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The transport of water and freshwater within the East Icelandic Current compared with long time series of hydrographic variability

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The importance of the circulation of freshwater in the Nordic Seas has frequently been pointed out, especially its effect on deep water formation. The main source of freshwater is the East Greenland Current entering the Nordic Seas through Fram Strait. The Jan Mayen Polar Current and the East Icelandic Current carry a part of the freshwater into the Greenland and Iceland Seas respectively. Within the East Icelandic Current, Aanderaa current meters were deployed on two moorings from June 1997 - June 1998 on a standard section from Langanes (northeast corner of Iceland) and to 68°N in the direction towards Jan Mayen. The section was occupied five times during the period with CTD. Geostrophy, referenced to the current meter data, was used for estimating the transport of the current. The current is mainly concentrated along the slope where it is baroclinic, while over the deeper part a weak barotropic current was observed. The total transport over the section towards the east was found to be 2.5 Sv. The freshwater transport relative to a salinity of 34.93 was estimated using the salinity values at the CTD stations and the geostrophic velocity field. Above 170 m this amounted to 5.500 m3/s or 0.0055 Sv. This is roughly 4% of the freshwater transport through Fram Strait. The results will be put into a longer term context using long time series of hydrographic data from standard CTD sections in the area.