



On contourite drift of the Gotland Deep (Baltic Sea)

Vadim Sivkov and Dmitry Borisov

Shirshov Institute of Oceanology, RAS, Moscow, Russian Federation (vadim.sivkov@atlantic.ocean.ru)

A large set of high-resolution seismoacoustic data (38 kHz) was acquired in the southern part of the Gotland Deep (Baltic Sea). A sedimentary body that overlies an irregular surface of the acoustic basement (moraine) was found. The body has asymmetric upward convex morphology and extends in the SW-NE direction. Its steeper eastern flank is separated from the slope of the Gotland Deep by a moat of 3-5 m deep and ~1 km wide. The crest of the sedimentary body is located closer to the moat. The asymmetry and orientation of the sedimentary body as well as presence of the moat imply significant impact of bottom (contour) currents.

Only the uppermost part of the studied sediment body might be considered as contourite drift. This drift was formed during the last 8 kyr. The moat, as an erosional feature, could be formed only during these stages by the influence of strong flow of salty waters from the North Sea penetrated to brackish waters of the Ancylus Lake.

Three types of seismic facies were distinguished:

- 1) Seismic facies related to deposits infilling local depressions of acoustic basement. They are characterized by intermittent irregular wave reflectors or chaotic acoustic structure.
- 2) Seismic facies with well-defined acoustic stratification, continuous parallel reflectors. This type of facies was traced in the eastern part of the drift.
- 3) Seismic facies without reflectors were revealed in the western part of the drift and on the eastern slope of the moat.

Several reflectors were correlated with members of microlaminated muds described in sediment core sections. Formation of these laminated intervals is related to calm bottom conditions resulted from decrease in input of waters from the North Sea and low rates of contourite deposition.

The study was supported by the state assignment of IO RAS (0149-2018-0012) and RSF project 18-77-10016.