

## **HYDROGRAPHY AND SEDIMENTATION UNDER THE DEEP WESTERN BOUNDARY CURRENT ON BJÖRN AND GARDAR DRIFTS, ICELAND BASIN**

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Interaction of Northern Source Waters overflowing the Iceland-Scotland Ridge with sediments further south in the Iceland Basin has been responsible for variable sedimentation patterns for over 10 Ma and caused the origin and development of Björn and Gardar Drifts. Presently this process is maintained by the flux of ~4 Sv of Iceland-Scotland Overflow Water with a regional south-westerly flow, which affects sediment transport on Björn Drift below 1,350 m depth and over most of Gardar Drift. Here, hydrographic and sedimentological data are used to illustrate the effects and extent of the vigorous deep water flow activity. North of ~58N bottom nepheloid layers with heavy suspended sediment loads are commonly associated with the denser and faster core of the overflow. Here migrating, regular sedimentary waves are consistent with near-bottom flow velocities (10 cm/s) estimated by the geostrophic method and the sandy-mud texture of the sediment surface. South of ~58N weaker nepheloid layers associated with more tranquil conditions near the seabed show that currents on Gardar Drift are weak. Although most of the south Iceland Basin is mantled by non-migratory mudwaves, migrating structures are virtually absent, indicating that more sluggish currents typically characterise this region. Throughout the area studied spatially variable mean Holocene sediment accumulation rates are inferred (2-40 cm/ka) as a result of the action of the deep, contour-following currents.