



Structure and transport of the Iceland Scotland Overflow plume along the Reykjanes Ridge in the Iceland Basin

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We present results from a combined moored current meter/hydrography array deployed within the Iceland Scotland Overflow Water (ISOW) plume on the eastern flank of Reykjanes Ridge approximately 1000 km downstream of Faroe Bank Channel (FBC) between June 2000 and August 2002. Based on the array measurements during this period the ISOW plume exhibited a time mean volume transport of 3.8 ± 0.6 Sv (standard error). The transport estimate favorably compares with other recent estimates obtained by different methods, confirming that the fate of the ISOW plume downstream of the array is far from being fully understood. Historical observations show that drainage of ISOW through Charlie–Gibbs Fracture Zone (CGFZ) only amounts to 60% of our upstream transport estimate. To date, no reliable transport estimates of the fractions of ISOW recirculating within the Iceland Basin or being drained through fracture zones other than CGFZ do exist. Our observed 2-years-long transport time series shows pronounced subseasonal variability with a standard deviation of 1.3 Sv. Simultaneous hydrographic observations reveal, that temporal changes in the strength of the flow go along with changes in the water mass properties. Periods of stronger flow within the ISOW plume coincide with a reduction in salinity.