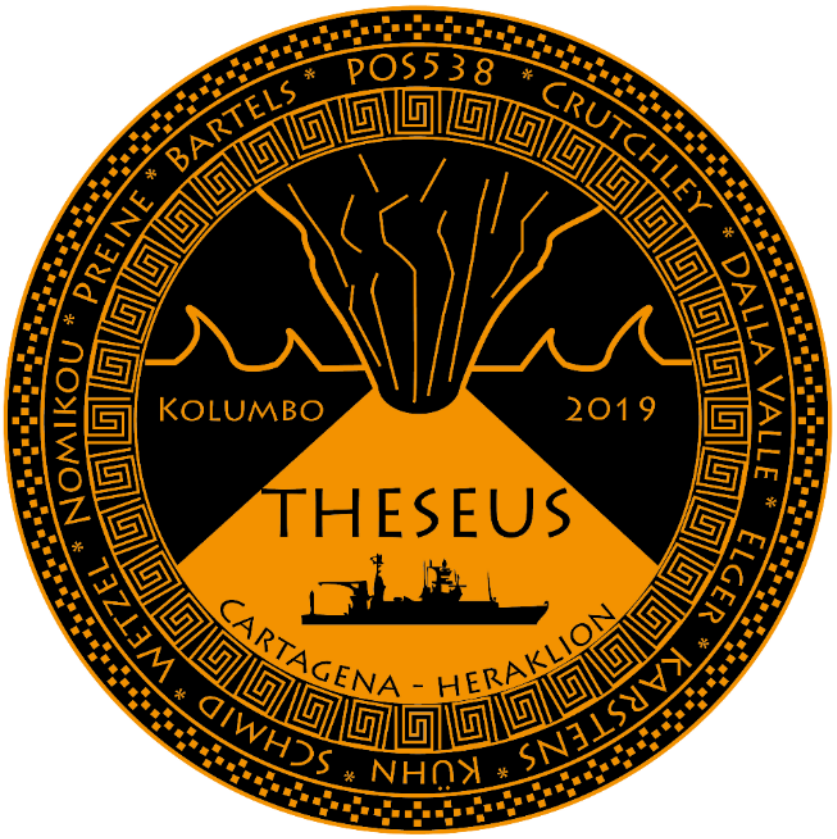
R/V Poseidon Cruise Report 538

THESEUS Tsunami hazard of explosive submarine eruptions



7th October – 28th October, 2019

Cartagena (Spain) - Heraklion (Greece)

Jens Karstens, Gareth Crutchley, Judith Elger, Michel Kühn, Florian Schmid, Giacomo Dalla Valle, Jonas Preine, Paraskevi Nomikou

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GEOMAR Helmholtz Centre for Ocean Research Kiel

Content

1 Introduction

1.1. Motivation

Volcanic tsunamis

Volcanic tsunamis have been responsible for more than 60,000 casualties since 1600 AD. They can be generated by submarine explosions, earthquakes, caldera subsidence, slope instabilities and pyroclastic flows or a combination of these processes (Auker et al., 2013; Paris et al., 2013; Day, 2015). The analysis of historic volcanic tsunamis in Southeast Asia revealed that underwater explosions represent the most common source mechanism (25%), followed by pyroclastic flows (20%), earthquakes (<20%), flank failures (15%), caldera subsidence (10%) and atmospheric perturbation/blasts (5%; Auker et al., 2013).

The reconstruction of the tsunami source mechanisms of a volcanic eruption is a complex task and the most common approach is to compare numerical simulations with tsunami observations (if available). This approach is limited by the availability and accuracy of input parameters for specific source mechanisms, e.g. volumes and velocity of slide masses, dynamics of deformation processes, depth and strength of explosions. Three prominent examples highlighting the limitations but also the potential of this approach are the Late Bronze Age (LBA) eruption of Santorini around 1600 BC, the eruption of Kolumbo in 1650 AD and the eruption of Krakatau in 1883 AD.

The 1650 AD Kolumbo eruption and tsunami

The Kolumbo volcano is located in the southern Aegean Sea, where volcanic activity focuses along a linear feature known as the Christiana–Santorini–Kolumbo (CSK) rift. Running in a NE–SW direction, it hosts a number of volcanic centers of late Pliocene to Pleistocene age as part of the larger east–west trending Hellenic subduction zone north of the island of Crete. The CSK rift lies in a 100 km long, 45 km wide zone of en echelon NE–SW-trending rifts, including the Santorini–Amorgos Tectonic Zone which has extension rates up to 4–5 mm/y based on global positioning system measurements within the SE part of the Aegean microplate (Reilinger et al. 2006).

Natural hazards from the CSK rift pose significant threats to the Eastern Mediterranean region, including earthquakes, subaerial or submarine volcanic eruptions, volcanic gas release, tsunamis due to eruptions or submarine landslides, and potential aviation problems from volcanic ash plumes. As a key example, the Late Bronze Age eruption (also called the "Minoan" eruption) of Santorini may have contributed to the decline of the Minoan civilization on Crete (Friedrich et al. 2006; Druitt 2014). More recently, the 1650 eruption of Kolumbo Volcano, to the northeast of Santorini, killed 70 people and thousands of animals on Santorini due to toxic gas release and tsunami inundation (Cantner et al. 2014; Ulvrova et al. 2016). Kolumbo is currently the most active and dangerous submarine volcano in the Mediterranean, its crater floor hosting a high-temperature hydrothermal field with active massive sulfide deposits of potential economic significance (Sigurdsson et al. 2006; Kilias et al. 2013). Most recently, intrusion of 14 million cubic meters of magma at about 4 km depth caused 14 months of seismic unrest and uplift within the Santorini caldera in 2011–2012 (Parks et al. 2012). This activity significantly raised awareness of the threat of eruption on an

island visited annually by two million tourists.

Earthquake activity is both common and destructive within the area. For example, the largest 20th century earthquake in Greece (Ms = 7.5) occurred along a 40–60 km long rupture between the islands of Santorini and Amorgos on 9 July 1956 (Okal et al. 2009; Brüstle et al. 2014). The earthquake, presumably caused by rapid extensional faulting, was accompanied by tsunamis with significant run-up along island coastlines (Nomikou et al. 2018).

The CSK rift is a remarkably linear alignment of volcanoes that extends over at least 70 km from Christiana in the southeast to numerous small submarine volcanoes in the northwest (Nomikou et al., 2019) (Fig. 1). This alignment highlights the fundamental control that crustal structure and tectonics have on the location of volcanic activity. The CSK rift is part of the geodynamically much larger Santorini–Amorgos Tectonic Zone (Fig. 1), which hosts many active faults and small basins with thick sediment fills.

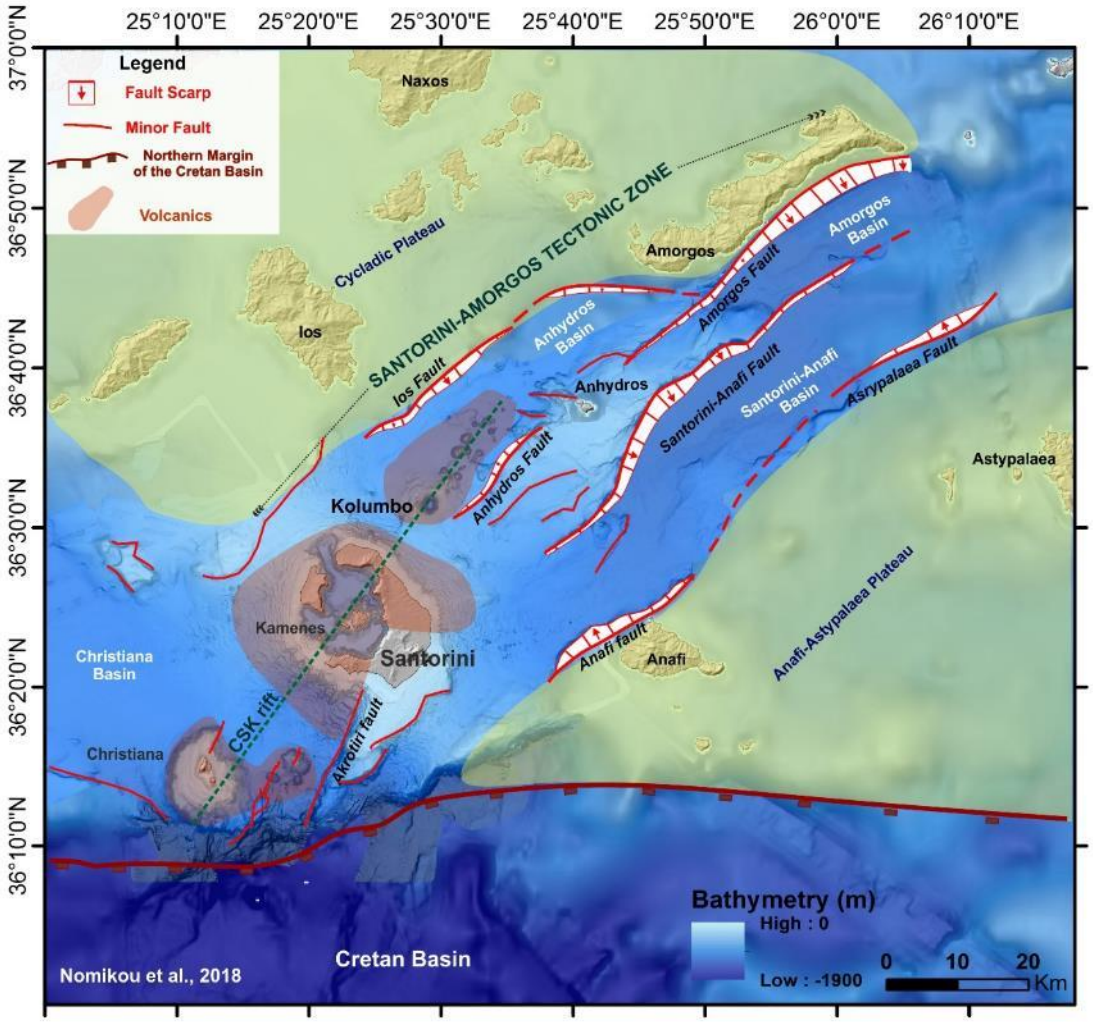


Fig.1: Major tectonic features of the Christiana–Santorini–Kolumbo (CSK) volcanic field and the Santorini–Amorgos Tectonic Zone (Nomikou et al., 2019).

Multichannel seismic profiles through the basins illustrate the large number of faults that cut the sedimentary infill as well as the extent of total fault offsets, with some offsets being up to 2,000 m (Fig. 2). The basins vary in geometry from generally symmetrical (Anhydros) to strongly asymmetrical (Santorini–Anafi; Fig. 1; Hooft et al. 2017).

The Kolumbo volcanic chain lies offshore Santorini, consisting of 25 submarine cones and craters (Nomikou et al. 2012; Hooft et al. 2017) and extending NE along the floor of the Anhydros Basin (Fig. 1). The largest of these is the Kolumbo crater, a 3 km diameter cone within a 1,700 m wide crater, with a rim as shallow as 18 m below sea level and a flat crater floor 505 m below sea level. The majority of the crater rim lies at about 150 m depth and forms a circular submarine cliff of 350 m relief (Nomikou et al. 2012). The other smaller cones are largely sediment-covered, their surface products often cemented by biologically derived carbonate crusts and without evidence of recent volcanic activity (Nomikou et al. 2012).

The only recorded volcanic activity along the Kolumbo chain occurred in 1650 at Kolumbo Seamount. An explosive eruption began on 27 September 1650 and had three phases (Cantner et al. 2014): (1) an initial submarine phase (27–29 September); (2) a main subaerial/submarine phase (29–30 September); (3) a waning submarine phase (few days following 30 September). During the eruption, part of the volcano temporarily emerged above sea level but was subsequently eroded by wave action. The upper walls of the crater consist of >250 m of pumice produced during the 1650 event (FIG. 5). Below this sequence are other volcaniclastics, lavas and dykes. Ash from the eruption can be traced up to 19 km from source on the seafloor (Fuller et al. 2018). A reassessment of the erupted tephra volume from 1650, based on the latest deposit correlations, indicates a bulk tephra volume of 5.1 km^3, spread over an area five times that previously inferred from seismic profiles alone. Magma erupted during 1650 was an H2O-rich, crystal-poor, biotite-bearing rhyolite (Cantner et al. 2014; Klaver et al. 2016). There are marked geochemical and isotopic (e.g., Nb/Yb, Zr/Nb, 206Pb/204Pb, 87Sr/86Sr) differences between Kolumbo and nearby Santorini magmas, despite their close temporal and spatial association. This suggests that the two magmatic systems tap different mantle source volumes (Klaver et al. 2016). The depth of the magma chamber beneath Kolumbo is constrained by seismological and petrological observations to lie between 5 km and 7 km depth (Dimitriadis et al. 2010; Cantner et al. 2014).

The 1650 eruption had significant impacts in the southern Aegean area. At least 70 people offshore or along the NE coast of Santorini died from asphyxiation by acidic gases. A large tsunami on 29 September caused widespread damage on Santorini and elsewhere within a 150 km radius (Dominey-Howes et al. 2000). Wave run-ups of up to 20 m occurred on Santorini and Ios. The source mechanisms of the 1650 AD Kolumbo tsunami are still not conclusively determined. Numerical tsunami simulations indicate that a strong underwater explosion in water depths of 20 to 150 m or the fast discharge of pyroclastic density currents with a flux of 10^6 to 10^7 m^3/s would be in agreement with the tsunami observations from the historic records (Ulvrova et al., 2016). The edifice of Kolumbo has been built during three to five phases of dome growth and destruction by eruption activity (Fig. 4; Hübscher et al., 2015). The latest phase of cone growth deposited 4.2 to 6.3 km^3 of pyroclastic material on top of the deposits from the LBA eruption (Hübscher et al., 2015). It is assumed that the entire material from the latest phase of dome growth (post LBA eruption) has accumulated during the eruption of 1650 AD (Cartner et al., 2014; Hübscher et al., 2015). However, it appears also possible that the latest phase of cone growth includes multiple eruptions, which might have occurred in the decades to centuries before 1650. Based on the available seismic data, it is neither possible to distinguish between these scenarios nor to constrain how much material has been deposited by pyroclastic density currents during the latest phase of the eruption. Therefore, it remains

unclear, if the tsunami genesis scenarios used in the available numerical simulations are plausible. Better-constrained simulation parameters and simulation scenarios require higher resolved, three-dimensional structural information.

The morphology of the Kolumbo submarine volcano is characterized by prominent staircase-like circular features, which may be indicators for deformation or mass-movement during the growth of the cone. If this is the case, their formation may represent an additional source mechanism of the 1650 tsunami, which has not been tested yet. The shape of the crater rim is irregular with several embayments, which may represent slide scars related to secondary crater instabilities. Such failures may have been tsunamigenic and require further analysis.

In summary, it remains unclear, which geological process has triggered the 1650 tsunami. The blast of the explosion, pyroclastic density currents, deformation of the volcanic edifice and secondary instabilities of the crater rim, all represent plausible source mechanisms. This voyage aims to provide high-resolution reflection seismic data to help in determining the depth of the submarine explosion as well as quantifying the volumes of pyroclastic density currents, deformed sectors and deposits from secondary failures. The data will be used to constrain physical parameters of the different potential source mechanisms of the 1650 tsunami.

High-resolution reflection seismic profiles through Kolumbo seamount have revealed the internal structure of the volcano (Fig. 2). Five circular and cone-shaped units have been identified, consisting mainly of volcaniclastic deposits. The entire edifice has a diameter of 11 km and a volume of 13–22 km^3 (Hübscher et al. 2015). All the products of Kolumbo are probably Quaternary in age, the first eruption being estimated to have occurred about 70,000 years ago. The rapid growth of the volcano and its continued seismicity indicates that Kolumbo remains an important potential volcanic hazard.

One of the most interesting discoveries at Kolumbo occurred during recent ROV explorations. A high-temperature (220 °C) hydrothermal field with spectacular polymetallic spires and iron microbial mats was found on the crater floor at 500 m depth. Both active and inactive sulfide chimneys contain highly diverse microbial communities that are evidently involved in the cycling of iron, sulfur, nitrogen, hydrogen and methane. Iron microbial mats contain ferrihydrite-type phases and a high proportion of microbes that are capable of chemoautotrophic growth on hydrothermal ammonia and CO_2 (Oulas et al. 2016).

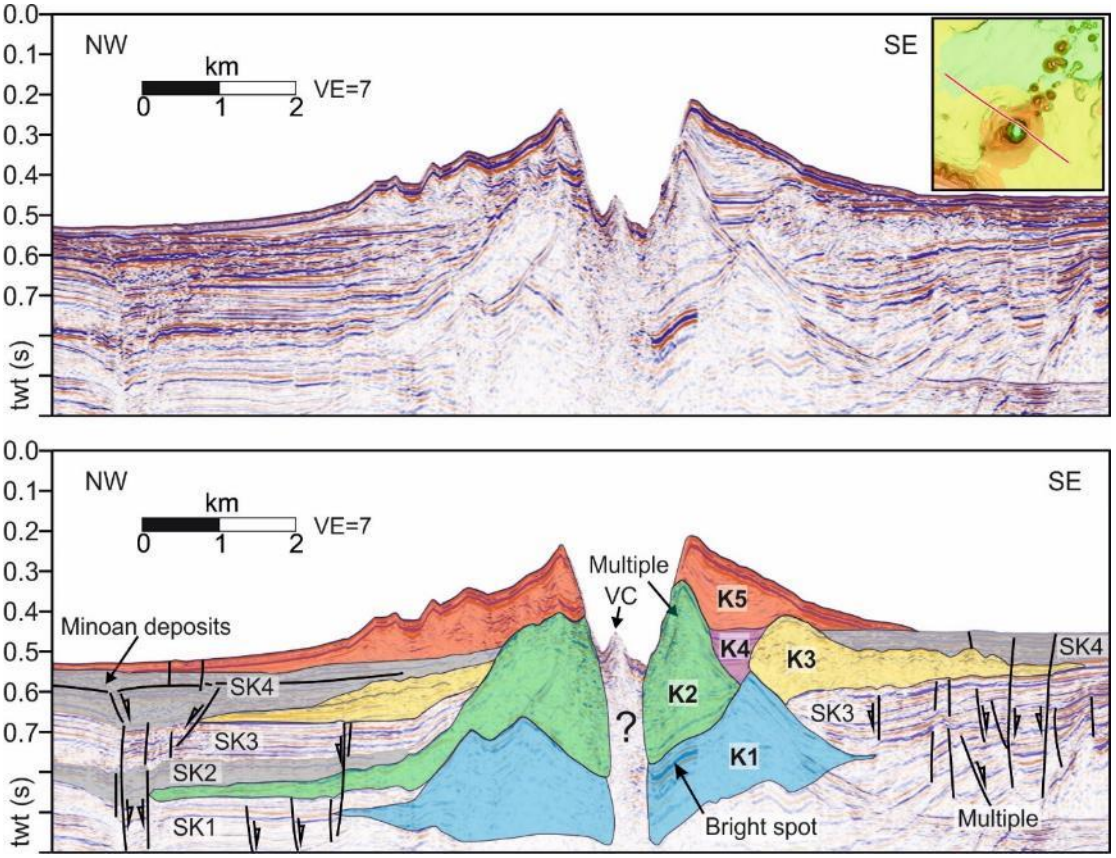


Fig. 2: SW-NE striking multi-channel reflection seismic profile across Kolumbo (Hübscher et al. 2015). Upper part shows seismic data, lower part shows interpretation. Grey shaded areas mark pyroclastic flows or mass-transport deposits. The boundaries of K1 are not identifie NE of Kolumbo. Colored areas correspond to individual Kolumbo stratigraphic units K1-K5. SK3 and SK4 refer to intercalated units (Hübscher et al. 2015).

In addition to high-temperature fluid fluxes, many of the Kolumbo vents actively discharge gases (Fig. 3). These gases are virtually pure CO_2 with MORB-like $^3He/^4He$ signatures indicative of deep degassing of mantle-derived magmas (Carey et al. 2013; Rizzo et al. 2016). The CO_2 dissolves about 10 m above the vents, on the bowl-shaped crater floor, to produce highly acidic (pH ~5) water that is denser than the ambient seawater. This raises the possibility of a gas-related hazard at Kolumbo if the deep crater-water is overturned.

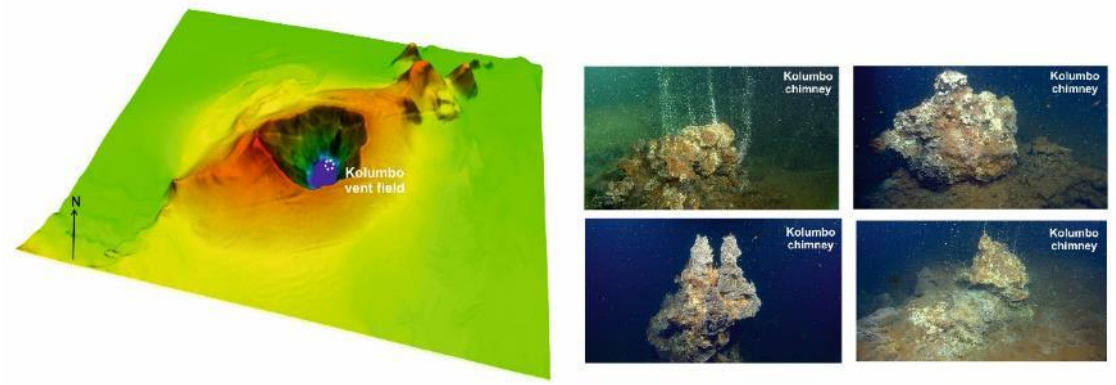


Fig. 3: Left: 3-D bathymetric map of the submarine part of Kolumbo Volcano, showing the shape of the crater which contains active hydrothermal vents on its floor (Nomikou et al., 2019). Right: A photo from a remotely operated vehicle of hydrothermal chimneys on the Kolumbo crater floor (Carey et al., 2013).

The Christiana–Santorini–Kolumbo rift is a tectonically complex region, where volcanic activity and seismicity at numerous sites appear to be strongly linked to extensional weaknesses and movements in the crust of the southern Aegean Sea. These zones are, ultimately, related to the subduction of the African plate. The result is localized focusing of a spectrum of geohazards, such as explosive volcanism, earthquakes, and tsunami generation, that can have significant socio-economic impacts on this part of the Eastern Mediterranean. Recent marine-based research has led to a better understanding of the nature and causes of such events and their consequences (Nomikou et al., 2019).

IODP proposal: Volcanism and tectonics in an island-arc rift environment (VolTecArc): Christiana-Santorini-Kolumbo marine volcanic field, Greece (932-FULL)

The cruise POS538 delivered highly valuable data for the IODP proposal "Volcanic, tectonic and hydrothermal processes in an island-arc caldera environment (932-FULL)". The general objective of IODP pre-proposal 932-PRE by Druitt et al. (2018) is to investigate the interactions between island-arc volcanic centers and their environments, using the rift-hosted Christiana-Santorini-Kolumbo volcanic field as a natural laboratory. The five primary objectives of the IODP proposal, by deep-sea drilling at the rift-hosted Christiana-Santorini-Kolumbo (CSK) volcanic field on the Hellenic island arc in Greece are:

1. Arc volcanism in an active rift environment: To exploit a >3.8 million year marine archive and reconstruct the volcanic history of the CSK volcanic field since the Pliocene.

2. The volcano-tectonic connection: To reconstruct the subsidence and tectonic histories of the rift basins, then use the rift as a natural experiment for studying the relationship between CSK volcanism and major crustal tectonic events.

3. Arc magmatism in a region of extending crust: To document magma petrogenesis at the CSK volcanic field in space and time, as well as to seek effects of crustal thinning on magma storage, differentiation and crustal contamination.

4. Unravelling an iconic caldera-forming eruption: To document the processes, products and potential impacts of the late Bronze-Age eruption of Santorini.

5. Volcanic hazards from submarine silicic eruptions: To improve our mechanistic understanding of volcanic hazards from Kameni and Kolumbo Volcano.

1.2. Aims and objectives of the cruise POS538

The main goal of the cruise was to gain a better understanding of the geological processes controlling tsunami genesis during submarine volcanogenic eruptions. The 1650 Kolumbo eruption is an excellent target, because it is possible to determine the most important parameters of different tsunami source mechanisms. These include the volumes of pyroclastic density currents and potential secondary slides as well as the number and depth of crater-forming eruptions. Furthermore, it is possible to constrain the entire growth and destruction cycle of a submarine volcanic cone and to compare this with historic eyewitness accounts. The shallow seismicity beneath the Kolumbo volcano highlights the importance of gaining a better understanding of one of Europe's most hazardous submarine volcanoes. The expected

results of our experiments have not only relevance for geohazard assessment in the Aegean Sea, but will provide valuable information for the understanding of past tsunamigenic eruptions at other volcanoes like Krakatau. The reasons for choosing Kolumbo for studying the tsunami genesis of submarine volcanic eruptions are: (1) the detailed historic eyewitness accounts, (2) its small size allowing a coverage of the entire volcanic edifice with P-Cable 3D seismic, (3) the excellent seismic penetration proven by a previous survey, and (4) the possibility to exclude caldera subsidence as a tsunami source mechanism. Furthermore, Kolumbo will be the target of the currently planned IODP drilling campaign "Volcanic, tectonic and hydrothermal processes in an island-arc caldera environment", which provides the unique opportunity of ground-truthing our interpretations. The cruise had three objectives:

1) The first aim of the cruise was to determine if the youngest stratigraphic subunit of the volcanic cone has been formed during a single eruption in 1650. Current interpretations suggest that the 1650 eruption alone ejected enough pyroclastic material to form the youngest subunit of the volcanic cone, which emerges more than 400 m from the seafloor (K5 in Fig. 2; Hübscher et al., 2015). Building on eyewitness accounts, the build-up of this part of the cone would have occurred within months (first earthquake activity) or even days (beginning of pronounced ground shaking and emerging smoke plumes; Cartner et al., 2014). However, the historic observation can only constrain the final phase of the growth and destruction of the cone unambiguously. It remains unclear, when the deposition of subunit K5 initiated. The seismo-stratigraphy of Kolumbo reveals that K5 has been deposited on top of sediments from the LBA-eruption, which define a maximum age for initiation of pyroclastic deposit emplacement forming subunit K5. Based on the resolution of the available 2D seismic data, it is not possible to determine if the entire subunit K5 has been formed during the 1650 eruption or if the basal layers of K5 have already been deposited during eruptions, which occurred decades or centuries before. This information is important for the assessment of the tsunami risk associated with eruptions of Kolumbo, because it may indicate that not every eruptive phase leads to a catastrophic explosive eruption. P-Cable 3D seismic data will allow a much clearer image of the volcanic edifice and to determine 3D geometries of specific depositional subunits. This enables us to distinguish between different depositional phases and to evaluate both formation scenarios.

2) The second aim of the cruise was to test the plausibility of different tsunami source mechanisms for the 1650 Kolumbo eruption. So far, the reconstruction builds on numerical simulations. These indicate that the explosion itself or the emplacement of pyroclastic density currents represent the most plausible tsunami source mechanisms (Ulvrova et al., 2016). However, these numerical simulations rely on only poorly constrained and generic input parameters. Furthermore, the impact of secondary slope failure and crater-rim instabilities, and the deformation of the volcanic cone are additional tsunami source mechanisms, which need to be tested. Therefore, we aim to quantify the volume resulting from different phases of the

1650 eruption. Further, the internal stratification will provide indications for the energetic environment during deposition. Parallel to subparallel strata would point towards a low-energetic environment. Chaotic or contorted strata would imply higher-energetic processes. The quantification of the most important parameters of the different source mechanisms can be achieved using P-Cable 3D seismic data. The tsunami source mechanisms will be tested with the numerical tsunami simulation code Volcflow, which has as well been used by Ulrova et al. (2016). This allows a direct comparison between the various simulations.

3) The third aim of this cruise was to acquire site survey data for the IODP proposal "Volcanic, tectonic and hydrothermal processes in an island-arc caldera environment (932-FULL)". We collected additional 2D seismic lines covering the drill sites.

2 Narrative of the Cruise

A group of four scientists and technicians boarded R/V Poseidon already in the afternoon of the **5th of October**, when the scientific equipment was delivered to the ship. The equipment was unpacked, installed and secured during the day and the rest of the scientific crew arrived in the afternoon to help finalizing the mobilization.

The cruise started on Monday, **7th of October** at 8:30 from Cartagena and R/V Poseidon headed towards the research area in the eastern Mediterranean. During the transit we prepared the scientific equipment and installed our acquisition network in the labs. We arrived in the working area on the **13th of October** at 11:00 a.m. and began our scientific with a releaser test for our ocean bottom seismometers. Six of seven releasers worked successfully and we picked those to be used during our deployment. At 13:00, we entered the Santorini Caldera to pick up our last scientific party member Paraskevi Nomikou. At 14:00, we deployed a streamer with a 200 m long active section and the airgun and began acquiring 2D seismic profiles west of Santorini, within the Santorini Caldera and between Santorini and Amargos.

At 10:00 of the **14th of October**, we had to recover the streamer and the airgun due to high leakage values indicated by the seismic acquisition hardware. We exchanged the tow cable of the streamer and deployed it again at 13:00 and acquired data until 14:00. We then recovered the streamer and the airgun to deploy six ocean bottom seismometers (OBS) at Kolumbo. Afterwards we started acquiring 2D seismic data using a streamer with a 50 m long active section at 18:45. We had to stop acquisition around 4:30 a.m. shortly and continued seismic data aquisition until 8:30 of the **15th of October**.

At 12:15 we started with deployment of the P-Cable system, which took until 16:00, when we started acquiring data. We were able to keep the P-Cable system in the water for 7 days without any technical problems except one and a half malfunctioning streamer section. From the 15th until the **20th Of October**, weather and sea conditions were very favorable for seismic acquisition. Afterwards the wind picked up and increased during the **21st of October** and we had stop surveying at 22:30, but could keep the seismic equipment in the water by turning the ship into the wind. In the morning of the 22nd of October, we continued our 3D seismic survey and finalized acquiring the planned 3D seismic dataset at 14:45 and recovered the airgun and the P-Cable system.

On the **23rd of October**, we demobilized the paravanes of the P-Cable system to be able to tow the streamer and the airgun further apart. This required the sea weather conditions within the Santorini Caldera and was finalized at 9:00. With the seismic equipment being reequipped for 2D seismic acquisition, we left the Santorini Caldera and started a new survey at 11:00. We continued acquiring 2D seismic profiles in the Christiana Basin west of Santorini and in the Amorgos Basin northeast of Santorini on the **24th and the 25th of October**. The weather conditions were good for 2D seismic data during that period, but became worse during the **25th of October**. Due to increasing winds and waves, we had to stop the survey at 18:15 and returned to the Santorini Caldera. On the morning of the **26th of October**, we reequipped the airgun to shoot a refractions seismic profiles over the OBS, which took from 10:15 to 11:30. Afterwards we recovered all six OBS from 14:00 to 17:00. Five of six instruments recorded data without any problems, while the sixth was erroneous and needs to be checked at home. The weather forecast for the night was too bad for deploying the 2D streamer again. In the

morning of the **27th of October**, we deployed a 2D seismic streamer with a 75 m long active section at 8:30 and started acquiring seismic profiles in the Anafi Basin west of Santorini. We recovered the streamer and the airgun at 17:45 and began our transit to Heraklion, where the cruise ended.

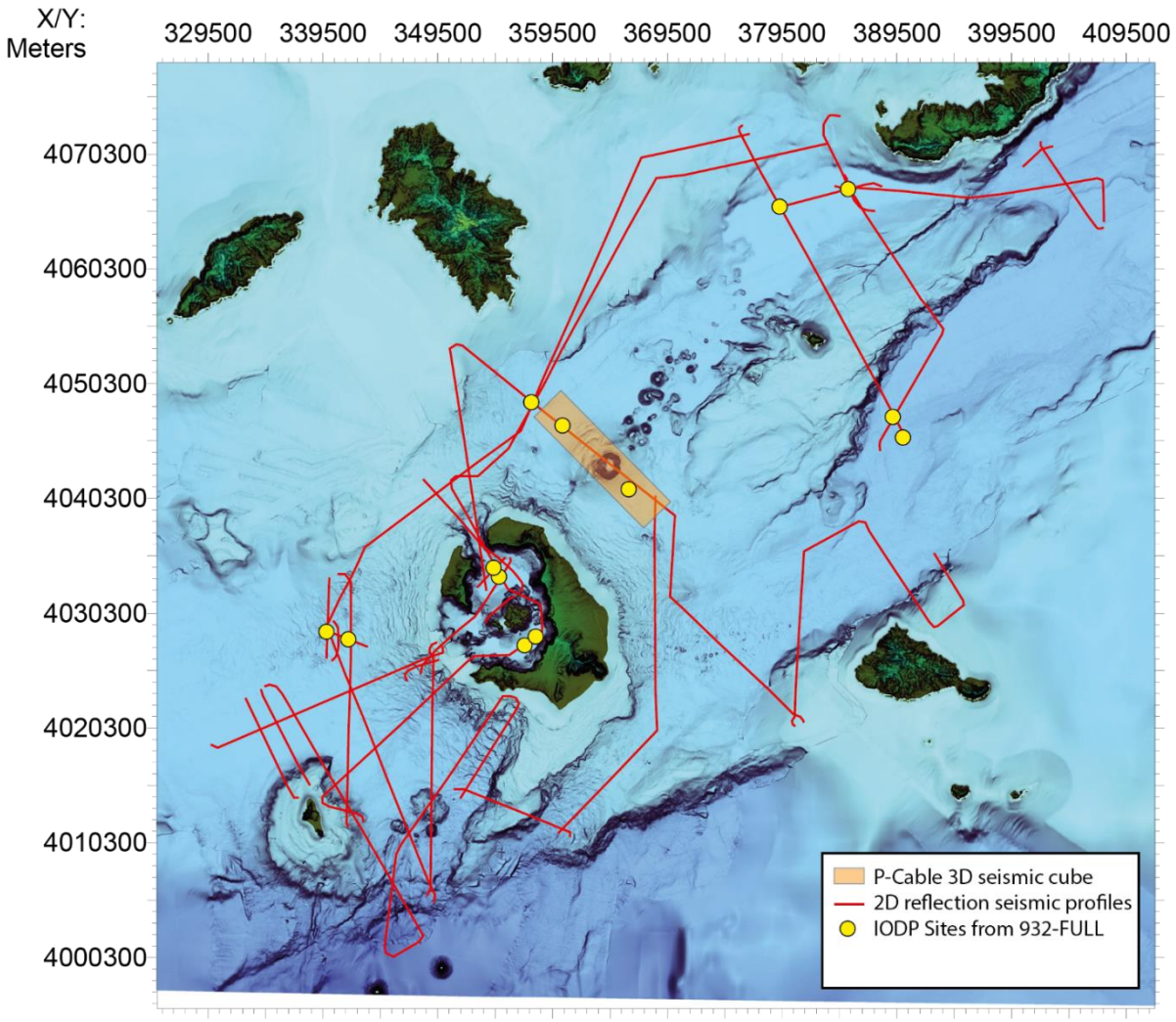


Figure. 4: Overview of the acquired datasets during POS538. Location of OBS is plotted in Figure 29.3

3 Participants

Table 1: List of scientific crew

Name	Task	Institute
Dr. Jens Karstens	Chief Scientist, seismic acquisition	GEOMAR
Gareth James Crutchley	Senior scientist, seismic processing	GEOMAR
Dr. Florian Schmid	Senior scientist, OBS seismics	GEOMAR
Dr. Judith Elger	Senior scientist, seismic processing	GEOMAR
Michel Kühn	Master student, seismic processing	GEOMAR / University of Kiel
Dr. Paraskevi Nomikou	Senior scientist, seismic acquisition	University of Athens
Jonas Preine	Master student, seismic processing	University of Hamburg
Giacomo Dalla Valle	Senior scientist, seismic acquisition	CNR-ISMAR (Bologna)
Thies Bartels	Technician	GEOMAR
Gero Wetzel	Technician	GEOMAR

Figure 5: Group picture of the scientific crew of POS538

4 Methodology and Preliminary Results

4.1 3D reflection seismic

4.1.1 Seismic data acquisition

High-resolution 3D seismic data were acquired with the P-Cable system over the Kolumbo Volcano, northeast of Santorini (Thira). To image the region of interest, a NW-SE-striking survey area of 11.5 km by 3.0 km (Fig. 6) was planned with sail lines spaced 55 m apart.

Figure 6: Position and extent of the 3D seismic cube (orange) and potential IODP drill sites (black circles)

4.1.1.1 Seismic source

During the seismic experiment, a GI-Gun was used in harmonic mode as seismic source. The gun was connected to a stringer by two steel chains about 1 m above the gun. A buoy stabilized the gun in a horizontal position at a water depth of approximately 2 m. The GI gun was operated in harmonic mode with a 45 in^3 generator and 45 in^3 injector chamber. An unfiltered frequency spectrum of one shot during the P-Cable survey is shown in Figure 7. A gun hydrophone provided both the time break and the shape of the near-field signal for permanent monitoring and quality control of the source signal. The injector pulse was triggered with a delay of 45 ms with respect to the generator pulse. This delay value was

adopted for an approximate source depth of 2 m and a gun pressure of 200 bar. The shooting interval was adjusted to 4 seconds, resulting in a shot point distance of 6.2 m with a ship's speed of approximately 3.5 knots through the water.

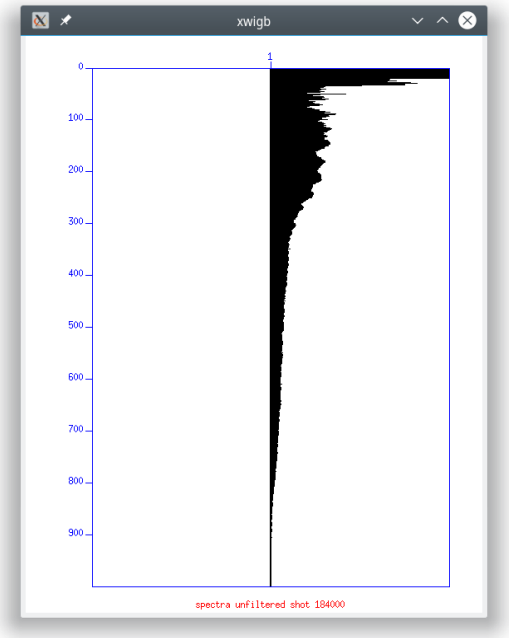


Figure 7: unfiltered frequency spectrum of one shot during the P-Cable survey.

4.1.1.2 Streamer system

Each active streamer section contained 8 hydrophones with a group spacing of 1.56 m. Each section had an analog-to-digital (AD) converter module, connected to the junction boxes on the cross cable via a 5 m long lead-in cable. Communication between the cross cable and the recording system in the lab was established via TCP/IP protocol. The streamer power supply unit in the lab managed the power supply and communication between the recording system and the AD digitizer modules.

4.1.1.3 Data recording

Data were recorded with acquisition software provided by Geometrics. The analogue signal was digitized with a sampling rate of 2 kHz. The seismic data were recorded as multiplexed SEG-D. Recording length was 3 seconds. One file with all channels within the streamer configuration was generated per shot. The corresponding logged shot file reports shot number and time information contained in the RMC string. The acquisition PC allowed online quality control by displaying shot gathers, a noise window, and the frequency spectrum of each shot. The cycle time of the shots was displayed as well. The vessel's GPS was simultaneously logged in the RMC string along with logged time and position information.

4.1.1.4 P-Cable setup

We deployed a 199 m long cross cable with 16 streamers attached (Fig. 8). The outer three streamers on each side of the cross cable were spaced approx. 14 m apart and the inner ten were spaced approx. 9 m apart. Spherical floats were attached to each junction box, except those at the outermost streamers (streamers 1 and 16). Additionally, single floats were tied to the cross cable between the following streamers: 6, 7, 8, 9, 10 and 11. These provided additional buoyancy in the center of the cross cable where most sag was expected. Despite this, records of the streamers in the middle of the setup showed a receiver ghost (Fig. 15). This occurs, when a streamer is towed too deep through the water. The system consisted of oil filled streamers and solid state streamers. The paravanes were towed with 89 m of trawl wire rolled off the winches in order to improve the spread of the system. GPS receivers were attached to each paravane and to a known position on the ship for reference. Unfortunately, streamer 7 and 4 channels of streamer 13 did not receive any data due to technical issues.

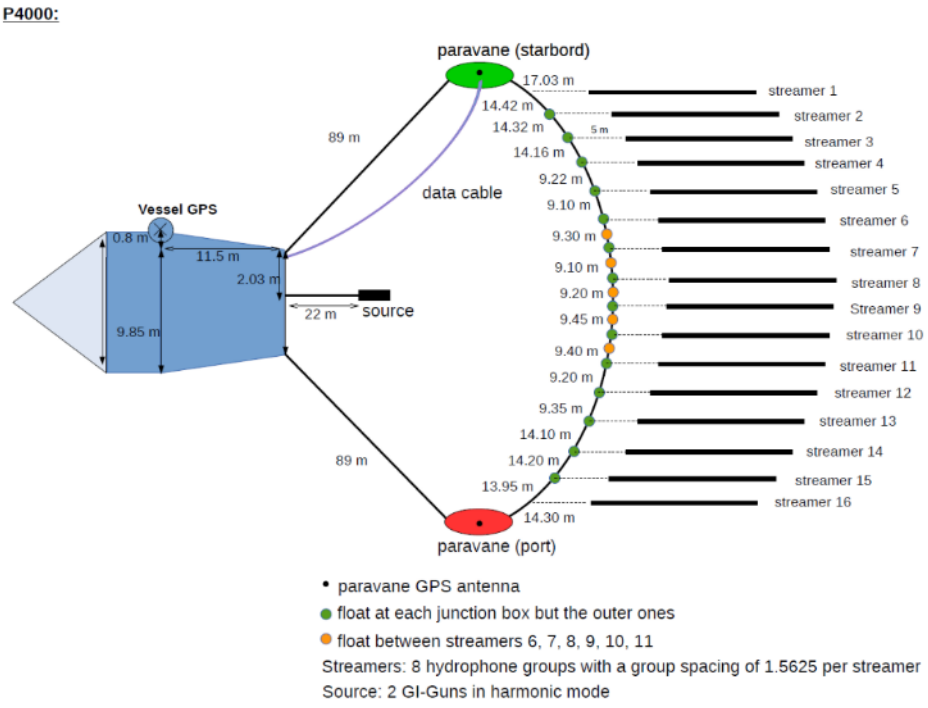


Figure 8: P-Cable configuration during the whole 3D seismic experiment. Streamer no. 7 did not record data.

4.1.2 On-board processing

On-board processing included predictive positioning of the streamers from the paravane locations under the assumption that the cross cable conforms to a catenary curve as it is towed through the water. From the seismic data a delay of -87 ms was evaluated. The source-receiver locations were binned on a grid with 6.25 m by 6.25 m cells resulting in good fold coverage (Fig. 10). Seismic traces were then balanced and filtered (Fig. 9). The NMO correction was applied with a constant velocity of 1500 m/s .The stacked data were then interpolated and migrated in two passes (first cross-line then in-line) with a 2D Stolt

algorithm (1500 m/s constant velocity model).

We also carried out testing of repositioning the streamer locations based on the direct arrivals in the streamers. These arrival times are used to reposition the shot (using direct arrivals from the outer streamers) and then reposition the other streamer locations from the repositioned shot. An example of a repositioned shot and streamer geometry is given in Figure 13.

The seafloor reflection revealed a receiver ghost issue due to the streamers hanging deeper beneath the surface than is ideal. Figure 14 shows an example of this for a given shot, and Figure 15 shows what it looks like in one of the "worst" effected streamers near the middle of the spread. An initial on-board attempt at removing the receiver ghost in this particular channel, as a test case, is shown in Figure 15. In this case, a predictive deconvolution was applied to the channel using a correlation window from 0.5-0.9 s, and minlag and maxlag times of 0.001 and 0.005 s.

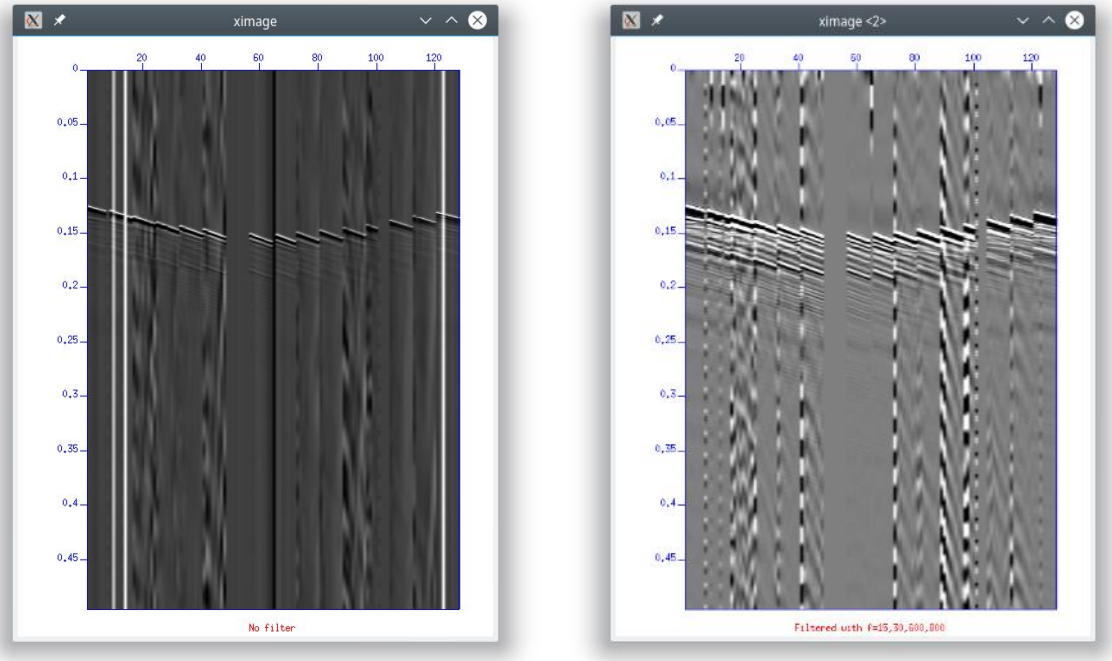


Figure 9: Left: Unfiltered shot gather of one shot during P-Cable survey. Right: Filtered shot gather with corner frequencies at 15, 30, 600, 800 Hz

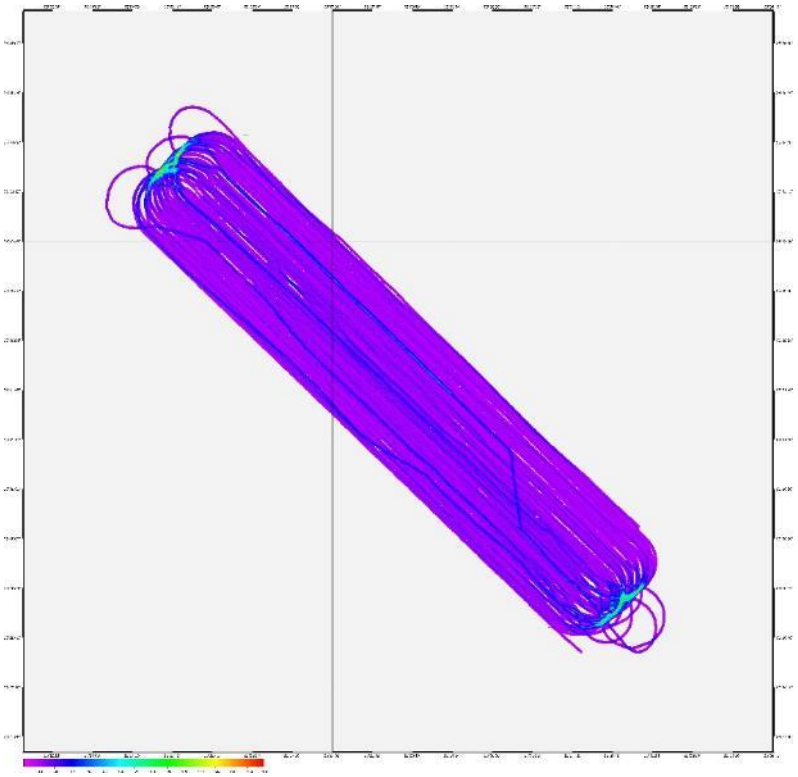


Figure 10: Foldmap of the acquired 3D seismic cube. The color scale implies a coverage of 10 to 20 traces per bin.

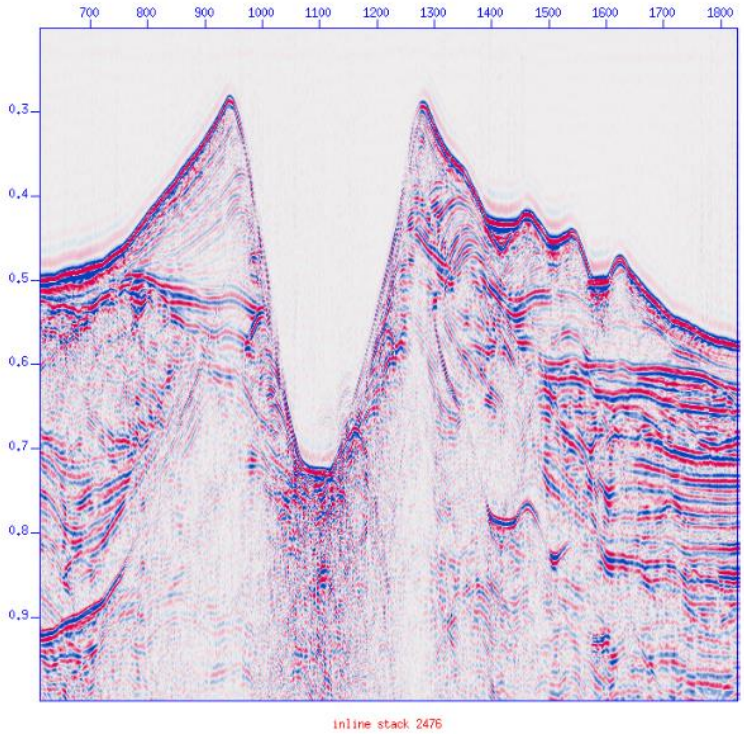


Figure 11: Stacked inline of the 3D seismic cube.

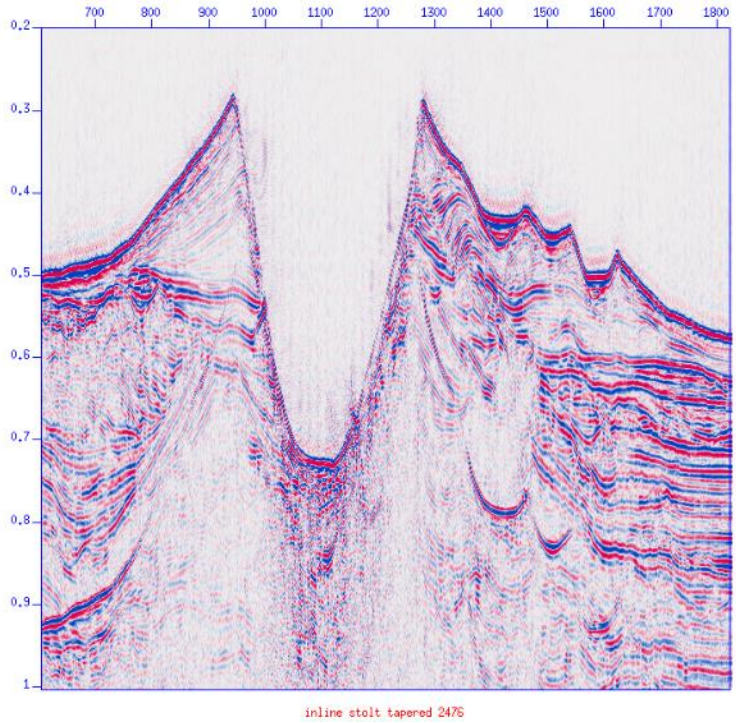


Figure 12: Stolt migrated inline of the 3D seismic cube using a constant velocity model of 1500 m/s.

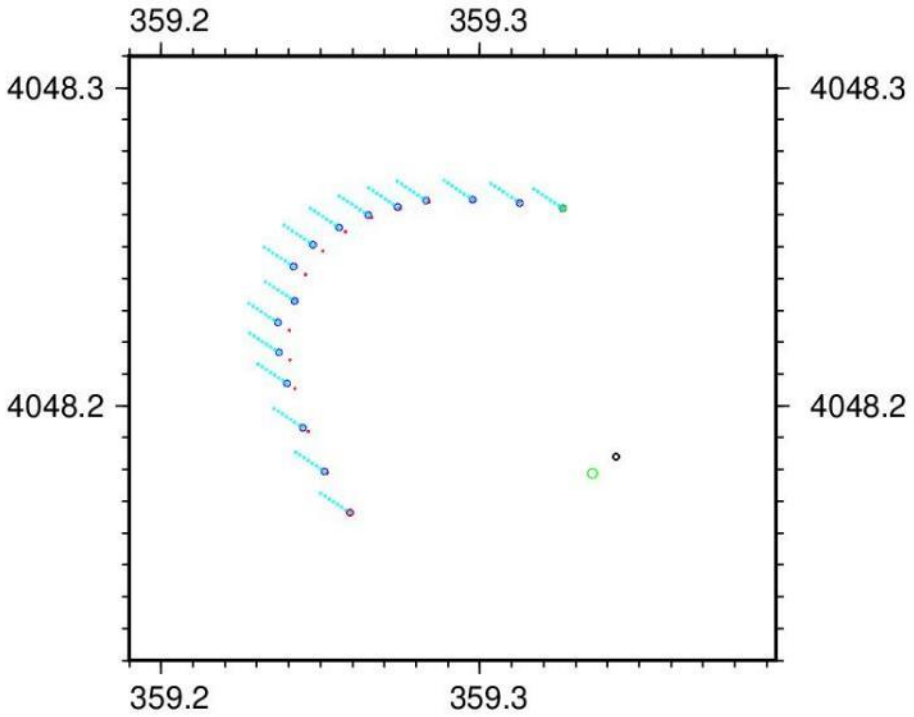


Figure 13: An example of repositioning of the shot and receiver positions based on arrival times of the direct wave. The open black circle is the predicted shot location, that is corrected to the green circle. The red dots are the predicted first channels in each of the streamers; they are corrected to the open blue circles. The cyan dots are the remaining 7 receivers in each streamer, back-projected from the first channels. Note: the position of the 7th streamer in from the starboard side was not corrected, because all channels in that streamer were dead from the beginning of the survey.

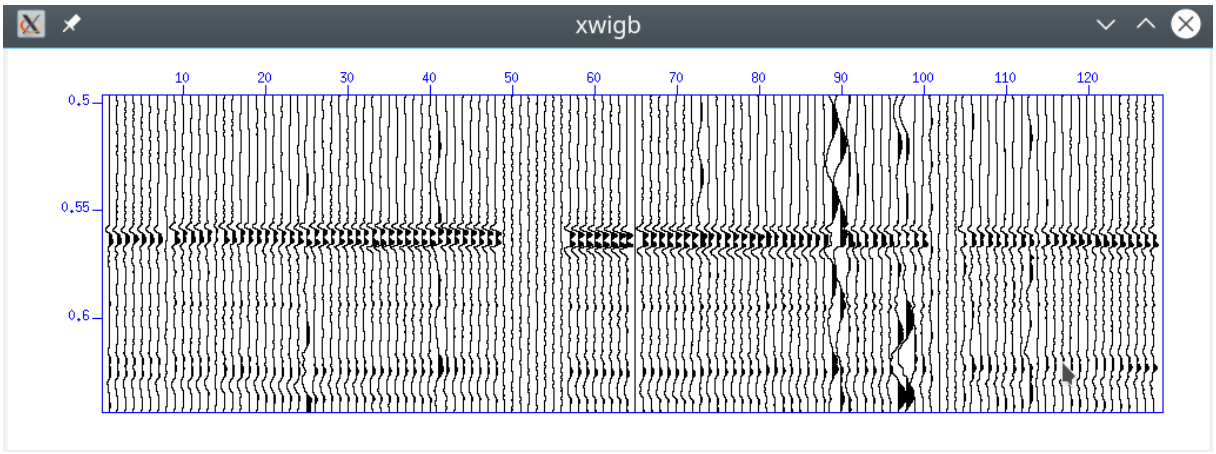


Figure 14: An enlarged view of the seafloor reflection for Shot 195001 (Channel number on the x-axis; two-way time (s) on the vertical axis). Dead channels occur within the 7th streamer (Channels 49-56) and in the 13th streamer (Channels 101-103). The receiver ghost in the data manifests itself as a double peak in the central streamers. The outer streamers are also affected by the receiver ghost, but to a lesser degree.

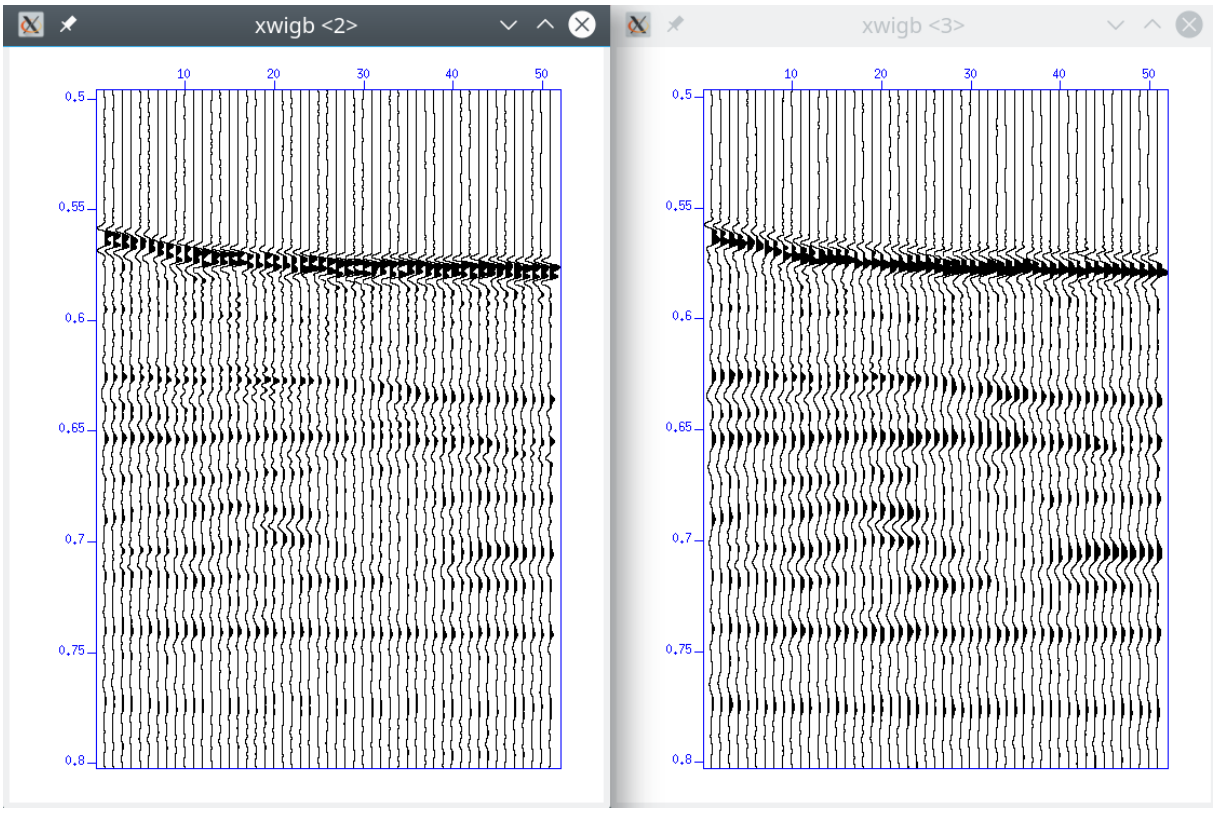


Figure 15: Left panel: An example of the receiver ghost in one of the worst effected channels in the middle of the spread (Channel 58). The x-axis labels represent arbitrary trace numbers from successive shots (each trace is from Channel 58). The y-axis is two-way travel time in s. The panel on the left is filtered with a bandpass filter with corner frequencies of 12,24,300 and 400 Hz. Right panel: A preliminary deconvolution test to reduce the effect of the receiver ghost (using "supef"). The same filtered data from the left, but after a predictive deconvolution using a correlation window from 0.5-0.9 s, and minlag and maxlag times of 0.001 and 0.005 s, respectively.

4.1.3 Preliminary results

The acquired P-Cable 3D seismic dataset covers an area of ~40 km² (Fig. 4). The analysis of the onboard-processed dataset indicated that the survey was successful. We were able to image the internal structure of the Kolumbo volcanic edifice in high resolution (Fig. 16 & 17). The onboard processing is limited to the described procedure (4.1.2) and we expect to increase the imaging quality after the cruise by applying more sophisticated processing procedures. We are optimistic that we are able to reconstruct the evolution of the Kolumbo volcano in detail and constrain the tsunami source mechanisms of the 1650 AD tsunami.

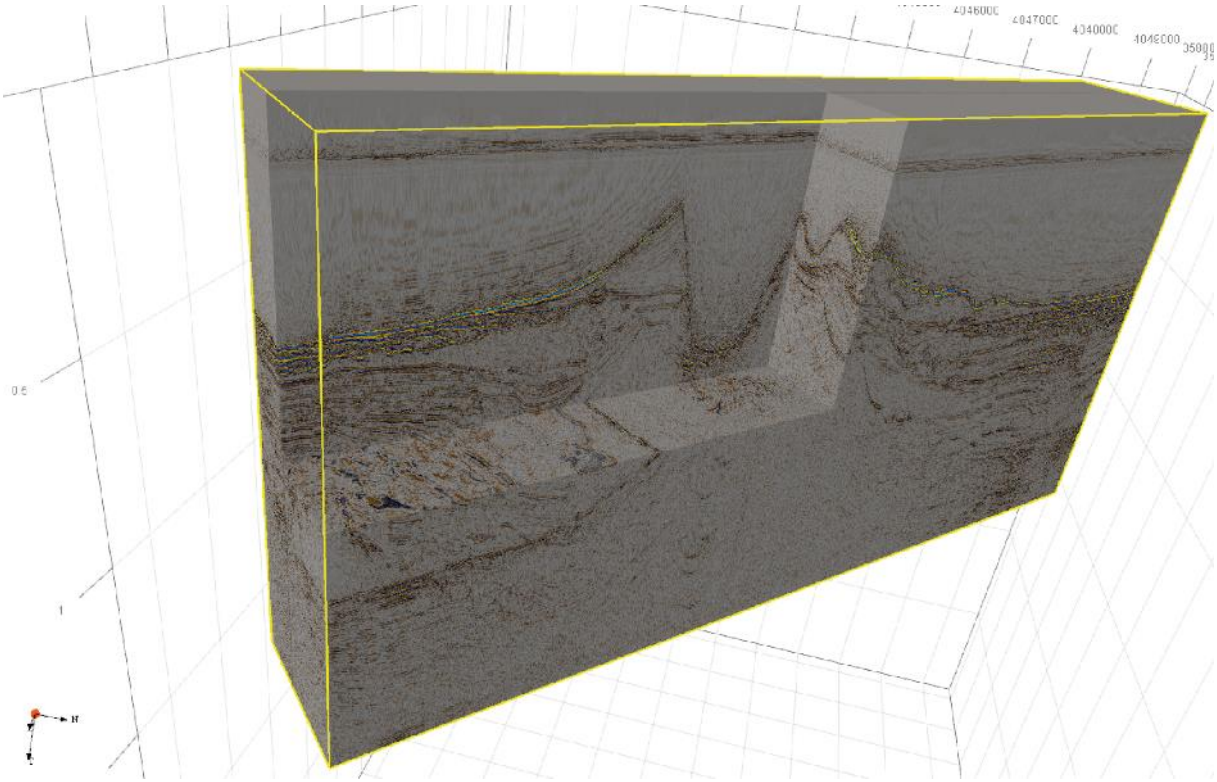


Figure 16: 3D view on P-Cable seismic cube acquired during POS538

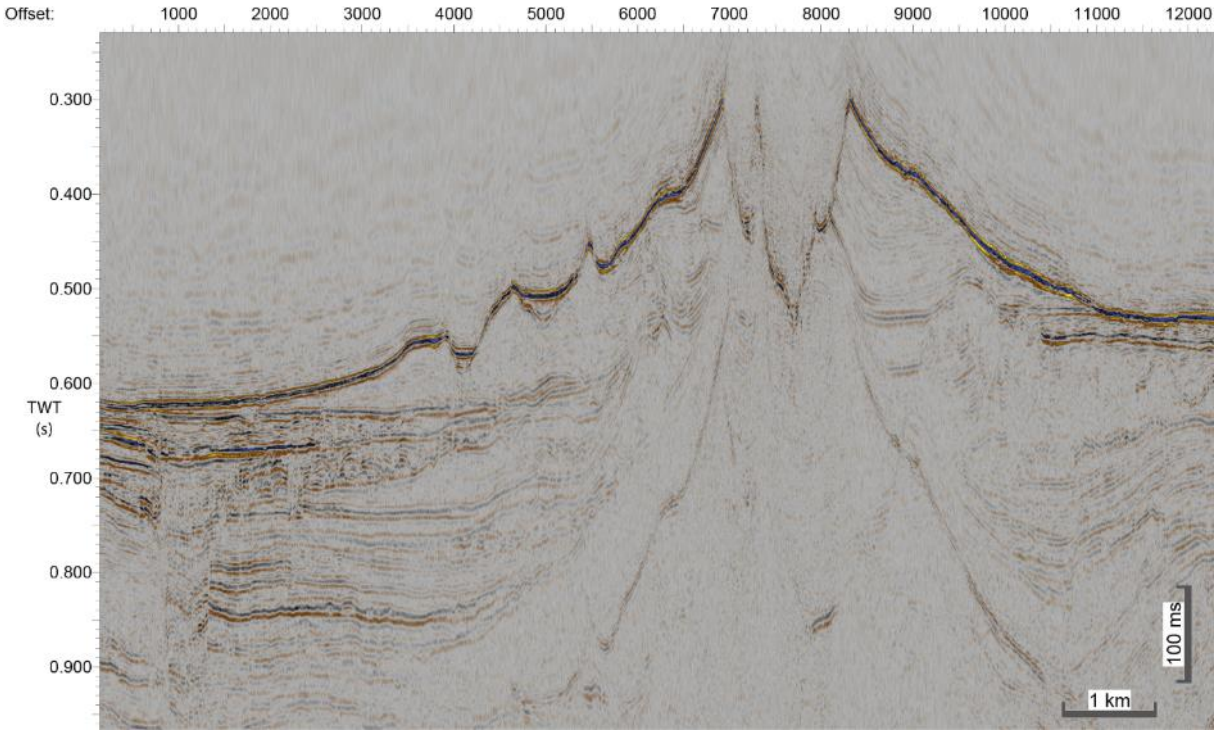


Figure 17: 3D seismic profile showing the Kolumbo volcanic edifice.

4.2. 2D reflection seismics

4.2.1. Seismic data acquisition

High resolution 2D seismic data were acquired in advance of the deployment of the P-Cable system, and after the P-Cable recovery. All in all, we shot four different 2D seismic surveys with four different acquisition configurations. The configuration of the GI-Gun, as well as the data recording was the same as during the 3D seismic acquisition (4.1.1.1 and 4.1.1.3).

4.2.1.1. Streamer setup

We used different configurations of digital streamer length (Geometrics GeoEel streamer segments) for recording the seismic signal. Deck geometries, streamer configuration and seismic gun setting for the 2D survey are illustrated in Fig. 18-21. The seismic recording unit consists of a tow cable, one 25 m long vibro-stretch section behind the tow cable (except survey P2000, where this section could not be used due to technical issues) and 4 to 16 active sections (each 12.5 m long) attached behind the stretch zone. The tow cable had a length of 20-40 m behind the vessel's stern. Each active section contained 8 hydrophones with a group spacing of 1.56 m. Each active streamer section had an analog-to-digital (AD) converter module. The AD digitizer is a small Linux computer. Communication between the AD digitizer modules and the recording system in the lab was transmitted via TCP/IP protocol. A repeater was located between the deck cable and the tow cable (Lead-In). The streamer power supply unit managed the power supply and communication between the recording system and the AD digitizer modules. A small buoy was attached to the tail swivel of the 2D streamer.

Three Bird Remote Units (RUs) were deployed on the streamer during surveys P1000, P2000

& P5000. The RUs have adjustable wings that were controlled from the seismic lab. Controller and RUs communicate via communication coils nested within the streamer. A twisted pair wire within the deck cable connects controller and coils.

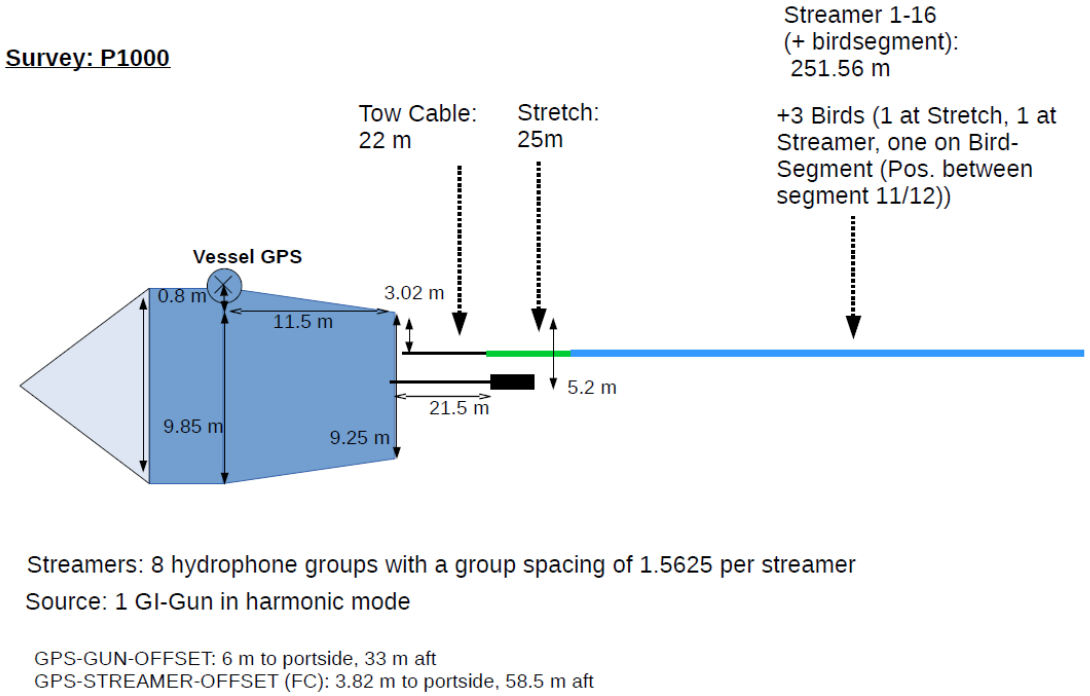


Figure 18: Acquisition configuration for the first 2D seismic survey P1000.

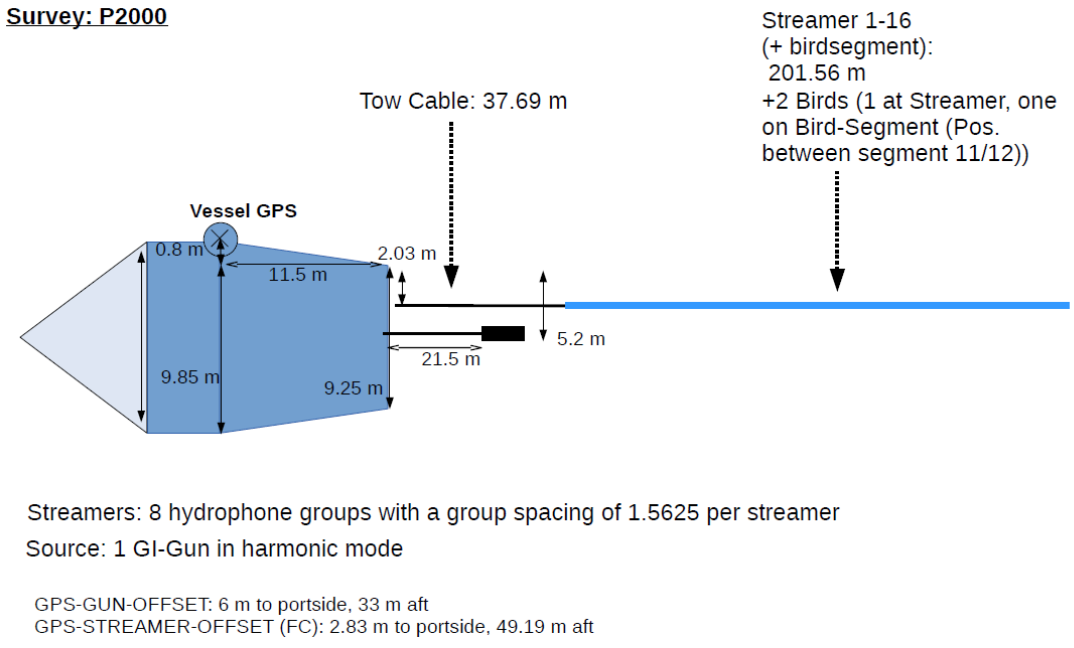
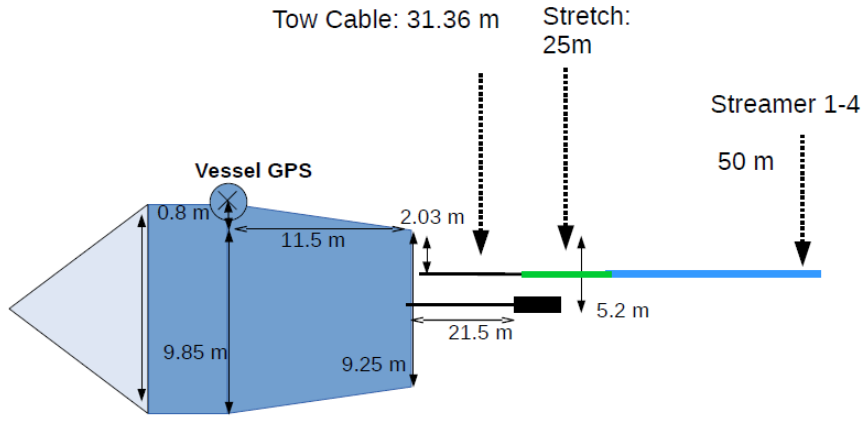


Figure 19: Acquisition configuration for the second 2D seismic survey P2000.

Survey: P3000

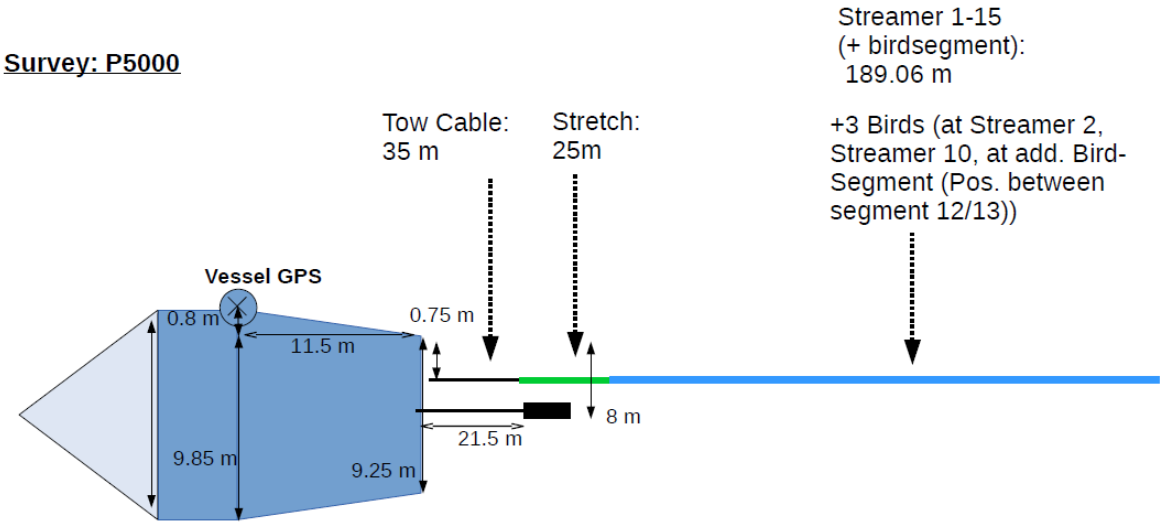


Streamers: 8 hydrophone groups with a group spacing of 1.5625 per streamer
Source: 1 GI-Gun in harmonic mode

GPS-GUN-OFFSET: 6 m to portside, 33 m aft
GPS-STREAMER-OFFSET (FC): 2.83 m to portside, 67.86 m aft

Figure 20: Acquisition configuration for the third 2D seismic survey P3000.

Survey: P5000



Streamers: 8 hydrophone groups with a group spacing of 1.5625 per streamer
Source: 1 GI-Gun in harmonic mode

GPS-GUN-OFFSET: 8.8 m to portside, 33 m aft
GPS-STREAMER-OFFSET (FC): 1.55 m to portside, 71.5 m aft

Figure 21: Acquisition configuration for the fourth 2D seismic survey P5000.

4.2.2. Onboard processing

On-board processing included streamer geometry configuration, delay calculations and source and receiver depth control. From the seismic data a delay of -78 ms was evaluated. A receiver ghost effect in the seismic data could not be detected. The source-receiver locations were then binned with a common-midpoint bin spacing of 1.5625 m. Different filter tests were performed and the frequency spectra were analyzed (Fig.22). Seismic traces (Fig. 23) were balanced and filtered using a bandpass filter with corner frequencies at 25, 50, 420, 500 Hz (Fig. 24). Subsequently, a normal move out correction (with a constant velocity of 1500.00 m/s) and stacking were applied. The stack was migrated with a 2D Stolt algorithm (1500 m/s constant velocity model).

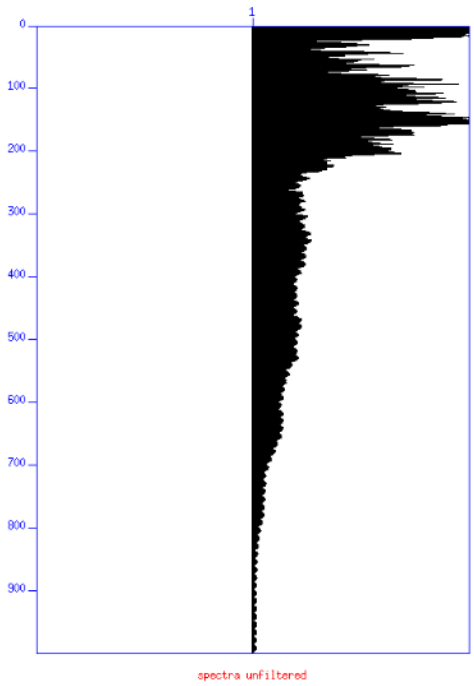


Figure 22: Unfiltered frequency spectrum from 2D seismic survey P5000.

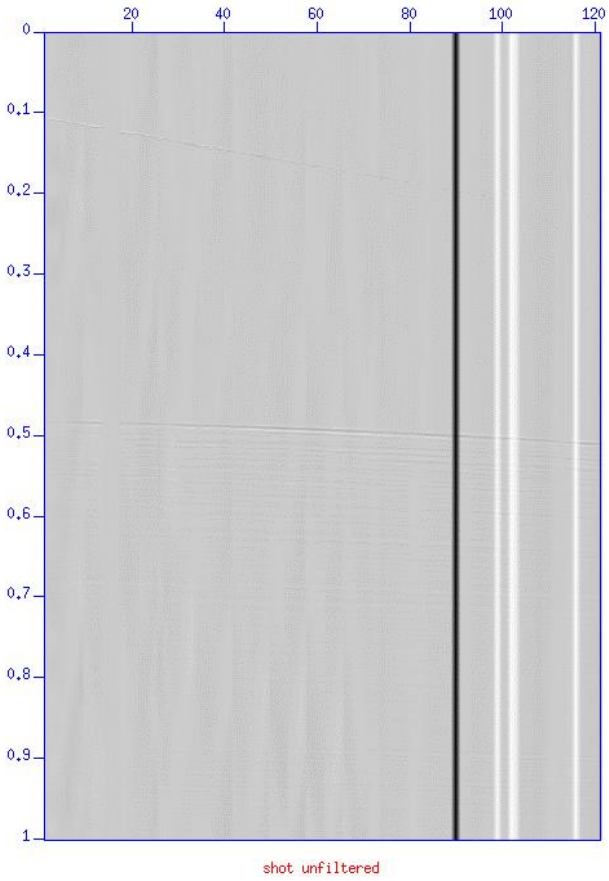


Figure 23: Unfiltered shot from 2D seismic survey P5000.

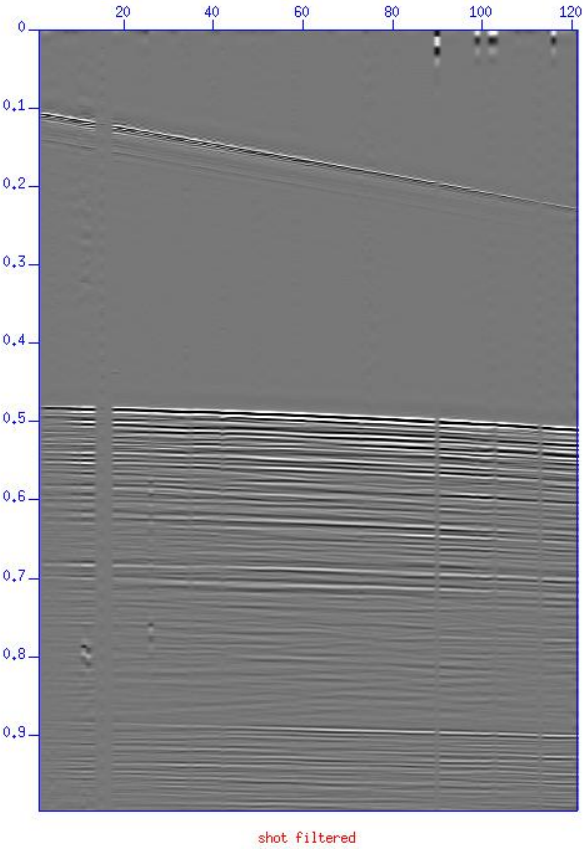


Figure 24: Filtered shot from 2D seismic survey P5000, corner frequencies at 25, 50, 420, 500 Hz.

4.2.3. Preliminary results

In total, we collected more than 650 km of 2D reflection seismic profiles (Fig. 4). The acquired profiles had high quality and provided the missing site survey data for IODP proposal 932-Full (Fig. 26).

Figure 26: 2D seismic profile crossing the Santorini Caldera. IODP drill sites marked red.

The 2D seismic dataset covered the Christiana Basin, the Anafi Basin, the Amorgos Basin as well as the Santorini Caldera. The Amorgos fault, which was the nucleaus of the 1956 magnitude 7.5 earthquake, was covered mutiple times (Fig. 4). The acquired seismic data has signifcantly higher resolution than previously available data and will allow to reconstruct the volcano-tectonic history of the study area.

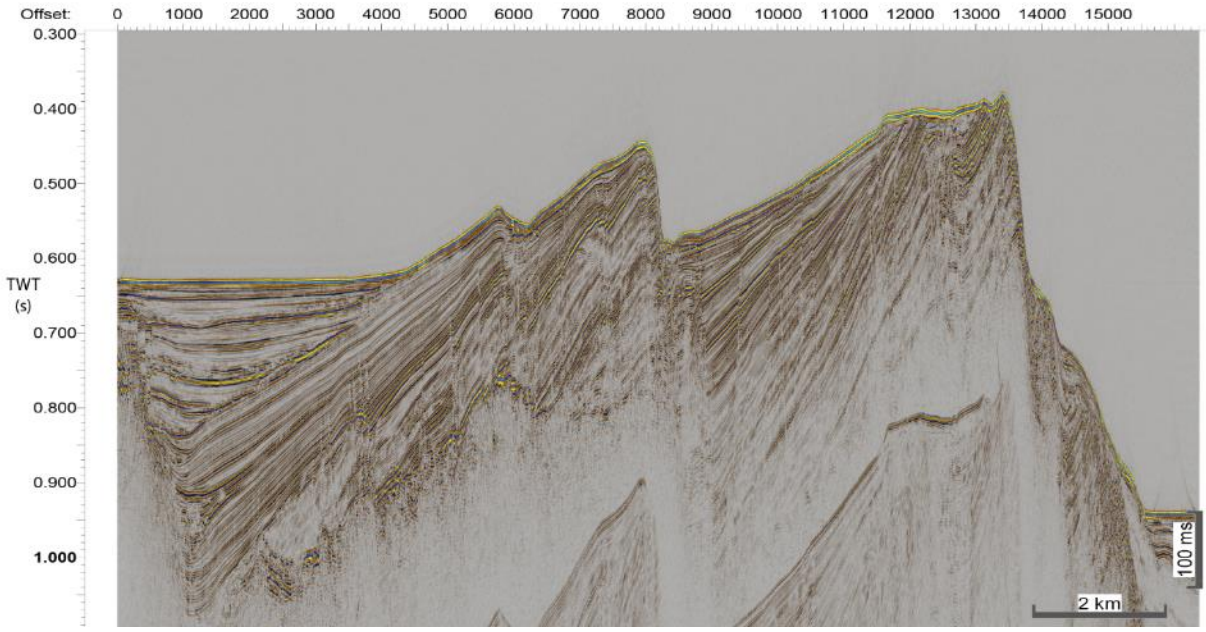


Figure 26: 2D seismic profile crossing the rift blocks of the Amorgos Basin with the Amorgos fault in the center of the profile.

4.3. Ocean-Bottom-Seismometer

4.3.1. Methodology

The Ocean-Bottom-Seismometer (OBS) consists of four floats, which are connected to a frame and is generally equipped with a three-component seismometer, a hydrophone and a data recorder encased in a high-pressure tube (Fig. 27). All sensors are connected to the recording unit and continuously record the incoming signals. The system itself floats at the sea surface. In order to deploy the device on the ocean bottom a weight is mounted to the frame and attached to a so-called releaser. This releaser has an acoustic communication unit, which can be addressed from the ship in order to disconnect the weight after the experiment. The OBS will then ascend to the surface and can be recovered. A flashlight, radio transmitter and a flag are attached to the frame to increase the visibility of the OBS and to facilitate an easy and quick recovery. While the OBS continuously records seismic signals an additional data logger on board records the corresponding shot times and is used to correlate the results at a later stage of data processing. The data recorders need to be programmed before the deployment of the system. The sample rate of the OBS recorders was set to 500 Hz, while the time logger had a sample rate of 1000 Hz.

The gain of the input channels was set to 16 for the three geophone components and to 1 for the hydrophones. Each recorder was equipped two memory cards between 32 GB and 128 GB. The exact recording parameters for the deployments are listed in Tab. 3. The recording units were synchronized with the GPS signal both before and after the recording period to correct for any time shifts within the logger's internal clock.

4.3.2. Deployment of Ocean Bottom Seismometers/Hydrophones (OBS/H)

During expedition POS538 we deployed a total of six OBS in the area of the Kolumbo submarine volcano (Fig. 28). The aim of deploying the OBS was twofold. On the one hand, reflected and refracted phases generated by the airgun will be used to construct a 2D velocity model for the subsurface in the Kolumbo area. The resulting velocity-depth information will useful to characterize the internal structure of the volcano and to perform a depth-migration of the 2D and 3D MCS data acquired in this region. The second aim of the OBS deployment was to record signals generated by local earthquakes and other active volcanic or hydrothermal processes ongoing at the Kolumbo submarine volcano.

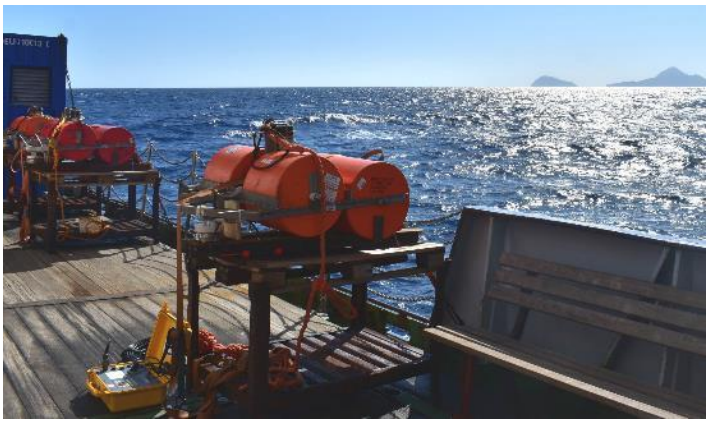


Figure 27: GEOMAR OBS on board POS538 prior to deployment. Photo credit: Paraskevi Nomikou.

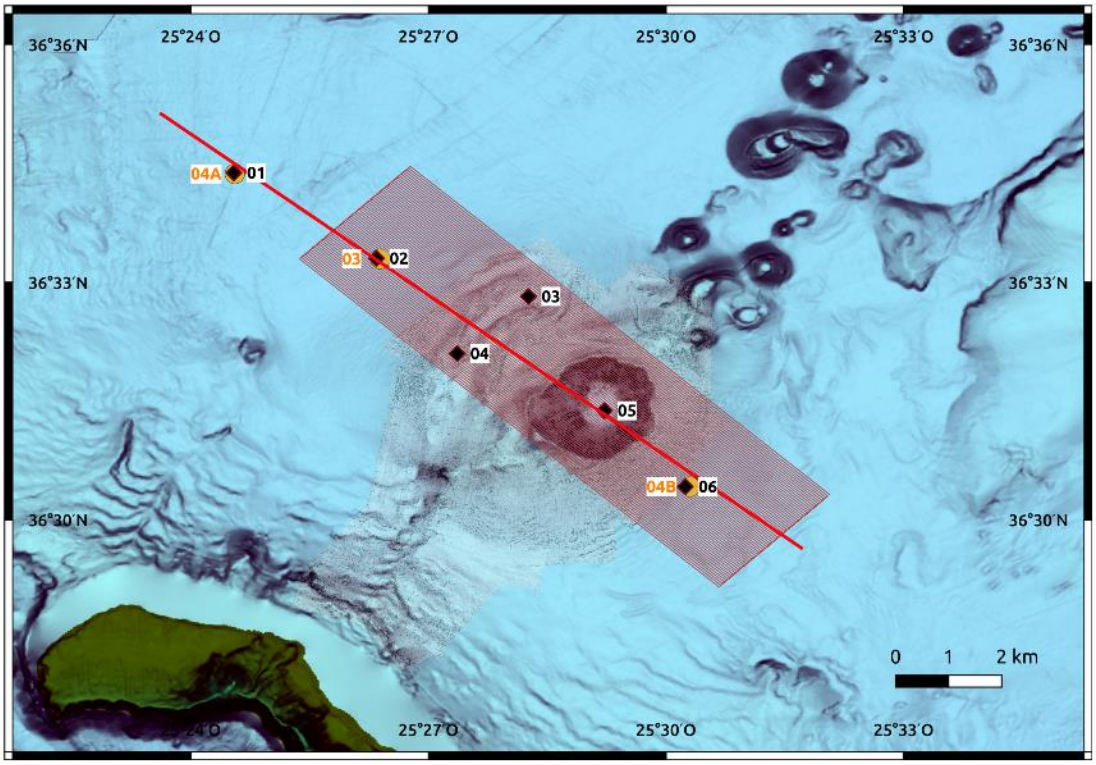


Figure 28: Bathymetry of the wider Kolumbo area with OBS deployment locations (black diamonds) and proposed drilling sites of the VolTecArc proposal, IODP no. 932-Full (orange circles with orange labels). The red hatched area shows the perimeter of the 3D seismic cube and the bold red line yields the profile (P08) along which dedicated refraction seismic shooting was performed, with 10 s shot interval and an increase GI gun chamber volume, see Table 1.

The six OBS instruments were provided by the GEOMAR OBS pool. Their design is identical with the GEOMAR OBS 2002 type instruments (Bialas and Flueh, 1999). The sensors mounted on the OBS included a HTI-01-PCA/ULF hydrophone and a short period 3-component seismometer of 4.5 Hz natural frequency. The OBS were equipped with GEOLOG type data loggers, developed at GEOMAR. The data were recorded at a sampling rate of 1000 Hz. All instruments were deployed at October 15, prior to the acquisition of the 3D seismic data. A dedicated refraction seismic profile, with the GI-gun settings optimized for emitting

lower frequencies, was shot across the OBS network (location is given by the bold red line in Figure 2). The different settings of the GI-gun are listed in Table 1 and the layout of the airgun, vessel and GPS antenna during the refraction seismic shooting are shown in Figure 3. Table 2 provides exhaustive details of the instruments serial numbers and the deployment times for all six OBS stations.

Table 2: GI-gun settings during POS538.

	MCS seismics	**Refraction seismics**
Mode	Harmonic	Harmonic
Volume [cu inch]	G45/I45	G105/I105
Tow depth [m]	2.2	4.0
Shot interval[s]	4	10
Delay from aiming point [ms]	75	75

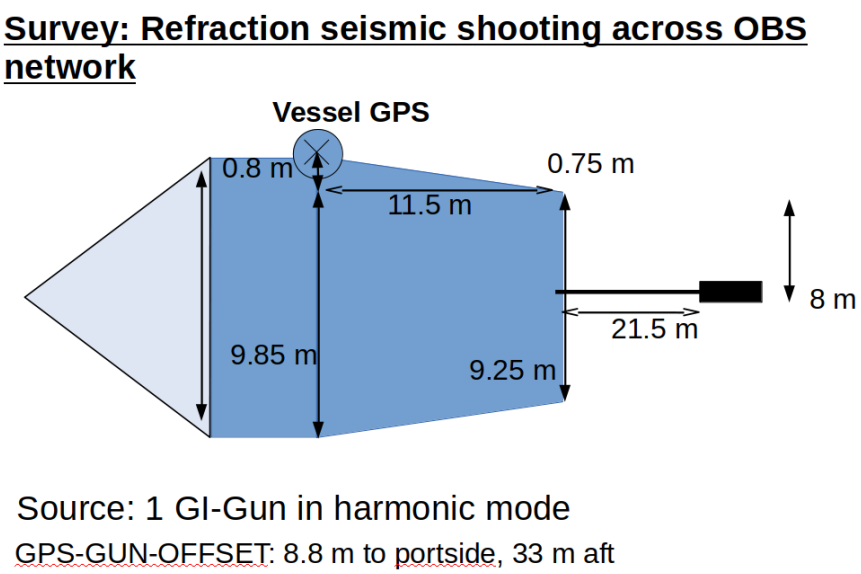


Figure 29: Deck plan of RV Poseidon showing the geometry of the vessel, GPS antenna and airgun during the refraction seismic shooting.

4.3.3. Preliminary results

The refraction seismic data recorded by the OBS are of excellent quality. An exemplary shot gather for station 05, located inside the Kolumbo caldera is shown in Figure 4. The seismic data will be later used to perform ray-tracing of reflected and reflected phases in order to achieve a 2D velocity model of the sedimentary and upper crustal units in the Kolumbo area. Besides the airgun signals, station 05 in particular, located inside the caldera, recorded numerous local earthquakes and other short duration events. A seismogram covering the full day of 23 October 2019 is shown in Figure 5 and the waveforms originating from a local earthquake are printed in Figure 6.

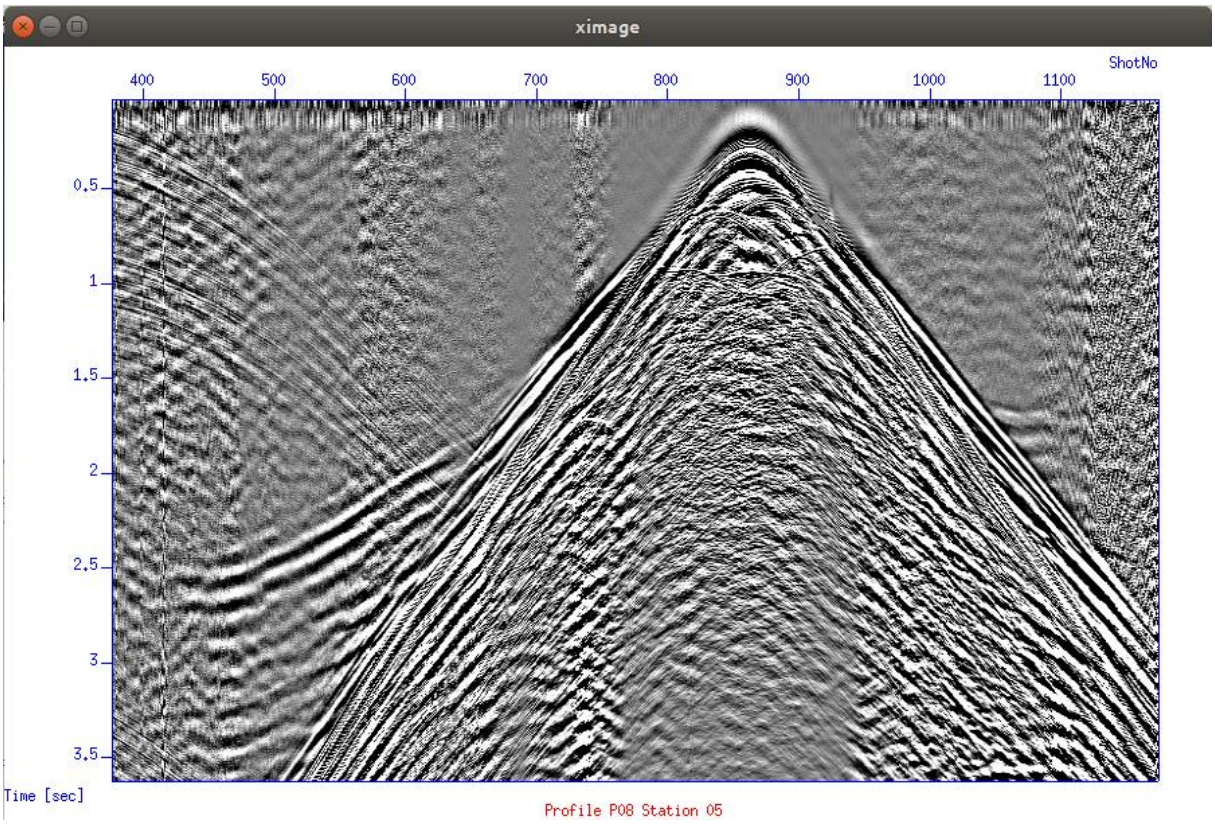


Figure 30: Shot gather for the hydrophone channel of station 05 yield airgun shots from refraction seismic profile (bold red line in Figure 2). Besides the onsets of the direct wave there are clear onsets of reflected and refracted phases.

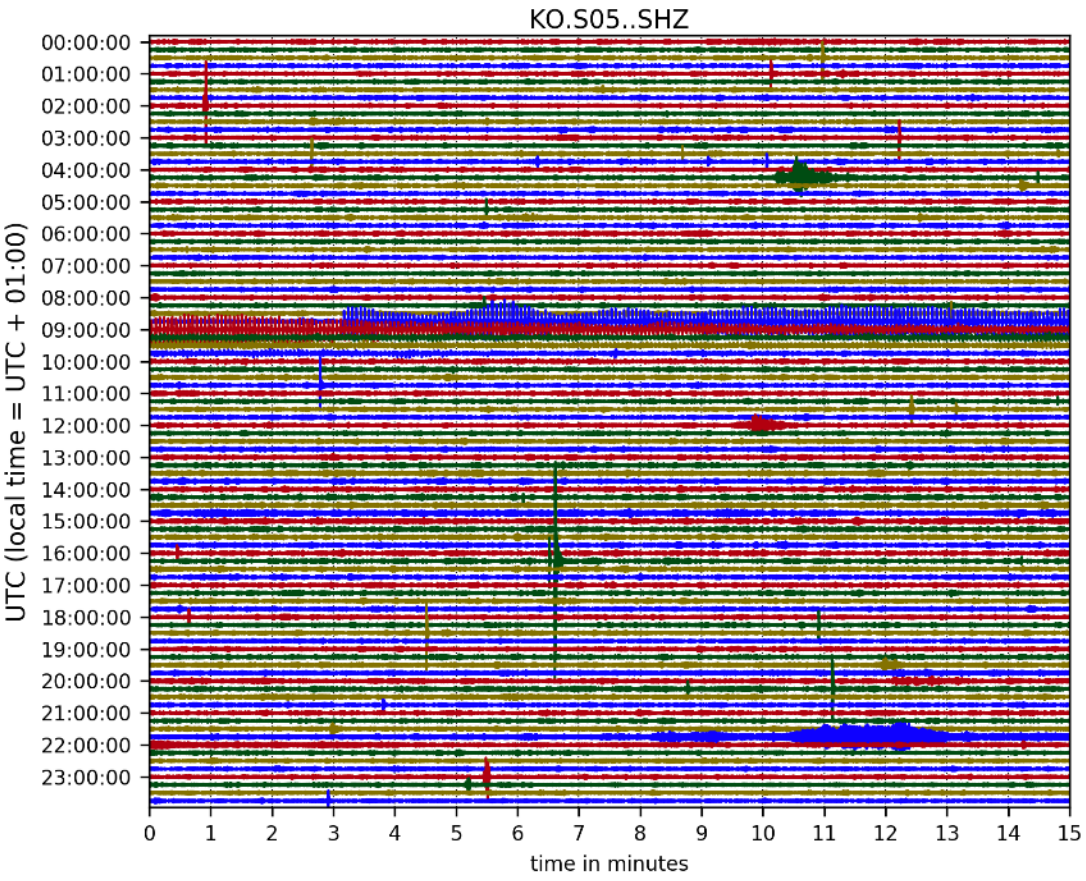


Figure 31: Data sample showing one day (23.10.2019) of vertical component data recorded by station 05, which was located inside the crater of Kolumbo. Note the signals of airgun shooting between 08:45 and 09:45, and other arrivals indicative of local earthquakes or other short duration events.

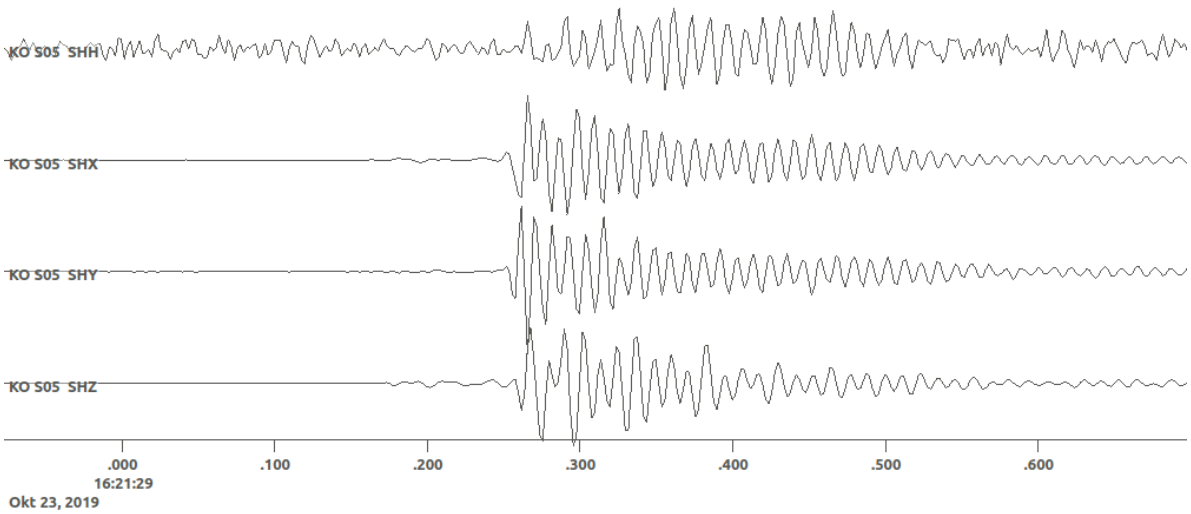


Figure 32: Waveform example of a local earthquake occurring at the 23. October 2019 near the Kolumbo caldera, recorded by station 05. The hydrophone channel is on top and the three seismometer components are below.

Table 3: Summary of OBS operations during POS538.

Station	01	02	03	04	05	06
Latitude (N)	36°34.39	36° 33.30	36°32.80	36°32.17	36°31.40	36°30.44
Longitude [E]	25°24.54	25°26.38	25°28.29	25°27.39	25°29.23	25°30.24
Depth (m)	393	386	317	300	490	296
Rise time (min)	5,2	5,1	4,2	4,0	6,5	3,9
Radio Ch.	A	D	B	D	A	C
Release	143272	647031	646574	433375	450215	433431
Enable	141117	664125	663316	417411	467007	417526
Disable	141134	664140	663335	417432	467024	417543
Deploy. date (UTC)	14.10.2019	14.10.2019	14.10.2019	14.10.2019	14.10.2019	14.10.2019
Deploy. Time (UTC)	14:46:00	14:46:00	15:03:00	15:21:00	15:45:00	16:00:00
Release date (UTC)	26.10.2019	26.10.2019	26.10.2019	26.10.2019	26.10.2019	26.10.2019
Released (UTC)	14:34	14:04	13:35	13:12	12:31	12:03
Surface (UTC)	14:40	14:09	13:41	13:16	12:37	12:07
on deck (UTC)	14:50	14:14	13:45	13:21	12:43	12:15
Time rel. date (UTC)	27.10.2019	27.10.2019	27.10.2019	27.10.2019	27.10.2019	27.10.2019
Time rl. time (UTC)	12:00	12:20	12:40	13:00	13:20	13:40
Recorder	Geolog-049	Geolog-015	Geolog-027	Geolog-044	Geolog-043	Geolog-021
Hydrophone	984017	984012	984013	984024	984028	984022
Geophone	1001114	0205-031	1205-129	0807-098	0205-028	1001-121
Sync date	14.102019	13.10.2019	13.10.2019	13.10.2019	13.10.2019	13.10.2019
Sync time	14:22:00	06:42:33	07:09:51	13:37:58	13:52:06	14:11:49
2. Skew sync date	26.10.2019	26.10.2019	26.10.2019	26.10.2019	26.10.2019	26.10.2019
2. Skew sync time	15:05:00	14:29:21	14:16:00	13:45:00	13:25:16	12:53:00
Skew (ms)	-17	-10	4	19	62	-338
Data recorded	17 GB	18.4 GB	14.8 GB	15.9 GB	17.9 GB	15.9 GB
Last data file, date	26.10.2019	26.10.2019	24.10.2019	25.10.2019	26.10.2019	25.10.2019
Last data file, time	15:00	14:00	19:00	01:00	13:00	02:00
Remarks					Station located in Kolumbo Crater	

5. Acknowledgements

We would like to thank Captain Matthias Günther and the entire crew of R/V Poseidon for their excellent support and hospitality during the entire cruise. The conducted experiments were very successful and we feel sad that POS538 was our last cruise onboard R/V Poseidon. We would like to thank the GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel for the technical and financial support of this cruise and the Alfred-Wegener-Institute in Bremerhaven for providing us their compressor container for our campaign.

6. References

Auker MR, Sparks RSJ, Siebert L, Crosweller, HS, Ewert J, 2013. A statistical analysis of the global historical volcanic fatalities record. Journal of Applied Volcanology Society and Volcanoes 2013, 2:2.

Bialas, J., and E. R. Flueh (1999), Ocean Bottom Seismometers, Sea Technology, 40(4), 41-46

Brüstle A, Friederich W, Meier T, Gross C (2014) Focal mechanism and depth of the 1956 Amorgos twin earthquakes from waveform matching of analogue seismograms. Solid Earth 5: 1027-1044

Cantner K., Carey S., Nomikou, P. (2014). Integrated volcanologic and petrologic analysis of the 1650AD eruption of Kolumbo submarine volcano, Greece. Journal of Volcanology and Geothermal Research, 269, pp. 28.

Carey S., Nomikou P., Croff Bell K.C., Lilley M., Lupton J., Roman C., Stathopoulou E., Bejelou K., Ballard R. (2013). CO2 degassing from hydrothermal vents at Kolumbo submarine volcano, Greece, and the accumulation of acidic crater water. Geology 41 (9), pp.1035.

Day, S. (2015). Chapter 58 - Volcanic Tsunamis, In The Encyclopedia of Volcanoes (Second Edition), edited by Haraldur Sigurdsson,, Academic Press, Amsterdam, 2015, Pages 993-1009, ISBN 9780123859389, https://doi.org/10.1016/B978-0-12-385938-9.00058-4.

Dimitriadis I and 6 coauthors (2010) P and S velocity structures of the Santorini–Coloumbo volcanic system (Aegean Sea, Greece) obtained by non-linear inversion of travel times and its tectonic implications. Journal of Volcanology and Geothermal Research 195: 13-30

Dominey-Howes DTM, Papadopoulos GA, Dawson AG (2000) Geological and historical investigation of the 1650 Mt. Columbo (Thera Island) eruption and tsunami, Aegean Sea, Greece. Natural Hazards 21: 83-96

Druitt TH (2014) New insights into the initiation and venting of the Bronze-Age eruption of Santorini (Greece), from component analysis. Bulletin of Volcanology 76, doi: 10.1007/s00445-014-0794-x

Druitt, TH Hübscher C, Nomikou P, Papanikolaou D, Behrmann J, Brandl P, Gertisser R, Geldmacher J, Hooft E, Kilias S, Klaver M, Kutterolf S, Papazachos C, Paris R, Polymenakou ., Pyle D, Satow C, Tominaga M, Triantaphyllou M, Tripati A, (2018). Volcanism and tectonics in an island-arc rift environment (VolTecArc): Christiana-Santorini-Kolumbo marine volcanic field, Greece. IODP-Pre-Proposal 932-PRE.

Friedrich WL and 5 coauthors (2006) Santorini eruption radiocarbon dated to 1627-1600 B.C. Science 312, doi: 10.1126/science.1125087

Fuller S., Carey S., Nomikou P. (2018). Distribution of fine-grained tephra from the 1650 CE submarine eruption of Kolumbo volcano, Greece. Journal of Volcanology and Geothermal Research 352, pp.10.

Hooft E.E.E., Nomikou P., Toomey D.R., Lampridou D., Getz C., Christopoulou M.-E., O'Hara, D., Arnoux G.M., Bodmer M., Gray M., Heath B.A., VanderBeek B.P., (2017). Backarc tectonism, volcanism, and mass wasting shape seafloor morphology in the Santorini-

Christiana-Amorgos region of the Hellenic Volcanic Arc. Tectonophysics 712-713, pp.396.

Hübscher C, Ruhnau M, Nomikou P (2015) Volcano-tectonic evolution of the polygenetic Kolumbo submarine volcano/Santorini (Aegean Sea). Journal of Volcanology and Geothermal Research 291: 101-111

Kilias S.P., Nomikou P., Papanikolaou D., Polymenakou P.N., Godelitsas A., Argyraki A., Carey S., Gamaletsos P., Mertzimekis T.J., Stathopoulou E., Goettlicher J., Steininger R., Betzelou K., Livanos I., Christakis C., Bell K.L.C., Scoullos M. (2013). New insights into hydrothermal vent processes in the unique shallow-submarine arc-volcano, Kolumbo (Santorini), Greece. Scientific Reports 3.

Klaver M., Carey S., Nomikou P., Smet I., Godelitsas A., Vroon P. (2016). A distinct source and differentiation history for Kolumbo submarine volcano, Santorini volcanic field, Aegean arc. Geochemistry, Geophysics, Geosystems 17 (8), pp.3254.

Nomikou P., Carey S., Papanikolaou D., Croff Bell K., Sakellariou D., Alexandri M., Bejelou K. (2012). Submarine volcanoes of the Kolumbo volcanic zone NE of Santorini Caldera, Nomikou P., Hübscher C., Papanikolaou D., Farangitakis P. G., Ruhnau M., Lampridou D. (2018). Expanding extension, subsidence and lateral segmentation within the Santorini - Amorgos basins during Quaternary: Implications for the 1956 Amorgos events, central - south Aegean Sea, Greece. Tectonophysics 722, pp.138.

Nomikou P., Hübscher C., Carey S. (2019): The Christiana–Santorini–Kolumbo Volcanic Field. Elements; 15 (3): 171–176.

Okal EA, Synolakis CE, Uslu B, Kalligeris N. Voukouvalas E (2009) The 1956 earthquake and tsunami in Amorgos, Greece. Geophysical Journal International 178: 1533-1554

Oulas A., Polymenakou P.N., Seshadri R., Tripp H.J., Mandalakis M., Paez-Espino A.D., Pati A., Chain P., Nomikou P., Carey S., Kilias S., Christakis C., Kotoulas G., Magoulas A., Ivanova N.N., Kyrpides N.C. (2016). Metagenomic investigation of the geologically unique Hellenic Volcanic Arc reveals a distinctive ecosystem with unexpected physiology. Environmental Microbiology 18 (4), pp.1122.

Paris, R., Switzer, A. D., Belousova, M., Belousov, A., Ontowirjo, B., Whelley, P. L., & Ulvrova, M. (2014). Volcanic tsunami: a review of source mechanisms, past events and hazards in Southeast Asia (Indonesia, Philippines, Papua New Guinea). Natural Hazards, 70(1), 447-470.

Parks M.M., Biggs J., England P., Mather T.A., Nomikou P., Palamartchouk K., Papanikolaou X., Paradissis D., Parsons B., Pyle D., Raptakis C., Zacharis V. (2012). Evolution of Santorini Volcano dominated by episodic and rapid fluxes of melt from depth. Nature Geoscience 5 (10), pp.749.

Reilinger R and 24 coauthors (2006) GPS constraints on continental deformation in the Africa-Arabia-Eurasia continental collision zone and implications for the dynamics of plate interactions. Journal of Geophysical Research: Solid Earth 111, doi: 10.1029/2005JB004051

Rizzo A.L., Caracausi A., Chavagnac V., Nomikou P., Polymenakou P.N., Mandalakis M., Kotoulas G., Magoulas A., Castillo A., Lampridou D. (2016). Kolumbo submarine volcano

(Greece): An active window into the Aegean subduction system. Scientific Reports 6.

Sigurdsson H., Carey S., Alexandri M., Vougioukalakis G., Croff K., Roman C., Sakellariou D., Anagnostou C., Rousakis G., Ioakim C., Gogou A., Ballas D., Misaridis T., Nomikou P., (2006). Marine Investigations of Greece's Santorini Volcanic Field. Eos 87 (34), pp.337.

Ulvrova M., Paris R., Nomikou P., Kelfoun K., Leibrandt S., Tappin D.R., McCoy F.W. (2016). Source of the tsunami generated by the 1650 AD eruption of Kolumbo submarine volcano (Aegean Sea, Greece). Journal of Volcanology and Geothermal Research 321, pp. 125.

7. Appendix

6.1. 2D seismic profiles

Line #	Start	End	Lat Start N
1001	13.10.2019 13:38:24	13.10.2019 14:14:00	36 22.79
1002	13.10.2019 14:14:00	13.10.2019 15:05:47	36 23.62
1003	13.10.2019 15:05:47	13.10.2019 15:58:00	36 22,50
1004	13.10.2019 16:00:00	13.10.2019 19:05:00	36 25,90
1005	13.10.2019 19:15:00	13.10.2019 20:03:00	36 14,13
1006	13.10.2019 20:03:00	13.10.2019 23:41:00	36 15,69
1007	13.10.2019 23:41:00	14.10.2019 00:06:00	36 24,92
1008	14.10.2019 00:06:00	14.10.2019 01:28:50	36 25,55
1009	14.10.2019 01:28:50	14.10.2019 02:25:29	36 30,28
1010	14.10.2019 02:25:29	14.10.2019 08:07:14	36 32,33
2001	14.10.2019 09:30:00	14.10.2019 10:32:00	36 47,6
2002	14.10.2019 11:08:00	14.10.2019 12:18:00	36 44,86
3001	14.10.2019 16:58:00	14.10.2019 20:07:00	36 29,33

3002	14.10.2019 20:31:00	14.10.2019 23:15:00	36 35,97
3003	14.10.2019 23:39:00	15.10.2019 00:00:00	36 25,90
3004	15.10.2019 00:10:00	15.10.2019 01:45:00	36 26,35
3005	15.10.2019 02:19:00	15.10.2019 03:32:00	36 21,73
3006	15.10.2019 03:32:00	15.10.2019 04:15:00	36 23,95
3007	15.10.2019 04:15:00	15.10.2019 06:18:15	36 25,87
5001	23.10.2019 09:20:00	23.10.2019 11:51:00	36 29,52
5002	23.10.2019 11:51:00	23.10.2019 13:35:00	36 18,96
5003	23.10.2019 14:02:10	23.10.2019 15:20:00	36 14,35
5004	23.10.2019 15:36:06	23.10.2019 16:56:50	36 16,08
5005	23.10.2019 17:14:30	23.10.2019 20:45:00	36 20,40
5006	23.10.2019 21:27:00	24.10.2019 00:49:00	36 9,40
5007	24.10.2019 01:08:00	24.10.2019 02:23:30	36 20,44
5008	24.10.2019 02:44:00	24.10.2019 04:03:00	36 15,61
5009	24.10.2019 05:03:10	24.10.2019 08:21:00	36 17,89
5010	24.10.2019 08:53:00	24.10.2019 11:45:00	36 22,33
5011	24.10.2019 12:18:00	24.10.2019 15:51:30	36 11,38
5012	24.10.2019 15:51:30	24.10.2019 16:55:30	36 23,70

5013	24.10.2019 16:55:30	24.10.2019 19:10:00	36 27,50

6.2. Station list

Leg	Eventlabel	Eventname	Time **[UTC]**	Latitude	Longitude
POS538		1-1	2019-10-13 09:02:**12.0**	36,2984	25,25831
POS538		1-1	2019-10-13 09:10:34.0	36,29873	25,25917
POS538		1-1	2019-10-13 09:**35:05.0**	36,29934	25,26116
POS538		2-1	2019-10-13 **12:06:33.0**	36,32907	25,2749
POS538		2-1	2019-10-13 12:32:**02.0**	36,33771	25,27204
POS538		2-1	2019-10-13 **13:09:53.0**	36,35196	25,26675
POS538		2-1	2019-10-13 **13:32:08.0**	36,37579	25,2575
POS538		2-1	2019-10-13 **13:39:10.0**	36,71309	-4,42198
POS538		2-1	2019-10-13 **14:10:32.0**	36,39123	25,20906
POS538		2-1	2019-10-13 **15:56:45.0**	36,4304	25,21416
POS538		2-1	2019-10-13	36,24159	25,2352

			19:05:43.0		
POS538		2-1	2019-10-13 **19:54:39.0**	36,2534	25,21555
POS538		2-1	2019-10-13 **22:24:31.0**	36,37095	25,35313
POS538		2-1	2019-10-13 **22:53:10.0**	36,37459	25,39053
POS538		2-1	2019-10-13 **23:18:40.0**	36,71309	-4,42198
POS538		2-1	2019-10-13 **23:38:22.0**	36,71309	-4,42198
POS538		2-1	2019-10-14 **00:05:29.0**	36,42543	25,38919
POS538		2-1	2019-10-14 **01:28:34.0**	36,50424	25,33213
POS538		2-1	2019-10-14 **02:25:31.0**	36,53875	25,38705
POS538		2-1	2019-10-14 **05:56:56.0**	36,74813	25,52404
POS538		2-1	2019-10-14 08:**07:45.0**	36,78024	25,69569
POS538		2-1	2019-10-14 08:**15:38.0**	36,78391	25,70071
POS538		2-1	2019-10-14 09:05:**48.0**	36,79375	25,70555
POS538		2-1	2019-10-14 **09:08:46.0**	36,79609	25,70646
POS538		2-1	2019-10-14 **10:31:28.0**	36,71309	-4,42198

POS538		2-1	2019-10-14 **12:18:35.0**	36,71309	-4,42198
POS538		2-1	2019-10-14 12:**28:20.0**	36,73198	25,64028
POS538		2-1	2019-10-14 12:**44:49.0**	36,73776	25,645
POS538		3-1	2019-10-14 14:**22:49.0**	36,57313	25,40909
POS538		4-1	2019-10-14 14:**46:18.0**	36,55509	25,43968
POS538		5-1	2019-10-14 15:**04:12.0**	36,54695	25,4716
POS538		6-1	2019-10-14 15:**21:30.0**	36,53557	25,45587
POS538		7-1	2019-10-14 15:**45:13.0**	36,52332	25,4873
POS538		8-1	2019-10-14 16:**00:49.0**	36,5075	25,50416
POS538		9-1	2019-10-14 **16:31:48.0**	36,47246	25,53719
POS538		9-1	2019-10-14 16:39:**42.0**	36,47442	25,53949
POS538		9-1	2019-10-14 16:**58:01.0**	36,48845	25,54463
POS538		9-1	2019-10-14 **20:07:24.0**	36,61529	25,34062
POS538		9-1	2019-10-14 **23:17:32.0**	36,43034	25,36572
POS538		9-1	2019-10-15	36,71309	-4,42198

			00:00:17.0		
POS538		9-1	2019-10-15 **00:51:15.0**	36,40671	25,35913
POS538		9-1	2019-10-15 **01:45:48.0**	36,36504	25,30515
POS538		9-1	2019-10-15 **03:12:13.0**	36,37883	25,36583
POS538		9-1	2019-10-15 **04:07:36.0**	36,42377	25,39923
POS538		9-1	2019-10-15 05:**50:08.0**	36,50475	25,31076
POS538		9-1	2019-10-15 06:**30:35.0**	36,51494	25,29862
POS538		9-1	2019-10-15 06:**37:12.0**	36,51661	25,29728
POS538		10-1	2019-10-15 **10:27:06.0**	36,40264	25,56986
POS538		10-1	2019-10-15 **11:37:38.0**	36,4236	25,5551
POS538		10-1	2019-10-15 **12:02:42.0**	36,43791	25,55181
POS538		10-1	2019-10-15 **13:48:57.0**	36,44756	25,56305
POS538		10-1	2019-10-15 14:**44:34.0**	36,48255	25,51474
POS538		10-1	2019-10-15 16:**40:37.0**	36,56127	25,41385
POS538		10-1	2019-10-15 17:**06:31.0**	36,57102	25,42642

POS538		10-1	2019-10-15 19:**00:45.0**	36,49249	25,52717
POS538		10-1	2019-10-15 19:**24:01.0**	36,4831	25,51489
POS538		10-1	2019-10-15 21:**32:29.0**	36,56154	25,41436
POS538		10-1	2019-10-15 22:**01:53.0**	36,5712	25,42698
POS538		10-1	2019-10-16 00:**10:44.0**	36,49223	25,52824
POS538		10-1	2019-10-16 00:**33:12.0**	36,48333	25,51561
POS538		10-1	2019-10-16 02:**35:21.0**	36,5618	25,41513
POS538		10-1	2019-10-16 03:**02:20.0**	36,57266	25,42535
POS538		10-1	2019-10-16 05:**17:12.0**	36,493	25,52814
POS538		10-1	2019-10-16 05:**45:18.0**	36,48357	25,51609
POS538		10-1	2019-10-16 07:**51:32.0**	36,56264	25,41502
POS538		10-1	2019-10-16 08:**19:47.0**	36,57191	25,42771
POS538		10-1	2019-10-16 10:**28:56.0**	36,49296	25,52898
POS538		10-1	2019-10-16 10:**52:05.0**	36,48386	25,51672
POS538		10-1	2019-10-16	36,56313	25,41519

			12:**53:35.0**		
POS538		10-1	2019-10-16 13:**19:47.0**	36,57242	25,42814
POS538		10-1	2019-10-16 15:**37:37.0**	36,49341	25,52937
POS538		10-1	2019-10-16 16:**00:47.0**	36,48383	25,51741
POS538		10-1	2019-10-16 17:**58:49.0**	36,56269	25,41703
POS538		10-1	2019-10-16 18:**26:51.0**	36,57254	25,42875
POS538		10-1	2019-10-16 20:**29:08.0**	36,49431	25,52934
POS538		10-1	2019-10-16 20:**57:42.0**	36,48488	25,51709
POS538		10-1	2019-10-16 23:**07:55.0**	36,56372	25,41628
POS538		10-1	2019-10-16 23:**35:32.0**	36,57341	25,42898
POS538		10-1	2019-10-17 01:**44:40.0**	36,49425	25,53011
POS538		10-1	2019-10-17 02:**04:19.0**	36,71309	-4,42198
POS538		10-1	2019-10-17 04:**10:37.0**	36,56358	25,41705
POS538		10-1	2019-10-17 04:**37:36.0**	36,57377	25,42906
POS538		10-1	2019-10-17 06:**45:58.0**	36,49485	25,53011

POS538		10-1	2019-10-17 07:**09:52.0**	36,48556	25,51778
POS538		10-1	2019-10-17 09:**10:44.0**	36,56429	25,41733
POS538		10-1	2019-10-17 09:**38:15.0**	36,57371	25,42997
POS538		10-1	2019-10-17 11:**44:46.0**	36,49486	25,53092
POS538		10-1	2019-10-17 12:**08:55.0**	36,4858	25,51862
POS538		10-1	2019-10-17 14:**10:38.0**	36,56421	25,41839
POS538		10-1	2019-10-17 14:**38:19.0**	36,57404	25,43053
POS538		10-1	2019-10-17 16:**49:08.0**	36,4956	25,5309
POS538		10-1	2019-10-17 17:**11:31.0**	36,48623	25,51915
POS538		10-1	2019-10-17 19:**11:16.0**	36,56481	25,41842
POS538		10-1	2019-10-17 19:**38:49.0**	36,57423	25,43102
POS538		10-1	2019-10-17 21:**39:20.0**	36,49597	25,53136
POS538		10-1	2019-10-17 22:**02:58.0**	36,48652	25,51929
POS538		10-1	2019-10-18 00:**11:07.0**	36,56528	25,41869
POS538		10-1	2019-10-18	36,57506	25,43109

			00:**40:18.0**		
POS538		10-1	2019-10-18 02:**48:36.0**	36,49632	25,53159
POS538		10-1	2019-10-18 03:**14:40.0**	36,48669	25,51873
POS538		10-1	2019-10-18 05:**20:10.0**	36,56555	25,41933
POS538		10-1	2019-10-18 05:**47:08.0**	36,57445	25,43254
POS538		10-1	2019-10-18 07:**53:32.0**	36,49652	25,53231
POS538		10-1	2019-10-18 08:**26:00.0**	36,48736	25,5198
POS538		10-1	2019-10-18 10:**30:38.0**	36,56601	25,41955
POS538		10-1	2019-10-18 10:**58:02.0**	36,71309	-4,42198
POS538		10-1	2019-10-18 12:**56:30.0**	36,49696	25,53275
POS538		10-1	2019-10-18 13:**18:20.0**	36,48744	25,52086
POS538		10-1	2019-10-18 15:**26:37.0**	36,56544	25,42116
POS538		10-1	2019-10-18 15:**57:08.0**	36,57472	25,43398
POS538		10-1	2019-10-18 17:**50:36.0**	36,49745	25,53301
POS538		10-1	2019-10-18 18:**16:26.0**	36,48795	25,52083

POS538		10-1	2019-10-18 20:**26:32.0**	36,56647	25,42052
POS538		10-1	2019-10-18 20:**52:30.0**	36,57615	25,43319
POS538		10-1	2019-10-18 22:**50:47.0**	36,4978	25,53329
POS538		10-1	2019-10-18 23:**15:29.0**	36,48815	25,52131
POS538		10-1	2019-10-19 01:**23:41.0**	36,56701	25,42085
POS538		10-1	2019-10-19 01:**50:24.0**	36,57654	25,43369
POS538		10-1	2019-10-19 03:**50:08.0**	36,49809	25,53387
POS538		10-1	2019-10-19 04:**13:15.0**	36,48774	25,52302
POS538		10-1	2019-10-19 06:**24:50.0**	36,56728	25,42148
POS538		10-1	2019-10-19 06:**50:59.0**	36,57687	25,43407
POS538		10-1	2019-10-19 08:**46:13.0**	36,49829	25,53453
POS538		10-1	2019-10-19 09:**11:19.0**	36,48913	25,52215
POS538		10-1	2019-10-19 11:**21:20.0**	36,56739	25,42221
POS538		10-1	2019-10-19 11:**48:08.0**	36,71309	-4,42198
POS538		10-1	2019-10-19	36,49895	25,53454

			13:**44:47.0**		
POS538		10-1	2019-10-19 14:**08:46.0**	36,48867	25,52405
POS538		10-1	2019-10-19 16:**26:45.0**	36,56805	25,42228
POS538		10-1	2019-10-19 16:**50:41.0**	36,57792	25,43423
POS538		10-1	2019-10-19 18:**47:25.0**	36,49935	25,53539
POS538		10-1	2019-10-19 19:**12:27.0**	36,4898	25,52288
POS538		10-1	2019-10-19 21:**35:12.0**	36,56826	25,42262
POS538		10-1	2019-10-19 22:**01:27.0**	36,57782	25,43547
POS538		10-1	2019-10-19 23:**57:07.0**	36,49971	25,53532
POS538		10-1	2019-10-20 00:**23:41.0**	36,49016	25,52326
POS538		10-1	2019-10-20 02:**52:42.0**	36,56863	25,42329
POS538		10-1	2019-10-20 03:**17:04.0**	36,57847	25,43535
POS538		10-1	2019-10-20 05:**09:30.0**	36,50009	25,5358
POS538		10-1	2019-10-20 05:**35:26.0**	36,49022	25,52443
POS538		10-1	2019-10-20 08:**13:57.0**	36,56887	25,42349

POS538		10-1	2019-10-20 08:**46:03.0**	36,57812	25,43629
POS538		10-1	2019-10-20 10:**46:27.0**	36,50088	25,53573
POS538		10-1	2019-10-20 11:**12:35.0**	36,4907	25,52423
POS538		10-1	2019-10-20 13:**18:35.0**	36,56919	25,42406
POS538		10-1	2019-10-20 13:**48:30.0**	36,57902	25,43641
POS538		10-1	2019-10-20 15:**46:38.0**	36,50092	25,53641
POS538		10-1	2019-10-20 16:**14:07.0**	36,49079	25,5243
POS538		10-1	2019-10-20 18:**41:56.0**	36,56991	25,42419
POS538		10-1	2019-10-20 19:**10:33.0**	36,57929	25,43696
POS538		10-1	2019-10-20 21:**13:26.0**	36,50099	25,5373
POS538		10-1	2019-10-20 21:**41:02.0**	36,49175	25,52499
POS538		10-1	2019-10-21 00:**04:20.0**	36,56981	25,42524
POS538		10-1	2019-10-21 00:**43:34.0**	36,71309	-4,42198
POS538		10-1	2019-10-21 02:**42:00.0**	36,49648	25,53204
POS538		10-1	2019-10-21	36,48548	25,51883

			03:**10:38.0**		
POS538		10-1	2019-10-21 05:**44:32.0**	36,56157	25,41477
POS538		10-1	2019-10-21 06:**11:10.0**	36,57029	25,42609
POS538		10-1	2019-10-21 08:**04:41.0**	36,71309	-4,42198
POS538		10-1	2019-10-21 08:**41:06.0**	36,4866	25,5197
POS538		10-1	2019-10-21 11:**13:52.0**	36,56288	25,4176
POS538		10-1	2019-10-21 11:**59:36.0**	36,56918	25,42286
POS538		10-1	2019-10-21 13:**59:23.0**	36,49197	25,52563
POS538		10-1	2019-10-21 14:**49:31.0**	36,48944	25,52255
POS538		10-1	2019-10-21 17:**39:08.0**	36,57458	25,43254
POS538		10-1	2019-10-21 18:**25:56.0**	36,5797	25,4376
POS538		10-1	2019-10-21 20:**39:42.0**	36,50102	25,5386
POS538		10-1	2019-10-22 07:**29:14.0**	36,56832	25,42885
POS538		10-1	2019-10-22 09:**47:21.0**	36,49233	25,52465
POS538		10-1	2019-10-22 10:**47:38.0**	36,49323	25,52523

POS538		10-1	2019-10-22 12:**45:12.0**	36,55664	25,44272
POS538		10-1	2019-10-22 **12:50:52.0**	36,55875	25,441
POS538		10-1	2019-10-22 **13:38:28.0**	36,57177	25,43574
POS538		11-1	2019-10-23 **08:16:54.0**	36,55036	25,50603
POS538		11-1	2019-10-23 08:41:**32.0**	36,52976	25,51108
POS538		11-1	2019-10-23 09:**21:04.0**	36,49179	25,52795
POS538		11-1	2019-10-23 13:**35:43.0**	36,23895	25,44601
POS538		11-1	2019-10-23 14:**02:02.0**	36,23901	25,44584
POS538		11-1	2019-10-23 15:**19:18.0**	36,26796	25,34932
POS538		11-1	2019-10-23 15:**46:16.0**	36,26796	25,3499
POS538		11-1	2019-10-23 16:**56:51.0**	36,33485	25,39939
POS538		11-1	2019-10-23 17:**14:30.0**	36,34003	25,38234
POS538		11-1	2019-10-23 20:**43:46.0**	36,14087	25,27406
POS538		11-1	2019-10-23 21:**27:58.0**	36,15707	25,30845
POS538		11-1	2019-10-24	36,34244	25,16866

			00:**49:07.0**		
POS538		11-1	2019-10-24 01:**07:47.0**	36,34137	25,15005
POS538		11-1	2019-10-24 02:**24:11.0**	36,27036	25,19765
POS538		11-1	2019-10-24 02:**44:12.0**	36,26007	25,18262
POS538		11-1	2019-10-24 04:**03:07.0**	36,33466	25,13663
POS538		11-1	2019-10-24 05:**03:24.0**	36,29816	25,10906
POS538		11-1	2019-10-24 08:**21:46.0**	36,37276	25,31622
POS538		11-1	2019-10-24 08:**53:53.0**	36,37187	25,31596
POS538		11-1	2019-10-24 11:**45:18.0**	36,19012	25,31759
POS538		11-1	2019-10-24 12:**18:47.0**	36,18953	25,31769
POS538		11-1	2019-10-24 13:**50:10.0**	36,2797	25,27115
POS538		11-1	2019-10-24 15:**50:45.0**	36,33146	25,24445
POS538		11-1	2019-10-24 **16:55:42.0**	36,45853	25,24958
POS538		11-1	2019-10-24 19:**10:39.0**	36,54932	25,39484
POS538		11-1	2019-10-24 19:**11:11.0**	36,54973	25,39528

POS538		11-1	2019-10-25 00:**17:48.0**	36,78479	25,60887
POS538		11-1	2019-10-25 00:**44:30.0**	36,78511	25,60948
POS538		11-1	2019-10-25 04:**43:35.0**	36,54905	25,7716
POS538		11-1	2019-10-25 05:**20:27.0**	36,54722	25,74878
POS538		11-1	2019-10-25 07:**02:20.0**	36,63386	25,80726
POS538		11-1	2019-10-25 07:**02:40.0**	36,63422	25,80717
POS538		11-1	2019-10-25 09:**13:02.0**	36,74664	25,71255
POS538		11-1	2019-10-25 09:**47:15.0**	36,7463	25,71319
POS538		11-1	2019-10-25 12:**54:38.0**	36,75455	25,95363
POS538		11-1	2019-10-25 13:**48:28.0**	36,71843	25,95322
POS538		11-1	2019-10-25 15:**01:35.0**	36,77811	25,90286
POS538		11-1	2019-10-25 15:**40:31.0**	36,77728	25,90249
POS538		11-1	2019-10-25 16:**27:08.0**	36,74648	25,85997
POS538		11-1	2019-10-25 16:**27:28.0**	36,74636	25,85961
POS538		11-1	2019-10-25	36,75042	25,85178

			16:**42:02.0**		
POS538		12-1	2019-10-26 08:16:**23.0**	36,58533	25,37802
POS538		12-1	2019-10-26 08:**47:01.0**	36,58496	25,39378
POS538		12-1	2019-10-26 11:**32:07.0**	36,49371	25,52901
POS538		12-1	2019-10-26 **11:36:19.0**	36,49138	25,53233
POS538		13-1	2019-10-26 **12:03:56.0**	36,50274	25,50197
POS538		13-1	2019-10-26 **12:07:25.0**	36,50234	25,50268
POS538		13-1	2019-10-26 12:**15:32.0**	36,50692	25,50325
POS538		14-1	2019-10-26 **12:31:52.0**	36,52109	25,48822
POS538		14-1	2019-10-26 **12:37:42.0**	36,52037	25,48824
POS538		14-1	2019-10-26 12:**43:08.0**	36,52292	25,48657
POS538		15-1	2019-10-26 **13:03:02.0**	36,5337	25,45617
POS538		15-1	2019-10-26 **13:16:43.0**	36,53312	25,45731
POS538		15-1	2019-10-26 13:**22:00.0**	36,53493	25,4546
POS538		16-1	2019-10-26 **13:36:47.0**	36,5447	25,4729

POS538		16-1	2019-10-26 **13:41:02.0**	36,54472	25,4733
POS538		16-1	2019-10-26 13:**45:41.0**	36,54637	25,47122
POS538		17-1	2019-10-26 **14:04:39.0**	36,55244	25,43953
POS538		17-1	2019-10-26 **14:09:25.0**	36,55243	25,43968
POS538		17-1	2019-10-26 14:**15:30.0**	36,55508	25,43877
POS538		18-1	2019-10-26 **14:34:56.0**	36,57039	25,40844
POS538		18-1	2019-10-26 **14:40:05.0**	36,57031	25,40861
POS538		18-1	2019-10-26 14:**49:31.0**	36,5721	25,40814
POS538		19-1	2019-10-26 15:04:**53.0**	36,57411	25,40567
POS538		19-1	2019-10-26 15:14:42.0	36,57436	25,40468
POS538		19-1	2019-10-26 15:**23:40.0**	36,57367	25,40453
POS538		20-1	2019-10-27 **06:15:19.0**	36,44175	25,52842
POS538		20-1	2019-10-27 06:27:**33.0**	36,43104	25,53584
POS538		20-1	2019-10-27 06:**33:06.0**	36,42635	25,53976
POS538		20-1	2019-10-27	36,331	25,66808

			08:**53:13.0**		
POS538		20-1	2019-10-27 09:**24:07.0**	36,33173	25,66762
POS538		20-1	2019-10-27 11:**38:13.0**	36,45929	25,67507
POS538		20-1	2019-10-27 11:**38:24.0**	36,45944	25,67521
POS538		20-1	2019-10-27 12:**36:48.0**	36,48352	25,73123
POS538		20-1	2019-10-27 12:**36:52.0**	36,48352	25,73132
POS538		20-1	2019-10-27 14:**12:25.0**	36,40431	25,798
POS538		20-1	2019-10-27 14:**57:09.0**	36,42179	25,83035
POS538		20-1	2019-10-27 15:**46:20.0**	36,46136	25,79967
POS538		20-1	2019-10-27 15:**50:13.0**	36,46293	25,79829
POS538		20-1	2019-10-27 15:**56:53.0**	36,46586	25,79586

6.3. Acquisition protocols

6.3.1. 2D seismic survey 1

Seismic watchkeeping 2D [x] 3D [ ] log : Date 13.10.2019

Time UTC	Latitude xx° xx.x‘	Longitude xx° xx.x‘	Course [°]	Heading [°]	Speed O.G. [kn]	Speed T.W. DoLog [kn]	Depth [m]	Geometrics FFN	Number of channels	Rec Len [s]	shot rate [s]	Delay (T/B)1)Delay (T/B)1) [ms]	Weather	Station No	Leakage	Gun-Pressure G.I. 1 [bar]	Inline-No	oil level ( )	Remarks
Date: Sunday 13.10.2019 Survey: 2D seismic lines, P1000																			
12:45:00	36 20.53	25 16,22	345	347	1.20	1.30	405	71	128	3	4	0	(1 m swell)	P1000		150			signal (began shooting)
13:10:24	36 21.15	25 15,99	343	346	4.2	4.5	371	350	128	3	4	0	(1 m swell)	P1000		200			Beginn 200 Bar shooting
13:29:00	36 22.45	25 15,50	339	343	4.1	4.5	331	397	128	3	4	0	(1 m swell)	P1000		200			Software crashed
13:38:24	36 22.79	25 14,99	302	311	4	4.8	350	400	128	3	4	0	(1 m swell)	P1000		200	1001		SOL P1001
14:00:18	36 23.38	25 13,244	290	302	3.7	4.5	380	737	128	3	4	0	(1 m swell)	P1000		197	1001		
14:14:00	36 23.62	25 12,2029	344	355	3.7	4.2	391	982	128	3	4	0	(1 m swell)	P1000		187	1001		EOL P1001/SOL P1002 (P1002 is the transit from Profile A01-A02)
14.30:00	36 23,84	25 13,18	136	133	4.5	4.8	374	1180	128	3	4	0	(1 m swell)	P1000		198	1002		
14:45:00	36 22,74	25 13,41	182	180	4.8	5.2	384	1409	128	3	4	0	(1 m swell)	P1000		188	1002		
14:59:55	36 22,17	25 12,72	339	353	3	3.6	408	1626	128	3	4	0	(1 m swell)	P1000		198	1002		
15:05:47	36 22,50	25 12,82	11	9	3.5	4.2	396	1722	128	3	4	0	(1 m swell)	P1000			1003		EOL P1002/SOL P1003
15:15:11	36 23,03	25 12,85	1	3	3.9	4.3	393	1854	128	3	4	0	(1 m swell)	P1000		196	1003		
15:30:00	36 24,03	25 12,85	358	2	4.1	4.6	370	2088	128	3	4	0	(1 m swell)	P1000		194	1003		

15:45:00	36 25,05	25 12,85	0.4	4.2	4.1	4.5	360	2305	128	3	4	0	(1 m swell)	P1000		195	1003		
15:58:00	36 25,94	25 12,86	17	21.6	3.9	4.3	305	2502	128	3	4	0	(1 m swell)	P1000		198	1003		EOL P1003
16:17:00	36 25,90	25 14,06	152	153	4.3	4.4	292	2784	128	3	4	0	(1 m swell)	P1000		180	1004		SOL P1004
16:29:00	36 24,93	25 14,11	179	179	4	4	323	2978	128	3	4	0	(1 m swell)	P1000		198	1004		Leakage (0.37) after two times reset the sign went vanished.
16:45:00	36 23,90	25 14,11	180	178	4	4.1	352	3199	128	3	4	0	(1 m swell)	P1000		197	1004		
17:00:04	36 22,86	25 14,11	180	178	4	4	375	3427	128	3	4	0	(1 m swell)	P1000		197	1004		
17:15:00	36 21,88	25 14,11	181	181	4	4.3	399	3653	128	3	4	0	(1 m swell)	P1000		192	1004		
17:29:50	36 20,88	25 14,12	179	179	4.1	4.2	414	3875	128	3	4	0	(1 m swell)	P1000		196	1004		
17:45:46	36 19,79	25 14,10	180	180	4	4.2	432	4125	128	3	4	0	(1 m swell)	P1000		195	1004		
18:00:10	36 18,79	25 14,11	180	180	4.1	4	449	4331	128	3	4	0	(1 m swell)	P1000		189	1004		checking the compressor (is leaking some oil)
18:15:00	36 17,78	25 14,11	180	180	4	4.2	464	4566	128	3	4	0	(1 m swell)	P1000		196	1004		checking the compressor (is leaking some oil)
18:30:10	36 16,79	25 14,11	180	181	3.9	3.9	451	4784	128	3	4	0	(1 m swell)	P1000		193	1004		checking the compressor (is leaking some oil)
18:45:21	36 15,81	25 14,11	179	182	3.8	4	375	5012	128	3	4	0	(1 m swell)	P1000		197	1004		checking the compressor (is leaking some oil)
19:00:00	26 14,87	25 14,12	180	184	3.9	4.9	187	5242	128	3	4	0	(1 m swell)	P1000			1004		still checking comp
19:05:00	36 14,49	25 14,11	178	180	4	4	206	5319	128	3	4	0	(1 m swell)	P1000			1004		EOL P1004
19:15:00	36 14,13	25 14,64	81	72	3.7	3.9	285	5470	128	3	4	0	(1 m swell)	P1000			1005		SOL P1005
19:30:00	36 14,81	25 14,90	310	312	4	4.7	381	5672	128	3	4	0	(1 m swell)	P1000		199	1005		
19:46:00	36 15,08	25 13,54	281	290	4.1	4.9	108	5934	128	3	4	0	(1 m swell)	P1000		196	1005		
20:00:00	36 15,43	25 12,66	356	358	4	4.7	86	6130	128	3	4					198	1005		

20:03:00	36 15,69	25 12,73	30	30	4	4.5	110	6194	128	3	4						1006		SOL P1006
20:15:00	36 16,22	25 13,45	44	38	4.1	4.4	372	6365	128	3	4					198	1006		
20:30:00	36 16,94	25 14,34	46	42	4	4.2	465	6586	128	3	4					198	1006		
20:45:00	36 17,62	25 15,22	44	42	4.1	4.4	467	6811	128	3	4					195	1006		
21:00:00	36 18,32	25 16,11	46	46	4	4.2	476	7037	128	3	4					190	1006		
21:15:00	36 19,02	25 17,02	45	48	4	4	482	7259	128	3	4					200	1006		
21:30:00	36 19,70	25 17,89	46	51	4	4.3	487	7482	128	3	4					195	1006		
21:45:00	36 20,42	25 18,81	46	53	4.1	4.3	415	7711	128	3	4					196	1006		
21:59:00	36 21,09	25 19,68	46	53	3.8	4.1	208	7924	128	3	4					196	1006		
22:15:00	36 21,81	25 20,64	46	53	4.1	4.1	17	8179	128	3	4					198	1006		
22:29:00	36 22.37	25 21.62	86	85	4.3	4.3	217	8310	128	3	4					188	1006		Course change
22:45:00	36 22,44	25 22,76	87	87	3.6	5.7	273	8605	128	3	4					195	1006		
22:55:00	36 22,49	25 23,54	74	72	4.2	4.3	282	8754	128	3	4					195	1006		Course change
23:15:00	36 23,30	25 24,99	50	52	3.9	4.5	282	9075	128	3	4					195	1006		
23:30:00	36 24,14	25 25,27	353	352	4.1	4.4	178	9291	128	3	4					198	1006		Course change
23:41:00	36 24,92	25 25,13	318	310	4	4.2	196	9468	128	3	4					198	1007		SOL P1007
23:59:00	36 25,38	25 23,78	293	289	4.3	4.3	244	9740	128	3	4					201	1007		
00:06:00	36 25,55	25 23,29	297	297	4	4.4	361	9830	128	Date: Monday 3	4	4.10.2019				198	1008		SOL P1008
00:15:00	36 26,03	25 22,90	327	326	3.9	3.9	376	9959	128	3	4					194	1008		

00:30:00	36 26,87	25 22,26	331	332	3.9	4.2	366	10193	128	3	4					196	1008		
00:45:00	36 27,73	25 21,67	330	330	4	4	309	10418	128	3	4					199	1008		
01:00:00	36 28,64	25 21,05	330	321	3.8	4	286	10655	128	3	4					197	1008		
01:15:00	36 29,48	25 20,49	330	323	4	4.5	135	10874	128	3	4					195	1008		
01:28:50	36 30,28	25 19,90	328	332	4	4.2	171	11076	128	3	4					197	1008		EOL P1008/ SOL 1009
01:44:00	36 30,84	25 20,70	87	89	4	4.2	200	11319	128	3	4					197	1009		
02:15:00	36 31,86	25 22,69	50	51	3.8	4.7	293	11776	128	3	4					199	1009		
02:25:29	36 32,33	25 23,23	20	24.8	3.8	4.5	325	11907	128	3	4					197	1010		EOL P1009/ SOLP1010
02:30:00	36 32,61	25 23,99	28	32.2	4.1	4.8	344	11978	128	3	4					185	1010		
02:44:30	36 33,47	25 23,95	27	32.1	4.1	4.5	374	12200	128	3	4					196	1010		
03:00:00	36 34,42	25 24,59	27	32	4.1	4.3	393	12425	128	3	4					197	1010		
03:15:00	36 35,34	25 25,20	27	32	4.2	4.4	396	12650	128	3	4					196	1010		
03:30:00	36 36,23	25 25,77	29	34	4	4.2	396	12875	128	3	4					199	1010		
03:45:00	36 37,10	25 26,35	29	28.7	3.6	3.7	295	13101	128	3	4					196	1010		
04:00:00	36 37,93	25 26,88	28	33.5	3.8	4.5	168	13320	128	3	4					199	1010		Leakage sign is turned on and does not disappear (approved by Jens)
04:15:00	36 38,82	25 27,47	29	34.1	3.9	4.6	152	13553	128	3	4					196	1010		
04:30:00	36 39,69	25 28,05	29	30.8	4.1	4.5	218	13776	128	3	4					195	1010		Sometime spikes appear at channel 38 and

																			96 every 2nd or 3rd shot
04:44:05	36 40,62	25 28,65	27	30	4	4.5	229	14022	128	3	4					197	1010		Sometime spikes appear at channel 38 and 96 every 2nd or 3rd shot
05:00:00	36 41,50	25 29,23	28	25	4	4	215	14223	128	3	4					200	1010		Sometime spikes appear at channel 38 and 96 every 2nd or 3rd shot
05:14:45	36 42,40	25 29,83	27	24	4.2	4.1	216	14461	128	3	4					196	1010		
05:30:00	36 43,33	25 30,43	28	30.2	3.9	4.1	209	14677	128	3	4					198	1010		Leakage sign went off
06:00:00	36 45,04	25 31,65	64	69	3.8	4.4	237	15140	128	3	4					199	1010		Course change
06:15:00	36 54,20	25 32,91	67	67	4	4.5	254	15375	128	3	4					202	1010		
06:30:00	36 45,40	25 34,02	77	75	4	4.3	299	15580	128	3	4						1010		
06:45:00	35 45,63	25 35,23	77	72	3.9	4.1	314	15808	128	3	4		(0,4 m swell)			185	1010		
07:00:00	35 45,86	25 36,50	77	69	3.9	4	328	16042	128	3	4		(0,4 m swell)			195	1010		
07:15:00	36 46,07	25 37,67	75	62	3.9	4.1	356	16269	128	3	4		(0,4 m swell)			198	1010	48	Started recording the oil level in the c ompressor from now on
07:32:00	36 46,33	25 39,00	76	67	3.8	4.7	418	16525	128	3	4		(0,4 m swell)			197	1010	48	
07:45:00	36 46,50	25 39,94	67	65	4	5.1	409	16708	128	3	4		(0,4 m swell)			198	1010		
07:58:00	36 46,70	25 41,06	76	63	3.8	4.9	375	16922	128	3	4		(0,4 m swell)				1010		Fluctuating leakage values, need to recover the streamer...
08:07:14	36 46,81	25 41,72	80	60	3.6	4.9	325	17033	128	3	4		(0,4 m swell)						EOL P1010 / Streamer an Bord
09:00:00	36 47,52	25 42,28	21	26	2.3	3.6	277	NA					(0,4 m swell)						streamer back in water, starting geometrics
09:08:00	36 47,74	25 42,39	8.3	12	3.2	4.4	220	20000	128	3	4		(0,4 m swell)			198			acquisition begins, 20 mins to SOL 2001

09:16:00	36 48,16	25 42,08	286	302	3.9	4.6	218	20130	128	3	4		(0,4 m swell)			195			still approaching next line
Survey P2000																			
09:30:00	36 47,6	25 41,28	189	174	3.8	3	322	20336	128	3	4					195			
09:42:00	36 46,78	25 41,6	155	130	3.5	3.5	327	20522	128	3	4		(0,4 m swell)			200		47	SOL P2001
10:00:00	36 45,77	25 42,22	155	154	3.8	4.2	391	20794	128	3	4					200			leakage fluctauting again.
10:15:00	36 44,83	25 42,76	153	146	3.9	4.4	470	21023	128	3	4					200			
10:30:00	36 44,00	25 43,31	149	139	3.9	4.3	468	21232	128	3	4					197			
10:32:10	36 43,85	25 43,32	154	153	4	4.6	470	21260	128	3	4					197			EOL P2001
10:47:37	36 43,71	25 44,61	61	56	4.4	5.3	460	21491	128	3	4								Stop of measurement
11:08:00	36 44,86	25 44,67	293	304	4.2	4.6	470	22000	128	3	4						2002		Start of measurement again / SOL 2002
11:15:00	36 44,89	25 43,97	264	268	4	4.1	470	22123	128	3	4					200	2002		
11:30:00	36 44,60	25 42,64	253	257	4.2	4.5	470	22349	128	3	4					196	2002		
11:45:00	36 44,35	25 41,62	255	262	4	4.5	470	22557	128	3	4					201	2002		
12:00:00	36 44,07	25 40,38	255	275	3.9	4.2	471	22786	128	3	4					200	2002		
12:15:00	36 43,78	25 38,98	254	272	3.9	3.9	471	23030	128	3	4					201	2002		
12:18:00	36 43,72	25 38,74	255	274	3.9	4.1	471	23073	128	3	4					200	2002		EOL P2002
																			End of survey
Survey P3000																			

16:46:00	36 28,67	25 32,60	37	40	4.2	4.2	345	30044	32	3	4		not much swell			200			start of shooting
16:58:00	36 29,33	25 32,60	292	296	4.5	4.8	345	30231	32	3	4					202	3001		SOL P3001
17:14:10	36 29,93	25 31,53	308	312	3.9	4.2	333	30475	32	3	4					202	3001		
17:30:00	36 30.55	25 30,57	308	311	3.9	4.3	298	30702	32	3	4					197	3001		
17:45:00	36 31,15	2529.61	308	313	4	4.2	321	30926	32	3	4					199	3001		
18:00:00	36 31,75	25 28,64	308	313	3.9	4.2	166	31160	32	3	4					196	3001		
18:16:00	36 32,45	25 27,53	306	313	3.7	4.1	291	31410	32	3	4		not much swell			198	3001	47	

18:30:00	36 32,96	25 26,74	307	314	3.9	4.5	367	31615	32	3	4		not much swell			188	3001		
18:45:00	36 33,57	25 26,76	308	312	4.9	4.2	395	31842	32	3	4		not much swell, but we are having a swe			200	3001	47	
19:00:00	36 34,20	25 24,77	308	312	3.9	4.1	393	32065	32	3	4		ditto			201	3001	47	
19:15:00	36 34,81	25 23,78	309	315	3.8	4.2	376	32294	32	3	4		ditto			197	3001		
19:30:00	36 35,43	25 22,78	308	314	3.7	4	337	32535	32	3	4		ditto			195	3001		
19:45:00	36 36,0	25 21,91	307	308	3.9	4	258	32742	32	3	4		ditto			198	3001		
20:00:00	36 36,57	25 20,98	307	313	4	3.8	65	32954	32	3	4		ditto			198	3001	47	
20:07:00	36 36,92	25 20,43	308	311	4.2	4.2	61	33076	32	3	4		ditto			197	3001	47	EOL P3001
20:15:00	36 36,97	25 19,79	233	227	4	4.2	66	33197	32	3	4		ditto			197	3001		
20:31:00	36 35,97	25 19,86	171	170	4	4.6	67	33440	32	3	4		ditto			200	3002	46	SOL P3002

20:45:00	36 35,09	25 20,04	168	168	4.1	4.5	72	33642	32	3	4		ditto		11	202	3002	47	
21:02:00	36 33,96	25 20,26	171	166	4.1	4.7	109	33900	32	3	4		ditto		11	187	3002		
21:15:00	36 33,09	25 20,44	170	166	4.1	4.5	232	34092	32	3	4		ditto		11	198	3002	47	
21:30:00	36 32,14	25 20,63	170	167	3.7	4.5	246	34319	32	3	4		ditto		11	201	3002	47	
21:45:00	36 31,24	25 20,82	170	174	3.3	4.9	216	34542	32	3	4		ditto		11	198	3002	46	
21:57:00	36 30,59	25 20,94	171	175	3.2	3.4	188	34718	32	3	4		not much swell		11	198	3002	46	
22:16:00	36 29,50	25 21,20	171	174	3.2	3.4	190	35033	32	3	4		not much swell		11	196	3002	46	
22:30:00	36 28,82	25 21,29	171	172	3.2	3.5	285	35233	32	3	4				11	197	3002	46	
22:45:00	36 27,99	25 27,97	169	173	3.9	4.2	310	35436	32	3	4		CALM Karstens		11	200	3002	46	
23:00:00	36 26,89	25 21,71	168	172	4	4.2	245	35692	32	3	4		calm Karstens		11	197	3002	46	
23:15:00	36 25,87	25 21,93	162	161	3.9	4.2	372	35925	32	3	4		calm Karstens		11	200	3002	46	EOL P3002
23:30:00	36 25,49	25 21,49	335	344	4.1	4.7	354	36136	32	3	4		CALM		10	201		46	
23:39:00	36 25,90	25 21,81	52	44	3.5	3.9	371	36266	32	3	4		very calm		10	202	3003	46	SOL P3003
23:57:00	36 26,85	25 22,80	37	34	3.9	4	365	36541	32	3	4		very calm		10	197	3003		
00:00:00	36 27,05	25 23,00	50	60	4	4	342	36595	32	Date 3	Tuesday 4	5.10.2019			10	197	3003	46	EOL P3003
00:10:00	36 26,35	25 23,28	207	211	4	4.5	373	36729	32	3	4		very calm		10	193	3004	46	SOL P3004
00:32:00	36 25,47	25 22,33	212	211	3.9	4.1	373	37058	32	3	4		very calm		10	200	3004	46	
00:46:00	36 24,67	25 21,73	210	211	4	4.2	250	37274	32	3	4		very calm		10	200	3004	46	

01:00:00	36 24,08	25 21,01	243	248	3.7	4.3	311	37463	32	3	4		very calm		10	200	3004	46	
01:15:00	36 23,35	25 20,00	225	228	4	4.4	160	37704	32	3	4		calm		10	196	3004	46	
01:30:00	36 22,63	25 19,16	223	219	4	4.7	52	37937	32	3	4		calm		10	197	3004	46	
01:45:00	36 21,89	25 18,39	223	217	4.2	4.8	250	38160	32	3	4		calm		10	195	3004	45	EOL P3004
02:00:26	36 21,07	25 18,75	244	245.8	3.9	4	379	38355	32	3	4		calm		10	197		45	
02:16:10	36 21,54	25 17,55	57	70	3.5	3.9	308	38608	32	3	4		calm		10	199		46	
02:19:00	36 21,73	25 17,79	67	73	4.1	4.3	287	38648	32	3	4		calm		10	201	3005	47	SOLP3005
02:31:40	36 32,03	25 18,67	67	81	3.9	4.3	167	38838	32	3	4		calm		10		3005		error at the compressor
02:42:10								38980											shut down compressor and
02:43:30								38998											shut down aquisition/ disarm
03:32:00	36 23,95	25 21,97	2.5	2	3.6	3.8	270	39000	32	3	4		calm		11	180	3006		continue shooting SOL3006
03:45:00	36 24,50	25 22,42	48	47.1	3.8	3.9	230	39186	32	3	4		calm		11	190	3006		
04:00:00	36 25,16	25 23,39	60	61.2	3.8	3.9	251	39411	32	3	4		calm		11	176	3006		
04:15:00	36 25,87	25 24,06	329	327	3.9	4.2	375	39637	32	3	4		very calm		11	196	3007		EOL3006-SOL3007
04:30:00	36 26,55	25 23,26	314	314.7	4	4.6	373	39856	32	3	4		very calm		11	190	3007		
04:45:00	36 27,21	25 22,36	306	309	4	4.5	336	40083	32	3	4		very calm		11	195	3007		
05:00:00	36 27,91	25 21,55	323	327	3.8	4.5	309	40305	32	3	4		very calm		11	191	3007		
05:15:00	36 28,6	25 20,77	316	315	4.1	4.8	211	40529	32	3	4		calm		11	189	3007		
05:30:00	36 29,35	25 19,80	314	314.5	3.9	4.7	145	40762	32	3	4		calm		11	176	3007		

05:45:00																			Seit 04:03 UTC kein GPS mehr
06:00:00	36 30,43	25 18,47	318	313	1.8	2	170	41116	32	3	4		calm		11		3007		GPS is online again
06:15:00	36 30,72	25 18,13	310	313.4	0.9	1.2	170	41439	32	3	4		calm		11	184	3007		
06:18:14	36 30,75	25 18,08	307	312.4	0.9	1.2	170	41480											stop of survey

6.3.2. 3D seismic survey

Title: 3D Seismic Survey POS538 **GEOMAR** **PROTOCOL 02** **Cruise no.: POS538**

Seismic watchkeeping 2D [ ] 3D [x] **log** **:** Date 15.10.2019

Time	Latitude	Longitude	Course	Heading	Speed O.G.	Speed T.W. DoLog	Depth	Geometrics FFN	Number of channels	Rec Len	shot rate	Delay (T/B)1)Delay (T/B)1)	Weather	Station No	Leakage	GPS status	time client	Gun-Pressure G.I. 1 bar [ ]	Inline-No	Waypoint	oil level [l]	Remarks
UTC	xx° xx.x'	xx° xx.x'	[°]	[°]	[kn]	[kn]	[m]			[s]	[s]	[ms]										
Date: Tuesday 15.10.2019																						
Survey: 3D seismic cube, P4000																						
13:53:00	36 27,0	25 33,58	312	313	3.00	3.40	377	50150	128	3	4		calm sea		61	4	green	196			43	Start of recording, streamer 7 all channels down, streamer 13, last four channels down
14:00:00	36 27,23	25 33,28	313	314	2.9	3.1	370	50251	128	3	4		calm sea		63	4						
14:15:11	36 27,81	25 32,50	311	311	3.6	3.6	335	50477	128	3	4		calm sea		65	4	green					
14:29:19	36 28,36	25 31,7	311	312	3.5	3.8	336	50691	128	3	4		calm sea		66	4	green	194				
14:45:11	36 28,98	25 30,83	321	322	3.5	3.7	332	50910	128	3	4		calm sea		68	4	green			0		SOL C01

14:59:41	36 29,85	25 30,08	312	314	3.4	3.5	305	51136	128	3	4		calm sea		68	4	green	199				
15:15:00	36 30,17	25 29,32	314	315.6	3.4	3.8	249	51369	128	3	4		calm sea		68	4	green					
15:30:00	36 30.76	25 28,57	313	315	3.5	4	116	51592	128	3	4		calm sea		69	4	green	197				
15.45:00	36 31,36	25 27,80	313	315	3.5	3.9	218	51817	128	3	4		calm sea		69	4	green					
16:02:31	36 32,10	25 26,85	313	315	3.6	4	330	52088	128	3	4		relatively calm		68	4	green	194				
16:15:00	36 32,60	25 26,21	314	317	3.6	3.8	378	52268	128	3	4		relatively calm		68	4	green					
16:30:00	36 33,21	25 25,42	313	319	3.5	4.1	388	52490	128	3	4		relatively calm		65	4	green	198				
16:40:00	36 33,68	25 24,81	314	323	3.7	3.9	391	52650	128	3	4		relatively calm		63	4	green			1		EOL C01
17:00:00	36 43,43	25 24,19	94	96.7	3.5	4.3	397	52947	128	3	4		calm sea		63	4	green	197				some noisy traces
17:06:00	36 34,26	25 25,59	128	127	3.4	4.2	402	53035	128	3	4		calm sea		62	4	green			2		SOL C02
17:15:00	36 33,93	25 26,01	131	123	3.4	3.9	400	53168	128	3	4		calm sea		62	4	green					
17:30:00	36 33,30	25 26,82	137	135	3.6	3.4	379	53394	128	3	4		calm sea		59	4	green	197				traces are less noisy
17:45:00	36 32,70	25 27,59	134	134	3.5	3.5	313	53620	128	3	4		calm sea		59	4	green					Traces 97 – 98 are very noisy
18:00:00	36 32,08	25 28,38	133	128	3.5	3.6	245	53851	128	3	4		calm sea		60	4	green	196			44	
18:16:00	36 31,38	25 29,29	134	130	3.6	3.4	488	54105	128	3	4		calm sea		59	4	green	194			44	
18:32:00	36 30,70	25 30,16	133	131	3.6	3.4	272	54345	128	3	4		calm sea		58	4	green	197				
18:45:00	36 30,20	25 30,80	133	134	3.6	3.3	317	54525	128	3	4		calm sea		59	4	green	187			44	
19:00:00	36 29,57	25 31,60	131	133	3.6	3.3	332	54755	128	3	4		calm sea		58	4	green	197		3	44	EOL C02

19:16:00	36 28,85	25 31,36	263	269	3.4	4	333	55000	128	3	4		calm sea		58	4	green	187				
19:25:00	236 28,99	25 30,89	311	314	3.5	4	322	55107	128	3	4		calm sea		57	4	green	197		4	44	SOL C03
19:30:00	36 29,27	25 30,52	314	317	3.4	4	314	55215	128	3	4		calm sea		56	4	green	197				
19:45:00	36 29,77	25 29,88	314	321	2.7	3.5	297	55421	128	3	4		calm sea		55	4	green	197			44	
20:00:00	36 30,26	25 29,27	314	318	2.8	3.4	235	55644	128	3	4		calm sea		55	4	green	197			44	
20:15:00	36 30,80	25 25,57	313	317	3.1	3.3	99	55882	128	3	4		calm sea		57	4	green	196			44	
20:30:00	36 31,32	25 27,9	314	319	3.1	3.4	193	56096	128	3	4		calm sea		56	4	green	194			44	
20:45:00	36 31,89	25 27,17	313	318	3.2	3.5	282	56323	128	3	4		calm sea		56	4	green	198			44	
21:00:00	36 32,43	25 26,48	313	316	3.2	3.5	366	56543	128	3	4		calm sea		55	4	green	194			44	
21:15:00	36 33,00	25 25,76	312	315	3.2	3.6	388	56772	128	3	4		calm sea		70	4	green	194			44	
21:30:00	36 33,58	25 25,00	315	325	3.5	3.6	390	56992	128	3	4		calm sea		55	4	green	194			44	
21:32:00	36 33,68	25 24,87	315	327	3.5	3.5	391	57032	128	3	4		calm sea		59	4	green			5		EOL C03
21:45:00	36 34,30	25 24,82	40	50	2.8	3.9	395	57227	128	3	4		calm sea		54	4	green	198			44	
22:00:00	36 34,25	25 25,64	141	130	2.9	3.4	404	57475	128	3	4		calm sea		54	4	green	193		6	44	SOL C04
22:15:00	36 33,81	25 26,22	133	124	2.9	3.5	398	57683	128	3	4		calm sea		54	4	green	197			44	
22:30:00	36 33,31	25 26,87	133	125	3	3.5	377	57906	128	3	4		calm sea		54	4	green	197			44	
22:45:00	36 32,82	25 27,47	134	125	2.9	3.4	330	58121	128	3	4		calm sea		54	4	green	189			44	
23:00:00	36 32,27	25 28,21	133	126	3	3.5	262	58336	128	3	4		calm sea		53	4	green	198			44	

23:15:00	36 31,70	25 28,93	134	126	3.2	3.6	467	58605	128	3	4		calm sea		54	4	green	197			44	
23:30:00	36 31,17	25 29,62	134	133	3.4	3.2	250	58800	128	3	4		calm sea		51	4	green	193			43	
23:45:00	36 30,65	25 30,30	134	131	3.5	3.3	290	59005	128	3	4		calm sea		51	4	green	195			43	
00:00:00	36 29,89	25 31,24	133	130	3.5	3.3	332	59278	128	3	4		calm sea		51	4	green	192			43	
00:10:00	36 29,53	25 31,71	142	145	3.5	3.3	336	59413	128	**Date:** 3	**Wednes** 4	**day 16.1**	**0.2019** calm sea		51	4	green	196		7	44	EOL C04
00:33:00	36 29,01	25 30,92	310	313	3.1	3.5	323	59752	128	3	4		calm sea		51	4	green	198		8	43	SOLC05
00:49:00	36 29,59	25 30,17	313	317	3.1	3.5	307	59993	128	3	4		calm sea		51	4	green	197			43	
01:00:00	36 29,97	25 29,67	315	317	3.1	3.5	277	60156	128	3	4		calm sea		51	4	green	195			43	

01:16:00	36 30,56	25 28,91	314	317	3	3.3	161	60408	128	3	4		calm sea		50	4	green	195			43	
01:31:00	36 31,11	25 28,22	314	320	3.4	3.5	91	60625	128	3	4		calm sea		51	4	green	198			43	
01:45:00	36 31,71	25 27,46	314	319	3.6	3.2	286	60849	128	3	4		calm sea		51	4	green	200			43	
02:00:00	36 32,25	25 26,77	313	319	3.4	3.2	343	61042	128	3	4		calm sea		51	4	green	196			43	
02:15:00	36 32,86	25 25,98	314	317	3.5	3	386	61268	128	3	4		calm sea		51	4	green	193			43	
02:30:00	36 33,46	25 25,23	313	317	3.5	3	393	61588	128	3	4		calm sea		51	4	green	197			43	
02:35:20	36 33,71	25 24,90	313	318	3.5	3.3	391	61570	128	3	4		calm sea		51	4	green			9		EOL C05
02:45:00	36 34,18	25 24,66	17	28	3.2	3.4	393	61721	128	3	4		calm sea		52	4	green	196			43	

03:00:00	36 34,45	25 25,36	116	120	3	3.9	400	61932	128	3	4		calm sea		52	4	green	196			43	
03:04:00	36 34,32	25 25,61	124	125	2.7	3.3	405	62000	128	3	4		calm sea		54	4	green			10		SOL C06
03:15:00	36 33,98	25 26,05	133	130	2.8	3.4	401	62169	128	3	4		calm sea		53	4	green	196			43	
03:30:00	36 33,45	25 26,73	133	128	3	3.7	385	62400	128	3	4		calm sea		53	4	green	196			43	
03:45:00	36 32,97	25 27,36	134	128	3.3	3.5	359	62610	128	3	4		calm sea		64	4	green	194			43	
04:00:00	36 32,44	25 28,03	134	128	3	3.2	278	62834	128	3	4		calm sea		55	4	green	194			43	
04:15:00	36 31,91	25 28,71	134	126	3	3.5	192	63057	128	3	4		calm sea		48	4	green	197			43	
04:30:00	36 31,38	25 29,40	134	129	2.9	3.6	468	63293	128	3	4		calm sea		60	4	green	197			43	
04:45:00	36 30,86	25 30,06	134	131	3.1	3.5	246	63512	128	3	4		calm sea		75	4	green	196			43	
05:00:00	36 30,29	25 30,78	133	129	3.3	3.5	316	63738	128	3	4		calm sea		67	4	green	198			43	
05:15:00	36 29,68	25 31,56	134	131	3.4	3.4	333	63968	128	3	4		calm sea		67	4	green	198			43	
05:17:10	36 29,57	25 31,71	134	131	3.5	3.4	335	64000	128	3	4		calm sea		65	4	green			11		EOL C06
05:30:00	36 28,99	25 31,83	224	233	3.1	3.6	332	64191	128	3	4		calm sea		70	4	green	195			43	
05:45:28	36 20,02	25 30,95	310	314	2.9	3.5	326	64422	128	3	4		calm sea		58	4	green	195		12	43	SOL C07
06:00:00	36 29,52	25 30,31	313	317	2.9	3.5	310	64655	128	3	4		slightly rougher		65	4	green	198			43	
06:15:00	36 29,99	25 29,70	316	322	3	3.6	280	64868	128	3	4		Maybe 0,5 m		59	4	green	195			43	

06:30:00	36 30,54	25 29,01	314	318	3	3.6	170	65103	128	3	4		Maybe 0,5 m		62	4	green	192				
06:48:00	36 31,21	25 28,13	305	321	3.3	3.1	124	65381	128	3	4		Maybe 0,5 m		60	4	green	193				
07:00:00	36 31,64	25 27,58	315	329	3.3	3.5	275	65544	128	3	4		Maybe 0,5 m		60	4	green	193			43	
07:15:00	36 32,25	25 26,82	314	326	3.4	3.5	343	65769	128	3	4		Maybe 0,5 m		60	4	green	197			43	
07:30:00	36 32,85	25 26,06	314	321	3.4	3.4	387	65992	128	3	4		ditto		59	4	green	193			42	
07:45:00	36 33,47	25 25,27	313	318	3.6	3.4	394	66221	128	3	4		ditto		59	4	green	194			43	
07:50:00	36 33,74	25 24,92	314	319	3.5	3.5	392	66316	128	3	4		ditto		59	4	green			13		EOL C07
08:00:00	36 34,18	25 24,71	8.1	19.2	3.2	3.6	393	66427	128	3	4		ditto		60	4	green	189			43	
08:15:00	36 34,44	25 25,48	109	115	2.7	3.4	402	66679	128	3	4		Maybe 0,5 m		58	4	green					
08:19:00	36 34,30	25 25,69	134	129	2.8	3.6	406	66742	128	3	4		Maybe 0,5 m		56	4	green	193		14	43	SOL C08
08:30:00	36 33,94	25 26,16	134	127	2.8	3.4	400	66917	128	3	4		Maybe 0,5 m		57	4	green	194			43	
08:45:00	36 33,49	25 26,73	133	124	2.9	3.6	387	67121	128	3	4		maybe 0,5 m		56	4	green	192			42	
09:00:00	36 32,97	25 27,40	133	123	2.9	3.4	362	67355	128	3	4		maybe 0,5 m		54	4	green	196			42	
09:15:00	36 32,47	25 28,04	134	122	3	3.8	279	67571	128	3	4		maybe 0,5 m		56	4	green	190			42	
09:30:00	36 31,96	25 28,70	133	123	3.1	3.4	191	67790	128	3	4		maybe 0,5 m		58	4	green	195			42	
09:44:00	36 31,38	25 29,45	134	127	3.4	3.5	346	68020	128	3	44		maybe 0,5 m		56	4	green	195			42	

10:00:00	36 30,77	25 30,23	133	127	3.4	3.4	271	68252	128	3	4		ditto		58	4	green	197			42	
10:15:00	36 30,16	25 31,01	135	131	3.5	3.3	323	68473	128	3	4		ditto		58	4	green	192			42	
10:30:00	36 29,56	25 31,78	158	162	3.5	3.6	336	68702	128	3	4		ditto		56	4	green	192		15	42	EOL C08
10:45:00	36 28,93	25 31,38	275	270	3	3.5	330	68928	128	3	4		ditto		53	4	green	193			42	
10:52:00	36 29,04	25 31,98	310	312	2.9	3.4	326	69036	128	3	4		calm seas		53	4	green	196		16	42	SOL C09
11:07:00	36 29,57	25 30,28	313	320	3.2	3.5	313	69258	128	3	4		calm sea		54	4	green	195			42	
11:30:00	36 30,46	25 29,16	313	322	3.1	3.5	196	69619	128	3	4		calm sea		55	4	green	195			42	
11:45:00	36 30,99	25 29,46	313	323	3.2	3.5	21	69842	128	3	4		calm sea		54	4	green	196			42	
12:00:00	36 31,66	25 27,62	313	330	3.3	3.5	257	70095	128	3	4		calm seas		55	4	green	197			42	
12:15:00	36 23,16	25 26,98	315	330	3.4	3.5	324	70277	128	3	4		calm sea		52	4	green	189			42	
12:30:00	36 32,82	25 26,14	314	330	3.5	3.5	384	70512	128	3	4		calm seas		52	4	green	197			42	
12:45:00	36 33,41	25 25,40	314	326	3.6	3.2	391	70718	128	3	4		calm seas		54	4	green	196			42	
12:53:00	36 33,80	25 24,89	323	342	3.2	3.1	392	70860	128	3	4		very calm seas		53	4	green	194			42	
13:00:00	36 34,13	25 24,82	316	336	2.9	3.4	393	70951	128	3	4		calm seas		53	4	green	194		17	42	EOL C09
13:15:00	36 34,44	25 25,49	107	109	2.6	3.7	402	71185	128	3	4		calm sea		52	4	green	195			42	
13:19:00	36 34,37	25 25,70	139	132	2.7	3.7	405	71258	128	3	4		calm sea		52	4	green	197		18	42	SOL C10

13:30:00	36 34,02	25 26,13	133	124	2.8	3.7	401	71399	128	3	4		Very calm seas		54	4	Green	193			42	
13:45:00	36 33,47	25 26,81	134	121	2.6	3.4	385	71647	128	3	4		very calm seas		53	4	green	200			42	
14:00:00	36 33,08	25 27,33	134	120	2.6	3.3	358	71834	128	3	4		very calm seas		52	4	green	192			42	
14:15:00	36 32,59	25 27,94	134	120	2.7	3.3	308	72061	128	3	4		very calm seas		52	4	green	197			42	
14:30:00	36 32,11	25 28,55	133	120	2.6	3.4	234	72287	128	3	4		very calm seas		51	4	green	194			42	
14:45:00	36 31,63	25 29,18	135	123	2.8	3.4	489	72515	128	3	4		very calm seas		50	4	green	193			42	
15:00:00	36 31,08	25 29,88	133	123	3.2	3.5	195	72746	128	3	4		very calm seas		50	4	green	192			42	
15:16:00	36 30,43	25 30,71	133	124	3.3	3.4	379	72995	128	3	4		very calm seas		50	4	green	196			42	

15:27:00	36 39,88	25 31,42	132	126	3.4	3.4	333	73153	128	3	4		very calm seas		52	4	green	195			42	Missing Shots / direct wave occurs at different times / unstable / compressor seems ok / leakage seems ok /
15:33:00	36 29,69	25 31,66	134	130	3.4	3.3	333	73200	128	3	4		very calm seas		51	4	green	195			42	Stable again
15:37:55	36 29,59	25 31,78	134	134	3.5	3.4	338	73311	128	3	4		very calm seas		50	4	green			19		EOL C10
15:45:00	36 29,22	25 31,90	190	198	3.3	3.2	339	73423	128	3	4		very calm seas		52	4	green	193			42	
16:00:00	36 28,97	25 31,11	311	319	3	3.4	327	73641	128	3	4		very calm seas		50	4	green	195			42	
16:02:00	36 29,11	25 30,94	314	322	3.1	3.4	326	73687	128	3	4		very calm seas		49	4	green	195		20	42	SOL C11
16:15:00	36 29,55	25 30,39	313	322	3.1	3.5	314	73877	128	3	4		very calm seas		48	4	green	195			42	
16:30:00	36 30 08	25 29,70	314	325	3.2	3.5	374	74092	128	3	4		very calm seas		48	4	green	186			42	

16:45:00	36 30,67	25 28,96	313	326	3.3	3.4	137	74318	128	3	4		very calm seas		48	4	green	176			41	
17:00:00	36 31,28	25 28,16	313	326	3.6	3.5	132	74553	128	3	4		very calm seas		49	4	green	193			41	
17:15:00	36 31,97	25 27,28	314	328	3.5	3.5	290	74790	128	3	4		calm sea		48	4	green	197			41	
17:30:00	36 32,58	25 26,51	315	328	3.5	3.5	372	75006	128	3	4		calm sea		49	4	green	197			41	
17:45:00	36 33,19	25 25,73	314	328	3.4	3.5	389	75230	128	3	4		calm sea		49	4	green	198			41	
17:59:00	36 33,83	25 24,94	317	328	3.5	3.4	392	75439	128	3	4		sea calm		48	4	green	198		21		EOL C11
18:15:00	36 34.46	25 25.10	65	70	2.7	3.2	394	75684	128	3	4		sea calm		49	4	green	198			41	
18:27:00	36 34.32	25 25.76	138	129	3.1	3.3	406	75851	128	3	4		sea calm		48	4	green			22		SOL C12
18:45:00	36 33.69	25 26.58	133	124	3.1	3.6	393	76121	128	3	4		sea calm		53	4	green	195			41	
19:00:00	36 33.12	25 27.31	133	123	3.1	3.4	357	76359	128	3	4		dark		49	4	green	196			41	
19:15:00	36 32.59	25 27.98	133	122	3.2	3.5	307	76569	128	3	4		calm sea		49	4	green	200			41	
19:30:00	36 32.02	25 28.72	133	122	3.2	3.5	205	76796	128	3	4		dark sea		49	4	green	195			41	
19:45:00	36 31.45	25 29.46	133	126	3.3	3.4	367	77021	128	3	4		calm dark		49	4	green	196			41	
20:00:00	36 30.85	25 30.22	135	128	3.5	3.4	263	77246	128	3	4		hello		50	4	green	195			41	
20:15:00	36 30.23	25 31.03	133	133	3.7	3.5	323	77471	128	3	4		darkness		49	4	green	198			41	
20:29:00	36 29.65	25 31.76	134	138	3.5	3.1	337	77681	128	3	4		my		48	4	green	198		23	41	EOL C12
20:45:00	36 28.98	25 31.67	239	240	2.8	3.5	330	77922	128	3	4		old		50	4	green	189			41	

20:57:00	36 29.09	25 31.02	319	314	3	3.6	329	78108	128	3	4		friend		49	4	green	189		24	41	SOL C13
21:15:00	36 29.67	25 30.27	313	315	2.8	3.6	315	78370	128	3	4		calm dark sea		49	4	green	198			41	
21:30:00	36 30.17	25 29.62	313	317	3	3.4	261	78596	128	3	4		dark calm sea		48	4	green	195			40	
21:45:00	36 30,70	25 28,94	313	320	3	3.5	120	78821	128	3	4		calm duck		48	4	green	200			41	
22:00:00	36 31,21	25 28,38	313	326	3.1	3.4	71	79044	128	3	4		sooooo calm		47	4	green	200			41	
22:15:00	36 31,81	25 27,54	314	326	3.1	3.4	284	79285	128	3	4		calm dark		48	4	green	196			40	
22:30:00	36 32,36	25 26,85	314	325	3.2	3.5	349	79501	128	3	4		calm		48	4	green	195			41	
22:45:00	36 32,95	25 26,08	314	325	3.2	3.5	387	79739	128	3	4		very calm		50	4	green	196			40	
23:00:00	36 33,60	25 25,37	313	323	3.3	3.5	393	79955	128	3	4		very calm seas		49	4	green	193			40	
23:08:00	36 33,85	25 24,94	314	327	3.3	3.4	393	80082	128	3	4	^	very calm		48	4	green	193		25	40	EOL C13
23:35:00	36 34,39	25 25,75	146	137	2.9	3.6	406	80490	128	3	4		very calm		47	4	green	194		26	40	SOL C14
23:45:00	36 34,07	25 26,16	132	123	3.1	3.5	403	80628	128	3	4		very calm		47	4	green	198			40	
Date: Thursday 17.10.2019																						
00:00:00	36 33,50	25 26,90	134	126	3	3.3	384	80873	128	3	4		Waves 0,4 m		48	4	green	195			40	
00:15:00	36 32,94	25 27,61	132	124	3.1	3.3	350	81102	128	3	4		Waves 0,4 m		47	4	green	197			40	
00:30:00	36 32,40	25 28,29	134	125	3.1	3.3	276	81320	128	3	4		very calm		56	4	green	194			40	
00:45:00	36 31,84	25 29,01	135	124	3	3.4	370	81561	128	3	4		very calm seas		54	4	green	190			40	
01:00:00	36 31,32	25 29,68	134	125	3.2	3.5	287	81774	128	3	4		very calm seas		51	4	green	196			40	

01:15:00	36 20,02	25 30,63	133	124	3.3	3.5	304	82065	128	3	4		very calm seas		51	4	green	192			40	
01:30:00	36 20,20	25 31,12	134	125	3.3	3.5	325	82213	128	3	4		very calm seas		50	4	green	197			40	
01:45:00	36 29,61	25 31,86	140	136	3.2	3.6	340	82440	128	3	4		calm		56	4	green	200		27	40	EOL C14
02:00:00	25 29,00	25 31,66	244	254	3.2	3.4	331	82634	128	3	4		calm sea		66	4	green	198			40	
02:12:10	36 29,20	25 30,91	310	321	3.2	3.7	324	82830	128	3	4		calm sea		77	4	green	196		28	40	SOL C15
02:30:00	36 29,83	25 30,12	315	322	3.3	3.5	306	83093	128	3	4		calm sea		62	4	green	195			40	
02:45:00	36 30,43	25 29,35	313	323	3.3	3.8	208	83323	128	3	4		calm sea		60	4	green	194			40	
03:00:00	36 31,01	25 28,62	314	324	3.3	3.5	87	83547	128	3	4		calm sea		57	4	green	195			40	
03:15:00	36 31,58	25 27,89	314	324	3.3	3.3	225	83766	128	3	4		calm sea		55	4	green	197			40	
03:30:00	36 32,18	25 27,13	314	322	3.4	3.3	303	83990	128	3	4		calm sea		53	4	green	195			39	
03:45:10	36 32,81	25 26,32	313	320	3.4	3.3	382	84235	128	3	4		calm		50	4	green	194			40	
04:00:00	36 33,41	25 25,55	313	321	3.4	3.6	391	84457	128	3	4		calm		49	4	green	199			39	
04:10:00	36 33,82	25 25,01	313	324	3.4	3.8	392	84603	128	3	4		calm		49	4	green			29		EOL C15
04:30:00	36 34.54	25 25.25	77	79	2.9	3.8	396	84887	128	3	4		extremly calm		49	4	green	180			39	
04:38:00	36 34,40	25 25,78	130	124	3.2	3.5	407	85018	128	3	4		extremly calm		50	4	green	195		30	40	SOL C16
04:45:00	36 34,18	25 26,07	133	125	3	3.4	402	85119	128	3	4		extremly calm		49	4	green	199			39	
05:00:00	36 33,362	25 26,79	134	128	3.2	3.6	390	85346	128	3	4		extremly calm		48	4	green	194			39	

05:15:00	36 33,05	25 27,52	133	128	3.3	3.5	361	85574	128	3	4		extremly calm		48	4	green	195			39	
05:31:00	36 32,43	25 28,31	133	128	3.2	3.4	277	85819	128	3	4		extremly calm		47	4	green	199			39	
05:45:00	36 31,91	25 28,97	134	124	3.1	3.5	285	86029	128	3	4		extremly calm		46	4	green	195			39	
06:00:00	36 31,36	25 29,67	134	126	3	3.4	265	86258	128	3	4		extremly calm		46	4	green	200			39	
06:15:00	36 30,84	25 30,33	133	124	3.1	3.5	273	86474	128	3	4		extremly calm		46	4	green	195			39	
06:30:00	36 30,31	25 232,02	133	127	3.1	3.4	323	86694	128	3	4		extremly calm		46	4	green	195			39	
06:45:00	36 29,71	25 31,80	134	129	3.3	3.6	338	86934	128	3	4		extremly calm		46	4	green	197		31	39	EOL C16
07:00:00	36 29,02	25 31,68	245	250	3.5	3.4	331	87153	128	3	4		extremly calm		46	4	green	197			39	
07:10:00	36 29,13	25 31,06	312	317	3.2	3.6	329	87299	128	3	4		extremly calm		46	4	green	199		32	39	SOL C17
07:15:00	36 29,34	25 30,79	314	318	3.2	3.5	319	87384	128	3	4		extremly calm		45	4	green					
07:30:00	36 29,88	25 30,12	314	319	3.4	3.4	306	87594	128	3	4		extremly calm		46	4	green	198			39	
07:45:00	36 30,47	25 29,35	314	324	3.3	3.4	204	87822	128	3	4		extremly calm		46	4	green	196			39	
08:00:00	36 31,07	25 28,59	313	326	3.1	3.5	102	88052	128	3	4		extremly calm		50	4	green	198			39	
08:15:00	36 31,61	25 27,90	314	325	3.3	3.6	226	88272	128	3	4		extremly calm		52	4	green	198			39	
08:30:00	36 32,19	25 27,16	313	322	3.2	3.3	308	88504	128	3	4		extremly calm		50	4	green	188			38	
08:45:00	36 32,79	25 26,40	314	324	3.5	3.5	380	88726	128	3	4		extremly calm		47	4	green	185			39	

09:00:00	36 33,41	25 25,60	314	323	3.6	3.4	391	88953	128	3	4		extremly calm		46	4	green	185			38	
09:10:00	36 33,85	25 25,05	313	326	3.6	3.2	394	89110	128	3	4		extremly calm		45	4	green	186		33	39	EOL C17
09:15:00	36 34,09	25 24,89	348	5	3.2	3.5	394	89183	128	3	4		extremly calm		45	4	green	199			39	
09:30:00	36 34,57	25 25,38	93	97	2.7	3.6	399	89402	128	3	4		extremly calm		45	4	green	198			39	
09:38:00	36 34,42	25 25,8	139	131	2.9	3.3	407	89528	128	3	4		extremly calm		45	4	green	197		34	39	SOL C18
09:45:00	36 34,17	25 26,11	133	126	2.9	3.7	402	89636	128	3	4		extremly calm		45	4	green	196			38	
10:00:00	36 33,69	25 26,74	134	124	3	3.5	392	89845	128	3	4		incredibly calm		45	4	green	200			38	
10:15:00	36 33,15	25 27,43	134	123	3.1	3.4	354	90076	128	3	4		incredibly calm		45	4	green	192			38	
10:30:00	36 32,55	25 28,21	133	122	3.2	3.5	269	90317	128	3	4		calm		45	4	green	195			38	
10:45:00	36 31,99	25 28,93	134	121	3	3.2	194	90543	128	3	4		calm		45	4	green	198			38	
11:00:00	36 31,37	25 29,71	134	118	3.1	3.3	212	90790	128	3	4		calm		45	4	green	197			38	
11:15:00	36 30,90	25 30,31	131	116	3.2	3.3	261	90982	128	3	4		calm		46	4	green	195			38	
11:30:00	36 30,28	25 31,12	134	131	3.4	3.2	327	91205	128	3	4		calm		45	4	green	194			38	
11:45:00	36 29,67	25 31,89	136	136	3.4	3.2	340	91434	128	3	4		Calm		46	4	green	196		35	38	EOL C018
12:00:00	36 29,00	25 31,50	270	283	3	3	330	91667	128	3	4		Calm		47	4	green	195			38	
12:08:00	36 29,16	25 31,08	304	313	3	3.7	328	91794	128	3	4		Calm		49	4	green	196		36	38	SOL C019

12:30:00	36 29,90	25 30,14	313	322	3	3.5	308	92115	128	3	4		calm		49	4	green	195			38	
12:45:00	36 30 ,47	25 29,38	314	332	3	3.4	203	92362	128	3	4		calm		49	4	green	194			38	
13:00:00	36 30,99	25 28,74	314	331	3.2	3.5	165	92567	128	3	4		calm		49	4	green	198			38	
13:15:00	36 31,56	25 28,02	314	327	3.5	3.4	220	92780	128	3	4		calm		47	4	green	200			38	
13:30:00	36 32,20	25 27,21	313	326	3.5	3.3	297	93007	128	3	4		calm		47	4	green	196			38	
13:45:00	36 32,88	25 26,33	314	325	3.5	3.4	383	93254	128	3	4		calm		47	4	green	196			37	
14:00:00	36 33, 43	25 25,64	314	325	3.3	3.1	391	93457	128	3	4		calm		47	4	green	199			38	
14:10:52	36 33,86	25 25,08	314	323	3.4	3.4	393	93608	128	3	4		calm		47	4	green	199		37	38	EOL C019
14:30:00	36 34,56	25 25,40	89	89	2.9	3.5	398	93909	128	3	4		calm		47	4	green	188			38	
14:38:00	36 34,44	25 25,84	128	122	3	3.4	407	94027	128	3	4		calm		47	4	green	197		38	38	SOL C020
14:45:00	36 34,17	25 26,16	132	124	3	3.3	403	94137	128	3	4		calm		46	4	green	189			38	
15:00:00	36 33,64	25 26,85	133	123	3	3.4	390	94362	128	3	4		calm		46	4	green	199			38	
15:15:00	36 33,16	25 27,49	134	122	2.9	3.4	353	94576	128	3	4		calm		46	4	green	195			38	
15:30:00	36 32,63	25 28,17	133	121	3	3.5	282	94795	128	3	4		calm		45	4	green	196			37	
15:45:00	36 32,08	25 28,87	135	121	3	3.3	190	95023	128	3	4		calm		45	4	green	197			37	
16:00:00	36 31.,55	25 29,54	133	119	3	3.5	376	95240	128	3	4		calm		46	4	green	197			37	

16:15:00	36 31,00	25 30,24	133	119	3	3.4	247	95469	128	3	4		calm		45	4	green	199			37	
16:30:00	36 30,42	25 30,99	133	120	3.1	3.5	321	95708	128	3	4		calm		45	4	green	197			37	
16:45:00	36 29,94	25 31,60	133	121	3.1	3.5	336	95910	128	3	4		calm		46	4	green	197			37	
16:49:00	36 29,74	25 31,86	136	127	3.1	3.6	340	95980	128	3	4		calm		46	4	green	197		39		EOL C020
16:59:00	36 29,29	25 31.92	219	208	3.7	3.5	340	96137	128	3	4		calm		46	4	green	194			34	
17:11:40	36 29,18	25 31,13	299	310	3.5	3.1	329	96318	128	3	4		calm		46	4	green	196		40	37	SOL C021
17:30:00	36 29.,88	25 30,23	314	329	3.4	3.5	313	96588	128	3	4		calm		46	4	green	193			37	
17:45:00	36 30,50	25 29.44	315	331	3.3	3.5	205	96817	128	3	4		calm		45	4	green	197			37	
18:00:00	36 31,10	25 28,66	314	329	3.3	3.6	158	97051	128	3	4		calm		45	4	green	198			37	
18:15:00	36 31,73	25 27,87	313	326	3.4	3.6	234	97278	128	3	4		calm		45	4	green	197			37	
18:33:00	36 32,45	25 26,94	313	325	3.3	3.5	348	97553	128	3	4		calm		44	4	green	197			37	
18:46:00	36 32,95	25 26,29	314	326	3.2	3.4	385	97759	128	3	4		calm		45	4	green	195			37	
19:00:00	36 33,44	25 25,67	313	325	3.1	3.4	392	97943	128	3	4		calm		45	4	green	198			37	
19:11:00	36 33,88	25 25,11	315	327	3.2	3.3	394	98119	128	3	4		calm		44	4	green	195		41	37	EOL C021
19:15:00	36 34,10	25 24,95	345	359	2.9	3.4	394	98193	128	3	4		calm		44	4	green					
19:30:00	36 34,60	25 25,35	80	80	2.8	3.4	398	98399	128	3	4		calm		44	4	green	196			37	

19:38:23	36 34,46	25 25,86	138	132	3.3	3.6	407	98530	128	3	4		calm		45	4	green	197		42	37	SOL C022
19:45:00	36 34,21	25 26,16	132	123	3.3	3.5	403	98623	128	3	4		calm		45	4	green	198			37	Streamer 9, channel 1 (channel 65) no signal – not certain since when
20:00:00	36 33,64	25 26,91	133	124	3.3	3.4	392	98848	128	3	4		calm		44	4	green	195			37	
20:15:00	36 33,08	25 27,63	134	124	3.1	3.3	361	99072	128	3	4		calm		44	4	green	197			37	
20:30:00	36 32,52	25 28,36	133	124	3.3	3.5	284	99299	128	3	4		calm		45	4	green	198			36	
20:45:00	36 31,92	25 29,12	134	125	3.2	3.5	284	99534	128	3	4		calm		44	4	green	197			36	
21:00:00	36 31,35	25 29,85	134	123	3.3	3.3	182	99757	128	3	4		calm		45	4	green	194			37	
21:15:00	36 30,75	25 30,61	133	123	3.4	3.3	295	99978	128	3	4		calm		45	4	green	195			36	
21:31:00	36 30,07	25 31,49	134	127	3.5	3.4	333	100227	128	3	4		calm		45	4	green	196			36	
21:39:00	36 29,76	25 31,88	135	129	3.5	3	340	100339	128	3	4		calm		45	4	green	195		43	36	EOL C022
21:45:00	36 29,46	25 32,05	180	182	3.6	3.2	342	100427	128	3	4		calm		45	4	green	197			36	
22:03:00	36 29,14	25 31,24	307	314	3	3.7	330	100692	128	3	4		calm		45	4	green	192		44	36	SOL C023
22:15:00	36 29,71	25 30,50	313	324	2.9	3.5	320	100925	128	3	4		calm		45	4	green	192			36	
22:30:00	36 30,26	25 29,69	314	327	3	3.6	260	101162	128	3	4		calm		45	4	green	193			36	
22:45:00	36 30,68	25 29,25	313	327	3	3.4	150	101346	128	3	4		calm		45	4	green	199			36	
23:00:00	36 31,17	25 28,63	314	325	3	3.4	180	101552	128	3	4		calm		44	4	green	199			36	
23:18:00	36 31,89	25 27,70	314	325	3.2	3.5	262	101839	128	3	4		calm		44	4	green	195			36	

23:30:00	36 32 ,34	25 27,14	315	325	3.3	3.5	330	102014	128	3	4		very calm seas		44	4	green	199			36	
22:45:00	36 32,92	25 26,39	314	322	3.3	3.4	384	102234	128	3	4		very calm seas		44	4	green	197			36	
00:00:00	36 33,50	25 25,65	314	322	3.2	3.3	393	102460	128	**Date: Friday 18.10.2019** 3	4		very calm seas		44	4	green	199			36	
00:11:00	36 33,95	25 25,08	315	326	3.3	3.1	393	102630	128	3	4		very calm seas		44	4	green	197		45	36	EOL C023
00:41:00	36 34,47	25 25,92	134	129	2.9	3.1	407	103078	128	3	4		Very calm seas		44	4	Green	196		46	36	SOL C024
01:00:00	36 33,75	25 26,84	134	128	3.1	3.5	393	103392	128	3	4		Very calm seas		44	4	green	196			36	
01:15:00	36 33,32	25 27,58	134	126	3	3.6	363	103567	128	3	4		awesome calm seas		44	4	greenish	197			36	
01:30:00	36 32,74	25 28,12	134	122	3	3.6	315	103808	128	3	4		awesome calm seas		44	4	green	196			36	
01:45:00	36 32,23	25 28,71	133	117	3	3.5	342	104023	128	3	4		very calm seas		44	4	green	197			36	
02:00:00	36 31,73	25 29,42	134	122	3.2	3.2	380	104227	128	3	4		amazing calm seas		44	4	green	193			36	
02:15:00	36 31,10	25 30.22	134	123	3.4	3.5	232	104464	128	3	4		calm seas		44	4	green	194			36	
02:30:00	36 30,51	25 30,97	134	119	3.2	3.6	318	104688	128	3	4		calm sea		45	4	green	194			36	
02:45:00	36 29,94	25 31,69	135	115	3	3.7	341	104915	128	3	4		calm seas		45	4	green	199			35	
02:48:30	36 29.77	25 31,90	132	117	3	3.5	341	104971	128	3	4		calm		45	4	green			47		EOL C024
03:00:00	36 29,22	25 32,02	211	219	3.3	3.6	343	105143	128	3	4		calm seas		45	4	green	196			35	
03:14:14	36 29,19	25 31,14	300	324	3	3.8	330	105365	128	3	4		calm		45	4	green	195		48	35	SOL C025
03:30:00	36 29,74	25 30,51	315	332	3.2	3.7	322	105585	128	3	4		calm		44	4	green	195			35	

03:45:00	36 30,33	25 29,75	314	329	3	3.6	256	105827	128	3	4		calm		45	4	green	198			35	
04:00:00	36 30,88	25 29,05	313	326	3.1	3.6	255	106049	128	3	4		calm		45	4	green	194			35	
04:15:00	36 31,42	25 28,36	314	326	3.3	3.6	161	106268	128	3	4		calm		45	4	green	198			35	
04:30:00	36 32,01	25 27,60	313	326	3.3	3.7	276	106495	128	3	4		calm		45	4	green	195			35	
04:45:00	36 32,61	25 26,84	314	324	3.2	3.6	362	106727	128	3	4		calm		45	4	green	194			35	
05:00:00	36 33,15	25 26,16	313	321	3.2	3.6	388	106940	128	3	4		calm		45	4	green	194			35	
05:15:00	36 33,71	25 25,43	315	323	3.2	3.5	395	107166	128	3	4		Calm / a little rain		44	4	green	199			35	
05:20:00	36 33,93	25 25,16	314	322	3.2	3.5	394	107251	128	3	4		calm		44	4	green			49		EOL C025
05:30:00	36 34,37	25 25,02	23	30	3	3.5	395	107396	128	3	4		calm		44	4	green	195			35	
05:34:00	36 34,60	25 25,25	53	58	2.9	3.1	396	107457					Calm / a little rain					86!			35	compressor alarm/ pressure decrease
05:45:00	36 34,55	25 25,81	124	120	3.3	3.4	404	107620							44							turned off, oil being refilled.
06:06:00	36 33,73	25 26,91	134	127	3.2	3.5	389	107920	128	3	4		Calm / a little rain		45	4	green	198		50	46	acquisition begins again, SOL C026 missed
06:15:00	36 33,39	25 27,34	133	126	3.1	3.2	370	108083	128	3	4		Calm / a little rain		44	4	green	199			46	
06:30:00	36 32,920	25 27,96	133	126	3.1	3.2	313	108289	128	3	4		Calm / a little rain		44	4	green	200			46	
06:45:00	36 32,34	25 28,68	133	123	3.2	3.4	284	108514	128	3	4		Calm / a little rain		45	4	green	202			46	
07:00:00	36 31,74	25 29,45	133	121	3.1	3.4	398	108756	128	3	4		Calm / a little rain		44	4	green	197			47	
07:10:00	36 31,34	25 29,97	133	122	3.2	3.5	202	108900	128	3	4		Calm / a little rain		44	4	green	low				compressor shut down by itself

07:19:00	36 30,94	25 30,49	134	125	3.1	3.5	279	109037	128	3	4		Calm / a little rain		44	4	green	off				we have stopped triggering
07:53:00	36 29,78	25 31,96	135	125	2.7	3.2	340	109037	128	3	4		Calm / a little rain		45	4	green	off				compressor not yet restarted (still)
07:56:00	36 29,68	25 32,08	133	125	2.3	2.5	342	109100	128	3	4		Calm / a little rain		46	4	green	200		51		compressor restarted, EOL C026 (C026 will have to be re-shot)
08:15:00	36 28,97	25 31,86	251	252	3.5	3.3	332	109378	128	3	4		Calm / a little rain		44	4	green	201			46	
08:25:00	36 29,23	25 31,19	320	328	3.3	3.4	329	109545	128	3	4		calm		44	4	green	200		52		SOL C027
08:30:00	36 29,42	25 30,93	313	326	3.3	3.6	322	109618	128	3	4		calm		45	4	green	196			46	
08:45:00	36 29,96	25 30,26	314	325	3.3	3.6	313	109833	128	3	4		calm		45	4	green	199			46	
09:00:00	36 30,55	25 29,53	311	324	3.2	3.2	206	110052	128	3	4		calm		45	4	green	190			46	
09:15:00	36 31,10	25 28,82	315	327	3.1	3.3	252	110284	128	3	4		calm		44	4	green	195			46	
09:30:00	36 31,67	25 28,10	313	324	3.1	3.3	226	110508	128	3	4		calm		46	4	green	195			46	
09:45:00	36 32,23	25 27,39	313	323	3.2	3.2	299	110736	128	3	4		calm		44	4	green	196			46	
10:00:00	36 32,75	25 26,72	314	321	3.2	3.6	370	110945	128	3	4		calm		44	4	green	199			46	
10:15:00	36 33,35	25 25,95	314	321	3.2	3.6	389	111177	128	3	4		calm		45	4	green	197			46	
10:30:00	36 33,93	25 25,21	313	317	3.3	3.5	395	111406	128	3	4		calm		44	4	green	197		53	46	EOL C027
11:00:00	36 34,49	25 25,99	133	131	3.2	3	407	111856	128	3	4		calm		44	4	green	189		54	46	SOL C028
11:15:00	36 33,92	25 26,72	133	129	3.4	3.3	398	112087	128	3	4		calm		45	4	green	202			46	

11:30:00	36 33,32	25 27,49	135	129	3.5	3.6	355	112314	128	3	4		calm		45	4	green	200			46	

11:45:00	36 32,74	25 28,22	133	126	3.4	3.4	314	112527	128	3	4		calm		45	4	green	197			46	
12:00:00	36 32,05	25 29,10	134	125	3.4	3.5	178	112786	128	3	4		calm		45	4	green	197			46	
12:15:00	36 31,50	25 29,81	133	124	3.4	3.5	166	112992	128	3	4		calm		45	4	green	195			46	
12:30:00	36 30,94	25 30,54	133	125	3.4	3.5	283	113202	128	3	4		calm		46	4	green	199			46	
12:45:00	36 30,28	25 31,38	134	126	3.6	3.5	337	113444	128	3	4		calm		49	4	green	197			46	
12:56:00	36 29,69	25 32,00	138	135	3.7	3.4	339	113615	128	3	4		calm		47	4	green	199		55	46	EOLC028
13:18:00	36 29,25	25 31,23	301	313	2.9	3.5	330	113939	128	3	4		calm		46	4	green	193		56	46	SOLC029
13:30:00	36 29,54	25 30,74	313	322	3	3.5	323	114103	128	3	4		calm		46	4	green	197			46	
13:45:00	36 30,21	25 30,01	314	325	3.1	3.3	288	114341	128	3	4		calm		45	4	green	197			46	
14:00:00	36 30,72	25 29,36	314	328	3	3.6	151	114547	128	3	4		calm		45	4	green	194			46	
14:15:00	36 31,30	25 28,63	313	326	2.9	3.5	287	114792	128	3	4		calm		45	4	green	198			46	
14:30:00	36 31,80	25 27,98	315	325	3.2	3.7	215	115003	128	3	4		extremly calm		45	4	green	195			46	
14:45:30	36 32,39	25 27,22	314	323	3.2	3.5	326	115240	128	3	4		calm		45	4	green	193			45	
15:00:00	36 32,92	25 26,56	313	321	3.2	3.7	380	115450	128	3	4		extremly calm		45	4	green	199			46	
15:15:00	36 33,47	25 25,85	313	320	3.2	3.6	392	115671	128	3	4		extremly calm		44	4	green	199			46	
15:28:10	36 34,00	25 25,17	313	319	3.1	3.5	395	115585	128	3	4		extremly calm		44	4	green	199		57	45	EOL C029
15:45:00	36 34,66	25 25,26	61	60	3.2	3.5	398	116116	128	3	4		extremly calm		44	4	green	197			45	

15:55:00	36 34,59	25 25,92	138	139	3.6	3.5	407	116307	128	3	4		calm		44	4	green	195		58	45	SOL C030
								116518														four shots with wrong delay
16:16:00	36 33,68	25 27,07	133	128	3.6	3.2	390	116590	128	3	4		calm		44	4	green	200			45	
16:30:00	36 33,14	25 27,77	133	127	3.6	3.2	365	116799	128	3	4		calm		44	4	green	200			45	
16:45:00	36 32,51	25 28,58	133	126	3.6	3.6	287	117017	128	3	4		calm		44	4	green	195			45	instable direct wave / trigger instable
17:00:00	36 31,91	25 29,34	133	125	3.5	3.7	174	117236	128	3	4		calm		44	4	green	199			45	
17:15:00	36 31,30	25 30,13	133	125	3.4	3.3	217	117469	128	3	4		calm		44	4	green	199			45	
17:30:00	36 30,70	25 30,89	134	125	3.4	3.2	310	117689	128	3	4		calm		45	4	green	199			45	
17:45:00	36 30,79	25 31,67	133	124	3.5	3.4	336	117924	128	3	4		calm		45	4	green	196			45	
17:50:00	36 29.82	25 32.02	134	127	3.5	3.4	342	118013	128	3	4		calm		45	4	green			59		EOL C030
18:00:00	36 29,31	25 32,13	201	205	3.6	3.2	345	118155	128	3	4		down		45	4	green	200			45	
18:15:00	36 29,26	25 31,28	306	315	2.9	2.9	331	118387	128	3	4		calm		45	4	green	195		60	45	SOL C031
18:30:00	36 29,76	25 30,63	315	324	3	3.3	322	118601	128	3	4		calm		44	4	green	195			45	
18:45:00	36 30,29	25 29,96	314	322	3	3.3	280	118826	128	3	4		clam		44	4	green	194			45	
19:00:00	36 30,82	25 29,28	313	323	3	3.1	185	119051	128	3	4		clam		43	4	green	198			45	
19:17:00	36 31,42	25 28,52	314	323	3.1	3.4	229	119306	128	3	4		calm		43	4	green	193			45	
19:30:00	36 31,89	25 27,92	314	320	3.1	3.4	256	119502	128	3	4		malc		43	4	greenish	198			45	

19:45:00	36 32,44	25 27,21	313	320	3.2	3.3	330	119726	128	3	4		clam		44	4	green	195			45	
20:00:00	36 33,00	25 26,50	314	319	3.2	3.6	382	119951	128	3	4		weathery		43	4	green	196			45	
								120008									red					GPS abgestürzt, wahrscheinlich schon ein paar schüsse davor
								120021									red					running again
								120044									green					geometrics on right time syncronized
20:15:00	36 33.57	25 25.77	313	318	3.2	3.7		120176	128	3	4		calm dark		43	4	green	195			45	
20:26:00	36 33.98	25 25.23	313	317	3.2	3.4	396	120345	128	3	4		cark calm		43	4	green	200		61	45	EOL C31
20:52:00	36 34,57	25 25,99	134	134	3.3	3.4	407	120736	128	3	4		cloudy with a chance of		43	4	green	195		62	45	SOL C32
21:00:00	36 34,28	25 26,36	133	131	3.2	3.1	409	120851	128	3	4		lol		43	4	green	197			45	
21:15:00	36 33,72	25 27,09	133	130	3.3	3	392	121076	128	3	4		i am groot		43	4	green	196			45	
21:30:00	36 33,13	25 27,84	134	128	3.4	3.2	364	121301	128	3	4		calm		43	4	green	195			45	
21:45:00	36 32,53	25 28,61	133	129	3.4	3.4	288	121526	128	3	4		jensig		43	4	green	196			45	
22:00:00	36 31,92	25 29,39	134	129	3.5	3.2	227	121752	128	3	4		calm		42	4	green	196			45	
22:15:00	36 31,31	25 30,17	133	129	3.5	3.4	223	121986	128	3	4		calm		43	4	green	198			45	
22:30:00	36 30,71	25 30,94	134	128	3.4	3.5	315	122211	128	3	4		calm		43	4	green	192			45	
22:51:00	36 29,83	25 32,05	135	131	3.6	3.5	342	122532	128	3	4		calm		45	4	green	197		63	45	EOLC32
23:15:00	36 29,29	25 31,27	312	312	2.9	3.5	332	122892	128	3	4		Calm		44	4	green	199		64	45	SOL C33

23:30:00	36 29,95	25 30,44	314	321	3.2	3.6	318	123161	128	3	4		calm		44	4	green	191			45	
23:45:00	36 30,634	25 29,95	314	321	3	3.5	274	123325	128	3	4		calm		44	4	green	193			45	
00:00:00	36 30,93	25 29,20	313	321	3	3.4	328	123564	128	**Date:** 3	**Saturd** 4	**ay 19.10.**	**2019** calm		43	4	green	200			45	
00:15:00	36 31,43	25 28,56	314	322	3	3.4	244	123775	128	3	4		calm		43	4	green	193			45	
00:30:00	36 22,05	25 27,67	314	322	3	3.4	267	124033	128	3	4		calm		43	4	green	200			44	
00:45:00	36 32,67	25 26,97	314	321	3.2	3.5	358	124294	128	3	4		calm		43	4	green	193			44	
01:00:00	36 33,14	25 26,38	314	319	3.3	3.3	385	124476	128	3	4		calm		43	4	green	196			44	
01:16:00	36 33,73	25 25,62	314	316	3.4	3.4	396	124702	128	3	4		calm		43	4	green	197			44	
01:23:00	36 34,03	25 25,23	314	316	3.5	3.4	397	124817	128	3	4		calm		43	4	green	193		65	44	EOL C33
01:50:00	36 34,57	25 26,05	136	136	3.4	3.6	408	125224	128	3	4		calm		43	4	green	197		66	44	SOL C34
02:00:00	36 34,22	25 26,50	134	133	3.4	3.5	406	125349	128	3	4		calm		43	4	green	194			44	
02:15:00	36 33,63	25 27,25	133	130	3.3	3.5	387	125574	128	3	4		calm		43	4	green	199			44	

02:30:00	36 33,05	25 27,99	133	128	3.3	3.7	332	125797	128	3	4		calm		43	4	green	194			44	
02:45:00	36 32,48	25 28,73	134	130	3.3	3.6	271	126027	128	3	4		calm		43	4	green	198			44	
03:00:00	36 31,92	25 29,45	134	131	3.3	3.5	237	126239	128	3	4		calm		43	4	green	195			44	
03:15:00	36 31,32	25 30,20	135	131	3.4	3.6	230	126465	128	3	4		calm		43	4	green	196			44	

03:30:00	36 30,73	25 30,95	133	28	3.4	4.6	317	126686	128	3	4		calm		43	4	green	195			44	
03:45:00	36 30,11	25 31,76	134	127	3.4	3.6	339	126926	128	3	4		calm		42	4	green	198			44	
03:50:00	36 29,91	25 32,01	135	127	3.4	3.6	343	126992	128	3	4		calm		42	4	green	198		67	44	EOL C34
04:00:00	36 29,30	25 32,12	213	224	3.4	3.6	344	127167	128	3	4		calm		42	4	green	199			44	
04:14:00	36 29,30	25 31,31	310	319	3.1	3.3	332	127364	128	3	4		calm		42	4	green	193		68	44	SOL C35
04:29:00	36 29,85	25 30,63	314	320	3.3	3.3	321	127590	128	3	4		calm		43	4	green	186			44	
04:45:00	36 30,44	25 29,87	313	320	3.3	3.4	257	127825	128	3	4		calm		43	4	green	198			44	
05:00:00	36 30,97	25 29,21	313	319	3.2	3.6	338	128034	128	3	4		calm		43	4	green	194			44	
05:15:00	36 31,58	25 28,41	314	320	3.1	3	129	128288	128	3	4		calm		43	4	green	198			44	
05:30:00	36 32,11	25 27,74	313	321	3	3.5	271	128506	128	3	4		calm		43	4	green	200			44	
05:45:00	36 32,65	25 27,06	314	320	3	3.6	353	126725							44	4	green	194			44	
06:00:00	36 33,18	25 26,38	314	319	2.9	3.5	386	128960	128	3	4		calm		44	4	green	188			44	
06:16:00	36 33,37	25 25,66	314	317	3	3.4	395	129201	128	3	4		calm		46	4	green	194				
06:24:00	36 34,04	25 25,28	314	316	3	3.5	397	129323	128	3	4		calm		45	4	green	194		69	44	EOL C35
06:30:00	36 34,25	25 25,12	351	357	2.9	3.2	400	129402	128	3	4		calm		45	4	green	197			44	
06:45:00	36 34,76	25 25,62	90	89	3.4	3.4	404	129622	128	3	4		calm		44	4	green	198			44	

06:50:00	36 34,61	25 25,06	134	134	3.5	3.5	407	129722	128	3	4		calm		44	4	green	195		70	44	SOL C36
07:00:00	36 34,25	25 26,51	134	134	3.5	3.2	406	129851	128	3	4		calm		44	4	green	195			44	
07:14:00	36 33,63	25 27,29	134	130	3.6	3.2	388	130078	128	3	4		calm		44	4	green	195			44	
07:30:00	36 32,99	25 28,10	134	130	3.5	3.3	320	130311	128	3	4		calm		43	4	green	198			43	
07:45:00	36 32,41	25 28,86	134	128	3.4	3.5	246	130530	128	3	4		calm		43	4	green	195			44	
08:00:00	36 31,79	25 29,65	133	127	3.5	3.3	219	130764	128	3	4		calm		43	4	green	194			44	
08:15:00	36 31,18	25 30,44	134	128	3.5	3.2	255	130897	128	3	4		calm		44	4	green	194			43	
08:30:00	36 30,58	25 31,21	133	129	3.6	3.3	327	131206	128	3	4		calm		43	4	green	196			43	
08:45:50	36 29,89	25 32,07	134	128	3.6	3.2	342	131448	128	3	4		calm		44	4	green	199		71	43	EOL C36
08:57:00								131604					calm			4	green					Compressor beebing, no alarm / Shots look still fine
09:00:00	36 29,23	25 31,98	248	260	3.2	3.5	341	131656	128	3	4		calm		44	4	green	192			43	
09:11:00	36 29,34	25 31,33	304	313	2.9	3.4	332	131824	128	3	4		calm		45	4	green	199		72	44	SOL C37
09:16:00	36 29,51	25 31,10	315	322	2.9	3.4	332	131902	128	3	4		calm		45	4	green					
09:30:00	36 29,96	25 30,54	313	322	2.69	3.4	320	132094	128	3	4		calm		44	4	green	197			43	
09:45:00	36 30,53	25 29,81	313	320	3	3.5	239	132340	128	3	4		calm		44	4	green	200			44	
10:00:00	36 31,02	25 29,18	313	321	3.1	3.5	398	132548	128	3	4		calm		45	4	green	188			43	

10:20:00	36 31,83	25 28,15	314	319	3.2	3.5	237	132875	128	3	4		calm		44	4	green	199			43	
10:30:00	36 32,14	25 27,76	314	319	3.2	3.5	257	132997	128	3	4		calm		44	4	green	200			43	
10:45:00	36 32,69	25 27,06	313	318	3.1	3.5	355	133218	128	3	4		calm		44	4	green	197			43	
11:00:00	36 33,26	25 26,33	314	317	3.2	3.5	388	133452	128	3	4		calm		44	4	green	196			43	
11:15:00	36 33,82	25 25,61	313	314	3.2	3.5	396	133685	128	3	4		calm		45	4	green	199			43	
11:21:00	36 34,07	25 25,30	315	320	3	3.1	397	133787	128	3	4		calm		46	4	green	200		73	43	EOL C037
11:30:00	36 34,66	25 25,25	39	43	3.2	3.2	398	133974	128	3	4		calm		45	4	green	197			43	
11:48:00	36 34,64	25 26,08	136	136	3.3	3.3	407	134181	128	3	4		calm		44	4	green	200		74	43	SOL C038
12:00:00	36 34,20	25 26,63	134	135	3.3	3.3	405	134352	128	3	4		calm		45	4	green	197			43	
12:15:00	36 33,55	25 25,49	134	134	3.4	3.3	380	134596	128	3	4		calm		44	4	green	197			43	
12:30:00	36 32,90	25 28,28	133	132	3.4	3.3	319	134839	128	3	4		calm		50	4	green	196			43	
12:45:00	36 32,39	25 28,94	134	129	3.4	3.2	227	135037	128	3	4		calm		44	4	green	195			43	
13:00:00	36 31,81	25 29,67	134	127	3.5	3.2	207	135250	128	3	4		calm		44	4	green	198			43	
13:15:00	36 31,14	25 30,54	133	126	3.6	3.1	270	135494	128	3	4		calm		44	4	green	197			43	
13:30:00	36 30,54	25 31,31	133	128	3.5	3	336	135708	128	3	4		calm		46	4	green	198			43	
13:45:00	36 29,91	25 32,12	134	132	3.5	3.2	346	135945	128	3	4		calm		45	4	green	195		75	43	EOL C038

14:00:00	36 29,25	25 31,92	254	269	3.1	3.6	341	136155	128	3	4		calm		45	4	green	199			43	
14:09:00	36 29,34	25 31,40	301	311	2.8	3.5	332	136290	128	3	4		calm		45	4	green	203		76	43	SOL C39
14:30:00	36 29,97	25 30,57	314	324	2.7	3.4	320	136598	128	3	4		calm		45	4	green	199			43	
14:45:00	36 30,45	25 29,96	314	326	2.7	3.3	264	136815	128	3	4		calm		46	4	green	193			43	
15:00:00	36 30,96	25 29,32	314	323	3	3.5	307	137044	128	3	4		calm		45	4	green	199			43	
15:15:00	36 31,49	25 28,64	313	321	3.1	3.6	289	137268	128	3	4		calm		46	4	green	199			43	
15:30:00	36 32,05	25 27,94	313	318	3.1	3.5	249	137496	128	3	4		calm		45	4	green	195			43	
15:45:00	36 32,64	25 27,16	313	320	3	3.6	345	137741	128	3	4		calm		45	4	green	202			43	
16:00:00	36 33,13	25 26,55	314	319	3	3.6	383	137950	128	3	4		calm		45	4	green	197			42	
16:15:00	36 33,67	25 25,86	314	317	3	3.5	397	138176	128	3	4		calm		45	4	green	197			43	
16:26:30	36 34,08	25 25,33	314	320	3	3.4	401	138347	128	3	4		calm		45	4	green	197		77	43	EOL C39
16:45:00	36 34,79	25 25,63	91	89	3.5	3.3	403	138614	128	3	4		calm		46	4	green	190			42	
16:50:00	36 34,67	25 26,07	130	132	3.6	3.4	407	138709	128	3	4		calm		45	4	green	193		78	42	SOL C40

17:00:00	36 34,31	25 26,53	134	131	3.6	3.3	413	138847	128	3	4		calm		45	4	green	196			42	
17:15:00	36 33,70	25 27,31	132	128	3.5	3.2	391	139073	128	3	4		calm		46	4	green	196			42	
17:30:00	36 33,13	25 28,05	134	130	3.5	3.2	360	139286	128	3	4		calm		45	4	green	195			42	

17:45:00	36 32,47	25 28,90	134	129	3.6	3.4	259	139520	128	3	4		calm		46	4	green	196			42	
18:00:00	36 31,84	25 29,69	134	128	3.5	3.3	173	139755	128	3	4		calm		47	4	green	196			42	
18:15:00	36 31,21	25 30,49	135	123	3.5	3.4	259	139982	128	3	4		calm		46	4	green	196			42	
18:30:00	36 30,62	25 31,26	133	119	3.2	3.3	334	140208	128	3	4		0,2 m		45	4	green	198			42	
18:45:00	36 30,05	25 32,00	130	119	3.1	3.4	342	140432	128	3	4		0,2 m		45	4	green	198			42	
18:47:00	36 29,95	25 32,14	133	127	3.2	3.2	342	140470	128	3	4		0,2 m		45	4	green			79		EOL C40
19:00:00	36 29,33	25 32,10	232	240	3.4	3.5	343	140654	128	3	4		0,2 m		46	4	green	194			43	
19:11:00																				80		SOL C41, not announced
19:15:00	36 29,24	25 31,25	300	317	2.8	3.6	330	140880	128	3	4		0,2 m		46	4	green	198			43	
19:30:00	36 29,95	25 30,65	315	332	2.7	3.6	319	141102	128	3	4		0,2 m		44	4	green	196			43	
19:45:00	36 30,51	25 29,96	316	327	2.7	3.6	258	141365	128	3	4		0,5 m		43	4	green	196			42	
20:00:00	36 30,92	25 29,43	314	323	2.8	3.5	224	141555	128	3	4		0,5 m		43	4	green	198			42	
20:15:00	36 31,42	25 28,79	312	318	2.9	3.4	383	141783	128	3	4		0,5 m		44	4	green	196			42	
20:30:00	36 31,91	25 28,16	313	319	2.9	3.5	254	142001	128	3	4		0,2 m		43	4	green	200			42	
20:45:00	36 32,44	25 27,48	314	320	2.9	3.4	297	142239	128	3	4		0,2 m		43	4	green	192			42	
21:00:00	36 32,93	25 26,86	314	320	2.8	3.5	372	142452	128	3	4		0,2 m		43	4	green	195			42	
21:16:00	36 33,47	25 26,16	314	318	2.8	3.5	393	142704	128	3	4		0,2 m		43	4	green	196			42	

21:30:00	36 33,93	25 25,58	313	316	2.9	3.5	399	142910	128	3	4		0,2 m		43	4	green	198			42	
21:35:00	36 34,10	25 25,35	313	318	2.8	3.4	402	142985	128	3	4		0,2 m		43	4	green	197		81	42	EOL C41
21:45:00	36 34,53	25 25,21	17	19	3.1	3.6	397	143128	128	3	4		0,2 m		43	4	green	188			42	
22:01:00	36 34,66	25 26,17	132	134	3.5	3.1	408	143389	128	3	4		moderate		43	4	green	199		82	42	SOL C42
22:15:00	36 34,11	25 26,86	133	134	3.3	3.2	404	143594	128	3	4		moderate		43	4	green	190			42	
22:30:00	36 33,51	25 27,62	133	133	3.6	3.3	372	143818	128	3	4		maybe 0,5 m		43	4	green	199			42	
22:45:00	36 32,93	25 28,37	133	133	3.5	3.3	316	144034	128	3	4		0,5m		43	4	green	197			42	
23:00:00	36 32,33	25 29,13	134	133	3.5	3.3	204	144254	128	3	4		0,5 m		43	4	green	198			42	
23:15:00	36 31,65	25 30,01	134	134	3.6	3.3	200	144505	128	3	4		0,5 m		43	4	green	199			42	
23:30:00	36 31,10	25 30,71	134	132	3.5	3.1	289	144707	128	3	4		0,5 m		44	4	green	198			42	
23:45:00	36 30,30	25 31,76	134	130	3.5	3.1	337	145011	128	3	4		0,5 m		44	4	green	195			42	
23:57:00	36 29,95	25 32,17	133	131	3.5	3.2	343	145127	128	3	4		0,2 m		44	4	green	182		83	42	EOL C42
00:23:00	36 29,41	25 31,40	309	318	2.9	3.1	323	145513	128	**Date** 3	**: Sund** 4	**ay 20.10.**	**2019** 0,2 m		44	4	green	198		84	42	SOL C43
00:45:00	36 30,11	25 30,51	313	321	2.7	3.5	313	145829	128	3	4		0,5 m		43	4	green	192			42	
01:00:00	36 30,58	25 29,92	314	319	2.8	3.5	243	146052	128	3	4		0,5 m		43	4	green	197			42	
01:15:00	36 31,12	25 29,22	315	320	2.5	3.5	450	146310	128	3	4		0,5 m		43	4	green	198			42	
01:30:00	36 31,50	25 28,73	315	312	2.5	3.4	345	146502	128	3	4		0,5 m		43	4	green	192			42	

01:45:00	36 31,96	25 28,17	314	318	2.5	3.4	261	146727	128	3	4		0,5m		43	4	green	193			42	
02:00:00	36 32,41	25 27,57	314	317	2.8	3.5	315	146943	128	3	4		0,5 m		43	4	green	196			42	
02:15:00	36 32,93	25 26,92	313	315	2.8	3.6	372	147180	128	3	4		0,5 m		43	4	green	199			42	
02:30:00	36 33,40	25 26,32	314	314	2.8	3.5	392	147402	128	3	4		0,5 m		44	4	green	196			42	
02:45:00	36 33,86	25 25,73	314	310	2.7	3.1	400	147621	128	3	4		0,5 m		44	4	green	199			42	
02:52:30	36 34,12	25 25,39	314	312	3	3.3	401	147737	128	3	4		0,3 m		44	4	green	199		85	42	EOL C43
03:00:00	36 34,44	25 25,24	356	354	3.1	3.4	398	147848	128	3	4		0,3 m		44	4	green	198			42	
03:15:00	36 34,80	25 25,98	118	118	3.6	3.2	406	148075	128	3	4		0,3 m		44	4	green	197			41	
03:17:00	36 34,70	25 26,13	131	132	3.7	3.2	408	148105	128	3	4		0,3 m		44	4	green	198		86	41	SOL C44
03:30:00	36 34,19	25 26,81	135	141	3.6	3.3	410	148305	128	3	4		0,3 m		45	4	green	193			41	
03:45:00	36 33,57	25 27,59	134	136	3.7	3.3	381	148525	128	3	4		0,3 m		45	4	green	187			41	
04:00:00	36 32,96	25 28,86	134	132	3.6	3.3	319	148742	128	3	4		0,3 m		45	4	green	196			41	
04:15:00	36 32,39	25 29,21	132	127	3.63	3.3	198	148981	128	3	4		1 m		45	4	green	186			41	
04:30:00	36 31,69	25 29,99	134	127	3.6	3.2	197	149198	128	3	4		1 m		45	4	green	198			41	
04:33:45								149257														first arrival problems
04:45:00	36 31,06	25 30,80	134	125	3.5	3.2	300	149423	128	3	4		0,4 m		45	4	green	192			41	
05:00:00	36 30,46	25 31,57	133	126	3.5	3.1	340	149637	128	3	4		0,4 m		45	4	green	198			41	

05:09:20	36 30,00	25 32,16	134	127	3.6	3.1	345	149791	128	3	4		0,4 m		45	4	green	200		87	41	EOL C44
05:15:00	36 29,70	25 32,32	177	181	3.6	3.3	345	149882	128	3	4		0,4 m		45	4	green	182			41	
05:24:50								150023							51							ERROR: missing sections approx 2 shots
05:30:00	36 29,28	25 31,76	281	300	2.4	3.3	338	150090	128	3	4		0,4 m		51	4	green	193			41	
05:35:20	36 29,42	25 31,46	300	313	2.4	3.6	333	150182	128	3	4		0,4 m		47	4	green	194		88	41	SOL C45
05:45:00	36 29,67	25 31,10	315	324	2.5	3.6	331	150333	128	3	4		0,4 m		45	4	green	193			41	
06:00:00	36 30,10	25 30,57	313	326	2.4	3.5	314	150551	128	3	4		0,5 m		45	4	green	194			41	
06:15:00	36 30,53	25 30,02	315	326	2.4	3.5	264	150780	128	3	4		0,5 m		45	4	green	194			41	
06:30:00	36 30,95	25 29,50	313	325	2.4	3.5	216	151000	128	3	4		0,5 m		45	4	green	197			42	
06:45:00	36 31,38	25 28,95	314	324	2.5	3.6	451	151227	128	3	4		0,5 m		45	4	green	200			41	

07:00:00	36 31,83	25 28,37	313	321	2.5	3.6	207	151450	128	3	4		0,5 m		45	4	green	195			41	
07:15:00	36 32,31	25 27,76	314	319	2.6	3.7	178	151689	128	3	4		0,5 m		45	4	green	195			41	
07:30:00	36 32,77	25 27,17	314	320	2.6	3.5	355	151912	128	3	4		0,5 m		45	4	green	194			41	
07:45:00	36 33,21	25 26,61	315	319	2.7	3.6	383	152129	128	3	4		0,5 m		46	4	green	200			41	
08:01:00	36 33,76	25 25,91	314	316	2.7	3.5	389	152387	128	3	4		0,5 m		45	4	green	201			41	
08:13:00	36 34,13	25 25,41	318	336	2.8	3.4	399	152564	128	3	4		0,5 m		45	4	green	195		89	41	EOL C45
08:30:00	36 34,78	25 25,42	44	54	2.4	3.6	401	152805	128	3	4		0,4 m		45	4	green	199			41	

08:45:00	36 34,74	25 26,14	140	130	2.7	3.2	407	153033	128	3	4		0,4 m		46	4	green	195		90	41	SOL C46
09:00:00	36 34,00	25 26,82	132	122	23.1	3.5	406	153253	128	3	4		0,3 m		46	4	green	196			41	
09:15:00	36 33,66	25 27,53	133	124	3.2	3.6	386	153478	128	3	4		0,3 m		46	4	green	186			41	
09:30:00	36 33,12	25 28,23	134	125	3.3	3.6	335	153693	128	3	4		0,3 m		46	4	green	197			40	
09:45:00	36 32,51	25 29,01	133	126	3.3	3.5	253	153930	128	3	4		0,3 m		46	4	green	200			41	
10:00:00	36 31,91	25 29,77	133	125	3.3	3.3	138	154170	128	3	4		0,3 m		47	4	green	192			41	
10:15:00	36 31,34	25 30,50	133	127	3.4	3.6	257	154390	128	3	4		0,3 m		47	4	green	197			40	
10:30:00	36 30,77	25 31,23	134	128	3.6	3.4	330	154602	128	3	4		0,3 m		47	4	green	192			41	
10:47:00	36 30,01	25 29,99	134	128	3.7	3.3	341	154863	128	3	4		0,2 m		47	4	green	196		91	40	EOL C46
11:11:00	36 29,42	25 31,49	307	317	2.8	3.4	332	155235	128	3	4		0,2 m		47	4	green	195		92	41	SOL C47
11:30:00	36 30,03	25 30,71	315	322	2.9	3.4	319	155510	128	3	4		0,2 m		46	4	green	201			41	
11:45:00	36 30,56	25 30,04	323	321	3.1	3.4	260	155738	128	3	4		0,2 m		47	4	green	192			41	
12:00:00	36 31,07	25 29,39	314	319	3.1	3.4	330	155949	128	3	4		0,3 m		47	4	green	201			41	
12:15:00	36 31,67	25 28,62	313	314	3.2	3.8	211	156186	128	3	4		0,3 m		47	4	green	192			41	
12:30:00	36 32,17	25 27,97	314	323	3	3.5	261	156398	128	3	4		0,4m		48	4	green	200			41	
12:45:00	36 32,80	25 27,18	314	319	3.5	3.5	356	156646	128	3	4		0,3 m		49	4	green	198			40	
13:00:00	36 33,43	25 26,36	313	320	3.6	3.5	390	156875	128	3	4		0,3 m		48	4	green	194			40	

13:19:00	36 34,20	25 25,38	316	332	3.4	3.3	399	157154	128	3	4		0,3 m		47	4	green	198		93	41	EOL C47
13:47:00	36 34,78	25 26,15	142	134	3	3.6	406	157573	128	3	4		0,3 m		46	4	green	194		94	40	SOL C48
14:00:00	36 34,36	25 26,65	132	122	3	3.4	406	157742	128	3	4		0,3 m		46	4	green	199			40	
14:15:00	36 33,82	25 27,37	132	125	3.3	3.4	394	157969	128	3	4		0,3 m		46	4	green	192			40	
14:30:00	36 33,21	25 28,16	134	126	3.5	3.5	360	158202	128	3	4		0,3 m		47	4	green	197			40	
14:45:00	36 32,64	25 28,89	133	124	3.4	3.6	285	158420	128	3	4		0,3 m		47	4	green	195			40	
15:00:00	36 32,00	25 28,71	134	128	3.6	3.5	145	158565	128	3	4		0,3 m		46	4	green	195			40	
15:15:00	36 31,32	25 30,60	133	128	3.6	3.3	266	158984	128	3	4		0,3 m		47	4	green	182			40	
15:30:00	36 30,73	26 31,34	134	128	3.5	3.1	334	159110	128	3	4		0,3 m		47	4	green	199			40	
15:45:00	36 30,06	26 43,28	132	123	3.3	3.1	341	159359	128	3	4		0,3 m		47	4	green	199		95	40	EOL C48
16:00:00	36 29,42	26 32,26	229	243	3.2	3.2	344	159544	128	3	4		0,3 m		47	4	green	194			40	
16:14:00	36 39,46	25 31,44	311	326	2.5	3.4	332	159766	128	3	4		0,3 m		47	4	green	194		96	40	SOL C49
16:30:00	36 29,96	25 30,86	315	326	2.6	3.6	320	160005	128	3	4		0,3 m		47	4	green	197			40	
16:45:00	36 30,42	25 30,27	313	325	2.5	3.5	297	160232	128	3	4		0,3 m		46	4	green	198			40	
17:00:00	36 30,83	25 29,75	314	327	2.4	3.6	190	160445	128	3	4		0,3 m		46	4	green	193			40	
17:15:00	36 31,29	25 29,16	314	327	2.5	3.5	486	160677	128	3	4		0,3 m		46	4	green	180			40	
17:30:00	36 31,73	25 28,60	314	328	2.5	3.3	159	160900	128	3	4		0,3 m		46	4	green	197			40	

17:45:00	36 32,22	25 27,97	313	330	2.6	3.5	273	161130	128	3	4		0,3 m		46	4	green	190			40	
18:00:00	36 32.68	265 27.37	314	331	2.6	3.5	333	161352	128	3	4		0.3 m		46	4	green	199			40	
18:15:00	36 33.19	25 26.73	313	328	3	3.6	380	161577	128	3	4		0,3 m		45	4	green	197			40	
18:30:00	36 33.74	25 26.02	314	329	3.1	3.6	397	161802	128	3	4		0.3 m		45	4	green	198			40	
18:42:00	36 34.19	25 25.45	315	329	3.2	3.6	399	161977	128	3	4		0,324 m		44	4	green	198		97	40	EOL C49
19:00:00	36 34.90	25 25.64	74	68	2.8	3.6	404	162253	128	3	4		0.314 m		45	4	green	197			39	
19:10:00	36 34,75	25 26,22	143	132	3.3	3.5	407	162409	128	3	4		0.3092 m		45	4	green	195		98	39	SOL C50
19:30:00	36 34.05	25 27.13	132	118	3	3.6	402	162702	128	3	4		Pi/10		44	4	green	196			39	
19:45:00	36 33.51	25 27.83	134	119	2.9	3.6	373	162927	128	3	4		sqrt(e^3k)		45	4	green	196			40	
20:00:00	36 32.97	25 28.50	134	115	2.9	3.5	318	163152	128	3	4		0.3 m		44	4	green	195			39	
20:15:00	36 32,42	25 29,23	132	122	3.3	3.5	200	163377	128	3	4		0.3 m		44	4	green	198			39	
20:30:00	36 31.80	25 30.03	134	128	3.5	3.6	196	163604	128	3	4		0.3 m		46	4	green	197			39	
20:45:00	36 31.19	25 30.80	134	130	3.4	3.4	290	163828	128	3	4		0.3 m		44	4	green	195			39	
21:00:00	36 30.56	25 31.61	133	131	3.5	3.4	342	164066	128	3	4		0.3 m		46	4	green	199			39	
21:13:00	36 30.05	25 32.24	135	131	3.5	3.2	340	164252	128	3	4		0.3 m		45	4	green	192		99	40	EOL C50
21:30:00	36 29.33	25 32.00	260	271	2.8	3.5	342	164510	128	3	4		0.3 m		45	4	green	195			39	
21:40:00	36 29.50	25 31.50	303	313	2.6	3.3	332	164661	128	3	4		0.3 m		44	4	green	196		100	40	SOL C51

22:00:00	36 30,08	25 30,76	313	320	2.7	3.6	316	164960	128	3	4		0,3 m		44	4	green	197			39	
22:15:00	36 30,57	25 30,14	312	321	2.6	3.4	272	165192	128	3	4		0,5 m		44	4	green	200			39	
22:30:00	36 31,02	25 29,56	315	320	2.8	3.5	201	165406	128	3	4		0,2 m		44	4	green	186			39	
22:45:00	36 31,49	25 28,96	314	324	2.6	3.2	461	165634	128	3	4		0,2 m		44	4	green	198			39	
23:00:00	36 31,99	25 25,31	314	327	2.9	3.4	255	165876	128	3	4		0,5 m		44	4	green	189			39	
23:15:00	36 32,47	25 27,70	313	300	2.8	3.5	314	166084	128	3	4		0,5 m		44	4	green	194			39	
23:30:00	36 33,00	25 27,02	313	327	2.9	3.2	369	166317	128	3	4		0,8 m		45	4	green	193			39	
23:45:00	36 33,53	25 26,36	314	328	2.8	3.4	391	166544	128	3	4		0,8m		44	4	green	199			39	
00:00:00	36 34,00	25 25,74	312	325	3	3.8	399	166748	128	3	4		0,8 m		44	4	green	194			39	
00:05:00	36 34,22	25 25,47	302	312	3.1	3.6	400	166838	128	3	4		0,9 m		44	4	green	197		101	39	EOL C51
00:43:00	36 34,49	25 25,94	145	137	3.3	3.4	407	167420	128	3	4		0,9 m		44	4	green	193		102	39	SOLC52
01:00:00	36 33,90	25 26,68	131	121	3.2	3.2	399	167657	128	3	4		0, 9m		44	4	green	194			39	
01:15:00	36 33,22	25 37,52	135	126	3.4	3.3	353	167910	128	3	4		0,9 m		44	4	green	197			38	
01:30:00	36 32,70	25 28,22	133	134	3.4	3.4	293	168118	128	3	4		0,9 m		44	4	green	195			38	
01:45:00	36 32,03	25 29,06	134	124	3.4	3.5	211	168363	128	3	4		0,9 m		44	4	green	196			38	
02:00:00	36 31,52	25 29,70	133	121	3.3	3.4	237	168550	128	3	4		0,9 m		44	4	greem	197			38	

02:15:00	36 60,88	25 30,44	133	122	3.5	3.3	274	168765	128	3	4		0,9 m		44	4	green	198			38	
02:30:00	36 30,31	25 31,27	134	128	3.6	3.2	339	168998	128	3	4		0,9 m		44	4	green	198			38	
02:41:00	36 29,79	25 31,93	136	131	3.5	3.3	341	169179	128	3	4		0,9 m		46	4	green	198		103	38	EOL C52
03:00:00	36 29,03	25 31,67	258	280	2.4	3.4	331	169453	128	3	4		0,9 m		47	4	green	197			38	
03:10:30	36 29,13	25 31,12	308	322	2.4	3.5	331	169608	128	3	4		0,9 m		46	4	green	196		104	38	SOL C53
03:30:00	36 29,62	25 30,49	317	328	2.5	3.5	322	169888	128	3	4		0,9 m		47	4	green	193			39	
03:45:00	36 30,09	25 29,91	311	325	2.5	3.4	289	170116	128	3	4		0,9 m		47	4	green	197			39	
04:00:00	36 30,59	25 29,25	313	330	2.6	3.5	173	170362	128	3	4		0,9 m		46	4	green	180			38	
04:15:00	36 30,98	25 29,59	300	323	2.4	3.4	61	170583	128	3	4		0,9 m		46	4	green	192			39	
04:31:00	36 31,40	25 27,89	315	332	2.5	3.5	198	170832	128	3	4		0,9 m		45	4	green	194			39	
04:45:00	36 31,82	25 27,41	317	334	2.5	3.5	285	171031	128	3	4		0,9 m		46	4	green	180			38	
05:00:00	36 32,28	25 26,81	310	327	2.6	3.5	345	171252	128	3	4		0,9 m		46	4	green	178			39	Way point passed (gap filling)
05:15:00	36 32,76	25 26,12	310	329	2.7	3.6	384	171489	128	3	4		0,9 m		45	4	green	184			39	
05:30:00	36 33,18	25 25,52	316	334	2.6	3.6	388	171691	128	3	4		0,9 m		44	4	green	197			38	
05:44:22	36 33,69	25 24,88	313	325	2.9	3.6	392	171926	128	3	4		0,9 m		45	4	green	200			38	EOL C53
06:00:00	36 34,35	25 24,92	54	52	2.9	3.5	395	172164	128	3	4		0,9 m		44	4	green	181			38	

06:10:00	36 34,22	25 52,56	141	131	3.6	3.5	404	172325	128	3	4		0,9 m		44	4	green	195		105	38	SOL C54
06:30:00	36 33,48	25 26,51	135	121	3.3	3.2	390	172601	128	3	4		0,9 m		43	4	green	200			38	
06:45:00	36 32,85	25 27,33	133	119	3.5	3.5	356	172835	128	3	4		0,9 m		44	4	green	197			38	
07:00:00	36 32,24	25 28,12	134	120	3.5	3.4	257	173051	128	3	4		0,9 m		44	4	green	199			38	
07:15:00	36 31,57	25 28,99	134	125	3.6	3.5	487	173291	128	3	4		0,9 m		43	4	green	195			38	
07:30:00	36 30,98	25 29,75	133	125	3.5	3.6	187	173505	128	3	4		0,9 m		44	4	green	195			38	
07:45:00	36 30,44	25 30,55	135	126	3.5	3.7	309	173728	128	3	4		0,9 m		44	4	green	199			38	
08:05:00	36 29,52	25 31,59	132	122	3.4	3.4	332	174028	128	3	4		0,9 m		44	4	green			106		EOL C54
08:15:00	36 29,13	25 32,09	176	179	3.6	3.6	342	174187	128	3	4		0,9 m		44	4	green	198			38	
08:30:00	36 28,79	25 31,53	298	312	2.7	3.5	334	174403	128	3	4		0,9 m		44	4	green	187			38	
08:41:00	36 29,22	25 31,16	323	330	2.7	3.3	329	174576	128	3	4		0,9 m		44	4	green	195		107	38	SOL C55
09:00:00	36 29,81	25 30,46	311	322	2.8	3.6	328	174853	128	3	4		0,9 m		44	4	green	198			38	
09:15:00	36 30,30	25 29,84	313	323	2.6	3.7	265	175076	128	3	4		0,9 m		44	4	green	191			38	
09:30:00	36 30,73	25 29,27	315	324	2.6	3.4	138	175294	128	3	4		0,9 m		44	4	green	196			38	
09:45:00	36 31,22	25 28,62	318	333	2.5	3.5	211	175541	128	3	4		0,8 m		44	4	green	195			37	
10:00:00	36 31,68	25 28,04	309	327	2.6	3.6	230	175761	128	3	4		0,8 m		44	4	green	197			38	175880 gps time RED / 175897 GPS TIME GREEN

10:30:00	36 32,57	25 26,94	320	336	2.2	3.2	355	176209	128	3	4		0,8 m		44	4	green	194			38	
10:45:00	36 33,04	25 26,44	316	331	2.7	3.6	382	176431	128	3	4		0,9 m		44	4	green	198			38	
11:00:00	36 33,50	25 25,85	312	327	2.9	3.7	391	176652	128	3	4		0,8 m		44	4	green	201			38	
11:14:00	36 33,78	25 25,00	282	300	2.9	3.6	391	176880	128	3	4		0,8 m		44	4	green	198		108	38	EOL C56
11:30:00	36 34,20	25 24,25	11	17	2.5	3	384	177185	128	3	4		0,8 m		44	4	green	199			38	
11:45:00	36 34,49	25 24,90	115	103	2.9	3.4	393	177409	128	3	4		0,8 m		45	4	green	194			37	
12:00:00	36 34,13	25 25,40	136	121	3.2	3.4	401	177564	128	3	4		0,8 m		45	4	green	201		109	37	SOL C57
12:15:00	36 33,59	25 26,16	132	115	3.2	3.5	392	177785	128	3	4		0,8 m		44	4	green	197			37	
12:30:00	36 33,03	25 26,92	133	117	3.2	3.5	371	178008	128	3	4		0,8 m		44	4	green	198			37	
12:45:00	36 32,45	25 27,69	134	119	3.1	3.5	315	178238	128	3	4		0, 9m		44	4	green	197			37	
13:00:00	36 31,87	25 28,45	133	120	3.3	3.4	201	178466	128	3	4		0,9 m		44	4	green	198			37	
13:15:00	36 31,33	25 29,16	133	118	3.3	3.4	490	178674	128	3	4		0,9 m		44	4	green	198			36	
13:30:00	36 30,65	25 30,06	134	118	3.3	3.3	265	178928	128	3	4		1,0 m		44	4	green	198			37	
13:45:00	36 30,13	25 30,77	118	102	2.9	3.2	317	179132	128	3	4		1,0 m		44	4	green	198			37	
14:00:00	36 29,51	25 31,55	133	116	3.4	3.3	333	179347	128	3	4		1,0 m		44	4	green	197		110	37	EOL C57
14:15:00	36 39,08	25 32,41	153	157	3.8	3.5	343	179578	128	3	4		1,0 m		44	4	green	192			37	Some spikes on trace 102

14:30:00	36 38,68	25 32,06	302	322	2.3	3.4	332	179783	128	3	4		1,0 m		44	4	green	194			37	
14:45:00	36 29,21	25 31,51	302	330	2.5	3.7	331	180022	128	3	4		1,5 m		44	4	green	196			37	
14:49:20	36 29,37	25 31,35	317	329	2.3	3.5	331	180090	128	3	4		1,5 m		44	4	green	196		111	37	SOL C58
15:00:00	36 29,64	25 31,74	317	329	2.4	3.4	328	180239	128	3	4		1,5 m		44	4	green	184			36	
15:15:00	36 30,15	25 30,43	345	354	2.4	3.3	312	180487	128	3	4		1,5 m		44	4	green	195			36	
15:30:00	36 30,73	25 30,33	352	356	2.4	3.4	276	180696	128	3	4		1,5 m		45	4	green	192			37	
15:45:00	36 31,29	25 30,02	310	332	2.3	3.5	202	180929	128	3	4		1,5m		45	4	green	194			37	Strong peridical spokes on trace 102 (leakage ok though)

Date: Monday 21.10.2019

16:00:00	36 31,86	25 29,52	313	334	2.2	3	378	181142	128	3	4		1,5 m		45	4	green	190			37	
16:15:00	36 32,09	25 29,00	317	339	1.9	2.7	193	181376	128	3	4		1,5 m		45	4	green	197			37	
16:30:00	36 32,48	25 28,50	315	335	2.3	3.4	287	181600	128	3	4		1,5 m		45	4	green	196			37	
16:45:00	36 32,90	25 27,95	314	335	2.1	3.3	323	181827	128	3	4		1,5 m		45	4	green	197			37	
17:00:00	36 33,31	25 27,44	310	332	2.2	3.2	365	182041	128	3	4		1,5 m		45	4	green	196			36	
17:15:00	36 33,76	25 26,86	312	332	2.5	3.8	395	182271	128	3	4		1,5 m		44	4	green	197			37	
17:30:00	36 34,19	25 26,30	315	334	2.3	3.5	404	182493	128	3	4		1,5 m		44	4	green	197			37	
17:39:00	36 34,48	25 25,95	313	331	2.2	3.4	406	182635	128	3	4		1,5 m		44	4	green	197		112	37	EOL C58
17:45:00	36 34,54	25 25,62	318	312	2.6	3.7	400	182732	128	3	4		1,5 m		44	4	green	196			37	
18:00:00	36 34,96	25 25,17	2	360	2.4	3.5	398	182959	128	3	4		1,5 m		44	4	green	200			36	
18:15:00	36 35,18	25 25,75	118	92	2.7	3.4	404	183178	128	3	4		1,5 m		44	4	green	197			36	
18:25:00	36 34,79	25 26,25	139	114	3	3.5	410	183343	128	3	4		1,5 m		44	4	green	197		113	35	SOL C59
18:35:00	36 34,46	25 26,65	133	103	2.6	3.2	408	183475	128	3	4		1,5 m		44	4	green	180			36	
18:45:00	36 34,06	25 27,15	133	99.6	2.3	3.2	403	183651	128	3	4		1,5 m		44	4	green	198			36	
19:00:00	36 33,66	25 27,73	129	100	2.4	3.5	386	183853	128	3	4		1,5 m		45	4	green	197			35	3rd trace noisy
19:15:00	36 33,09	25 28,44	132	108	2.8	3.3	335	184092	128	3	4		1,5 m		44	4	green	195			35	3rd trace noisy
19:30:00	36 32,53	25 29,13	134	112	2.8	3.4	252	184319	128	3	4		1,5 m		44	4	green	195			36	

20:00:00	36 31,46	25 30,48	134	110	2.8	3.3	261	184754	128	3	4		1,5 m		45	4	green	198			35	
20:30:00	36 30,39	25 31,90	132	115	3	3	340	185215	128	3	4		1,5 m		45	4	green	199			35	
20:39:00	36 30,06	25 32,32	136	124	3	3	340	185338	128	3	4		1,5 m		45	4	green			114		EOL C59
07:00:00	36 34,88	25 24,63	162	144	3	3.2	391	190076	128	**Date:** 3	**Tuesd** 4	**ay 22.10.**	**2019** 1 ,2 ,m		51	4	green	190			43	Beginng of the acquisition
07:15:00	36 34,49	25 25,12	116	96	2.3	3.4	395	190263	128	3	4		1,2 m		51	4	green	199			44	
07:28:00	36 34,10	25 25,73	130	108	2.5	3.5	401	190473	128	3	4		1,2 m		50	4	green	195			44	SOL C60
07:45:00	36 33,63	25 26,34	127	109	2.5	3.8	397	190706	128	3	4		1,2 m		48	4	green	197			43	
08:00:00	36 33,15	25 26,95	140	118	2.5	3.4	374	190935	128	3	4		1,2 m		48	4	green	195			44	
08:15:00	36 32,66	25 27,51	130	117	2.7	3.7	311	191162	128	3	4		1,2 m		48	4	green	198			45	
08:30:00	36 32,19	25 28,13	134	113	2.5	3.7	264	191389	128	3	4		1,2 m		48	4	green	204			43	
08:45:00	36 31,73	25 28,73	133	116	2.7	3.5	266	191612	128	3	4		1,2 m		49	4	green	204			44	
09:00:00	36 31,23	25 29,37	136	113	2.8	4.1	445	191840	128	3	4		1,2 m		48	4	green	190			44	
09:15:00	36 30,73	25 30,01	136	119	2.9	3.7	245	192056	128	3	4		1,2 m		48	4	green	200			44	
09:34:00	36 30,03	25 30,89	133	122	3	3.6	321	192345	128	3	4		1,2 m		48	4	green	202			44	
09:45:00	36 29,62	25 31,38	132	117	2.8	3.7	333	192513	128	3	4		1,2 m		48	4	green	200			45	
09:47:00	36 29,54	25 31,49	138	127	2.9	3.4	333	192547	128	3	4		1 m		48	4	green					EOL C60
10:00:00	36 28,89	25 31,69	152	136	2.6	2.6	332	192734	128	3	4		1 m		48	4	green	199			44	

10:15:00	36 28,81	25 32,46	42	28	2.4	3.3	341	192981	128	3	4		1 ,2 m		48	4	green	198			45	
10:33:00	36 29,43	25 32,24	287	303	2.7	3.4	346	193243	128	3	4		1,2 m		48	4	green	198			45	
10:47:00	36 29,60	25 31,51	211	333	2.4	3.3	333	193454	128	3	4		1,2 m		47	4	green	200			45	SOL C61
11:00:00	36 29,96	25 31,07	310	330	2.6	3	327	193631	128	3	4		1,2 m		47	4	green	203			45	
11:00:00																						Around shot 193790 a few shots are missing
11:15:00	36 30,42	25 30,47	313	329	2.3	3.1	302	193851	128	3	4		1,2 m		47	4	green	203			45	
11:30:00	36 30,86	25 29,92	313	332	2.4	3.4	214	194066	128	3	4		1,2 m		47	4	green	200			46	
11:43:00	36 31,28	25 29,33	311	324	2.3	4.3	487	194285	128	3	4		1,2 m		47	4	green					ship speed was increase for roughly 0.5 kn
12:00:00	36 31,82	25 28,63	316	326	3	4	189	194552	128	3	4		1,2 m		47	4	green	197			46	
12:15:00	36 32,35	25 27,93	316	327	2.9	3.6	280	194748	128	3	4		1,8 m		47	4	green	200			45	
12:30:00	36 32,90	25 27,29	315	330	2.7	3.5	360	194973	128	3	4		1,8 m		47	4	green	187			45	
								195193														end of 3d survey

6.3.3. 2D seismic survey 2

Title: 2D Seismic Survey POS538 GEOMAR PROTOCOL 04 Cruise no.: POS538

Seismic watchkeeping | 2D [x] | 3D [ ] | : | Date 23.10.2019

Time UTC	Latitude xx° xx.x‘	Longitude xx° xx.x‘	Course [°]	Heading [°]	Speed O.G. [kn]	Speed T.W. DoLog [kn]	Depth [m]	Geometrics FFN	Number of channels	Rec Len [s]	shot rate [s]	Delay (T/B)1)Delay (T/B)1) [ms]	Weather	leakage	GPS	time client	Gun-Pressure G.I. 1 bar	oil level (L)	Remarks
Date: Sunday 23.10.2019																			
Survey: 2D seismic lines, P5000																			
08:48:00	36 31,43	1	159	155	3,70	3,90	289	200034	120	3	4		1 m	35	2	green	192	42	Start of survey (first real shot, with gun firing)
09:00:00	36 30,75	25 31,22	152	145	3,6	3,8	330	200215	120	3	4		1 m	37	2	green	192	42	
09:15:00	36 29,93	25 31,66	182	181	4,1	4,2	340	200438	120	3	4		1 m	37	2	green	198	43	
09:20:00	36 29,52	25 31,68	177	176	4,1	4,2	335	200527	120	3	4		1 m	39	2	green			SOL_5001
09:30:00	36 28,97	25 21,70	178	178	3,9	4,2	332	200653	120	3	4		1 m	37	2	green	200	43	
09:45:00	36 27,96	25 31,75	179	182	4	3,9	270	200885	120	3	4		1 m	36	2	green	200	43	
10:00:00	36 26,91	25 31,79	178	182	3,9	3,6	297	201130	120	3	4		1 m	36	2	green	200	44	
10:15:00	36 26,04	25 31,82	178	180	3,9	3,9	270	201331	120	3	4		1 m	36	2	green	200	44	
10:30:00	36 24,96	25 31,86	178	178	3,9	3,7	280	201578	120	3	4		1 m	35	2	green	200	44	
10:45:00	36 23,97	25 31,90	179	178	4,2	3,8	297	201799	120	3	4		1 m	34	2	green	202	45	
11:00:00	36 23,02	25 31,94	176	176	4,1	4	343	202011	120	3	4		1 m	34	2	green	200	44	

11:15:00	36 21,89	25 31,99	178	178	4,2	3,7	350	202260	120	3	4		1 m	34	2	green	198	44	
11:30:00	36 20,92	25 32,02	177	175	4	3,8	362	202469	120	3	4		1 m	35	2	green	200	44	
11:45:00	36 19,92	25 32,06	178	174	4,1	3,7	358	202692	120	3	4		1 m	35	2	green	197	45	
11:51:00	36 18,96	25 31,99	225	237	3,6	3,6	358	202890	120	3	4		1 m	35	2	green	195	44	EOL_P5001/SOLP5002
12:15:00	36 18,25	25 31,16	222	228	3,8	3,9	320	203133	120	3	4		1 m	32	2	green	195	44	
12:30:00	36 17,48	25 30,29	222	226	4,1	4,3	291	203371	120	3	4		1 m	33	2	green	200	44	
12:45:00	36 16,78	25 29,50	221	225	4	4,3	307	203590	120	3	4		1 m	31	2	green	197	44	
13:00:00	36 16,06	25 28,69	222	224	3,9	4,2	361	203814	120	3	4		1 m	32	2	green	190	44	
13:15:00	36 15,32	25 27,85	222	221	4	4,2	444	204040	120	3	4		1 m	31	2	green	197	44	
13:35:00	36 14,32	25 26,73	232	240	3,7	4,2	558	204350	120	3	4		1 m	31	2	green	200	44	EOL_P5002
14:00:00	36 14,29	25 26,94	296	297	4,2	4,8	543	204700	120	3	4		1 m	31	2	green	198	44	
14:02:10	36 14,35	25 26,71	286	293	4,1	4,7	558	204741	120	3	4		1 m	31	2	green	198	44	SOL_P5003
14:15:00	36 14,65	25 25,71	290	296	4	4,5	600	205933	120	3	4		1 m	31	2	green	197	43	
14:30:00	36 14,97	25 24,67	291	294	4	4,9	208	205147	120	3	4		1 m	30	2	green	199	44	
14:45:00	36 15,33	25 23,45	290	296	4	5	239	205383	120	3	4		1 m	30	2	green	197	44	
15:00:00	36 15,65	25 22,39	289	297	3,8	4,6	504	205598	120	3	4		1 m	30	2	green	203	44	
15:15:00	36 15,96	25 21,32	291	302	3,8	4,9	586	205829	120	3	4		1 m	29	2	green	198	43	
15:20:00	36 16,08	25 20,94	290	302	3,8	4,6	580	205896	120	3	4		1 m	29	2	green	198	43	EOL_P5003
15:30:00	36 15,95	25 20,19	196	188	4	4,7	569	206058	120	3	4		1 m	30	2	green	202	43	

15:36:06	36 16,08	25 21,00	24	22	3,9	4,5	583	206300	120	3	4		1 m	29	2	green	200	43	SOL_P5004
16:00:00	36 16,80	25 21,53	29	28	3,7	4,2	549	206511	120	3	4		1,5 m	29	2	green	199	43	
16:15:00	36 17,62	25 22,13	31	32	3,7	4,8	509	206723	120	3	4		1,5 m	29	2	green	200	42	
16:30:00	36 18,44	25 22,74	31	31	4,3	4,8	427	206949	120	3	4		1,5 m	29	2	green	200	43	
16:45:00	36 19,35	25 22,42	30	28	4,3	4,8	255	207175	120	3	4		1,5 m	29	2	green	199	43	

16:56:50	36 20,09	25 23,97	32	26	4,1	4,1	98	207359	120	3	4		1,5 m	29	2	green	198	43	EOL_P5004
17:14:30	36 20,40	25 22,93	219	216	3,8	4	59	207624	120	3	4		1,5 m	28	2	green	183	44	SOL_P5005
17:30:00	36 19,56	25 22,27	214	215	3,9	4,2	228	207860	120	3	4		1,5 m	28	2	green	203	44	
17:45:00	36 18,73	25 21,59	213	214	4	4,7	462	208084	120	3	4		1,5 m	28	2	green	196	44	
18:00:00	36 17,91	25 20,92	212	211	4	4,5	524	208312	120	3	4		1,5 m	29	2	green	205	44	
18:15:00	36 17,00	25 20,19	213	214	3,9	4,6	543	208561	120	3	4		1,5 m	28	2	green	200	43	
18:30:00	36 16,25	25 19,58	212	213	4	4,5	541	208764	120	3	4		1,5 m	28	2	green	198	45	
18:45:00	36 15,41	25 18,9	212	213	4,1	4,5	346	208988	120	3	4		1,5 m	28	2	green	198	43	
19:00:00	36 14,59	25 18,23	214	213	3,8	4,5	558	209214	120	3	4		1,5 m	28	2	green	203	43	
19:15:00	36 13,8	25 17,59	211	213	3,9	4,9	624	209433	120	3	4		1,5 m	28	2	green	200	42	
19:30:00	36 13,01	25 17,01	187	183	3,6	4,1	678	209660	120	3	4		1,5 m	28	2	green	187	43	signal was weak for approx 40 shots
19:50:00	36 11,71	25 16,86	185	182	3,6	4	833	209970	120	3	4		1,5 m	28	2	green	200	43	The middle bird is flying too shallow (often right at the sea surface)

20:00:00	36 11,04	25 16,77	186	182	3,6	4	992	210145	120	3	4		1,5 m	28	2	green	200	43	(means weak signal and more noise in channel range approx 60-90)
20:15:00	36 10,26	25 16,67	188	184	3,5	3,9	1187	210336	120	3	4		1,5 m	28	2	green	204	43	noisier data
20:30:00	36 9,33	25 16,55	184	184	3,8	4,2	1436	210562	120	3	4		1,5 m	28	2	green	202	43	
20:45:00	36 8,46	25 16,44	181	181	3,7	4,3	1577	210769	120	3	4		1,2 m	27	2	green	200	43	EOL_P5005
21:00:00	36 8,3	25 17,35	58	56	3,7	5,2	1476	211019	120	3	4		1,2 m	28	2	green	200	42	
21:15:00	36 8,79	25 18,31	54	51	3,7	4,4	1294	211242	120	3	4		1,2 m	28	2	green	204	42	
21:27:00	36 9,40	25 18,52	322	331	3,5	3,9	1241	211427	120	3	4		1,2 m	28	2	green	197	42	SOL_P5006
21:45:00	36 10,36	25 17,81	328	333	3,6	3,8	1211	211696	120	3	4		1,2 m	28	2	green	203	43	
22:00:00	36 11,17	25 17,20	329	334	3,7	4	921	211921	120	3	4		1,2 m	28	2	green	200	43	
22:15:00	36 12,01	25 16,56	327	334	3,9	4,4	741	212152	120	3	4		1,2 m	28	2	green	204	44	
22:30:00	36 12,8	25 15,96	327	335	3,7	4	559	212376	120	3	4		1,2 m	28	2	green	199	42	
22:45:00	36 13,64	25 15,53	329	335	3,8	4,5	441	212610	120	3	4		1,2 m	28	2	green	203	43	
23:00:00	36 14,43	25 14,74	326	333	4,1	4,4	332	212814	120	3	4		1,2 m	28	2	green	201	43	
23:15:00	36 15,29	25 14,08	330	334	3,7	4	233	213063	120	3	4		1 m	28	2	green	203	43	
23:30:00	36 16,05	25 13,51	327	334	3,6	4,1	361	213275	120	3	4		1 m	28	2	green	201	43	
23:45:00	36 16,91	25 12,86	330	336	4	4,3	174	213509	120	3	4		1,2 m	28	2	green	203	43	
Date:Thursday 24.10.2019																			
00:00:00	36 17,78	25 12,21	329	334	4,2	4,4	474	213729	120	3	4		1,2 m	28	2	green	200	43	

00:15:00	36 18,56	25 11,62	328	335	4,2	4,4	486	213924	120	3	4		1,2 m	27	2	green	203	43	
00:30:00	36 19,46	25 10,94	328	335	4,1	4,5	479	214162	120	3	4		1,2 m	27	2	green	200	43	
00:49:00	36 20,60	25 10,08	329	335	3,7	4,3	472	214465	120	3	4		1 m	27	2	green	198	43	EOL_P5006
01:08:00	36 20,44	25 09,03	160	152	3,8	4,2	484	214743	120	3	4		1,2 m	27	2	green	200	42	SOL_P5007
01:30:00	36 19,22	25 09,82	151	145	4	4,5	492	215063	120	3	4		1,2 m	26	2	green	202	43	
01:45:00	36 18,35	25 10,42	150	143	3,7	4,3	500	215292	120	3	4		1 m	26	2	green	206	43	
02:00:00	36 17,57	25 10,95	151	145	3,6	4,2	492	215501	120	3	4		1 m	27	2	green	199	43	
02:15:00	36 16,68	25 11,55	152	145	3,6	4,6	176	215747	120	3	4		1 m	27	2	green	197	42	
02:23:30	36 15,25	25 11,85	152	147	3,6	4,2	106	215860	120	3	4			27	2	green	189	42	EOL_P5007
02:30:00	36 15,89	25 11,77	226	237	3,7	4	98	215958	120	3	4		1 m	27	2	green	192	43	
02:44:00	36 15,61	25 10,95	302	307	2,9	3,7	153	216169	120	3	4		1 m	27	2	green	196	43	SOL_P5008
03:00:00	36 16,39	25 10,41	335	344	3,6	4,2	405	216405	120	3	4		1 m	26	2	green	195	42	
03:15:00	36 17,30	25 29,87	334	343	3,7	4,1	514	216640	120	3	4		1 m	27	2	green	196	43	
03:30:09	36 18,07	25 09,41	333	342	3,8	4,2	509	216853	120	3	4		1 m	26	2	green	203	43	
03:45:00	36 18,99	25 08,86	333	342	4,2	4,4	503	217081	120	3	4		1 m	26	2	green	203	42	
04:00:00	36 19,86	25 08,32	334	346	3,4	4,1	496	217300	120	3	4		1 m	26	2	green			
04:03:00	36 20,09	25 08,19	330	337	3,6	4	495	217350	120	3	4		1 m	26	2	green	196	43	EOL_P5008

04:15:00	36 19,90	25 07,19	210	210	4	4,5	504	217590	120	3	4		1 m	26	2	green			
04:30:00	36 19,36	25 06,78	211	210	3,5	3,8	509	217753	120	3	4		1 m	26	2	green	196	42	
04:45:00	36 18,60	25 06,21	204	202	3,7	4,1	516	217984	120	3	4		1 m	26	2	green	196	42	
05:03:10	36 17,89	25 06,55	83	7	2,7	3,6	518	218256	120	3	4		1 m	26	2	green	199	41	SOL_5009
05:15:00	36 18,13	25 07,24	66	59	3,4	4,9	515	218426	120	3	4		1 n	26	2	green	197	42	
05:30:00	36 18,46	25 08,15	68	60	3	4,5	509	218849	120	3	4		1 m	26	2	green	197	42	
05:45:00	36 18,81	25 09,13	63	59	3,1	4,2	503	218883	120	3	4		1m	26	2	green	200	41	
06:00:00	36 19,15	25 10,06	71	62	3,1	4,5	491	219106	120	3	4		1 m	26	2	green			
06:15:00	36 19,47	25 10,96	66	60	3,1	4,2	479	219333	120	3	4		1 m	26	2	green	200	40	
06:32:00	36 19,87	25 12,05	67	61	3,3	4,1	462	219605	120	3	4		1 m	26	2	green	200	42	
06:46:00	36 20,18	25 12,93	65	62	3,6	4,3	448	219810	120	3	4		1 m	26	2	green	198	41	
07:00:00	36 20,51	25 13,85	71	60	3,1	4,7	424	220010	120	3	4		1 m	26	2	green	198	42	
07:16:00	36 20,85	25 14,81	64	52	3	4,2	398	220263	120	3	4		1 m	26	2	green	200	41	leakage warning light was on
07:30:00	36 21,16	25 15,64	64	58	3,5	4,6	364	220456	120	3	4		1 m	26	2	green	195	41	
07:45:00	36 21,52	25 16,65	67	53	3,1	3,9	337	220691	120	3	4		1 m	27	2	green	195	41	
08:00:00	36 21,85	21 17,57	64	54	3,4	4,2	258	220929	120	3	4		1 m	26	2	green	199	41	
08:15:00	36 22,18	25 18,48	65	57	3,7	4,4	192	221133	120	3	4		1 m	27	2	green	195	41	
08:21:00	36 22,36	25 18,95	66	61	3,8	4,5	123	221223	120	3	4		1 m	26	2	green			EOL_P5009
08:30:00	36 22,56	25 19,53	29	22	3,4	3,9	19	221358	120	3	4		1 m	26	2	green	199	41	

08:45:00	36 22,82	25 18,82	209	211	3,9	4,5	49	221594	120	3	4		1 m	26	2	green	195	42	
08:53:00	36 22,33	25 18,96	177	181	3,7	3,9	120	221716	120	3	4		1 m	27	2	green	196	43	SOL_5010
09:00:00	36 21,94	25 18,95	178	179	3,9	4,1	122	221807	120	3	4		1 m	27	2	green			
09:15:00	36 20,93	25 18,96	180	180	3,8	4,2	317	222044	120	3	4		0,5 m	26	2	green	188	43	
09:30:00	36 20,01	25 18,97	180	179	3,9	3,9	458	222258	120	3	4		0,5 m	26	2	green	200	42	
09:45:00	36 19,04	25 18,98	179	177	4	4,1	527	222480	120	3	4		0,5 m	26	2	green			
10:00:00	36 17,98	25 18,99	169	167	3,8	4,1	536	222725	120	3	4		0,5 m	25	2	green	196	42	
10:15:00	36 17,11	25 19,01	178	180	3,5	3,9	539	222940	120	3	4		0,5 m	26	2	green	199	43	
10:30:00	36 16,17	25 19,01	179	179	3,9	4,2	554	223166	120	3	4		0,5 m	26	2	green	193	43	
10:45:00	36 15,12	25 19,02	179	180	3,8	4,4	322	223412	120	3	4		0,5 m	26	2	green	190	42	
11:00:00	36 14,28	25 19,03	179	179	3,8	4,1	453	223612	120	3	4		0,5 m	26	2	green	197	42	
11:15:00	36 13,32	25 19,04	178	179	3,8	4,2	698	223839	120	3	4		0,5 m	26	2	green	197	42	
11:30:00	36 12,28	25 19,05	179	179	3,8	4,3	716	224092	120	3	4		0,5 m	27	2	green	192	42	
11:45:00	36 11,04	25 19,06	177	178	3,8	4,3	867	224300	120	3	4		0,5 m	28	2	green	190	42	EOL_P5010
12:18:00	36 11,38	25 19,05	331	335	3,8	4	832	224797	120	3	4		0,5 m	27	2	green	195	42	SOL_P5011
12:30:00	36 12,07	25 18,69	336	340	3,8	4	736	224971	120	3	4		0,8m	27	2	green	197	42	
12:45:00	36 12,87	25 18,28	337	340	3,8	4	676	225182	120	3	4		0,5 m	27	2	green	198	42	
13:00:00	36 13,85	25 17,78	338	341	3,9	4	620	225431	120	3	4		0,5 m	27	2	green	196	42	
13:15:00	36 14,77	25 17,30	337	340	3,9	4,2	545	225665	120	3	4		0,5 m	27	2	green	200	42	

13:30:00	36 15,72	25 16,81	337	341	3,9	4,3	525	225899	120	3	4		0,5 m	27	2	green	200	42	
13:45:00	36 16,52	25 16,40	337	342	3,8	4,3	508	226102	120	3	4		0,5 m	27	2	green	192	42	
14:00:00	36 17,22	25 16,04	337	342	3,8	4,2	484	226277	120	3	4		0,5 m	27	2	green	200	42	
14:15:00	36 18,23	25 15,52	337	345	3,9	4,2	464	226533	120	3	4		0,5 m	26	2	green	200	42	
14:30:00	36 19,16	25 15,04	337	346	3,6	4,5	448	226768	120	3	4		0,5 m	25	2	green	199	42	
14:45:00	36 19,94	25 14,64	337	346	3,3	4	426	226975	120	3	4		0,5 m	25	2	green	197	42	
15:00:00	36 20.75	25 14,22	335	344	3,7	4,3	412	227275	120	3	4		0,5 m	24	2	green	197	42	
15:15:00	36 21,61	25 13,78	338	343	3,5	4,3	279	227233	120	3	4		0,5 m	24	2	green	197	42	
15:30:00	36 22,41	25 13,37	337	342	3,8	4,4	395	227650	120	3	4		0,5 m	24	2	green	196	42	
15:45:00	36 23,25	25 12,93	338	340	3,8	4,5	390	227874	120	3	4		0,5 m	23	2	green	193	41	
15:51:30	36 23,70	25 12,73	7,2	6,7	3,3	3,9	393	227981	120	3	4		0,5 m	23	2	green	192	41	EOL_P5011/SOL_P5012

16:00:00	36 24,14	25 13,03	24	22	4,2	4,8	381	228127	120	3	4		0,5 m	23	2	green	193	41	
16:15:00	36 25,03	25 13,50	26	20	4	4,2	326	228323	120	3	4		0,5 m	23	2	green	193	41	Leakage warning light was on
16:30:00	36 25,95	25 14,05	26	21	4	4,3	272	228549	120	3	4		0,5 m	23	2	green	199	41	Leakage sign on again (approx 16:38)
16:45:00	36 26,89	25 14,60	25	22	3,7	4,2	211	228782	120	3	4		0,5 m	23	2	green	198	41	
16:55:30	36 27,50	25 13,97	22	22	3,9	4,3	145	228938	120	3	4		0,5 m	23	2	green	195	41	EOL_P5012/SOL_P5013
17:15:00	36 28,31	25 16,19	53	49	4,1	4,5	158	229231	120	3	4		0,5 m	23	2	green	195	40	
17:30:00	36 29,00	25 17,31	52	52	4,6	4,9	164	229461	120	3	4		0,5 m	23	2	green	196	41	

17:45:00	36 29,68	25 18,41	52	55	4	4,5	159	229700	120	3	4		0,5 m	23	2	green	195	40	
18:00:00	36 30.26	25 19.36	52	57	4,1	4,3	170	229908	120	3	4		0,5 m	23	2	green	186	40	
18:15:00	36 30.87	25 20.36	51	56	3,9	4,3	200	230133	120	3	4		0,5 m	23	2	green	193	41	
18:30:00	36 31.46	25 21.32	53	55	3,8	4,3	237	230358	120	3	4		0,5 m	23	2	green	195	41	
18:45:00	36 32.00	25 22.21	52	54	3,5	4,3	281	230583	120	3	4		0,5 m	24	2	green	197	41	
19:00:00	36 32.55	25 23.10	53	51	3,6	4,3	333	230808	120	3	4		0,5 m	24	2	green	195	41	
19:10:00	36 32.96	25 23.69	39	40	3,6	4,3	370	230964	120	3	4		0,5 m	24	2	green	199	41	EOL_P5013/SOL_P5014
19:31:00	36 34.11	25 24.41	25	28	3,7	4,5	387	231272	120	3	4		0,5 m	24	2	green	193	41	
19:45:00	36 34.87	25 24.82	23	28	3,4	4,3	394	231483	120	3	4		0,5 m	24	2	green	199	41	
20:00:00	36 35,67	25 25,25	22	24	3,5	4,2	396	231708	120	3	4		0,5 m	24	2	green	195	41	
20:15:00	36 36,51	25 25,69	22	21	3,8	4,4	357	231933	120	3	4		0,5 m	24	2	green	195	41	
20:30:00	36 37,31	25 26,09	21	28	3,5	4,3	311	232158	120	3	4		0,5 m	24	2	green	196	40	
20:45:00	36 38,14	25 26,53	22	29	3,5	4,5	187	232383	120	3	4		0,5 m	23	2	green	198	39	
21:00:00	36 38,93	25 26,94	23	30	3,2	4,3	162	232608	120	3	4		0,5 m	24	2	green	194	40	
21:15:00	36 39,68	25 27,33	21	28	3,1	3,4	163	232835	120	3	4		0,5 m	24	2	green	200	40	
21:30:00	36 40,43	25 27,73	22	29	3,3	4,4	185	233058	120	3	4		0,5 m	23	2	green	198	41	
21:45:00	36 41,20	25 28,13	25	27	3,1	4,3	185	233283	120	3	4		0,5 m	24	2	green	197	40	
22:00:00	36 42,01	25 28,54	21	29	3,4	4,4	217	233526	120	3	4		0,5 m	24	2	green	198	40	
22:15:00	36 42,86	25 28,99	23	32	3,9	4,6	223	233751	120	3	4		0,5 m	23	2	green	198	40	

22:30:00	36 43,74	25 29,45	22	31	4,2	4,5	232	233960	120	3	4		0,5 m	24	2	green	200	41	
22:45:00	36 44,68	25 29,95	22	31	4,1	4,4	230	234191	120	3	4		0,5 m	23	2	green	197	41	
23:00:00	36 45,62	25 30,43	22	28	4	4,3	239	234409	120	3	4		0,5 m	23	2	green	190	41	
23:12:00	36 46,13	25 31,44	77	80	3,9	4,4	248	234620	120	3	4		0,5 m	23	2	green	195	40	EOL_P5014/SOL_P5015
23:30:00	36 46,36	25 32,66	77	77	3,9	4,3	239	234875	120	3	4		0,5 m	23	2	green	197	41	
Date: Fridaz 25.10.2019																			
00:00:00	36 46,80	25 35,05	77	73	4	4	313	235318	120	3	4		0,5 m	24	2	green	190	41	
00:17:00	36 47,03	25 36,25	77	73	4,3	4,3	338	235568	120	3	4		0,4 m	24	2	green	194	41	EOL_P5015
00:42:00	36 47,22	25 36,48	148	153	4,3	3,8	340	235954	120	3	4		0,4 m	25	2	green	195	40	SOL_P5016
01:00:00	36 46,16	25 37,21	151	148	4,2	3,6	345	236215	120	3	4		0,4 m	24	2	green	195	40	
01:15:00	36 45,25	25 37,82	151	137	3,8	3,4	408	236448	120	3	4		0,4 m	24	2	green	200	40	
01:30:00	36 44,42	25 38,41	151	132	3,8	3,5	477	236662	120	3	4		0,4 m	24	2	green	197	39	
01:45:00	36 43,48	25 39,05	150	125	3,8	4,1	474	236894	120	3	4		0,4 m	23	2	green	196	40	
02:00:00	36 42,61	25 39,69	151	138	3,7	3,7	471	237118	120	3	4		0,4 m	24	2	green	200	40	
02:15:00	36 41,80	25 40,23	150	136	3,7	3,8	470	237328	120	3	4		0,4 m	24	2	green	196	40	
02:30:00	36 40,87	25 40,88	150	128	4	4,3	439	236561	120	3	4		0,5 m	24	2	green	199	39	
02:45:00	36 39,93	25 41,45	152	143	4,2	4,7	383	237797	120	3	4		0,5 m	24	2	green	194	40	
03:01:39	36 39,07	25 42,13	151	146	3,8	4,3	289	238010	120	3	4		0,5 m	24	2	green	200	40	
03:15:00	36 38,23	25 42,72	149	148	4,2	4,3	240	238230	120	3	4		0,5 m	24	2	green	196	40	

03:30:00	36 37,33	25 43,34	150	149	4,1	4,3	174	238448	120	3	4		0,4 m	24	2	green	194	40	
03:45:00	36 36,43	25 43,95	151	146	4,2	4,7	155	238673	120	3	4		0,4 m	24	2	green	198	39	
04:00:00	36 35,54	25 44,57	150	145	4,1	4,1	383	238903	120	3	4		0,4 m	24	2	green	180	40	
04:15:00	36 34,69	25 45,16	150	145	4	4,5	688	239124	120	3	4		0,8m	25	2	green	196	39	

04:30:00	36 33,81	25 45,76	153	150	4	4,2	681	239348	120	3	4		1,5 m	25	2	green	195	40	
04:43:30	36 32,93	25 46,30	153	149	3,9	4,2	658	239560	120	3	4		1,5 m	25	2	green	190	40	EOL_P5016
05:00:00	36 32,36	25 45,75	259	270	3,5	4,2	658	239893	120	3	4		1,5 m	25	2	green	199	41	
05:16:50	36 32,65	25 44,83	22	23	4,6	4,1	662	240055	120	3	4		1,5 m	26	2	green	190	41	SOL_P5017
05:30:00	36 33,45	25 45,35	29	26	3,5	3,9	677	240291	120	3	4		1,5 m	25	2	green	197	40	Leakage sign turned on
05:45:00	36 34,05	25 45,77	28	26	3,3	3,7	683	240478	120	3	4		1,5 m	25	2	green	201	40	
05:57:00	36 34,75	25 46,24	30	27	4,5	4	688	240682	120	3	4		1,5 m	25	2	green			compressor stopped, slowing to 2 knots
06:01:00	36 34,88	25 46,34	37	24	1,7	2,3	688	240717	120	3	4		1,5 m	25	2	green			stopped acquisition, while we work on compressor
06:04:00								240718	120	3	4		1,5 m						testing, not yet back running properly
06:07:00	36 35,06	25 46,47	27	22	2,6	2,2	692	240732	120	3	4		1,5 m	25	2	green	195		back running properly
06:15:00	36 35,47	25 46,73	28	27	4	4,5	692	240875	120	3	4		1,5 m	25	2	green	192	39	
06:30:00	36 36,21	25 74,26	30	26	3,6	4,3	688	241095	120	3	4		1,5 m	25	2	green	198	39	
06:45:00	36 37,06	25 47,85	27	26	3,9	4,2	702	241329	120	3	4		1,5 m	25	2	green	194	40	

07:02:00	36 37,87	25 48,40	23	20	3,7	4,1	704	241574	120	3	4		1,5 m	25	2	green	197	40	EOL_P5017/SOL_P5018
07:15:00	36 38,68	25 47,87	327	333	4	4,7	559	241773	120	3	4		1,5 m	24	2	green	198	41	
07:31:00	36 39,56	25 47,13	326	335	3,7	4,2	301	242021	120	3	4		1,5 m	25	2	green	195	41	
07:45:00	36 40,32	25 46,50	325	334	3,8	4,1	343	242225	120	3	4		1,5 m	24	2	green	200	40	
08:00:00	36 41,07	25 45,87	325	341	3,5	3,9	407	242447	120	3	4		1,5 m	25	2	green	198	41	
08:15:00	36 41,83	25 45,23	325	332	3,5	4	345	242669	120	3	4		1,5 m	25	2	green	197	41	
08:30:00	36 42,64	25 44,54	326	337	3,5	4	404	242910	120	3	4		1,5 m	25	2	green	194	41	
08:45:00	36 43,31	25 43,98	325	339	3,5	3,9	463	243117	120	3	4		1,5 m	25	2	green	200	42	
09:00:00	36 44,15	25 43,28	472	326	340	3,7	4,2	243357	120	3	4		1,5 m	33	2	green	199	41	
09:13:00	36 44,79	25 42,75	330	338	3,5	4,4	471	243542	120	3	4		1,5 m	27	2	green	200	40	EOL_P5018
09:15:00	36 45,22	25 41,95	221	226	3,9	4,7	472	243800	120	3	4		1,5 m	25	2	green	195	40	
09:45:00	36 44,79	25 42,68	91	84	4,1	4,7	472	244036	120	3	4		1,5 m	25	2	green	190	38	SOL_P5019
10:00:00	36 44,72	25 43,71	95	86	3,5	4,5	471	244258	120	3	4		1,5 m	25	2	green	193	38	
10:15:00	36 44,64	25 44,80	93	86	3,5	4,2	470	244483	120	3	4		1,5 m	26	2	green	197	38	
10:30:00	36 44,56	25 45,88	95	87	3,6	4,6	469	244688	120	3	4		1,5 m	26	2	green	198	38	
10:45:00	36 44,48	25 47,20	96	91	4,1	4,6	465	244941	120	3	4		1,5 m	26	2	green	197	38	
11:00:00	36 44,39	25 48,29	95	85	3,6	4,1	454	245150	120	3	4		1,5 m	25	2	green	200	38	
11:15:00	36 44,31	25 49,50	95	81	3,5	4,4	459	245831	120	3	4		1,5 m	25	2	green	195	38	

11:30:00	36 44,36	25 50,49	83	70	3,5	4,5	633	245594	120	3	4		1,5 m	24	2	green	198	38	
11:45:00	36 44,52	25 51,68	82	77	3,8	4,8	678	245830	120	3	4		1,5 m	24	2	green	197	39	
12:00:00	36 44,69	25 52,93	81	79	3,9	4,5	692	246062	120	3	4		1,5 m	24	2	green	197	39	
12:15:00	36 44,83	25 53,89	81	74	3,9	4,5	686	246297	120	3	4		1,5 m	24	2	green	194	39	
12:30:00	36 45,00	25 55,21	82	74	3,8	4,2	701	246492	120	3	4		1,5 m	25	2	green	195	37	
12:45:00	36 45,16	25 56,44	80	75	4	4,4	693	246727	120	3	4		1,5 m	25	2	green	200	37	
12:55:00	36 45,28	25 57,31	81	79	4	4,1	689	246883	120	3	4		1,5 m	25	2	green	200	38	EOL_P5019
13:17:00	36 44,22	25 57,72	169	189	3,5	4,6	709	247211	120	3	4		1,5 m	25	2	green	200	37	
13:47:00	36 43,06	25 57,24	314	313	3,5	4,3	710	247659	120	3	4		1,8 m	24	2	green	197	40	SOL_P5020
14:00:00	36 43,71	25 56,68	326	322	3,9	4,6	709	247843	120	3	4		1,8 m	25	2	green	196	40	
14:15:00	36 44,49	25 56,01	325	323	3,8	4,1	695	248073	120	3	4		1,8 m	25	2	green	193	40	
14:30:00	36 45,22	25 55,40	325	325	3,4	3,7	704	248294	120	3	4		1,8 m	25	2	green	194	40	
14:45:00	36 45,89	25 54,84	325	327	3,4	3,9	723	248511	120	3	4		1,8 m	25	2	green	197	39	
15:00:00	36 46,60	25 54,24	326	329	3,6	4,1	711	248744	120	3	4		1,8 m	25	2	green	196	39	
15:01:30	36 46,70	25 54,16	326	328	3,6	3,8	712	248765	120	3	4		1,8 m	25	2	green	196	39	EOL_P5020
15:15:00	36 47,34	25 54,33	66	57	3,7	4,6	716	248970	120	3	4		1,8 m	25	2	green	198	39	
15:30:00	36 64,83	25 54,92	221	234	3,3	4	728	249182	120	3	4		1,8 m	25	2	green	195	40	

15:40:00	36 46,65	25 54,16	233	247	3,8	5,1	710	249343	120	3	4		1,8 m	25	2	green	197	41	SOL_P5021
15:51:10	36 46,16	25 53,48	227	243	3,4	4,2	694	249530	120	3	4		1,8 m	25	2	green			Leakage sign on, jumping values and stays on / Some spikes at Channel 14
16:04:05								249705											Taking some sections out of the water
16:16:00	36 45,22	25 52,22	230	242	3,6	4,6	691	249876	120	3	4								Stop of measurement due to the bad weather!
Date: Sunday 27.10.2019																			
																			Survey G
06:32:00	36 25,6	25 32,36	140	134	3,8	4,1	258	250024	48	3,5	4		1,5 m	25	2	green	195	43	Airgun delay tests with the long shot
								250150											SOL_6001, channels 13, 14, 15, 16 are not working
06:45:00	36 25,07	25 33,05	132	123	3,4	4	330	250225	48	3,5	4		1,2 m	28	2	green	194	45	Channels 47 and 48 are noisy
07:00:00	36 24,5	25 33,83	134	120	3,7	4,3	416	250443	48	3,5	4		1,2 m	29	2	green	193	45	
07:15:00	36 23,87	25 34,69	132	122	4,2	4,8	445	250660	48	3,5	4		1,2 m	29	2	green	195	46	
07:30:00	36 23,25	25 35,53	129	125	3,7	4,9	462	250883	48	3,5	4		1,2 m	29	2	green	195	46	
07:45:00	36 22,65	25 236,33	133	122	3,5	4,2	471	251113	48	3,5	4		1,2 m	28	2	green	190	46	
08:00:00	36 22,04	25 37,61	130	124	3,7	4,4	475	251346	48	3,5	4		1,2 m	29	2	green	182	46	
08:15:00	36 21,44	25 37,98	129	124	3,7	4,4	465	251565	48	3,5	4		1,2 m	28	2	green	190	46	
08:30:00	36 20,82	25 38,81	134	125	3,7	3,9	348	251789	48	3,5	4		1,2 m	27	2	green	192	46	
08:45:00	36 20,19	25 39,65	138	122	3,6	5	142	252015	48	3,5	4		1,2 m	27	2	green	194	45	

08:53:00	36 19,87	25 49,08	127	112	3,3	4	117	252134	48	3,5	4		1,2 m	27	2	green	193	46	EOL_P6001
09:00:00	36 19,67	25 40,51	136	136	3,6	4,6	106	252238	48	3,5	4		1,208736	n 27	2	green	190	47	
09:15:00	36 19,48	25 39,96	354	7	3,2	4	125	252471	48	3,5	4		1,2 m	27	2	green	190	47	
09:24:00	36 19,90	25 40,06	3	8	2,5	3,3	119	252600	48	3,5	4		1,2 m	26	2	green	190	46	SOL_P6002
09:30:00	36 20,17	25 40,08	5	7	3,5	4,5	122	252686	48	3,5	4		~1,198 m	26	2	green	190	48	
09:45:00	36 21,07	25 40,13	5	6	3,5	4,3	134	252916	48	3,5	4		1,2 m	26	2	green	192	47	
10:00:00	36 22,19	25 40,19	4	6	3,3	4,3	186	253229	48	3,5	4		1,2 m	26	2	green	194	46	
10:15:00	36 22,89	25 40,22	4	8	3,6	4,5	418	253401	48	3,5	4		1,2 m	26	2	green	192	47	
10:30:00	36 23,84	25 40,27	3	5	3,6	4,3	544	253660	48	3,5	4		1,2 m	26	2	green	192	47	
10:45:00	36 24,60	25 40,30	3	9	3,5	4,4	544	253851	48	3,5	4		1,2 m	25	2	green	191	47	
11:00:00	36 25,61	25 40,36	1	6	3,6	4,7	537	254102	48	3,5	4		1,2 m	25	2	green	190	46	
11:15:00	36 26,24	25 40,39	2	6	3,4	4,3	528	254272	48	3,5	4		1,2 m	25	2	green	192	47	
11:30:00	36 27,11	25 40,44	3	6	3,6	4,4	521	254493	48	3,5	4		1,2 m	25	2	green	191	47	
11:38:00	36 27,59	25 40,55	47	46	3,7	4,9	532	254626	48	3,5	4		1,2 m	25	2	green	193	47	EOL_P6002/SOL_P6003
12:00:00	36 28,11	25 41,76	61	52	2,8	4,1	544	254943	48	3,5	4		1,2 m	24	2	green	190	47	
12:15:00	36 38,51	25 42,64	65	56	3,3	4,6	559	255173	48	3,5	4		1,2 m	24	2	green	190	46	
12:30:00	36 28,85	25 54,344	50	45	3,3	4,6	598	255385	48	3,5	4		1,2 m	24	2	green	193	46	
12:37:00	36 29,01	25 43,95	99	96	4,1	5,3	600	255498	48	3,5	4		1,2 m	24	2	green	191	48	EOL_P6003/SOL_P6004
13:00:00	36 27,90	25 44,86	144	137	3,9	4,8	601	255834	48	3,5	4		1,2 m	24	2	green	192	46	

13:15:00	36 27,08	25 45,56	146	139	3,3	3,8	594	255607	48	3,5	4		1,2 m	24	2	green	191	46	
13:30:00	36 26,34	25 46,18	146	142	3,7	4,5	580	256301	48	3,5	4		1,2 m	24	2	green	189	46	
13:45:00	36 25,62	25 46,76	150	143	3,8	4,8	507	256510	48	3,5	4		1,5 m	23	2	green	189	47	
14:00:00	36 24,85	25 47,40	146	142	3,5	4,4	67	256740	48	3,5	4		1,5 m	23	2	green	184	46	
14:12:30	36 24,25	25 47,89	144	141	3,2	3,7	48	256926	48	3,5	4		1,5 m	23	2	green	194	46	EOL_P6004/ SOL_P6005
14:30:00	36 24,41	25 48,77	47	48	3,1	3,9	66	257195	48	3,5	4		1,5 m	24	2	green	195	46	
14:45:00	36 24,86	25 49,55	50	37	2,3	2,8	128	257425	48	3,5	4		1,5 m	24	2	green	196	46	
14:57:30	36 25,34	25 49,81	335	240	3,1	3,9	178	257596	48	3,5	4		1,5 m	24	2	green	191	47	EOL_P6005/SOL P_6006
15:15:00	36 26,19	25 49,15	327	335	3,6	4	215	257865	48	3,5	4		1,5 m	23	2	green	197	46	

15:30:00	36 26,86	25 48,62	325	337	3,6	4,1	486	258080	48	3,5	4		1,5 m	23	2	green	196	47	
15:46:00	36 27,71	25 47,96	322	339	3,6	4,1	581	258334	48	3,5	4		1,5 m	23	2	green	196	47	EOL_P6006/ End of acquisition