

## **The coupling between Atlantic inflow and overflow in the Iceland-Scotland region**

*Bogi Hansen, Karin M. H. Larsen, Hjálmar Hátún, Svein Østerhus, Steffen M. Olsen*

### Abstract

The two main branches of Atlantic inflow to the Nordic Seas flow north of and south of the Faroes, respectively. By combining satellite altimetry with long-term in situ observations, time series of volume transport of these branches have been constructed from 1993 onwards and they show no significant trends. The Atlantic water has, however, become warmer by about 1°C and more saline and for the Faroe Current, it has been shown that both heat (relative to 0°C) and salt transport increased substantially. The Faroe Bank Channel overflow has also maintained a very stable volume transport while the bottom temperature has increased on the order of 0.1°C over the last two decades. This warming has, however, been accompanied by increased salinities, which more than compensate for the warming in terms of density. Recent investigations have also shown an interaction between the inflow and overflow across the Iceland-Faroe Ridge, which limit the ability of numerical models to simulate oceanic heat transport towards the Arctic.