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### SURFACE OZONE CONCENTRATION MEASUREMENT EPISODE ABOVE BARE SOIL IN THE SOUTHERN UKRAINE

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It is known that tropospheric ozone can exert influence as a direct greenhouse gas (GHG) as well as indirect via reaction with others GHG, thus effecting on their presence time in atmosphere (Lippmann, 1991; Fuhrer, 2003; IPCC, 2007; Fowler et al., 2009). Ozone is a phytotoxic secondary pollutant, which is third by the importance after CO<sub>2</sub> and CH<sub>4</sub> (Fowler et al., 2009). High concentration of ozone could impact on human health (Lippmann, 1991; IPCC, 2007) and ecosystem in general (Fuhrer, 2003; Fowler et al., 2009).

The main purpose of our investigation is to study ambient O<sub>3</sub> concentration levels and determine diurnal and seasonal course in typical agricultural area in the southern Ukraine.

For the first time in Ukraine we have started continuous measurements of O<sub>3</sub> concentration using automatic system for gas analyzing (KIT, Germany; described in details by Butterbach-Bahl et al., 1997) with fast response (10 s frequency) UV photometric O<sub>3</sub> analyzer model 49C (TEI Inc., USA). Here we have presented preliminary measurement data at hourly and diurnal base report for 19<sup>th</sup> September – 5<sup>th</sup> October 2012 time episode.

During investigation period average hourly O<sub>3</sub> concentration was 24.03±4.63 ppb (47.53±9.61 µg O<sub>3</sub> m<sup>-3</sup>), with the maximum of 50.96±1.93 ppb (100.25±3.75 µg O<sub>3</sub> m<sup>-3</sup>) at 14:00 - 15:00 (September, 19) and the minimum, registered at 2:00 - 3:00 (September, 23), was 4.77±2.83 ppb (9.93±5.89 µg O<sub>3</sub> m<sup>-3</sup>). Concentration of O<sub>3</sub> strongly (P < 0.05) correlated with cloud amount and global radiation levels. Strict diurnal course of ozone was observed with the maximum after noon (from 12:00 to 16:00) and the minimum just before sunrise. The obtained data showed that the mean level of ambient surface tropospheric ozone (24.03±4.63 ppb) in southern Ukraine for that time episode could be characterized as middle-moderate, according to Directive 2002/3/EC relating to ozone in ambient air in Europe, and was not exceed proposed diurnal maximum (40 ppb) for agricultural areas (AOT40). Further continuous investigations are urgently needed to account the mean annual O<sub>3</sub> concentration and estimate annual course and forecast possible effect on ecosystem for that particular region.

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## **LANDSAT 7 IMAGES USE FOR ASSESSMENT OF FIRE TRACES AREAS**

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Establishing of protected and strictly protected areas in particular in the Dniester Delta is the main instrument for environmental management of natural processes aimed at biological diversity conservation. Uncontrolled fires damage irreparably unique nature resources in the Dniester Delta over the last years. To make objective managerial decisions permanent control of the areas and consequences of the fires should be performed. The most efficient method to assess squares and boundaries of the fire-damaged areas in the delta is to make use of high-resolution space images (Medinets and Korzun, 2010).

Aim of the paper is to generalize the experience of free LANDSAT 7 space images use to determine squares and boundaries of the Dniester Delta areas (within the Lower Dniester National Nature Park (LDNNP)) affected by fires in winter-spring period of 2011-2012.

Methodology of LANDSAT 7 space images processing to assess areas and boundaries of fire traces using ArcGIS 9.2 has been described.

Characteristics of the LandSat 7 space images used to map fire traces in the entire LDNNP, as well as in every zone (strictly protected, regulated recreation, stationary recreation and economic zone) of the Park have been analyzed.

Analysis of the results received has shown that fire traces areas in the Dniester Delta in 2012 made 5075.0 ha, including 3582.8 ha in the LDNNP, and in 2011 – 3071.1 ha and 2704.3 ha respectively. It is pointed out than no fires have been observed in economic zone in 2011 and 2012. It is revealed that the strictly protected zone happened to be the most affected with fires in 2011-2012. The maximal square of burned territories within the strictly protected area made 772 ha (23.83%) and was registered in the period from 06.11.2011 to 29.11.2011. During the periods from 10.02.2012 to 13.03.2012, from 13.03.2012 to 20.03.2012 and from 29.11.2011 to 10.02.2012 in the strictly protected area burned out respectively 570.1 ha, 43.8 ha and 22.1 ha. For the zone of regulated recreation the period from 21.10.2011 to 06.11.2011 happened to be the time of maximal fire danger, as in this period fire traces area made 772 ha (9.06% of the total zone area).