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**Cruise Report
POSEIDON 298/2**

**Brindisi-Palermo
12. May - 28. May 2003
Technical Report 01-2003**

On citing this report in a bibliography, the reference should be followed by the words *unpublished manuscript*.

POSEIDON CRUISE 298/2

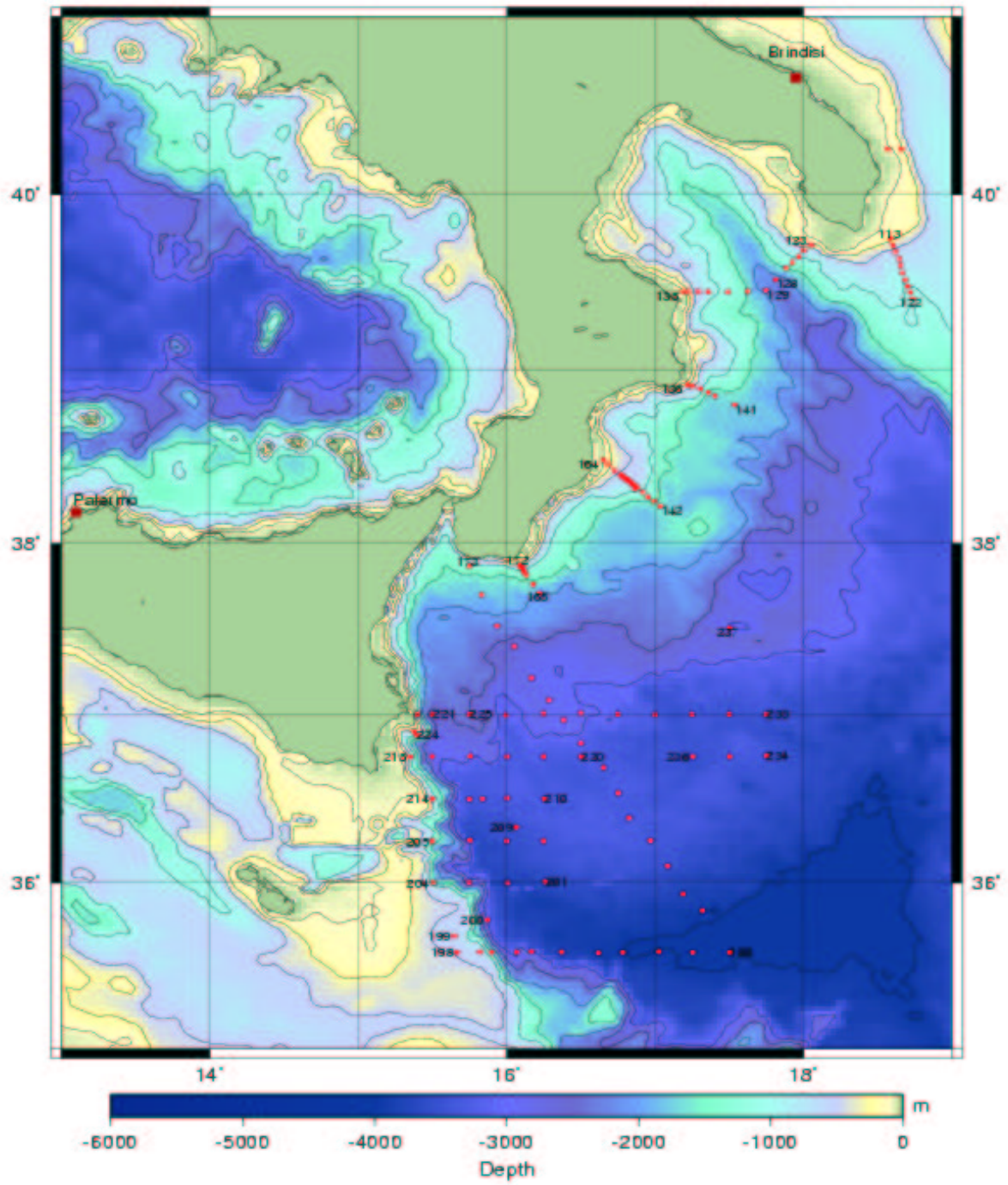


Figure 1: Station Map. Red dots indicate CTD/IADCP stations

Station	Date	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	Samples O=Oxygen S=Salinity	Comments
111	13.05.2003	05:16	40° 15.49'	18° 33.99'	99	S	
112	13.05.2003	06:59	40° 15.49'	18° 39.30'	428	O, S	
113	13.05.2003	10:30	39° 45.01'	18° 35.10'	140	S	Section 1
114	13.05.2003	11:35	39° 42.80'	18° 36.21'	411	O, S	
115	13.05.2003	13:14	39° 40.54'	18° 37.14'	569	S	
116	13.05.2003	14:36	39° 38.20'	18° 38.61'	672	O, S	
117	13.05.2003	16:02	39° 35.89'	18° 39.11'	731	S	
118	13.05.2003	17:23	39° 33.49'	18° 39.92'	805	O, S	
119	13.05.2003	18:55	39° 31.14'	18° 40.99'	872	S	
120	13.05.2003	20:35	39° 28.92'	18° 41.97'	919	O, S	
121	13.05.2003	21:59	39° 26.70'	18° 43.10'	941	S	
122	13.05.2003	23:42	39° 24.57'	18° 44.08'	1022	O, S	
123	14.05.2003	04:24	39° 42.97'	18° 03.10'	191	S	Section 2
124	14.05.2003	05:46	39° 41.03'	18° 00.13'	552	O, S	
125	14.05.2003	07:13	39° 39.00'	17° 58.06'	878	S	
126	14.05.2003	08:46	39° 37.04'	17° 55.47'	1054	O, S	
127	14.05.2003	10:17	39° 35.01'	17° 53.00'	1263	S	
128	14.05.2003	12:33	39° 31.11'	17° 48.68'	1956	O, S	
129	14.05.2003	15:29	39° 27.36'	17° 44.78'	2149	S	Section 3
130	14.05.2003	18:02	39° 27.10'	17° 37.38'	1628	O, S	
131	14.05.2003	20:24	39° 26.85'	17° 29.44'	1117	S	
132	14.05.2003	22:20	39° 26.94'	17° 21.46'	903	O, S	
133	14.05.2003	23:44	39° 27.02'	17° 17.51'	818	S	
134	15.05.2003	00:58	39° 27.06'	17° 13.57'	600	O, S	
135	15.05.2003	01:55	39° 26.97'	17° 11.08'	377	S	
136	15.05.2003	06:16	38° 55.16'	17° 12.96'	346	O, S	Section 4
137	15.05.2003	07:14	38° 54.55'	17° 15.00'	542	S	
138	15.05.2003	08:49	38° 53.62'	17° 18.31'	1331	O, S	
139	15.05.2003	10:43	38° 52.29'	17° 21.52'	1614	S	
140	15.05.2003	12:29	38° 51.12'	17° 24.23'	1676	O, S	
141	15.05.2003	14:47	38° 48.09'	17° 32.11'	1659	S	
142	15.05.2003	20:40	38° 13.03'	17° 02.09'	1710	O, S	Section 5
143		cancelled	because of	technical	problems	with the	winch
144	15.05.2003	22:37	38° 14.66'	16° 59.68'	1728	O, S	
145	16.05.2003	00:26	38° 16.25'	16° 57.14'	1606	S	
146	16.05.2003	01:59	38° 17.93'	16° 54.98'	1040	O, S	
147	16.05.2003	03:12	38° 19.47'	16° 52.74'	805	O, S	
148	16.05.2003	04:21	38° 19.75'	16° 52.31'	776		
149	16.05.2003	05:12	38° 19.07'	16° 51.81'	746		
150	16.05.2003	06:03	38° 20.42'	16° 51.36'	710		
151	16.05.2003	06:52	38° 20.69'	16° 50.87'	688		
152	16.05.2003	07:48	38° 21.02'	16° 50.45'	667		
153	16.05.2003	08:39	38° 21.36'	16° 49.99'	658		
154	16.05.2003	09:31	38° 21.68'	16° 49.52'	658	O, S	
155	16.05.2003	10:25	38° 21.94'	16° 48.95'	658		

Station	Date	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	Samples O=Oxygen S=Salinity	Comments
156	16.05.2003	11:14	38° 22.40'	16° 48.69'	647		Section 5
157	16.05.2003	12:05	38° 22.53'	16° 47.83'	643		
158	16.05.2003	13:12	38° 22.96'	16° 47.31'	638		
159	16.05.2003	14:32	38° 23.32'	16° 46.87'	622		
160	16.05.2003	15:03	38° 23.70'	16° 46.52'	607		
161	16.05.2003	16:01	38° 23.99'	16° 46.00'	601	O, S	
162	16.05.2003	17:17	38° 25.37'	16° 43.62'	431	O, S	
163	16.05.2003	18:17	38° 27.53'	16° 41.23'	240	S	
164	16.05.2003	19:16	38° 29.01'	16° 39.09'	128	O, S	
165	17.05.2003	01:30	37° 42.52'	16° 13.21'	2001	O, S	Section 6
166	17.05.2003	03:49	37° 45.62'	16° 10.64'	1616	O, S	
167	17.05.2003	05:49	37° 48.89'	16° 07.97'	1318	S	
168	17.05.2003	07:29	37° 50.00'	16° 07.18'	1029	O, S	
169	17.05.2003	08:28	37° 50.61'	16° 07.01'	877	S	
170	17.05.2003	10:03	37° 51.27'	16° 06.40'	642	O, S	
171	17.05.2003	11:00	37° 51.85'	16° 05.81'	421	S	
172	17.05.2003	11:39	37° 52.38'	16° 05.27'	180	O, S	
173	17.05.2003	14:23	37° 52.05'	15° 44.93'	943	O, S	Section 7
174	17.05.2003	16:50	37° 42.08'	15° 49.87'	1949	O, S	
175	17.05.2003	19:58	37° 31.08'	15° 56.16'	2114	O, S	
176	17.05.2003	22:54	37° 23.97'	16° 03.11'	2522	O, S	
177	18.05.2003	02:35	37° 12.90'	16° 09.95'	2845	O, S	
178	18.05.2003	05:55	37° 04.97'	16° 17.03'	2879	O, S	
179	18.05.2003	09:04	36° 57.89'	16° 22.99'	2782	O, S	
180	18.05.2003	12:32	36° 49.74'	16° 29.90'	3093	O, S	
181	18.05.2003	16:00	36° 41.01'	16° 39.18'	3326	O, S	
182	18.05.2003	19:25	36° 32.01'	16° 44.99'	3196	O, S	
183	18.05.2003	23:17	36° 23.10'	16° 49.51'	3264	O, S	
184	19.05.2003	03:21	36° 15.05'	16° 58.05'	3268	O, S	
185	19.05.2003	06:56	36° 05.98'	17° 04.99'	3397	O, S	
186	19.05.2003	10:46	35° 56.03'	17° 11.22'	3607	O, S	
187	19.05.2003	14:14	35° 50.04'	17° 19.02'	3779	O, S	
188	19.05.2003	18:26	35° 34.98'	17° 30.03'	3965	O, S	
189	19.05.2003	22:34	35° 34.95'	17° 15.10'	3914	O, S	Section 8
190	20.05.2003	03:25	35° 35.27'	17° 01.42'	3896	O, S	
191	20.05.2003	07:35	35° 34.96'	16° 46.98'	3860	O, S	
192	20.05.2003	11:32	35° 34.87'	16° 37.06'	3840	O, S	
193	20.05.2003	15:30	35° 35.17'	16° 22.23'	3732	O, S	
194	20.05.2003	18:59	35° 35.21'	16° 10:82'	3126	O, S	
195	20.05.2003	22:12	35° 35.08'	16° 04.07'	2748	O, S	
196	21.05.2003	01:37	35° 34.94'	15° 53.90'	2456	O, S	
197	21.05.2003	03:49	35° 35.12'	15° 49.10'	949	O, S	
198	21.05.2003	05:49	35° 35.00'	15° 39.96'	545	O, S	
199	21.05.2003	07:13	35° 40.99'	15° 38.98'	523	O, S	Section 9
200	21.05.2003	10:55	35° 46.72'	15° 52.13'	3100	O, S	

Station	Date	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	Samples O=Oxygen S=Salinity	Comments
201	21.05.2003	15:42	36° 00.35'	16° 15.50'	3511	O, S	Section 10
202	21.05.2003	20:13	35° 59.95'	16° 00.33'	3648	O, S	
203	22.05.2003	00:31	36° 00.04'	15° 44.81'	2863	O, S	
204	22.05.2003	04:13	36° 00.14'	15° 30.43'	1640	O, S	
205	22.05.2003	06:55	36° 14.96'	15° 30.07'	1568	O, S	Section 11
206	22.05.2003	10:26	36° 15.23'	15° 45.10'	3453	O, S	
207	22.05.2003	14:09	36° 14.89'	16° 00.06'	3435	O, S	
208	22.05.2003	17:47	36° 14.92'	16° 14.83'	3358	O, S	
209	22.05.2003	21:49	36° 19.80'	16° 03.96'	3303	O, S	
210	23.05.2003	02:25	36° 29.99'	16° 15.32'	3350	O, S	Section 12
211	23.05.2003	06:30	36° 30.24'	16° 00.22'	3195	O, S	
212	23.05.2003	10:00	36° 29.94'	15° 50.10'	3306	O, S	
213	23.05.2003	13:24	36° 29.89'	15° 44.85'	3369	O, S	
214	23.05.2003	16:45	36° 29.94'	15° 29.97'	1179	O, S	
215	23.05.2003	19:28	36° 44.86'	15° 21.10'	619	O, S	Section 13
216	23.05.2003	21:46	36° 44.99'	15° 29.86'	2888	O, S	
217	24.05.2003	01:16	36° 45.11'	15° 45.25'	2762	O, S	
218	24.05.2003	04:38	36° 45.02'	16° 00.11'	3221	O, S	
219	24.05.2003	08:27	36° 44.97'	16° 14.95'	3187	O, S	
220	24.05.2003	11:55	36° 45.01'	16° 30.09'	3195	O, S	
221	24.05.2003	18:49	36° 59.98'	15° 30.08'	2415	O, S	Section 14
222	24.05.2003	20:51	37° 00.00'	15° 24.02'	1514	O, S	
223	24.05.2003	22:30	36° 53.80'	15° 22.51'	471	O, S	
224	24.05.2003	23:26	36° 52.68'	15° 23.61'	713	O, S	
225	25.05.2003	02:33	36° 59.95'	15° 44.95'	2555	O, S	Section 15
226	25.05.2003	06:03	36° 59.73'	15° 59.70'	2935	O, S	
227	25.05.2003	09:22	37° 00.21'	16° 14.95'	2807	O, S	
228	25.05.2003	12:56	37° 00.32'	16° 29.94'	2893	O, S	
229	25.05.2003	16:09	37° 0.003'	16° 44.92'	3130	O, S	
230	25.05.2003	19:33	36° 59.90'	16° 59.99'	3354	O, S	
231	25.05.2003	23:25	37° 00.03'	17° 14.90'	3276	O, S	
232	26.05.2003	03:15	36° 59.95'	17° 29.94'	3260	O, S	
233	26.05.2003	06:54	36° 59.99'	17° 44.86'	3330	O, S	
234	26.05.2003	11:01	36° 45.22'	17° 44.94'	3312	O, S	Section 16
235	26.05.2003	14:42	36° 45.00'	17° 30.15'	3190	O, S	
236	26.05.2003	18:11	36° 44.99'	17° 15.10'	3398	O, S	
237	27.05.2003	01:52	37° 30.32'	17° 30.05'	2987	O, S	

1. Aims of the cruise

The POSEIDON cruise 298/2 was carried out by the Institute of Oceanography of the University of Hamburg. Members of the University of Venice and the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale, Trieste were participating in the cruise.

The project was aimed at gaining a deeper knowledge on the water mass transformations occurring in the southern Adriatic and western Ionian Sea. To obtain this result CTD profiles, IADCP profiles and water samples for oxygen and salinity were taken and analysed.

The cruise had several objectives:

- Identifying the routes and characteristics of the fraction of deep water in the Ionian Sea which was generated in the Adriatic Sea.
- Quantifying the mixing of the deep water generated in the Adriatic Sea with the ambient water masses on its way southward.
- Estimating the importance of the deep water generated in the Adriatic Sea for the ventilation of the eastern Mediterranean Sea.

The experiment was financed by the University of Hamburg.

2. Narrative

Monday, 12.05.2003

Noon:

Position: Brindisi, Central Harbour

Weather condition: sunny and warm

The scientific crew from Hamburg arrived at Brindisi Airport at around 19:00 and went onboard at ca. 19:30. After a short discussion with the chief scientist of leg 1 of POSEIDON cruise 298 about the findings they made in the Adriatic Sea and after a safety instruction given by the first mate, the scientific crew started preparing the CTD and IADCP for the first stations of leg 2. The ship left the harbour at 22:30 sailing to the first position in the Strait of Otranto to complete the section at the Italian coast which has been already started on leg 1 of POSEIDON cruise 298.

Tuesday, 13.05.2003

Noon:

Position: 39° 48.43' N, 18° 35.04 E

Weather condition: sunny, 21° C, humidity 66%, wind 1Bft, turning

At 6:00 the first station of leg 2 was reached in the Strait of Otranto close to the Italian coastline. CTD, Rosette and IADCP worked well after we faced some minor technical problems. Oxygen sampling started at the second station of the Otranto section. All scientists

have been introduced to the measurement procedures and how to handle the instruments. The first section of the cruise was reached at 12:30 and work on this section continued until night. We all were pleased to detect a strong signal of Adriatic deep water at 900m depth.

Wednesday, 14.05.2003

Noon:

Position: 39° 35.03' N, 17° 52.97' E

Weather condition: sunny, 20.6° C, humidity 68%, wind 3Bft, NNW

The second section crossing the Gulf of Taranto was started at 6:30 in the morning. All instruments worked well except of the altimeter which aggravate to lower the CTD close to the bottom. A school of dolphins was sighted in the morning. In the afternoon our Italian-Croatian colleague Vedrana Kovacevic gave a short seminar talk to explain the main hydrographic characteristics of the eastern Mediterranean Sea. The second section was finished in the afternoon. The first station of section 3, crossing the Gulf of Taranto on its western side, was started at 17:30 and we continued with this section during the whole night.

Surprisingly, we were called several times by different Italian marine authorities to send our expected positions. This, of course, had already been done the day before. We guess, that a large amount of submarine activities in the Gulf of Taranto lead to these frequent inquiries.

Thursday, 15.05.2003

Noon:

Position: 38° 52.18' N, 17° 20.99' E

Weather condition: sunny, 20.4° C, humidity 61%, wind 2 Bft, W

In the early morning we started with sampling on section 4. The work on this section was finished in the early evening hours. Unfortunately, on this section we were not able to detect Adriatic deep water. To ensure that our station distance of about two nautical miles is not too coarse to resolve the bottom tracked flow of Adriatic water, we decided to improve our sampling distance to 0.5 nm on that part of the next section where the depths vary between 400 to 900 m because in this range Adriatic deep water can be expected.

In the evening hours we were facing some problems with the hydraulics of the CTD winch but thanks to the expertise of the crew of POSEIDON the problem was solved within one hour. Except for the last station of section 4 which was skipped, no additional disadvantages for the scientific work resulted from this technical problem. In the night, after a steaming distance of about 3 hours the first station of section 5 was reached.

Friday, 16.05.2003

Noon:

Position: 38° 21.71' N, 16° 49.44' E

Weather condition: sunny, 18.7° C, humidity 68%, wind 2 Bft, ENE

We arrived at that part of section 5 which should be resolved highly, in the early morning hours and continued with this work until the evening. Section 5 was then finally finished at 21:00. Unfortunately, there was no Adriatic deep water to be found in the whole section. As a

consequence, we decided to continue with one more section at the coast and then to leave offshore in order to survey the more global scale hydrography of the western Ionian Sea.

In the evening hours everyone was enjoying the fantastic view on the Italian coast and one more attraction of the day had been the appearance of a single shark in the moreover apparently empty sea.

Saturday, 17.05.2003

Noon:

Position: 37° 51.26' N, 16° 06.39' E

Weather condition: some clouds, 19.4° C, humidity 77%, no wind

In the night we proceeded with our work along the Italian coast with section 6 which we finished in the early afternoon. At 16:00 we started section 7 with our last station close to the coast continuing now our experiment on a more global scale which will lead us to the central Ionian basin.

In the afternoon hours a nice view on mount Etna was granted. Even if the top was slightly hidden by some haze this was a picturesque sight.

Sunday, 18.05.2003

Noon:

Position: 36° 57.89 N, 16° 22.98 E

Weather condition: cloudy, 19.6° C, humidity 87%, wind 3 Bft, W

We were now sailing away from the Italian coast towards the centre of the Ionian basin following the station plan of section 7. Station distance now came up to approximately 10 nm. Some minor technical problems with the winch caused unfortunately long stops at the stations. This problem will last for the rest of our cruise and we have to account for the fact that we might have to cancel some stations.

Monday, 19.05.2003

Noon:

Position: 35° 56.01' N, 17° 11.06' E

Weather condition: sunny, 20.4° C, humidity 74%, 3-4 Bft, NNE

We needed now approximately 4 hours for taking our measurements and steaming to the next station. The deepest station of section 7 was reached not till the evening. Section 8 was started then shortly before midnight. The position of the first station of section 8 coincides with the location of a repeat station of our Italian colleagues.

Today everybody was enjoying the sunshine and during time off a lot of sailors and scientist were taking advantage of the small pool on the quarter-deck. In the evening we were spoiled by a fantastic sunset.

Tuesday, 20.05.2003

Noon:

Position: 35° 39.41' N, 16° 38.72' E

Weather condition: sunny, 20.8° C, humidity 82%, 3 Bft, NW

We continued with section 8 still taking stations in the deeper parts of the Ionian basin. The winch worked slow but however, work proceeded without any serious problems. In the late evening we reached the stations at the steep slope

In the morning the crew of POSEIDON exercised a fire alarm while the scientists were introduced via video clips how to avoid risks onboard.

Wednesday, 21.05.2003

Noon

Position: 35° 46.03' N, 15° 51.91' E

Weather condition: cloudy, 19.6° C, humidity 83%, 5 Bft, NW-W

In the early morning we sailed towards the Street of Sicily still continuing with section 8. The wind was increasing and keeping the ship on position got more difficult from station to station. During the rest of the morning we started with section 9 but due to a call from the Italian Navy administration we had to stop work on section 9. The Italian Navy insisted on keeping exactly those positions which had been announced in the diplomatic notes for the cruise. For this reason we were sailing in the afternoon to station 201, the first station of section 10.

Due to the increasing swell and wind sea some of the scientists started feeling slightly sea-sick.

Thursday, 22.05.2003

Noon

Position 36° 15.15' N, 15° 45.15' E

Weather condition: some clouds, 18.8° C, humidity 65%, 5 Bft, NW-W

Due to increasing winds and swell we needed the whole night to finish section 10. However, except of this loss of time the measurements proceeded satisfying under these conditions. In the morning we started with section 11 and continued with it for the rest of the day. It seemed that in the CTD profiles of section 11 partially, some Adriatic deep water might be found.

In the evening hours we were visited by a school of dolphins which accompanied us for a while. It was an impressive view to see them riding on the bow wave.

Friday, 23.05.2003

Noon

Position: 36° 29.92' N, 15° 50.11' E

Weather condition: cloudy, 19.3° C, humidity 54%, 4 Bft, NW-W

This day we were continuing our measurements with section 11 and 12. Also in section 12 there seems to be some Adriatic deep water present. We were lucky not to have any casualties or serious delays and that work proceeded with routine.

Due to clouds and heavy wind people were staying inside the ship and it was also a quiet day concerning social life onboard.

Saturday, 24.05.2003

Noon

Position: 36° 45.04' N, 16° 18.85' E

Weather condition: some clouds, 18.9° C, humidity 66%, 3 Bft, NW

Routine did not change from day before. Everything worked well and we proceeded with section 13 and 14.

Weather conditions were getting better now and mostly everybody went outside during spare time. Again a school of dolphins were crossing our way.

Sunday, 25.05.2003

Noon

Position: 37° 0.23' N, 16° 14.72' E

Weather conditions: sunny, 18.8° C, humidity 76%, 3 Bft, W-S

During night we started with stations along section 15 and continued measuring on this section the whole day. Everything worked well.

Monday, 26.05.2003

Noon

Position: 36° 45.03' N, 17° 45.02' E

Weather conditions: sunny, 20.1° C, humidity 77%, 4 Bft, SW-W

Today we finished section 15 and section 16. During night we started steaming to station 237 which is the last on this cruise. Also this day everything worked well.

Tuesday, 27.05.2003

Noon

Position: 37° 38.43' N, 16° 05.13' E

Weather conditions: cloudy, 20.1° C, humidity 83%, 2 Bft, E-N

In the morning at 5:15 we finished the measurement programme of the cruise with station 137 and started steaming to the Street of Messina through which we had to pass in order to arrive our destination port Palermo. In the afternoon all scientists were busy with dismantling instruments, packing and storing of the equipment. We arrived at the entrance of the Street at approximately 17:30 and enjoyed a wonderful sight during the passage although it was cloudy and a bit foggy, additionally celebrating a barbecue party on the quarter deck.

Wednesday, 28.05.2003

Noon

Position: Palermo, Port

Weather conditions: cloudy and rainy

We arrived at the port of Palermo at 9:30 wherewith POSEIDON cruise 298/2 ended. All scientist were leaving the ship on Thursday, 29.05.2003 after breakfast.

3. Cruise participants

Leg 2, 12. May - 28. May 2003

Dagmar Hainbucher	Chief scientist	IfM
Alexei Androssov	Scientist	IfM
Ilse Büns	Technician	IfAC
Udo Hübner	Scientist	IfM
Vedrana Kovacevic	Scientist	INOGS
Berit Rabe	Student	IfM
Angelo Rubino	Scientist	UV
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4. Technical information

CTD/Rosette

Altogether 127 full depth standard hydrographic stations were occupied during the cruise, employing a SeaBird SBE911plus CTD-O2 sonde, attached to a SeaBird carousel 12 bottle water sampler. Profiles were run to within 5-10 m of the bottom. At all stations water samples were taken from 4 to 8 depth levels evenly distributed within the water column. The water samples were analysed onboard for salinity, using a Guildline Autosol salinometer and for oxygen using a Metrohn titroprocessor. One of the water bottles was also equipped with protected and unprotected reversing digital thermometers, providing temperature and pressure check values for the CTD sensors.

Lowered Acoustic Doppler Current Profiler

Vertical profiles of horizontal currents were made with a LADCP-2 system attached to the rosette water sampler. The system consists of two ADCPs of the Workhorse type (WHM300) manufactured by RD Instruments. They operate at a frequency of 300 kHz. The data were analysed with software provided by the University of Bremen, Germany.

Surface temperature and salinity

Underway temperature and salinity measurements were made with a SeaBird thermo-salinograph installed in the ship's port well.

Current measurements

Underway current measurements were taken with a RDI 150 kHz acoustic Doppler Current Profiler, covering approximately the top 200 m of the water column. The transducers were installed in the starboard ship's well.

5. First Results

The results shown here were compiled during the cruise and are not calibrated. Also, the presentation is first draft.

As an example for the CTD measurements the distribution of temperature, salinity and oxygen are shown for the surface (50-100m, figures 2-4) and bottom (figures 5-7). Generally, it seems that newly formed Adriatic deep water can not be found in the Ionian basin and consequently, Adriatic deep water seems not to be one of the relevant water masses responsible for the ventilation of the eastern Mediterranean Sea during this time frame.

As an example for the LADCP measurements two sections (figure 8-9) are shown. Both sections are situated perpendicular to the Italian coast. The LADCP velocity distributions show relatively high values, also in the deeper layers. If this results is caused by hardware or software inaccuracies or if it is reasonable has not been analysed yet.

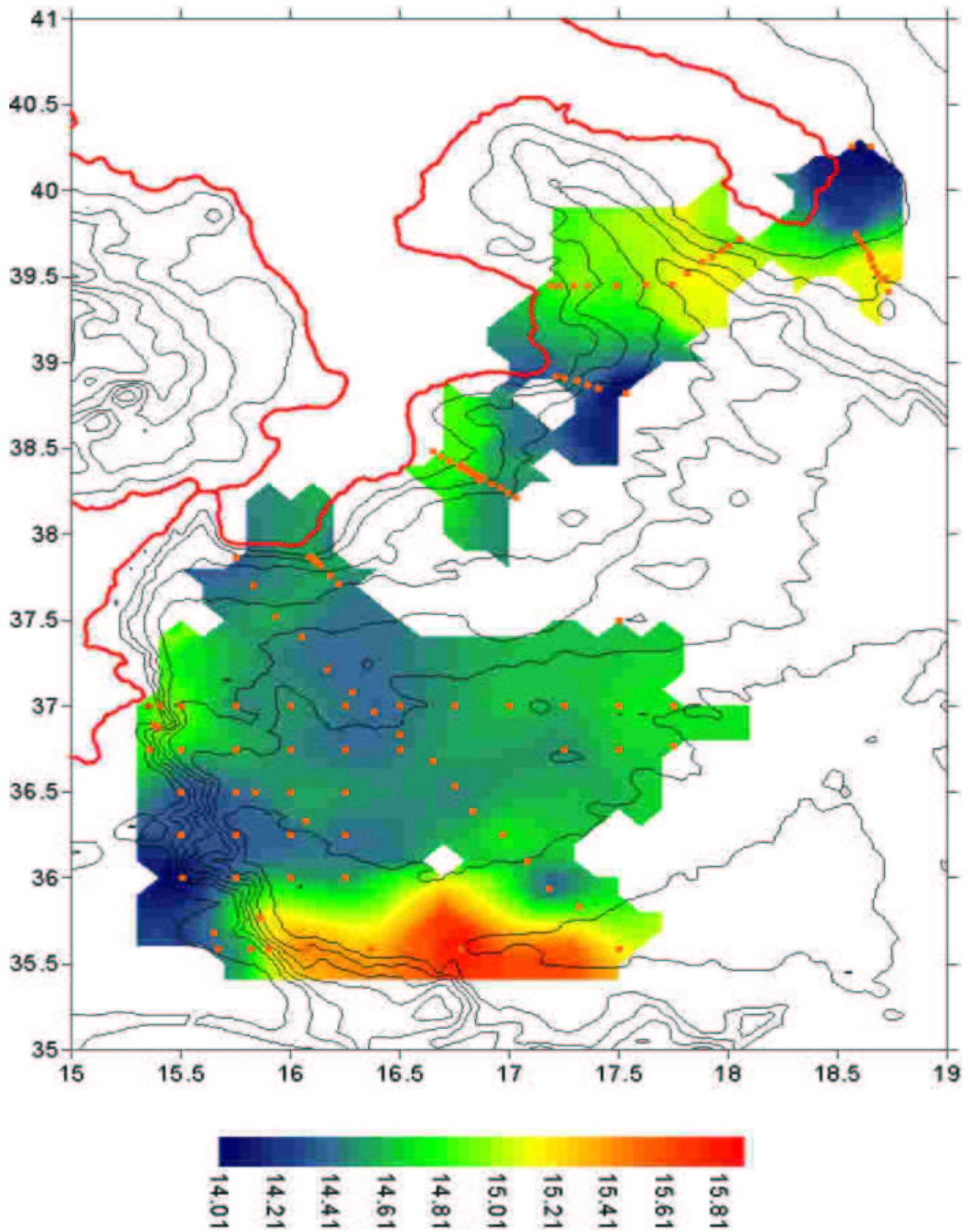


Figure 2: Surface temperature distribution (50-100m, °C). Red dots indicate the stations

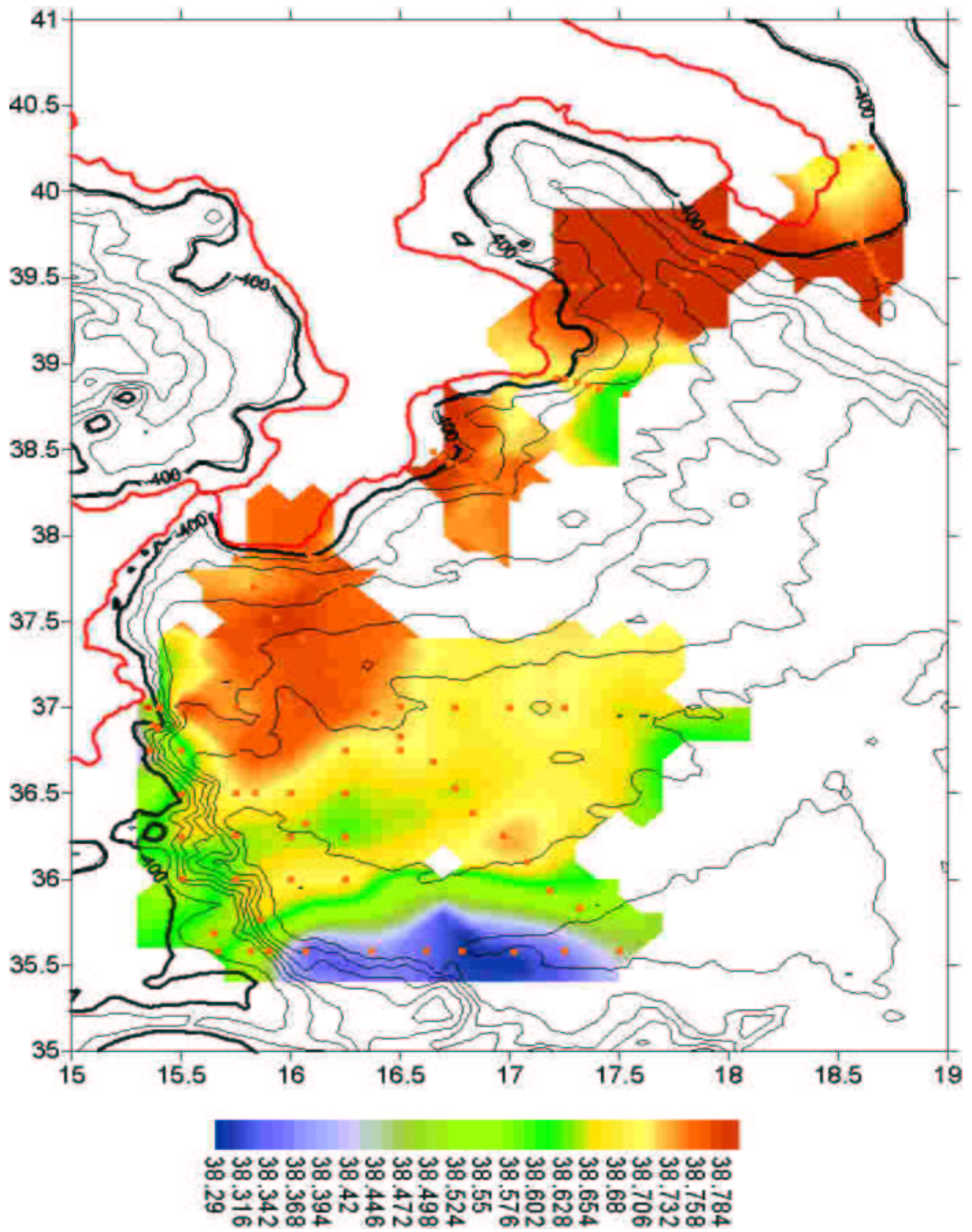


Figure 3: Surface salinity distribution (50-100m, psu). Red dots indicate the stations

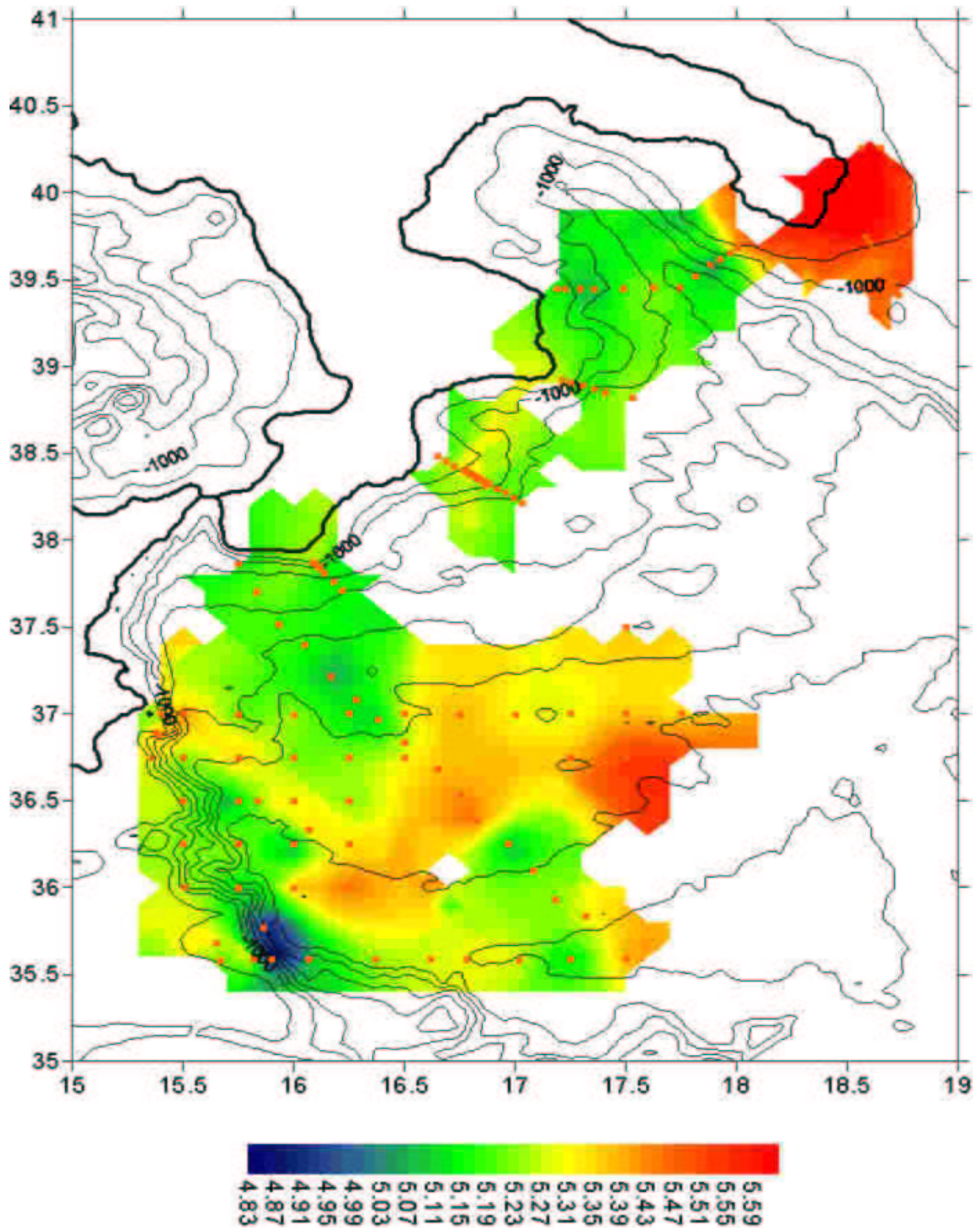


Figure 4: Surface oxygen distribution (50-100m, ml/l). Red dots indicate the stations

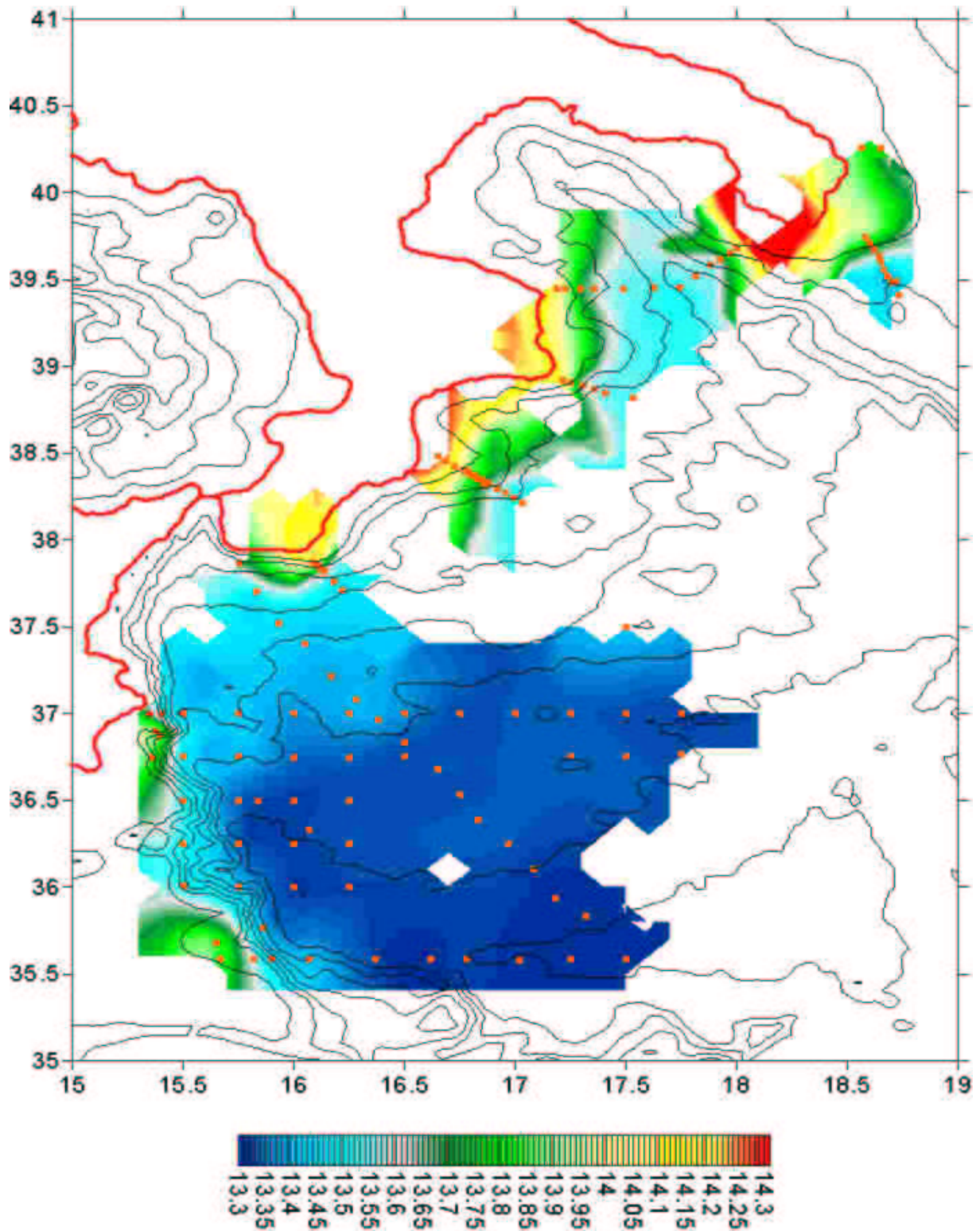


Figure 5: Bottom temperature distribution ($^{\circ}\text{C}$). Red dots indicate the stations

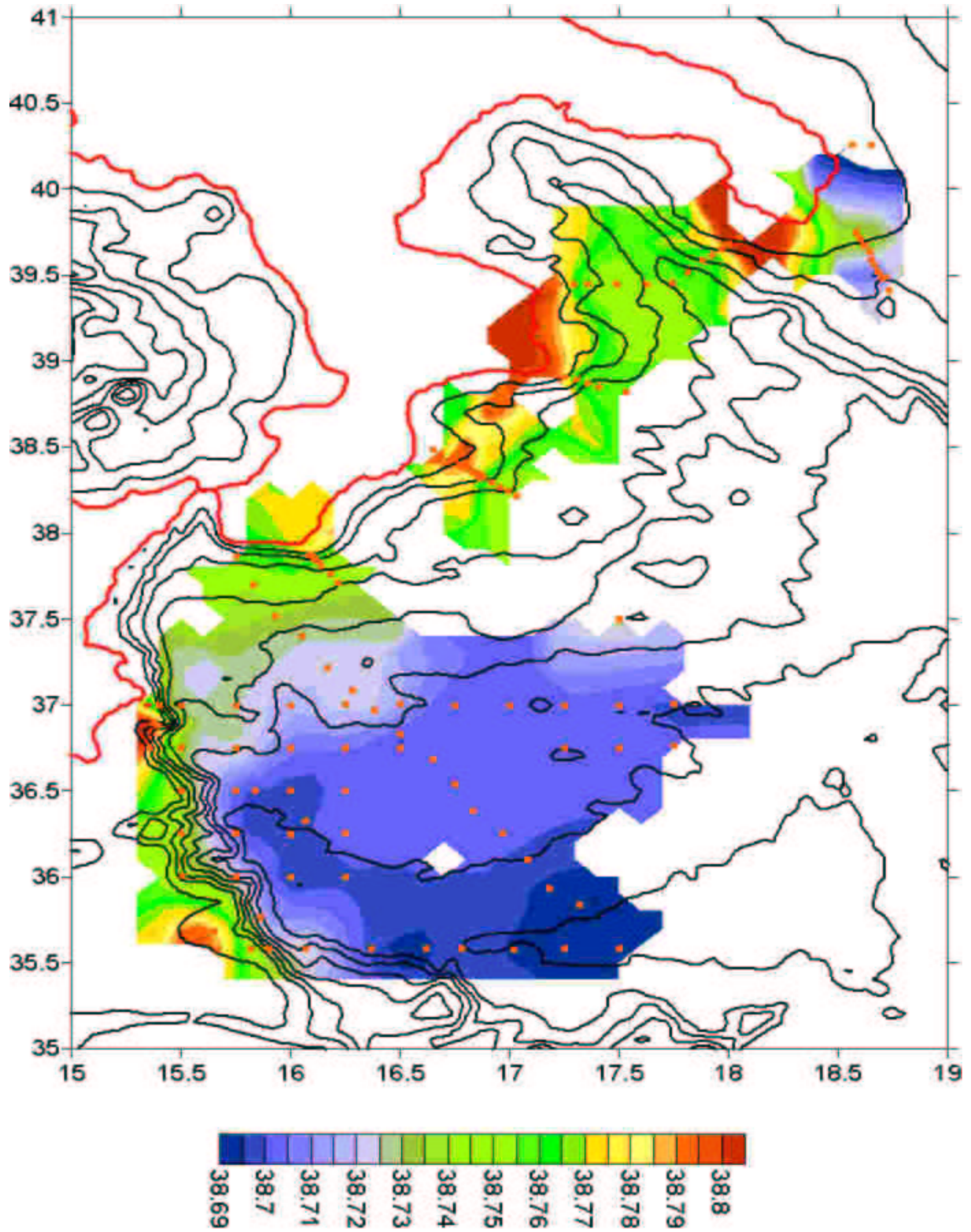


Figure 6: Bottom salinity distribution (psu). Red dots indicate the stations

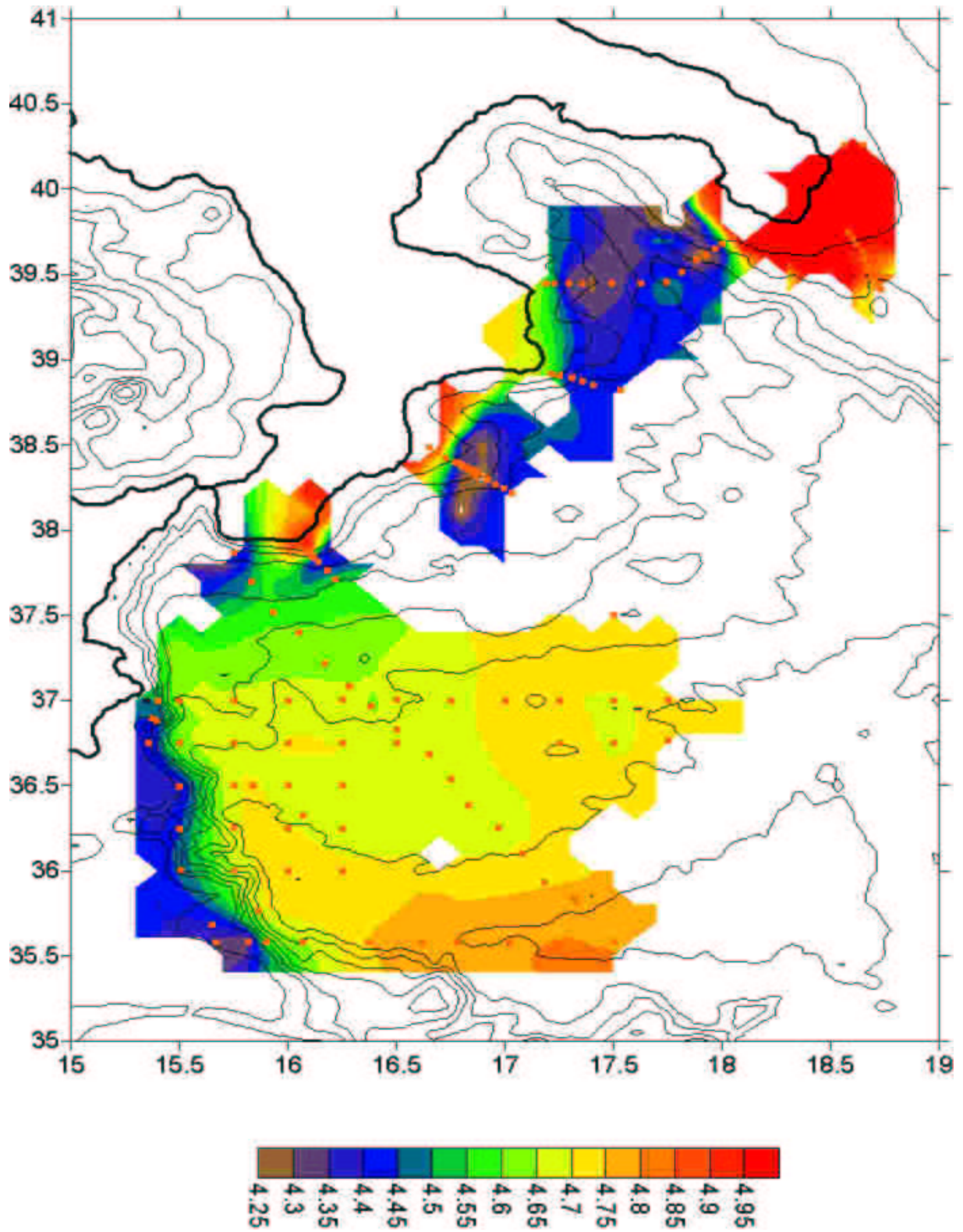


Figure 7: Bottom oxygen distribution (ml/l). Red dots indicate the stations

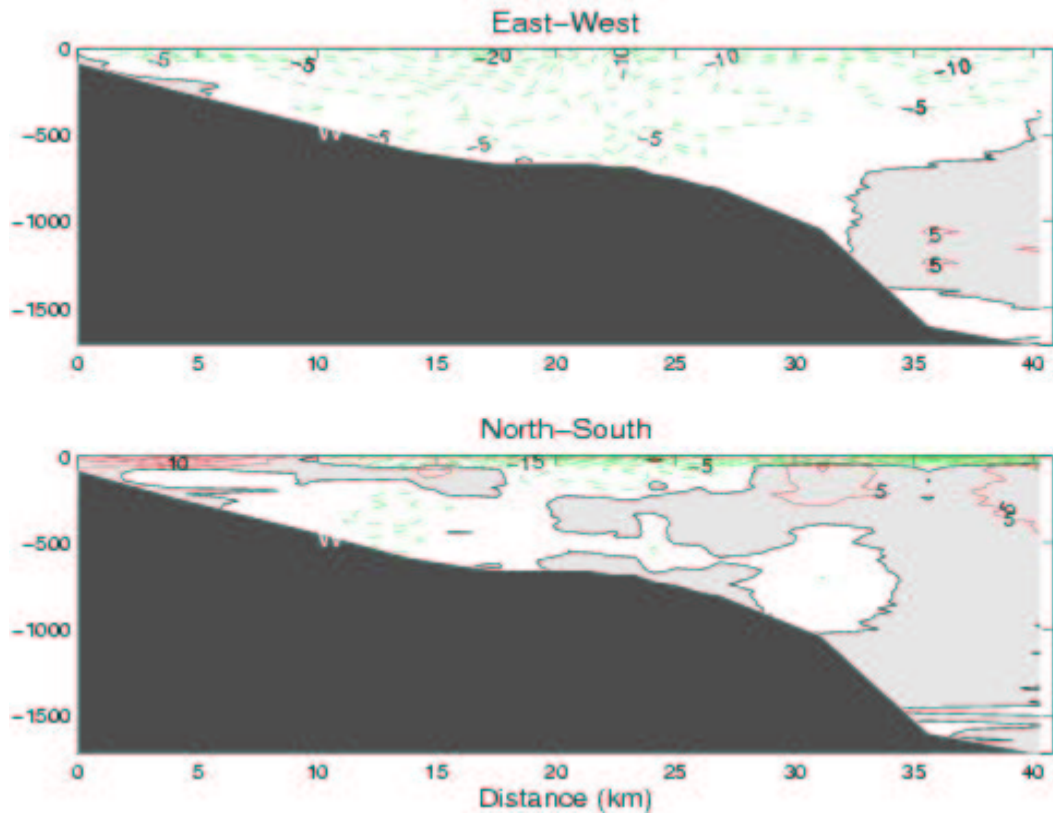


Figure 8: Velocities of section 5 (stations 142-164)

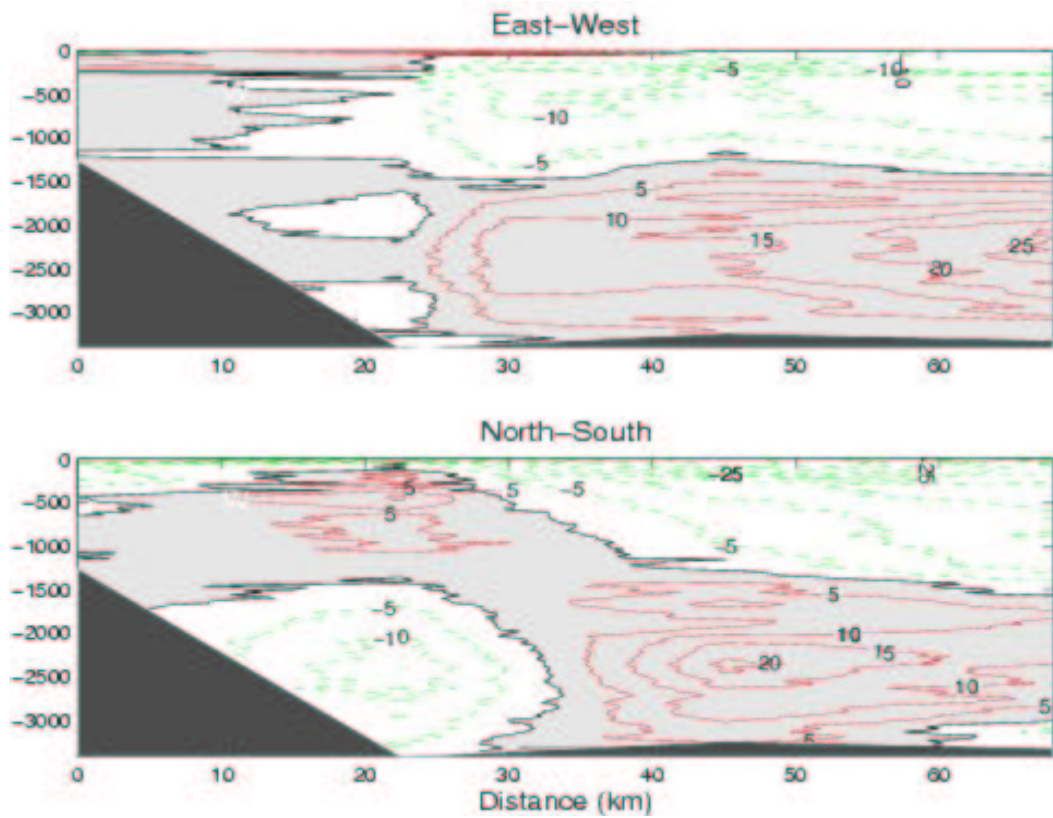


Figure 9: Velocities of section 12 (stations 210-214)

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Technical Reports

- 1-84 Baudner, H., K. Jancke and D. Quadfasel: CTD-data obtained in the Red Sea during 21-30 May 1983, RV SAGAR KANYA.
- 1-85 Meincke, J. and E. Mittelstaedt: Forschungsschiff METEOR, Reise Nr. 69 NORDOSTATLANTIK 84, NOAMP III. Berichte der wissenschaftlichen Leiter.
- 2-85 Verch, N. and D. Quadfasel: Hydrographic observations in the Norwegian Trench during 23 March - 17 April 1983, VALDIVIA cruise 10.
- 3-85 Backhaus, J., J. Bartsch, D. Quadfasel and J. Guddal: Atlas of monthly surface fields of air pressure, wind stress and wind stress curl over the North Eastern Atlantic Ocean for the period 1955-1982.
- 1-86 Hainbucher, D., J. Backhaus and T. Pohlmann: Atlas of climatological and actual seasonal circulation patterns in the North Sea and adjacent shelf regions: 1969-1981.
- 2-86 Quadfasel, D. and M. Ungewiß: Large-scale hydrographic structure of the upper layers in Fram Strait during the Marginal Ice Zone Experiment, 1984.
- 3-86 Quadfasel, D., E. Schelenz and N. Winkel: Marginal Ice Zone Experiment 1984. CTD-data obtained from RV VALDIVIA.
- 1-87 Quadfasel, D. and N. Verch: Seasonal variability of temperature in the Red Sea: XBT-sections from MCS "UBENA" in 1985 and 1986.
- 2-87 Quadfasel, D. and D. Grawunder: NORDMEER 86 - RV VALDIVIA cruise 48. CTD-observations in the Greenland Sea.
- 3-87 Verch, N., D. Quadfasel and S. Selchow: Hydrographic observations in the Tyrrhenian Sea during 26.2-25.3.1986. RV SONNE cruise 41 (HYMAS).
- 4-87 Boehlich, M. and J. Backhaus: Atlas simulierter Strömungen in der südwestlichen Ostsee für sommerliche Bedingungen.
- 1-88 Schauer, U.: VALDIVIA-Fahrt Nr. 61 (25.07.-23.08.1987)
- 2-88 Quadfasel, D.: VALDIVIA Reise 67 (1.2.-26.2.1988) Grönlandsee
- 3-88 Backhaus, J., J. Bartsch, P. Damm, D. Hainbucher, T. Pohlmann, D. Quadfasel and G. Wegner: Hydrographische Bedingungen und Zirkulation in der Nordsee im Winter und Frühjahr 1987/88 - Eine physikalische Hintergrundstudie zur extremen Planktonblüte im Frühjahr 1988.
- 4-88 Radach, G., J. Berg, B. Heinemann and T. Zachmann: Berichte über die Arbeiten des Teilprojektes P4 "Mathematische Modelle von Energie- und Stofftransporten durch die unteren tropischen Stufen des pelagischen Ökosystems der Nordsee.
- 5-88 Quadfasel, D., and M. Ungewiß: MIZEX 87 - RV VALDIVIA cruise 54. CTD observations in the Greenland Sea.

- 6-88 Backhaus, J.: On the circulation around the Faroe Islands and the adjacent continental slope: Experiments with a three-dimensional barotropic model.
- 1-89 Verch, N., M. Ungewiß, K. Schulze and D. Quadfasel: MINDIK - RV METEOR cruise 5. CTD observations in the Red Sea and Gulf of Aden.
- 2-89 Verch, N., M. Petzold, P. Mahnke and D. Quadfasel: Hydrographic bottle data obtained in the Red Sea and Gulf of Aden during RV METEOR cruise 5 - MINDIK 1987.
- 3-89 Schönfeld, W., B. Heinemann, G. Radach and P. Damm: Die ECOMOD - Datenbank, ein Hilfsmittel mariner Ökosystem-Forschung. Datenbericht 1988.
- 4-89 Meincke, J., and D. Quadfasel: "VALDIVIA"-Reise 78 - Grönlandsee. Fahrtbericht.
- 5-89 Ambar, I., J. Backhaus, A. Fiuza, P. Mahnke and D. Quadfasel: Hydrographic observations in the Tejo-estuary during September 1985.
- 6-89 Damm, P.: Klimatologischer Atlas des Salzgehaltes, der Temperatur und der Dichte in der Nordsee, 1968 - 1985.
- 7-89 Schauer, U.: VALDIVIA - Reise 86. Arktisfront. 9.8.89 - 5.9.89 Bodø-Hamburg. Fahrtbericht.
- 8-89 Quadfasel, D.: "Valdivia" Reise 87, Faroe-Shetland Kanal, 14.-24. September 1989, Fahrtbericht.
- 9-89 Latarius, K. and G. Gerds: VALDIVIA cruise 72, 1.-22. July 1988. CTD observations in the North Sea and Irish Sea.
- 1-90 Frische, A. and D. Quadfasel: SULU SEA RV SONNE Cruise 58. Hydrographic observations in the South China Sea and Sulu Sea.
- 2-90 Moll, A. and G. Radach: Wärme- und Strahlungsflüsse an der Grenzfläche Wasser-Luft berechnet bei Feuerschiff FS ELBE 1 in der Deutschen Bucht: 1962-1986.
- 3-90 Bohle-Carbonell, M., P. Damm and A. Frische: VALDIVIA Reise 92. Deutsche Bucht - Skagerrak, 12. Februar - 2. März 1990.
- 4-90 Quadfasel, D. and B. Rudels: Some new observational evidence for salt induced convection in the Greenland Sea.
- 5-90 Quadfasel, D.: "Valdivia" Reise 104, Islandsee, 15.-31. Oktober 1990, Fahrtbericht.
- 6-90 Moll, A. and G. Radach: ZISCH Parameter Report. Compilation of measurements from two interdisciplinary STAR-shaped surveys in the North Sea (Vol. I: Graphic Reports).
- 7-90 Moll, A. and G. Radach: ZISCH Parameter Report. Compilation of measurements from two interdisciplinary STAR-shaped surveys in the North Sea (Vol. II: Data Lists).
- 8-90 Hähnel, M.: VALDIVIA Reise 100, Arktisfront, 17. Juli bis 18. August 1990, Fahrtbericht.
- 1-91 Hähnel, M. and F. Schirmer: ADCP-Workshop 1991 in Hamburg, Vortragszusammenfassungen.
- 1-92 Latarius, K.: Current measurements in the Greenland Sea and West Spitsbergen Current obtained with satellite-tracked drifters during spring 1987 to summer 1989.
- 2-92 Dippner, J.: Mesoscale variability of the German Bight - an atlas of circulation, sea surface density and sea surface heights.

- 1-93 Quadfasel, D.: Valdivia Reise 131, Hamburg-Aberdeen-Stornoway-Bodø, 11. Januar-25. Februar 1993, Fahrtbericht.
- 1-94 Quadfasel, D.: Valdivia Reise 141, Hamburg-Tromsø-Tromsø-Hamburg, 7. Februar - 1. April 1994, Fahrtbericht.
- 2-94 Rudels, B., H. Friedrich and K. Schulze: Valdivia Reise 136, 15. Mai - 17. Juni 1993, Grönlandsee, Fahrtbericht.
- 1-95 Vajen, T., K. Herklotz, H. Haak and J. Bock: Ozeanographisches Seminar Wintersemester 1994/95. Hydrographie und Zirkulation der südostasiatischen Gewässer. Literaturstudie über den Indo-Pazifischen Einstrom.
- 1-96 Quadfasel, D.: Cruise Report, VALDIVIA cruise V160, TASC'n TEACH, 5.-16. July 1996, Hamburg - Torshavn - Reykjavik.
- 1-97 Quadfasel, D.: Cruise Report, VALDIVIA cruise V164, TASC'n TEACH II, 12.-21. May 1997, Hamburg - Torshavn.
- 2-97 Quadfasel, D.: Cruise Report, VALDIVIA cruise V165, ESOP II - ACSYS, 21. May - 9. June 1997, Torshavn - Longyearbyen.
- 3-97 Moll, A.: ECOHAM1 User Guide - The Ecological North Sea Model, Hamburg, Version 1.
- 4-97 Backhaus, J.: Fahrtbericht VALDIVIA Reise V167. ACSYS, ARKTIEF, SFB 313, ESOP II. Longyearbyen – Hamburg, 2. Juli – 27. Juli 1997.
- 5-97 Quadfasel, D., J. Meincke, J. Backhaus, Th. Knutz, M. Koch und B. Dümcke: Arbeits- und Erfahrungsbericht über den Einsatz von drei verankerten Autonomen Profilierenden Geräteträgern im Projekt ACSYS vor Spitzbergen im Sommer 1997.
- 1-98 Quadfasel, D.: Cruise Report, SONNE cruise SO127 BENGALWOCE, Port Klang – Malé, 17 December 1997 – 7 January 1998.
- 2-98 Quadfasel, D.: Cruise Report, VALDIVIA cruise V171, ACSYS, Teach and SFB 512, Hamburg - Torshavn – Reykjavik, 15. June – 2. July 1998.
- 3-98 Hainbucher, D. and Wei Hao: Cruise Report, Dong Fang Hong 2 AMBOS/AMREB cruise 1, Qingdao - Qingdao (P.R. China), 23.09.98 - 08.10.98.
- 1-99 Karstensen, J.: The extended OMP analysis, An analysis package for MATLAB, Version 1, Hamburg.
- 2-99 Moll, A. und L. Ehlers: Zeitschriften-Verzeichnis, Institut für Meereskunde, März 1999.
- 3-99 Hainbucher, D., Wei Hao: Cruise Report, DONG FANG HONG 2 cruise 02, AMBOS/AMREB, Qingdao – Qingdao, 27. April 1998 – 12. May 1999.
- 1-00 Backhaus J.O., Hegseth E.N., Wehde H., Hatten K., Logemann K., Nedderhut H., Arndt C.: Cruise Report: Phyto - Convection, VALDIVIA cruise 176, Hamburg - Thorshavn, 26.Feb - 20.Mar 1999, VALDIVIA cruise 178, Tørshavn - Reykjavik, 08.Apr - 26.Apr 1999.
- 01-00 Hainbucher, D.: Cruise Report, POSEIDON cruise POS 264, Tørshavn 25. August - 10. September 2000.

1-01 Mintrop, L.:Cruise Report, Winter in the Northeast Atlantic, POSEIDON cruise
267, Kiel – Madeira, Jan. 13-29.,2001

2-01 Hainbucher, D.: Cruise Report, S/V KOMMANDOR JACK cruises 02 & 03,
Torshavn-Torshavn-Leith, 12. July – 29. July 2001

1-02 Hainbucher, D. And C. Mertens: Cruise Report, POSEIDON cruise 294, Reykjavik – Torshavn –
Torshavn – Kiel, 06.09.2002 – 01.10.2002