

## Reconstruction of north-western Black Sea coastline positions for the past 25 ky

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Recent relief and shoreline of NW Black Sea shelf have been formed through interaction of various processes: eustatic sea-level change, sedimentation/erosion, and the subsequent vertical movements during last 25 ky (Fedorov, 1988; Larchenkov, Kadurin, 2005). This work is *aimed at reconstructing the seafloor relief* and the locations of past shorelines along the NW Black Sea (Ukraine).

### Methodology

The reconstruction is based on relief trend analysis, statistical analysis of recent sea bottom relief and GIS modeling. Digital relief model has been designed using Kriging methods of interpolation within grid areas of 100x100 m.

### Results

The average rate of the sea-level rise was about 3 mm/year. Maximum rate was not more than 10 mm/year during the 14-8.5 ky time interval. Several levels of shoreline stabilization during sea-level rise from -87 to -85 m (25 ky BP) until present have been established. Recent relief scenario for the most part of NW Black Sea shelf has been inherited from an alluvial plain covered by seawater during the Holocene transgression. As a model of the relief surface, we used pre-Holocene trend watershed surface, which looks like a gently sloping plane. Comparison of the model with recent sea bottom relief produces areas where real relief is higher or lower than the modeled one. This can be evidence of tectonic movements in these areas. In general, the shelf has a gently tilted surface, but according to statistical analysis there are several depth intervals where the surface is flat or relatively steep.

### Conclusions

The actual relief of the northwestern shelf of the Black Sea has positive and negative deviations from the modeled relief. Steep surfaces correspond to a shoreline position reflecting the non-uniformity of the transgression. The shoreline position was dependent on submerged land relief, tectonics, and the product of erosion/sedimentation processes.

### References

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