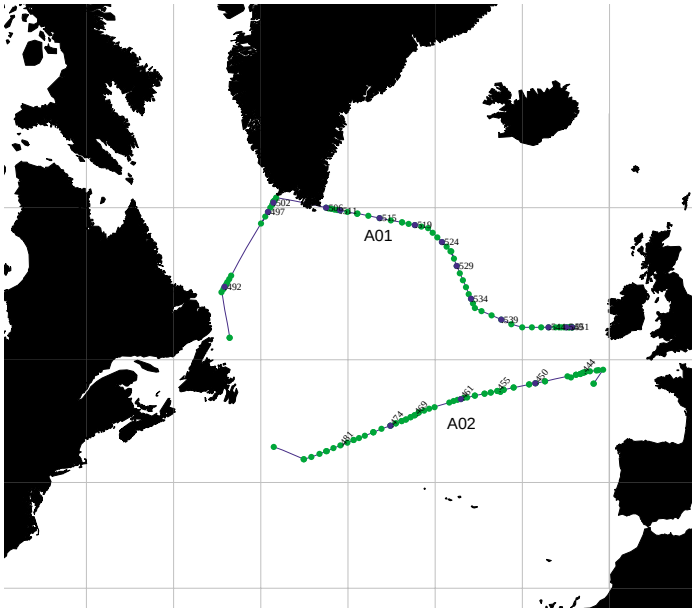
A. Cruise Narrative: A01 and A02



A.1. Highlights

WHP Cruise Summary Information

WOCE section designation	**A01**	**A02**
Expedition designation	**06MT30_3**	**06MT30_2**
Chief Scientist(s)/affiliation	**Jens Meincke/IfMHH**	**Peter Koltermann/BSH**
Dates	1994.11.15–1994.12.19	1994.10.12–1994.11.12
Ship	*R/V METEOR*	
Ports of call	Hamburg to St. John's to Hamburg	
Number of stations	63	53
Geographic boundaries A01	60°33.90'N 54°29.50'W 14°15.40'W 51°35.10'N	
A02	49°14.10'N 48°45.00'W 10°39.60'W 41°59.60'N	
Floats and drifters deployed	6 Floats deployed: A01	
Moorings deployed or recovered	0 deployed, 0 successfully recovered	

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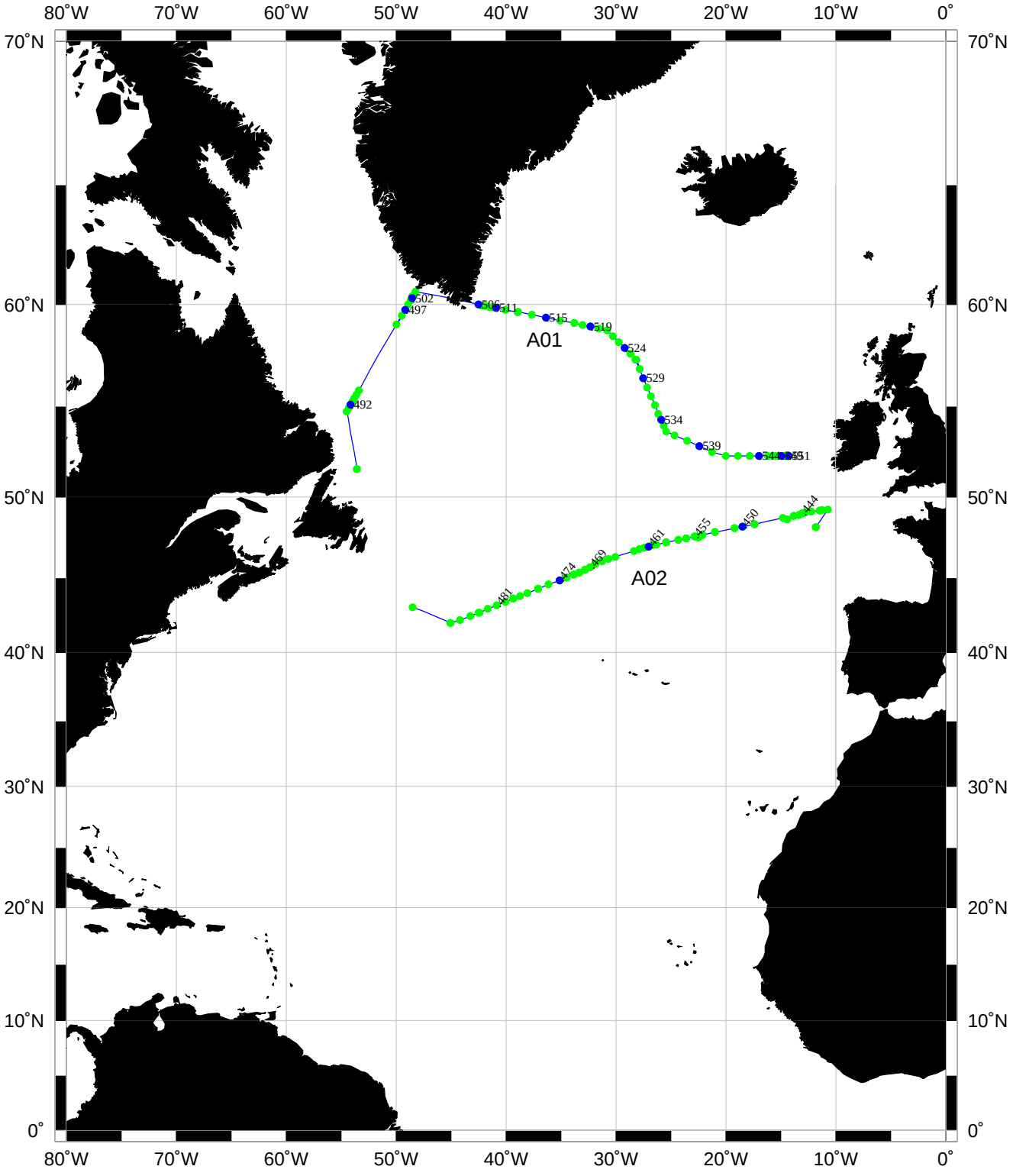
Station locations for a01 (Meincke) and a02 (Koltermann), 1994



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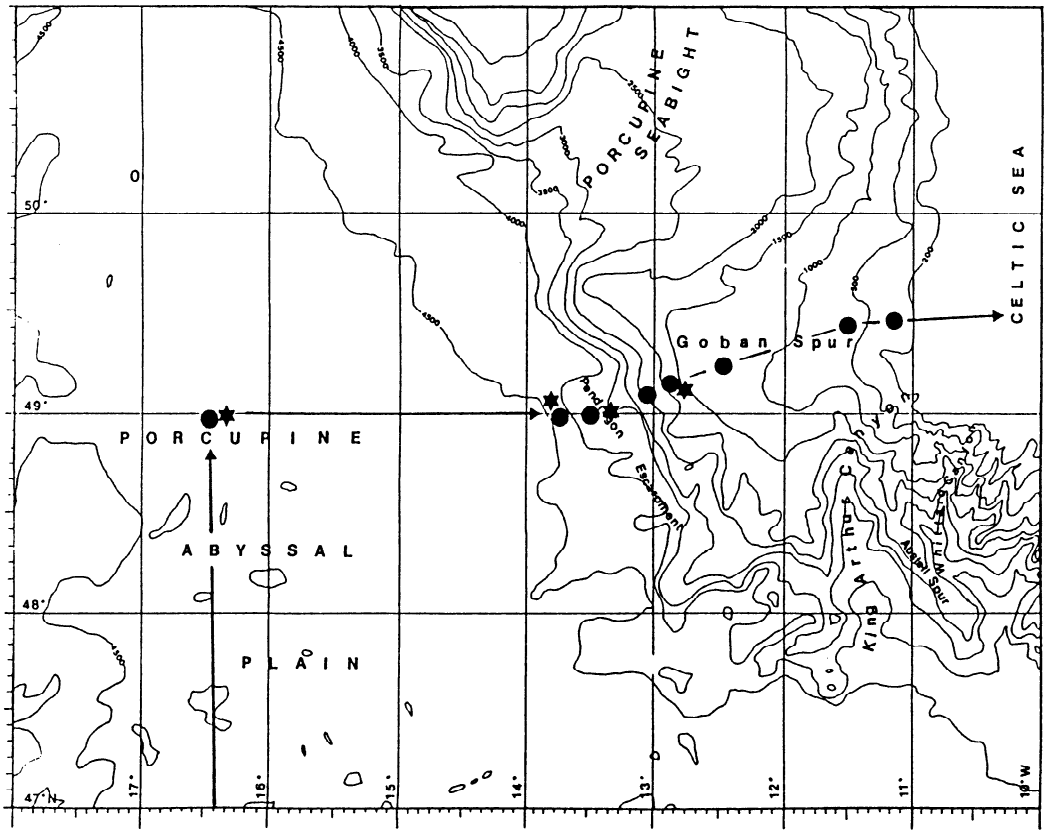

Fig. (1) Track and Station map of Meteor leg M30/1

* moorings, • benthic station, → cruise track

4 NARRATIVE OF THE CRUISE

4.1 Leg M30/1

(Chief Scientist O. Pfannkuche)

FS Meteor left Las Palmas on the evening of Sept. 6, 1994 heading north for the first station at 49°N, 16°30'W on the Porcupine Abyssal Plain. En route the ship stopped 3 times in international waters on the Iberian Abyssal Plain in order to test a new version of the multiple corer and the CTD/Rosette system. On Sept. 12 at 0400h we started to work at the first station at the Porcupine Abyssal Plain. After water sampling and CTD profiling the sediment trap mooring of the Institute of Oceanographic Sciences, UK, which was deployed in spring 1994, was successfully retrieved. A series of multiple corer samples followed. In the afternoon the refitted sediment trap mooring was deployed again and Meteor headed east for the next station at the bottom of the continental rise. Besides sediment and water sampling a new sediment trap mooring (OMEX IV) was deployed. From now on sampling stations followed the contours of the continental slope (Fig. 1) from the Pendragon Escarpment (water depth 3600 m) up to the Great Sole Bank (water depth 220 m). Station work on the Pendragon Escarpment had to be interrupted on Sept. 13 until the afternoon of Sept. 14 as a storm (8-9 Bft) prevented the use of any sampling gear. On all slope stations sampling followed the same routine: sediment

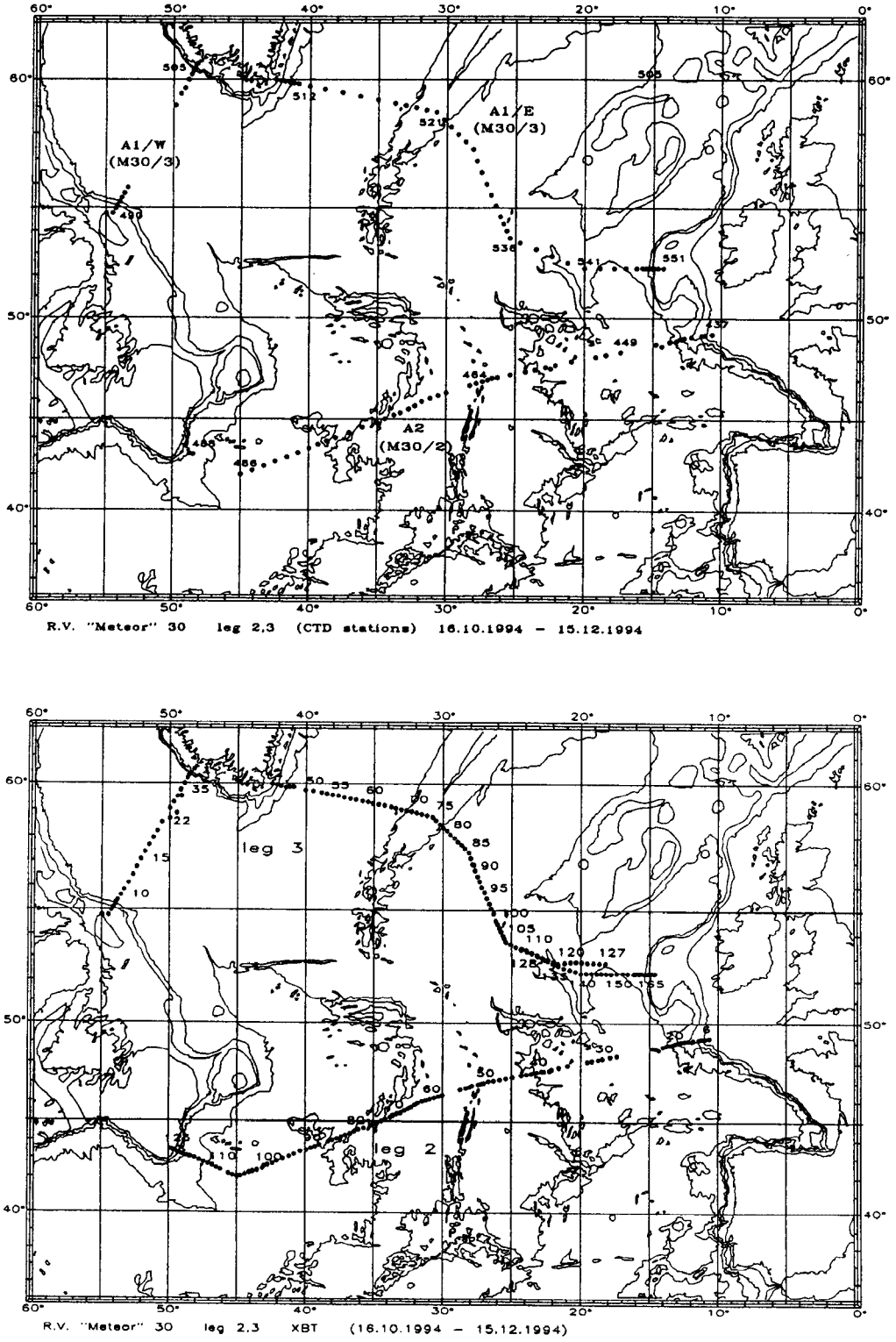

Fig. (2) Track and station maps of Meteor legs M30/2 (WHP-A2) and M30/3 (WHP-A1). Top panel: hydrographic stations and numbers, bottom: XBT stations and numbers

samples taken were linked to the rosette Niskin bottles by the "Bedford" sample identification system (see 5.2.1).

Salinity samples were drawn into dry 200 ml BSH salinity bottles with polyethylene stoppers and external thread screw caps. It was found by Kirkwood and Folkard (1986) that these bottles guarantee best long-term storage conditions, a problem encountered with the old soft glass seawater sample bottles (Sy and Hinrichsen, 1986). Bottles were rinsed three times before filling. Samples were collected as pairs of replicates (i.e. two samples from the same rosette bottle), one for shipboard salinity measurements and one for backup purposes, e.g. for the possibility of cross checks by later shore-based salinity analysis. The rosette sampling procedure was completed by readings of electronic DSRTs for a first quick check of the scheduled bottle pressure level and for in-situ control of the CTD pressure and temperature calibration.

In all 18 $CTDO_2$-rosette stations were occupied along section A1/West and 45 $CTDO_2$-rosette stations along section A1/East (Fig. 12a, List 7.1.3), of which the first two casts at station # 489 were used to test winch, cable, two CTD-rosette systems as well as the sampling procedure and the laboratory equipment. Three casts were used for rosette sample quality tests at stat. # 496, 517 and 542 by means of multi-trips at the same depth level (Table 5.2.3.1). An overview of the locations of water samples is given in Fig. (16 a). Activities, occurrences and measured parameters are summarised in the station listing (List 7.1.3).

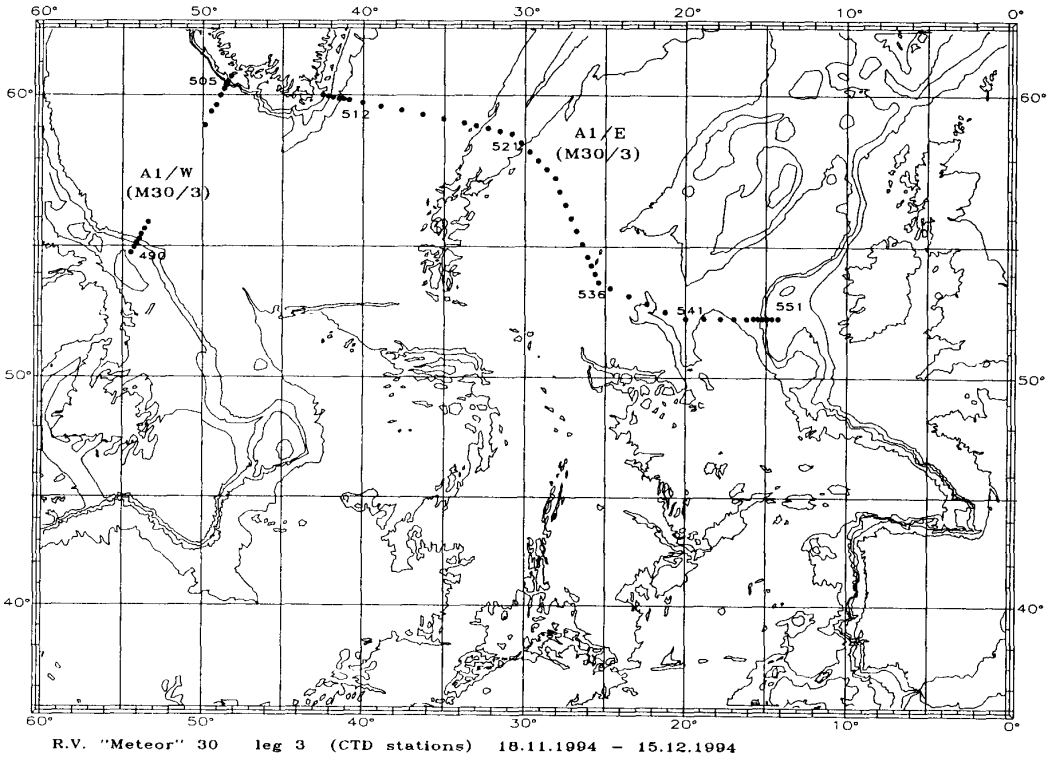

Fig. (12a) Positions of $CTDO_2$/rosette stations for R.V. "Meteor" cruise no. M30/3

- **Thermosalinograph, XBT and XCTD Measurements**
  (BSH, A. Sy)

Unfortunately, underway measurements of surface temperature and salinity along section A1 failed, although an Ocean Sensors OS200 Thermosalinograph, which was mounted at the ship's laboratory sea water pipe system, worked without technical problems. However, due to the near surface sea water intake, rough sea over long periods and the absence of a bubble trap, the data quality was so badly affected by air bubbles, that the data were rejected.

XBT Sections
(BSH, A. Sy)

In order to improve the spatial resolution of the hydrographic sections XBT profiles were collected at least after each CTD station and halfway between two stations (Fig. 11). 157 Sippican T-5 probes (nominal depth range 1830 m) and 8 Sippican T-7 probes (760 m) were launched from the vessel's stern using a hand-held launcher. The data acquisition system used a Compaq SLT/286 laptop computer with extension unit, equipped with a Sippican MK-12 interface rev. J, firmware rev. 2.1 and NOAA SEAS-III software rev. 3.2. Where practicable, the measurements were carried out according to the guidelines given by Sy (1991).

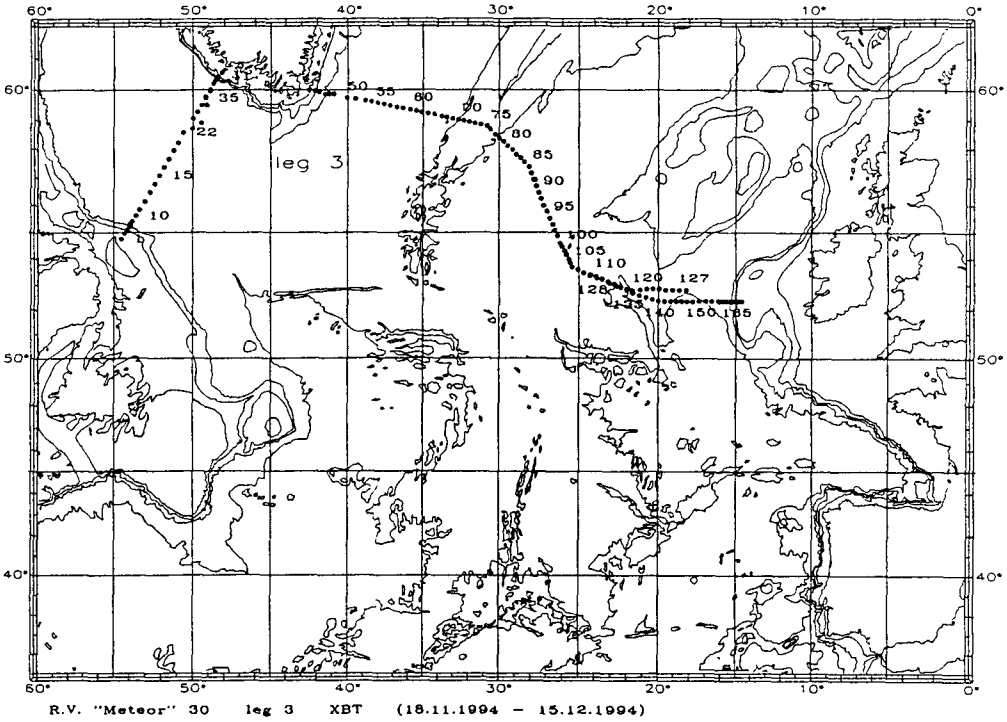

Fig. (21) Positions of XBT profiles for "Meteor" cruise M30/3

Vertical sections from XBT data are presented in Fig. (22). The inflection points calculated by the SEAS programme were transmitted as BATHY messages via BSH into the GTS network. The complete raw data were processed at BSH according the procedures described by Sy and Ulrich (1994).