

Iceberg ploughmark features on bottom surface of the South-Eastern Baltic Sea

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A detail swath bathymetry, side-scan sonar and acoustic profiling combined with sediment sampling during the 64th cruise of RV “Academic Mstislav Keldysh” (October 2015) allowed to identify new geomorphological features of the South-Eastern Baltic Sea bottom surface. The extended chaotic ploughmarks (furrows) in most cases filled with thin layer of mud were discovered on surface of the Gdansk-Gotland sill glacial deposits. They are observed on the depth of more than 70 m and have depth and width from 1 to 10 m. Most of them are v- or u-shaped stepped depressions. The side-scan records of similar geomorphological features are extensively reported from Northern Hemisphere and Antarctica (Goodwin et al., 1985; Dowdeswell et al., 1993). Ploughmarks are attributed to the action of icebergs scouring into the sediment as they touch bottom. We suggest that furrows discovered in the South-Eastern Baltic Sea are also the result of iceberg scouring during the Baltic Ice Lake stage (more than 11 600 cal yr BP (Bjorck, 2008)). This assumption confirmed by occurrence of fragmental stones and boulders on the sea bottom surface which are good indicators of iceberg rafting (Lisitzin, 2003). Ice ploughmarks at sea bottom surface were not occurred before in the South-Eastern Baltic Sea.

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