



## Statistics and analysis of storm waves in the Sea of Azov

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For the study of storm waves in the Sea of Azov spectral wave model of the third-generation SWAN (Simulating Waves Nearshore) was used. The inputs to the model were the bottom topography in grid (pitch axis  $x$   $0,02^\circ$  and the axis  $y$   $0,01^\circ$ ) and wind field of a new high-resolution ( $\sim 0.3^\circ$ ) reanalysis NCEP CFSR from 1978 to 2010 with a time step of 1 hour.

This model calculates significant wave height, swell height, direction of wave propagation, its length and the period, and the wave energy transport. The time interval output was 3 hours. Results of calculation of the last 2 days of the year are used as input for the next year. Supercomputers of Lomonosov Moscow State University were used for this research.

The physical processes such as quadruplet interactions, whitecapping, triads, bottom friction, depth-induced breaking and diffraction are considered. The simulation results were used to calculate the number of storms, their duration, for the period of settlement, and for each month. Total number of storms with significant wave height greater than 2 m was 165. The highest values of calculated parameters are found in the central part of the sea: significant wave height is 3.5 m, a period of waves is 5 seconds, the length is 25 m.

According to model simulation, the distribution of waves with 100 years return period were calculated. As a result, it was found that the heights of "100-year" waves in the Sea of Azov do not exceed 5 m. The study presents climatic variability of storms. Found that there was downward trend of storm activity in the Sea of Azov in the simulating period from 1978 to 2010. Synoptic situations that led to increase of storm waves were analyzed for extreme cases.

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