CFOSAT mission: Progress report on testing site in NW Russia

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Résumé

This is a progress report of the team from P.P. Shirshov Institute of Oceanology of Russian Academy of Sciences (SIO RAS) together with North-West Administration for Hydrometeorology and Environmental Monitoring (NWA HEM) on the work of experimental facilities in Ladoga Lake and in the Gulf of Finland for development new Cal/Val methods and regular in-situ measurements to support CFOSAT mission for the global monitoring of sea waves. The advantage of the proposed testing areas is a possibility to have in-situ data from five wave buoys deployed in the lake (two buoys) and in the Gulf of Finland (three buoys), which are characterized by different wave characteristics. Satellite altimetry data (3 tracks of Jason-3 and CFOSAT tracks #056 and 341) as well as meteo data from the coastal meteo stations provide a basis for comparison with in situ buoys located close to the tracks (less than 25 km). The SWIM data, unfortunately, are not available at the moment while two boxes of the track 341 fall exactly in the open area of the Ladoga Lake. We will apply a "decomposition" method, we elaborated about 10 years ago during the ALTICORE (ALTImetry for COastal Regions) Project funded by INTAS, which allowed to increase significantly the correlation between wind speed altimetry data and meteo stations. Cal/Val activities based on climate studies and the Voluntary Observing Ship (VOS) global database for the period of 1888-2020 as well as on new remote sensing methods and theory of sea waves is supported by SIO RAS. In addition to standard meteorological variables, we have derived the records of visually observed heights, periods, and wind sea and swell directions. Multistage quality control is applied to correct or eliminate spurious values and for accounting for features of wave dynamics in the closed basin of Ladoga.

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