

HIGHLIGHTS FROM THE 2006 REPORT

The North Atlantic Ocean in 2006

The upper layers of the North Atlantic and Nordic Seas were warmer and more saline in 2006 than the long-term average. The largest anomalies were observed at high latitudes; the highest temperature in 100 years was recorded at the Kola Section in the Barents Sea.

The warm surface anomaly located in the Norwegian Sea and Barents Sea in 2005 moved into the West Spitsbergen Current and Fram Strait.

The North Sea, Baltic Sea, and Bay of Biscay had a cold winter and low sea surface temperatures, followed by an unusually warm summer and autumn, and correspondingly high sea surface temperatures.

The trend in the past decade (1996–2006) has been of warming and increasing salinity in the upper ocean.

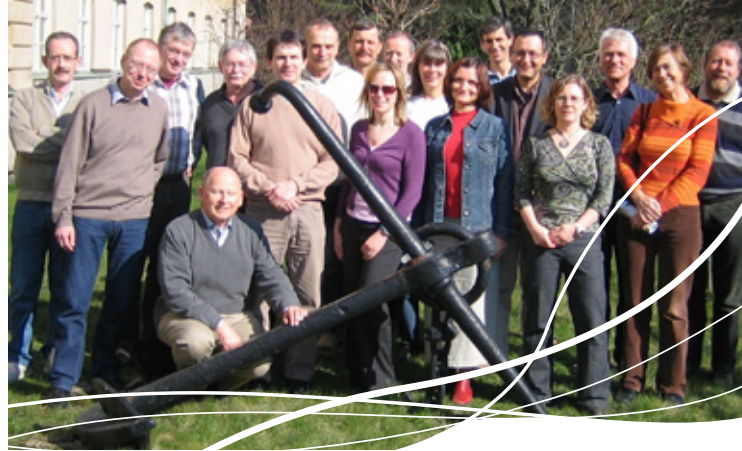
THE VERY LATEST INFORMATION FROM PLACES WHERE THE OCEAN IS STILL BEING MEASURED REGULARLY

The North Atlantic atmosphere in winter 2005/2006

The Iceland Low and the Azores High were both weaker than normal, and the centre of the Iceland Low was displaced towards the southwest to the entrance to the Labrador Sea.

The mean mid-latitude winds were weaker than normal, and the storm track was displaced.

The eastern North Atlantic and Nordic Seas winter surface air temperatures were near normal, but over much of the central and western North Atlantic surface air temperatures were more than 1°C warmer than normal.



Attendees at the ICES Working Group on Oceanic Hydrography, Gothenburg, 2007.

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Front Row: H. Klein, T. Rossby, K. A. Mork, N. P. Holliday, A. Beszczynska-Möller, S. Hughes, A. Lavin.

The data presented here represent an accumulation of knowledge collected by numerous individuals and institutions through decades of observations. It would be impossible to list them all, but at the end of the report, we provide a list of contacts for each dataset, including e-mail addresses for the individuals who provided the information, and the data centres at which the full archives of data are held.

The ICES Report on Ocean Climate and data products shown in the report 2006 can be freely downloaded from the ICES website:

www.ices.dk/marineworld/oceanclimate.asp

or visit the WGOH website:

www.noc.soton.ac.uk/ooc/ICES_WGOH/iroc.php



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ICES Report on Ocean Climate 2006

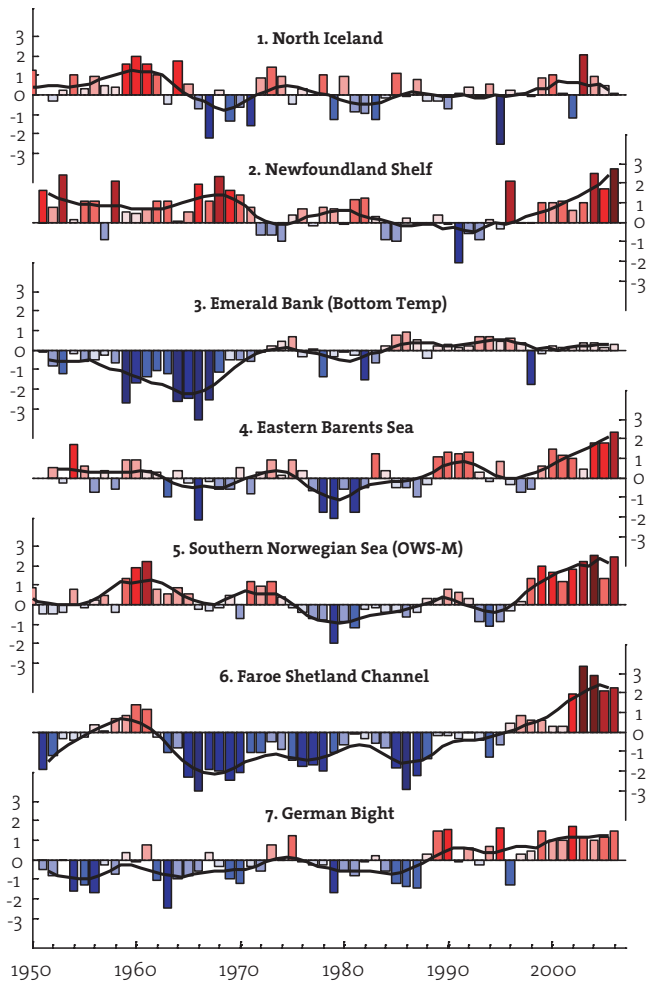
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Sarah L. Hughes and N. Penny Holliday, Editors

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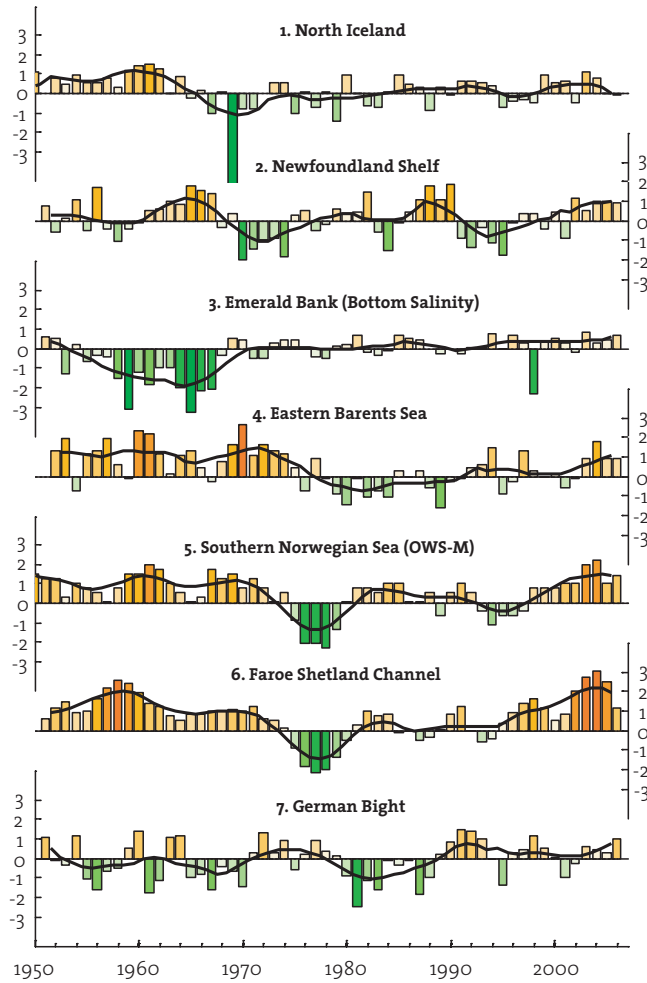
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Figures 1 (temperature, above) and 2 (salinity, right). Normalized annual average upper layer anomalies from the longest time-series of WGOH in situ data. A value of +2 indicates that the data (temperature or salinity) for that year was 2 standard deviations above normal. Normal conditions are mean values calculated from all data available in the base period 1971–2000. The thick black line is five-year smoothed data.

THE HIGHEST TEMPERATURE IN 100 YEARS WAS RECORDED IN THE BARENTS SEA



The Greenland, Iceland, and Norwegian Sea deep waters are all warming. The longest time-series (the Norwegian Sea) shows warming from the mid-1980s. Bottom-water renewal by deep convection used to determine the deep hydrographic conditions in the Greenland Sea, but since the late 1980s, no bottom-water renewal has taken place. The Greenland Sea deep water is warming fastest, because it is most directly in contact with the source of the warming; the Arctic Ocean Deep Outflow, a south-going current found on the west side of Fram Strait centred at 2000 m depth.

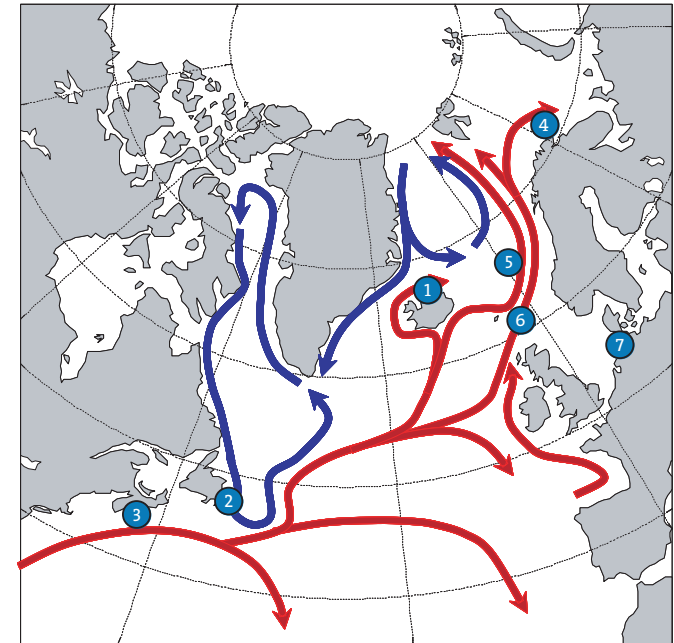


Figure 3. Schematic of the general circulation of the North Atlantic. The blue arrows indicate the cooler and fresher waters of the subpolar gyre. The red arrows show the movement of the warmer and saltier waters in the subtropical gyre. Circles indicate the position of the numbered time-series presented in Figures 1 and 2.

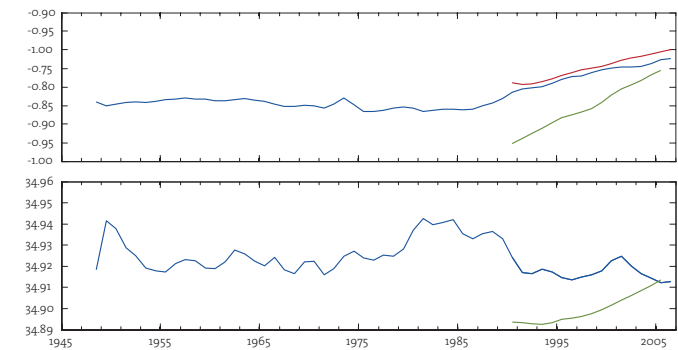


Figure 4. Temperature (upper panel) and salinity (lower panel) of deep waters in the Greenland (green), Iceland (red), and Norwegian (blue) Seas. Data are smoothed using a five-year running mean.