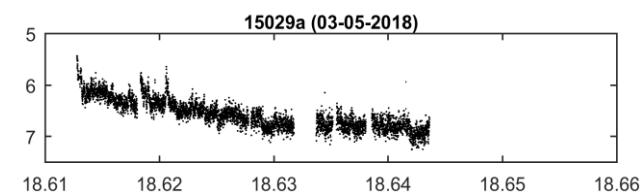
Launch date: 2015-06-23

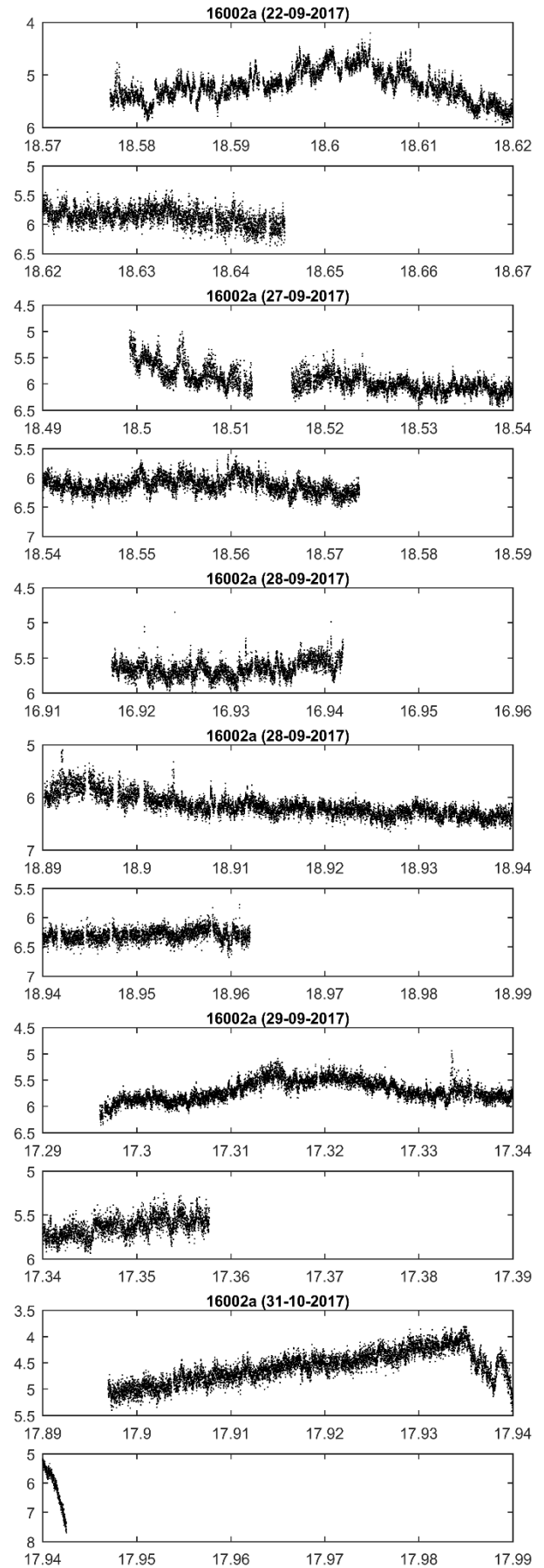
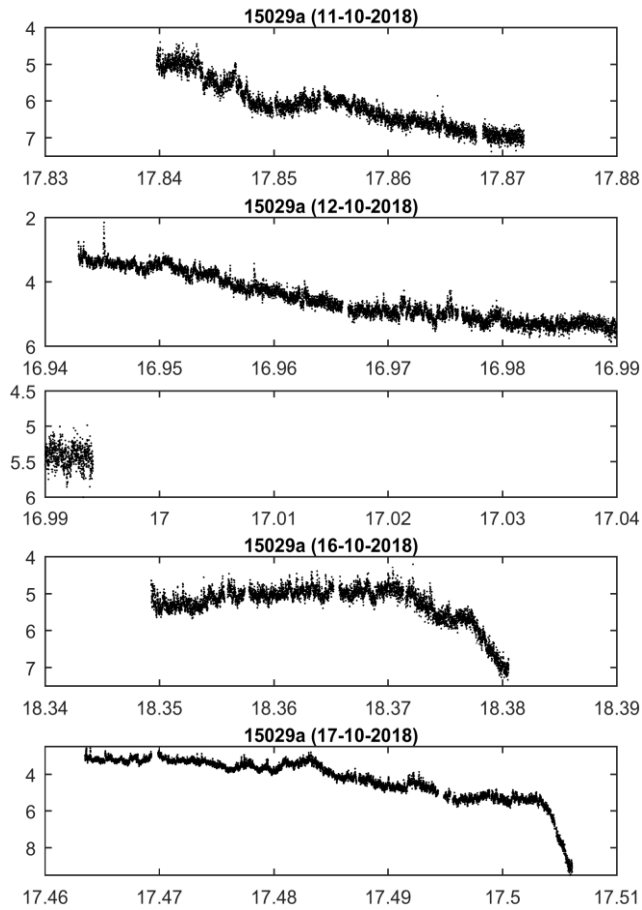
Source: Commonwealth of Independent States (former USSR) (CIS)





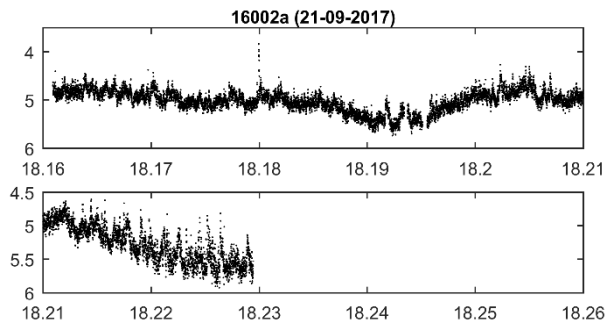


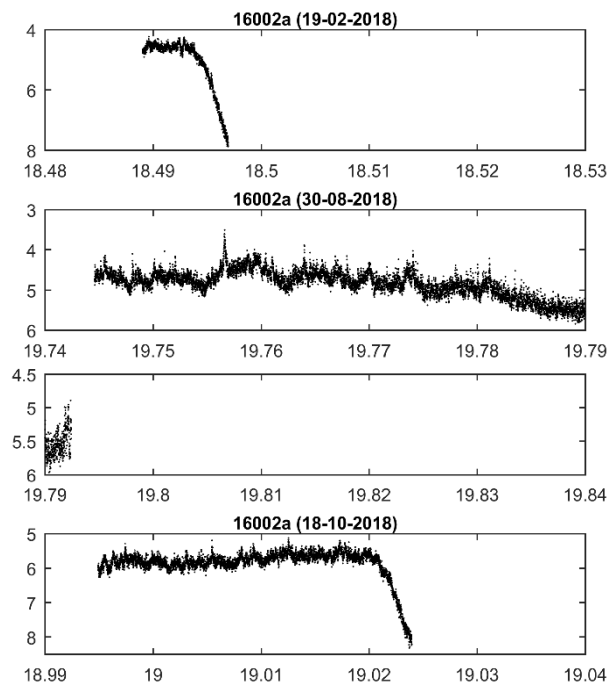




JASON 3

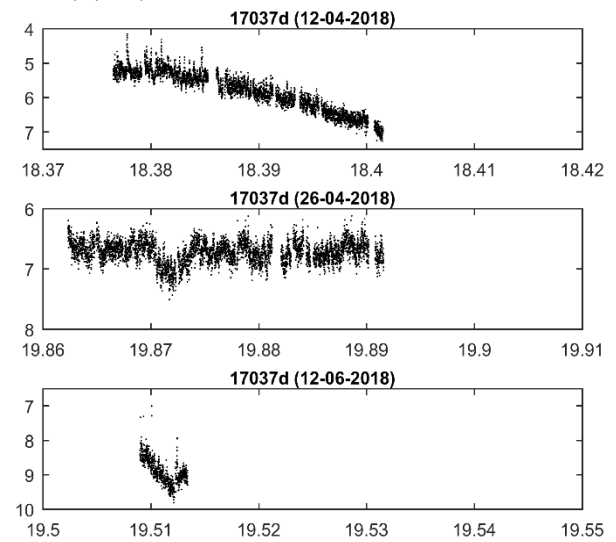
NORAD ID: 41240
 Int'l Code: 2016-002A
 Dimensions: box + 2 panels
 ~3m x 1m x 1m 10 span
 Initial orbit:
 Perigee: 1295 km
 Apogee: 1320 km
 Inclination: 66.05°
 Period: 111.75 min
 Eccentricity: 0.002
 Launch date: 2016-01-17
 Source: United States (US)





Launch date: 2017-06-23

Source: Commonwealth of Independent States (former USSR) (CIS)



AIST 2D (RS 48)

NORAD ID: 41465

Int'l Code: 2016-026B

Dimensions: box + 2 panels

~2m long x ~1m x ~1m ~7m span

Initial orbit:

Perigee: 470 km

Apogee: 486 km

Inclination: 97.27°

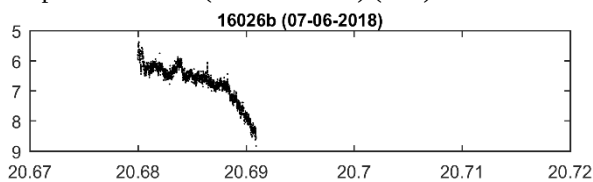
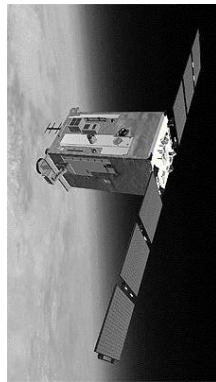
Period: 94.17 min

Eccentricity: 0.001

Launch date: 2016-04-28

Source: Commonwealth of

Independent States (former USSR) (CIS)



COSMOS 2521

NORAD ID: 42919

Int'l Code: 2017-037D

Dimensions:

Initial orbit:

Perigee: 649 km

Apogee: 669 km

Inclination: 97.92°

Period: 97.92 min

Eccentricity: 0.001