

Dagmar Hainbucher
Institut für Meereskunde
CEN
Universität Hamburg
Bundesstr. 53
D-20146 Hamburg

Tel.: +49 40 42838 5745
Fax: +49 40 42838 4644

Cruise Report RV POSEIDON Cruise P468

Portimão – Bari
03. April – 28. April 2014
Chief Scientist: Dagmar Hainbucher

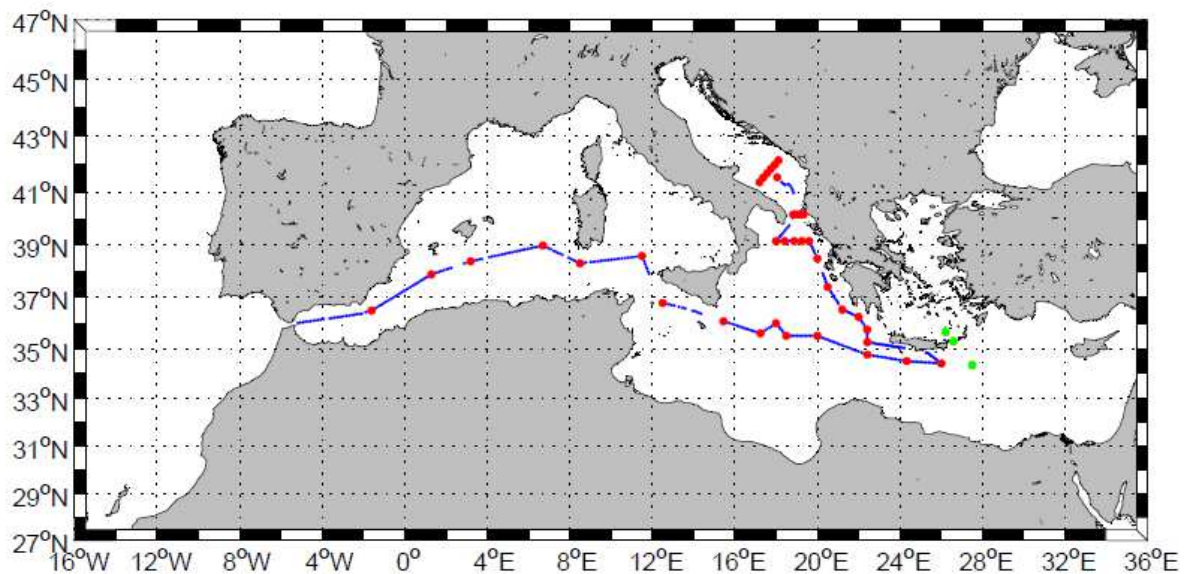


Fig. 1: Ship track of RV POSEIDON cruise P468 from Portimão to Bari. Red dots: CTD stations Green dots: cancelled CTD stations. Blue dots: U-CTD stations

1. Objectives

The purpose of the cruise was to investigate two hydrographic processes in the Mediterranean Sea:

- To determine long term variations of the Levantine Intermediate Water (LIW), the salinity of which not only influences the global circulation of the Mediterranean Sea but also contributes to the salinity distribution of the northern Atlantic in intermediate depths up to the coast of America.
- To investigate the deep water masses of the Eastern Mediterranean Sea. In the Eastern Mediterranean Sea drastic changes in the hydrography and circulation occurred during the last decades, which were known as the Eastern Mediterranean Transient (EMT). In particular, one prominent oceanic phenomenon related to the EMT was the shift of deep water formation from the Adriatic Sea to the Aegean Sea.

The impacts of the EMT are still noticeable and result in an ongoing changing thermohaline circulation.

To investigate these two issues, a high resolved east-west transection through the Mediterranean Sea was carried out within the upper 800m of the water column with an Underway-CTD. On special positions, already repeatedly sampled on other cruises, CTD/IADCP profiles down to the bottom were accomplished. By repeating measurements at special positions it is possible to investigate the long term temporal development of the different physical variables.

2. Cruise participants and crew

Dagmar Hainbucher	Chief Scientist	IfM-CEN
Fritjof Basan	Student	IfM-CEN
Vanessa Cardin	Scientist	OGS
Ulrich Drübbisch	Technician	IfM-CEN
Udo Hübner	Scientist	IfM-CEN
Martin Moritz	Scientist	IfM-CEN
Giuseppe Siena	Scientist	OGS

Institut für Meereskunde (IfM-CEN)

Centrum für Erdsystemforschung und Nachhaltigkeit
 Universität Hamburg
 Bundesstr. 53
 20146 Hamburg / Germany
 e-mail: domke-sommer@zmaw.de
 www: //www.ifm.zmaw.de

Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)

Dipartimento Oceanografia

Borgo Grotta Gigante 42/C
 34010 Sgonico (TS) /Italy
 e-mail: sedoga@inogs.it
 www: // www.ogs.trieste.it

Matthias Günther	Master
Theo Griese	1st Officer
Sebastian Pengel	2nd Officer
Hans-Otto Stange	Chief Engineer
Hans-Jörg Freund	Engineer
Joachim Mischker	Bosun
Frank Schrage	Able bodied Seaman
Felix Meyer	Able bodied Seaman
Sven Erber	Able bodied Seaman
Benjamin Brüdigam	Able bodied Seaman
Tim Stegmann	Able bodied Seaman
Rüdiger Engel	Motorman
Dietmar Klare	Electrician
Johann Ennenga	Cook
Bernd Gerischewski	Steward

3. Narrative

Thursday, 3rd April

Noon position: 36° 51.05' N, 008° 11.82' W, 1010 hPa, WNW 5, cloudy, T_{air} 13.5° C

At 8:00 a.m. local time all scientists got a safety instruction before the ship left Portimão port at 9:00 a.m. At 10:20 a.m. everybody on the ship had to take part in a safety exercise. Until early afternoon the scientists continued to install the equipment. In the late afternoon they were instructed in the use of the U-CTD system. Additionally, they had to learn how to make the appropriate splices to connect the U-CTD with the rope on the winch. In the night ADCP and thermosalinograph which were already working since we had been out of the 3 nm zone of Portugal were switched off due to missing permissions for Moroccan waters.

Friday, 4th April

Noon position: 36° 0.83' N, 004° 35.76' W, 1021 hPa, WNW 6, blue, T_{air} 14.6° C

In the very early morning we sailed through the Strait of Gibraltar and entered the Mediterranean Sea, our actual area of interest. We started with our first U-CTD cast at 06:15 a.m. (UTC) on 36° 0.67' N and 5° 11.19' W, a bit east of Gibraltar. The time interval of the U-CTD casts was decided to be hourly. We did not spool rope additionally on the spindle of the probe, so we reached only depths less than 290 m while the ship was sailing with 6 knots, the speed we decided to keep in order to obtain a high resolved section through the Mediterranean Sea. The depths were presumably less than expected because of the strong currents in this area. The further we sailed away from the Strait of Gibraltar the deeper the maximum depths of our U-CTD casts became. Additional spooling led to depths of about 570 m. In between our U-CTD casts we still continued with the installation and testing of our CTD and ADCP. ADCP and thermosalinograph were also running.

Fritjof, our student, who participated for the first time in a scientific cruise, celebrated his birthday.

Saturday, 5th April

Noon position: 36° 28.78' N, 001° 41.02' W, 1020 hPa, WSW 5, blue, T_{air} 15.0° C

A smaller damage on the cable of the power supply of the U-CTD made a repair necessary and one U-CTD station had to be skipped. During our hourly U-CTD work we realized that the rope was always slightly damaged at the place where it is connected with the probe. This was caused by very thin scrapes on the head of the spindle. We removed the scrapes and the problem did not arise again.

We ran our first CTD cast on this cruise at around 12:00 p.m. (UTC) on 36° 30' N and 1° 36.' W. Depth of the station was about 1500m. The CTD worked well. Additionally, we started our on-board analysis of the data.

Sunday, 6th April

Noon position 37°33.51' N, 000° 35.27' E, 1000 hPa, light, blue, T_{air} 16.1° C

We continued with hourly U-CTD casts. During the casts dolphins and turtles were sighted. Besides the fact that this is always a nice view we feared for our U-CTD because the animals can damage our rope. Our second CTD was carried out at 5:00 p.m. (UTC) without any problems. We realized that the depth of the echo sounder of the ship and the depth given by the CTD differ by around 50m in a depth of 2500m.

Monday, 7th April

Noon position 38° 20.85' N, 003° 00.00' E, 1022 hPa, SE 2, foggy, T_{air} 14.6° C

Bad luck in the morning! At our 5:15 a.m. (UTC) U-CTD cast we lost one of our three probes. We do not know why. The rope just ruptured somewhere in the middle. Exhaustion of

the rope or other outer influences like refuse in the water might be responsible. It was definitely no mistake in the handling of the winch and rope. We continued sailing while we replaced the broken rope on the winch. At 9:15 we started again with our U-CTD casts. During the night one of our probes did not acquire data twice, it seemed that it did not get enough power supply due to a broken recharger.

At around 12 p.m. we run another CTD cast.

Tuesday, 8th April

Noon position: 38° 49.33' N, 005° 39.52' E, 1023 hPa, SSE 3, blue, T_{air} 15.3° C

We continued with hourly U-CTD casts without any problems. In the afternoon a CTD station was carried out.

Wednesday, 9th April

Noon position: 38° 27.48' N, 008° 08.42' E, 1022 hPa, NW 4, blue, T_{air} 15.6° C

Again we got problems with our U-CTD in the morning. We run the cast with additional rope on the spindle (about 500m). This rope was not rewound correctly and knawels, partly big as a fist, were built. At the end we were lucky not to lose another probe but we had to recover the rope manually and to cut it by about 500m. After this incident we decided a new procedure for the U-CTD casts: The ship reduces speed to about 2-3 knots. During slow speed we let the probe fall for a maximum of 480 sec. The ship can gain speed again to our schedule speed of 6 knots during recovering. This way we reached minimum depths of about 500 and maximum depth of about 800 m.

In the afternoon another CTD station was carried out.

Thursday, 10th April

Noon position: 38° 32.65' N, 010° 53.87' E, 1020 hPa, NNE 2, blue, T_{air} 15.4° C

Luckily we had no problems with our U-CTD today, a turtle almost crashed into the probe. We managed to repair our second winch.

In the afternoon another CTD station followed. We got some difficulties with taking oxygen samples due to a broken dispensette. But this problem was solved quickly. During a CTD station we observed a very bizarre event: A big ocean sunfish was swimming at the water surface and a sea gull was resting on the fish.

In the night we reached the Strait of Sicily. U-CTD measurements had to be interrupted due to too shallow water depths.

Friday, 11th April

Noon position: 36° 46.04' N, 012° 39.37' E, 1020 hPa, S 2, blue/cloudy, T_{air} 15.2° C

At 8:00 a.m. (UCT) we ran a shallow CTD cast in the Strait of Sicily. We restarted the U-CTD casts but we had still to be careful because of the shallow water depths. Some casts had to be skipped.

Saturday, 12th April

Noon position: 36° 04.73' N, 015° 27.07' E, 1020 hPa, SSW 2, cloudy, T_{air} 16.7° C

During the night and in the morning U-CTD casts ran restricted due to shallow water depths. In the morning we run another CTD cast in the Strait of Sicily. We realized that our IADCP master respectively slave was announced wrong by the configuration files. We changed that.

Sunday, 13th April

Noon position: 35° 48.53' N, 017° 38.49' E, 1016 hPa, SSE 4, o, T_{air} 16.1° C

Today nothing to report from the U-CTD besides that some meat presumably of a fish was caught at the rope.

Oxygen sensors and the altimeter were not working well during the last CTD cast in the night. We solved this problem by cleaning the sensors and fixing the cables. Additionally, we installed a mechanical bottom detector at the CTD. We run a second CTD in the afternoon and the instrument was again working well.

In the early morning (06:33 UTC) we deployed the first of three ARGO floats at 35° 36.02' N and 17° 14.92' E directly after the CTD station.

Monday, 14th April

Noon position: 35° 30.00' N, 019° 18.34' E, 1016 hPa, NE 5, cloudy, T_{air} 16.4° C

Everything was going well. In the evening the chief scientist gave a lecture about the objectives of the cruise.

Tuesday 15th April

Noon position 34° 57.81' N, 021° 43.89' E, 1016 hPa, NNW 4, cloudy, T_{air} 16.5° C

The U-CTD ran without any problems. Meanwhile there was a small competition between the shifts about who achieves the deepest depths. In the afternoon we carried out a CTD station and afterwards we deployed the second of the ARGO floats at 17:35 (UTC) on 34° 45.01' N and 22° 25.00' E.

Wednesday 16th April

Noon position 34° 30.57' N, 024° 15.70' E, 1015hPa, S 3, cloudy, T_{air} 17.0° C

All measurements proceeded without any problems.

Unfortunately, we got bad news from the Federal Ministry of Foreign Affairs. Due to political reasons we are not allowed to carry out measurements east of Crete. We are even not allowed to sail through Kasos Strait without taking any measurements. We had to cancel three very important stations (green dots, fig. 1) which we intended to take in this area. The scientific success of the cruise regarding the detection and formation of deep water masses in the Eastern Mediterranean Sea is therefore questionable.

Thursday 17th April

Noon position 34° 33.29' N, 025° 46.34' E, 1009 hPa, SSE 5, cloudy, T_{air} 17.9° C

In the morning we took our last CTD station before reaching the critical area east of Crete. We were observed closely by a Turkish war ship. At 6:10 a.m. (UTC) we deployed the last Argo Float on 34°24.04' N and 26° 1.01' E. Afterwards we set course north-westerly towards Crete still followed by the Turkish war ship. Instead of doing our measurements as planned we now had to turn back and sailed along the southern coast of Crete to the CTD station at 35° 15' N and 22° 25' E. During the course towards Crete we continued with U-CTD casts. In the night we stopped the U-CTD work and celebrated the forthcoming Easter event.

Friday 18th April, Good Friday

Noon position 35° 03.26' N, 23° 55.05' E, 1010 hPa, W 5, cloudy, T_{air} 14.9° C

We sailed along the southern coast of Crete back to the Ionian Sea. On this unplanned section we tried to make the best of a bad job and took U-CTD casts.

Saturday 19th April

Noon position 35° 31.88' N, 022° 25.00' E, 1015 hPa, WSW 5, cloudy, T_{air} 15.4° C

U-CTD casts proceed without any problems. As well in the morning as in the afternoon we carried out a CTD station. Since the beginning of the cruise, we observed that our IADCP system is not working correctly. The analysis of the data shows unreasonable high values in the lower layers of the profiles. Furthermore, the master IADCP tends to produce multiple

files for one cast and its pinging is also not clear to hear. We tried several slightly modified configurations but nothing worked. We now run out of ideas how to solve the problem.

Sunday 20th April, Easter Sunday

Noon position 36° 30.65' N, 021° 16.69' E, 1016 hPa, SSE 5, cloudy, T_{air} 16.4° C

This is a day without any news to report. U-CTD and CTD casts run without any problems. In the morning the cook and steward set the breakfast table easterly with coloured eggs and a chocolate present for everybody.

Monday 21st April, Easter Monday

Noon position 37° 49.93' N, 020° 18.54' E, 1008 hPa, SE 8, overcast sky, T_{air} 18.1° C

In the early morning two U-CTD casts were cancelled because the screw which blocks the rotation of the winch broke. It had to be replaced. During day the weather got very rough and we had to interrupt our U-CTD work. However, the CTD station in the evening was carried out as planned. The weather calmed down during the night very fast, so that we continued with U-CTD casts after the CTD station.

Tuesday 22nd April

Noon position 39° 10.02' N, 019° 15.05' E, 1015 hPa, SSE 3, overcast sky, T_{air} 16.7° C

During the night the U-CTD winch failed totally due to some problems with the electronics which seemed to be damaged by dirt and seawater. We had to change the winch with a second one which we fortunately carried with us as replacement. Some U-CTD stations were cancelled until the problem was fixed. It seemed that the U-CTD kept us always busy.

Now, we arrived in the area where the distance between CTD stations gets closer. Today we carried out four CTD stations on a section on 39° 10' N on which we deployed and recovered moorings during MS MERIAN cruises MSM 13/2 and MSM 15/4.

Wednesday 23rd April

Noon position 39° 39.72' N, 018° 32.67' E, 1008 hPa, NNE 5, overcast sky, T_{air} 16.3° C

In the morning we took the last CTD cast on our section along 39° 10' N and then set course to the Strait of Otranto. During our track we carried out U-CTD casts. Due to insufficient depth and also rough sea some of our planned casts had to be cancelled. In the evening we reached the Strait of Otranto and started our CTD section.

Thursday 24th April

Noon position 40° 56.24' N, 018° 51.89' E, 1010 hPa, NW 5, overcast sky, T_{air} 15.6° C

The CTD section through the Strait of Otranto run without any problems and was finished during night. In between the CTD stations we run always a U-CTD cast. The profiles of the last CTD casts are a bit spiky and therefore we cleaned all the connections and cables of the CTD during day. Hopefully, this will fix the problem. In the morning U-CTD casts had to be cancelled due to low water depths. The weather is still rough but did not affect our measurements.

Friday 25th April

Noon position Dubrovnik port, 1010 hPa, SES 3, overcast sky, T_{air} 16.6° C

At around 9:00 a.m. we laid alongside in Dubrovnik port.

As we had still problems with spiky profiles of our CTD casts, we changed all cables at the sonde and removed the worse working oxygen sensor.

In the afternoon most of us went into the old town of Dubrovnik. At around 6:00 p.m. the Croatian observer arrived at the ship and we spent the evening together having dinner somewhere in the old town. It was really a nice day and evening.

Saturday 26th April

Noon position 42° 25.72' N, 018° 04.22' E, 1010hPa, SE 4, overcast sky, T_{air} 16.2° C

We left Dubrovnik harbour at 9:00 a.m (local time). It was raining heavily during our departure, so that we did not really regret leaving.

The ADCP was switched on at 10:00 a.m. (local time) after we left the 3 nm zone of Croatian waters. The U-CTD casts started as soon as waters were deep enough.

In the afternoon the computer of the thermosalinograph had a blackout due to a damaged serial port which provided the output with NMEA data. We had to switch off the computer. Bad luck seemed to chase us this day, in the late afternoon we had severe problems with the CTD. During the cast not only spikes appeared in the profile but also the pump stopped working. We cut 200 m of the single conductor cable and changed the plug, additionally we changed the y-cable leading to the pumps. The success was only short term because similar problems appeared again. Finally, we changed the whole CTD and rosette.

Sunday 27th April

Noon position 41° 21.01' N, 017° 12.27' E, 1008 hPa, SE 4, cloudy, T_{air} 15.3° C

After the change of the whole CTD system in the night before, everything was running without difficulties. We ran our last U-CTD and CTD casts in the morning. Station work was finished at lunch time. In the afternoon we started to dismount our equipment and to pack the container.

Monday 28th April

Bari port

At around 9:00 a.m. local time we arrived at Bari port and the cruise ended here.

4. Technical Information and Methods

CTD/Rosette and hydrographical samples

Altogether 37 full depth standard hydrographic stations were occupied during the cruise, employing a SeaBird SBE911 plus CTD-O₂ sonde, attached to a SeaBird carousel 12 bottle water sampler. All sensors except of pressure are sent to the factory once a year for calibration. The pressure sensor is sent to calibration as often as required. The serial numbers of the CTD are:

Instrument/Sensor	Serial Number (owner)
SBE 911plus / 917plus CTD	285 (IFM-CEN)
Temperature 1: SBE-3-02/F	1294 (IFM-CEN)
Conductivity 1: SBE-4-02/2	1106 (IFM-CEN)
Pressure 410K-105	50633 (IFM-CEN)
Temperature 2: SBE-3-02/F	1717 (OGS)
Conductivity 2: SBE-4-02/2	3442 (OGS)
Altimeter PSA 916D	885 (IFM-CEN)
Oxygen 1 SBE 43	1761 (IFM-CEN)
Oxygen 2 SBE 43	2513 (OGS)

At all stations water samples were taken from 12 depth levels within the water column. From all depth levels samples were taken for oxygen analysis, and always from five depth

levels samples were taken for salinity analysis. The salinity samples were analysed on board using a Guildline Autosol Salinometer. The batch-no. of the standard seawater samples is 38H11 which have a K15-factor of 1.07631 (24°C). Two of the water bottles were also equipped with reversing digital thermometers, providing temperature and pressure check values for the CTD sensors. The oxygen samples were analysed on board by the Winkler method with an automatic endpoint detection burette.

Underway CTD measurements

Underway measurements of temperature and conductivity profiles were made with an Ocean Science UCTD system. Altogether we took 378 casts. After some trouble with the system (see Narrative), especially the loss of the probe 068, we decided for following deployment procedure:

- a) Distance between U-CTD casts: ~ 6 nm or ~ 1 hour keeping a ship's speed of 6 knots
- b) No spooling on the probe's spindle
- c) Ship reduces speed to 2-3 knots while the probe is falling for a maximum of 480 sec
- d) Ship enhances speed again to 6 knots during recovery of the probe

We reached maximum depths of around 800m, minimum depths of 500m. The average depths were approximately 650m.

Details of the system are:

	Serial Number
UCTD winch	S/N WI-0033

Probe 1	Device Type	Serial Number
0068	90560 UCTD /SBE49 FastCat CTD	70200068
0155	90745 UCTD / SBE 37 MicroCat	70200155
0183	90745 UCTD / SBE 49 FastCat CTD	70200183

Current measurements

Vertical profiles of horizontal currents were made with a IADCP-2 system attached to the rosette water sampler. The system consists of two ADCPs of the Workhorse type (WHM300) manufactured by RD instruments and operating at a frequency of 300 kHz. The serial numbers of the IADCPs are S/N 141909 (Master) and S/N 14411 (Slave). The data are corrected for CTD movements and analysed with the LDEO LADCP software (A. M. Turnherr, 2010)

Reference: Turnherr, A. M., 2010: A Practical Assessment of the Errors Associated with Full-Depth LADCP Profiles Obtained Using Teledyne RDI Workhorse Acoustic Doppler Current Profilers. Am. Met. Soc. DOI:10.1175/2010JTECHO708.1

Underway measurements

Underway temperature and salinity measurements were made with a SeaBird thermosalinograph installed in the ship's port well. We took additional water samples for salinity calibration purposes.

Underway current measurements were taken with a vessel-mounted 75 kHz Ocean Surveyor (ADCP) from RDI, covering approximately the top 600-800m of the water column.

The bin size was set to 8 m, the ADCP ran in narrowband mode. The instrument was controlled by computers using the conventional VMDAS software under a MS Windows system. Pinging was set as fast as possible. No interferences with other used acoustical instruments were observed. Additional navigational data was available from the ship's DAVIS system. The ADCP data was afterwards post-processed with the software package ossi14 (ocean surveyor sputum interpreter), developed by the Leibniz Institute of Marine Sciences (GEOMAR), Kiel, which also corrects for the misalignment angle (Tim Fischer, pers. communication). The misalignment angle was calculated at approximately -3.5 degrees.

Argo Floats

During the cruise 3 Argo floats were deployed:

Type	WMO Nr	Serial Nr	IMEI Nr	Time	Pos. lat	Pos. lon	Project EURO-Argo
ARVOR-I	6901846	OIN14 IT ARI 16	300234061527160	13.04.2014 05:25:00 UTC	35° 36.022'N	17° 14.915' E	Italy
ARVOR-I	6901847	OIN14 IT ARI 17	300234061528180	15.04.2014 17:36:00 UTC	34° 45.014'N	22° 24.993' E	Italy
ARVOR-I	6901848	OIN14 IT ARI 18	300234060257590	17.04.2014 06:10 UTC	34° 24.039' N	26° 01.018' E	Italy

5. Preliminary results

The following analyses were done on-board of the ship with the purpose to investigate how accurately instruments were working. No calibration of data has been done so far.

U-CTD:

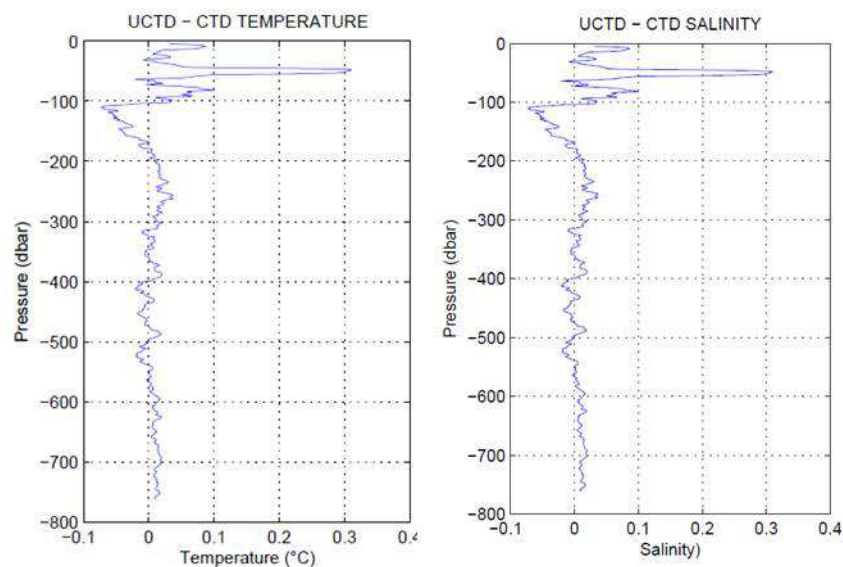


Figure 2: Difference between U-CTD and CTD cast for temperature and salinity, U-CTD probe 0155

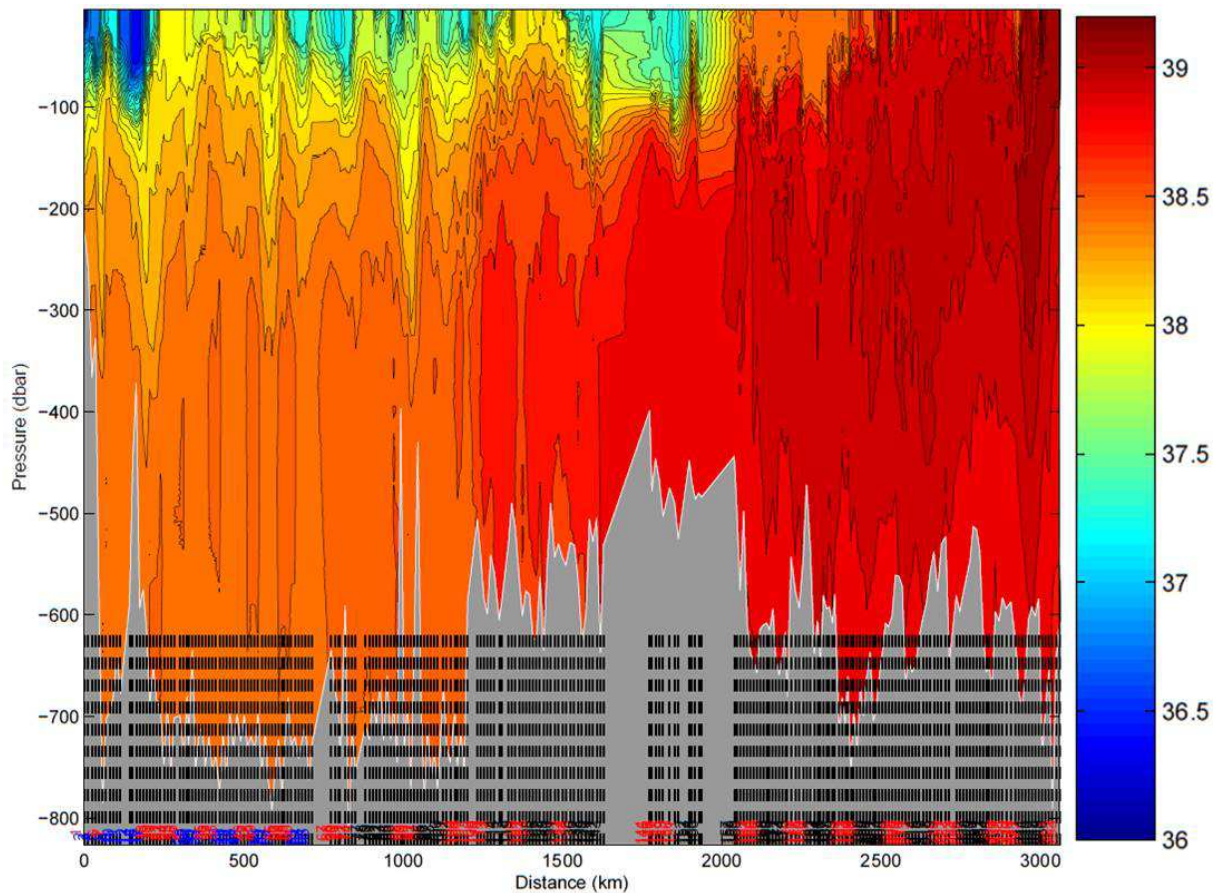


Figure 3: Salinity distribution of a U-CTD cast along a west-east section through the whole Mediterranean Sea (east of Strait of Gibraltar to southeast of Crete). Dashed lines: Location of U-CTD casts, different colours (red, blue, black) indicate areas of different probes.

Distances between U-CTD casts are on average 6 nm (fig. 1). Longer distances result either from interruptions due to technical problems (s. Narrative) or due to insufficient water depths. Most of the casts reached depths larger than 600 m (fig. 3). Never before, measurements of physical parameters on a section through the whole Mediterranean Sea have been carried out with such a high resolution.

In order to calibrate the U-CTD values, we always conduct parallel to a CTD station a U-CTD cast afterwards. Figure 2 shows the result of such a comparison for probe 0155. The mean temperature difference is $0.010375\text{ }^{\circ}\text{C}$ with a standard deviation of $0.039708\text{ }^{\circ}\text{C}$. For salinity a difference of -0.013499 with a standard deviation of 0.039708 was reached. For all of the compared stations the mean and standard deviations show values in this range. Also, the curve progression of the differences was always quite similar with highest differences in the upper layers. This might be caused by the fact that the casts of CTD and U-CTD were not taken exactly at the same position and time, and variances in the water characteristics are largest in the near surface layers.

On the section (fig. 3) a sharp interface between the inflowing Atlantic Water (AW) and the outflowing Levantine Intermediate Water (LIW) can be observed. The LIW shows high values in the eastern parts where its core is located closer to the surface. In the western part the interface between AW and LIW is most pronounced. However, some of the sharp gradients between water masses are artificial due to offsets between the different U-CTD probes. A careful calibration of the data for eliminating the differences between the probes and a comparison to the more accurate CTD data must be carried out in order to achieve finally reliable data.

CTD

The CTD was always run with double pairs of temperature, salinity and oxygen sensors. Most of the casts run without any problems. At the end of the cruise breaks of the pump accompanied with cumulative spikes in all parameters arose presumably due to a cable leakage somewhere in the system which we were not able to find.

Figure 4 is an example (station 459, deepest station of the cruise) of a comparison between sensors among each other and against the appropriate comparative measurement (salinometer, Winkler method). For temperature and salinity the results are very satisfying. The average difference for the whole profile is less than 0.005°C and for salinity it is less than 0.001. Differences are higher in the upper 1000 m, they achieve around 0.01°C for temperature and around 0.02 for salinity. For oxygen differences result in values between 0.3.-0.1 ml/l, whilst in the upper 500m these values are also exceeded. The comparison for the salinity sensors against the salinometer shows that the CEN sensor is always closer to the salinometer, but for both sensors the difference is less than 0.02. For oxygen the OGS sensor is always closer to the comparative measurement and differences for both sensors are in a range between -0.1 and 0.7 ml/l. For all other CTD stations results are in a comparable range.

Fig 5 reveals the TS characteristics along the whole track of P468 in the Mediterranean Sea. As commonly reported previously, the difference in the TS evolution between western and eastern Mediterranean Sea is most noticeable. The western Mediterranean is always less salty throughout the whole water column and also colder in the surface layers. Adriatic water is densest but as we were not able to carry out measurements in the Aegean Sea and Kasos Strait, we cannot conclude that it was the densest water mass at all.

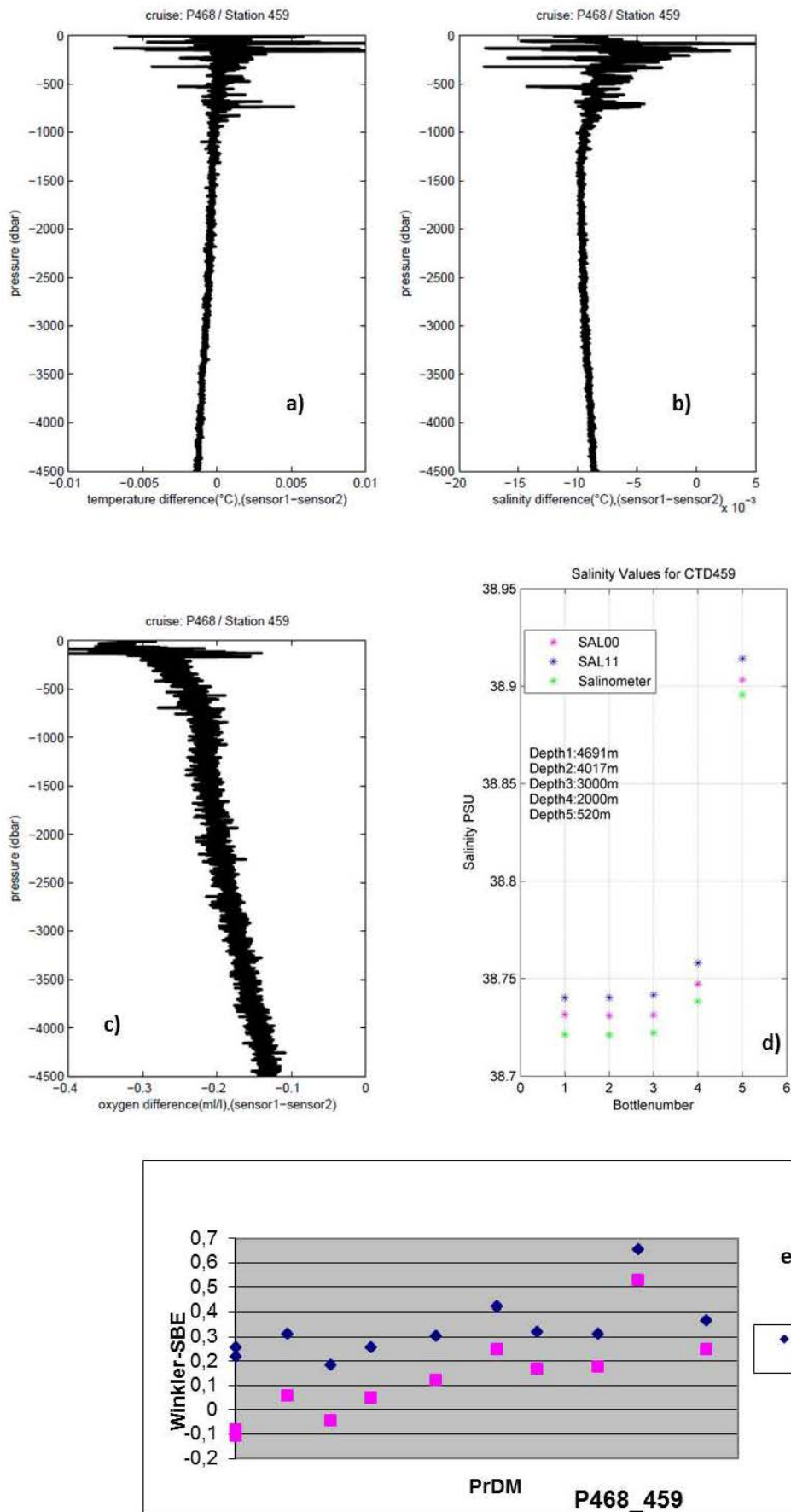


Figure 4: Comparison of CTD sensors for station 459: a) temperature difference (CEN-OGS sensor), b) salinity difference (CEN-OGS), c) oxygen difference (CEN-OGS), d) salinities of salinometer (green), CEN sensor (magenta) and OGS sensor (blue), oxygen differences between CEN oxygen sensor and Winkler measurement (blue) and OGS oxygen sensor and Winkler measurement (magenta).

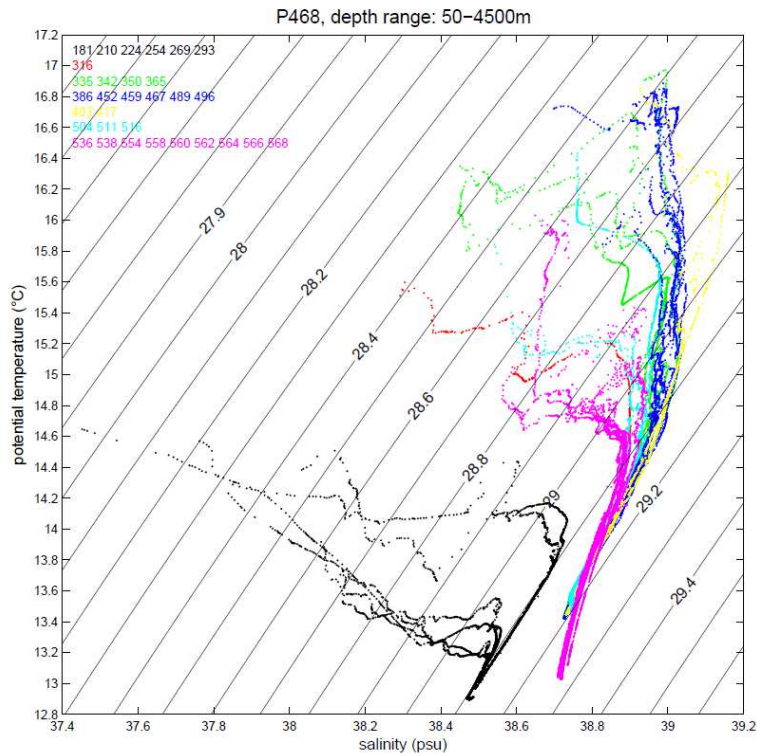


Figure 5: TS-diagram of most of the CTD stations done during cruise P468. Colours mark the different areas of the Mediterranean Sea. Black: Western Mediterranean. Red: Sicily Channel. Green: Central Ionian Sea. Blue: Eastern Ionian Sea / western Hellenic Trench. Yellow: Eastern Hellenic Trench. Cyan: Northern Ionian Sea. Magenta: Adriatic Sea.

ADCP

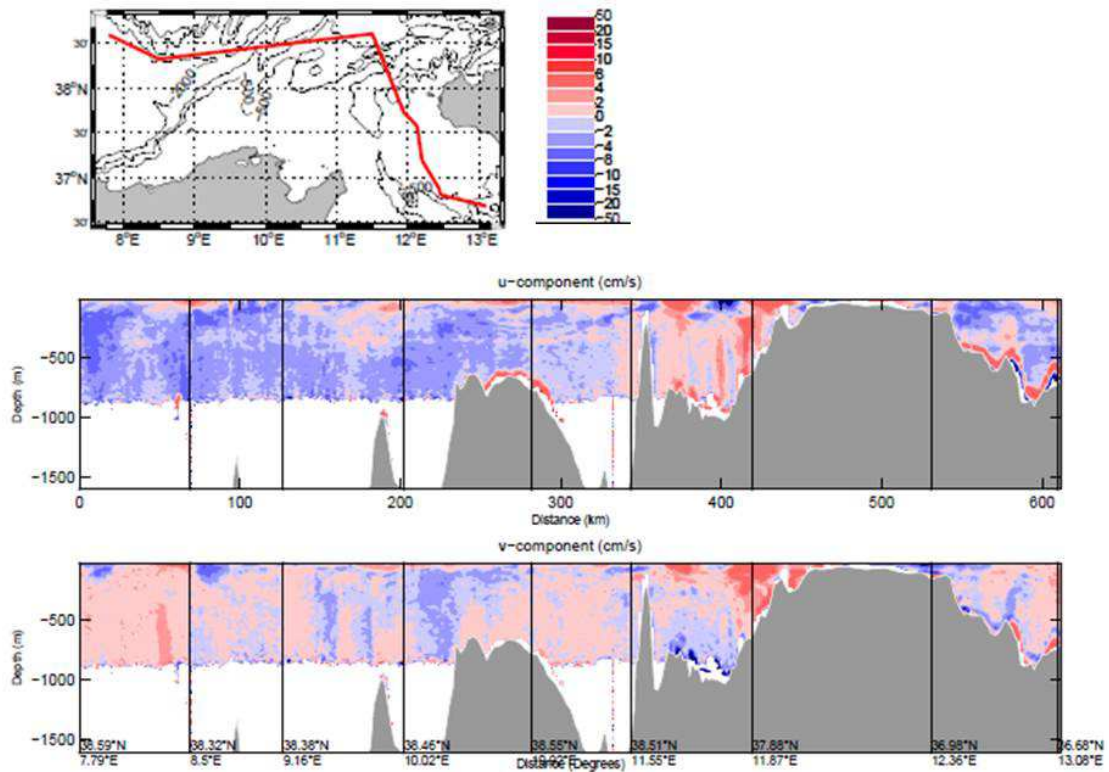


Figure 6: ADCP velocities in cm/s on a section across the Strait of Sicily. Upper left panel: Location of section. Middle panel: West-east velocity. Lower panel: North-South velocity.

The ADCP reaches with reliable results to depths about 700-800m. Calibration of data is not really possible as we do not have any data for comparison available (s. IADCP). Figure 6 shows the velocity distribution on a section through the Strait of Sicily. We can identify a strong current flowing at the south eastern tip of Sicily island to the north east into the Tyrrhenian Sea.

IADCP

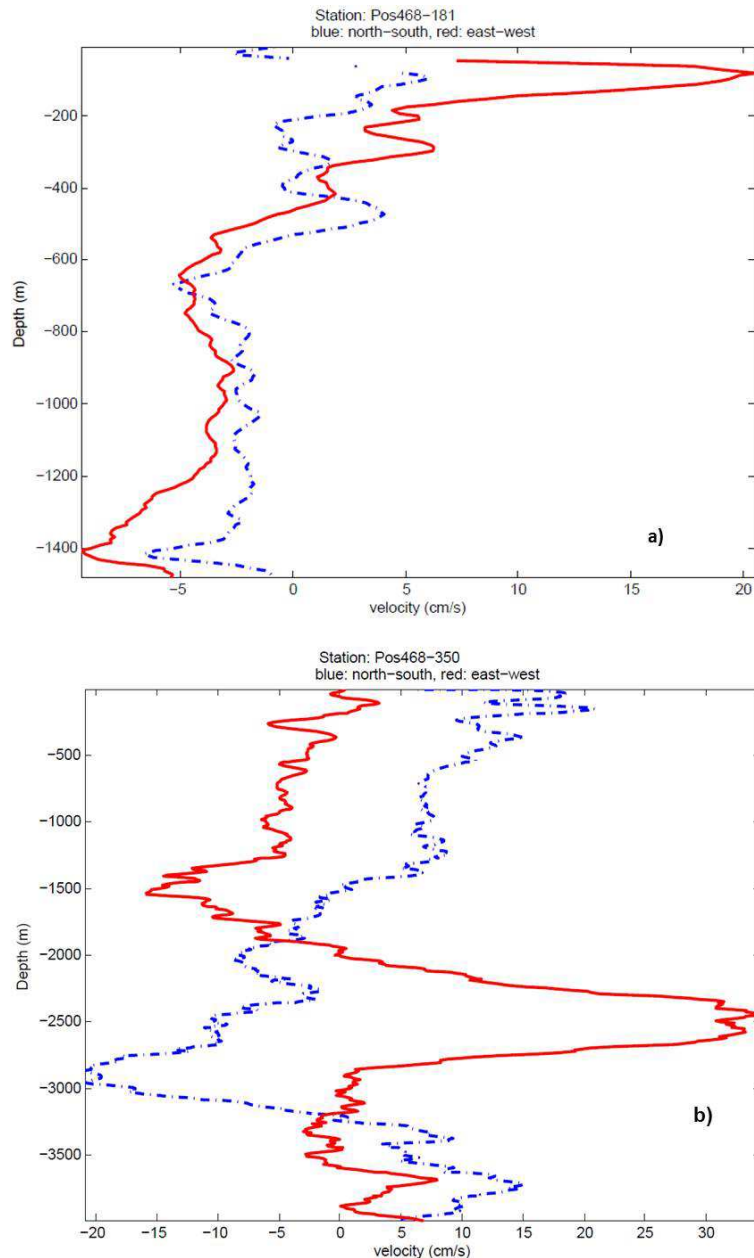


Figure 7: IADCP velocities for a) station 181 and b) station 350. Results achieved with LDEO LADCP software and vertical filtering. Blue, dotted: north - south component. Red, solid line: east - west component.

The IADCP results (fig.7) are questionable, especially for the deeper stations (fig. 7 b). For depths larger than 2000 m the IADCP velocities always show maximum values (almost exceeding 20 cm/s) in the deeper layers which is quite implausible, all the more as this curve progression (fig 7 b) is visible for all stations where depths exceed 2000 m. For stations with depths lower than 2000 m (fig 7 a) velocities are reliable at first sight. We assume that hardware problems with the master IADCP (see Narrative) caused these results.

Thermosal

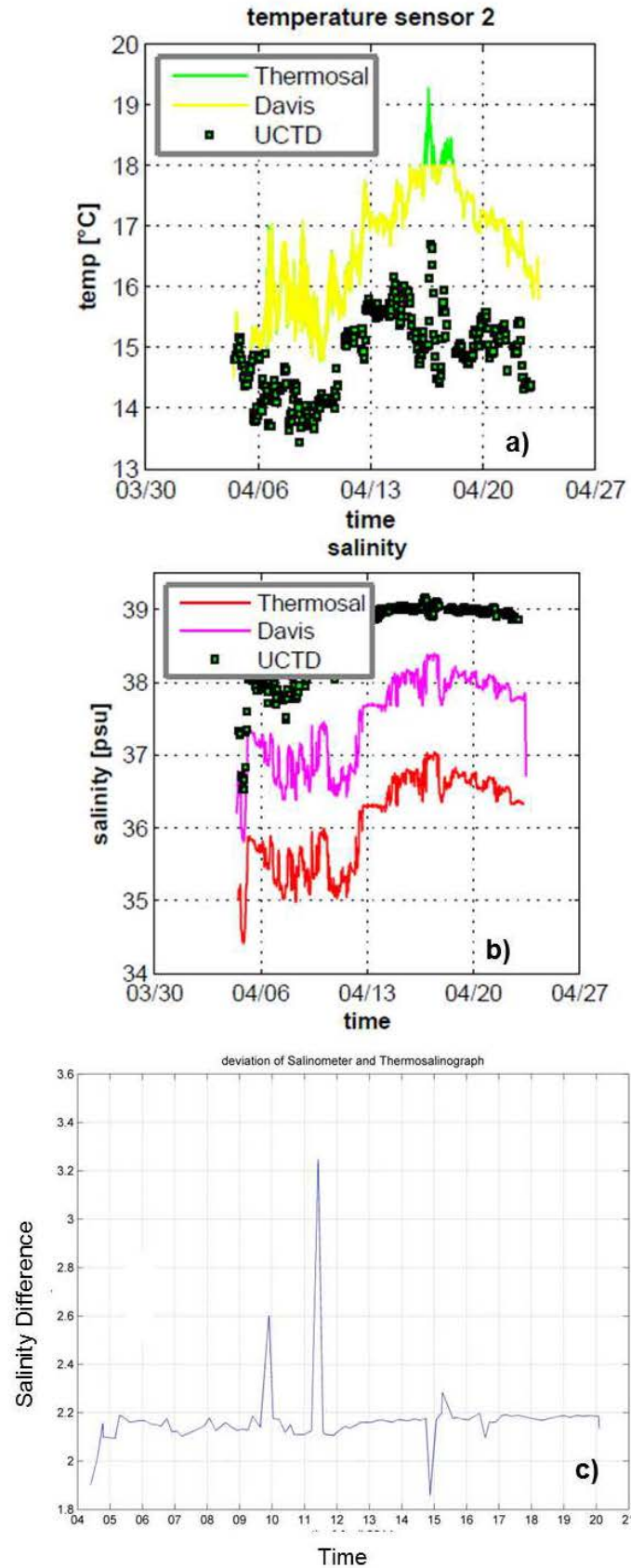


Figure 8: a) Timeseries of temperature of the thermosalinograph (green), of the thermosalinograph given by the DAVIS system (yellow) compared to the appropriate sea surface values of the UCTD (green dots). b) Timeseries of salinity of the thermosalinograph (red), of the thermosalinograph given by the DAVIS system (magenta) compared to the appropriate sea surface values of the UCTD (green dots). c) Difference of Salinometer – Thermosalinograph salinity values for one day

Figure 8 reveals clearly that the thermosalinograph needs a severe calibration for the temperature as well as for the salinity sensor. On board there were two applications available by which thermosalinograph data were made accessible: a) by the Seabird application SEASAVE and b) as output of the ship's data base DAVIS. Figure 8 a) shows the development of temperature. We would expect thermosalinograph data given by Seasave and by DAVIS to be the same but we find slight differences. For the salinity comparison (fig.8 b) the difference is nearly always large. An explanation could be that the programs are supplied with different (and wrong) configuration files. A comparison with the uncalibrated UCTD data shows that the thermosalinograph underestimates salinity and overestimates temperature distinctly.

Acknowledgements

We would like to thank Captain Matthias Günther, his officers and the crew of RV POSEIDON for the support of our scientific programme, for their unending competent and friendly help. We always enjoy staying on board of R/V POSEIDON.

The ship time of R/V POSEIDON and the transport of equipment were provided by the University of Hamburg. The financial support for the journey of scientists and the facilities of the cruise like consumption were provided by the project of the "Deutsche Forschungsgemeinschaft" DFG Qu46/16-1. We gratefully acknowledge their supports.

Finally, I would like to thank Prof. Dr. D. Quadfasel, my supervisor, who always supports my research in the Mediterranean Sea.

List of Stations

CTD Conductivity-Temperature-Depth sonde
UCTD Underway Conductivity-Temperature-Depth sonde
IADCP lowered Acoustic Doppler Profiler
ROS carousel 12 bottle water sampler
ARGO ARGO Float
BE Begin of station
BO Near bottom reached on station
EN End of station

EXPO-CODE	Stat. No.	Cast No.	Type	Date	Time		POSITION				Bottomd epth	Max. press.
					UTC	Code	Latitude	Longitude				
POS-468	153	1	UCTD	04.04.2014	06:12:08	BE	36°00.360	N	5°11.240	W	581.4	223
POS-468	154	1	UCTD	04.04.2014	07:14:35	BE	36°01.480	N	5°03.150	W	737.4	257
POS-468	155	1	UCTD	04.04.2014	08:15:14	BE	36°02.240	N	4°55.480	W	886.8	366
POS-468	156	1	UCTD	04.04.2014	09:14:51	BE	36°03.360	N	4°48.360	W	934.5	328
POS-468	157	1	UCTD	04.04.2014	10:13:57	BE	36°04.120	N	4°41.240	W	1047.8	574
POS-468	158	1	UCTD	04.04.2014	11:15:21	BE	36°04.480	N	4°33.360	W	1139.2	784
POS-468	159	1	UCTD	04.04.2014	12:15:49	BE	36°06.000	N	4°26.240	W	1195.7	702
POS-468	160	1	UCTD	04.04.2014	13:15:24	BE	36°06.360	N	4°19.120	W	1263.0	695
POS-468	161	1	UCTD	04.04.2014	14:13:24	BE	36°07.480	N	4°12.000	W	1315.1	682
POS-468	162	1	UCTD	04.04.2014	15:14:52	BE	36°08.240	N	4°04.120	W	1298.4	640
POS-468	163	1	UCTD	04.04.2014	16:14:57	BE	36°09.360	N	3°56.240	W	1205.2	676
POS-468	164	1	UCTD	04.04.2014	18:18:42	BE	36°11.240	N	3°37.480	W	682.3	588
POS-468	165	1	UCTD	04.04.2014	19:15:19	BE	36°12.360	N	3°31.210	W	667.1	402
POS-468	166	1	UCTD	04.04.2014	20:15:14	BE	36°13.120	N	3°24.000	W	740.6	370
POS-468	167	1	UCTD	04.04.2014	21:14:39	BE	36°13.480	N	3°16.480	W	882.3	592
POS-468	168	1	UCTD	04.04.2014	22:15:30	BE	36°15.000	N	3°09.360	W	835.8	573
POS-468	169	1	UCTD	04.04.2014	23:14:35	BE	36°15.360	N	3°03.000	W	832.6	612
POS-468	170	1	UCTD	05.04.2014	00:13:35	BE	36°16.480	N	2°55.480	W	1087.7	687
POS-468	171	1	UCTD	05.04.2014	01:14:26	BE	36°17.240	N	2°48.360	W	1408.6	651
POS-468	172	1	UCTD	05.04.2014	02:14:44	BE	36°18.000	N	2°41.240	W	1657.9	685
POS-468	173	1	UCTD	05.04.2014	03:17:20	BE	36°19.120	N	2°33.360	W	1570.2	691
POS-468	174	1	UCTD	05.04.2014	04:17:20	BE	36°19.480	N	2°26.240	W	1646.8	747
POS-468	175	1	UCTD	05.04.2014	05:14:00	BE	36°21.000	N	2°19.120	W	1492.3	687
POS-468	176	1	UCTD	05.04.2014	06:13:35	BE	36°21.360	N	2°12.000	W	1374.5	757
POS-468	177	1	UCTD	05.04.2014	07:14:43	BE	36°22.480	N	2°04.480	W	1326.9	701
POS-468	178	1	UCTD	05.04.2014	09:14:56	BE	36°25.480	N	1°53.240	W	1509.8	699
POS-468	179	1	UCTD	05.04.2014	10:14:22	BE	36°27.360	N	1°46.120	W	1534.3	740
POS-468	180	1	UCTD	05.04.2014	11:13:18	BE	36°29.240	N	1°39.360	W	1270.4	679
POS-468	181	1	CTD/ROS/LADCP	05.04.2014	11:50:00	BE	36°29.998	N	1°35.994	W	1483.0	-----
	181	1	CTD/ROS/LADCP	05.04.2014	12:26:00	BO	36°29.997	N	1°36.005	W	1493.0	-----
	181	1	CTD/ROS/LADCP	05.04.2014	13:00:00	EN	36°29.981	N	1°36.015	W	1488.0	-----
POS-468	182	1	UCTD	05.04.2014	13:14:39	BE	36°30.000	N	1°36.000	W	1465.2	727
POS-468	183	1	UCTD	05.04.2014	14:14:20	BE	36°33.000	N	1°29.240	W	1552.4	634
POS-468	184	1	UCTD	05.04.2014	15:12:46	BE	36°36.000	N	1°23.240	W	2123.7	752
POS-468	185	1	UCTD	05.04.2014	16:16:06	BE	36°39.360	N	1°16.442	W	2528.3	714
POS-468	186	1	UCTD	05.04.2014	17:20:52	BE	36°42.000	N	1°11.240	W	2568.8	711
POS-468	187	1	UCTD	05.04.2014	18:13:41	BE	36°44.240	N	1°06.000	W	2584.3	748
POS-468	188	1	UCTD	05.04.2014	19:15:29	BE	36°48.000	N	0°59.240	W	2568.0	720
POS-468	189	1	UCTD	05.04.2014	20:13:34	BE	36°51.000	N	0°53.240	W	2604.1	752
POS-468	190	1	UCTD	05.04.2014	21:16:13	BE	36°54.000	N	0°46.480	W	2610.5	736
POS-468	191	1	UCTD	05.04.2014	22:16:09	BE	36°57.000	N	0°40.120	W	2618.4	773
POS-468	192	1	UCTD	05.04.2014	23:17:05	BE	37°00.000	N	0°33.360	W	2621.7	717
POS-468	193	1	UCTD	06.04.2014	00:15:12	BE	37°05.000	N	0°27.360	W	2630.0	760
POS-468	194	1	UCTD	06.04.2014	01:13:45	BE	37°06.000	N	0°21.360	W	2632.3	691
POS-468	195	1	UCTD	06.04.2014	02:14:35	BE	37°09.206	N	0°15.000	W	2636.3	731
POS-468	196	1	UCTD	06.04.2014	03:16:33	BE	37°12.360	N	0°08.240	W	2653.9	697
POS-468	197	1	UCTD	06.04.2014	04:15:50	BE	37°15.360	N	0°01.480	W	2653.3	724
POS-468	198	1	UCTD	06.04.2014	05:15:23	BE	37°18.360	N	0°04.480	E	2648.8	698
POS-468	199	1	UCTD	06.04.2014	06:13:38	BE	37°21.360	N	0°10.480	E	2664.8	730
POS-468	200	1	UCTD	06.04.2014	07:14:33	BE	37°24.560	N	0°17.240	E	2669.4	719
POS-468	201	1	UCTD	06.04.2014	08:14:24	BE	37°28.120	N	0°24.000	E	2665.6	733
POS-468	202	1	UCTD	06.04.2014	09:14:30	BE	37°31.120	N	0°30.000	E	2690.5	696
POS-468	203	1	UCTD	06.04.2014	10:14:28	BE	37°34.120	N	0°36.360	E	2695.5	755
POS-468	204	1	UCTD	06.04.2014	11:13:25	BE	37°37.120	N	0°42.360	E	2699.5	715
POS-468	205	1	UCTD	06.04.2014	12:13:52	BE	37°40.120	N	0°49.071	E	2693.2	763
POS-468	206	1	UCTD	06.04.2014	13:14:39	BE	37°43.120	N	0°55.120	E	2703.7	791
POS-468	207	1	UCTD	06.04.2014	14:14:27	BE	37°46.120	N	1°01.120	E	2712.9	751
POS-468	208	1	UCTD	06.04.2014	15:14:44	BE	37°49.120	N	1°07.120	E	2642.5	722
POS-468	209	1	UCTD	06.04.2014	16:13:29	BE	37°51.532	N	1°13.480	E	2581.6	779
POS-468	210	1	CTD/ROS/LADCP	06.04.2014	17:08:00	BE	37°54.049	N	1°17.966	E	2517.0	-----
	210	1	CTD/ROS/LADCP	06.04.2014	18:00:00	BO	37°54.038	N	1°18.008	E	2550.0	2584
	210	1	CTD/ROS/LADCP	06.04.2014	19:04:00	EN	37°54.132	N	1°18.082	E	2522.0	-----
POS-468	211	1	UCTD	06.04.2014	19:11:38	BE	37°54.000	1°	1°18.227	E	2517.4	734
POS-468	212	1	UCTD	06.04.2014	20:16:41	BE	37°56.125	N	1°25.480	E	2420.7	680
POS-468	213	1	UCTD	06.04.2014	21:12:38	BE	37°57.360	N	1°32.240	E	2301.0	728
POS-468	214	1	UCTD	06.04.2014	22:15:08	BE	38°00.000	N	1°39.407	E	1878.7	719

POS-468	215	1	UCTD	06.04.2014	23:14:29	BE	38°01.480	N	1°46.480	E	1778.1	740
POS-468	216	1	UCTD	07.04.2014	00:15:54	BE	38°03.360	N	1°54.000	E	1691.0	723
POS-468	217	1	UCTD	07.04.2014	01:13:59	BE	38°04.240	N	2°01.114	E	1938.8	706
POS-468	218	1	UCTD	07.04.2014	02:16:25	BE	38°07.120	N	2°08.301	E	2263.3	762
POS-468	219	1	UCTD	07.04.2014	03:16:23	BE	38°09.000	N	2°15.000	E	2418.8	725
POS-468	220	1	UCTD	07.04.2014	04:16:00	BE	38°10.790	N	2°21.680	E	-----	-----
POS-468	221	1	UCTD	07.04.2014	09:03:24	BE	38°19.200	N	2°53.710	E	2690.5	635
POS-468	222	1	UCTD	07.04.2014	10:14:26	BE	38°21.290	N	3°01.860	E	2674.4	674
POS-468	223	1	UCTD	07.04.2014	11:15:12	BE	38°23.130	N	3°08.710	E	2658.5	692
POS-468	224	1	CTD/ROS/LADCP	07.04.2014	11:57:00	BE	38°24.000	N	3°12.058	E	2657.6	-----
	224	1	CTD/ROS/LADCP	07.04.2014	12:44:00	BO	38°24.001	N	3°12.076	E	2657.5	2735.1
	224	1	CTD/ROS/LADCP	07.04.2014	13:35:00	EN	38°24.027	N	3°12.025	E	2657.6	-----
POS-468	225	1	UCTD	07.04.2014	13:46:28	BE	38°24.060	N	3°12.380	E	2655.6	739
POS-468	226	1	UCTD	07.04.2014	15:14:58	BE	38°25.880	N	3°22.900	E	2644.4	534
POS-468	227	1	UCTD	07.04.2014	16:16:22	BE	38°27.230	N	3°30.790	E	2560.0	825
POS-468	228	1	UCTD	07.04.2014	17:13:43	BE	38°28.350	N	3°37.260	E	2549.2	707
POS-468	229	1	UCTD	07.04.2014	18:16:04	BE	38°29.610	N	3°44.550	E	2548.9	753
POS-468	230	1	UCTD	07.04.2014	19:14:00	BE	38°30.810	N	3°51.560	E	2578.2	-----
POS-468	231	1	UCTD	07.04.2014	20:15:00	BE	38°32.080	N	3°58.940	E	2347.6	-----
POS-468	232	1	UCTD	07.04.2014	21:13:27	BE	38°33.300	N	4°06.030	E	2546.3	709
POS-468	233	1	UCTD	07.04.2014	22:14:36	BE	38°34.580	N	4°13.620	E	2265.8	723
POS-468	234	1	UCTD	07.04.2014	23:15:32	BE	38°35.900	N	4°21.050	E	2402.5	682
POS-468	235	1	UCTD	08.04.2014	00:14:08	BE	38°37.440	N	4°28.900	E	2387.2	707
POS-468	236	1	UCTD	08.04.2014	01:13:40	BE	38°38.530	N	4°36.550	E	2554.1	666
POS-468	237	1	UCTD	08.04.2014	02:15:44	BE	38°39.850	N	4°44.180	E	2623.8	722
POS-468	238	1	UCTD	08.04.2014	03:15:12	BE	38°41.110	N	4°51.530	E	2631.0	689
POS-468	239	1	UCTD	08.04.2014	04:16:41	BE	38°42.340	N	4°58.710	E	2708.3	744
POS-468	240	1	UCTD	08.04.2014	05:14:17	BE	38°43.530	N	5°05.640	E	2751.7	397
POS-468	241	1	UCTD	08.04.2014	06:13:35	BE	38°44.720	N	5°12.850	E	2756.2	744
POS-468	242	1	UCTD	08.04.2014	07:19:55	BE	38°45.940	N	5°19.730	E	2777.2	397
POS-468	243	1	UCTD	08.04.2014	08:23:47	BE	38°47.230	N	5°27.190	E	2786.8	733
POS-468	244	1	UCTD	08.04.2014	09:19:25	BE	38°48.370	N	5°33.900	E	2788.9	684
POS-468	245	1	UCTD	08.04.2014	10:22:15	BE	38°49.680	N	5°41.550	E	2791.4	772
POS-468	246	1	UCTD	08.04.2014	11:19:06	BE	38°50.860	N	5°48.480	E	2795.1	626
POS-468	247	1	UCTD	08.04.2014	12:19:58	BE	38°52.130	N	5°55.940	E	2794.7	429
POS-468	248	1	UCTD	08.04.2014	13:19:48	BE	38°53.370	N	6°03.080	E	2807.1	695
POS-468	249	1	UCTD	08.04.2014	14:20:00	BE	38°54.590	N	6°10.200	E	2797.2	781
POS-468	250	1	UCTD	08.04.2014	15:15:36	BE	38°55.760	N	6°17.080	E	2803.2	706
POS-468	251	1	UCTD	08.04.2014	16:15:05	BE	38°56.990	N	6°24.320	E	2797.9	760
POS-468	252	1	UCTD	08.04.2014	17:15:33	BE	38°58.220	N	6°31.590	E	2796.6	732
POS-468	253	1	UCTD	08.04.2014	18:15:03	BE	38°59.360	N	6°38.520	E	2796.9	771
POS-468	254	1	CTD/ROS/LADCP	08.04.2014	18:53:00	BE	39°00.015	N	6°42.001	E	2796.4	-----
POS-468		1	CTD/ROS/LADCP	08.04.2014	19:48:00	BO	39°00.178	N	6°42.173	E	2835.0	2887.0
POS-468		1	CTD/ROS/LADCP	08.04.2014	20:46:00	EN	39°00.324	N	6°42.355	E	2796.0	-----
	255	1	UCTD	08.04.2014	20:58:00	BE	38°59.97	N	6°42.94	E	2835.0	KA
POS-468	256	1	UCTD	08.04.2014	22:14:27	BE	38°56.570	N	6°51.130	E	2798.1	670
POS-468	257	1	UCTD	08.04.2014	23:14:12	BE	38°54.070	N	6°57.780	E	2795.5	730
POS-468	258	1	UCTD	09.04.2014	00:14:19	BE	38°51.620	N	7°04.310	E	2793.8	745
POS-468	259	1	UCTD	09.04.2014	01:34:12	BE	38°48.470	N	7°12.710	E	2791.9	693
POS-468	260	1	UCTD	09.04.2014	02:20:37	BE	38°46.560	N	7°17.790	E	2791.2	747
POS-468	261	1	UCTD	09.04.2014	03:21:27	BE	38°43.880	N	7°24.890	E	2789.7	714
POS-468	262	1	UCTD	09.04.2014	04:20:04	BE	38°41.440	N	7°31.370	E	2786.5	753
POS-468	263	1	UCTD	09.04.2014	05:17:06	BE	38°39.100	N	7°37.590	E	2779.8	586
POS-468	264	1	UCTD	09.04.2014	08:19:42	BE	38°31.780	N	7°57.000	E	2379.2	505
POS-468	265	1	UCTD	09.04.2014	09:19:43	BE	38°29.340	N	8°03.470	E	2555.6	540
POS-468	266	1	UCTD	09.04.2014	10:10:43	BE	38°26.880	N	8°09.990	E	2504.4	583
POS-468	267	1	UCTD	09.04.2014	11:18:08	BE	38°24.450	N	8°16.390	E	2289.5	599
POS-468	268	1	UCTD	09.04.2014	12:16:03	BE	38°22.000	N	8°22.880	E	1795.5	540
POS-468	269	1	CTD/ROS/LADCP	09.04.2014	13:18:00	BE	38°19.310	N	8°30.030	E	1909.7	
POS-468		1	CTD/ROS/LADCP	09.04.2014	13:53:00	BO	38°19.306	N	8°30.012	E	1925.0	1923.0
POS-468		1	CTD/ROS/LADCP	09.04.2014	14:37:00	EN	38°19.306	N	8°30.006	E	1943.5	
POS-468	270	1	UCTD	09.04.2014	15:00:01	BE	38°19.310	N	8°30.610	E	1816.8	559
POS-468	271	1	UCTD	09.04.2014	16:18:14	BE	38°20.28	N	8°40.57	E	1886.1	604
POS-468	272	1	UCTD	09.04.2014	17:16:43	BE	38°20.86	N	8°46.86	E	1859.1	585
POS-468	273	1	UCTD	09.04.2014	18:33:00	BE	38°21.44	N	8°53.09	E	1819.3	KA
POS-468	274	1	UCTD	09.04.2014	19:15:04	BE	38°22.12	N	9°00.31	E	1773.1	529
POS-468	275	1	UCTD	09.04.2014	20:15:08	BE	38°22.81	N	9°07.83	E	1768.1	489
POS-468	276	1	UCTD	09.04.2014	21:14:03	BE	38°23.49	N	9°15.08	E	1907.1	512

POS-468	277	1	UCTD	09.04.2014	22:24:28	BE	38°24.26	N	9°23.41	E	1427.6	563
POS-468	278	1	UCTD	10.04.2014	23:19:59	BE	38°24.89	N	9°30.15	E	1957.1	601
POS-468	279	1	UCTD	10.04.2014	00:20:49	BE	38°25.57	N	9°37.51	E	2005.3	576
POS-468	280	1	UCTD	10.04.2014	01:20:21	BE	38°26.29	N	9°45.27	E	1885.2	579
POS-468	281	1	UCTD	10.04.2014	02:22:04	BE	38°27.05	N	9°53.43	E	1024.4	621
POS-468	282	1	UCTD	10.04.2014	03:14:35	BE	38°27.73	N	10°00.67	E	1610.1	626
POS-468	283	1	UCTD	10.04.2014	04:15:11	BE	38°28.43	N	10°08.33	E	1920.1	562
POS-468	284	1	UCTD	10.04.2014	05:14:49	BE	38°29.15	N	10°16.03	E	1766.5	635
POS-468	285	1	UCTD	10.04.2014	06:14:43	BE	38°29.86	N	10°23.73	E	1016.7	548
POS-468	286	1	UCTD	10.04.2014	07:14:15	BE	38°30.60	N	10°31.76	E	729.5	489
POS-468	287	1	UCTD	10.04.2014	08:13:48	BE	38°31.36	N	10°39.95	E	723.6	543
POS-468	288	1	UCTD	10.04.2014	09:13:41	BE	38°32.10	N	10°47.89	E	704.6	529
POS-468	289	1	UCTD	10.04.2014	10:20:05	BE	38°32.87	N	10°56.19	E	832.0	542
POS-468	290	1	UCTD	10.04.2014	11:17:20	BE	38°33.60	N	11°04.01	E	978.8	550
POS-468	291	1	UCTD	10.04.2014	12:20:07	BE	38°34.40	N	11°12.76	E	1200.0	528
POS-468	292	1	UCTD	10.04.2014	13:19:09	BE	38°35.23	N	11°21.64	E	1695.6	531
POS-468	293	1	CTD/ROS/LADCP	10.04.2014	14:27:00	BE	38°36.015	N	11°29.934	E	1617	
POS-468		1	CTD/ROS/LADCP	10.04.2014	15:02:00	BO	38°36.017	N	11°30.006	E	1633	1652.8
POS-468		1	CTD/ROS/LADCP	11.04.2014	15:40:00	EN	38°36.048	N	11°30.021	E	1620	
POS-468	294	1	UCTD	10.04.2014	15:54:30	BE	38°35.95	N	11°29.99	E	1634.8	564
POS-468	295	1	UCTD	10.04.2014	17:12:30	BE	38°29.18	N	11°33.49	E	1358.4	626
POS-468	296	1	UCTD	10.04.2014	18:18:31	BE	38°23.60	N	11°36.35	E	598.0	597
POS-468	297	1	UCTD	10.04.2014	19:15:15	BE	38°18.16	N	11°39.14	E	1052.7	505
POS-468	298	1	UCTD	10.04.2014	20:15:20	BE	38°12.26	N	11°42.14	E	881.3	528
POS-468	299	1	UCTD	10.04.2014	21:14:39	BE	38°06.46	N	11°45.09	E	962.4	505
POS-468	300	1	UCTD	10.04.2014	22:14:31	BE	38°00.60	N	11°48.07	E	1009.6	636
POS-468	301	1	UCTD	10.04.2014	23:13:07	BE	37°55.90	N	11°50.48	E	705.3	531
POS-468	302	1	CTD/ROS/LADCP	11.04.2014	08:14:00	BE	36°47.884	N	12°29.973	E	441	
POS-468			CTD/ROS/LADCP	11.04.2014	08:27:00	BO	36°47.816	N	12°29.957	E	432	435.9
POS-468			CTD/ROS/LADCP	11.04.2014	08:42:00	EN	36°47.711	N	12°29.987	E	444	
POS-468	303	1	UCTD	11.04.2014	09:40:00	BE	36°46.65	N	12°36.29	E	0.3	398
POS-468	304	1	UCTD	11.04.2014	10:18:03	BE	36°45.71	N	12°41.04	E	597.2	478
POS-468	305	1	UCTD	11.04.2014	11:16:31	BE	36°44.33	N	12°47.99	E	529.3	445
POS-468	306	1	UCTD	11.04.2014	12:17:05	BE	36°42.77	N	12°55.81	E	860.1	467
POS-468	307	1	UCTD	11.04.2014	13:20:44	BE	36°41.20	N	13°03.74	E	610.9	502
POS-468	308	1	UCTD	11.04.2014	15:06:24	BE	36°38.29	N	13°17.25	E	548.9	475
POS-468	309	1	UCTD	11.04.2014	16:20:06	BE	36°36.55	N	13°27.13	E	602.3	488
POS-468	310	1	UCTD	11.04.2014	17:21:40	BE	36°34.99	N	13°34.92	E	590.3	524
POS-468	311	1	UCTD	11.04.2014	20:21:17	BE	36°29.53	N	13°57.54	E	505.0	448
POS-468	312	1	UCTD	11.04.2014	21:12:27	BE	36°27.98	N	14°03.11	E	623.1	470
POS-468	313	1	UCTD	11.04.2014	22:14:54	BE	36°26.14	N	14°09.63	E	695.3	486
POS-468	314	1	UCTD	11.04.2014	23:14:03	BE	36°24.25	N	14°16.37	E	632.2	480
POS-468	315	1	UCTD	11.04.2014	23:59:07	BE	36°22.81	N	14°21.49	E	529.7	484
POS-468	316	1	CTD/ROS/LADCP	12.04.2014	9:49:00	BE	36°04.715	N	15°27.017	E	742.8	
POS-468		1	CTD/ROS/LADCP	12.04.2014	10:07:00	BO	36°04.731	N	15°27.066	E		753 748.5
POS-468		1	CTD/ROS/LADCP	12.04.2014	10:29:00	EN	36°04.691	N	15°27.023	E		736
POS-468	317	1	UCTD	12.04.2014	10:37:11	BE	36°04.74	N	15°27.29	E	808.7	444
POS-468	318	1	UCTD	12.04.2014	11:15:26	BE	36°03.51	N	15°31.50	E	2113.9	493
POS-468	319	1	UCTD	12.04.2014	12:13:27	BE	36°01.66	N	15°38.47	E	2388.9	575
POS-468	320	1	UCTD	12.04.2014	13:14:07	BE	35°59.81	N	15°45.43	E	2833.4	498
POS-468	321	1	UCTD	12.04.2014	14:19:25	BE	35°58.00	N	15°52.27	E	3534.0	611
POS-468	322	1	UCTD	12.04.2014	15:19:05	BE	35°56.22	N	15°59.00	E	3644.6	637
POS-468	323	1	UCTD	12.04.2014	16:21:36	BE	35°54.45	N	16°05.64	E	3694.5	647
POS-468	324	1	UCTD	12.04.2014	17:21:25	BE	35°52.85	N	16°11.72	E	3712.8	657
POS-468	325	1	UCTD	12.04.2014	18:20:31	BE	35°51.10	N	16°18.29	E	3694.3	613
POS-468	326	1	UCTD	12.04.2014	19:19:48	BE	35°49.45	N	16°24.48	E	3706.3	610
POS-468	327	1	UCTD	12.04.2014	20:20:29	BE	35°47.72	N	16°30.98	E	3718.6	607
POS-468	328	1	UCTD	12.04.2014	21:13:46	BE	35°46.01	N	16°37.42	E	3740.2	614
POS-468	329	1	UCTD	12.04.2014	22:13:48	BE	35°44.24	N	16°44.07	E	3770.0	593
POS-468	330	1	UCTD	12.04.2014	23:13:31	BE	35°42.67	N	16°49.96	E	3802.0	644
POS-468	331	1	UCTD	13.04.2014	00:13:13	BE	35°41.13	N	16°55.75	E	3821.1	659
POS-468	332	1	UCTD	13.04.2014	01:13:09	BE	35°39.47	N	17°01.96	E	3881.3	642
POS-468	333	1	UCTD	13.04.2014	02:15:52	BE	35°37.84	N	17°08.09	E	3908.3	617
POS-468	334	1	UCTD	13.04.2014	02:51:50	BE	35°36.84	N	17°11.86	E	3958.1	678
POS-468	335	1	CTD/ROS/LADCP	13.04.2014	03:40	BE	35°35.995	N	17°14.959	E	3934.2	
	335	1	CTD/ROS/LADCP	13.04.2014	05:05	BO	35°36.012	N	17°14.997	E	4040.0	4098
	335	1	CTD/ROS/LADCP/ARGO	13.04.2014	06:21	EN	35°36.035	N	17°14.941	E	3934.0	
POS-468	336	1	UCTD	13.04.2014	07:11:35	BE	35°38.48	N	17°19.63	E	3945.5	543

POS-468	337	1	UCTD	13.04.2014	08:19:18	BE	35°42.36	N	17°26.88	E	3958.3	575
POS-468	338	1	UCTD	13.04.2014	09:16:23	BE	35°46.01	N	17°33.74	E	3961.8	592
POS-468	339	1	UCTD	13.04.2014	10:15:26	BE	35°49.57	N	17°40.42	E	3962.6	547
POS-468	340	1	UCTD	13.04.2014	11:14:20	BE	35°52.96	N	17°46.78	E	3961.5	471
POS-468	341	1	UCTD	13.04.2014	12:14:45	BE	35°56.51	N	17°53.45	E	3953.7	538
POS-468	342	1	CTD/ROS/LADCP	13.04.2014	13:19	BE	36°00.024	N	18°00.026	E	3951.4	
	342	1	CTD/ROS/LADCP	13.04.2014	14:32	BO	35°59.995	N	18°00.019	E	4051.9	4121.3
	342	1	CTD/ROS/LADCP	13.04.2014	15:54	EN	36°00.005	N	17°59.973	E	3951	
POS-468	343	1	UCTD	13.04.2014	16:14:28	BE	35°59.13	N	18°00.83	E	3952.7	637
POS-468	344	1	UCTD	13.04.2014	17:12:21	BE	35°55.33	N	18°04.64	E	3971.7	606
POS-468	345	1	UCTD	13.04.2014	18:13:44	BE	35°51.11	N	18°08.84	E	3971.9	647
POS-468	346	1	UCTD	13.04.2014	19:14:26	BE	35°47.14	N	18°12.79	E	3971.5	580
POS-468	347	1	UCTD	13.04.2014	20:14:38	BE	35°43.15	N	18°16.75	E	3968.2	594
POS-468	348	1	UCTD	13.04.2014	21:10:26	BE	35°39.45	N	18°20.44	E	3964.0	592
POS-468	349	1	UCTD	13.04.2014	22:14:04	BE	35°35.36	N	18°24.58	E	3957.9	607
POS-468	350	1	UCTD	13.04.2014	22:59:45	BE	35°32.53	N	18°27.45	E	3944.1	579
POS-468	351	1	CTD/ROS/LADCP	13.04.2014	23:44	BE	35°30.028	N	18°29.941	E	3929.9	
	351	1	CTD/ROS/LADCP	14.04.2014	00:54	BO	35°30.032	N	18°29.963	E	3922.1	3998.0
	351	1	CTD/ROS/LADCP	14.04.2014	02:16	EN	35°30.024	N	18°29.980	E	3924.5	
POS-468	352	1	UCTD	14.04.2014	03:12:08	BE	35°30.00	N	18°35.94	E	3951.8	713
POS-468	353	1	UCTD	14.04.2014	04:13:36	BE	35°29.99	N	18°42.37	E	3884.5	681
POS-468	354	1	UCTD	14.04.2014	05:14:08	BE	35°29.99	N	18°48.59	E	3758.8	707
POS-468	355	1	UCTD	14.04.2014	06:12:11	BE	35°30.00	N	18°54.33	E	3702.2	660
POS-468	356	1	UCTD	14.04.2014	07:13:00	BE	35°30.00	N	19°00.57	E	3598.4	756
POS-468	357	1	UCTD	14.04.2014	08:13:00	BE	35°30.00	N	19°06.87	E	3528.3	694
POS-468	358	1	UCTD	14.04.2014	09:12:55	BE	35°30.00	N	19°13.55	E	3342.4	733
POS-468	359	1	UCTD	14.04.2014	10:14:26	BE	35°30.00	N	19°20.24	E	3255.5	669
POS-468	360	1	UCTD	14.04.2014	11:15:28	BE	35°30.00	N	19°26.91	E	3165.4	698
POS-468	361	1	UCTD	14.04.2014	12:12:29	BE	35°30.00	N	19°33.64	E	3139.8	660
POS-468	362	1	UCTD	14.04.2014	13:12:49	BE	35°30.00	N	19°40.53	E	3001.9	636
POS-468	363	1	UCTD	14.04.2014	14:11:22	BE	35°29.99	N	19°47.28	E	3013.4	704
POS-468	364	1	UCTD	14.04.2014	15:01:31	BE	35°29.98	N	19°51.93	E	3027.5	695
POS-468	365	1	CTD/ROS/LADCP	14.04.2014	16:17	BE	35°30.023	N	20°00.052	E	2965.3	
	365		CTD/ROS/LADCP	14.04.2014	17:16	BO	35°29.985	N	19°59.990	E	2949	3028
	365		CTD/ROS/LADCP	14.04.2014	18:15	EN	35°30.001	N	19°59.992	E	2957	
POS-468	366	1	UCTD	14.04.2014	18:22:21	BE	35°29.97	N	20°00.08	E	2949.2	660
POS-468	367	1	UCTD	14.04.2014	19:14:18	BE	35°28.39	N	20°05.23	E	2953.6	639
POS-468	368	1	UCTD	14.04.2014	20:15:45	BE	35°26.28	N	20°12.05	E	2894.5	608
POS-468	369	1	UCTD	14.04.2014	21:09:48	BE	35°24.62	N	20°17.44	E	2860.9	612
POS-468	370	1	UCTD	14.04.2014	22:14:25	BE	35°22.34	N	20°24.78	E	2888.7	600
POS-468	371	1	UCTD	14.04.2014	23:13:33	BE	35°20.35	N	20°31.19	E	2937.4	560
POS-468	372	1	UCTD	15.04.2014	00:13:51	BE	35°18.25	N	20°38.01	E	2984.9	562
POS-468	373	1	UCTD	15.04.2014	01:14:21	BE	35°16.29	N	20°44.30	E	2924.6	571
POS-468	374	1	UCTD	15.04.2014	02:15:47	BE	35°14.32	N	20°50.66	E	2866.7	665
POS-468	375	1	UCTD	15.04.2014	03:13:16	BE	35°12.42	N	20°56.79	E	3055.0	645
POS-468	376	1	UCTD	15.04.2014	04:14:38	BE	35°10.39	N	21°03.31	E	2979.2	656
POS-468	377	1	UCTD	15.04.2014	05:14:59	BE	35°08.27	N	21°10.19	E	2841	649
POS-468	378	1	UCTD	15.04.2014	06:15:28	BE	35°06.02	N	21°17.44	E	2980.4	621
POS-468	379	1	UCTD	15.04.2014	07:13:57	BE	35°03.89	N	21°24.30	E	2998.6	602
POS-468	380	1	UCTD	15.04.2014	08:14:09	BE	35°01.70	N	21°31.33	E	3252.3	587
POS-468	381	1	UCTD	15.04.2014	09:14:47	BE	34°59.46	N	21°38.54	E	3122.7	557
POS-468	382	1	UCTD	15.04.2014	10:14:04	BE	34°57.23	N	21°45.72	E	3101.1	537
POS-468	383	1	UCTD	15.04.2014	11:13:36	BE	34°54.98	N	21°52.95	E	3063.4	577
POS-468	383-2	1	UCTD	15.04.2014	12:11:24	BE	34°52.77	N	22°00.02	E	3132.9	530
POS-468	384	1	UCTD	15.04.2014	13:14:29	BE	34°50.22	N	22°08.23	E	3128.6	523
POS-468	385	1	UCTD	15.04.2014	14:13:11	BE	34°48.00	N	22°15.38	E	3042.3	646
POS-468	386	1	CTD/ROS/LADCP	15.04.2014	15:36	BE	34°45.015	N	22°24.976	E	2900	
	386	1	CTD/ROS/LADCP	15.04.2014	16:30	BO	34°45.017	N	22°24.995	E	2898.6	2997
	386	1	CTD/ROS/LADCP/ARGO	15.04.2014	17:25	EN	34°45.010	N	22°24.987	E	2896.7	
POS-468	387	1	UCTD	15.04.2014	18:14:25	BE	34°44.50	N	22°28.78	E	2866.2	580
POS-468	388	1	UCTD	15.04.2014	19:15:54	BE	34°43.59	N	22°35.85	E	2826.1	597
POS-468	389	1	UCTD	15.04.2014	20:15:06	BE	34°42.67	N	22°42.86	E	2791.6	580
POS-468	390	1	UCTD	15.04.2014	21:12:46	BE	34°41.77	N	22°49.82	E	2777.6	562
POS-468	391	1	UCTD	15.04.2014	22:13:19	BE	34°40.87	N	22°56.73	E	2777.8	546
POS-468	392	1	UCTD	15.04.2014	23:13:09	BE	34°39.96	N	23°03.68	E	2768.7	512
POS-468	393	1	UCTD	16.04.2014	00:14:14	BE	34°39.10	N	23°10.30	E	2691.5	516
POS-468	394	1	UCTD	16.04.2014	01:13:39	BE	34°38.21	N	23°17.08	E	2695.3	536
POS-468	395	1	UCTD	16.04.2014	02:15:28	BE	34°37.38	N	23°23.47	E	2705.4	616

POS-468	396	1	UCTD	16.04.2014	03:14:41	BE	34°36.55	N	23°29.83	E	2704.5	654
POS-468	397	1	UCTD	16.04.2014	04:12:50	BE	34°35.78	N	23°35.80	E	2644.5	650
POS-468	398	1	UCTD	16.04.2014	05:15:26	BE	34°34.95	N	23°42.08	E	2856.4	669
POS-468	399	1	UCTD	16.04.2014	06:14:25	BE	34°34.15	N	23°48.23	E	2306.5	596
POS-468	400	1	UCTD	16.04.2014	07:15:13	BE	34°33.20	N	23°55.52	E	2570.8	606
POS-468	401	1	UCTD	16.04.2014	08:14:50	BE	34°32.25	N	24°02.80	E	3048.4	582
POS-468	402	1	UCTD	16.04.2014	09:13:41	BE	34°31.27	N	24°10.26	E	2263.2	594
POS-468	403	1	CTD/ROS/LADCP	16.04.2014	10:37	BE	34°30.006	N	24°19.984	E	3206.8	
	403	1	CTD/ROS/LADCP	16.04.2014	11:37	BO	34°30.002	N	24°20.020	E	3310	3318.0
	403	1	CTD/ROS/LADCP	16.04.2014	12:41	EN	34°30.004	N	24°20.017	E	3201.6	
POS-468	403-2	1	UCTD	16.04.2014	12:50:08	BE	34°29.43	N	24°29.85	E	2636.4	587
POS-468	404	1	UCTD	16.04.2014	14:16:09	BE	34°29.06	N	24°35.99	E	1532.0	627
POS-468	405	1	UCTD	16.04.2014	15:13:56	BE	34°28.66	N	24°42.70	E	1698.5	674
POS-468	406	1	UCTD	16.04.2014	16:15:53	BE	34°28.26	N	24°49.43	E	2058.5	690
POS-468	407	1	UCTD	16.04.2014	17:17:32	BE	34°27.86	N	24°56.05	E	2151.2	662
POS-468	408	1	UCTD	16.04.2014	18:14:08	BE	34°27.46	N	25°02.84	E	1869.9	604
POS-468	409	1	UCTD	16.04.2014	19:14:02	BE	34°27.05	N	25°09.61	E	1607.7	591
POS-468	410	1	UCTD	16.04.2014	20:13:11	BE	34°26.63	N	25°16.64	E	1553.2	600
POS-468	411	1	UCTD	16.04.2014	21:11:20	BE	34°26.17	N	25°24.39	E	1725.5	583
POS-468	412	1	UCTD	16.04.2014	22:17:23	BE	34°25.83	N	25°30.31	E	1732.2	735
POS-468	413	1	UCTD	16.04.2014	23:15:00	BE	34°25.36	N	25°38.14	E	2513.1	689
POS-468	414	1	UCTD	17.04.2014	00:18:30	BE	34°24.94	N	25°45.05	E	1661.7	653
POS-468	415	1	UCTD	17.04.2014	01:16:01	BE	34°24.50	N	25°52.52	E	2517.5	790
POS-468	416	1	UCTD	17.04.2014	02:15:26	BE	34°24.00	N	26°01.03	E	4114.2	643
POS-468	417	1	CTD/ROS/LADCP	17.04.2014	03:21	BE	34°24.001	N	26°01.033	E	4102	
POS-468	417	1	CTD/ROS/LADCP	17.04.2014	04:39	BO	34°24.005	N	26°01.042	E	4103	4275
POS-468	417	1	CTD/ROS/LADCP/ARGO	17.04.2014	05:55	EN	34°24.059	N	26°01.103	E	4116	
POS-468	418	1	UCTD	17.04.2014	06:31:35	BE	34°24.82	N	25°59.70	E	4013.4	607
POS-468	419	1	UCTD	17.04.2014	07:16:15	BE	34°26.49	N	25°57.08	E	3080.9	608
POS-468	420	1	UCTD	17.04.2014	08:14:20	BE	34°28.85	N	25°53.37	E	2258.0	588
POS-468	421	1	UCTD	17.04.2014	09:13:10	BE	34°31.31	N	25°49.48	E	1640.3	592
POS-468	422	1	UCTD	17.04.2014	10:17:32	BE	34°34.08	N	25°45.13	E	1116.3	529
POS-468	423	1	UCTD	17.04.2014	11:17:15	BE	34°36.86	N	25°40.76	E	847.3	602
POS-468	424	1	UCTD	17.04.2014	12:14:25	BE	34°39.46	N	25°36.66	E	697.0	602
POS-468	425	1	UCTD	17.04.2014	13:15:51	BE	34°42.16	N	25°32.40	E	732.2	589
POS-468	426	1	UCTD	17.04.2014	14:13:08	BE	34°44.68	N	25°28.44	E	815.8	700
POS-468	427	1	UCTD	17.04.2014	15:15:01	BE	34°47.19	N	25°24.46	E	1023.5	645
POS-468	428	1	UCTD	17.04.2014	16:14:22	BE	34°49.72	N	25°20.46	E	1867.5	735
POS-468	429	1	UCTD	17.04.2014	17:12:45	BE	34°49.82	N	25°16.62	E	2058.3	715
POS-468	430	1	UCTD	18.04.2014	06:12:42	BE	35°00.93	N	24°12.91	E	1338.6	700
POS-468	431	1	UCTD	18.04.2014	07:14:45	BE	35°01.60	N	24°07.73	E	1026.1	699
POS-468	432	1	UCTD	18.04.2014	08:15:45	BE	35°02.25	N	24°02.80	E	913.3	703
POS-468	433	1	UCTD	18.04.2014	09:13:58	BE	35°02.82	N	23°58.34	E	969.8	782
POS-468	434	1	UCTD	18.04.2014	10:14:07	BE	35°03.41	N	23°53.88	E	992.3	637
POS-468	435	1	UCTD	18.04.2014	11:15:20	BE	35°04.06	N	23°48.94	E	1255.4	611
POS-468	436	1	UCTD	18.04.2014	12:14:49	BE	35°04.70	N	23°43.97	E	1514.3	669
POS-468	437	1	UCTD	18.04.2014	13:12:39	BE	35°05.32	N	23°39.27	E	1913.7	757
POS-468	438	1	UCTD	18.04.2014	14:13:50	BE	35°05.93	N	23°34.62	E	3412.7	749
POS-468	439	1	UCTD	18.04.2014	15:14:22	BE	35°06.51	N	23°30.16	E	3167.8	801
POS-468	440	1	UCTD	18.04.2014	16:15:51	BE	35°07.09	N	23°25.75	E	2460.0	741
POS-468	441	1	UCTD	18.04.2014	17:15:31	BE	35°07.68	N	23°21.32	E	3648.2	721
POS-468	442	1	UCTD	18.04.2014	18:14:00	BE	35°08.27	N	23°16.64	E	3420.9	644
POS-468	443	1	UCTD	18.04.2014	19:14:00	BE	35°08.94	N	23°11.51	E	3529.9	666
POS-468	444	1	UCTD	18.04.2014	20:16:42	BE	35°09.60	N	23°06.48	E	3655.2	667
POS-468	445	1	UCTD	18.04.2014	21:15:06	BE	35°10.28	N	23°01.24	E	3160.0	629
POS-468	446	1	UCTD	18.04.2014	22:15:57	BE	35°10.94	N	22°56.20	E	3230.4	658
POS-468	447	1	UCTD	18.04.2014	23:15:51	BE	35°11.68	N	22°50.50	E	3648.2	621
POS-468	448	1	UCTD	19.04.2014	00:14:22	BE	35°12.36	N	22°45.30	E	3665.7	812
POS-468	449	1	UCTD	19.04.2014	01:16:05	BE	35°13.04	N	22°40.02	E	3684.0	774
POS-468	450	1	UCTD	19.04.2014	02:16:30	BE	35°13.71	N	22°34.89	E	3449.9	781
POS-468	451	1	UCTD	19.04.2014	03:13:48	BE	35°14.34	N	22°30.07	E	3478.2	640
POS-468	452	1	CTD/ROS/LADCP	19.04.2014	04:15	BE	35°14.989	N	22°25.068	E	3789	
	452	1	CTD/ROS/LADCP	19.04.2014	05:26	BO	35°14.999	N	22°25.017	E	3782	3933
	452	1	CTD/ROS/LADCP	19.04.2014	06:36	EN	35°15.000	N	22°25.012	E	3789	
POS-468	453	1	UCTD	19.04.2014	06:44:38	BE	35°15.13	N	22°24.88	E	3777.0	656
POS-468	454	1	UCTD	19.04.2014	08:15:39	BE	35°23.15	N	22°25.00	E	3731.7	651
POS-468	455	1	UCTD	19.04.2014	09:13:00	BE	35°28.07	N	22°25.00	E	3905.0	671
POS-468	456	1	UCTD	19.04.2014	10:19:17	BE	35°33.60	N	22°25.01	E	4212.2	583

POS-468	457	1	UCTD	19.04.2014	11:14:52	BE	35°38.04	N	22°25.00	E	4399.3	765
POS-468	458	1	UCTD	19.04.2014	12:16:30	BE	35°42.35	N	22°25.01	E	4444.6	718
POS-468	459	1	CTD/ROS/LADCP	19.04.2014	13:01	BE	35°45.015	N	22°25.003	E	4493	-----
	459	1	CTD/ROS/LADCP	19.04.2014	14:24	BO	35°45.006	N	22°25.037	E	4478	4691
	459	1	CTD/ROS/LADCP	19.04.2014	15:57	EN	35°45.008	N	22°22.015	E	4480	-----
POS-468	460	1	UCTD	19.04.2014	16:04:41	BE	35°45.07	N	22°24.98	E	4482.8	609
POS-468	461	1	UCTD	19.04.2014	17:12:47	BE	35°49.27	N	22°21.47	E	4602.9	666
POS-468	462	1	UCTD	19.04.2014	18:14:05	BE	35°53.47	N	22°17.95	E	4611.9	716
POS-468	463	1	UCTD	19.04.2014	19:15:58	BE	35°57.04	N	22°14.98	E	4609.4	602
POS-468	464	1	UCTD	19.04.2014	20:18:46	BE	36°01.96	N	22°10.89	E	3964.6	494
POS-468	465	1	UCTD	19.04.2014	21:11:47	BE	36°05.99	N	22°07.52	E	3819.2	595
POS-468	466	1	UCTD	19.04.2014	22:15:56	BE	36°10.65	N	22°03.63	E	3139.1	651
POS-468	467	1	CTD/ROS/LADCP	19.04.2014	23:18	BE	36°14.971	N	22°00.039	E	2987	-----
	467	1	CTD/ROS/LADCP	20.04.2014	00:14	BO	36°14.959	N	22°00.025	E	2986.8	3084
	467	1	CTD/ROS/LADCP	20.04.2014	01:14	EN	36°14.948	N	22°00.012	E	3014	-----
POS-468	467-2	1	UCTD	20.04.2014	01:19:20	BE	36°15.52	N	21°58.57	E	2990.6	629
POS-468	468	1	UCTD	20.04.2014	02:15:32	BE	36°16.87	N	21°54.85	E	3258.3	620
POS-468	469	1	UCTD	20.04.2014	03:12:54	BE	36°18.62	N	21°50.00	E	3699.5	662
POS-468	470	1	UCTD	20.04.2014	04:14:41	BE	36°20.63	N	21°44.48	E	3395.7	670
POS-468	471	1	UCTD	20.04.2014	05:15:24	BE	36°22.54	N	21°39.20	E	3158.0	609
POS-468	472	1	UCTD	20.04.2014	06:15:08	BE	36°24.52	N	21°33.71	E	3441.3	659
POS-468	473	1	UCTD	20.04.2014	07:14:03	BE	36°26.20	N	21°29.06	E	4038.3	648
POS-468	474	1	UCTD	20.04.2014	08:15:30	BE	36°27.88	N	21°24.42	E	4139.0	663
POS-468	475	1	UCTD	20.04.2014	09:11:10	BE	36°29.37	N	21°20.27	E	4087.9	692
POS-468	476	1	UCTD	20.04.2014	10:16:25	BE	36°31.13	N	21°15.41	E	4239.5	687
POS-468	477	1	CTD/ROS/LADCP	20.04.2014	10:54	BE	36°32.003	N	21°13.019	E	4444.2	-----
	477	1	CTD/ROS/LADCP	20.04.2014	12:17	BO	36°32.001	N	21°13.032	E	4417.7	4612.5
	477	1	CTD/ROS/LADCP	20.04.2014	13:36	EN	36°32.027	N	21°12.973	E	4410	-----
POS-468	477-2	1	UCTD	20.04.2014	13:47:07	BE	36°32.05	N	21°12.95	E	4384.5	605
POS-468	478	1	UCTD	20.04.2014	15:16:33	BE	36°38.11	N	21°08.07	E	3882.3	541
POS-468	479	1	UCTD	20.04.2014	16:15	BE	36°42.00	N	21°04.92	E	3878.5	ka
POS-468	480	1	UCTD	20.04.2014	17:15:14	BE	36°46.31	N	21°01.44	E	3587.2	640
POS-468	481	1	UCTD	20.04.2014	18:15:57	BE	36°50.61	N	20°57.96	E	3252.5	602
POS-468	482	1	UCTD	20.04.2014	19:16:43	BE	36°55.21	N	20°54.23	E	2331.0	562
POS-468	483	1	UCTD	20.04.2014	20:14:12	BE	36°59.59	N	20°50.68	E	2708.2	518
POS-468	484	1	UCTD	20.04.2014	21:12:21	BE	37°03.97	N	20°47.12	E	2376.2	542
POS-468	485	1	UCTD	20.04.2014	22:16:29	BE	37°08.59	N	20°43.38	E	2390.5	633
POS-468	486	1	UCTD	20.04.2014	23:20:39	BE	37°12.88	N	20°39.88	E	2552.6	651
POS-468	487	1	UCTD	21.04.2014	00:14:45	BE	37°16.69	N	20°36.77	E	2718.7	565
POS-468	488	1	UCTD	21.04.2014	01:15:11	BE	37°21.18	N	20°33.12	E	3234.0	568
POS-468	489	1	CTD/ROS/LADCP	21.04.2014	02:14	BE	37°25.007	N	20°29.995	E	3510	-----
	489	1	CTD/ROS/LADCP	21.04.2014	03:20	BO	37°25.000	N	20°30.029	E	3482	3621
	489	1	CTD/ROS/LADCP	21.04.2014	04:29	EN	37°24.992	N	20°30.007	E	3500	-----
POS-468	490	1	UCTD	21.04.2014	06:32:15	BE	37°34.14	N	20°25.82	E	3486.9	557
POS-468	491	1	UCTD	21.04.2014	07:14:30	BE	37°37.31	N	20°24.35	E	3311.7	536
POS-468	492	1	UCTD	21.04.2014	08:16:57	BE	37°42.08	N	20°22.16	E	2847.5	491
POS-468	493	1	UCTD	21.04.2014	09:12:56	BE	37°46.44	N	20°20.16	E	2323.0	453
POS-468	494	1	UCTD	21.04.2014	10:15:31	BE	37°51.18	N	20°17.97	E	1836.5	425
POS-468	495	1	UCTD	21.04.2014	11:15:54	BE	37°56.24	N	20°15.64	E	834.5	434
POS-468	496	1	CTD/ROS/LADCP	21.04.2014	19:00	BE	38°30.035	N	20°00.086	E	2264	-----
	496	1	CTD/ROS/LADCP	21.04.2014	19:45	BO	38°30.009	N	19°59.973	E	2272	2302
	496	1	CTD/ROS/LADCP	21.04.2014	20:38	EN	38°29.973	N	19°59.943	E	2246	-----
POS-468	497	1	UCTD	21.04.2014	20:52:10	BE	38°30.14	N	19°59.94	E	2244.6	616
POS-468	498	1	UCTD	21.04.2014	23:16:13	BE	38°41.80	N	19°52.94	E	1671.3	714
POS-468	499	1	UCTD	22.04.2014	00:15:56	BE	38°46.55	N	19°50.09	E	1533	710
POS-468	500	1	UCTD	22.04.2014	01:16:22	BE	38°51.45	N	19°47.15	E	1427.0	687
POS-468	501	1	UCTD	22.04.2014	02:19:28	BE	38°56.27	N	19°44.25	E	1356.8	734
POS-468	502	1	UCTD	22.04.2014	03:12:51	BE	39°00.57	N	19°41.67	E	1284.4	710
POS-468	503	1	UCTD	22.04.2014	04:14:28	BE	39°05.57	N	19°38.67	E	1329.3	708
POS-468	504	1	CTD/ROS/LADCP	22.04.2014	05:15	BE	39°09.967	N	19°35.976	E	1375	-----
	504	1	CTD/ROS/LADCP	22.04.2014	05:44	BO	39°09.960	N	19°35.943	E	1375	1401
	504	1	CTD/ROS/LADCP	22.04.2014	06:19	EN	39°09.946	N	19°35.937	E	1375	-----
POS-468	505	1	UCTD	22.04.2014	06:28:10	BE	39°10.01	N	19°35.85	E	1374.9	681
POS-468	506	1	UCTD	22.04.2014	07:13:41	BE	39°10.00	N	19°30.84	E	1248.4	671
POS-468	507	1	UCTD	22.04.2014	08:16:06	BE	39°10.02	N	19°21.82	E	815.2	659
POS-468	508	1	CTD/ROS/LADCP	22.04.2014	09:11:00	BE	39°09.998	N	19°15.041	E	849	-----
	508	1	CTD/ROS/LADCP	22.04.2014	09:37	BO	39°10.025	N	19°15.054	E	847	851.0
	508	1	CTD/ROS/LADCP	22.04.2014	09:58	EN	39°10.014	N	19°15.054	E	847.5	-----

POS-468	508-2	1	UCTD	22.04.2014	10:04:54	BE	39°10.00	N	19°13.12	E	894.6	713
POS-468	509	1	UCTD	22.04.2014	11:15:44	BE	39°10.01	N	19°07.55	E	929.0	761
POS-468	510	1	UCTD	22.04.2014	12:15:44	BE	39°10.00	N	18°59.16	E	1064.1	728
POS-468	511	1	CTD/ROS/LADCP	22.04.2014	13:37	BE	39°09.994	N	18°53.013	E	1152	
	511	1	CTD/ROS/LADCP	22.04.2014	14:00	BO	39°09.977	N	18°53.007	E	1144	1163
	511	1	CTD/ROS/LADCP	22.04.2014	14:25	EN	39°10.019	N	18°53.030	E	1150	
POS-468	512	1	UCTD	22.04.2014	15:19:13	BE	39°10.00	N	18°47.81	E	932.5	705
POS-468	513	1	UCTD	22.04.2014	16:15:19	BE	39°10.00	N	18°41.62	E	1091.9	716
POS-468	514	1	UCTD	22.04.2014	17:13:07	BE	39°10.00	N	18°35.69	E	1214.5	747
POS-468	515	1	UCTD	22.04.2014	18:15:21	BE	39°10.00	N	18°28.58	E	1406.1	710
POS-468	516	1	CTD/ROS/LADCP	22.04.2014	18:56	BE	39°10.024	N	18°24.994	E	1545	
	516	1	CTD/ROS/LADCP	22.04.2014	19:28	BE	39°09.997	N	18°24.965	E	1543	1574.4
	516	1	CTD/ROS/LADCP	22.04.2014	20:01	BE	39°09.995	N	18°24.982	E	1543	
POS-468	517	1	UCTD	22.04.2014	20:19:43	BE	39°10.00	N	18°24.17	E	1544.1	723
POS-468	518	1	UCTD	22.04.2014	21:17:54	BE	39°10.00	N	18°17.83	E	1871.3	733
POS-468	519	1	UCTD	22.04.2014	22:15:16	BE	39°10.00	N	18°11.38	E	2205.8	711
POS-468	520	1	UCTD	22.04.2014	23:14:52	BE	39°10.00	N	18°04.83	E	2425.4	710
POS-468	521	1	CTD/ROS/LADCP	23.04.2014	00:04	BE	39°09.991	N	18°00.014	E	2473	
	521	1	CTD/ROS/LADCP	23.04.2014	00:59	BO	39°10.011	N	18°00.034	E	2471.8	2535.4
	521	1	CTD/ROS/LADCP	23.04.2014	01:50	EN	39°09.991	N	17°59.962	E	2484	
POS-468	522	1	UCTD	23.04.2014	02:21:06	BE	39°10.56	N	18°00.63	E	2487.4	761
POS-468	523	1	UCTD	23.04.2014	03:14:53	BE	39°13.68	N	18°04.02	E	2371.2	729
POS-468	524	1	UCTD	23.04.2014	04:12:47	BE	39°17.19	N	18°07.88	E	1841.8	772
POS-468	525	1	UCTD	23.04.2014	05:16:23	BE	39°20.74	N	18°11.77	E	1478.4	795
POS-468	526	1	UCTD	23.04.2014	06:14:46	BE	39°23.82	N	18°15.16	E	1227.4	722
POS-468	527	1	UCTD	23.04.2014	07:13:25	BE	39°27.84	N	18°19.57	E	1031.8	763
POS-468	528	1	UCTD	23.04.2014	08:16:04	BE	39°32.31	N	18°24.48	E	627.2	535
POS-468	529	1	UCTD	23.04.2014	09:12:43	BE	39°36.38	N	18°28.97	E	639.6	525
POS-468	530	1	UCTD	23.04.2014	10:14:00	BE	39°40.74	N	18°33.77	E	518.7	487
POS-468	531	1	UCTD	23.04.2014	11:13:10	BE	39°44.91	N	18°38.38	E	283.0	182
POS-468	532	1	UCTD	23.04.2014	14:14:44	BE	40°01.63	N	18°47.49	E	559.1	530
POS-468	533	1	UCTD	23.04.2014	15:11:24	BE	40°05.85	N	18°48.77	E	687.7	555
POS-468	534	1	UCTD	23.04.2014	17:41:22	BE	40°09.97	N	18°50.01	E	770.4	637
POS-468	535	1	UCTD	23.04.2014	20:20:11	BE	40°10.02	N	18°54.94	E	854.2	724
POS-468	536	1	CTD/ROS/LADCP	23.04.2014	18:37	BE	40°10.001	N	19°00.029	E	905	
	536	1	CTD/ROS/LADCP	23.04.2014	18:57	BO	40°10.008	N	19°00.030	E	906	913.2
	536	1	CTD/ROS/LADCP	23.04.2014	19:22	EN	40°10.013	N	19°00.014	E	903	
POS-468	537	1	UCTD	23.04.2014	20:20:11	BE	40°10.03	N	19°05.79	E	946.3	724
POS-468	538	1	CTD/ROS/LADCP	23.04.2014	21:08	BE	40°10.007	N	19°10.008	E	955	
			CTD/ROS/LADCP	23.04.2014	21:28	BO	40°10.007	N	19°09.988	E	952	961.5
			CTD/ROS/LADCP	23.04.2014	21:50	EN	40°10.020	N	19°09.974	E	962	
POS-468	539	1	UCTD	23.04.2014	22:14:27	BE	40°10.01	N	19°10.01	E	955.5	673
POS-468	540	1	UCTD	23.04.2014	23:14:53	BE	40°10.01	N	19°11.91	E	956.2	691
POS-468	541	1	CTD/ROS/LADCP	24.04.2014	00:00	BE	40°09.977	N	19°20.011	E	922.2	
POS-468	541	1	CTD/ROS/LADCP	24.04.2014	00:23	BO	40°10.028	N	19°20.04	E	918.5	924.6
POS-468	541	1	CTD/ROS/LADCP	24.04.2014	00:44	EN	40°10.029	N	19°20.002	E	920	
POS-468	542	1	UCTD	24.04.2014	01:15:12	BE	40°10.93	N	19°19.44	E	910.3	681
POS-468	543	1	UCTD	24.04.2014	02:17:24	BE	40°15.02	N	19°16.96	E	783.6	675
POS-468	544	1	UCTD	24.04.2014	03:19:02	BE	40°18.93	N	19°14.60	E	532.0	476
POS-468	545	1	UCTD	24.04.2014	10:19:20	BE	40°57.86	N	18°50.92	E	380.4	200
POS-468	546	1	UCTD	24.04.2014	11:13:58	BE	41°02.76	N	18°47.93	E	466.1	301
POS-468	547	1	UCTD	24.04.2014	12:14:29	BE	41°07.92	N	18°44.76	E	530.1	444
POS-468	548	1	UCTD	24.04.2014	13:14:11	BE	41°12.78	N	18°41.78	E	615.5	491
POS-468	549	1	UCTD	24.04.2014	14:28:34	BE	41°17.02	N	18°37.42	E	923.5	755
POS-468	550	1	UCTD	24.04.2014	15:12:58	BE	41°16.36	N	18°33.32	E	989.9	751
POS-468	551	1	UCTD	24.04.2014	16:16:59	BE	41°15.15	N	18°26.03	E	1035.1	787
POS-468	552	1	UCTD	24.04.2014	17:15:56	BE	41°17.98	N	18°21.00	E	1073.1	729
POS-468	553	1	UCTD	24.04.2014	18:14:47	BE	41°21.80	N	18°16.18	E	1103.9	754
POS-468	554	1	CTD/ROS/LADCP/UCTD	24.04.2014	20:32:00	BE	41°31.813	N	18°03.175	E	1169	
	554	1	CTD/ROS/LADCP/UCTD	24.04.2014	20:57:00	BO	41°31.824	N	18°03.167	E	1168	1179
	554	1	CTD/ROS/LADCP/UCTD	24.04.2014	21:30:00	EN	41°31.849	N	18°03.192	E	1178	
POS-468	555	1	UCTD	26.04.2014	10:22	BE	42°24.10	N	18°04.47	E	348.7	kA
POS-468	556	1	UCTD	26.04.2014	11:13:52	BE	42°24.10	N	18°04.47	E	348.7	718
POS-468	557	1	UCTD	26.04.2014	12:14:15	BE	42°19.89	N	18°05.19	E	821.1	759
POS-468	558	1	CTD/ROS/LADCP	26.04.2014	15:30	BE	42°08.987	N	18°06.956	E	1127	
	558	1	CTD/ROS/LADCP	26.04.2014	15:52	BE	42°09.004	N	18°06.993	E	1127.9	1141
	558	1	CTD/ROS/LADCP	26.04.2014	16:18	BE	42°09.012	N	18°06.970	E	1127	
POS-468	559	1	UCTD	26.04.2014	17:15:56	BE	42°04.52	N	18°02.05	E	1201.2	

POS-468	560	1	CTD/ROS/LADCP	26.04.2014	18:23	BE	41°58.981	N	17°55.989	E	1202	
	560	1	CTD/ROS/LADCP	26.04.2014	18:53	BO	41°58.979	N	17°55.980	E	1199	1214.1
	560	1	CTD/ROS/LADCP	26.04.2014	19:25	EN	41°58.990	N	17°55.975	E	1198	
POS-468	561	1	UCTD	26.04.2014	20:47:04	BE	41°54.14	N	17°50.03	E	1205.9	727
POS-468	562	1	CTD/ROS/LADCP	26.04.2014	21:55	BE	41°50.008	N	17°44.594	E	1181.9	
	562	1	CTD/ROS/LADCP	26.04.2014	22:20	BO	41°50.041	N	17°44.997	E	1182.2	1201
	562	1	CTD/ROS/LADCP	26.04.2014	22:47	EN	41°50.013	N	17°45.006	E	1182.0	
POS-468	563	1	UCTD	27.04.2014	00:01:35	BE	41°47.03	N	17°41.37	E	1178.5	725
POS-468	564	1	CTD/ROS/LADCP	27.04.2014	02:15	BE	41°40.957	N	17°33.915	E	1102	
	564	1	CTD/ROS/LADCP	27.04.2014	02:37:17	BO	41°40.978	N	17°33.947	E	1095	1112.8
	564	1	CTD/ROS/LADCP	27.04.2014	03:05	EN	41°40.986	N	17°33.967	E	1095	
POS-468	565	1	UCTD	27.04.2014	04:24:08	BE	41°35.31	N	17°27.51	E	1092.8	741
POS-468	566	1	Slow CTD	27.04.2014	06:01	BE	41°31.187	N	17°22.281	E	943	
	566	1	Slow CTD	27.04.2014	06:23	BO	41°31.215	N	17°22.844	E	950	959
	566	1	Slow CTD	27.04.2014	06:46	EN	41°31.237	N	17°22.800	E	942	
POS-468	567	1	UCTD	27.04.2014	07:39:36	BE	41.31.19	N	17°22.83	E	943.3	572
POS-468	568	1	CTD/ROS/LADCP	27.04.2014	06:01	BE	41°31.187	N	17°22.281	E	943	
	568	1	CTD/ROS/LADCP	27.04.2014	06:23	BO	41°31.215	N	17°22.849	E	950	959
	568	1	CTD/ROS/LADCP	27.04.2014	06:46	EN	41°31.237	N	17°22.800	E	942	