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HYDRODYNAMIC CONDITIONS NEAR THE NORTHERN SHORE OF SMABIAN PENINSULA (THE BALTIC SEA) AS A BASIS OF GEOTEXTILE DEBRIS TANSPORT ANALYSIS

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Storm winds with direction from north-west quarter have a negative impact on the shore of the Sambian Peninsula (South-Eastern Baltic). During extreme conditions the beach erosion is accompanied by erosion of cliffs and dunes partly protected by different materials including geotextile. Consequitive, storm by storm, forcing destroys the geotextile parts of the protective constructions. Geotextile pieces are spreaded over surrounding area and the debris of them pollute the sea. The aim of the current study is to find out what winds produce the most intensive erosion at the northern shore of the Sambian Peninsula as everal protective constructions with geotextile are located there, namely, near Svetlogorsk and Pionerskiy towns. A numerical simulations (SHYFEM) was used to analyze the hydrodynamics. The model setup was calibrated by comparing the simulations against the field data. Simulations show than the most erosive action for the northern shore of the Sambian Peninsula could be caused by winds of the northwest and even western directions. Rise of the water level associated with storm surge increases the destructive effect. These winds lead to the sea level rise up to 0.3–0.5 m and speed of currents up to 0.7–0.8 m/s and more (at winds of 20 m/s).

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