



Universität Hamburg
Institut für Meereskunde

Cruise Report
Alexander von Humboldt 44/02/05
Rostock - Reykjavik, 25.06. - 23.08.2002

1. Scientific objectives

The cruise was part of the Climate Variability And Predictability (CLIVAR) project of the World Climate Research Programme (WCRP) and was performed by the Institute of Oceanography of the University of Hamburg, Germany. The cruise contributes to the investigation of interannual to decadal changes of the circulation in the northern North Atlantic Ocean. During leg 1 of the cruise hydrographic measurements were carried out along the WOCE section A1E/AR7E (Greenland-Ireland), which were occupied since 1991 with a frequency of 1 to 2 years. During leg 2 of the cruise meridional hydrographic sections were run across the North Atlantic Current between 22 and 35 °W to obtain the spatial distribution of the water masses and the course of the Subarctic Front. The measurements will be repeated in the summer of 2004 and compared to the previous measurements in this region to study the temporal changes of the thermohaline circulation in relationship to the North Atlantic Oscillation.

2. Narrative of the cruise

Master of the RV *Alexander von Humboldt* on the cruise was Gerhard Herzig. The ship left Rostock on June 25th in the afternoon after a preliminary test of the CTD system. A test station was occupied on June 30th west of Ireland. After a modification of the suspension of the rosette and a delay due to strong winds and high swell the regular station work started on July 2nd at Porcupine Bank. Good weather conditions made sure that the section A1E was finished on July 11th east of Cape Farvel without any interruption. The last 3 stations of the planned section in water depths less than 1000 m had to be canceled because of the nearly closed pack ice belt above the shelf of East Greenland. The time reserve allowed to add 3 stations along the pack ice margin and a second section starting off Cape Farvel on July 11th. The section ran southeastwards to the Reykjanes Ridge, where it ended on July 14th. Reykjavik and the end of leg 1 of the cruise were reached on July 17th. All in all, 73 full-depth CTD stations with rosette water samples were occupied (Fig. 1).

Leg 2 of the cruise started on July 21st in the evening, when the *Alexander von Humboldt* left Reykjavik. A test station for the CTD system was occupied on July 23rd in the morning. The regular station work started on July 24th in the afternoon above the Reykjanes Ridge at 56 °N. From the next day onwards there was a repeated trouble with the echo sounder, which failed frequently. The station work ended on August 16th in the evening in the Irminger Sea at 61.5 °N after 8 additional stations and only 1.5 days of work interruption due to bad weather. From August 13th (station 86) onwards the water samples could no longer be analysed aboard due to

errors of the salinometer. As during leg 1 at each station water samples were stored for an analysis in the institute. The *Alexander von Humboldt* reached Reykjavik on August 19th. During leg 2 of the cruise 107 full-depth CTD stations with rosette water samples were occupied (Fig. 1).

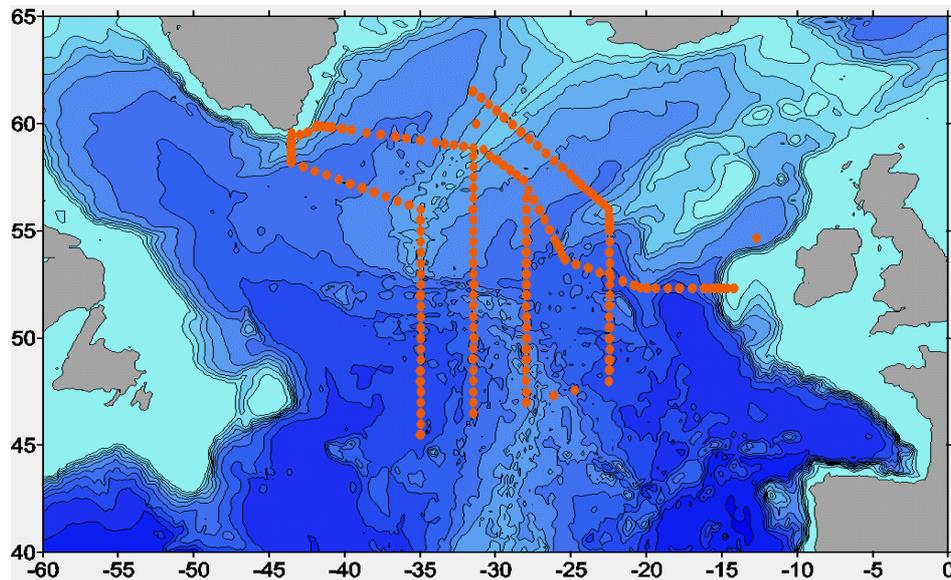


Fig. 1: CTD stations of the *Alexander von Humboldt* cruise 44/02/05.

3. Research staff

Leg 1

Jörn Alexander: CTD
Manfred Bersch: Chief scientist
Iris Frambach: CTD
Andrea Lübben: CTD
John Mortensen: CTD
Roland Niebling: Salinometer
Juliane Pestel: CTD
Berit Rabe: CTD

Leg 2

Ole Albrecht: Salinometer
Cevat Alkan: CTD
Iris Ehlert: CTD
Katja Radke: CTD
Thomas Schlick: CTD
Hagen Schulte in den Bäumen: CTD
Klaus Schulze: Chief scientist
Gunnar Voet: CTD

4. Scientific equipment and measurements

Seabird CTD: pressure, temperature, conductivity
Altimeter: distance to the sea bottom

Seabird rosette: water samples
SIS electronic thermometers: temperature
SIS pressure sensor: pressure
Guildline Autosal salinometer: salinity
Global Positioning System receiver: latitude, longitude, UTC
Echo sounder: water depth

At each station CTD profiles were recorded between the sea surface and the sea bottom. During the upcast water samples were taken at 10 levels maximum. The samples were analysed for salinity aboard and stored as backup. The CTD temperature and pressure were checked against the data from the SIS instruments, with no significant deviations found. The CTD data were processed and coarsely analysed aboard.