O44. FEATURES OF WIND FIELD OVER THE SEA SURFACE IN THE COASTAL AREA BASED ON SAR OBSERVATIONS

Anna Monzikova\textsuperscript{1}, Vladimir Kudryavtsev\textsuperscript{1}, Alexander Myasoedov\textsuperscript{1}, Sergej Zilitinkevich\textsuperscript{2}

\textsuperscript{1}Russian State Hydrometeorological University, \textsuperscript{2}Finnish Meteorological Institute, Russia
monzik@rshu.ru

“Wind-shadowing” effects in the Gulf of Finland coastal zone are analyzed using high resolution Envisat Synthetic Aperture Radar (SAR) measurements and model simulations. These effects are related to the internal boundary layer (IBL) development due to abrupt change the surface roughness at the sea-land boundary. Inside the "shadow" areas the airflow accelerates and the surface wind stress increases with the fetch. Such features can be revealed in SAR images as dark areas adjacent to the coastal line. Quantitative description of these effects is important for offshore wind energy resource assessment. It is found that the surface wind stress scaled by its equilibrium value (far from the coast) is universal functions of the dimensionless fetch $X_f/G$. Wind stress reaches an equilibrium value at the distance $X_f/G$ of about 0.4.