

## **6 Ships Meteorological Station**

### **6.1 Weather and Meteorological Conditions During Leg M43/1**

(R. Strüfing)

During transit from Viana do Castelo to the Canary Islands a high near the Azores supplied METEOR with fine pushing trade winds around Beaufort (Bft) 5 to 6. The sun was sometimes hidden behind some low clouds. Whilst the first dredging took place on November 29th near the southern tip of La Palma the trade winds were locally intensified by mountains up to Bft 8. The wave height of 2 to 2.5 meter did not hamper progress. On December 1st a coldfront passage caused some showers. The high near the Azores had moved to Europe weakening the trade winds and giving way to the remainders of a cut-off low approaching from the west. The frontal system of this low passed on December 4th with moderate westerly winds and some showers. On December 5th a new high developed near the Azores causing the wind to back to northeasterly directions. At this time METEOR started exploring the seamounts south of the Canary Islands. During the next days a strong cyclogenesis evolved in the northern parts of the North Atlantic. Starting from a position south of New Foundland a series of severe gale lows moved into the Norwegian Sea. The high westerly to northwesterly windseas in the rear of these lows travelled the Atlantic Ocean to arrive south of the Canary Islands. This 2 to 2.5 meter northwesterly swell in conjunction with the up to 2.5 meter windsea of the trade winds caused some rolling movement of METEOR. However, research went on to schedule. From 12th until 23rd December METEOR operated near the islands of Tenerife and Gran Canaria. Due to the weaker high over Spain the trade winds blew at Bft 4 to 5 only. In the absence of any swell research could continue under ideal conditions. Whereas between December 12th and 18th sunshine added to the high spirits of crew and scientists the very last days passed under a layer of high clouds caused by a more northerly air flow originating from a new high west of the Azores. During cruise M43/1 METEOR has experienced winds slightly above the average climate conditions which are near Bft 4 with 70% northerly to easterly directions. Only the swell in the south of the Canary Islands seems to have been higher than normal but at no time research was significantly handicapped by the weather conditions.

### **6.2 Weather and Meteorological Conditions during Leg M43/2**

(H.D. Behr)

R/V METEOR left the port of Las Palmas d. G. C. on December 28, 1998 noon steering on a northeasterly course to her first working position at 37°30'N/10°30'W. The first gale centre in the time of this cruise moved eastwards and deepened in the vicinity of the British Isles to a storm centre causing south-west 8 Bft with gusts of 10 Bft and a swell with heights of 6 m and more in our area. For the safety of the ship and the crew R/V METEOR reduced her velocity and reached her working position in the morning of January 1, 1999. The first tests with the CTD-sondes at this position failed because of the swell. In order to save time R/V METEOR sailed to the northern part of the OMEX-region, which is the expected main working area of this cruise. After reaching this area R/V METEOR picked up a mooring at 40°N/9.5°W and tried to do so with another one at 42°N/13.5°W. As this failed due to heavy sea R/V METEOR returned to 40°N/9.5°W processing PARASOUND observations meanwhile.

The series of storm centres ended in the morning of January 6. The last gale centre influencing the working area of R/V METEOR with southerly winds force 8 Bft and swell with 6 m moved southwards to the Canary Islands. The wind decreased to Southwest 4 Bft and the swell to 1 to 2 m at January 7. There was no weather-influence on station work for two days. A cold front

changed at the north-western corner of the Iberian Peninsula (Cape Finisterre) to a low within 12 hours causing northerly winds increasing to 8 Bft with gusts up to 10 Bft. R/V METEOR could put her bow in the wind easily in order to continue station work as wind, swell, and sea were coming from the same direction for the first time. As this low moved quickly to the Balearic Islands the wind calmed down with variable directions up to January, 11. The last low during this leg moved from the Central North-Atlantic towards the coast of Portugal and from here to Morocco causing north-easterly winds force 7 to 8 Bft at first, decreasing to 4 Bft until the end of the cruise. R/V METEOR reached Cádiz in the late afternoon of January 14, 1999.