Geophysical Research Abstracts, Vol. 8, 01742, 2006
SRef-ID: 1607-7962/gra/EGU06-A-01742

Slope current in the southwestern Iceland Sea in relation to benthic communities in the area

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Recent observations show that a substantial part of the Denmark Strait overflow water (DSOW) flows along the Icelandic continental slope from the Kolbeinsey Ridge north of Iceland to the sill in the Denmark Strait. The flow consists of a rather fast 15-20 km wide barotropic current with a temperature and salinity at the bottom of about -0.5°C and 34.90 respectively. The structure of the current along the flow is illustrated using data from vessel mounted ADCP, moored current meters and hydrography. The structure of molluscan fauna in the SW Iceland Sea and Denmark Strait was studied to examine spatial distribution of assemblages and their relationships with environmental factors, using material from the BIOICE programme. Five molluscan assemblages were identified: Coastal, Shallow shelf, Deep Shelf, Denmark Strait and Deep-sea. The distribution of the Deep-sea assemblage was confined to the deep part of the SW Iceland Sea and extended towards the Denmark Strait sill. This spatial pattern was similar to that of the DSOW from the Hornbanki section to the sill. The Deep-sea assemblage was unique in species composition and was significantly different from molluscan assemblages on both sides of the current. The close association in the distribution of DSOW and the molluscan Deep-sea assemblage suggests that the current influences the distribution of benthic communities north of Iceland and it supports dispersal and settlement of benthic larvae from the Iceland Sea towards the Denmark Strait sill.