



Verification of CMOD5 algorithm estimating near surface wind speed for conditions of inland waters for the case of Gorky reservoir

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In the interests of operative diagnostics and forecasting of the wind-wave regimes in inland waters, studies have been carried out on the possibility of estimating near surface wind speed according to remote sensing of the water surface from space using algorithms obtained for marine conditions.

In this work, we used images of the surface of the Gorky reservoir, obtained by a synthesized aperture radar (SAR) from Sentinel-1A / B satellites in the C-band using VV polarization. To compare remote sensing data with collocation ground measurements, we used wind speed records obtained using a meteorological station located at the lighthouse in the southern part of the reservoir. According to them, with procedure the CMOD5 algorithm, estimates were obtained for the expectable values of the Normalized Radar Cross Section (NRCS) during the snapshots performed by Sentinel-1A / B. It has been demonstrated that they are in good agreement with the data on NRCS in the area close to the lighthouse, obtained on the basis of processing more than 30 images from September 2017, which proves to the applicability of this algorithm for the conditions of inland waters. In addition to the point comparison, we compared the distribution of the NRCS over the entire surface of the reservoir with the results obtained by modeling the atmospheric nearsurface layer with high spatial resolution using the WRF model.

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