Abschlußbericht

für das Projekt

SEAMOUNTFLUX

Effiziente Abkühlung junger ozeanischer Kruste durch Zirkulation von Meerwasser durch Seamounts (Guatemala Becken, Ostpazifik)

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1.0 Scientific Background and goal of the project

The scientific goal of the project "SeamountFlux" was to investigate the exchange of matter and energy between the ocean and the upper lithosphere in the vicinity of unexplained circular depressions in the sediment cover of the Cocos Plate (see Figure 1), previously already described in the literature. Bekins et al. (2007) hypothesize that these 'hydrothermal pits' are possibly responsible for the plate-wide cooling of the oceanic crust of the Cocos Plate. They presented a possible model how these pits are formed: warm, diffuse outflow of hydrothermal fluids within the pits dissolve the calcium carbonate ($CaCO_3$) minerals in the sedimentary cover and create hereby the depressions observed in the bathymetry. The discharging warm fluid is probably entering the upper crust at seamounts, heats up and escapes at the pits. If such a process is going over geological time scales it will affect the thermal structure in and around the pits as well as the geochemistry of the pore water inside the pits. The goal of the investigation was to test this hypothesis by mapping the pits acoustically (swath bathymetry, Parasound sediment echo sounding and reflection seismic), measure heat flow inside and outside of pits and collect pore water from sediment cores also from inside and outside of the pits.

2. Sequence of activities within the project

2.1 Scientific work during expedition SO207

Ms. Schmidt-Schierhorn (MSc Marine Geosciences) and Mr. Becke (Dipl. Geol.) were contracted at the beginning of the project to start with the preparations for expedition SO207. This included technical preparation such as collecting relevant data and publications. A summary of published papers on the working area and the scientific background of the cruise were handed out to all cruise participants. Maps and seismic profiles of the working areas were printed out to serve as a working base on board.

Expedition SO207 took place from 21st of June to 13th of July 2010, approximately 360 nautical miles off Costa Rica (East Pacific, ca. 8°N and 90°W). Figure 1 shows the location of the working area. On board of the German research vessel SONNE were scientists from the University of Bremen and one Scientist from the University of Bern.

During cruise SO207 we mapped the pits in three working areas (Figure 1 Figure 1 and Figure 2) with acoustical methods (bathymetry, sediment echo sounding and single channel seismic). Seismic lines crossed ODP/IODP sites 844 and 1256 in order to calibrate the seismic records and to correlate prominent reflectors with dated horizons in the boreholes. Heat flow measurements were always done on seismic lines to allow later the calculation of basement temperatures. Gravity cores provided the samples for pore water and sedimentary analysis.

Seismic profiles (Figure 2) with an overall length of 400 km and more than 5600 km² of obtained bathymetry data provide detailed acoustical surveys of the pits and their surroundings. The acoustic mapping showed that most hydrothermal pits are about 100 to 150 m deep with a diameter of about 1 km. Heat flow measurements (140 in total on 9 profiles) around seamounts confirm that they act as pathways for cold seawater which leads to a large cooling effect in the vicinity of the seamount where heat flow values as low as 10 mW/m^2 were measured. All heat flow values inside the pits show values up to five times higher than background values around the pits.

Sediment was collected with a gravity corer with a total recovery of 191 m. From these cores we extracted 451 pore water samples which were analyzed in Bremen.

Overall, the cruise was extremely successful as we got the data needed to support or reject the scientific hypothesis and to investigate the role of the hydrothermal pits.

Directly after coming back from the expedition, the cruise report was prepared and printed in mid-October 2010. It contains all detailed information with respect to location of profiles, location of gravity cores and location of heat flow measurements. All measured data was given to Dr. Grobe (Alfred-Wegener-Institut für Polarforschung, Bremerhaven) for adding it to the database Pangaea.

2.2 Processing and interpretation of the collected data

3.0 Results

In the following we will summarize the main results of the geophysical and the sedimentological and geochemical investigations and discuss the main results of the three working areas. Additional figures and tables can be found in the two appendices, one for Sediments and Pore Water (abbreviated as Appendix SPW) and the other one for Geophysics (abbreviated as Appendix G).

3.1 Geophysics

3.1.1 Processing of geophysical data

After finishing the cruise report, the geophysical data were processed in detail. This included the following:

- ➢ Bathymetry
  - Clearing up the raw data
  - Generate consistent maps for each working area
  - Generate detailed maps for specific regions
- ➢ Parasound
  - Re-play all Parasound profiles
  - Generate maps with Parasound profiles and navigational information
- ➢ Seismic
  - Draw up geometry and calculate shot point navigation
  - Determine ideal filter parameters
  - Stacking of CDPs
  - Migration
  - Generate maps with seismic profiles and shot point navigation
  - Calculate sediment thickness with data from next ODP site and draw result in a map
- ➢ Heat flow measurements
  - Consistent post processing of all heat flow measurements
  - Combining seismic sections with heat flow profiles.

- Calculate temperature at the sediment-basement boundary based on measured heat flow and sediment thickness.

3.1.2 Results of the geophysical survey

Summary of the most important results:

- Hydrothermal pits are easily identifiable in the detailed bathymetry. Most of them have a depth between 50 and 100 m and a diameter of about one kilometer.
- The seismic profiles show that the sediment thickness is significantly smaller inside the pits than in the surrounding area. The reason for this is a slight basement elevation inside the pits but obviously also a missing sediment section, compared to the sediment section outside of the pits.
- The well layered sedimentary structure outside of the pits is highly disrupted inside the pits. Therefore a direct correlation of layers inside and outside is difficult if not impossible.
- Sediment thickness was calculated on all seismic profiles calibrated with core data from ODP site 844 in WA 1 and ODP site 1256 in WA 3.
- Heat flow measurements inside the pits show values which are up to 5 times higher than the surrounding values outside the pits. This increase is not fully explainable by the smaller amount of sediment lying in the depressions.
- All heat flow measurements in the vicinity of seamounts show low values of even less than 10 mW/m². These results support the hypothesis that cold seawater enters the upper crust through permeable seamounts and hereby cools down the surrounding of the seamount up to distances of 10 km or more. This large-scale cooled down zone suggests a strong and efficient circulation system which had been active over possibly millions of years.
- Calculated basement temperatures based on measured heat flow show that temperature at the sediment-basement boundary is not isothermal, which is a strong indication that the circulation in the upper crust cannot be very vigorous.

3.1.2.1 Working area 1

We surveyed WA 1 with bathymetry, seismics and sediment echosounding (Parasound) on twelve profiles (see profiles in the Appendix G). In the southern part of WA 1, there is a high seamount of about 400 m height just about 10 km south of ODP site 844. A series of hydrothermal pits is clearly visible in the bathymetry and on seismic profile ‘a’ (see Figure 7). Three heat flow profiles complete the measurements. Profile ‘a’ and ‘b’ cross over the largest pit in the working areas (see detailed map in Figure 29), while Profile ‘c’ is measured towards the seamount. Figure 3 to Figure 8 show the results from WA 1.

Profile ‘a’ (see Figure 3) and ‘c’ show significantly higher heat flow in within the hydrothermal pit. Profile ‘c’ starting at ODP site 844 and runs towards the seamount shows extremely low heat flow an indication that the seamount acts as recharge site.

A detailed look at the sedimentary structure inside the largest pit in all three working areas (Figure 5 and Figure 6; called The Pit in the following) shows that the upper sediment layer of about 50 to 60 m is continuous across the pit but underneath this top layer the layering is very disrupted and a correlation of layers inside and outside of the pit is very difficult if not impossible. The top layer can be traced all the way from ODP site 844 to the pit and consists of pelagic mud with little carbonate content. Heat flow inside the pit is a factor of 5 larger than outside the pit.

In addition, we surveyed an area between two pits on Profile ‘a’ (the largest one and the first one more south of it) with the Ocean Seafloor Observation System (OFOS). The goal was to see if there are any visible changes of sediment color or surface inside and outside of a pit. Unfortunately, the visual observations do not show any changes.

3.1.2.2 Working area 2

In WA 2 is another high seamount in the northwestern corner. Additionally there are some ridges and troughs distributed in the center and a number of hydrothermal pits in the northern half. Seismic, bathymetric and Parasound data was obtained on 15 profiles. Four heat flow surveys give additional information on the thermal state. Profile ‘d’ was conducted in the vicinity of the seamount, while profile ‘e’ and ‘f’ are running over a hydrothermal depressions. Profile ‘g’ was measured perpendicular to a system of ridges and troughs in order to examine thermal anomalies produced through this relief.

As seen in WA 1, the sediment thickness over hydrothermal pits is also reduced in working area 2 (see Appendix G). Profile ‘d’, which is running up north towards the seamount, shows again extremely low heat flow values (see Figure 10) again as in WA 1 a strong indication that the seamount is a recharge site of cold seawater. Higher heat flow is measured in profile ‘e’ and ‘f’ (see Figure 10 and Figure 11) inside the pits. Figure 11 shows a heat flow profile across a small pit in the southwest of WA 2 where heat flow is again almost 5 times higher compared to background values. In profile ‘g’, no evidence for varying flow can be found while measuring over ridges and troughs.

3.1.2.3 Working Area 3

WA 3 contains IODP site 1256 and was investigated less intensive than the others due to time constraints. Seismic, bathymetric and Parasound data was obtained on numerous profiles (Figure 2) but we had only time for one heat flow profile. In this area pits seem to be more elongated in shape and coinciding with ridges. One heat flow profile was run over the largest pit in the area. Figure 14 shows all values superimposed on bathymetry whereas Figure 16 the profile in detail. It is obvious that the heat flow anomaly in the pit is superimposed on a large-scale heat flow depression with a minimal heat flow value of almost zero. Calculated temperatures at the sediment-basement boundary Figure 16 reveal that in the southwestern part of the profile basement temperatures are only slightly above seawater temperatures.

3.1.2.4 Working area between 2 and 3

Between WA 3 and WA 2 is a relatively large donut-shaped seamount of almost perfect circular shape and a clearly visible caldera (southwestern corner of map, shown in Figure 9). A heat flow profile (Figure 17) shows again decreasing heat flow as one approaches the seamount. Measurements at the foot of the seamount were not possible as the heat probe could not penetrate most likely due to the sandy nature of the vulcanoclastic sediments. Two measurements inside the caldera show almost identical values of 10 mW/m^2. The significant rise in the middle of the profile is enigmatic but due to time constraints we could not investigate the location in more detail.

3.2 Sediment and pore water analyses

3.2.1 Sediment

Following the cruise additional sedimentary measurements were made in the laboratories at the University of Bremen. This included the following:

- Chemical composition
  - Investigation of elemental composition on the surface of the split sediment cores by X-ray Fluorescence (XRF) scanning
  - Total carbon analysis with a LECO CS analyzer
  - Preparation of concentration plots against depth for the individual cations
- Sediment compaction
  - Compression testing with oedometer
  - Plots of isotope values against depth for selected cores
- Sediment characteristics
  - Detection of dissolution features with a scanning electron microscope

Summary of the most important results:

- The diagrams of the carbonate content in the depth profiles do not show, similar to the profiles of the calcium concentration of the pore water, an explicit trend with increasing depth. The carbonate content is reflecting the lithological compositions of sediment layers.
- The foraminifera are mostly undamaged. The pores are in good shape and do not exhibit cracks. The bases of the spines of the shells are still in good shape. These features indicate that no carbonate dissolution in the sediment layer is taking place.
- The compressibility of the sediment samples from inside and outside of the hydrothermal pits show only a very small difference. The different length of the cores inside and outside of the pits is thus not attributed to compaction of the sediment.
- The elemental composition of the sediments, as obtained by XRF scanner, does not show any increasing or decreasing trends for calcium carbonate.

3.2.1.1 Chemical composition

In all, 433 sediment samples were collected from the cores of the three working areas (Table 1. Station overview for the three different working areas WA 1 (GUATB1), WA 2 (GUATB2) and WA 3 (GUATB3).) and homogenized to a fine powder. Subsequently they were analyzed by CS-Analyzer from the company LECO to obtain information about calcium carbonate (CaCO3) content and total organic carbon content (Appendix SPW, I).

The $CaCO_3$ content of sediment samples in working area 1 is considerably smaller than in working areas 2 and 3. The measured values range from 0 wt% to 24 wt%, while in the working area 2 the content varies from 0 wt% up to 85 wt%. The high $CaCO_3$ content at this working area results from the fact that in some cores, e.g. GeoB14608, a white calcareous sediment layer occurs. This leads to an increasing of calcium carbonate content. In the working area 3 the

$CaCO_3$ content varies from 0 wt% to 35.09 wt%. The $CaCO_3$ profiles are compared to calcium concentration in the corresponding pore water (Figure 20 to Figure 24). Calcium content of the pore water seems to be not affected by the presence of $CaCO_3$. There is no difference between core from the inside or outside of the pits. The lithological compositions of sediment and organic matter are responsible for the changing of total organic carbon and calcium carbonate content. Some good examples for changing of calcium carbonate content are very well visible on sediment cores GeoB14608, GeoB 14609 and GeoB14613 (Figure 22 and Figure 23). The abruptly changing of brownish nannofossil ooze to white flocculent sediment layer is reflected in increasing of calcium carbonate content.

For the analysis of elemental compositions of the sediment samples, 10 cores were selected, 7 cores from working area 1 and 3 cores from working area 2 and the XRF scans are presented in Appendix SPW II. The chosen cores from both working areas are situated on a transect across a pit. As reference for ‘normal seafloor’ core GeoB14601 was chosen. The results exhibit very interesting aspects in terms of sediment deposition from core taken from normal seafloor to cores collected within pits. Because of their clear peaks of diagrams, element silica (Si), titanium (Ti), iron (Fe) and potassium (K) were used to correlate the sedimentary units between cores. The correlation between cores GeoB14601 and GeoB14621, both retrieved from core sites outside of pits, are feasible. The bedding of sediment unit seems to be in the same depth (Appendix SPW II). The peaks of Si, Ti, Fe and K of both cores occur nearly at the depth of approx. 7.5 m and 9.5 m. The trace of aforementioned peaks of elements from core outside of pit to core taken inside of pit is until core GeoB14622 practicable. The core GeoB14622 collected on the slope of a pit at the same transect exhibit peaks that are situated at the depth of approx. 1.7 m. These results show that the same sediment units are deposited in different depth across the transect. Cores from working area 2 do not show peaks that would help to correlate the sediment unit like in working area 1.

3.2.1.2 Sediment compaction

Core recoveries inside the pits were generally less than outside, which could lead to the interpretation that the sediments inside the pits are more compacted. To further investigate this, several cores underwent oedometer testing in the laboratory.

Samples from core GeoB14605, which was collected inside a pit and samples from core GeoB12621, which was collected from the surrounding seafloor were compared in their compaction behavior. The results exhibit only minimal discrepancy between both pressure-void ratio diagrams (Figure 25). Both graphs are nearly identical and the diagrams show the typical steep gradients of curves that indicate sediment with clayey compositions. In general both diagrams do not indicate clearly a difference of compaction between the sediments deposited outside of pits and the ones deposited within pits.

3.2.1.3 Sediment characteristics

If the dissolution of calcium carbonates, such as, calcite and aragonite, is the cause for the pits, then dissolution features should be observable on calcite and aragonite in the sediments. Particularly useful is the examination of the surface texture of planktic foraminifera tests, which can indicate the dissolution of calcium carbonate (Dittert and Henrich, 2000). Seven sediment samples were prepared for the analysis of the tests by scanning electron microscopy. From core

GeoB14619 the depths of 358 cm, 531 cm and 671 cm were examined. From core GeoB14621 the depths of 714 cm and 764 cm were used. From core GeoB14608 the depths of 405 cm and 809 cm were examined.

The results of the analysis of foraminifera tests exhibit a relative well-preserved form and surface textures in all chosen samples (Figure 26). The form of the test is in pristine condition. Furthermore the spine bases show only slightly denuded signs and the rounded pores are still very well recognizable. These observations would make any ongoing dissolution unlikely.

3.2.2 Pore water

Following the cruise additional geochemical measurements were made in the laboratories at the University of Bremen. This included the following:

- Cation analysis
  - Measurement of Al, B, Ba, Ca, Fe, K, Li, Mg, Mn, Na, P, S, Si and Sr by inductively coupled plasma-optical emission spectrometry on a PerkinElmer instrument
  - Preparation of concentration plots against depth for the individual cations
- Anion analysis
  - Measurement of fluoride, chloride, bromide and sulfate by ion chromatography on a Metrohm instrument
  - Preparation of concentration plots against depth for the individual anions
  - Calculation of bicarbonate concentrations from shipboard alkalinity measurements
- Isotopic analysis
  - Measurement of δD and $\delta^{18}O$ values against VSMOW by laser cavity ring down spectrometry on a LGR LT instrument
  - Plots of isotope values against depth for selected cores

Summary of the most important results:

- The concentrations of calcium and incorporated strontium, which are important indicators calcium carbonate dissolution did not show any indication for dissolution.
- Pore water profiles were more or less identical, whether collected inside or outside a pit. Chloride, SO_4, Na, Mg, K, Ca, and Sr concentrations were identical to those in seawater.
- The isotopic values were close to seawater and did not indicate water-rock interaction in the volcanic basement.
- We generally observed larger differences between the 3 working areas than between the inside and outside samples.

3.2.2.1 Working area 1

The complete results are given in Appendix SPW, III and pore water profiles for Ca, Sr, Mg, Si, K and Mn are presented in Figure 27 and Figure 28. The average of pore water concentrations for calcium vary from 380 to 420 mg/L, while the strontium values lie between 7,7 and 8,7 mg/L (Figure 27). The magnesium values range from 1200 to 1300 mg/L. The pore water concentrations of dissolved silica increased from 3.4 mg/L in bottom water to the average values between 16 and 23 mg/L in sediment cores. The chloride and sodium concentration show constant depth profiles with increasing depth. The overall average values range from 19500 to 21000 mg/L and 11100 to 11400 mg/L, respectively. There are few oscillations in the profiles, which are caused by the systematic analytical error of two percent. Calcium and strontium concentrations in pore water do hardly show any changes in the cores. The values are close to those of bottom water. Except in cores GeoB14621, GeoB14622 and GeoB14623, which were taken from the outside of the hydrothermal pit (Figure 28). They display a very slight increase of calcium and strontium concentration with depth. Furthermore there are fluctuations in core GeoB14605 possibly caused by an error of measurement. To ensure the analyses in terms of their correctness the ion balances calculation was performed and the results for the concentration values at site GeoB14605 confirmed an error of measurement. The silica concentrations in working area 1 increase exponentially within 4 to 5 cm and remain constant below a depth of 20 cm. The profiles indicate a decrease of silica dissolution with depth and diffusive transport. Typically, silicate profiles in pore water show an exponential increase downward until the concentration levels off at a value referred to as the asymptotic concentration (Sayles et al., 1996; Rabouille et al., 1997). The magnesium concentrations remain constant with increasing depth. The magnesium concentration profiles correlate very well with calcium concentration profiles. The profiles do not indicate any new minerals formation like e.g. dolomite with depth.

After careful consideration there are no apparent signs in the concentration profiles of pore water, which indicate the dissolution of calcium carbonate in this working area. In terms of calcareous sediment dissolution, the concentrations of calcium and strontium in pore water should increase with depth. In general the increasing and decreasing of cations concentration of pore water are often correlated with changes of the mineralogical components of sediment layers. The changes of silty and clayish units to sandy layers e.g. are frequently reason for the shift of calcium and strontium concentration profiles of pore water. At location GeoB14601 the cation concentration profiles change within the depth of 67 - 73 cm. This change is associated with a change of clayish sediment unit to sandy layer. This behavior of changing in concentration profiles was observed in all 3 working areas.

In addition to standard chemical analyses, $\delta^{2}H$ and $\delta^{18}O$ values were determined for pore water from four cores (Table 2 and Figure 30), which were taken along a transect across the pit slope (Figure 29). The orange profile GeoB14621 represents the core collected from the outside of the pit, while the green profile GeoB14623 represents the core taken on the slope and the two blue profiles GeoB14619 and GeoB14625 represent the cores retrieved within the pit. The red dots show the values of bottom seawater. The $\delta^{2}H$ and $\delta^{18}O$ values in GeoB14621 (outside) show little variation and are similar to seawater. The $\delta^{2}H$ values vary from -2.63 ‰ at the depth of 68 cm to 1.52 ‰ at the depth of 264 cm. The $\delta^{18}O$ values range between -0.31 ‰ at the depth of 464 cm and 0.79 ‰ at the depth of 514 cm. The $\delta^{2}H$ and $\delta^{18}O$ values in GeoB14623 (slope) are relative constant over entire core. The $\delta^{2}H$ values vary from 0.38 ‰ at the depth of 377 cm to 4.17 ‰ at the depth of 677 cm. The $\delta^{18}O$ values range between -0.89 ‰ at the depth of 527 cm and 0.53 ‰ at the depth of 477 cm. Within the sandy layer at the depth from 639 to 643 cm the $\delta^{2}H$ and $\delta^{18}O$ values still remain constant. The measured $\delta^{18}O$ and $\delta^{2}H$ values in GeoB14619 (inside) show the highest degree of variability. However, the variability is systematic, when $\delta^{2}H$ values increase, the $\delta^{18}O$ values decrease and vice versa. The $\delta^{2}H$ values vary by about 5 ‰ between -2.8 ‰ at a depth of 394 cm and 1.87 ‰ at a depth of 258 cm. The $\delta^{18}O$ values vary by about 1.5 ‰ between -0.76 ‰ at the depth of 657 cm and 0.67 ‰ at the depth of 63 cm. It is quite obviously that the change in lithological composition does not affect the isotopic composition. By changing of clayish unit to sandy layer at the depth of 38 cm and 151 cm, the measured isotopic values do not show changes. Pore water taken from core GeoB14625, which was also taken from the inside of the pit shows much less variation than GeoB14619. Compared to the other cores here the δ^2H and δ^{18}O values show a relative constant trend throughout the entire core. The δ^2H values vary by about 3 ‰ between -1.25 ‰ at a depth of 80 cm to 2.04 ‰ at the depth of 480 cm. The δ^{18}O values range between -0.14 ‰ at the depth of 380 cm and 0.43 ‰ at a depth of 130 cm.

3.2.2.2 Working area 2

The complete results are given in Appendix SPW, III and pore water profiles for Ca, Sr, Mg, Si, K and Mn are presented in Figure 31 and Figure 32. The calcium concentrations vary from 390 to 420 mg/L, while the concentrations of dissolved strontium lie between 7.4 and 8.1 mg/L. The overall concentrations of magnesium in sediment cores range from 1230 to 1312 mg/L. The concentrations of dissolved silica vary from 11.7 to 17.4 mg/L (see Figure 22 and Figure 23). There are some fluctuations of calcium concentration profiles. The obvious fluctuation is observed in sediment core GeoB14609. Furthermore the increasing of calcium concentrations was measured in cores GeoB14607, GeoB14608 and was particularly apparent in core GeoB14612 (Figure 32). The fact is reflected as well on strontium values. They also show a rise of concentration with increasing depth. These slightly increasing of calcium concentration profiles are not to distinct between samples taken from the outside of pit and samples taken within pits. The trend of dissolved silica concentration profiles are similar to those concentration profiles of the working area GUATB1, the concentration increases immediately within 4 to 5 cm and continue to remain constant with depth. The magnesium concentration profiles show a relatively constant values downcore, except cores GeoB14608, GeoB14612 and GeoB14613, which show a slight increasing concentration with depth (Figure 32). The other measured concentrations of cations are, except for manganese, constant with increasing depth. The profile of manganese in core GeoB14607 increased immediately from seafloor to 1 mbsf with concentration of 4.8 mg/L. Below 1 mbsf the concentration gradient reduced drastically. The concentration still increased with highest value of 6.8 mg/L. In core GeoB14611 the manganese concentration profile behaved similar the core GeoB14607. The concentration increased to 1.5 mbsf before it reduced to the value of 1.6 mg/L at 7.6 mbsf. The chloride and sodium concentrations in this working area are relatively constant with increasing depth. The concentrations of chloride vary from 19271 to 21099 mg/L, while the sodium concentrations range from 10856 to 11578 mg/L.

3.2.2.3 Working area 3

The complete results are given in Appendix SPW, III and pore water profiles for Ca, Sr, Mg, Si, K and Mn are presented in Figure 33. The concentrations of calcium and strontium in this working area show the highest values of the entire investing area. The calcium concentrations lie between 403.8 and 428.8 mg/L. The strontium concentrations vary from 7.76 to 8.53 mg/L. The dissolved silica concentrations range from 12.74 to 15.84 mg/l and show a slightly increase with depth. The magnesium concentrations range from 1281.2 to 1312.9 mg/L (Figure 33). Dissolved calcium concentration profiles slightly increase with depth. The distinction of measured values between samples collected from the outside of pits und within pits did not occur. The trends of concentration profiles of dissolved silica are not different from the other profiles from the working areas 1 and 2. The pore water profiles of manganese concentration show the same pattern like working area 2 with increasing trend to 2 mbsf and continue to decrease after 2.5 mbsf. Only core GeoB14614 shows a constant concentration below 4.5 mbsf. The manganese concentrations range from 2.6 to 10.9 mg/L. The profiles for chloride and sodium concentrations show a fluctuation. The notedly oscillations show in cores GeoB14615 and GeoB14616. The chloride concentrations vary from 19469 to 20909 mg/L, while sodium concentrations range from 10925 to 11357 mg/L.

3.3 Comparison of planned and accomplished goals

Planned	Accomplished
Review of available data from the three working areas	accomplished
Technical preparation of the cruise	accomplished
Cruise SO207 – mapping of hydrothermal pits in three working areas with acoustic and geothermal methods; collection of gravity cores and pore water samples	accomplished
Processing and interpretation of the data after the expedition	accomplished
Modeling of the coupled transport of energy and matter in the circulation system including the geochemical data and using the modeling software.	As the pore water geochemistry gives no indication of active fluid flow the initial idea of modeling coupled heat and mass transport had to be given up.
Publication of the results	Work in progress
Final report	accomplished

4.0. Discussion and Conclusion

The investigations of the hydrothermal pits were very successful. We got enough data for a detailed analysis of the thermal system and the formulation of a most likely scenario about the creation of the pits.

The collected data supports the in part the hypothesis by Bekins et al. (2007). It is certain that seamounts act as recharge sites where cold fluids are entering the uppermost crust (Layer 2A). The measured low heat flow halos around the three seamounts are clear indicators for that. However we found no indication neither in heat flow nor in pore water geochemistry profiles for discharge sites, that means that we can detect only one limb of the hydrothermal circulation system.

The most plausible scenario for the development of the observed pits becomes obvious if one recalls the palaegographic situation of the investigation areas (Figure 34). At the time the crust of the investigation area was formed (about 15 Ma before present), it was located close to the equator (Pälike et al., 2010) within a zone of very high carbonate sediment production. Hydrothermal circulation at a ridge and ridge flanks is not confined to focussed high temperature hydrothermal discharge at the ridge axis but occurs also as diffuse venting of warm fluids through cracks, fissures, small seamounts or basement ridges. Over these diffuse discharge sites, the geochemical dissolution process (Bekins et al., 2007) has reduced the accumulation of carbonate sediments and created a sedimentation deficit which is expressed as depression in the bathymetry. Plate movement transported the investigation areas further north and about 10 Ma years before present, they moved out of the high carbonate production belt. After that pelagic sedimentation prevailed consisting of very fine-grained muds with a very low permeability and practically stopping the outflow of hydrothermal fluids through the discharge sites. Over that last 5 Ma years pelagic sediments accumulate inside the pits and sealing them off from the exchange of fluids between upper crust and the ocean. Therefore we do not see any evidence of active fluid transport in the pore water of the cored sediments but we clearly see the still elevated temperatures in the upper crust due to its long time constant. A statistics of the pits in the working areas is shown in Figure 18 Figure 19 shows that the pit area compared to the total area of the investigation area is only about 1% but one should keep in mind that advective exchange of heat is very efficient and therefore is capable of cooling down large areas very efficiently over geological time periods. The process observed is a plausible explanation for the plate-wide depressed heat flow of the Cocos Plate. However the question of ‘where does the heat escape?’ still remains unsolved.

5.0 Publications and Presentations

- H. Villinger und Fahrtteilnehmer. Bericht von der SONNE-Fahrt SO207. Vortrag im Rahmen des Geophysikalischen Seminars des FB Geowissenschaften Bremen, Januar 2011.
- H. Villinger, E. Alexandrakis, P. Alt-Epping, R. Becke, R. Dziadek, K. Enneking, T. Fleischmann, K. Gaida, B. Heesemann, C. Janssen, N. Kaul, T. Pichler, M. Ruiz, F. Schmidt-Schierhorn, A. Schwab, S. Stephan, M. Zwick. SO207, Effiziente Abkühlung junger ozeanischer Kruste durch Zirkulation von Meerwasser durch Seamounts (Guatemala Becken, Ostpazifik). Statusseminar Meeresforschung mit FS SONNE 2011, Februar 2011.
- F.Schmidt-Schierhorn, N. Kaul, T. Pichler, A. Schwab, S. Stephan, H. Villinger. SeamountFlux: Investigation of the hydrothermal pit hypothesis. Jahrestagung der American Geophysical Union, Dezember 2011.
- T. Pichler, W. Poonchai, F. Schmidt-Schierhorn, H. Villinger. SeamountFlux: Porewater geochemistry and sediment characteristics. Jahrestagung der American Geophysical Union, Dezember 2011.
- H. Villinger, F. Schmidt-Schierhorn, N. Kaul, T. Pichler, A. Schwab, S. Stefan. Effiziente Abkühlung junger ozeanischer Kruste durch Zirkulation von Meerwasser durch Seamounts - SO207 (Guatemala Becken, Ostpazifik), Universität Bremen, Bremen. Jahrestagung der Deutschen Geophysikalischen Gesellschaft, Hamburg, März 2012.

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6.0 References

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7.0 Tables

Table 1. Station overview for the three different working areas WA 1 (GUATB1), WA 2 (GUATB2) and WA 3 (GUATB3).

Working Area	Core	Latitude	Longitude	Water Depth (m)	Core Recovery (m)
GUATB 1	GeoB14601-1	7° 55,300' N	90° 28,800' W	3431	9.7
GUATB 1	GeoB14602-1	7° 57,670' N	90° 33,500' W	3500	9.3
GUATB 1	GeoB14603-1	7° 55,049' N	90° 30,929' W	3497	8.9
GUATB 1	GeoB14604-1	7° 56,841' N	90° 32,685' W	3425	9.4
GUATB 1	GeoB14605-1	7° 55,891' N	90° 31,809' W	3489	6.2
GUATB 1	GeoB14605-2	7° 55,891' N	90° 31,809' W	3482	2 x 0.4
GUATB 1	GeoB14619-1	7° 57,970' N	90° 33,796' W	3512	7.4
GUATB 1	GeoB14620-1	7° 57,572' N	90° 33,656' W	3505	7.67
GUATB 1	GeoB14621-1	7° 58,259' N	90° 33,887' W	3448	9.82
GUATB 1	GeoB14622-1	7° 58,155' N	90° 33,854' W	3473	8.39
GUATB 1	GeoB14623-1	7° 58,090' N	90° 33,833' W	3484	7
GUATB 1	GeoB14624-1	7° 57,885' N	90° 33,766' W	3508	10.64
GUATB 1	GeoB14625-1	7° 57,885' N	90° 33,766' W	3506	8
GUATB 2	GeoB14607-1	7° 13,606' N	91° 19,344' W	3733	7
GUATB 2	GeoB14608-1	7° 14,982' N	91° 26,396' W	3760	8.1
GUATB 2	GeoB14608-2	7° 14,520' N	91° 26,350' W	3748	3 x 0.4
GUATB 2	GeoB14609-1	7° 15,990' N	91° 28,652' W	3717	6.6
GUATB 2	GeoB14610-1	7° 16,014' N	91° 17,460' W	3763	6.1
GUATB 2	GeoB14611-1	7° 16,068' N	91° 18,696' W	3788	7.8
GUATB 2	GeoB14612-1	7° 15,130' N	91° 26,260' W	3656	10.4
GUATB 2	GeoB14613-1	7° 15,049' N	91° 26,370' W	3657	7.3
GUATB 3	GeoB14614-1	6° 38,137' N	91° 54,775' W	3637	9
GUATB 3	GeoB14615-1	6° 38,399' N	91° 54,455' W	3720	7
GUATB 3	GeoB14616-1	6° 38,472' N	91° 54,374' W	3715	7.33
GUATB 3	GeoB14617-1	6° 39,565' N	91° 53,104' W	3628	9.02

Table 2. ^{2}H and ^{18}O isotope in pore waters from selected cores

Core	Depth (cm)	δD (‰)	$\delta^{18}O$ (‰)
GeoB146019-1	8	-1.19	0.4
	32	-2.49	0.0
	38	-1.05	0.3
	46	-0.56	-0.3
	83	-1.43	0.7
	118	-2.45	0.1
	145	-1.06	0.3
	151	-1.15	0.3
	166	-1.63	0.1
	218	0.07	0.6
	258	1.87	-0.7
	294	-0.80	-0.5
	325	-0.02	-0.2
	358	-0.74	0.3
	394	-2.80	-0.1
	428	-0.82	-0.3
	467	-1.98	0.0
	531	0.53	-0.7
	567	-2.22	0.2
	632	0.60	-0.5
	657	1.27	-0.8
	671	1.08	-0.1
	732	1.09	0.4
GeoB146021-1	20	-1.35	-0.1
	68	-2.63	0.2
	114	-1.68	0.1
	164	-0.48	-0.2
	214	-0.91	0.3
	264	1.52	0.1
	314	1.11	0.0
	364	-0.81	0.2
	414	-1.32	0.1
	464	0.12	-0.3
	514	-1.68	0.8
	564	-0.76	0.5
	614	-0.12	-0.3
	664	-0.43	0.1
	714	0.39	-0.2
	764	-0.87	0.0
	814	-0.04	0.4
	864	-1.15	-0.1

Core	Depth (cm)	δD (‰)	$\delta^{18}O$ (‰)
GeoB14623-1	4	0.61	-0.78
	77	1.66	-0.19
	127	1.52	-0.84
	177	0.77	-0.05
	227	0.67	-0.30
	277	1.16	-0.28
	327	1.22	-0.03
	377	0.38	0.08
	427	0.45	-0.20
	477	1.82	0.53
	527	2.45	-0.89
	577	1.12	0.05
	627	1.06	0.45
	640	0.88	0.35
	677	4.17	0.04
GeoB14625-1	30	-0.97	0.30
	80	-1.25	0.30
	108	-0.54	0.20
	130	-0.37	0.43
	180	0.82	0.08
	230	0.26	0.32
	280	1.22	0.09
	330	0.99	0.15
	380	1.95	-0.14
	430	0.92	0.13
	480	2.04	-0.06
	530	1.59	-0.09
	580	0.69	0.11
	630	1.13	0.26
	680	1.88	0.03
	730	1.50	-0.02
	780	1.66	0.01

8.0 Figures

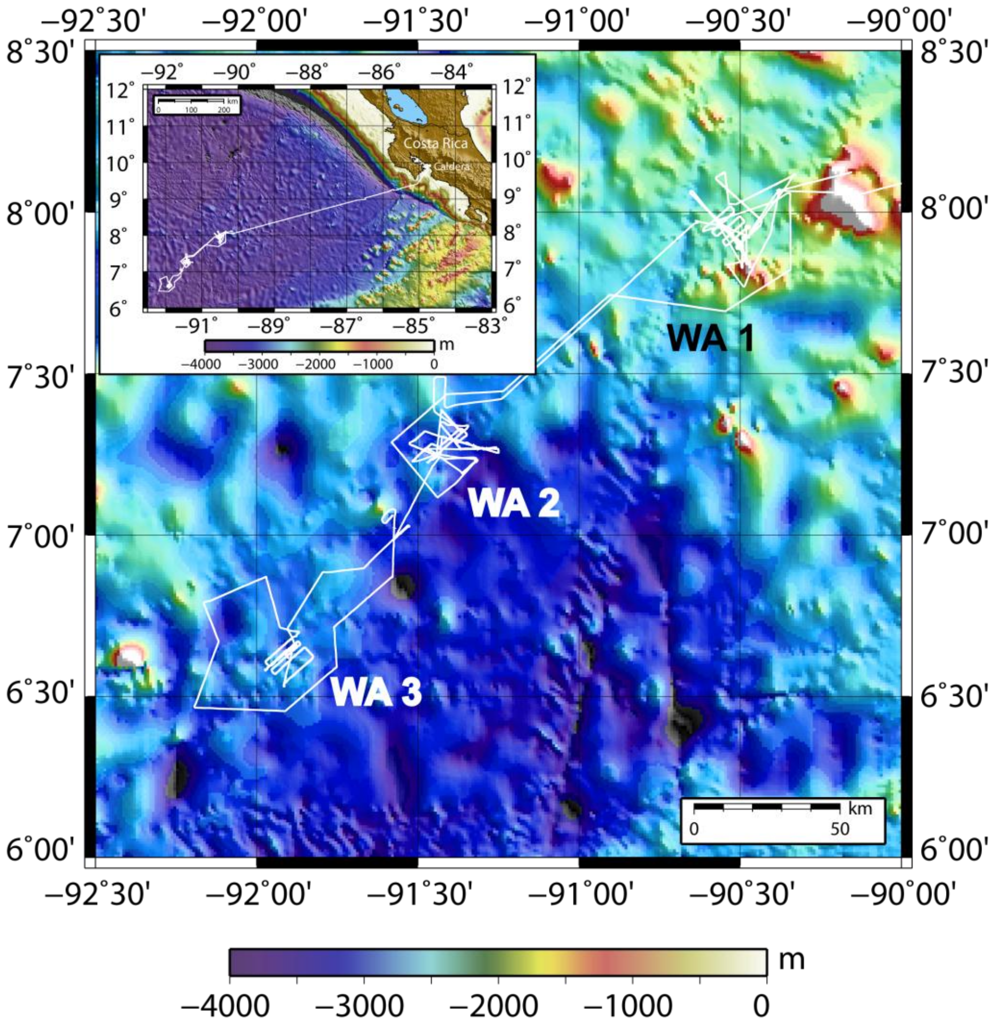


Figure 1. Location of the investigation area off Costa Rica and overview of the three working areas WA 1 to WA 3.

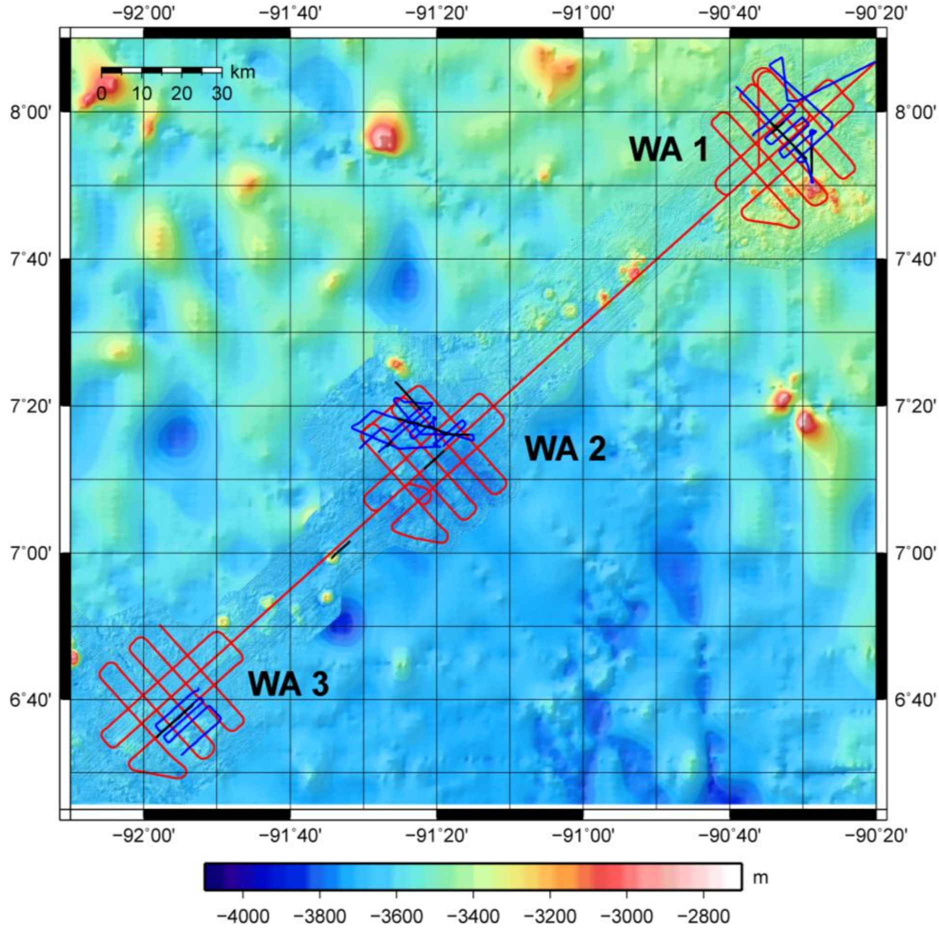


Figure 2. Location of seismic profiles from cruise SO207 (solid blue line) and Ewing cruise EW9903 (solid red line). Detailed maps of both seismic survey can be found in the cruise report of SO207 (Villinger et al., 2010) and in Wilson et al. (2003).

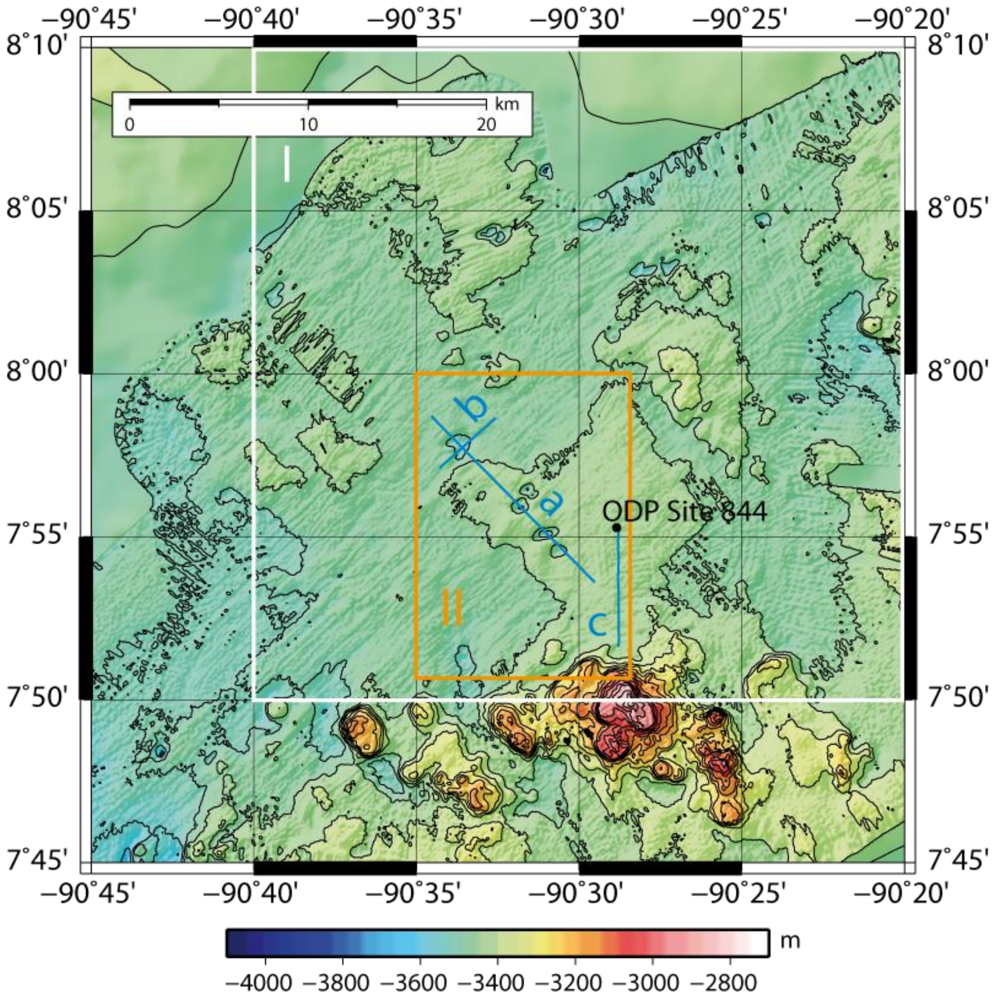


Figure 3. Bathymetry in working area WA 1. Rectangle I and II mark areas in the figure where the sediment thickness (see Appendix G) and the heat flow (see Figure 4) are shown in detail. Heat flow profiles are annotated in blue with small types a, b and c.

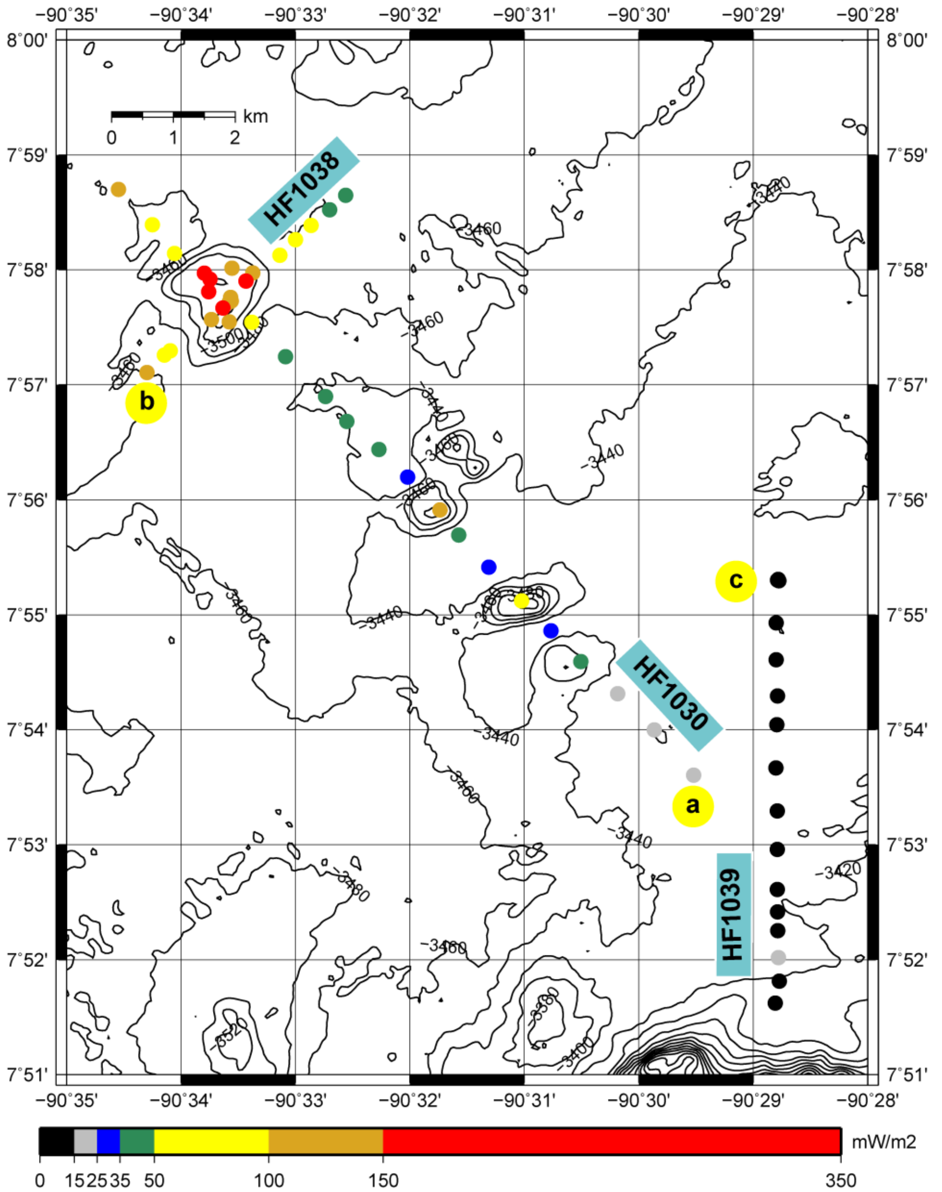


Figure 4. Measured heat flow values in working area WA 1. The small types refer to the profiles shown in Figure 3.

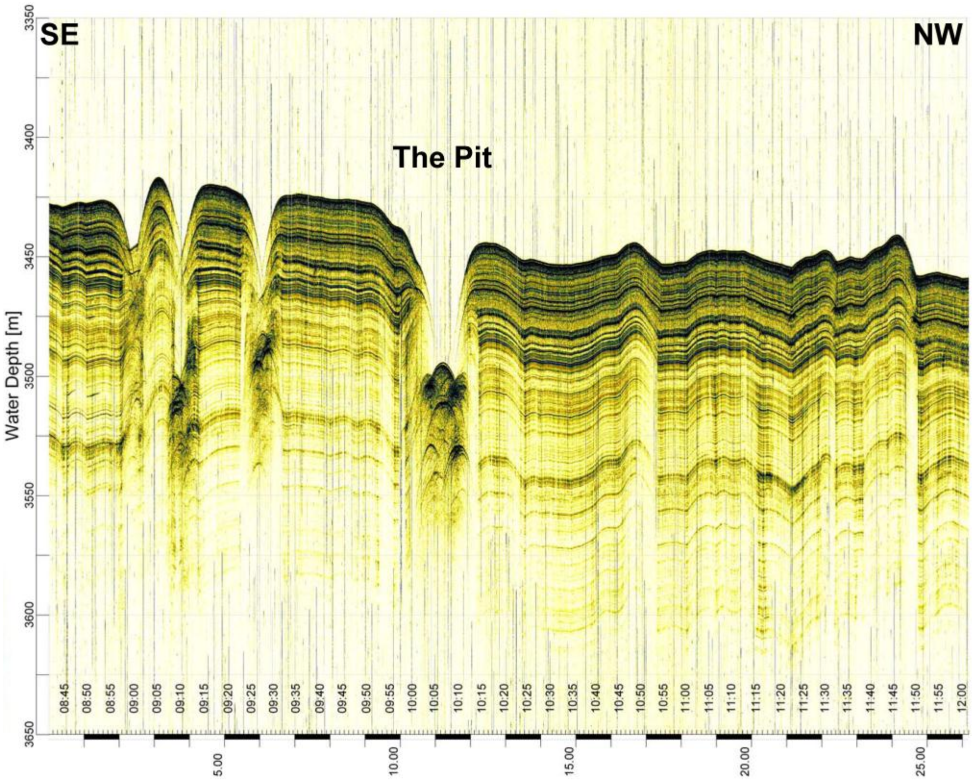


Figure 5. Parasound-profile of seismic profile a (see Figure 3). Note the reversed orientation of the section.

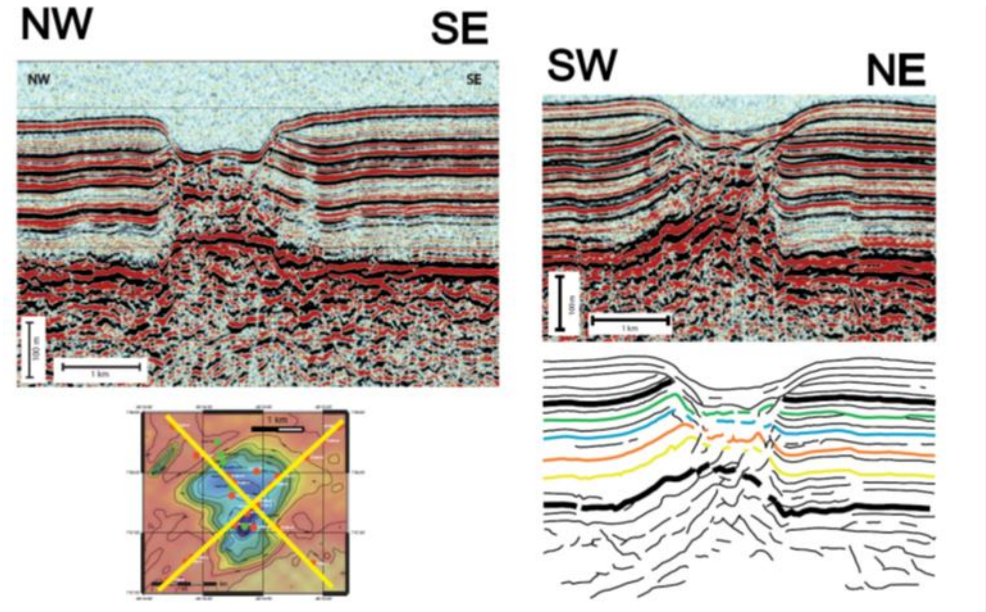


Figure 6. Details of seismic profiles crossing the pit in WA 1.

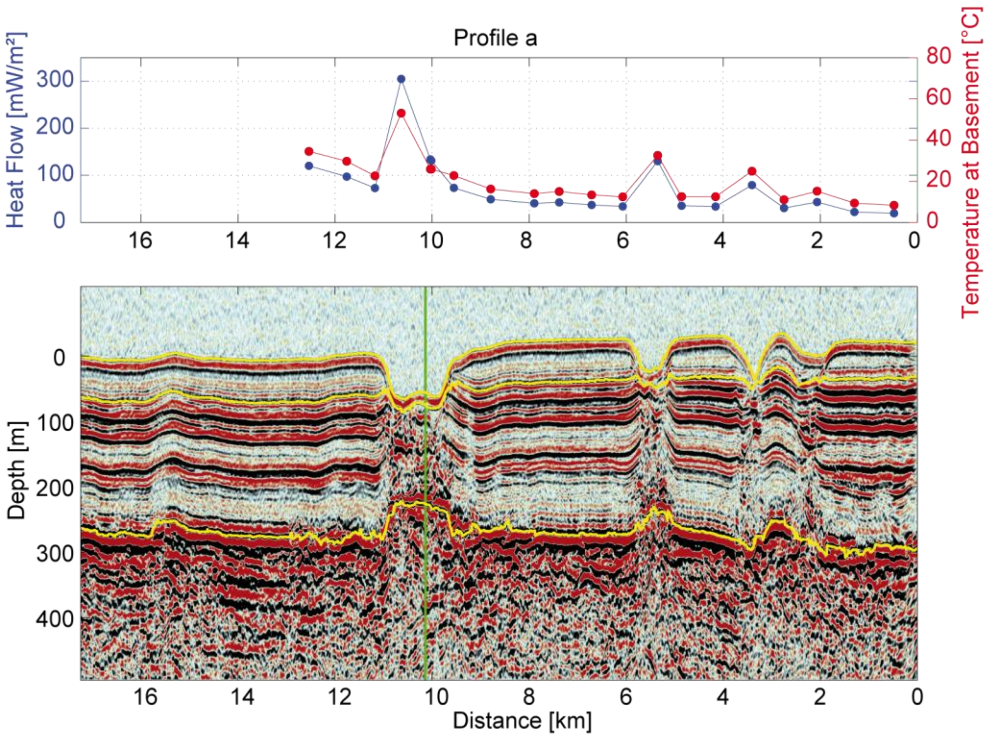


Figure 7. Heat flow and seismic profile a across a series of pits in WA 1. For location of profile see Figure 3.
Top: Measured heat flow in blue and calculated temperature at the sediment-basement boundary in red.
Bottom: Seismic profile over three pits. Green line marks the intersection with profile b (see Figure 3. Yellow lines represent sediment/water boundary, beginning of the carbonate-rich sediment and sediment-basement boundary (from top to bottom).

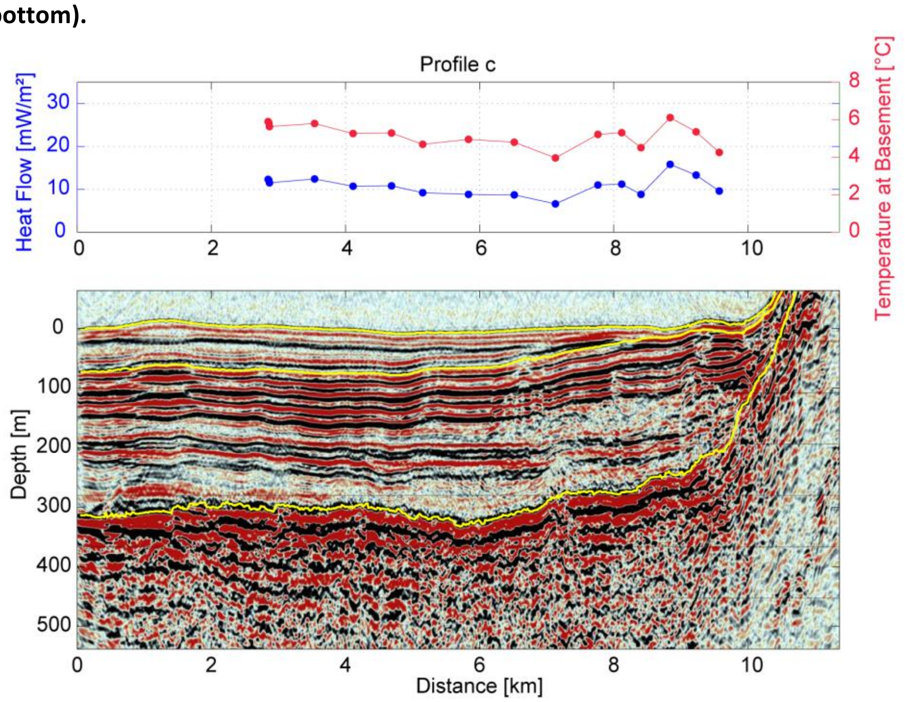


Figure 8. Seismic and heat flow profile towards a seamount in WA 1. For location of profile c see Figure 3. Top: Measured heat flow in blue and calculated temperature at the sediment-basement boundary in red. Bottom: Seismic section.

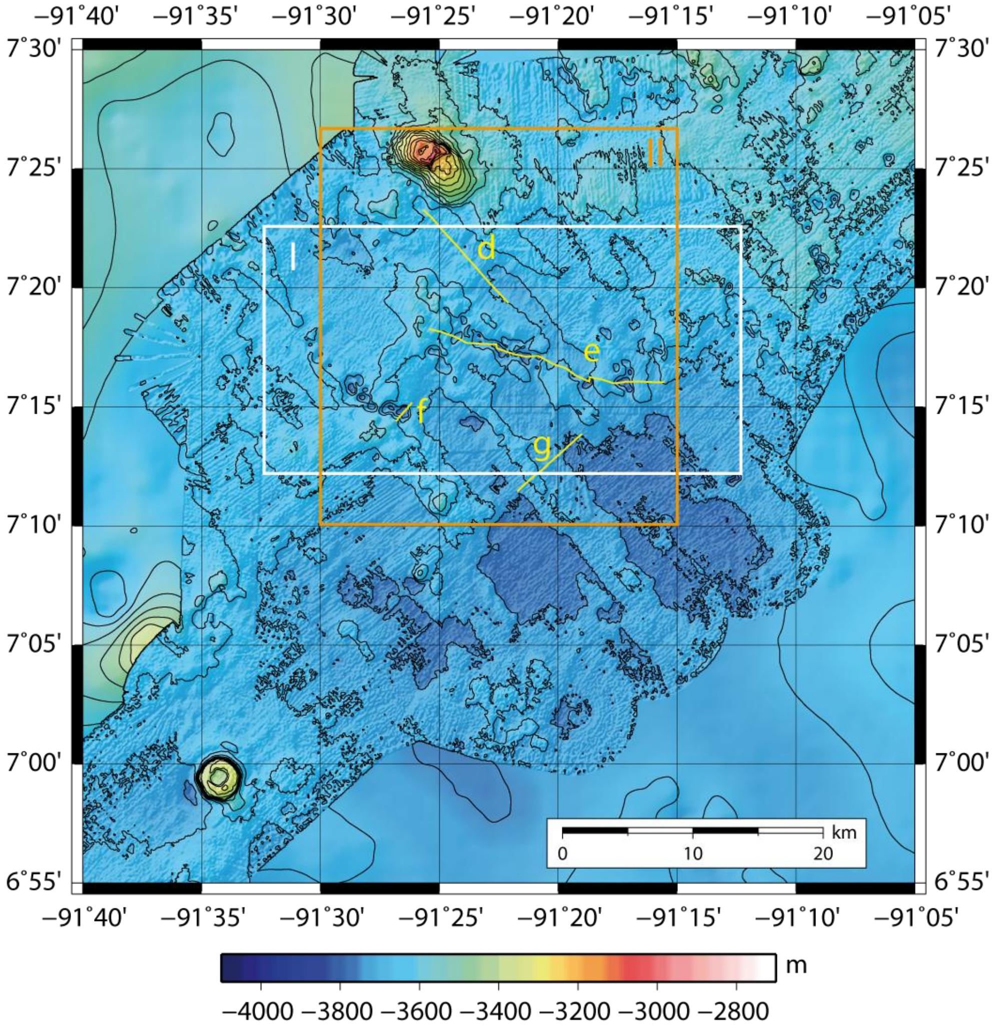


Figure 9. Bathymetry in working area WA 2. Rectangle I and II mark areas in the figure where the sediment thickness (see Appendix Geophysics) and the heat flow (see Figure 10) are shown in detail. Heat flow profiles are annotated in yellow with small types d to g.

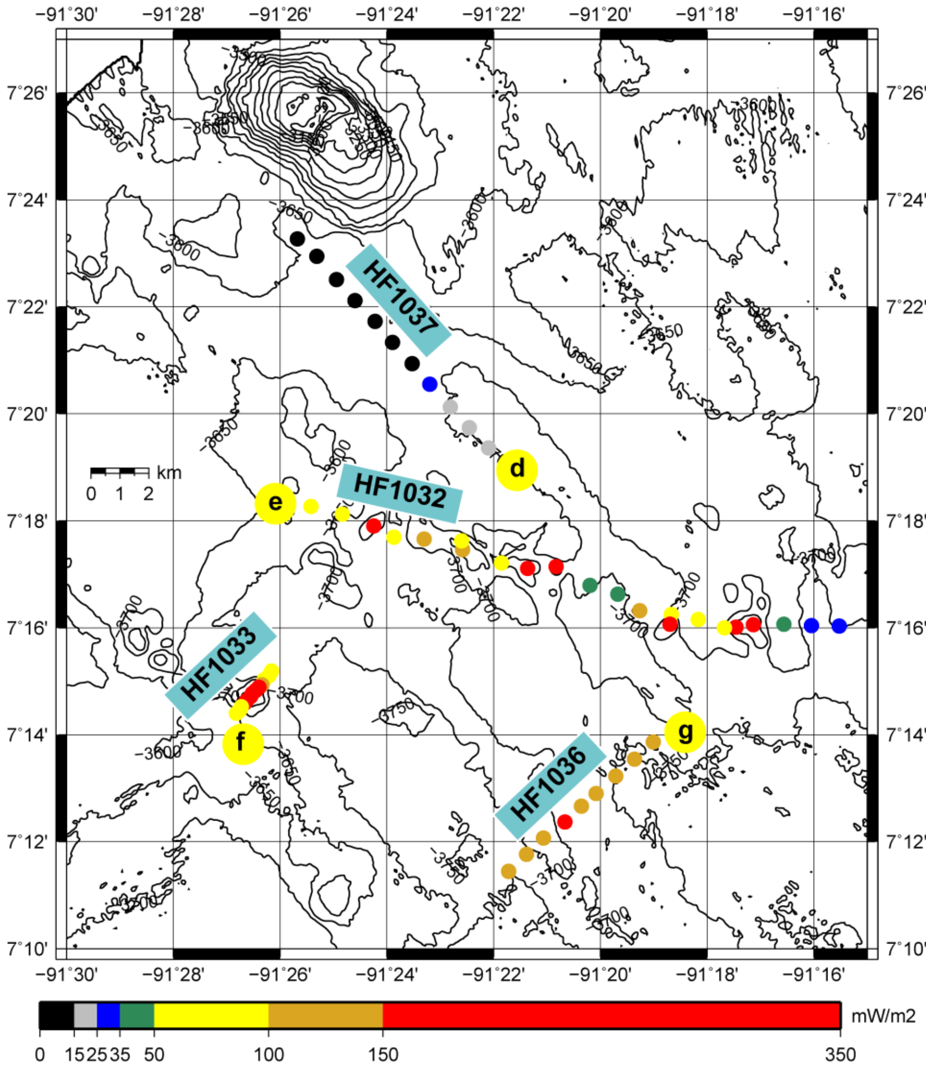


Figure 10. Measured heat flow values in working area WA 2. The small types refer to the profiles shown in Figure 9.

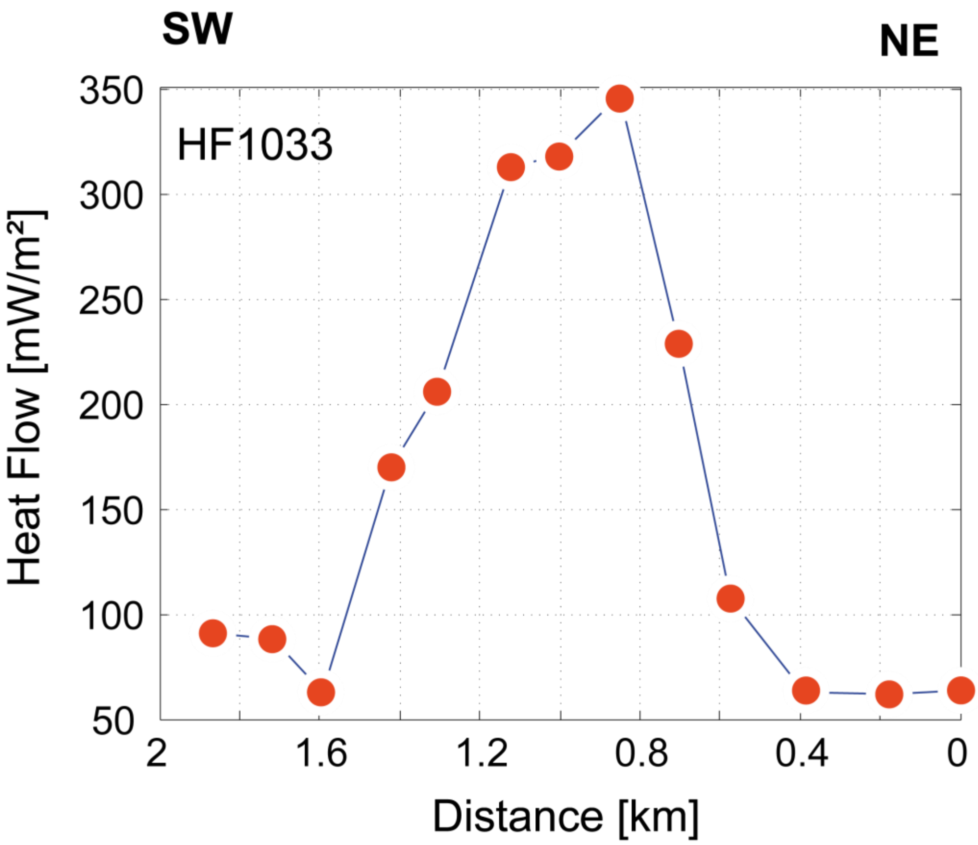


Figure 11. Heat flow profile HF1033 across a small pit (profile f in Figure 9) located at the southeastern corner of WA 2.

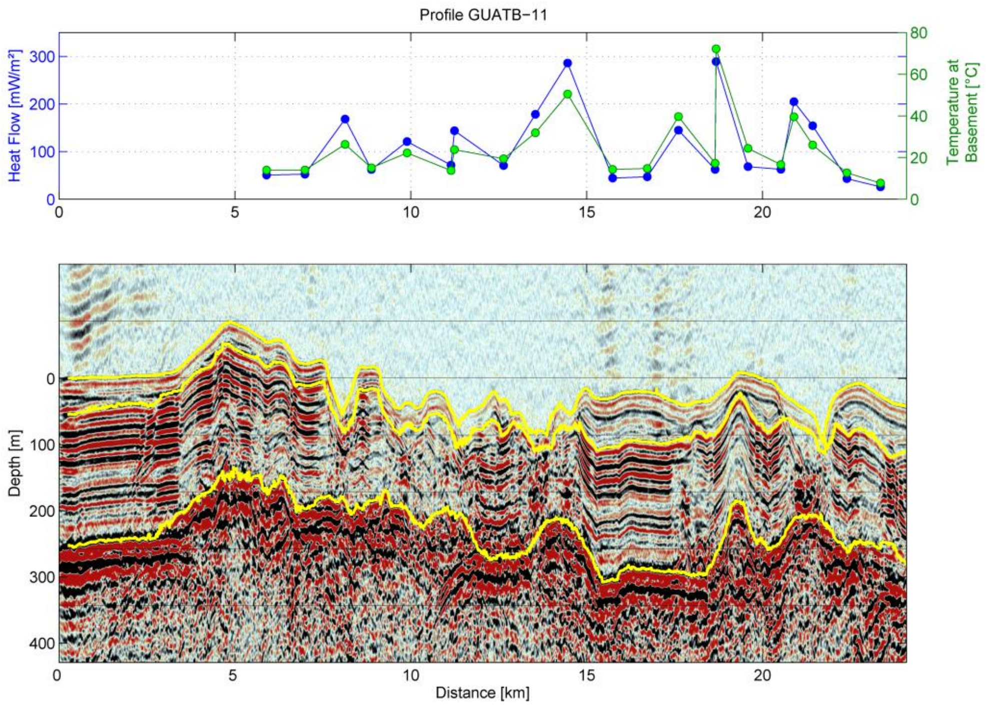


Figure 12. Heat flow and seismic profile 'e' across a series of pits in WA 2. For location of profile see Figure 9.
Top: Measured heat flow in blue and calculated temperature at the sediment-basement boundary in green.
Bottom: Seismic profile over three pits. Yellow lines represent sediment/water boundary, beginning of the carbonate-rich sediment and sediment-basement boundary (from top to bottom).

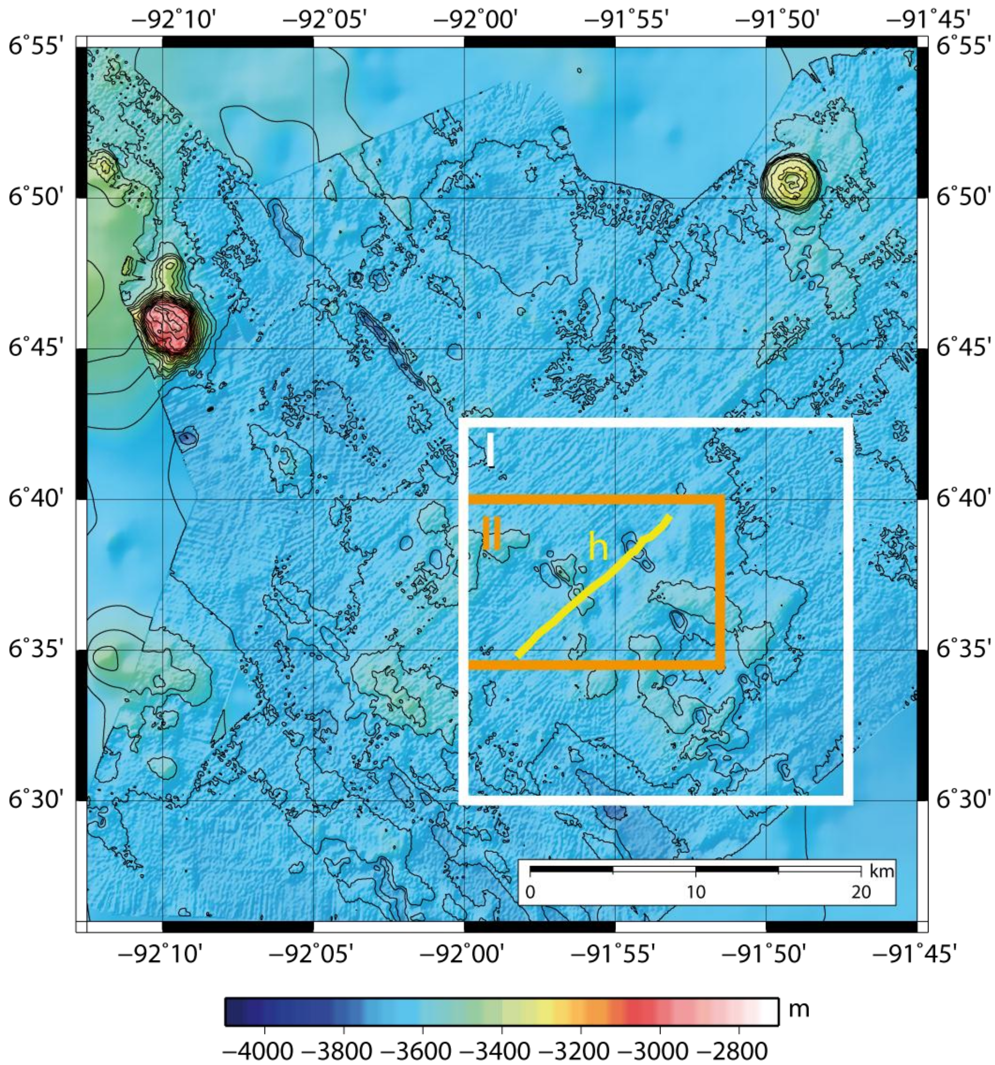


Figure 13. Bathymetry in working area WA 3. Rectangle I and II mark areas in the figure where the sediment thickness (see Appendix G) and the heat flow (see Figure 16) are shown in detail. Heat flow profile is annotated in yellow with letter h.

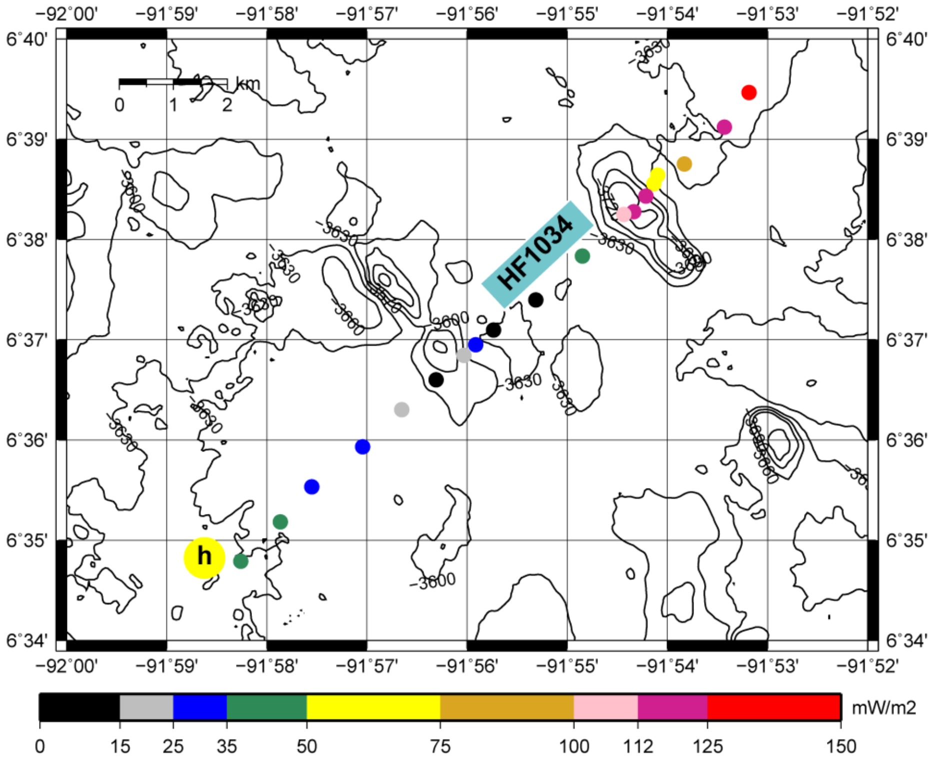


Figure 14. Measured heat flow values in working area WA 1. The small types refer to the profiles shown in Figure 13.

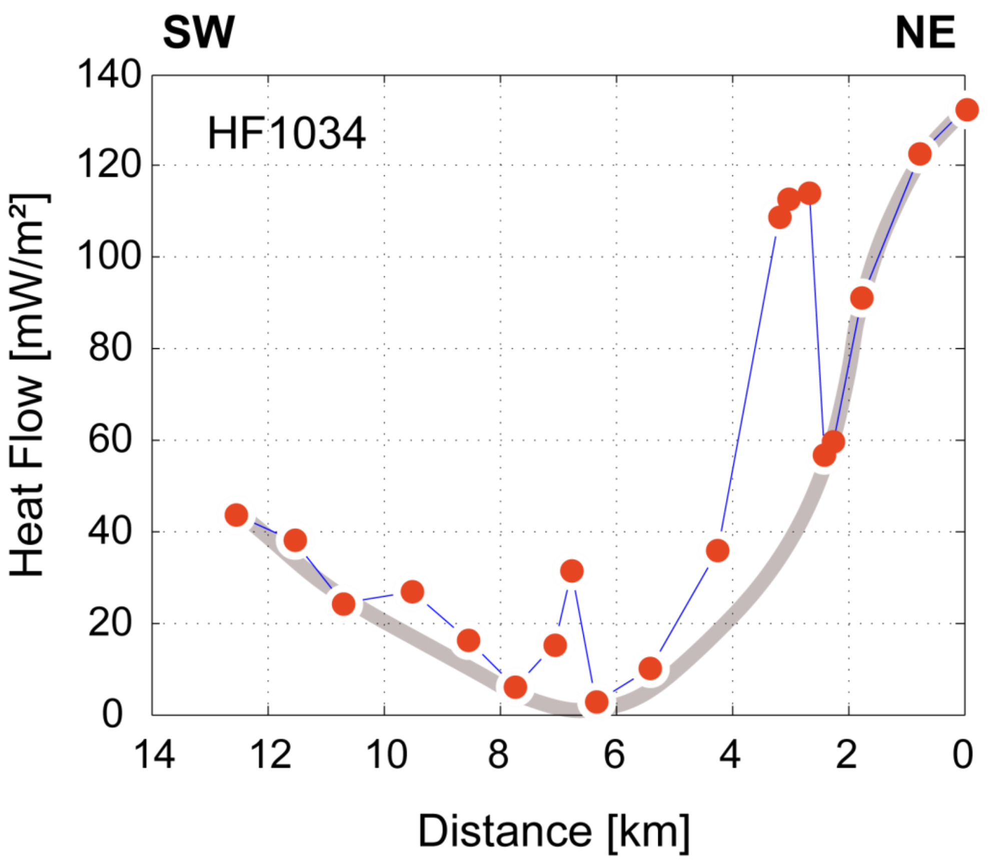


Figure 15. Heat flow profile across a small pit (profile h in Figure 13).

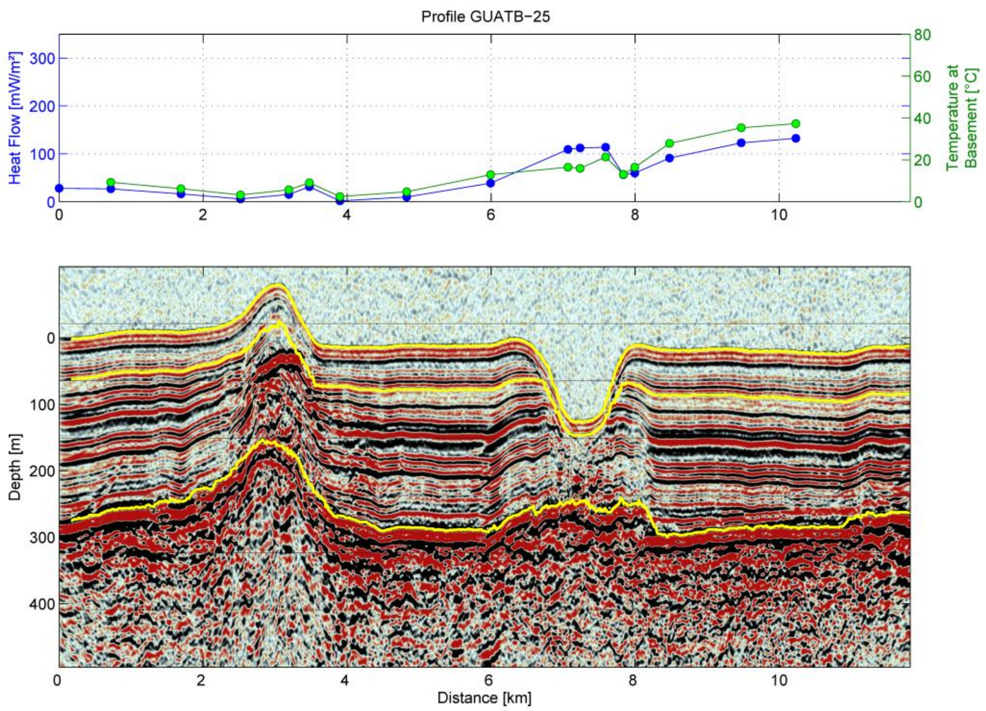


Figure 16. Heat flow and seismic profile 'e' across a series of pits in WA 2. For location of profile see Figure 3.
Top: Measured heat flow in blue and calculated temperature at the sediment-basement boundary in green.
Bottom: Seismic profile over three pits. Yellow lines represent sediment/water boundary, beginning of the carbonate-rich sediment and sediment-basement boundary (from top to bottom).

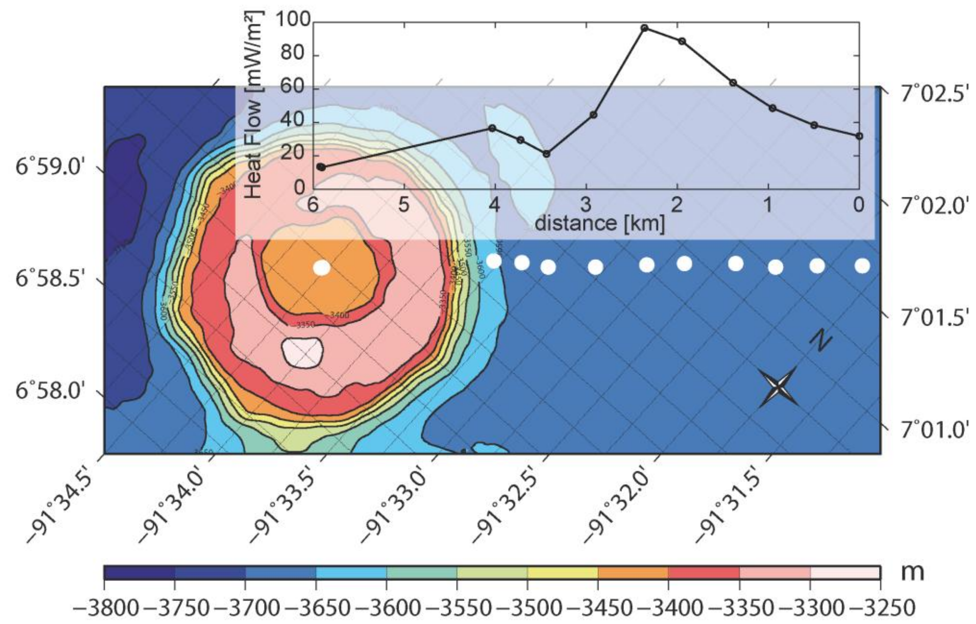


Figure 17. Donut-shaped seamount between working area 2 and 3. White filled circles show locations of heat flow measurements on a profile towards the seamount. The measured values are plotted above. The seamount can be found in the southwestern corner of the map shown in Figure 9.

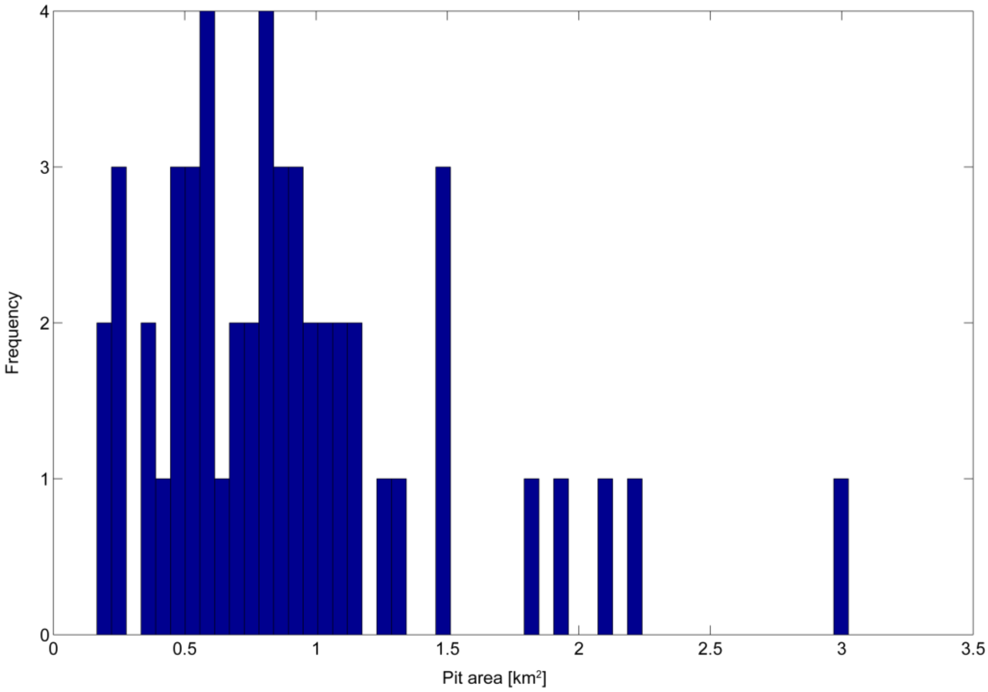


Figure 18. Statistics of the pit area of all the pits identified in WA 1, WA 2 and WA 3.

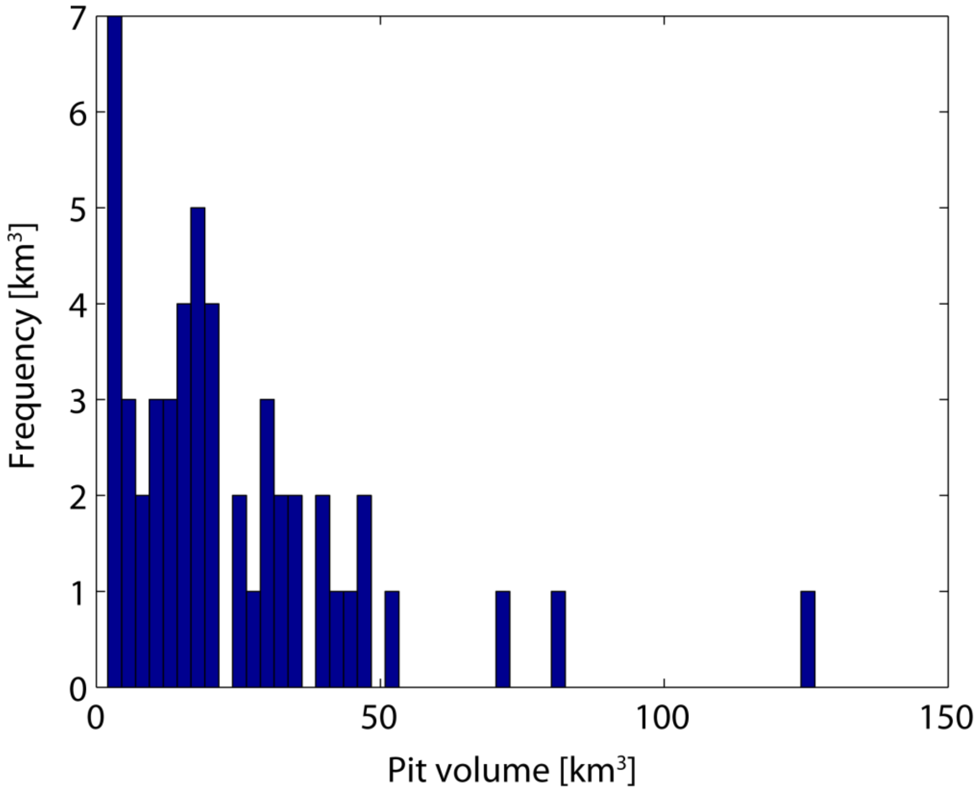


Figure 19. Statistics of the pit volume of all the pits identified in WA 1, WA 2 and WA 3.

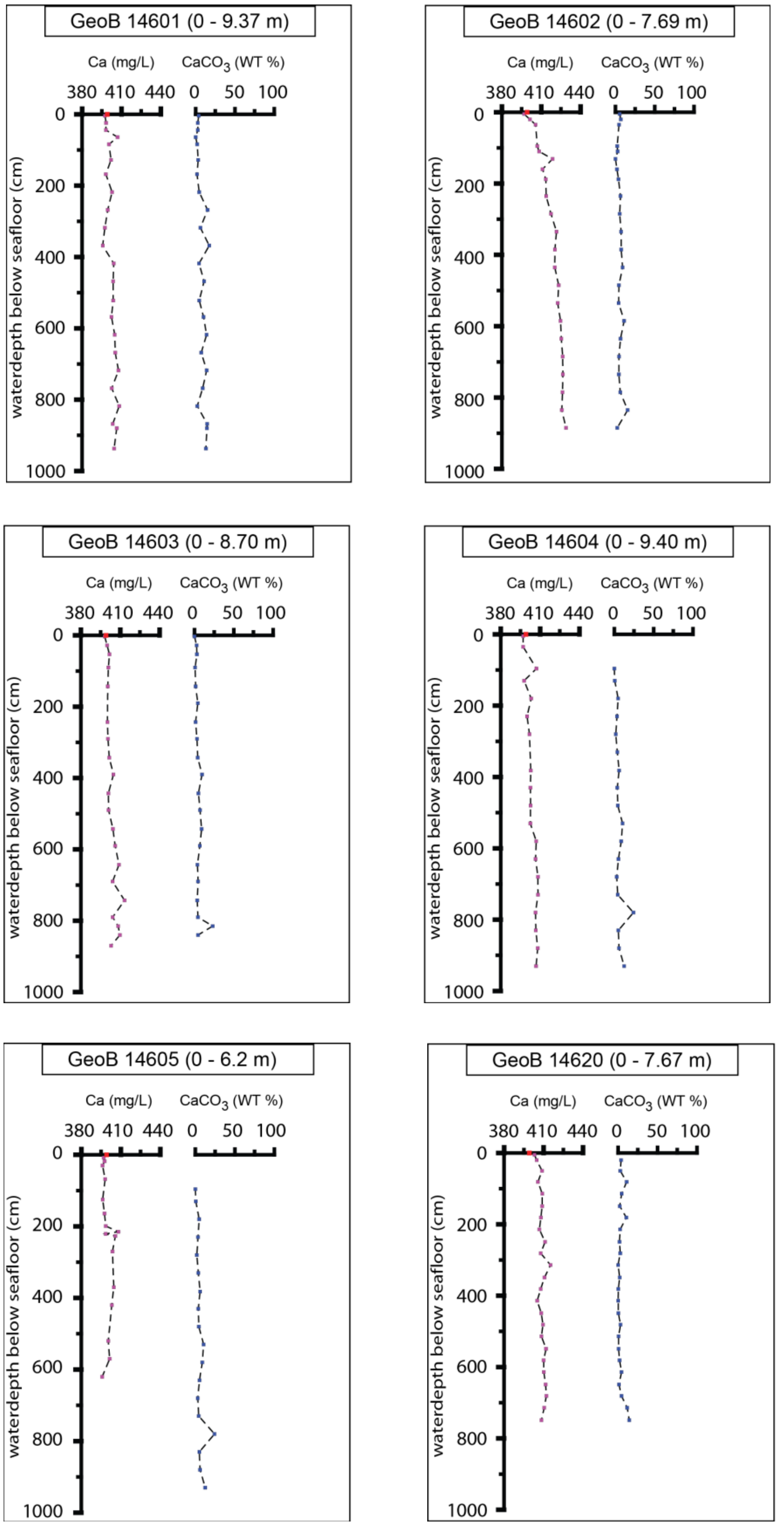


Figure 20. Ca pore water concentration profiles and calcium carbonate content in working area 1. The small red dots show the values of bottom water.

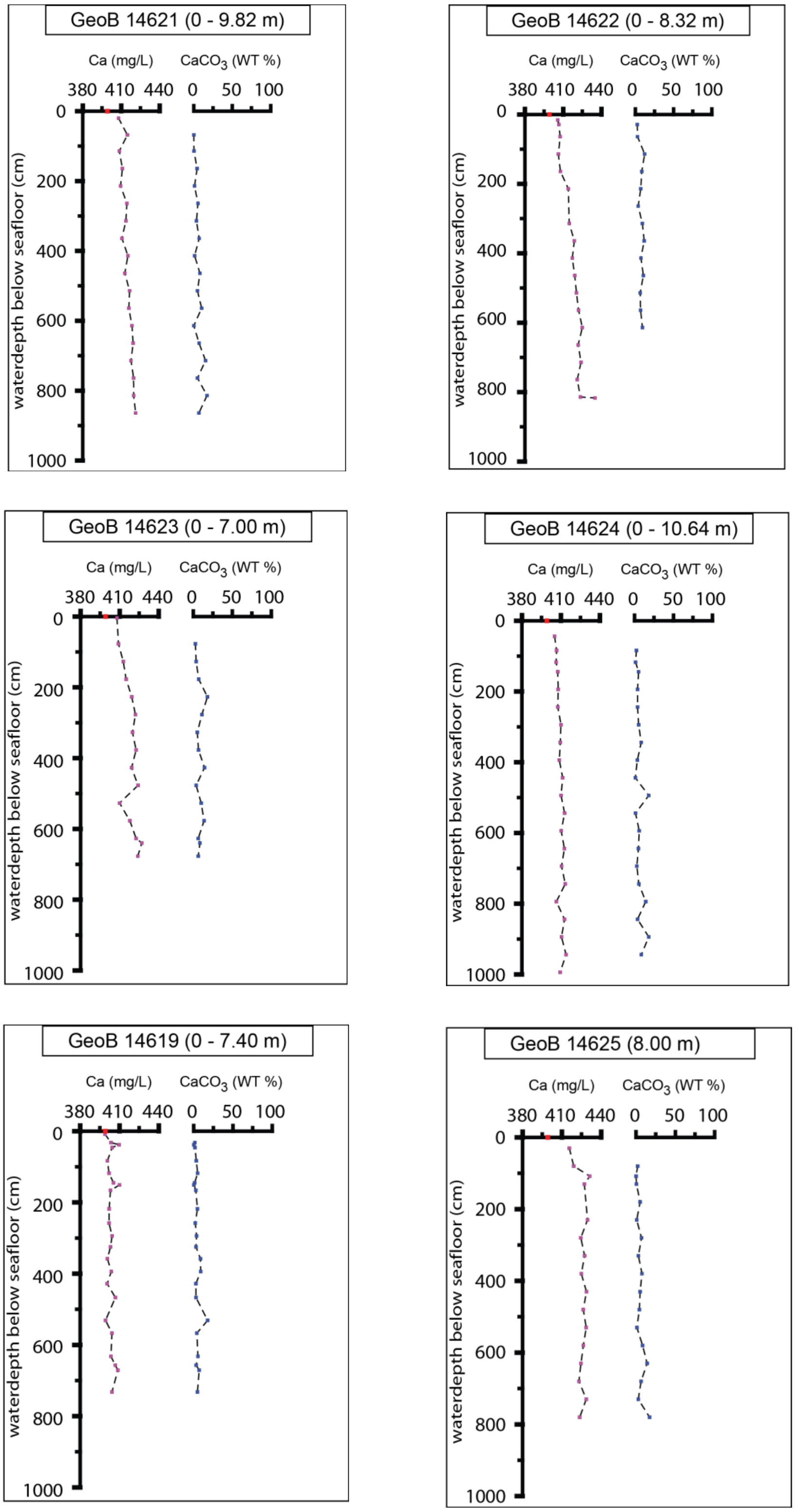


Figure 21. Ca pore water concentration profiles and calcium carbonate content in working area 1 - transect across a pit. The small red dots show the values of bottom water.

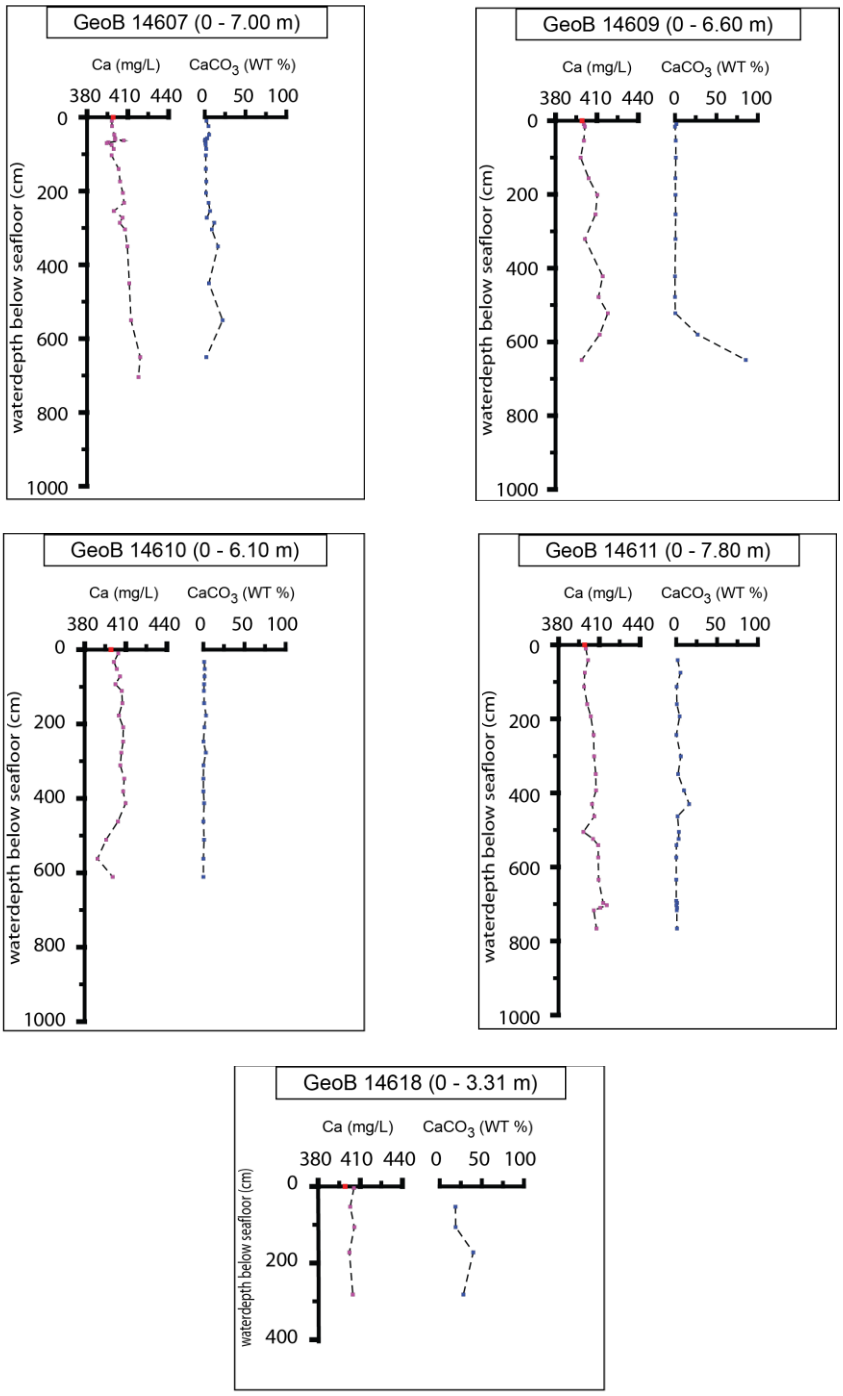


Figure 22. Ca pore water concentration profiles and calcium carbonate content in working area 2. The small red dots show the values of bottom water.

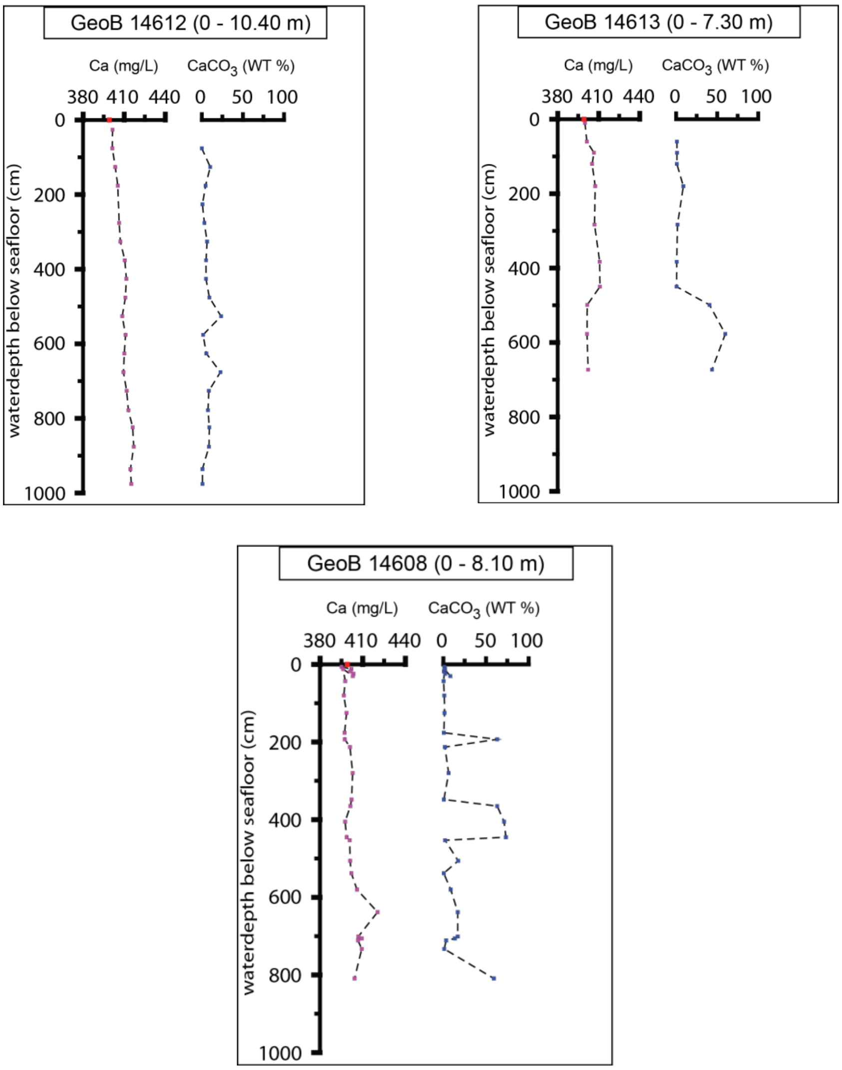


Figure 23. Ca pore water concentration profiles and calcium carbonate content in working area 2 transect across a pit. The small red dots show the values of bottom water.

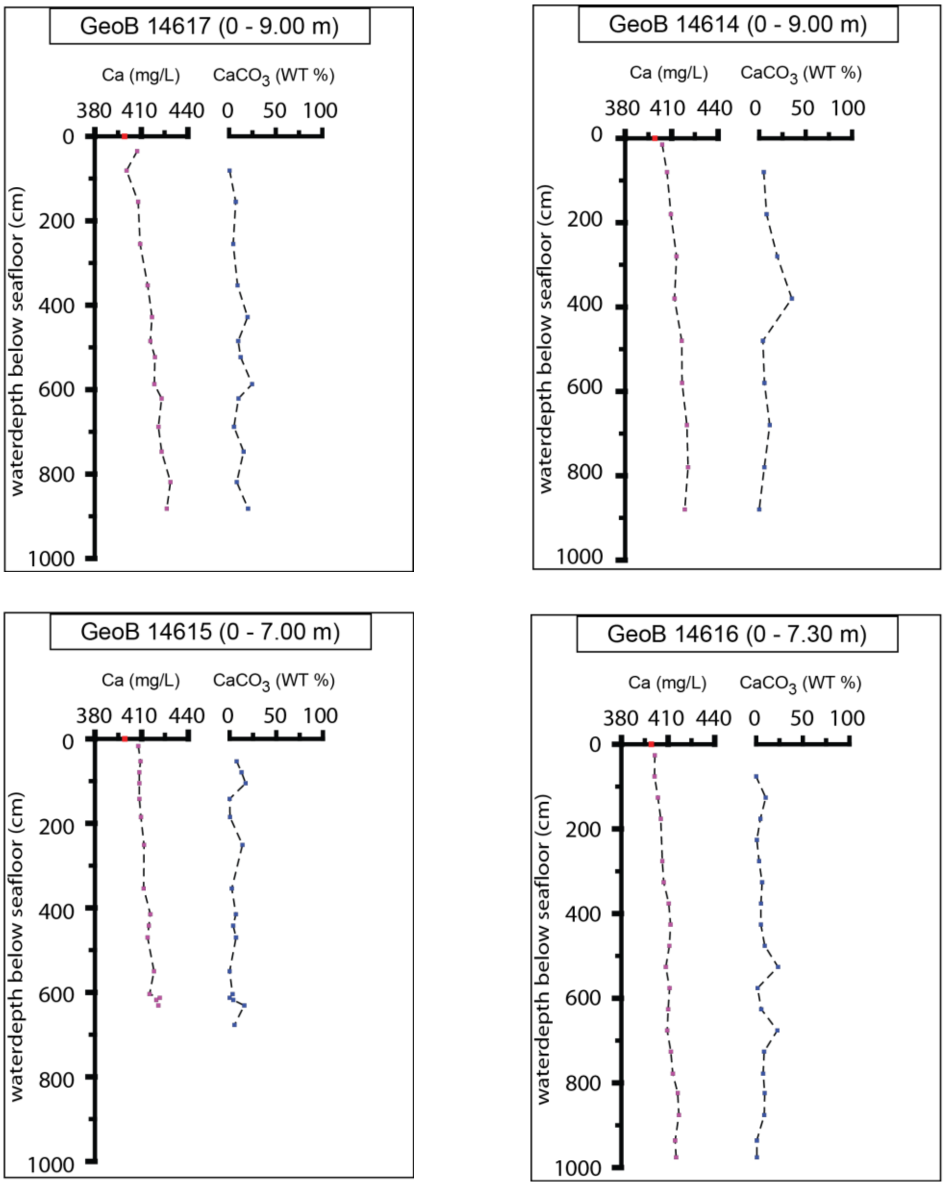


Figure 24. : Ca pore water concentration profiles and calcium carbonate content in working area 3. The small red dots show the values of bottom water.

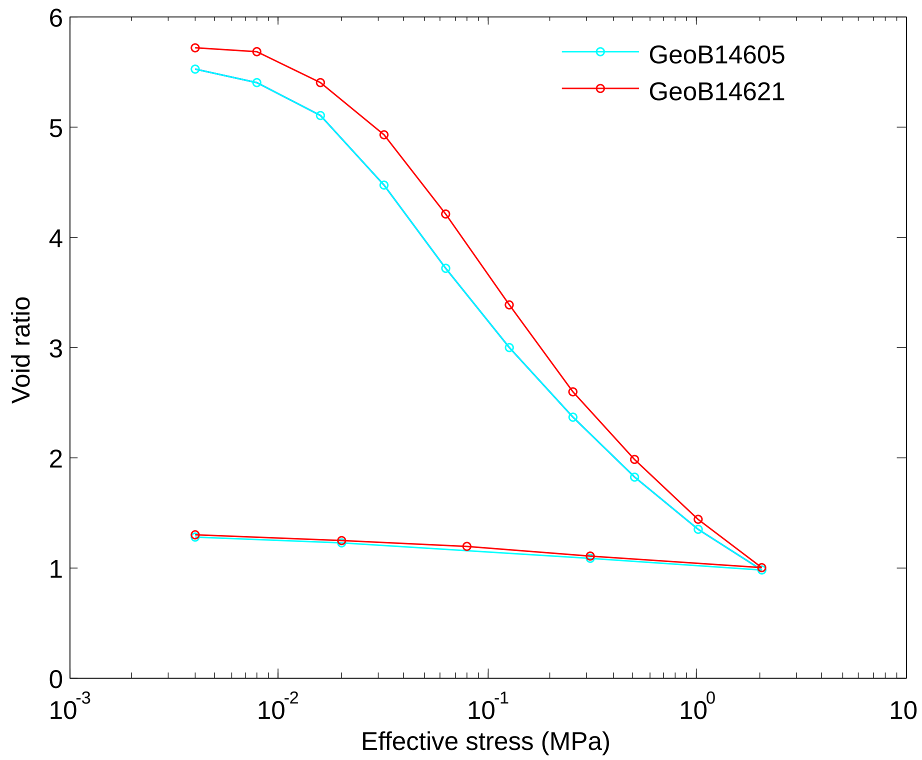


Figure 25. Pressure-void ration diagrams of tested sediment samples. The blue diagram shows sample taken inside of the pit and the red diagram sample taken outside of the pit.

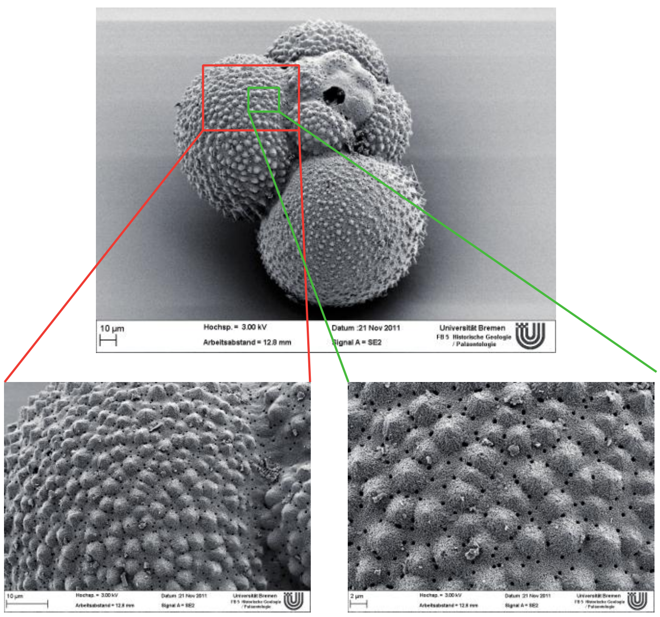


Figure 26. The well-preserved test of planktonic Foraminifera of core GeoB 14619 in 6,71 m depth. Pictures in the red rectangle show the surface textures of the test in 4000 times magnified and in the green 8000 times magnified.

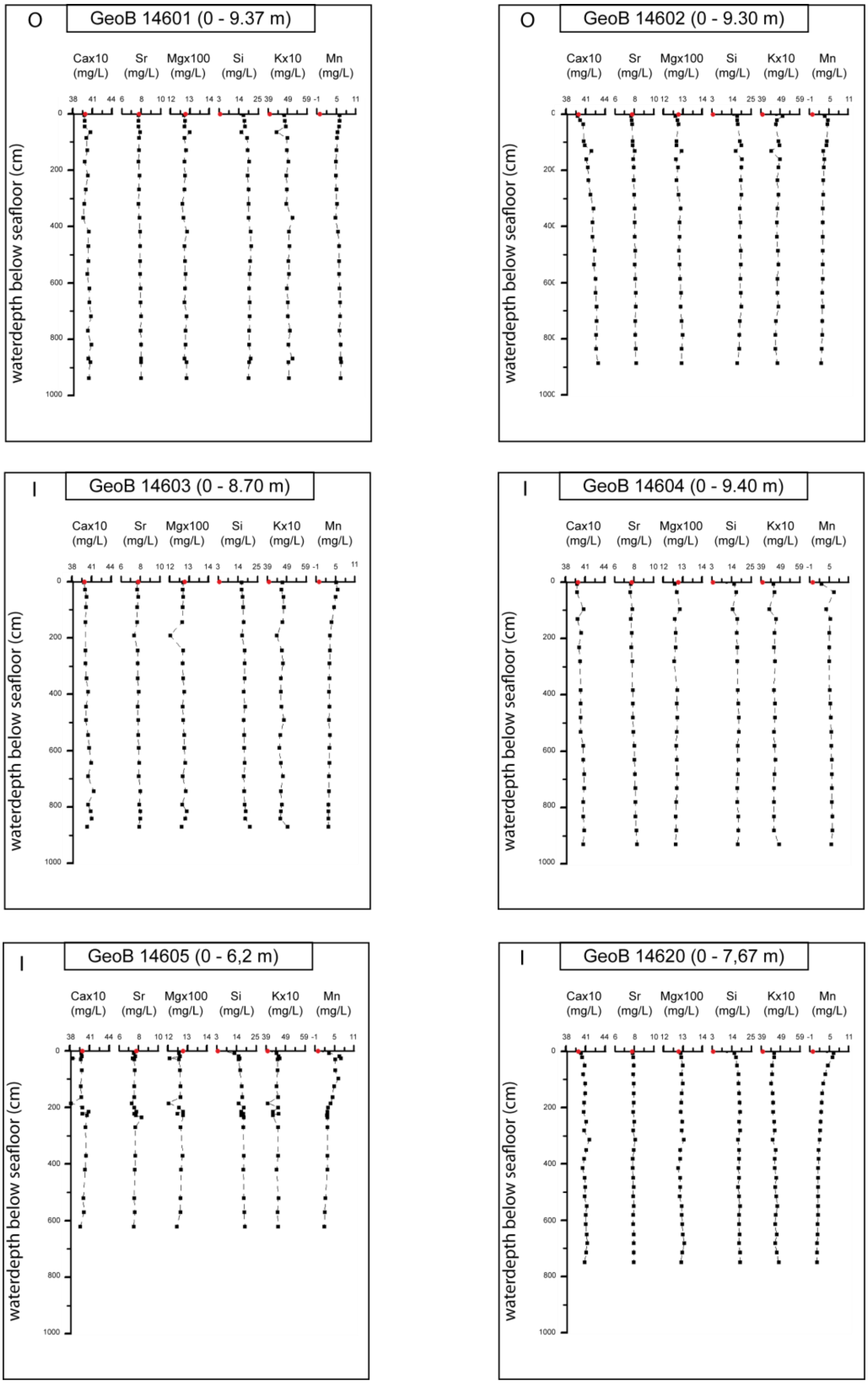


Figure 27. Ca, Sr, Mg, Si, K and Mn pore water concentration profiles in working area 1. The small red dots show the values of bottom water. O = core taken from the outside of pits; I = core taken from the inside of pits

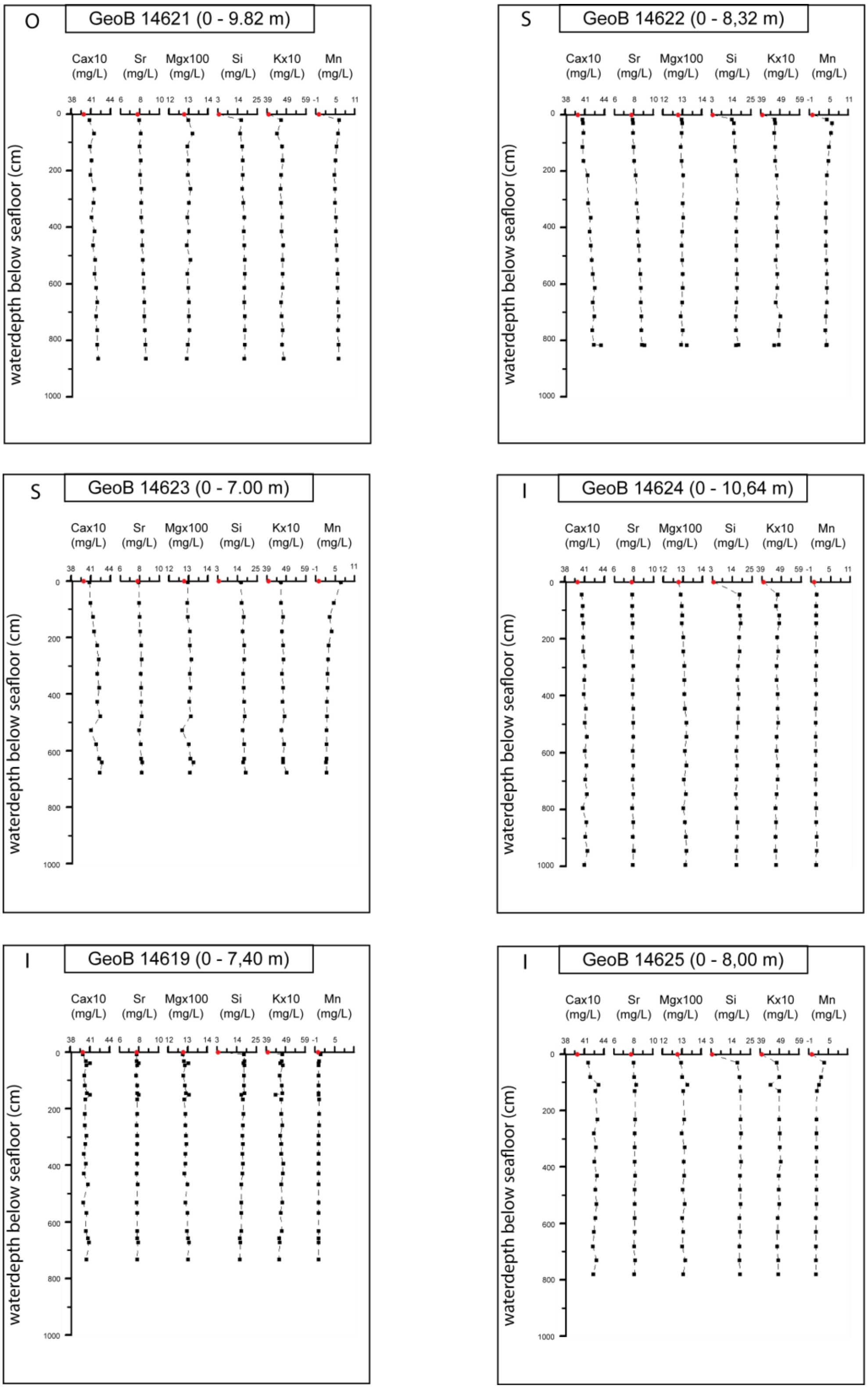


Figure 28. Ca, Sr, Mg, Si, K and Mn pore water concentration profiles in working area 1. The small red dots show the values of bottom water. Core GeoB 14618 was collected from the top of seamount. O = core taken from the outside of pits; S = core taken on slope of pits; I = core taken from the inside of pits.

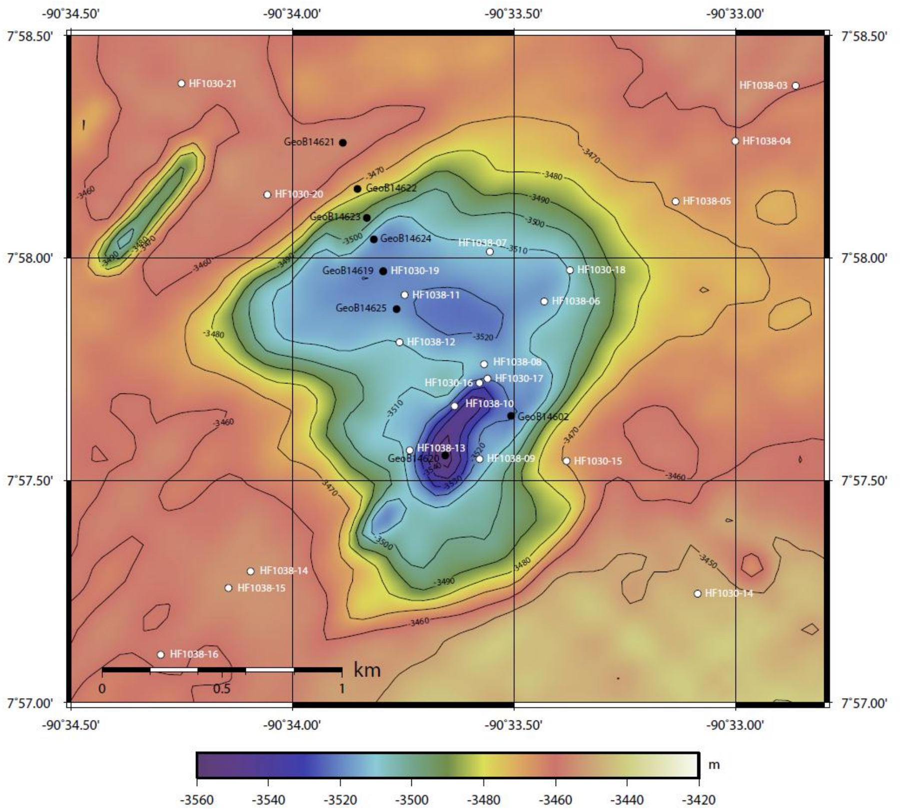


Figure 29. Detailed bathymetry of The Pit (WA 1) and location of heat flow measurements and gravity cores.

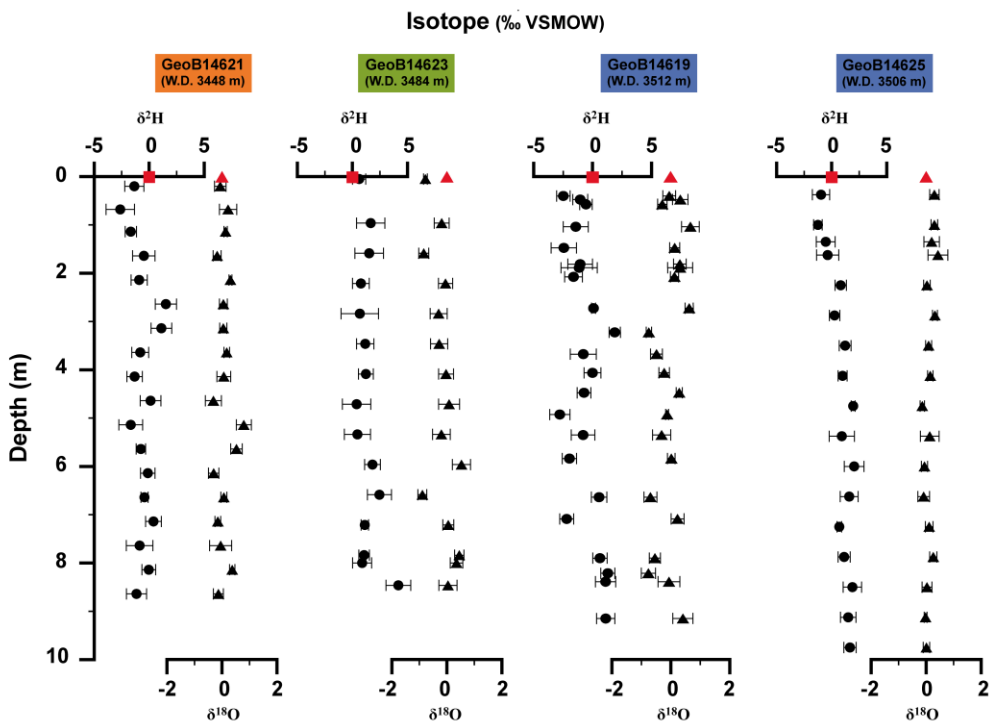


Figure 30 Profiles for δ2H and δ18O values in pore water from four cores, which were taken along a transect across the pit slope. The orange profile GeoB14621 represents the core collected from the outside of the pit, while the green profile GeoB14623 represents the core taken on the slope and the two blue profiles GeoB14619 and GeoB14625 represent the cores retrieved within the pit. The red dots show the values of bottom seawater.

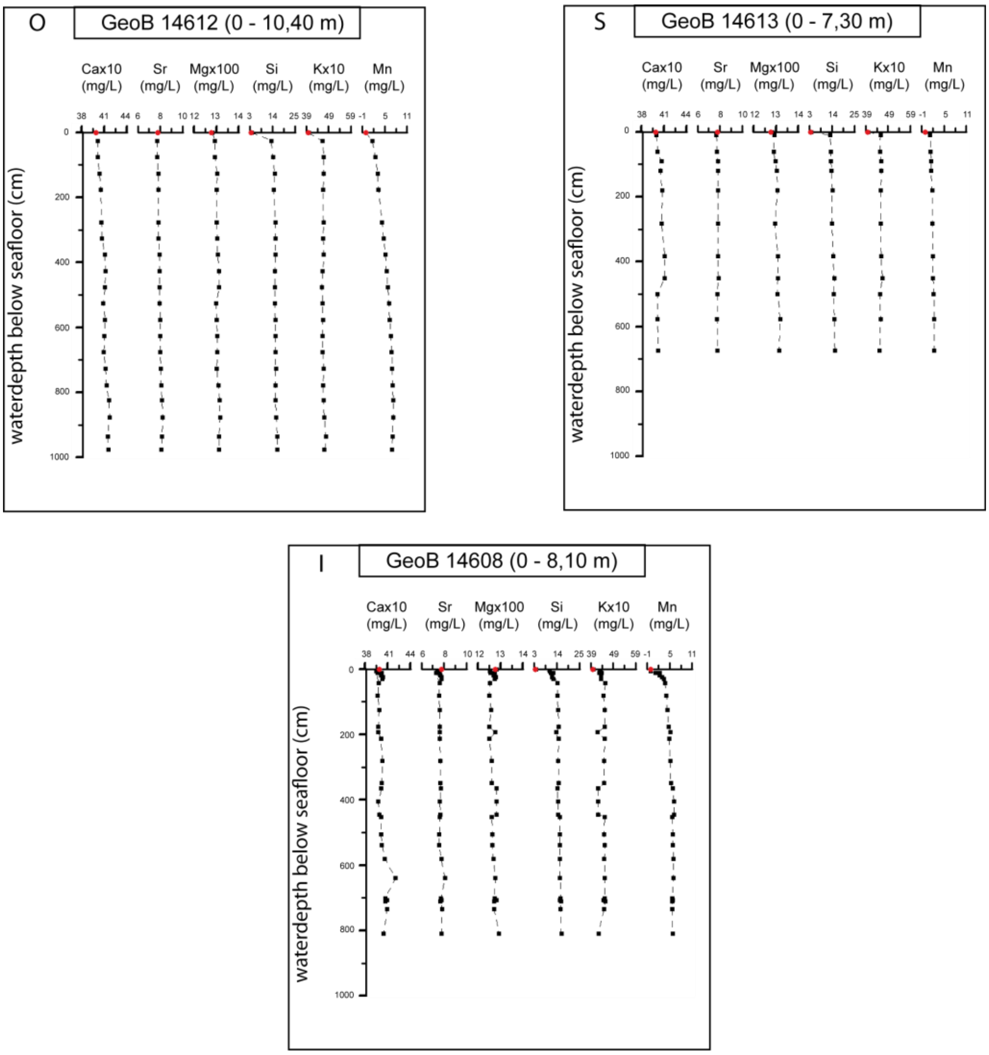


Figure 31. Ca, Sr, Mg, Si, K and Mn pore water concentration profiles in working area 2. Transect across a pit. The small red dots show the values of bottom water. O = core taken from the outside of pits; S = core taken on slope of pits; I = core taken from the inside of pits.

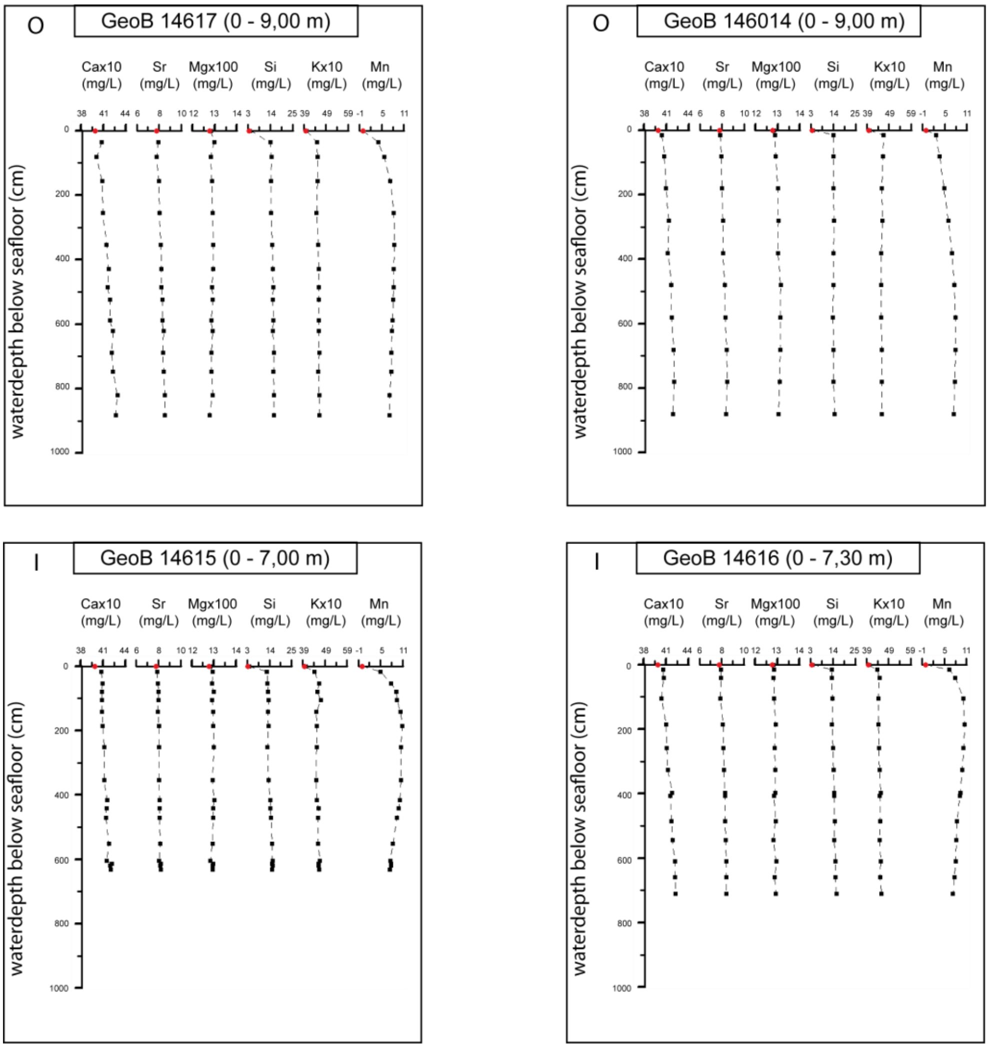


Figure 32. Ca, Sr, Mg, Si, K and Mn pore water concentration profiles in working area 3. The small red dots show the values of bottom water. O = core taken from the outside of pits; I = core taken from the inside of pits.

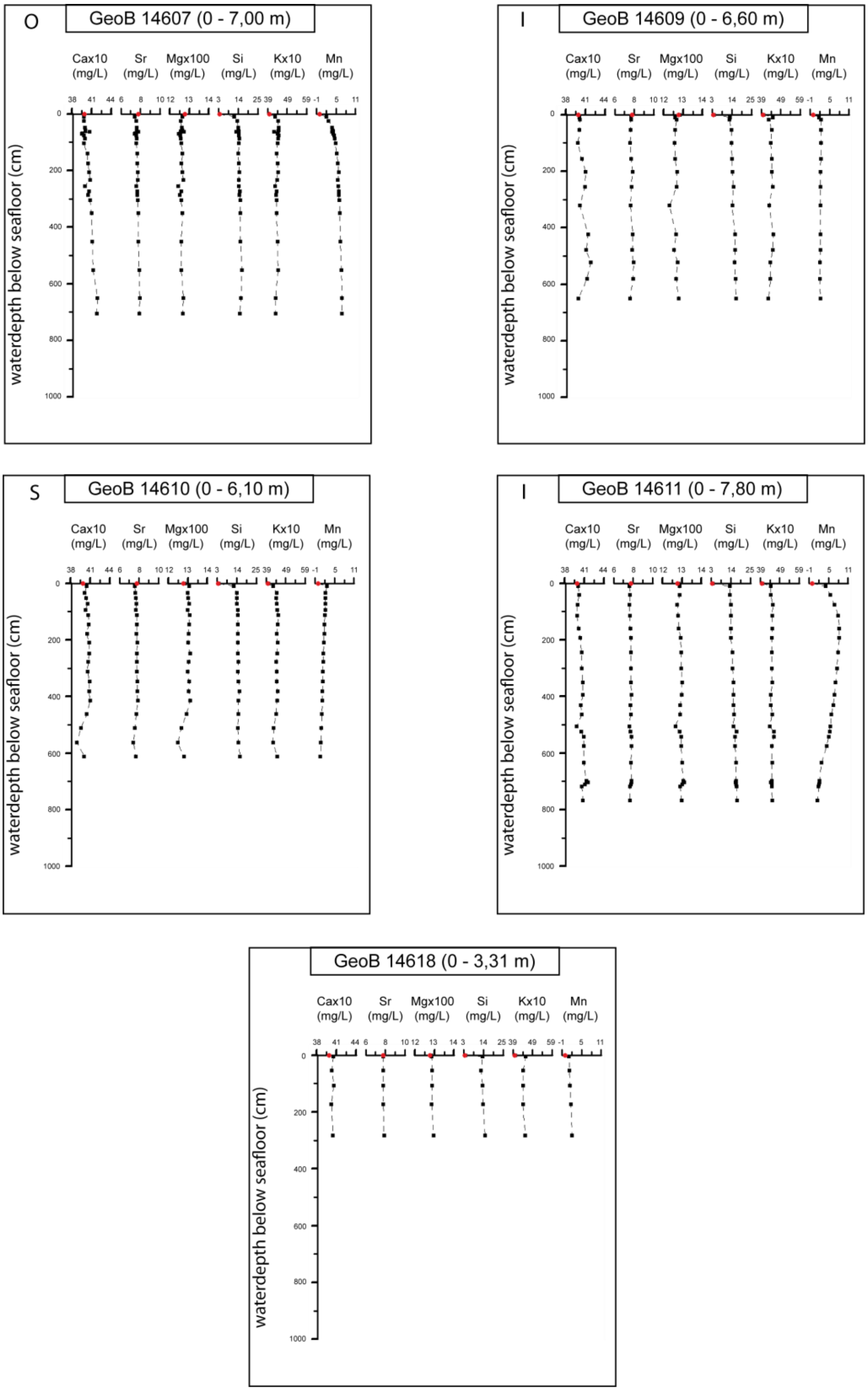


Figure 33. Ca, Sr, Mg, Si, K and Mn pore water concentration profiles in working area 2. The small red dots show the values of bottom water. Core GeoB 14618 was collected from the top of seamount. O = core taken from the outside of pits; S = core taken on slope.

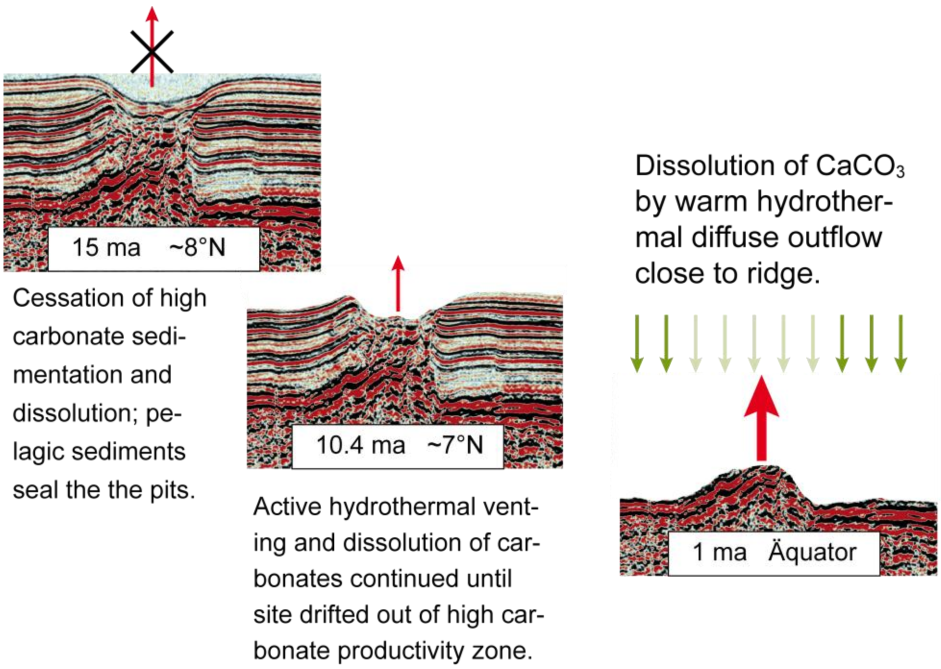


Figure 34. Model of the development of hydrothermal pits.

Appendix Geophysik

für das Projekt

SO207 – SEAMOUNTFLUX

Effiziente Abkühlung junger ozeanischer Kruste durch Zirkulation von Meerwasser durch Seamounts (Guatemala Becken, Ostpazifik)

Förderkennzeichen 03G0207A

Zeitraum 1.3.2010 – 31.4.2012

Prof. Dr. H. Villinger

Prof. Dr. T. Pichler

Fachbereich Geowissenschaften

Universität Bremen

Bremen

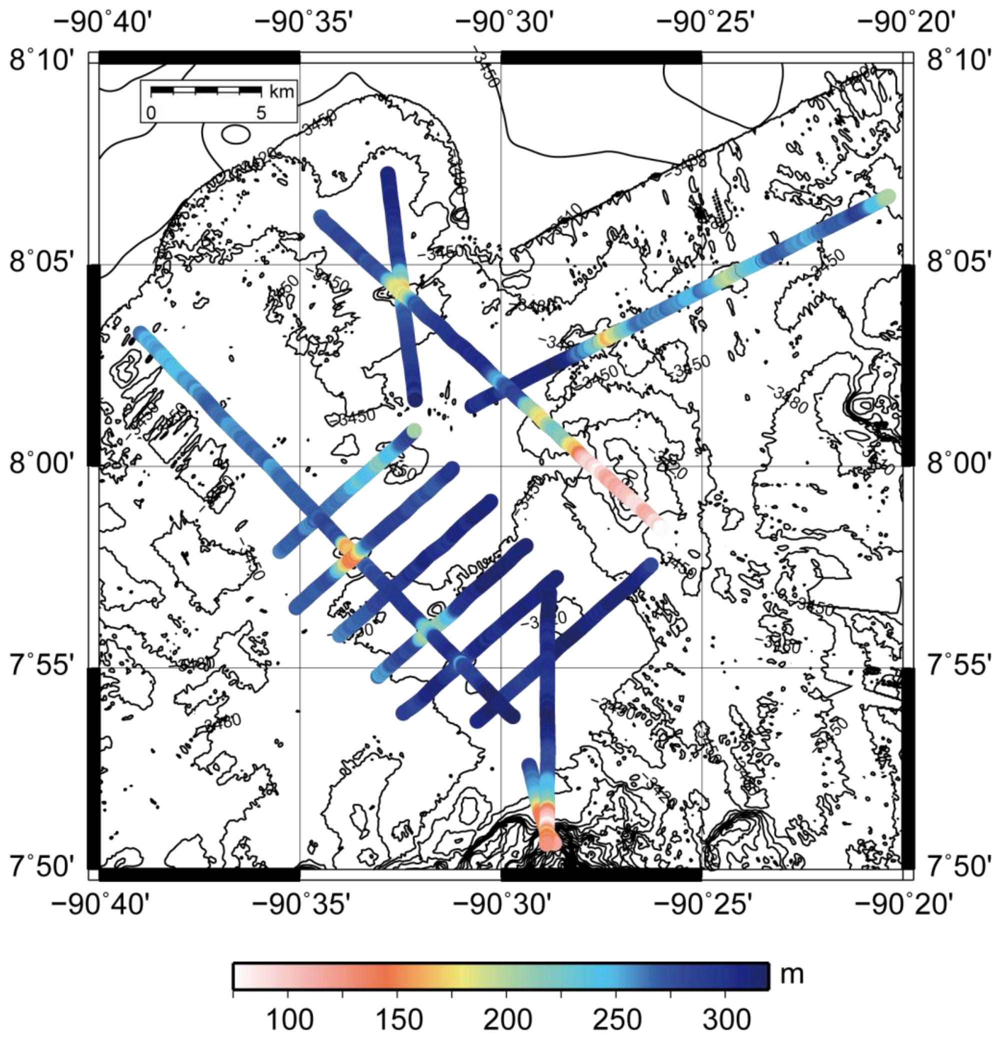


Figure A 1. Calculated sediment thickness in WA 1.

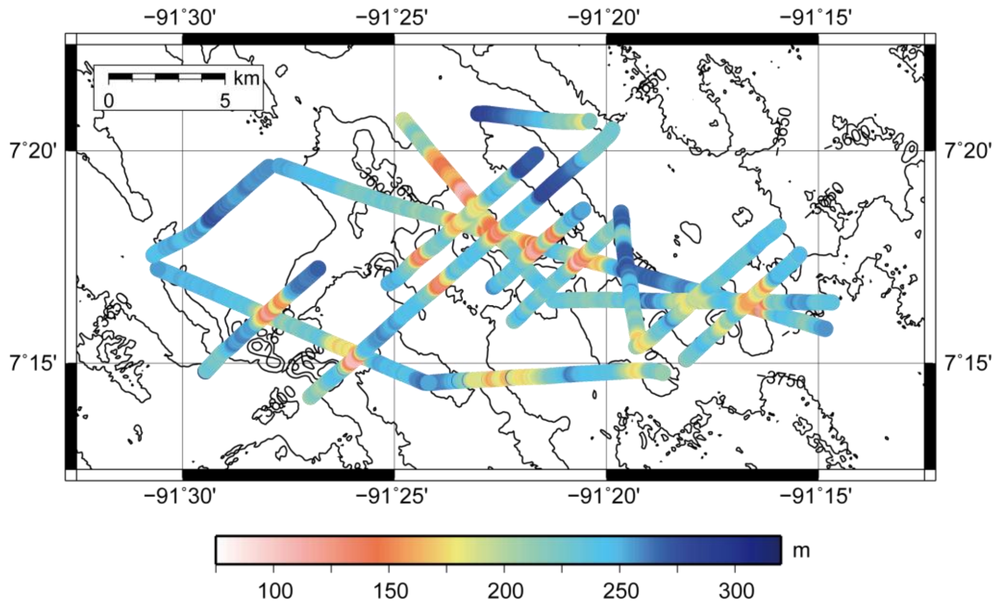


Figure A 2. Calculated sediment thickness in WA 2.

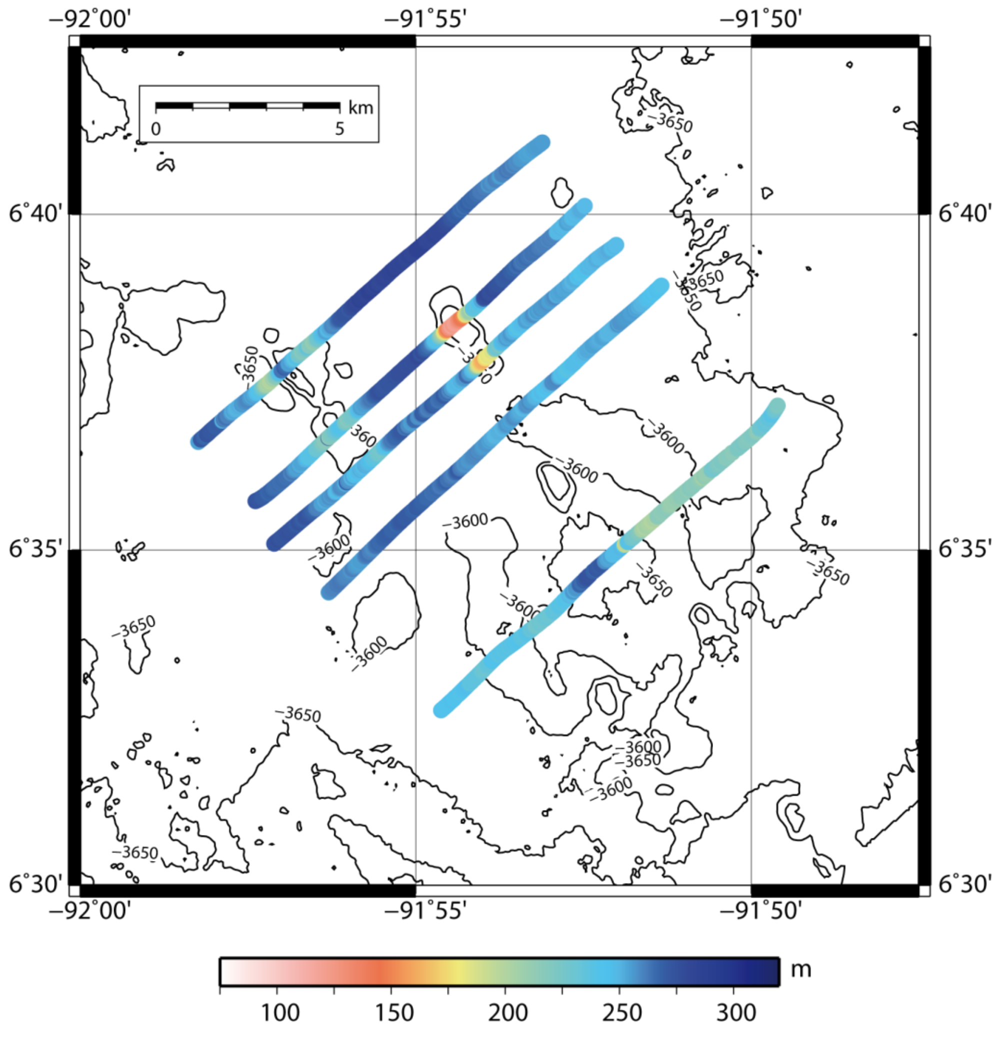


Figure A 3. Calculated sediment thickness in working area 3.

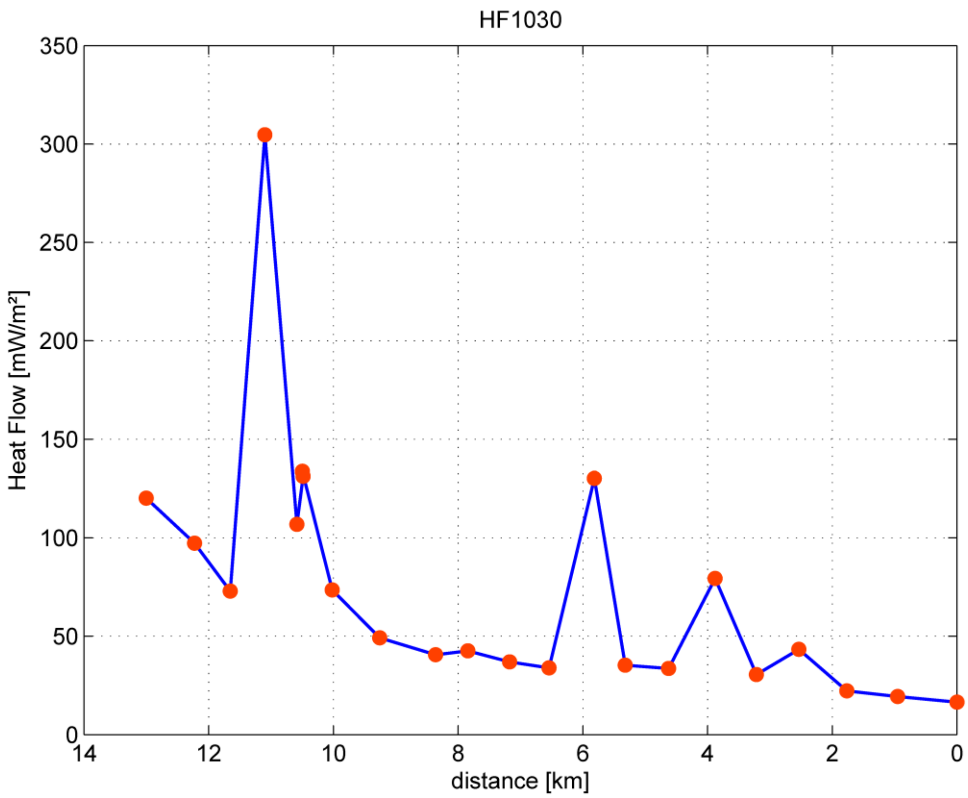


Figure A 4. Heat flow values along profile HF1030.

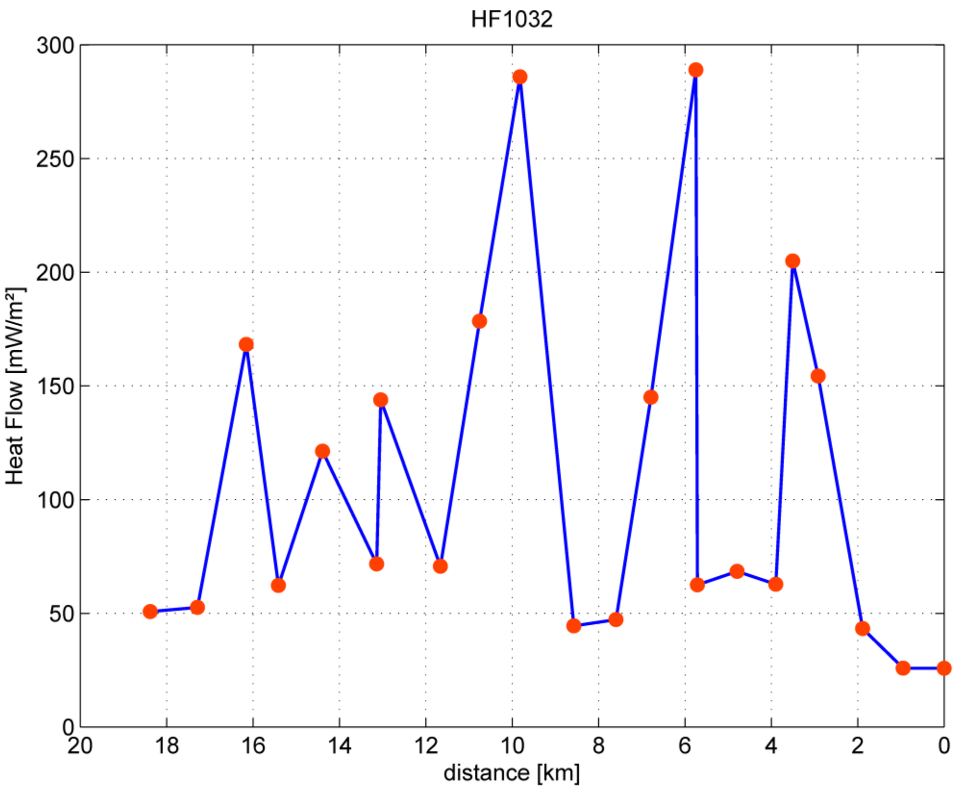


Figure A 5. Heat flow values along profile HF1032.

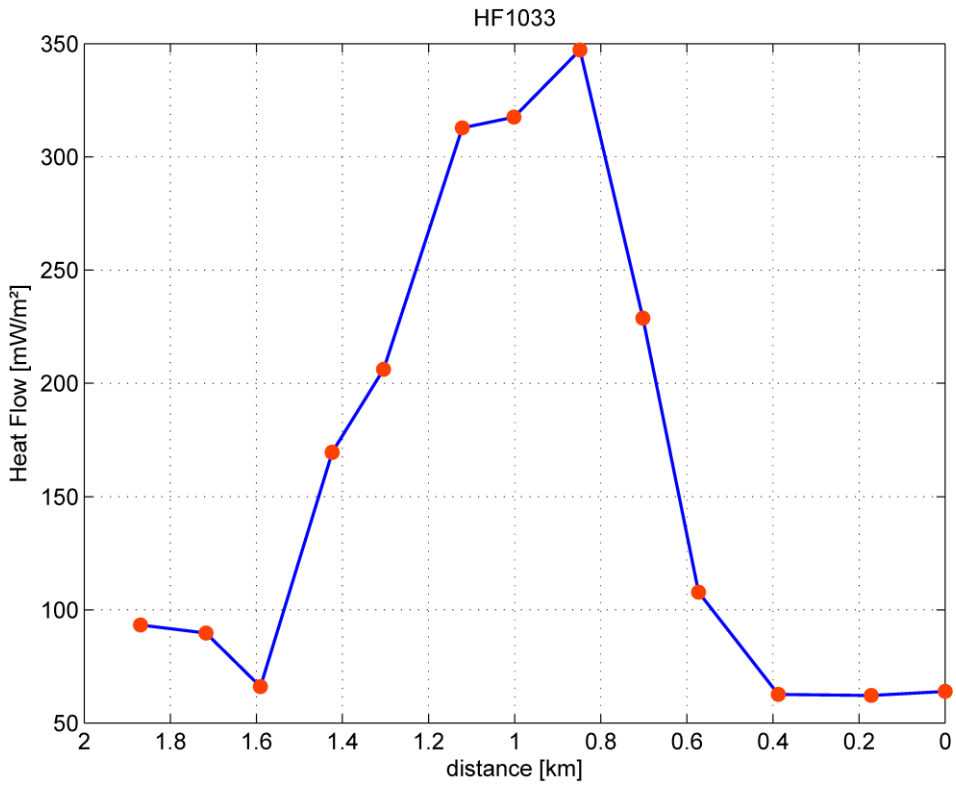


Figure A 6. Heat flow values along profile HF1033.

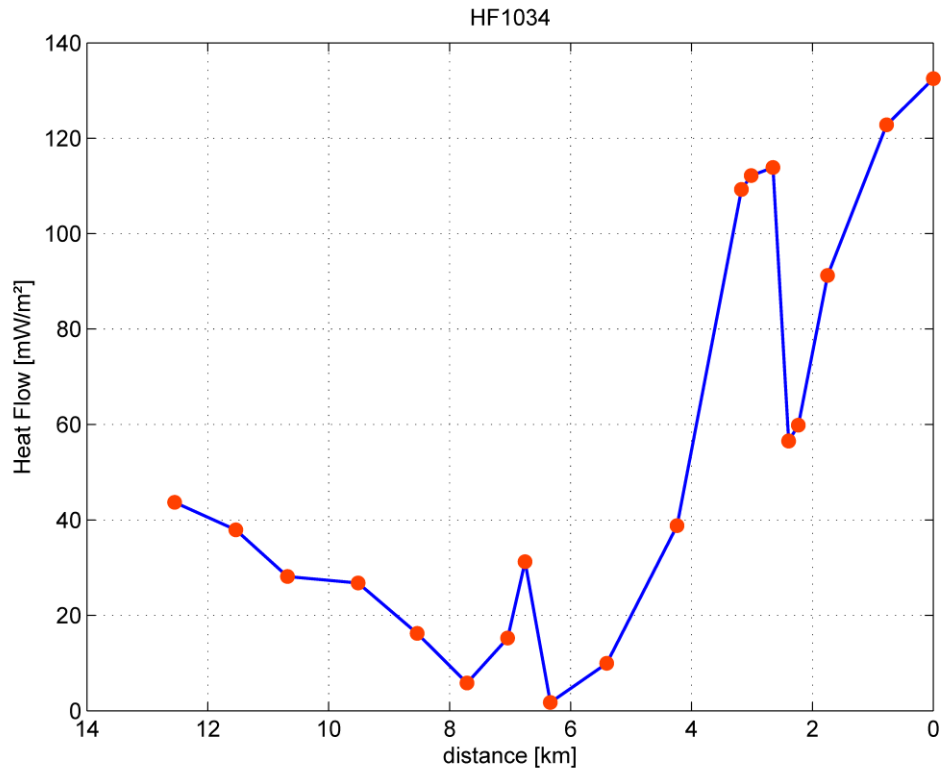


Figure A 7. Heat flow values along profile HF1034.

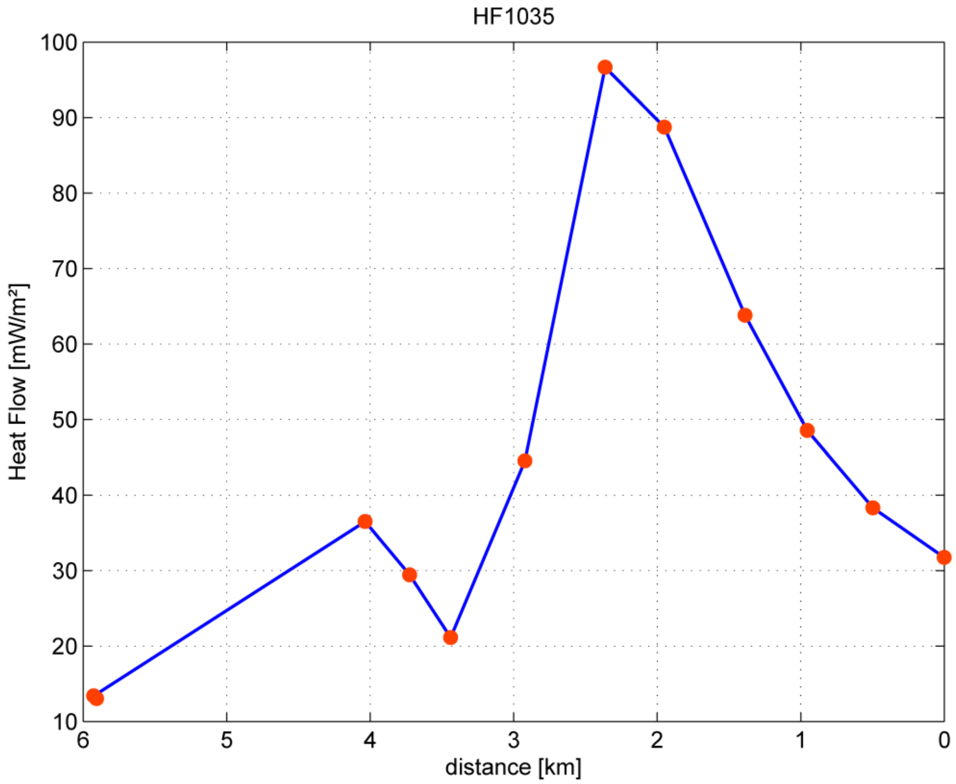


Figure A 8. Heat flow values along profile HF1035.

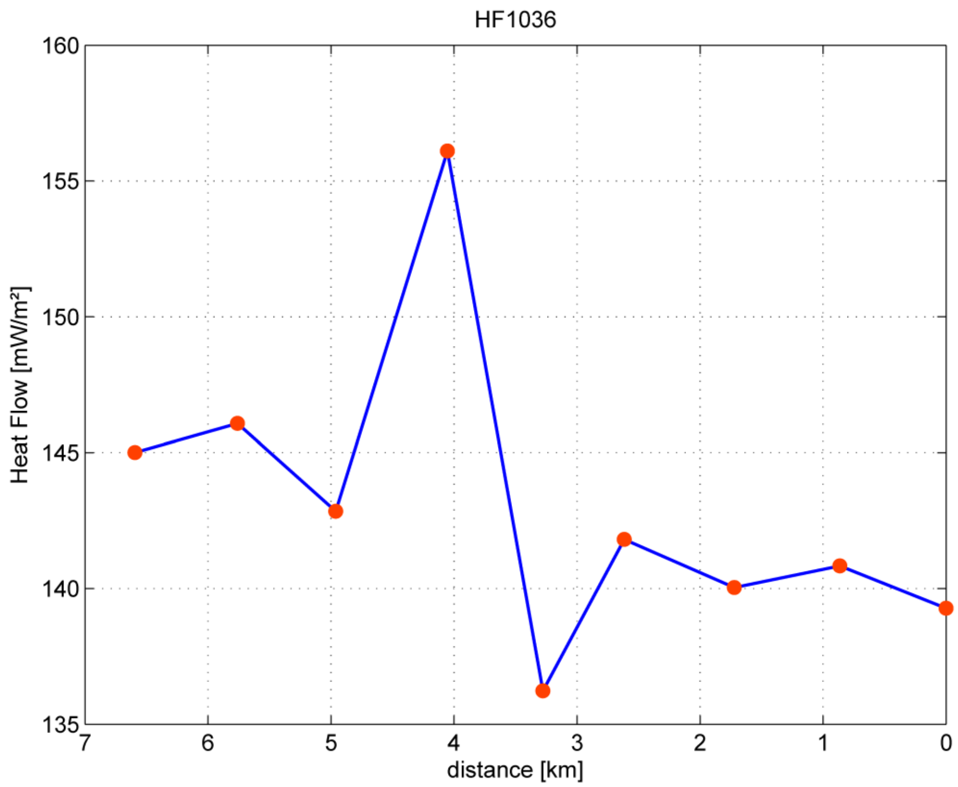


Figure A 9. Heat flow values along profile HF1036.

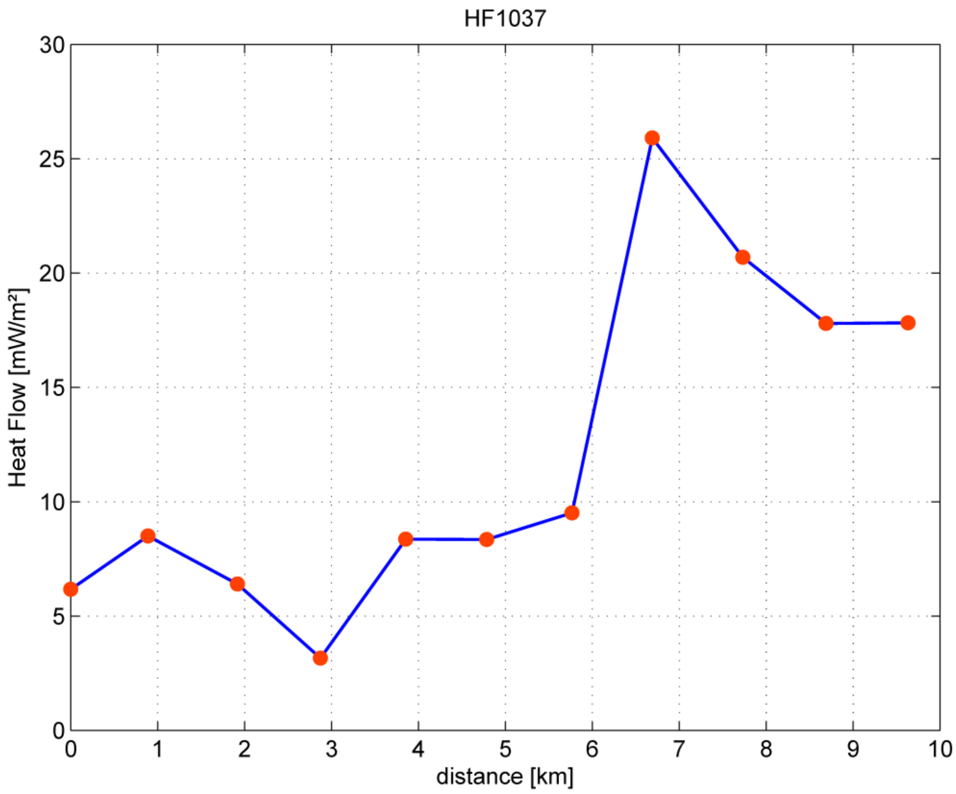


Figure A 10. Heat flow values along profile HF1037.

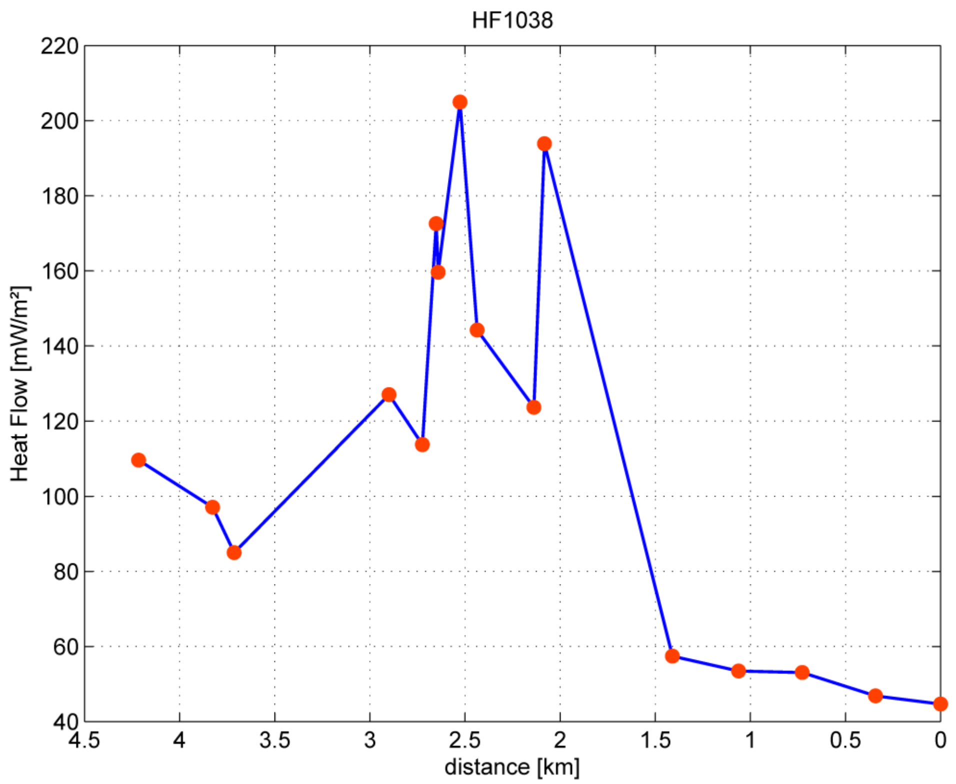


Figure A 11. Heat flow values along profile HF1038.

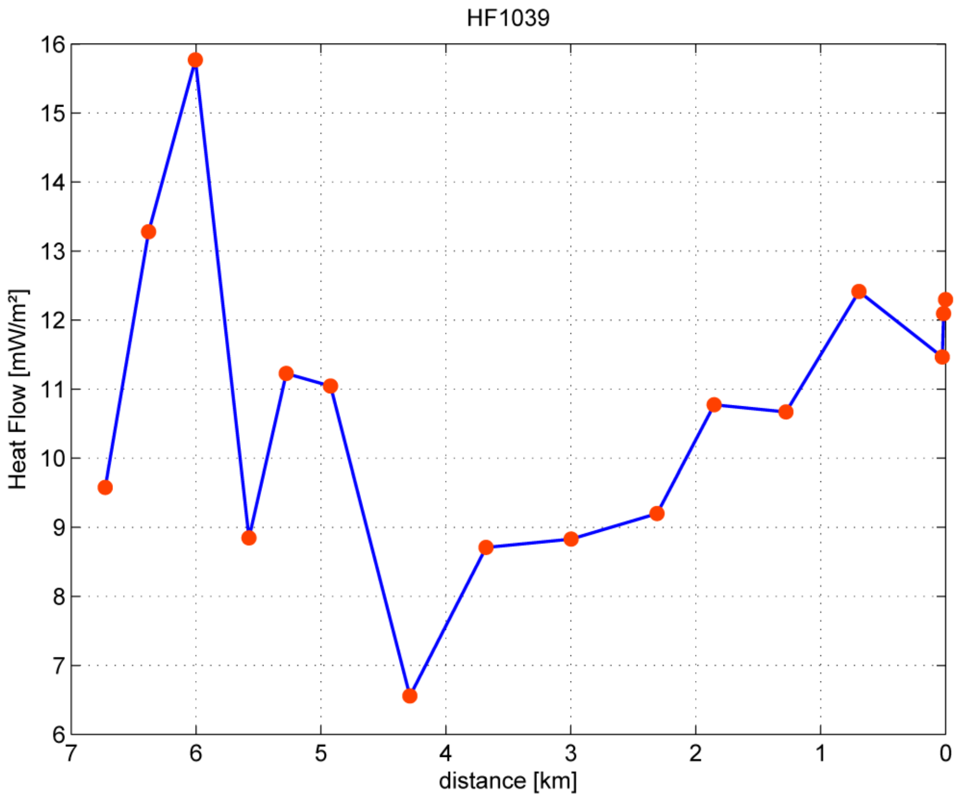


Figure A 12. Heat flow values along profile HF1039.

Table 1. Seismic profiles shot during SO207

Profile	StartFFN	EndFFN	StartTime		EndTime		StartPosition[Lat/Lon]				EndPosition[Lat/Lon]				Dist[nm]	#Shots
GUATB01	26	1318	23.06.2010	22:25:34	24.06.2010	01:17:53	8	6.7510	-90	20.1660	8	1.4900	-90	30.7350	181.61	1292
GUATB02	1467	2126	24.06.2010	01:37:44	24.06.2010	03:05:36	8	1.5230	-90	32.0050	8	7.2770	-90	32.8250	5.88	659
GUATB03	2399	3662	24.06.2010	03:42:00	24.06.2010	06:30:58	8	6.0340	-90	34.3800	7	58.3440	-90	25.9830	11.4	1263
GUATB04	3781	4428	24.06.2010	06:46:50	24.06.2010	08:13:07	7	57.4330	-90	26.4080	7	53.5440	-90	30.7320	5.79	647
GUATB05	4623	6129	24.06.2010	08:39:07	24.06.2010	11:59:56	7	53.7130	-90	29.5930	8	3.3030	-90	38.9800	13.39	1506
GUATB08	6325	6860	28.06.2010	21:43:58	28.06.2010	22:55:40	7	14.4400	-91	20.3870	7	14.1830	-91	25.1400	5.4	535
GUATB09	6863	7639	28.06.2010	22:55:40	29.06.2010	00:39:08	7	14.1670	-91	25.0790	7	16.8690	-91	31.4310	164.98	776
GUATB10	7683	8056	29.06.2010	00:45:00	29.06.2010	01:34:45	7	17.2220	-91	31.4410	7	19.2580	-91	28.7530	3.38	373
GUATB11	8074	9605	29.06.2010	01:37:09	29.06.2010	05:01:18	7	19.2960	-91	28.6060	7	15.3840	-91	15.4630	13.69	1531
GUATB12	9818	10551	29.06.2010	05:29:42	29.06.2010	07:07:27	7	16.0580	-91	15.5040	7	16.1370	-91	22.1200	6.59	733
GUATB13	10552	11205	29.06.2010	07:07:35	29.06.2010	08:34:40	7	16.1420	-91	22.1260	7	20.5940	-91	25.7880	5.79	653
GUATB14	11269	11756	29.06.2010	08:43:12	29.06.2010	09:48:08	7	21.0370	-91	25.4310	7	20.3450	-91	21.1520	4.44	487
GUATB15	11845	12918	29.06.2010	10:00:00	29.06.2010	12:23:06	7	20.0980	-91	20.6850	7	13.7140	-91	27.9180	9.64	1073
GUATB16	12975	13365	01.07.2010	20:14:42	01.07.2010	21:06:42	7	14.6280	-91	30.0810	7	16.8970	-91	27.5600	3.38	390
GUATB17	13569	14089	01.07.2010	21:34:00	01.07.2010	22:43:15	7	16.5410	-91	25.8670	7	19.5510	-91	22.4540	3.11	520
GUATB18	14405	14756	01.07.2010	23:25:23	02.07.2010	00:12:11	7	18.3290	-91	21.2160	7	16.3760	-91	23.5270	3.02	351
GUATB19	14903	15287	02.07.2010	00:31:47	02.07.2010	01:23:00	7	15.6720	-91	22.9280	7	18.0190	-91	20.3690	3.45	384
GUATB20	15399	15765	02.07.2010	01:37:56	02.07.2010	02:26:44	7	18.1570	-91	20.4640	7	14.9960	-91	20.0300	3.19	366
GUATB21	15909	16383	02.07.2010	02:45:56	02.07.2010	03:49:09	7	15.0400	-91	20.0460	7	17.8240	-91	16.7670	4.29	474
GUATB22	16557	16982	02.07.2010	04:12:21	02.07.2010	05:09:01	7	17.1310	-91	16.3070	7	14.6320	-91	19.0130	3.67	425
GUATB24	17068	17829	03.07.2010	17:15:52	03.07.2010	18:57:21	6	41.0010	-91	53.2150	6	36.5020	-91	58.3260	6.84	761
GUATB25	17992	18742	03.07.2010	19:19:05	03.07.2010	20:59:06	6	35.7300	-91	57.3780	6	40.1790	-91	52.4240	6.64	750
GUATB26	18838	19613	03.07.2010	21:11:54	03.07.2010	22:55:22	6	39.6050	-91	51.9490	6	35.1100	-91	57.0890	6.86	775
GUATB27	19793	20554	03.07.2010	23:19:23	04.07.2010	01:00:51	6	34.4060	-91	56.2530	6	39.0370	-91	51.2370	6.81	761
GUATB28	20602	20816	04.07.2010	01:07:15	04.07.2010	01:35:48	6	38.9270	-91	50.8160	6	37.5130	-91	49.5110	1.94	214
GUATB29	20865	21639	04.07.2010	01:42:20	04.07.2010	03:25:32	6	37.1290	-91	49.6220	6	32.5230	-91	54.7190	6.9	774
GUATB32	21800	22364	09.07.2010	01:03:04	09.07.2010	02:18:16	7	57.6400	-90	35.9170	8	0.9300	-90	32.1150	5.01	564
GUATB33	22545	23105	09.07.2010	02:42:28	09.07.2010	03:57:05	7	59.8620	-90	31.2930	7	56.6040	-90	34.9890	4.51	560
GUATB34	23325	23886	09.07.2010	04:26:25	09.07.2010	05:41:13	7	55.7860	-90	34.0370	7	59.0790	-90	30.3050	4.96	561
GUATB35	24081	24669	09.07.2010	06:07:14	09.07.2010	07:25:39	7	58.0720	-90	29.3230	7	54.6360	-90	33.1790	5.15	588
GUATB36	24818	25398	09.07.2010	07:45:31	09.07.2010	09:02:51	7	53.9170	-90	32.3860	7	57.2380	-90	28.6290	5	580
GUATB37	25672	26383	09.07.2010	09:39:24	09.07.2010	11:14:12	7	57.1300	-90	28.7250	7	50.7830	-90	28.8650	6.36	711
GUATB38	26500	26734	09.07.2010	11:29:48	09.07.2010	12:01:00	7	50.7480	-90	28.7370	7	52.6900	-90	29.3400	2.04	234

Table 2. Measured heat flow values.

no	Latitude	Longitude	Depth [m]	Date	no Sensors used	TGrad [°C/km]	Mean TC [W/mK]	Heat Flow [mW/m²]
	HF1030							
1	07 53.6037	-90 29.5214	3421	2010/06/24	21	21.13	n/a	16.5
2	07 53.9987	-90 29.8642	3428	2010/06/25	21	24.12	0.80	19.4
3	07 54.3136	-90 30.1847	3429	2010/06/25	21	28.46	n/a	22.2
4	07 54.5928	-90 30.5063	3466	2010/06/25	21	58.41	0.74	43.3
5	07 54.8615	-90 30.7679	3417	2010/06/25	21	39.12	n/a	30.5
6	07 55.1211	-90 31.0246	3502	2010/06/25	21	101.20	0.78	79.4
7	07 55.4144	-90 31.3111	3427	2010/06/25	21	43.09	n/a	33.6
8	07 55.6947	-90 31.5732	3426	2010/06/25	21	44.83	0.78	35.3
9	07 55.9132	-90 31.7382	3481	2010/06/25	21	166.87	n/a	130.2
10	07 56.1978	-90 32.0194	3428	2010/06/25	21	46.10	0.73	33.9
11	07 56.4383	-90 32.2718	3430	2010/06/25	21	47.39	n/a	37.0
12	07 56.6805	-90 32.5521	3432	2010/06/25	21	54.37	0.78	42.6
13	07 56.897	-90 32.7371	3431	2010/06/26	21	51.17	0.79	40.6
14	07 57.2452	-90 33.0862	3440	2010/06/26	21	63.02	n/a	49.2
15	07 57.5435	-90 33.3819	3466	2010/06/26	21	95.77	0.77	73.5
16	07 57.7191	-90 33.5789	3501	2010/06/26	21	171.38	n/a	133.7
17	07 57.7285	-90 33.5605	3501	2010/06/26	21	168.20	0.78	131.2
18	07 57.9723	-90 33.3745	3490	2010/06/26	21	137.02	n/a	106.9
19	07 57.9703	-90 33.7959	3500	2010/06/26	21	390.61	n/a	304.7
20	07 58.1421	-90 34.0574	3443	2010/06/27	21	93.47	n/a	72.9
21	07 58.3924	-90 34.2513	3448	2010/06/27	21	133.64	0.73	97.3
22	07 58.7007	-90 34.5472	3452	2010/06/27	21	154.02	n/a	120.1
	HF1032							
1	07 16.0354	-91 15.5233	3690	2010/06/29	10	34.38	0.75	25.8
2	07 16.0433	-91 16.0469	3698	2010/06/30	10	33.16	n/a	25.9
3	07 16.0678	-91 16.5641	3674	2010/06/30	21	54.73	0.79	43.3
4	07 16.0602	-91 17.1342	3748	2010/06/30	21	197.38	0.78	154.3
5	07 16.0113	-91 17.4581	3717	2010/06/30	21	262.65	n/a	204.9
6	07 15.9985	-91 17.6758	3673	2010/06/30	21	80.46	n/a	62.8
7	07 16.1547	-91 18.1677	3654	2010/06/30	21	85.75	0.80	68.4
8	07 16.2489	-91 18.6706	3714	2010/06/30	21	78.50	0.79	62.5
9	07 16.0667	-91 18.6977	3771	2010/06/30	21	375.02	0.77	289.0
10	07 16.3216	-91 19.2613	3729	2010/06/30	21	187.09	0.77	144.9
11	07 16.6295	-91 19.6756	3680	2010/06/30	21	60.53	n/a	47.2
12	07 16.7933	-91 20.1964	3696	2010/06/30	21	56.32	0.79	44.4
13	07 17.1457	-91 20.8298	3724	2010/07/01	21	366.54	n/a	285.9
14	07 17.1133	-91 21.3642	3748	2010/07/01	21	228.69	n/a	178.4
15	07 17.2153	-91 21.8536	3693	2010/07/01	21	90.64	n/a	70.7
16	07 17.4615	-91 22.5828	3756	2010/07/01	21	184.24	0.78	143.8
17	07 17.6268	-91 22.5999	3733	2010/07/01	21	91.93	n/a	71.7
18	07 17.6602	-91 23.3012	3721	2010/07/01	21	155.38	n/a	121.2
19	07 17.6933	-91 23.8704	3657	2010/07/01	10	79.56	0.79	62.2
20	07 17.9081	-91 24.245	3711	2010/07/01	21	213.40	0.79	168.2
21	07 18.1275	-91 24.8348	3641	2010/07/01	20	67.39	n/a	52.6
22	07 18.2721	-91 25.4212	3624	2010/07/01	21	63.14	0.80	50.8

Table 2. Measured heat flow values.

no	Latitude	Longitude	Depth [m]	Date	no Sensors used	TGrad [°C/km]	Mean TC [W/mK]	Heat Flow [mW/m²]
	HF1033							
1	7 15.1919	-91 26.16	3659	2010/07/02	21	81.97	n/a	63.9
2	7 15.1096	-91 26.206	3667	2010/07/02	21	78.03	0.79	62.1
3	7 15.0287	-91 26.2969	3720	2010/07/02	21	80.27	n/a	62.6
4	7 14.9348	-91 26.3415	3764	2010/07/02	21	138.15	n/a	107.8
5	7 14.8878	-91 26.3974	3762	2010/07/02	21	292.41	0.78	228.7
6	7 14.8304	-91 26.4546	3755	2010/07/02	21	445.12	n/a	347.2
7	7 14.7746	-91 26.5192	3747	2010/07/02	21	407.14	n/a	317.6
8	7 14.7164	-91 26.5525	3744	2010/07/02	21	400.14	0.78	312.8
9	7 14.645	-91 26.624	3714	2010/07/02	21	264.24	n/a	206.1
10	7 14.5935	-91 26.6646	3667	2010/07/02	21	217.32	n/a	169.5
11	7 14.5266	-91 26.7274	3633	2010/07/02	20	84.64	n/a	66.0
12	7 14.4614	-91 26.7574	3617	2010/07/02	20	115.02	n/a	89.7
13	7 14.4041	-91 26.8196	3608	2010/07/02	7	119.62	n/a	93.3
	HF1034							
1	6 39.466	-91 53.1856	3623	2010/07/04	21	169.87	n/a	132.5
2	6 39.1205	-91 53.4325	3618	2010/07/04	21	157.44	n/a	122.8
3	6 38.754	-91 53.832	3616	2010/07/04	21	114.97	0.79	91.2
4	6 38.6429	-91 54.0975	3624	2010/07/04	21	76.68	n/a	59.8
5	6 38.5564	-91 54.1364	3673	2010/07/04	20	72.48	n/a	56.5
6	6 38.4334	-91 54.2156	3215	2010/07/04	21	145.85	0.78	113.9
7	6 38.277	-91 54.3379	3709	2010/07/04	21	142.77	0.78	112.2
8	6 38.2503	-91 54.4367	3646	2010/07/04	21	140.06	n/a	109.3
10	6 37.8331	-91 54.8488	3538	2010/07/04	12	49.69	0.78	38.8
11	6 37.3954	-91 55.3142	3615	2010/07/05	20	12.74	n/a	9.9
12	6 37.0952	-91 55.7378	3611	2010/07/05	19	2.21	n/a	1.7
13	6 36.9485	-91 55.9154	3560	2010/07/05	21	40.05	n/a	31.2
14	6 36.842	-91 56.0333	3520	2010/07/05	21	19.54	n/a	15.2
16	6 36.5983	-91 56.3099	3586	2010/07/05	20	7.45	n/a	5.8
17	6 36.3022	-91 56.6544	3595	2010/07/05	21	20.45	0.79	16.2
18	6 35.9336	-91 57.0449	3603	2010/07/05	21	34.33	n/a	26.8
19	6 35.5346	-91 57.5511	3608	2010/07/05	13	36.07	n/a	28.1
20	6 35.1842	-91 57.8663	3605	2010/07/05	21	46.75	0.81	37.9
21	6 34.7916	-91 58.2619	3610	2010/07/05	21	56.03	n/a	43.7
	HF1035							
1	7 1.58882	-91 31.8202	3660	2010/07/06	21	39.82	0.79	31.7
2	7 1.40595	-91 32.0233	3662	2010/07/06	21	49.10	n/a	38.3
3	7 1.23192	-91 32.2046	3657	2010/07/06	21	62.23	n/a	48.5
4	7 1.08883	-91 32.3973	3654	2010/07/06	21	81.79	n/a	63.8
5	7 0.88316	-91 32.6281	3649	2010/07/06	21	113.74	n/a	88.7
6	7 0.72483	-91 32.7915	3661	2010/07/06	21	123.94	n/a	96.7
7	7 0.510402	-91 33.0121	3652	2010/07/06	21	57.09	n/a	44.5
8	7 0.322195	-91 33.2258	3637	2010/07/06	21	26.50	0.79	21.1
9	7 0.236434	-91 33.3603	3644	2010/07/06	9	37.72	n/a	29.4
10	7 0.130105	-91 33.494	3590	2010/07/06	21	46.79	n/a	36.5
11	6 59.4049	-91 34.2412	3420	2010/07/06	18	15.56	0.86	13.4
12	6 59.4151	-91 34.236	3424	2010/07/06	19	16.70	n/a	13.0

Table 2. Measured heat flow values.

no	Latitude	Longitude	Depth [m]	Date	no Sensors used	TGrad [°C/km]	Mean TC [W/mK]	Heat Flow [mW/m²]
	HF1036							
1	7 13.8647	-91 19.0103	3720	2010/07/07	21	176.90	0.78	139.3
2	7 13.5445	-91 19.3615	3731	2010/07/07	21	180.56	n/a	140.8
3	7 13.2284	-91 19.7119	3727	2010/07/07	21	179.54	n/a	140.0
4	7 12.902	-91 20.0808	3720	2010/07/07	21	179.41	0.79	141.8
5	7 12.6638	-91 20.3562	3694	2010/07/07	21	174.66	n/a	136.2
6	7 12.3686	-91 20.6655	3692	2010/07/07	21	200.13	n/a	156.1
7	7 12.067	-91 21.0663	3660	2010/07/07	21	183.13	n/a	142.8
8	7 11.764	-91 21.3847	3696	2010/07/07	21	186.43	0.78	146.1
9	7 11.448	-91 21.7176	3718	2010/07/07	21	185.91	n/a	145.0
	HF1037							
1	7 23.2719	-91 25.6746	3652	2010/07/07	18	7.92	n/a	6.2
2	7 22.9436	-91 25.3115	3643	2010/07/07	9	10.91	n/a	8.5
3	7 22.5082	-91 24.9457	3657	2010/07/07	19	8.21	n/a	6.4
4	7 22.1172	-91 24.5955	3655	2010/07/07	6	4.05	n/a	3.2
5	7 21.7291	-91 24.2208	3670	2010/07/08	9	10.73	n/a	8.4
6	7 21.3339	-91 23.8939	3654	2010/07/08	21	10.48	0.79	8.3
7	7 20.9388	-91 23.5263	3653	2010/07/08	20	12.20	n/a	9.5
8	7 20.5533	-91 23.1947	3676	2010/07/08	20	33.21	n/a	25.9
9	7 20.1269	-91 22.8125	3688	2010/07/08	20	26.52	n/a	20.7
10	7 19.7425	-91 22.4532	3687	2010/07/08	20	22.81	n/a	17.8
11	7 19.3657	-91 22.0958	3685	2010/07/08	20	22.85	n/a	17.8
	HF1038							
1	7 58.6484	-90 32.5608	3455	2010/07/09	21	57.24	n/a	44.7
2	7 58.5233	-90 32.7015	3455	2010/07/10	21	60.03	n/a	46.8
3	7 58.3874	-90 32.8647	3452	2010/07/10	21	66.28	0.79	53.0
4	7 58.263	-90 33.001	3456	2010/07/10	21	68.53	n/a	53.5
5	7 58.127	-90 33.1361	3457	2010/07/10	21	73.60	n/a	57.4
6	7 57.9023	-90 33.4322	3504	2010/07/10	21	237.02	0.81	193.9
7	7 58.014	-90 33.555	3508	2010/07/10	21	158.51	n/a	123.6
8	7 57.7612	-90 33.568	3495	2010/07/10	21	184.91	n/a	144.2
9	7 57.5476	-90 33.5784	3500	2010/07/10	21	145.79	n/a	113.7
10	7 57.6671	-90 33.6349	3502	2010/07/10	20	204.65	n/a	159.6
11	7 57.9172	-90 33.7474	3508	2010/07/10	21	262.71	0.78	204.9
12	7 57.8104	-90 33.7591	3496	2010/07/10	21	221.23	n/a	172.6
13	7 57.5672	-90 33.7361	3478	2010/07/10	21	162.82	n/a	127.0
14	7 57.2954	-90 34.0953	3448	2010/07/10	21	108.97	n/a	85.0
15	7 57.258	-90 34.1454	3447	2010/07/10	21	123.25	0.79	97.1
16	7 57.1076	-90 34.2982	3453	2010/07/10	21	140.54	n/a	109.6

Table 2. Measured heat flow values.

no	Latitude	Longitude	Depth [m]	Date	no Sensors used	TGrad [°C/km]	Mean TC [W/mK]	Heat Flow [mW/m²]
	HF1039							
1	7 55.3093	-90 28.7832	3418	2010/07/10	17	15.76	n/a	12.3
2	7 55.3029	-90 28.7885	3418	2010/07/10	17	15.50	n/a	12.1
3	7 55.2973	-90 28.7756	3419	2010/07/10	19	14.70	n/a	11.5
4	7 54.9298	-90 28.7999	3421	2010/07/10	16	15.91	n/a	12.4
5	7 54.6097	-90 28.8002	3424	2010/07/10	17	13.68	n/a	10.7
6	7 54.2943	-90 28.7889	3428	2010/07/11	16	13.81	n/a	10.8
7	7 54.0442	-90 28.7941	3426	2010/07/11	17	11.79	n/a	9.2
8	7 53.6672	-90 28.8024	3419	2010/07/11	18	11.32	n/a	8.8
9	7 53.2936	-90 28.79	3415	2010/07/11	14	11.17	n/a	8.7
10	7 52.9595	-90 28.7906	3414	2010/07/11	13	8.40	n/a	6.6
11	7 52.6117	-90 28.7905	3412	2010/07/11	10	14.16	n/a	11.0
12	7 52.4173	-90 28.7889	3418	2010/07/11	10	13.61	0.82	11.2
14	7 52.2539	-90 28.7861	3421	2010/07/11	12	11.34	n/a	8.8
15	7 52.019	-90 28.7804	3419	2010/07/11	17	20.22	n/a	15.8
16	7 51.8136	-90 28.7723	3413	2010/07/11	20	16.84	0.79	13.3
17	7 51.6236	-90 28.8086	3412	2010/07/11	17	12.28	n/a	9.6

Appendix Sediment und Porenwasser

für das Projekt

SO207 – SEAMOUNTFLUX

Effiziente Abkühlung junger ozeanischer Kruste durch Zirkulation von Meerwasser durch Seamounts (Guatemala Becken, Ostpazifik)

Förderkennzeichen 03G0207A

Zeitraum 1.3.2010 – 31.4.2012

Prof. Dr. H. Villinger

Prof. Dr. T. Pichler

Fachbereich Geowissenschaften

Universität Bremen

Bremen

Appendix I – Sediment and Pore Water

Calcium carbonate, total organic carbon and total carbon content in the GeoB cores.

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
GeoB14601-1	4	1.8	1.3	3.9
	24	1.3	0.9	2.7
	44	1.0	0.7	2.8
	64	0.0	0.0	0.0
	84	1.0	0.7	1.9
	128	1.2	0.8	3.3
	168	0.7	0.4	1.8
	218	1.2	0.6	4.5
	268	2.2	0.3	15.2
	318	1.4	0.7	6.0
	368	2.8	0.8	17.3
	418	0.9	0.4	4.3
	468	2.2	0.9	10.7
	522	0.9	0.3	4.6
	568	1.7	0.5	10.0
	618	2.3	0.6	13.9
	668	1.3	0.4	7.1
	718	2.1	0.4	14.0
	768	1.5	0.4	8.9
	818	0.5	0.3	2.1
	868	2.2	0.4	14.7
	880	2.2	0.5	14.3
	937	2.0	0.4	13.1
GeoB14602-1	5	1.7	1.1	5.4
	20	2.1	1.2	6.8
	35	1.6	1.1	4.5
	95	0.7	0.5	2.2
	110	0.7	0.4	2.8
	131	0.0	0.0	0.1
	160	0.9	0.6	1.9
	188	1.2	0.7	3.9
	235	1.3	0.6	6.4
	285	1.1	0.5	5.5
	335	1.5	0.7	7.2
	385	1.3	0.4	7.3
	435	1.5	0.4	9.1
	485	1.4	0.9	4.5
	535	0.9	0.4	4.1
	585	1.8	0.5	11.1
	635	1.3	0.5	6.5
	685	1.2	0.7	4.5
	735	0.9	0.4	4.4
	785	1.4	0.6	6.2
	835	1.9	0.1	15.6
	885	0.9	0.6	2.3
GeoB14603-1	3	0.1	1.5	0.0
	28	1.5	1.1	2.7
	53	1.0	0.6	3.1

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	90	0.4	0.3	0.8
	143	0.9	0.7	1.5
	190	1.6	1.0	4.3
	243	0.7	0.6	1.4
	290	0.9	0.5	3.2
	343	1.2	0.7	4.1
	390	1.5	0.4	9.6
	443	1.4	0.8	5.0
	490	1.3	0.5	7.1
	543	1.7	0.6	9.1
	590	1.3	0.4	6.8
	643	0.9	0.4	3.7
	690	1.0	0.5	4.6
	743	1.0	0.6	3.5
	790	1.0	0.5	4.4
	815	3.2	0.4	23.1
	840	1.0	0.5	4.6
	870	n.d.	n.d.	n.d.
GeoB14604-1	5	n.d.	n.d.	n.d.
	35	n.d.	n.d.	n.d.
	96	0.1	0.1	0.0
	130	0.6	0.6	0.5
	180	1.6	1.0	4.8
	230	1.3	0.9	3.4
	280	0.7	0.5	1.8
	330	1.2	0.8	3.8
	382	1.3	0.5	6.1
	430	1.3	0.9	3.7
	480	1.1	0.5	4.4
	530	2.0	0.7	10.5
	580	1.6	0.5	8.8
	630	1.2	0.6	5.2
	680	0.8	0.4	3.0
	730	1.2	0.7	4.3
	780	3.4	0.5	24.2
	830	1.1	0.5	5.1
	880	1.2	0.5	6.0
	930	2.0	0.5	12.5
GeoB14605-1	30	n.d.	n.d.	n.d.
	68	1.4	1.0	3.4
	97	1.4	1.2	2.2
	125	1.1	0.9	1.6
	164	0.5	0.5	0.0
	185	0.0	0.1	0.0
	199	0.5	0.5	0.0
	215	0.1	0.1	0.0
	221	0.3	0.3	0.0
	227	0.0	0.1	0.0
	235	0.0	0.0	0.0
	240	0.6	0.5	0.0
	270	1.5	1.2	2.5
	320	1.4	1.2	1.0
	370	1.6	1.3	2.1
	420	2.1	1.4	5.7
	470	0.9	0.9	0.2
	520	0.7	0.6	0.7
	570	1.1	0.7	3.7
	620	1.5	1.1	3.6

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
GeoB14607-1	10	1.0	0.7	2.0
	24	1.3	0.8	4.6
	47	1.2	0.6	5.3
	57	0.7	0.3	2.9
	60	0.2	0.1	0.9
	63	0.0	0.0	0.0
	68	0.3	0.2	1.1
	70	0.5	0.4	0.8
	75	0.4	0.3	1.2
	86	0.4	0.2	1.8
	103	0.5	0.3	1.3
	140	0.8	0.6	1.3
	174	0.4	0.1	1.9
	205	0.4	0.2	1.5
	232	0.9	0.3	4.7
	254	1.0	0.2	6.5
	272	0.3	0.0	2.5
	286	1.6	0.2	11.7
	304	1.4	0.4	8.6
	350	2.2	0.3	16.3
	450	1.2	0.6	5.1
	550	2.8	0.2	21.9
	650	0.4	0.1	1.9
	704	0.3	0.2	1.5
GeoB14608-1	12	0.6	0.4	1.5
	43	0.1	0.1	0.4
	80	0.3	0.2	1.2
	125	0.6	0.4	1.5
	176	0.3	0.2	0.6
	193	7.6	0.0	63.1
	213	0.3	0.1	1.9
	280	1.1	0.3	6.3
	348	0.2	0.1	0.7
	365	7.6	0.0	63.1
	405	8.5	0.0	71.2
	445	8.8	0.0	73.4
	453	0.4	0.2	2.1
	506	2.1	0.0	17.4
	538	0.1	0.0	0.6
	580	1.3	0.2	8.7
	638	2.2	0.2	16.9
	701	2.2	0.2	16.9
	706	1.7	0.1	13.5
	711	0.6	0.2	3.3
	733	0.4	0.3	1.1
	809	7.2	0.1	59.2
GeoB14608-2	6	0.8	0.7	1.2
	12	0.9	0.7	2.0
	18	1.0	0.9	0.7
	24	1.2	1.0	2.2
	30	1.9	1.0	8.2
GeoB14609-1	9	0.8	0.6	1.7
	16	0.0	0.0	0.1
	54	0.7	0.5	0.9
	100	0.5	0.4	1.0
	156	0.2	0.2	0.4
	201	0.3	0.3	0.6
	254	0.2	0.1	0.7
	321	0.2	0.1	0.6

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	422	0.1	0.2	0.0
	478	0.1	0.2	0.0
	522	0.1	0.1	0.4
	580	3.3	0.0	27.4
	649	10.3	0.0	85.5
GeoB14610-1	33	0.4	0.3	1.0
	52	0.8	0.6	1.6
	72	0.6	0.4	1.4
	93	0.4	0.3	0.9
	111	0.5	0.5	0.6
	144	0.3	0.2	0.9
	177	0.8	0.4	3.3
	209	0.4	0.3	1.2
	247	0.3	0.3	0.1
	277	0.8	0.4	3.1
	311	0.4	0.4	0.1
	347	0.2	0.3	0.0
	381	0.3	0.3	0.0
	413	0.4	0.2	1.0
	462	0.3	0.3	0.1
	511	0.2	0.1	0.8
	562	0.2	0.2	0.0
	611	0.0	0.1	0.0
GeoB14611-1	10	1.0	0.8	2.0
	41	1.0	0.8	1.7
	75	1.1	0.5	5.1
	113	0.3	0.3	0.5
	160	0.8	0.7	0.7
	193	1.1	0.6	4.2
	243	0.4	0.4	0.1
	301	1.2	0.5	5.5
	349	0.7	0.4	2.2
	393	1.5	0.3	9.5
	430	2.4	0.5	15.8
	463	0.5	0.3	1.6
	505	0.9	0.5	3.2
	524	0.8	0.5	2.9
	541	0.4	0.4	0.2
	574	0.3	0.4	0.0
	634	0.3	0.4	0.0
	691	0.1	0.2	0.0
	697	0.1	0.0	1.0
	703	0.0	0.0	0.1
	710	0.2	0.1	1.0
	717	0.1	0.0	0.6
	766	0.1	0.0	0.9
GeoB14612-1	26	0.3	0.3	0.0
	76	0.3	0.4	0.0
	126	1.7	0.5	10.3
	176	1.0	0.4	4.6
	226	0.3	0.2	0.8
	276	0.6	0.3	3.2
	326	0.9	0.1	6.4
	376	0.8	0.2	5.2
	426	0.8	0.2	5.1
	476	1.3	0.2	9.3
	526	3.1	0.3	23.4
	576	0.4	0.2	1.6
	626	0.8	0.2	5.5

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	676	2.9	0.2	22.7
	726	1.2	0.1	8.6
	778	1.2	0.3	7.5
	824	1.3	0.2	9.2
	876	1.2	0.1	8.7
	936	0.2	0.1	0.8
	976	0.1	0.0	0.8
	1026	0.1	0.0	0.8
GeoB14613-1	10	0.6	0.4	1.2
	60	0.5	0.3	1.0
	90	0.5	0.3	1.1
	120	0.2	0.1	0.9
	180	1.2	0.2	8.8
	283	0.3	0.1	1.6
	383	0.1	0.1	0.7
	450	0.1	0.0	0.6
	499	4.9	0.0	40.7
	577	7.2	0.0	59.9
	673	5.3	0.0	43.7
GeoB14614-1	15	0.3	0.1	1.7
	80	1.0	0.4	4.9
	180	1.2	0.3	7.9
	280	2.6	0.2	19.4
	380	4.3	0.1	35.1
	480	0.6	0.2	4.0
	580	0.9	0.3	5.6
	680	1.5	0.1	11.3
	780	0.8	0.2	5.5
	880	0.2	0.2	0.0
GeoB14615-1	53	1.4	0.5	7.5
	79	1.9	0.4	12.7
	105	2.6	0.5	17.2
	142	0.5	1.2	0.0
	185	0.7	0.6	0.4
	251	2.0	0.3	13.7
	354	0.6	0.3	2.3
	415	1.2	0.4	6.7
	442	0.7	0.3	3.8
	470	1.0	0.2	6.9
	550	0.7	1.1	0.0
	604	0.8	0.5	3.1
	613	0.6	0.7	0.0
	618	0.7	0.2	3.9
	631	2.2	0.4	15.6
	677	1.0	0.3	5.2
GeoB14616-1	15	1.6	0.4	10.7
	40	1.8	0.3	12.4
	105	0.5	0.3	2.0
	186	1.5	0.7	7.0
	259	1.5	0.7	6.6
	326	1.6	0.3	10.8
	397	1.1	0.4	5.2
	407	1.8	0.7	8.9
	485	0.9	0.6	2.5
	544	3.3	0.4	23.8
	610	0.4	0.4	0.1
	659	0.9	0.7	1.2
	710	1.2	0.7	4.0
GeoB14617-1	35	1.5	0.5	7.9

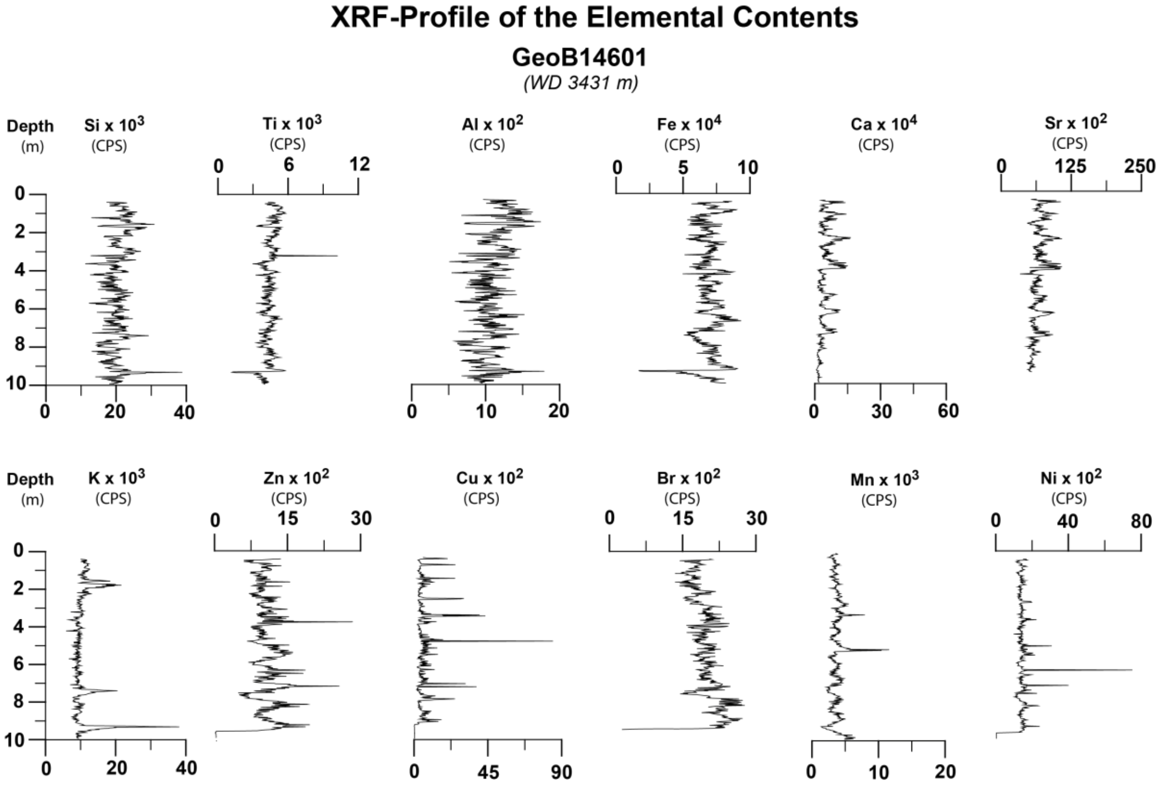
Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	81	0.3	0.2	0.5
	155	1.4	0.6	7.1
	255	0.8	0.3	4.3
	353	1.5	0.4	9.0
	428	2.7	0.3	19.8
	485	1.4	0.3	9.7
	523	1.9	0.4	12.3
	587	3.1	0.2	24.6
	621	1.5	0.3	10.0
	688	0.8	0.2	5.1
	747	2.1	0.2	15.5
	819	1.2	0.2	8.2
	882	2.6	0.2	20.3
GeoB14618-1	4	0.4	0.3	1.0
	53	2.6	0.3	18.8
	106	2.6	0.3	18.9
	172	4.9	0.2	39.8
	282	3.6	0.3	28.1
GeoB14619-1	8	1.8	1.5	2.6
	32	0.6	0.4	1.5
	38	0.0	0.0	0.1
	46	0.7	0.5	1.6
	83	1.5	1.1	3.3
	118	1.3	0.7	5.0
	145	0.3	0.2	1.3
	151	0.0	0.0	0.3
	166	1.1	0.8	2.7
	218	1.4	0.8	4.8
	258	0.8	0.5	2.0
	294	1.0	0.6	3.6
	325	0.8	0.4	2.9
	358	1.5	0.4	8.6
	394	1.9	0.9	9.0
	428	1.1	0.8	2.8
	467	0.7	0.4	3.0
	531	2.8	0.6	17.7
	567	0.8	0.3	4.1
	632	1.3	0.7	5.4
	657	0.8	0.4	3.2
	671	1.3	0.5	7.0
	732	1.2	0.6	4.8
GeoB14620-1	5	2.0	1.4	4.8
	20	2.1	1.7	3.8
	50	1.8	1.4	2.7
	81	1.9	0.6	10.9
	114	2.2	1.6	4.6
	149	1.7	1.5	2.1
	181	1.4	0.1	10.5
	214	1.3	1.0	2.6
	249	0.9	0.7	1.8
	281	0.8	0.4	2.8
	314	0.0	0.1	0.0
	349	1.1	0.9	2.1
	381	0.6	0.6	0.3
	414	0.6	0.5	0.2
	449	0.7	0.6	0.4
	481	1.4	1.0	3.2
	514	0.6	0.6	0.7
	549	0.8	0.7	0.7

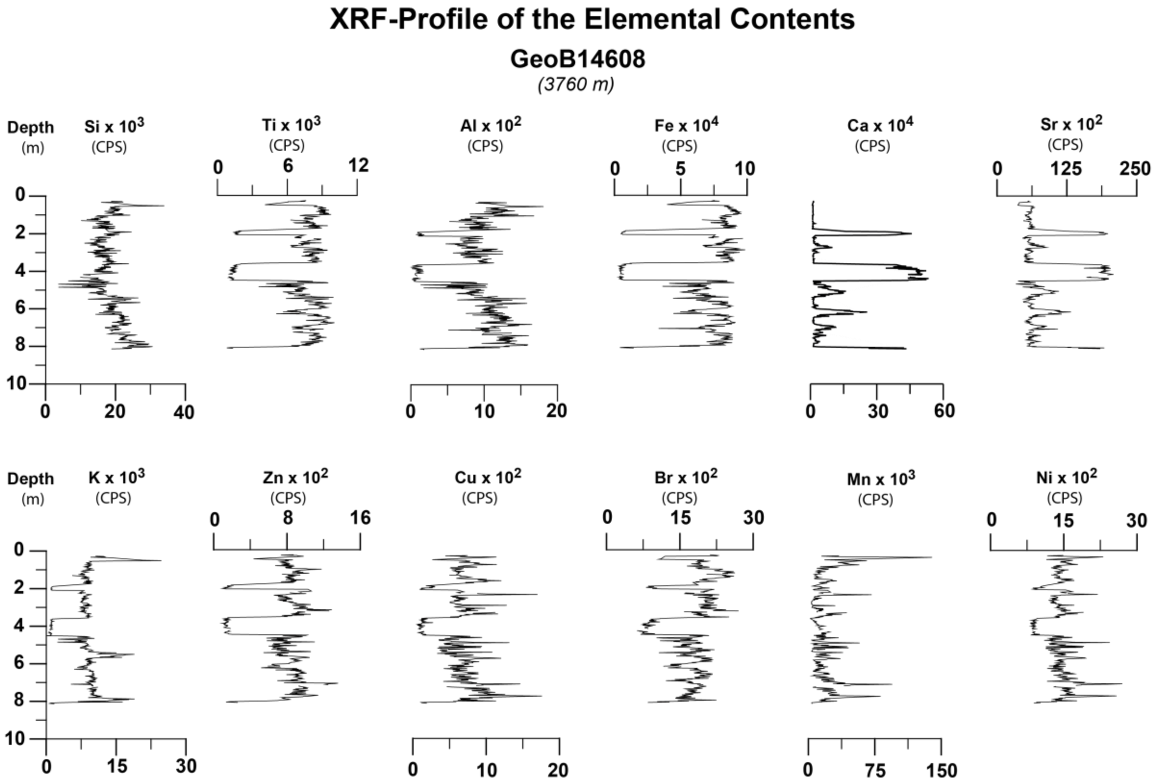
Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	581	1.1	0.9	1.9
	614	1.5	1.0	4.4
	649	0.7	0.5	1.2
	681	1.1	0.6	4.4
	714	1.5	0.1	11.6
	749	2.5	0.8	14.2
GeoB14621-1	20	1.6	1.2	3.3
	68	0.0	0.0	0.0
	114	0.6	0.5	0.2
	164	1.3	0.8	4.3
	214	0.7	0.6	1.0
	264	1.4	0.7	5.4
	314	0.8	0.4	3.4
	364	1.6	0.7	7.0
	414	0.6	0.5	1.1
	464	1.6	0.6	8.0
	514	1.0	0.5	4.7
	564	1.6	0.3	10.2
	614	0.4	0.5	0.0
	664	1.3	0.5	6.8
	714	2.2	0.4	15.3
	764	1.0	0.4	4.8
	814	2.4	0.3	17.2
	864	1.1	0.3	6.7
GeoB14622-1	16	1.4	1.0	3.2
	29	1.0	0.7	2.4
	64	0.8	0.5	2.9
	114	2.3	0.8	12.2
	164	1.7	0.6	8.4
	214	1.5	0.7	7.0
	264	0.8	0.3	3.7
	314	1.6	0.5	9.2
	364	1.8	0.4	11.5
	414	1.2	0.4	7.3
	464	1.7	0.4	10.5
	514	1.4	0.6	6.4
	564	1.3	0.5	6.8
	614	1.5	0.4	9.3
GeoB14623-1	4	1.2	0.8	2.9
	77	1.2	0.8	2.7
	127	1.0	0.5	3.6
	177	1.5	0.7	6.9
	227	2.8	0.6	18.1
	277	1.8	0.4	11.0
	327	1.1	0.4	5.1
	377	1.3	0.5	6.6
	427	2.4	0.7	14.4
	477	0.8	0.4	3.6
	527	1.5	0.3	10.1
	577	2.1	0.4	13.8
	627	1.3	0.6	6.3
	640	1.1	0.1	8.5
	677	1.2	0.5	6.3
GeoB14624-1	44	1.3	0.7	4.7
	84	0.8	0.5	2.5
	117	0.5	0.4	1.3
	144	1.6	1.0	5.3
	194	1.4	0.9	3.9
	244	1.1	0.6	3.9

Core	Depth (cm)	TC (WT%)	TOC (WT%)	CaCO3 (WT%)
	294	1.3	0.7	5.3
	344	1.4	0.4	8.6
	394	1.2	0.7	3.7
	444	0.6	0.4	1.1
	494	2.8	0.6	18.3
	544	0.6	0.5	1.3
	594	1.3	0.5	6.1
	644	1.5	0.9	5.0
	694	0.7	0.3	3.0
	744	1.2	0.5	5.6
	794	2.3	0.6	14.5
	844	0.9	0.4	3.9
	894	2.7	0.5	18.3
	944	1.5	0.4	8.8
	1044	1.8	0.4	11.9
GeoB14625-1	30	1.5	1.2	2.5
	80	0.9	0.7	2.0
	108	0.0	0.0	0.0
	130	0.6	0.5	0.5
	180	1.3	0.7	5.2
	230	0.4	0.3	0.9
	280	1.7	0.9	7.0
	330	0.8	0.5	3.0
	380	1.7	0.8	7.5
	430	1.1	0.4	5.2
	480	1.1	0.6	4.2
	530	0.5	0.3	1.1
	580	1.6	0.6	8.3
	630	2.3	0.6	14.1
	680	1.2	0.5	6.4
	730	0.6	0.3	2.9
	780	1.1	0.4	17.2

Appendix II – Sediment and Pore Water

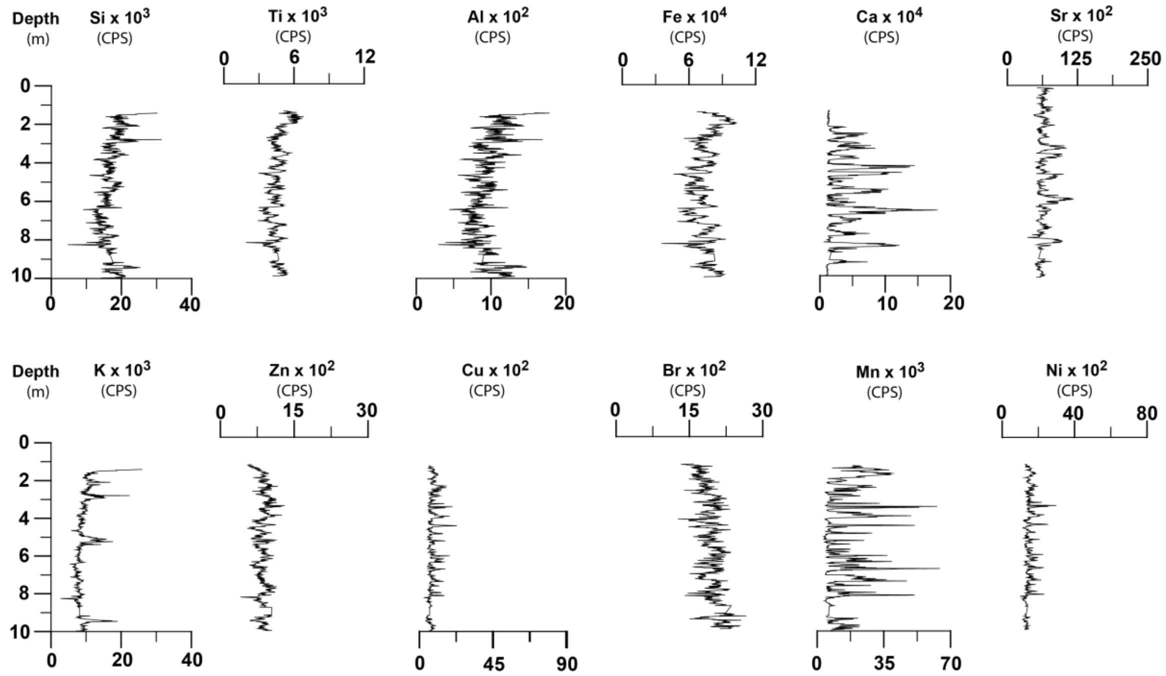
Element profiles collected by XRF Scanner for selected cores from the three working areas.





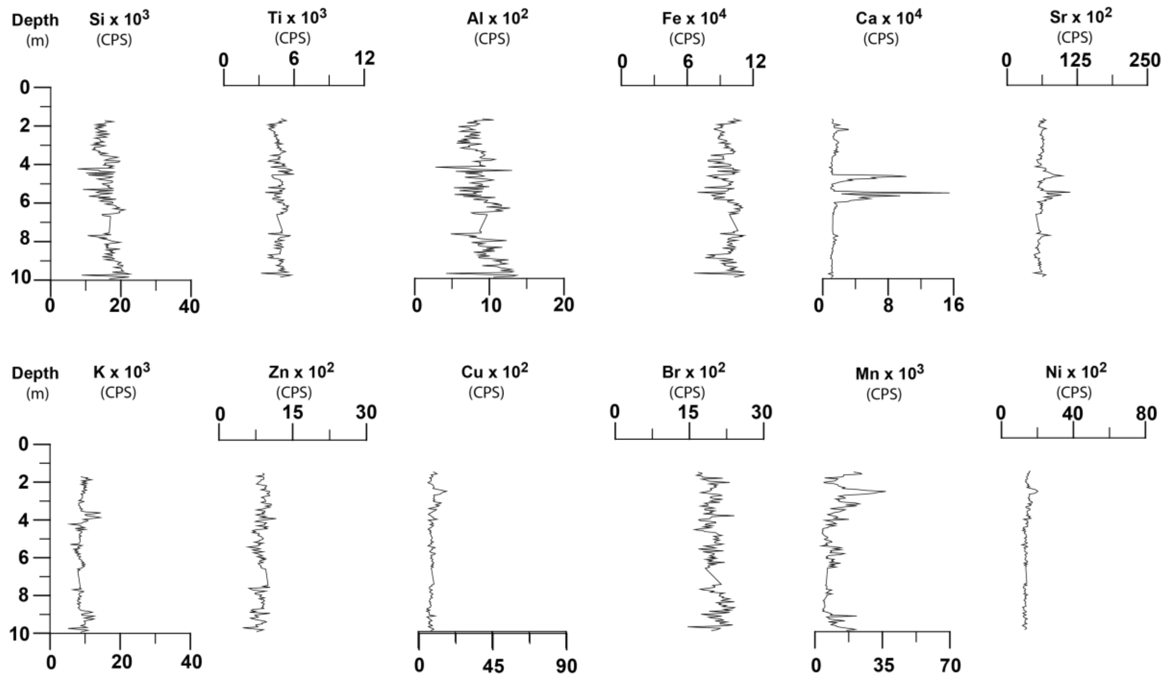
XRF-Profile of the Elemental Contents

GeoB14612
(WD 3656 m)



XRF-Profile of the Elemental Contents

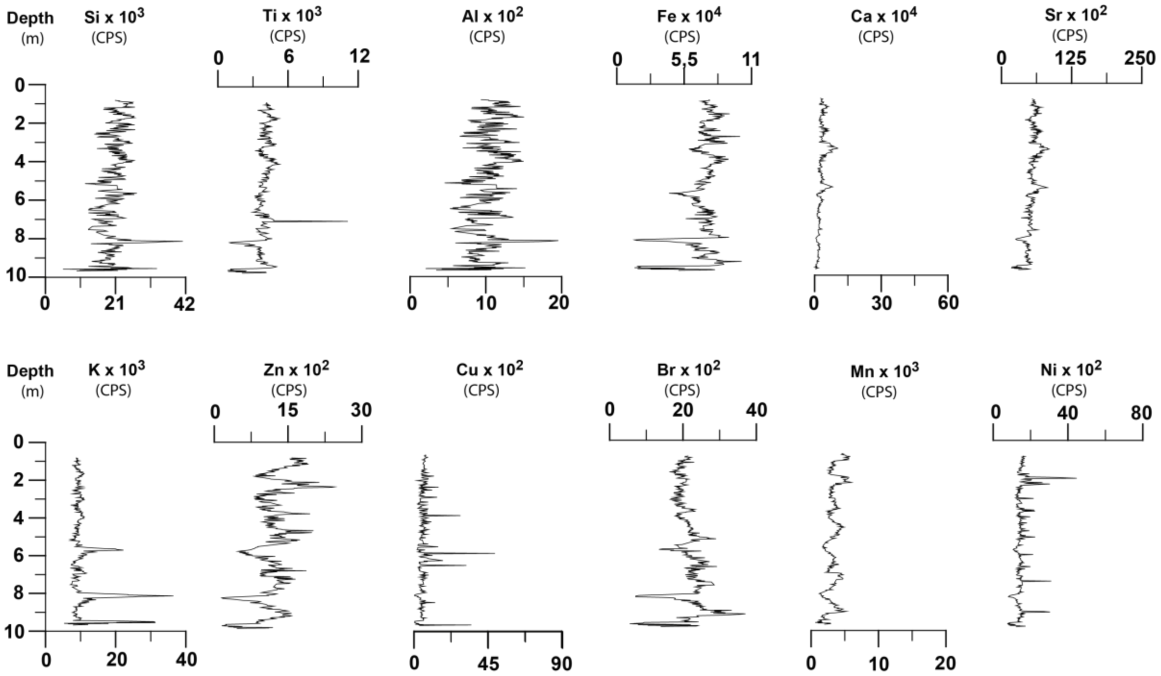
GeoB14613
(WD 3657 m)



XRF-Profile of the Elemental Contents

GeoB14619

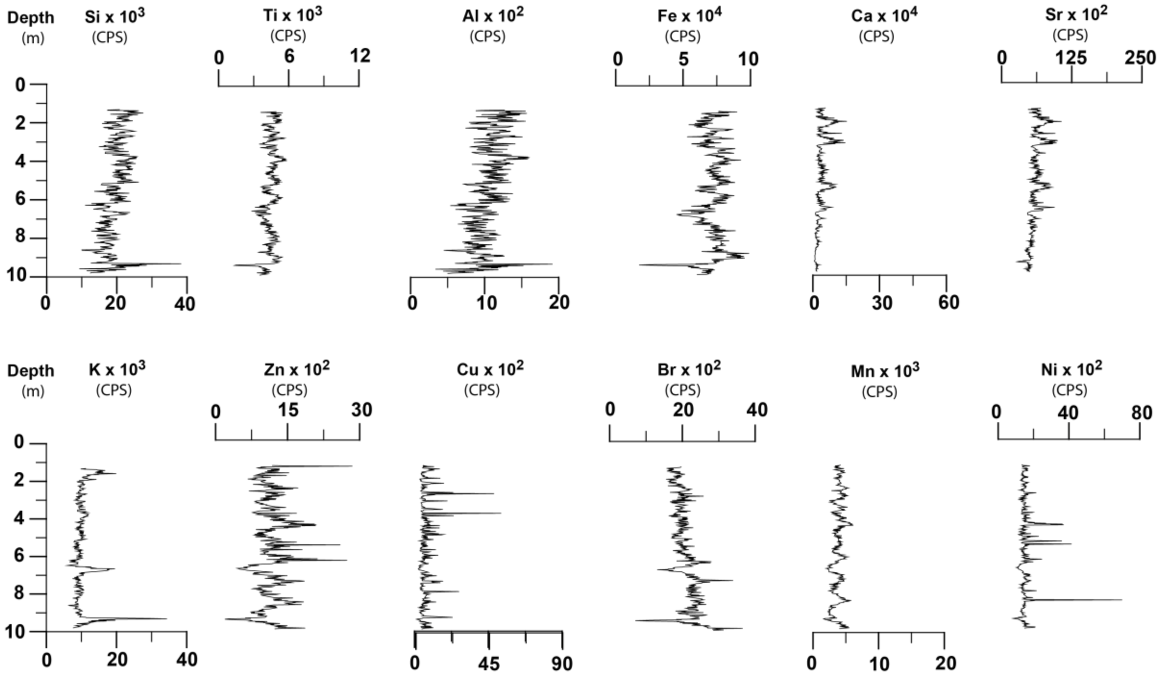
(WD 3512 m)



XRF-Profile of the Elemental Contents

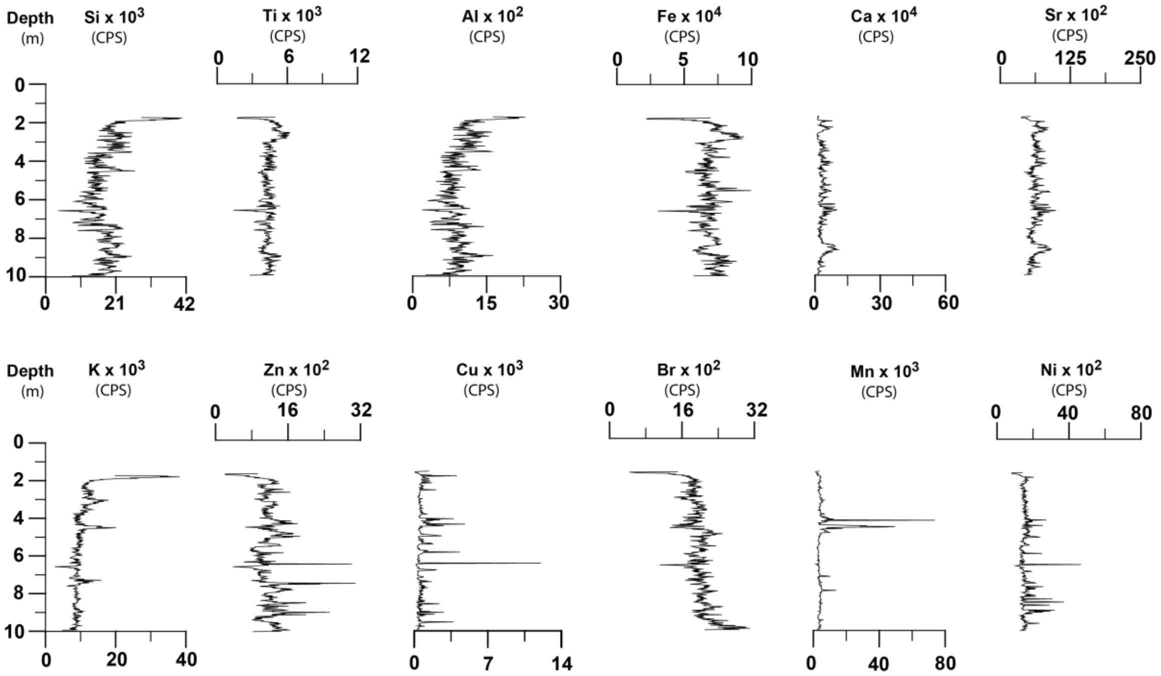
GeoB14621

(WD 3448 m)



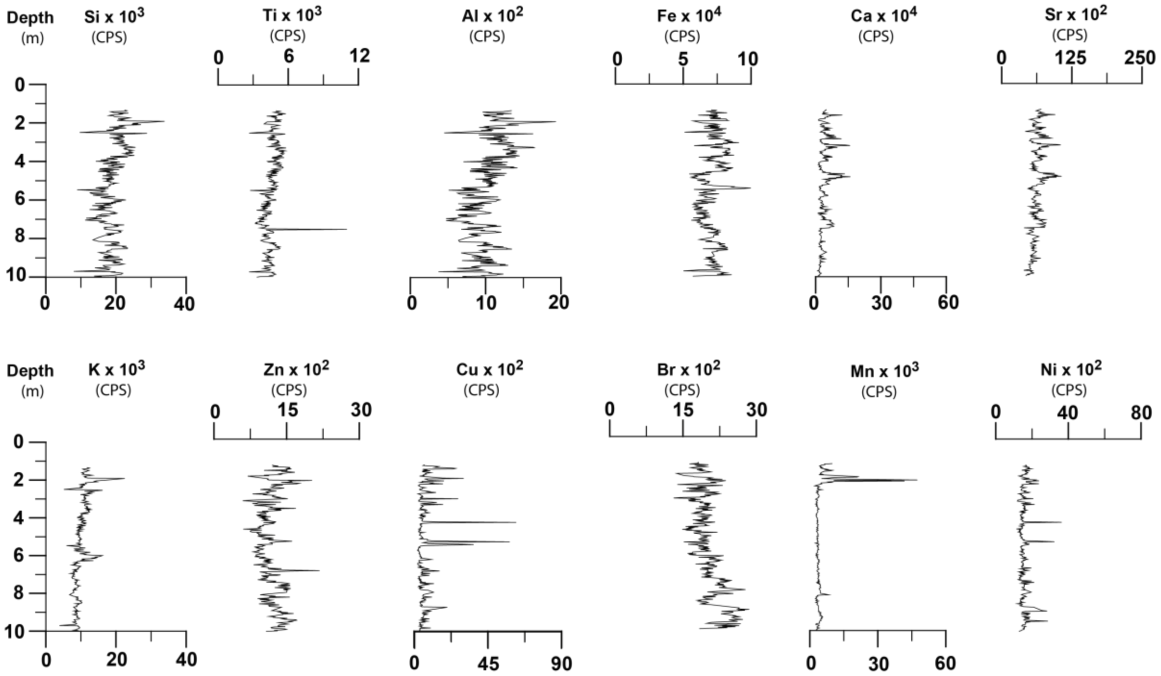
XRF-Profile of the Elemental Contents

GeoB14622
(WD 3473 m)



XRF-Profile of the Elemental Contents

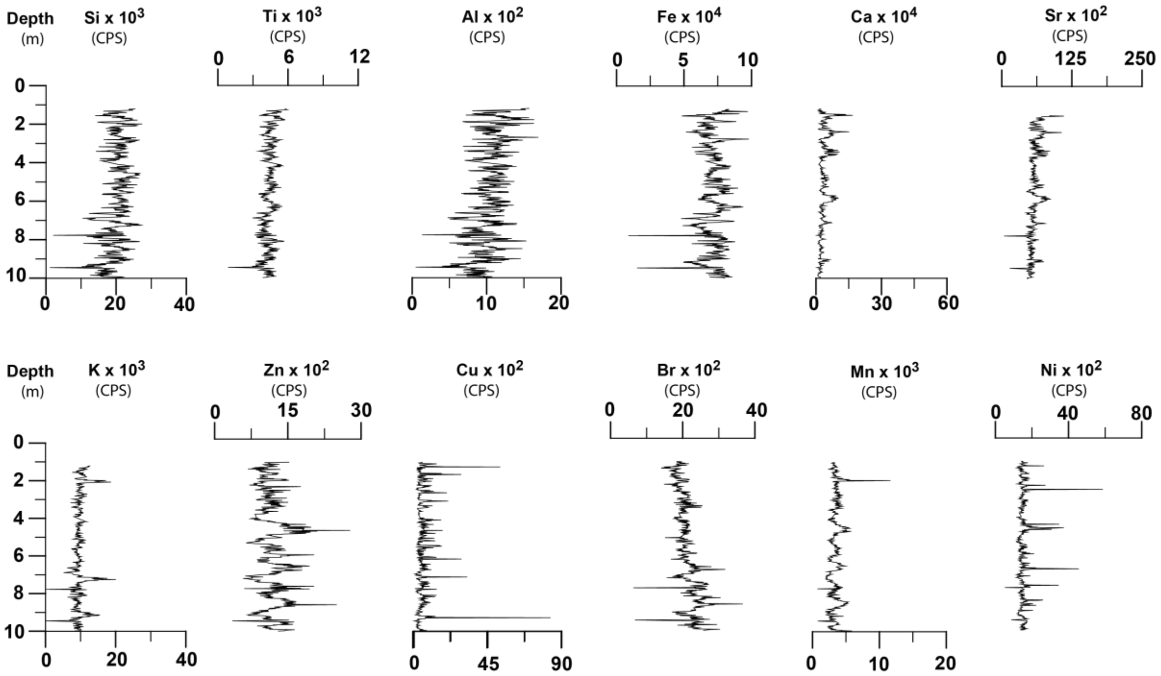
GeoB14623
(WD 3484 m)



XRF-Profile of the Elemental Contents

GeoB14624

(WD 3508 m)



Appendix III – Sediment and Pore Water

Complete listing of all chemical parameters which were measured onboard the RV Sonnen during the Seamountflux Cruise (SO 207) and at the University of Bremen. Eh and pH measurements were done directly by inserting probes into the sediment. All other parameters were measured following extraction of pore water using rhizons.

Station:												GeoB14601											
Core number:												GeoB14601-1											
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
4	7.69	-78.0	3.28	<0.1	0.07	0.45	0.04	4.98	0.052	397.37	0.11	474.00	0.177	1267.76	6.051	11210	0.3	878	16.75	7.72	0.6	19647	68.2	2715
24	7.65	-125.1	3.28	<0.1	0.13	0.54	0.07	4.98	0.046	398.26	0.19	476.12	0.174	1275.24	6.010	11247	0.3	879	17.12	7.72	0.6	19627	68.1	2807
44	7.64	-131.2	3.38	<0.1	0.19	0.58	0.09	4.94	0.045	398.09	0.57	481.60	0.166	1272.25	5.830	11221	0.2	878	17.55	7.71	0.6	19730	68.0	2722
64	7.55	122.5	3.09	<0.1	0.23	0.72	0.08	4.48	0.036	407.02	0.30	433.75	0.161	1299.18	5.321	11259	0.3	873	15.55	7.88	0.8	19809	72.1	2752
84	7.52	-122.6	2.98	<0.1	0.39	0.56	0.03	5.03	0.038	400.50	0.41	487.72	0.166	1270.84	5.243	11206	0.3	870	18.68	7.77	<0.1	19713	68.1	2715
128	7.45	-140.0	3.66	<0.1	0.38	0.59	0.01	4.95	0.039	402.02	0.38	485.86	0.159	1278.49	5.033	11265	0.3	886	19.09	7.79	0.7	19775	67.3	2722
168	7.47	-200.0	3.67	<0.1	0.37	0.57	-0.01	5.05	0.037	398.08	0.37	494.14	0.166	1270.27	4.920	11247	0.1	885	19.71	7.73	1.1	19756	68.3	2720
218	7.42	-213.7	3.38	<0.1	0.31	0.53	0.03	4.88	0.033	402.82	0.29	482.68	0.162	1275.11	4.822	11196	0.2	888	18.92	7.81	1.4	20307	69.8	2800
268	7.47	-237.7	3.38	0.18	0.28	0.49	0.07	4.96	0.036	399.52	0.35	487.42	0.164	1270.79	4.970	11259	0.3	875	19.49	7.77	0.7	19791	68.4	2723
318	7.44	-205.6	3.48	0.18	0.33	0.50	0.08	4.96	0.034	397.30	0.55	483.06	0.162	1260.30	5.141	11180	0.3	873	19.51	7.72	0.3	19757	67.9	2720
368	7.42	-163.0	3.28	0.25	0.15	0.40	0.06	4.98	0.039	395.69	0.20	515.71	0.169	1267.56	4.768	11305	0.2	879	19.48	7.81	0.5	20000	68.4	2755
418	7.47	-219.0	3.38	0.20	0.35	0.50	0.09	4.99	0.034	404.10	0.35	495.76	0.159	1283.76	5.513	11336	0.4	898	20.60	7.86	1.0	19814	67.8	2727
468	7.37	-107.3	3.58	0.24	0.25	0.49	0.12	5.07	0.035	403.63	0.36	499.65	0.153	1270.47	5.857	11300	0.3	885	20.88	7.87	0.3	19872	68.9	2734
522	7.44	-191.8	3.48	0.29	0.36	0.48	0.11	5.01	0.033	403.67	0.35	495.05	0.155	1273.23	5.854	11338	0.2	882	20.45	7.85	0.3	19816	67.8	2727
568	7.60	-101.4	3.68	0.24	0.31	0.44	0.11	5.05	0.034	402.36	0.31	498.25	0.149	1275.92	5.846	11225	0.2	878	20.10	7.87	0.5	19809	68.3	2723
618	7.38	-170.0	3.58	0.23	0.33	0.45	0.09	5.05	0.033	404.87	0.36	486.75	0.153	1275.47	6.055	11321	0.2	881	19.90	7.92	0.2	19821	68.4	2723
668	7.52	-178.4	3.58	0.25	0.26	0.44	0.10	5.05	0.033	405.23	0.36	492.40	0.153	1272.34	6.167	11320	0.0	878	20.11	7.91	0.6	19892	68.0	2733
718	7.37	-203.0	4.06	0.29	0.35	0.43	0.07	5.04	0.034	407.73	0.35	491.50	0.158	1283.51	6.202	11312	0.2	886	20.13	7.98	0.8	19894	68.4	2734
768	7.42	-126.8	3.58	0.22	0.36	0.37	-0.03	4.95	0.037	402.57	0.27	503.01	0.144	1276.40	5.910	11273	0.1	889	19.97	7.94	0.4	19914	68.4	2737
818	7.42	-54.6	3.38	0.31	0.36	0.40	0.09	4.95	0.033	408.27	0.31	493.35	0.150	1276.68	6.267	11380	0.1	882	19.87	7.99	0.4	19972	68.9	2745
868	7.36	-119.5	3.58	0.27	0.33	0.36	0.02	5.17	0.036	403.30	0.34	514.89	0.154	1271.02	6.374	11302	0.2	880	20.69	7.96	0.4	20125	69.2	2763
880	7.48	-127.1	3.38	0.32	0.32	0.40	0.05	5.10	0.033	406.40	0.33	495.00	0.146	1282.95	6.427	11283	0.3	877	19.72	8.00	1.8	19963	68.3	2747
937	7.52	-169.6	3.68	0.31	0.30	0.34	0.11	5.04	0.031	404.35	0.27	497.36	0.152	1283.41	6.298	11364	0.2	875	19.60	7.96	n.d.	n.d.	n.d.	n.d.
n.d. : not determined																								

Station:											GeoB14602													
Core number:											GeoB14602-1													
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
5	7.62	-45.0	3.19	<0.1	n.d.	0.38	0.09	4.83	0.070	396.83	0.01	502.97	0.242	1261.48	3.684	11162	0.2	881	17.20	7.64	2.2	20027	68.6	2821
20	7.46	-89.0	3.09	<0.1	n.d.	0.59	0.11	4.98	0.113	401.36	0.23	473.17	0.175	1272.41	4.757	11197	0.4	877	17.28	7.72	1.6	20249	70.0	2841
35	7.52	-95.0	2.99	<0.1	n.d.	0.74	0.14	4.85	0.059	405.64	0.33	468.84	0.166	1276.84	4.626	11207	0.2	879	17.57	7.77	1.6	20264	70.1	2849
95	7.67	-150.0	3.39	0.41	n.d.	0.64	0.10	4.72	0.055	406.96	0.38	479.83	0.167	1265.93	4.393	11287	0.2	875	18.62	7.81	0.9	20055	69.1	2814
110	7.64	-150.0	3.19	0.43	n.d.	0.66	0.14	4.83	0.054	408.35	0.43	485.02	0.157	1267.19	4.200	11270	0.2	881	19.52	7.83	n.d.	20492	69.4	2879
131	8.10	104.1	3.29	0.43	n.d.	0.67	0.12	4.46	0.051	418.62	0.29	443.15	0.170	1293.08	3.321	11230	0.3	868	16.19	8.03	0.8	20584	70.7	2842
160	7.59	-201.0	3.59	0.52	n.d.	0.59	0.19	5.10	0.052	410.94	0.43	487.79	0.155	1263.43	3.604	11286	0.3	884	19.80	7.89	1.2	19720	68.7	2757
188	7.56	-135.0	3.19	0.43	n.d.	0.56	0.11	4.94	0.054	413.44	0.40	481.70	0.156	1274.14	3.480	11315	0.3	869	19.57	7.93	1.3	20001	69.0	2798
235	7.63	-145.0	3.67	0.47	n.d.	0.54	0.18	4.88	0.050	413.73	0.39	475.80	0.148	1266.30	3.320	11351	0.2	873	19.22	7.93	1.3	21325	72.3	2996
285	7.69	-140.0	3.39	0.52	n.d.	0.48	0.16	4.94	0.051	417.41	0.41	481.79	0.151	1278.09	3.260	11414	0.2	872	19.64	7.98	2.1	19854	68.8	2781
335	7.67	-21.5	3.29	0.49	n.d.	0.45	0.19	4.84	0.049	421.62	0.33	475.06	0.145	1288.57	3.107	11426	0.2	872	18.64	8.06	1.2	19876	68.6	2779
385	7.57	-200.7	3.49	0.50	n.d.	0.43	0.14	4.84	0.048	420.39	0.37	473.41	0.143	1282.86	3.123	11526	0.2	865	18.99	8.03	1.1	19966	68.9	2792
435	7.63	-150.1	3.58	0.47	n.d.	0.39	0.15	4.83	0.051	420.30	0.37	473.45	0.138	1282.24	3.066	11431	0.2	870	18.76	8.04	1.7	19863	68.5	2776
485	7.55	-213.0	3.49	0.55	n.d.	0.41	0.12	4.90	0.048	423.29	0.38	477.18	0.131	1280.00	3.089	11539	0.3	869	19.19	8.07	1.0	19830	68.4	2771
535	7.60	-221.0	3.68	0.55	n.d.	0.38	0.16	4.97	0.048	422.54	0.37	482.12	0.146	1283.14	3.041	11583	0.1	872	19.12	8.05	1.1	19842	68.8	2768
585	7.57	-232.7	3.58	0.48	n.d.	0.36	0.17	4.89	0.046	424.72	0.35	475.32	0.138	1285.55	3.036	11628	0.2	870	19.05	8.11	1.1	19878	67.9	2774
635	8.00	-224.0	3.78	0.47	n.d.	0.36	0.17	4.91	0.047	425.29	0.41	475.87	0.136	1289.63	3.008	11621	0.1	875	19.12	8.15	1.2	19957	69.8	2783
685	7.52	-234.7	3.58	0.41	n.d.	0.36	0.12	4.90	0.048	426.32	0.38	480.27	0.130	1287.28	3.041	11543	0.2	887	19.47	8.14	1.3	20256	69.7	2826
735	7.68	-158.0	3.58	0.46	n.d.	0.35	0.20	4.86	0.046	426.50	0.41	468.31	0.136	1293.68	2.924	11552	0.2	873	18.82	8.11	0.8	21143	72.8	2892
785	7.62	-113.0	3.68	0.45	n.d.	0.32	0.19	4.87	0.045	426.21	0.40	465.82	0.137	1298.72	2.896	11584	0.2	875	18.49	8.09	1.0	20964	70.9	2921
835	7.74	-158.0	3.59	0.43	n.d.	0.32	0.22	4.79	0.044	425.65	0.36	466.02	0.142	1294.04	2.853	11495	0.1	882	18.37	8.13	1.1	20074	69.8	2793
885	7.69	-136.0	3.97	0.43	n.d.	0.27	0.15	4.60	0.040	428.90	0.21	475.28	0.135	1293.54	2.613	11518	0.2	878	17.34	8.19	0.7	21319	73.6	2910

n.d. : not determined

Station:										GeoB14603													
Core number:										GeoB14603-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
3	7.58	96.7	2.99	<0.1	0.00	0.41	0.04	4.86	0.048	398.10	0.01	467.02	0.167	1269.98	5.120	11257	0.2	879	16.02	7.69	n.d.	19441	66.6	2726
28	7.72	10.0	3.09	<0.1	0.21	0.53	0.01	4.72	0.045	399.96	0.23	462.10	0.165	1267.13	5.596	11175	0.2	880	15.95	7.68	n.d.	19454	63.1	2724
53	7.57	-103.8	3.18	<0.1	0.35	0.54	0.02	4.84	0.041	401.75	0.35	473.02	0.166	1270.17	5.103	11319	0.3	864	16.75	7.75	n.d.	19441	64.3	2724
90	7.65	-36.7	3.18	<0.1	0.45	0.55	0.09	4.72	0.037	400.95	0.42	474.80	0.162	1267.18	4.538	11314	0.2	870	17.01	7.67	n.d.	20565	67.4	2848
143	7.66	-125.0	3.19	<0.1	0.51	0.55	-0.02	4.71	0.033	400.49	0.47	468.42	0.164	1264.78	3.836	11278	0.2	867	17.10	7.68	n.d.	19489	66.3	2731
190	7.61	-110.0	3.09	<0.1	0.51	0.60	-0.01	4.59	0.035	379.99	0.46	437.95	0.153	1201.33	3.283	10605	0.2	812	16.40	7.35	n.d.	19490	61.1	2716
243	7.72	-123.0	3.19	<0.1	0.44	0.57	-0.05	4.78	0.032	400.22	0.43	464.42	0.162	1267.91	3.199	11283	0.3	859	17.81	7.73	n.d.	19507	66.9	2720
290	7.60	-130.0	3.58	<0.1	0.45	0.55	0.04	4.80	0.039	400.63	0.46	471.45	0.161	1265.93	3.196	11275	0.3	866	17.88	7.69	n.d.	19490	64.8	2733
343	7.61	-189.0	3.19	<0.1	0.43	0.53	0.02	4.68	0.033	401.62	0.42	460.14	0.168	1268.93	3.148	11415	0.2	853	17.75	7.70	n.d.	20432	67.2	2836
390	7.96	-184.0	3.09	0.40	0.36	0.50	0.02	4.55	0.031	404.78	0.40	458.97	0.162	1274.67	3.014	11217	-1.3	857	17.24	7.80	n.d.	19796	66.1	2754
443	7.86	-141.0	3.48	0.37	0.32	0.49	0.08	4.68	0.030	400.94	0.36	462.23	0.149	1265.62	3.180	11260	0.3	857	17.95	7.71	n.d.	20509	68.0	2838
490	7.51	-2.0	3.28	0.41	0.16	0.39	0.07	4.49	0.032	401.13	0.25	476.95	0.151	1269.41	2.959	11285	0.1	862	17.19	7.75	n.d.	19904	67.5	2781
543	7.58	-142.0	3.39	0.42	0.34	0.46	-0.03	4.67	0.033	404.42	0.37	456.95	0.151	1274.48	3.240	11315	0.3	863	17.64	7.77	n.d.	19597	66.6	2747
590	7.53	-120.0	3.58	0.40	0.38	0.42	0.04	4.60	0.029	406.13	0.33	452.83	0.149	1274.87	3.175	11299	0.0	859	17.50	7.81	n.d.	19659	64.9	2743
643	7.60	-157.0	3.58	0.43	0.35	0.41	0.07	4.63	0.033	409.03	0.37	459.37	0.147	1278.72	3.172	11322	0.2	859	17.90	7.87	n.d.	19712	66.8	2752
690	8.01	-135.0	3.58	0.44	0.26	0.35	-0.06	4.50	0.033	404.17	0.24	469.77	0.147	1267.04	2.926	11254	0.2	861	17.31	7.82	n.d.	20746	65.2	2858
743	7.57	-118.0	3.58	0.47	0.29	0.34	0.04	4.56	0.029	413.26	0.25	460.58	0.144	1282.62	2.948	11367	0.1	861	17.47	7.99	n.d.	19636	68.2	2741
790	7.70	-160.0	3.58	0.40	0.25	0.33	-0.06	4.63	0.030	404.23	0.25	464.64	0.143	1264.12	2.822	11298	0.2	863	17.83	7.87	1.0	20078	69.4	2748
815	7.60	-158.1	3.29	0.41	0.32	0.32	0.02	4.77	0.029	408.39	0.34	460.31	0.145	1287.89	2.842	11350	0.2	866	18.27	7.97	n.d.	19616	64.8	2749
840	7.57	-117.4	3.58	0.40	0.30	0.36	0.09	4.70	0.030	409.72	0.35	457.03	0.147	1279.60	2.755	11415	0.2	870	18.05	7.97	n.d.	19636	67.9	2741
870	n.d.	n.d.	3.77	0.43	n.d.	0.30	0.46	4.87	0.054	403.01	0.37	493.39	0.156	1261.74	2.751	11456	0.0	854	20.72	7.86	n.d.	19881	65.8	2761

n.d. : not determined

Station:											GeoB14604												
Core number:											GeoB14604-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
5	7.58	7.5	144.00	<0.1	0.00	0.37	0.19	4.91	0.047	397.06	0.02	454.89	0.237	1257.48	2.639	11213	0.2	856	15.57	7.65		20293	70.5	2879
35	7.72	7.6	-37.00	<0.1	0.19	0.54	0.01	4.90	0.048	397.07	0.23	458.58	0.169	1269.87	6.379	11273	0.2	857	16.48	7.61		20908	71.4	2960
96	7.57	8.1	146.00	<0.1	0.17	0.58	0.17	4.42	0.035	407.21	0.44	433.04	0.191	1285.80	4.114	11294	0.2	859	14.51	7.82	1.3	19974	69.1	2757
130	7.65	7.6	-90.00	0.38	0.36	0.57	0.09	4.74	0.036	397.80	0.36	468.25	0.164	1259.54	5.389	11306	-0.1	865	17.29	7.65		20287	68.4	2854
180	7.66	7.6	-110.00	0.43	0.33	0.69	0.09	4.77	0.037	403.23	0.35	460.07	0.162	1264.72	5.082	11279	0.3	863	16.90	7.79	1.2	20043	68.7	2752
230	7.61	7.8	-110.00	0.39	0.33	0.60	0.05	4.69	0.039	400.04	0.37	458.04	0.161	1264.73	4.993	11253	0.2	856	17.19	7.74	1.1	20076	69.6	2756
280	7.72	7.7	-123.00	<0.1	0.29	0.49	0.07	4.76	0.033	401.89	0.34	463.02	0.160	1256.05	4.957	11323	0.2	865	17.30	7.80		20642	70.7	2920
330	7.60	7.7	-176.00	0.63	0.28	0.54	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.0	19765	68.2	2711
382	7.61	7.6	-170.00	0.49	0.32	0.53	-0.01	4.63	0.032	402.88	0.34	456.58	0.155	1270.20	5.134	11235	0.2	870	17.53	7.85	2.3	20062	68.4	2770
430	7.96	7.8	-142.00	0.53	0.27	0.53	0.12	4.72	0.032	402.62	0.31	461.79	0.154	1267.72	5.280	11348	0.2	854	17.69	7.88	2.2	19978	68.5	2761
480	7.86	7.8	-55.00	0.52	0.28	0.55	0.06	4.79	0.032	402.76	0.31	461.96	0.159	1272.38	5.461	11320	0.3	866	18.09	7.89	2.0	19949	68.9	2754
530	7.51	7.6	-140.00	0.58	0.27	0.49	0.00	4.75	0.033	402.50	0.33	457.39	0.146	1268.86	5.638	11341	0.2	855	17.96	7.91	1.8	20137	69.3	2778
580	7.58	7.7	-156.20	0.52	0.31	0.47	0.14	4.69	0.041	407.06	0.34	459.04	0.145	1266.94	5.648	11313	0.1	857	17.55	8.02	1.9	20504	70.2	2821
630	7.53	7.6	-10.00	0.53	0.19	0.47	0.08	4.68	0.032	406.53	0.26	464.48	0.148	1268.31	5.771	11390	0.2	863	17.68	8.05	2.5	20740	69.6	2861
680	7.60	7.7	-8.20	0.55	0.32	0.46	0.05	4.69	0.030	408.36	0.32	458.87	0.147	1270.69	5.819	11350	0.2	868	17.46	8.09	2.3	21191	70.6	2921
730	8.01	7.7	-1.00	0.58	0.27	0.43	0.02	4.64	0.032	408.37	0.47	456.48	0.148	1269.78	5.801	11395	0.2	857	17.17	8.12	1.9	20567	69.9	2827
780	7.57	7.6	38.00	0.56	0.31	0.42	0.12	4.66	0.030	406.52	0.25	458.22	0.145	1267.10	5.755	11330	0.2	856	17.21	8.16	2.0	20227	68.8	2779
830	7.70	7.6	-200.00	0.54	0.32	0.41	0.03	4.73	0.029	406.75	0.38	456.54	0.142	1264.52	6.019	11321	0.2	862	17.86	8.16	2.1	20197	69.9	2775
880	7.60	7.6	-290.00	0.55	0.28	0.39	0.03	4.71	0.029	408.19	0.34	458.15	0.147	1266.35	6.009	11361	0.1	855	17.80	8.23	1.0	20024	69.7	2726
930	7.57	7.8	100.00	0.58	0.31	0.30	0.04	4.67	0.031	406.92	0.25	483.48	0.141	1263.36	5.747	11443	0.2	862	17.53	8.31	2.2	20551	70.1	2820

n.d. : not determined

Station:												GeoB14605												
Core number:												GeoB14605-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
30	7.46	-100.6	3.13	< 0,1	0.17	0.69	0.02	4.71	0.044	396.08	0.21	447.72	0.182	1255.32	5.137	11142	0.3	858	15.12	7.56	0.9	19939	69.1	2740
68	7.91	-109.9	3.20	0.48	0.20	0.80	0.04	4.63	0.039	398.07	0.25	449.10	0.158	1262.13	5.159	11233	0.2	857	15.99	7.60	0.9	20098	68.7	2753
97	7.80	-108.0	3.28	0.61	0.26	0.88	0.05	5.55	0.042	476.28	0.36	534.66	0.200	1509.60	6.101	13348	0.4	1028	20.21	9.12	0.8	19843	67.5	2710
125	7.71	-111.0	3.35	0.74	0.29	0.98	0.00	4.63	0.038	396.19	0.33	444.06	0.154	1262.38	4.797	11279	0.4	853	17.00	7.55	0.8	20309	70.9	2774
164	7.88	-140.0	3.42	0.93	0.25	1.05	0.03	4.59	0.039	397.57	0.33	451.73	0.163	1263.61	4.374	11216	0.3	844	17.35	7.57	0.8	20360	70.8	2776
185	7.93	151.1	3.52	0.92	0.16	1.17	0.08	4.08	0.039	381.56	0.29	398.45	0.140	1201.72	3.779	10587	0.4	779	15.22	7.28	0.7	18978	65.5	2595
199	7.75	-145.0	3.50	1.46	0.10	0.72	0.00	4.59	0.036	398.53	0.14	451.54	0.137	1255.22	2.907	11209	0.3	846	18.12	7.56	0.8	20359	70.6	2772
215	7.70	159.0	3.53	1.31	0.09	0.84	0.07	4.31	0.04	408.10	0.16	426.31	0.14	1277.92	2.74	11248	0.3	856	16.7	7.79	0.8	20178	69.5	2758
221	7.58	-120.0	3.44	1.40	0.12	0.64	0.08	4.46	0.035	398.48	0.18	453.47	0.143	1246.97	2.843	11316	0.2	845	17.87	7.55	0.8	20185	69.2	2752
227	7.78	148.0	3.51	1.28	0.09	0.76	0.02	4.32	0.038	405.83	0.17	425.13	0.140	1276.56	2.703	11313	0.3	855	16.67	7.73	1.3	20098	69.4	2751
235	7.87	150.0	3.58	1.26	<0.05	0.74	0.03	4.66	0.042	435.12	0.15	465.98	0.154	1372.49	2.824	12165	0.2	923	18.18	8.30	0.9	20014	68.9	2738
240	7.63	-119.0	3.42	0.95	0.09	0.50	0.05	5.64	0.046	488.45	0.18	582.42	0.179	1538.71	3.339	13989	0.2	1059	23.17	9.29	1.1	20449	70.9	2788
270	7.58	-136.0	3.31	1.19	0.08	0.49	0.04	4.66	0.034	403.64	0.32	452.46	0.152	1264.81	2.750	11421	0.2	862	17.68	7.65	0.9	20529	70.9	2804
320	7.50	-150.0	3.33	1.11	<0.05	0.38	0.08	5.43	0.039	472.82	0.05	533.66	0.172	1480.05	3.216	13364	0.2	1009	21.40	8.98	0.7	17870	61.2	2417
370	7.50	21.0	3.25	1.05	<0.05	0.42	-0.04	4.73	0.034	404.62	0.09	452.33	0.136	1275.16	2.807	11512	0.2	872	18.18	7.67	0.8	20322	70.1	2780
420	7.61	-172.0	3.28	0.97	<0.05	0.41	-0.03	4.61	0.034	403.13	0.05	443.83	0.139	1267.59	2.741	11417	0.2	856	17.84	7.63	0.9	20473	70.5	2803
470	7.84	-160.0	3.22	0.90	<0.05	0.35	0.03	4.92	0.037	434.34	0.06	489.80	0.159	1362.17	2.705	12346	0.1	931	19.70	8.22	0.7	20107	69.3	2750
520	7.61	-168.0	3.20	0.81	<0.05	0.35	-0.02	4.57	0.033	400.43	0.07	453.70	0.139	1264.52	2.211	11417	0.1	848	18.21	7.56	0.8	20498	71.0	2820
570	7.53	-239.0	3.15	0.90	<0.05	0.33	0.04	4.57	0.031	401.52	0.07	449.07	0.139	1264.89	2.028	11338	0.1	860	18.33	7.61	0.7	20544	70.7	2814
620	7.58	-255.0	3.15	0.72	<0.05	0.36	-0.07	4.49	0.035	395.84	0.03	452.54	0.134	1244.50	1.891	11229	0.1	845	18.61	7.50	0.8	20803	71.6	2853
n.d. : not determined																								

Station:											GeoB14605													
Core number:											GeoB14605-2													
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
BW	7.84	213.0	2.72	< 0,1	<0,05	0.23	0.02	4.30	0.019	399.21	0.01	398.40	0.168	1276.89	-0.004	11236	0.2	845	3.37	7.77	2.4	20158	69.1	2801
8	n.d.	n.d.	2.82	< 0,1	<0.05	0.36	0.16	4.71	0.039	397.02	0.00	443.02	0.178	1255.85	3.227	11310	0.2	858	12.80	7.48	1.0	19755	68.1	2720
18	7.48	203.0	3.00	< 0,1	0.05	0.55	0.00	4.74	0.047	397.67	0.07	453.44	0.165	1261.05	6.446	11333	0.2	864	15.03	7.64	1.1	19797	67.8	2724
26	7.63	-65.0	3.19	< 0,1	0.31	0.76	0.00	4.80	0.047	383.57	0.32	458.97	0.158	1208.99	6.972	10956	0.3	838	15.90	7.39	0.9	19957	69.1	2740

n.d. : not determined

Station:										GeoB14607														
Core number:										GeoB14607-1														
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/ L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
10	7.35	177.0	2.94	<0,1	<0.05	0.35	0.05	4.61	0.037	398.17	0.01	426.64	0.175	1262.69	2.044	11246	0.1	853	11.70	7.39	1.1	19762	67.3	2717
24	7.29	241.0	2.94	<0,1	<0.05	0.39	0.04	4.69	0.044	398.34	0.04	443.62	0.182	1255.15	2.646	11228	0.2	843	13.42	7.58	1.2	19851	68.3	2733
47	7.35	234.0	2.96	<0,1	<0.05	0.40	0.10	4.63	0.038	399.95	0.03	446.18	0.171	1261.14	3.746	11223	0.2	850	13.91	7.60	1.1	20147	69.8	2774
57	7.35	243.0	3.01	<0,1	<0.05	0.44	0.01	4.63	0.038	400.57	0.13	445.95	0.165	1264.00	3.908	11279	0.2	845	14.12	7.62	1.3	19757	67.9	2722
60	7.41	260.0	3.00	<0,1	<0.05	0.45	0.12	4.59	0.039	400.61	0.01	444.78	0.166	1256.94	4.033	11297	0.3	853	14.18	7.63	1.3	19999	68.9	2757
63	7.50	240.0	2.99	<0,1	<0.05	0.49	0.09	4.38	0.037	406.91	0.86	422.20	0.169	1270.43	3.775	11284	-0.1	859	12.93	7.75	1.0	20253	70.0	2798
68	7.50	208.0	3.02	<0,1	<0.05	0.45	0.02	4.72	0.034	395.73	0.01	441.13	0.172	1253.59	4.118	11330	0.2	843	14.36	7.43	1.1	19978	69.0	2748
70	7.52	180.0	3.13	<0,1	<0.05	0.46	0.1	4.73	0.04	394.47	0.03	440.63	0.16	1245.53	4.13	11284	0.2	841	14.2	7.38	1.4	19806	68.5	2721
75	7.52	197.0	3.03	<0,1	<0.05	0.45	0.07	4.75	0.036	398.04	0.02	446.36	0.164	1253.22	4.366	11264	0.2	847	14.34	7.56	1.0	19532	67.5	2683
86	7.55	229.0	2.96	<0,1	<0.05	0.46	0.11	4.71	0.036	399.57	0.02	443.72	0.162	1255.65	4.577	11338	0.2	849	14.49	7.60	1.1	19774	67.7	2721
103	7.61	150.0	2.97	<0,1	<0.05	0.47	0.04	4.59	0.037	398.02	0.02	440.81	0.160	1257.48	4.817	11238	0.2	856	14.34	7.57	1.1	19730	67.9	2714
140	7.52	125.0	3.02	<0,1	<0.05	0.49	-0.02	4.55	0.035	403.24	0.02	436.88	0.166	1264.82	5.179	11331	0.3	846	13.91	7.66	1.1	19908	68.4	2740
174	7.51	124.0	3.05	<0,1	<0.05	0.51	0.08	4.52	0.034	404.29	0.02	440.85	0.158	1259.72	5.547	11295	0.1	845	14.37	7.68	1.0	19681	67.6	2706
205	7.51	115.0	3.04	<0,1	<0.05	0.52	0.05	4.50	0.035	406.33	0.02	442.70	0.143	1264.74	5.758	11334	-0.2	856	14.60	7.71	1.0	19794	69.2	2723
232	7.53	15.0	3.05	<0,1	<0.05	0.50	-0.06	4.47	0.030	407.25	0.01	437.70	0.155	1268.46	5.547	11384	0.2	857	14.27	7.73	1.2	19861	68.6	2730
254	7.54	87.0	3.05	<0,1	<0.05	0.52	0.15	4.36	0.036	399.65	0.10	427.65	0.136	1242.45	5.633	11148	0.2	830	14.33	7.56	1.0	19951	68.9	2746
272	7.59	-80.0	3.10	<0,1	<0.05	0.52	0.11	4.44	0.030	406.09	0.06	436.89	0.151	1259.66	5.807	11374	0.0	849	14.80	7.68	1.0	19721	67.5	2711
286	7.64	-57.0	3.09	<0,1	<0.05	0.54	0.11	4.47	0.033	404.05	0.12	432.87	0.149	1250.51	5.865	11253	0.1	832	14.70	7.67	0.9	19717	68.2	2715
304	7.61	-77.0	3.13	<0,1	0.17	0.49	0.18	4.51	0.033	407.90	0.19	434.61	0.154	1258.96	6.002	11317	0.2	841	15.19	7.72	0.8	19877	68.4	2736
350	7.61	-94.0	3.10	<0,1	0.39	0.48	0.01	4.53	0.030	409.67	0.37	435.80	0.148	1264.80	6.187	11349	0.1	853	15.29	7.76	1.1	19809	68.5	2730
450	7.62	####	3.18	<0,1	0.45	0.39	0.1	4.38	0.03	411.07	0.29	440.86	0.14	1257.46	6.27	11401	0.26	846	15.2	7.78	1.1	19706	67.6	2707
550	7.84	-58.00	3.14	0.35	0.38	0.4	0.1	4.55	0.03	412.35	0.31	443.20	0.14	1258.23	6.6	11391	0.2	855	16	7.85	1.0	19828	68.1	2726
650	7.74	####	3.19	0.37	0.22	0.39	0.02	4.44	0.03	419.07	0.25	431.26	0.14	1269.47	6.85	11480	0.09	846	15.5	7.92	1.0	20120	69.8	2763
704	7.78	-	3.22	0.39	<0.05	0.33	0.13	4.35	0.03	417.78	0.07	429.27	0.13	1265.32	6.72	11394	0.09	839	14.8	7.89	1.0	19805	68.3	2720

n.d. : not determined

Station:										GeoB14608													
Core number:										GeoB14608-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/ L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
12	7.32	226.0	2.80	<0,5	<0.05	0.33	0.12	4.68	0.035	396.26	0.02	427.47	0.184	1255.21	2.383	11269	0.2	852	12.16	7.29	1.94	19832	68.8	2733
43	7.55	123.2	2.92	<0,5	<0.05	0.36	-0.01	4.76	0.034	397.68	0.01	454.05	0.167	1252.03	3.804	11334	0.1	847	14.39	7.62	1.70	19845	67.8	2751
80	7.54	197.0	2.94	<0,5	<0.05	0.38	0.14	4.75	0.032	396.69	0.01	447.44	0.165	1250.37	4.049	11269	0.2	839	14.30	7.53	2.07	20139	68.9	2794
125	7.57	175.0	2.94	<0,5	<0.05	0.34	0.11	4.78	0.037	398.60	0.00	451.95	0.166	1258.75	4.412	11294	0.2	850	14.58	7.61	2.38	22134	74.2	3068
176	7.99	205.0	2.93	<0,5	<0.05	0.31	-0.06	4.74	0.031	397.25	0.02	452.57	0.170	1249.87	4.680	11310	0.1	840	15.00	7.59	3.05	19947	68.7	2760
193	7.95	220.0	2.76	<0,5	<0.05	0.27	0.07	4.40	0.031	397.35	0.05	421.04	0.161	1276.66	5.251	11399	0.2	854	13.62	7.61	1.68	20080	68.9	2775
213	7.60	182.0	2.98	<0,5	<0.05	0.30	0.04	4.58	0.031	401.01	0.02	451.41	0.164	1251.31	4.806	11339	0.1	844	14.80	7.61	2.17	19925	69.6	2762
280	7.56	200.0	2.95	<0,5	<0.05	0.28	0.09	4.58	0.030	402.89	0.01	449.77	0.160	1260.66	5.11	11359	0.1	843	14.67	7.68	1.68	19946	66.6	2770
348	7.58	185.0	3.12	<0,5	<0.05	0.25	0.06	4.60	0.029	402.11	0.02	450.36	0.162	1260.98	5.283	11264	0.2	841	14.93	7.65	2.39	19997	68.9	2776
365	8.02	196.0	3.20	<0,5	<0.05	0.22	0.14	4.41	0.030	401.29	0.01	423.54	0.145	1280.93	5.757	11308	0.1	853	14.24	7.71	1.59	20056	69.0	2761
405	7.90	216.0	2.78	<0,5	<0.05	0.23	0.01	4.42	0.029	397.60	0.02	423.11	0.149	1281.14	6.160	11339	0.2	844	14.45	7.62	2.47	19974	68.5	2751
445	8.00	219.0	2.73	<0,5	<0.05	0.20	-0.02	4.43	0.030	398.72	0.02	422.75	0.158	1282.83	6.189	11403	0.1	851	14.55	7.65	2.73	19995	68.8	2745
453	7.68	206.0	2.99	<0,5	<0.05	0.21	-0.05	4.58	0.028	400.82	0.01	451.19	0.148	1260.74	5.669	11528	0.2	834	15.38	7.62	2.25	20077	70.2	2753
506	7.59	208.0	2.92	<0,5	<0.05	0.22	0.05	4.77	0.029	401.09	0.01	449.64	0.150	1264.23	5.821	11508	0.1	846	15.36	7.58	1.91	20156	69.6	2763
538	7.62	185.0	3.00	<0,5	<0.05	0.24	0.06	4.79	0.027	401.99	0.01	451.72	0.162	1263.42	5.772	11559	0.2	850	15.56	7.55	2.02	20029	69.4	2750
580	7.62	231.0	2.94	<0,5	<0.05	0.21	0.02	4.59	0.027	405.93	0.04	450.26	0.149	1268.44	6.025	11508	0.1	849	15.52	7.75	2.86	20058	68.9	2774
638	7.62	156.0	2.96	<0,5	<0.05	0.31	0.06	4.62	0.028	420.39	4.68	451.85	0.149	1276.84	5.956	11578	-0.1	845	15.59	8.10	1.67	20057	70.0	2766
701	7.60	208.0	2.93	<0,5	<0.05	0.20	0.07	4.66	0.028	406.90	0.02	452.56	0.156	1273.47	5.700	11542	0.1	849	15.78	7.71	2.53	20055	69.0	2757
706	7.64	245.0	2.94	<0,5	<0.05	0.20	0.05	4.56	0.027	409.28	0.03	446.08	0.147	1283.38	5.785	11488	-0.1	858	15.55	7.76	2.10	20050	68.6	2771
711	7.58	262.0	2.90	<0,5	<0.05	0.19	-0.01	4.74	0.027	406.65	0.01	454.00	0.146	1271.23	5.672	11568	0.2	846	16.00	7.68	2.00	20086	69.2	2760
733	7.62	250.0	2.92	<0,5	<0.05	0.18	0.10	4.56	0.034	409.30	0.05	449.03	0.153	1272.20	5.63	11447	0.2	851	15.83	7.80	2.51	20067	68.8	2762
809	7.83	227.0	2.76	<0,5	<0.05	0.17	0.10	4.41	0.044	404.24	0.11	424.88	0.151	1293.19	5.79	11456	0.1	843	16.20	7.78	1.66	20134	71.2	2783

n.d. : not determined

Station:											GeoB14608												
Core number:											GeoB14608-2												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/ L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
BW	n.d.	n.d.	2.67	<0.5	<0.06	0.25	0.02	4.29	0.022	404.17	0.02	401.71	0.162	1283.60	-0.005	11356	0.2	848	3.86	7.86	n.d.	19834	66.8	2971
6	7.24	354.0	2.68	<0.5	<0.07	0.28	0.06	4.64	0.035	395.10	0.02	433.67	0.294	1251.73	-0.009	11404	0.1	857	10.34	7.39	n.d.	20287	63.0	2994
12	7.37	272.0	2.73	<0.5	<0.08	0.33	0.06	4.57	0.037	401.97	0.02	438.31	0.187	1273.00	1.231	11393	0.1	845	10.99	7.63	n.d.	19672	62.9	2570
18	7.45	228.0	2.79	<0.5	<0.09	0.35	0.03	4.57	0.038	401.05	0.01	435.93	0.177	1269.71	2.316	11386	0.2	865	11.53	7.68	n.d.	19954	65.0	2971
24	7.51	207.0	2.82	<0.5	<0.10	0.36	0.02	4.57	0.039	403.50	0.01	434.51	0.177	1278.47	2.936	11387	0.1	848	11.81	7.75	n.d.	19788	63.8	2950
30	7.53	181.0	2.84	<0.5	<0.11	0.36	-0.06	4.57	0.039	403.02	0.01	435.92	0.184	1274.97	3.366	11364	0.2	848	12.18	7.75	n.d.	19580	60.7	2567

n.d. : not determined

Station:											GeoB14609												
Core number:											GeoB14609-1												
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
9	7.45	216.5	2.81	<0,5	<0,05	0.40	0.04	4.70	0.039	400.49	0.01	450.31	0.182	1258.90	1.619	11363	0.2	839	12.87	7.68	1.91	20313	67.0	2813
16	7.55	232.2	2.87	<0,5	<0,05	0.37	0.11	4.45	0.037	401.21	0.03	427.33	0.175	1267.09	2.269	11325	0.1	846	12.66	7.64	2.15	19794	67.3	2750
54	7.55	199.8	2.87	<0,5	<0,05	0.34	0.02	4.54	0.032	400.48	0.01	443.54	0.166	1258.91	2.394	11451	0.1	839	13.57	7.63	3.06	21099	70.0	2928
100	7.58	167.0	2.93	<0,5	<0,05	0.32	0.03	4.45	0.140	398.15	0.01	439.03	0.171	1254.95	2.330	11281	0.2	837	13.72	7.57	2.23	19958	66.9	2760
156	7.59	183.4	2.93	<0,5	<0,05	0.28	0.04	4.45	0.034	403.99	0.05	443.98	0.160	1259.41	2.241	11411	0.0	831	13.97	7.67	1.96	19772	66.3	2736
201	7.62	173.5	2.92	<0,5	<0,05	0.26	0.06	4.52	0.027	410.26	0.01	444.46	0.169	1268.06	2.190	11443	0.1	844	14.20	7.81	1.60	19812	66.8	2736
254	7.56	170.0	2.97	<0,5	<0,05	0.26	0.10	4.65	0.028	408.93	0.04	448.05	0.162	1265.93	2.165	11452	0.1	840	14.77	7.71	1.91	19904	67.9	2739
321	7.58	174.0	2.97	<0,5	<0,05	0.20	0.09	4.39	0.025	401.27	0.04	429.85	0.156	1230.33	2.112	11118	-6.7	808	14.15	7.59	1.64	19925	67.8	2746
422	7.58	214.0	2.98	<0,5	<0,05	0.18	0.15	4.71	0.025	414.17	0.01	451.59	0.154	1264.00	2.149	11472	0.1	839	15.61	7.84	1.62	19941	67.0	2740
478	7.49	173.5	2.94	<0,5	<0,05	0.17	0.06	4.68	0.022	411.14	0.01	448.78	0.153	1252.11	2.097	11395	0.1	835	15.88	7.79	1.82	20092	67.5	2756
522	7.71	148.4	2.99	<0,5	<0,05	0.15	0.05	4.55	0.023	417.87	0.02	435.41	0.156	1272.23	2.066	11480	0.1	844	15.41	7.92	1.79	19854	67.4	2733
580	7.53	242.0	2.79	<0,5	<0,05	0.17	0.10	4.57	0.025	411.96	0.01	436.60	0.151	1264.15	1.950	11392	0.0	834	16.00	7.87	1.30	19967	68.5	2738
649	7.58	175.0	2.76	<0,5	<0,05	0.14	0.16	4.55	0.023	398.89	0.02	426.31	0.145	1276.94	2.168	11462	0.0	829	16.26	7.54	1.74	19967	67.8	2696

Station:										GeoB14610													
Core number:										GeoB14610-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
10	7.45	213.0	2.86	<0,5	<0,05	0.34	0.05	4.63	0.036	404.51	0.01	426.04	0.173	1306.04	2.637	11199	0.0	883	12.26	7.56	n.d.	19523	67.5	2723
33	7.54	172.0	2.87	<0,5	<0,05	0.36	0.01	4.75	0.035	401.35	0.00	444.62	0.172	1298.10	2.157	11269	0.2	890	13.88	7.63	n.d.	19705	69.2	2761
52	7.59	197.0	2.88	<0,5	<0,05	0.35	-0.03	4.70	0.033	403.45	0.01	442.33	0.172	1301.58	2.188	11285	0.1	887	13.96	7.69	n.d.	19518	71.4	2733
72	7.57	176.0	2.91	<0,5	<0,05	0.34	-0.04	4.68	0.034	405.79	0.01	444.34	0.173	1306.67	2.138	11307	0.1	893	14.12	7.73	n.d.	19551	66.9	2739
93	7.59	210.0	2.93	<0,5	<0,05	0.32	0.03	4.69	0.034	402.43	0.76	445.91	0.169	1298.44	2.111	11200	0.1	891	14.55	7.68	n.d.	19537	68.7	2736
111	7.57	202.0	2.91	<0,5	<0,05	0.32	0.02	4.71	0.031	407.03	0.01	452.16	0.163	1307.64	2.054	11255	0.2	893	14.55	7.79	n.d.	19536	69.4	2735
144	7.63	215.0	2.91	<0,5	<0,05	0.30	0.06	4.70	0.030	407.48	0.00	448.96	0.167	1305.94	1.788	11179	0.1	875	14.58	7.78	n.d.	19566	67.3	2738
177	7.58	185.0	2.93	<0,5	<0,05	0.31	0.01	4.66	0.031	404.88	0.08	444.56	0.165	1303.31	1.794	11278	0.1	877	14.70	7.73	n.d.	19692	70.4	2764
209	7.56	200.0	2.94	<0,5	<0,05	0.29	0.03	4.65	0.027	408.07	0.00	448.12	0.170	1300.75	1.677	11326	0.1	891	14.71	7.80	n.d.	19583	67.5	2737
247	7.62	119.0	2.93	<0,5	<0,05	0.27	0.07	4.67	0.031	408.04	-0.01	445.82	0.163	1310.90	1.554	11361	0.1	892	14.64	7.78	n.d.	19613	68.9	2759
277	7.62	160.0	n.d.	<0,5	<0,05	0.26	0.06	4.63	0.027	406.76	0.00	442.46	0.160	1304.37	1.487	11241	0.1	884	14.84	7.79	n.d.	19644	67.5	2750
311	7.59	210.0	2.95	<0,5	<0,05	0.25	-0.06	4.65	0.027	405.97	0.01	444.44	0.171	1298.02	1.367	11316	0.0	877	14.71	7.75	n.d.	19601	70.5	2739
347	7.63	137.0	2.92	<0,5	<0,05	0.24	0.06	4.62	0.029	408.84	0.02	443.94	0.162	1306.93	1.335	11272	0.1	891	15.00	7.83	n.d.	20092	69.2	2822
381	7.63	172.0	2.90	<0,5	<0,05	0.23	0.07	4.69	0.029	408.02	0.01	448.19	0.155	1302.43	1.272	11402	0.1	884	15.33	7.82	n.d.	19660	67.1	2751
413	7.58	192.0	2.93	<0,5	<0,05	0.22	0.00	4.72	0.029	409.87	0.02	445.44	0.162	1311.40	1.209	11394	0.0	883	15.01	7.87	n.d.	19689	67.3	2751
462	7.60	174.0	2.92	<0,5	<0,05	0.20	-0.02	4.61	0.025	404.25	0.00	439.87	0.155	1292.65	1.086	11193	0.1	891	14.91	7.74	n.d.	19692	67.7	2760
511	7.60	175.0	2.93	<0,5	<0,05	0.18	0.07	4.52	0.023	395.63	0.00	428.27	0.153	1265.30	0.948	10923	0.1	858	14.62	7.58	n.d.	19681	69.0	2752
562	7.58	198.0	2.96	<0,5	<0,05	0.16	0.13	4.54	0.025	389.32	0.00	425.44	0.150	1248.60	0.795	10856	0.1	846	14.98	7.41	n.d.	19689	67.9	2752
611	7.53	237.0	2.93	<0,5	<0,05	0.16	0.04	4.64	0.025	400.47	0.01	446.09	0.160	1278.81	0.634	11111	0.0	863	15.82	7.68	n.d.	19717	68.4	2770

n.d. : not determined

Station:											GeoB14611												
Core number:											GeoB14611-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
10	7.49	180.0	2.87	<0,5	<0,05	0.45	0.02	4.79	0.045	400.05	0.01	444.18	0.177	1287.35	4.025	11240	0.0	877	13.29	7.59	1.3	19271	67.6	2721
41	7.57	140.0	2.89	<0,5	<0,05	0.50	0.12	4.63	0.041	401.68	0.03	443.72	0.165	1288.56	5.464	11144	0.1	877	13.37	7.69	1.3	19444	67.9	2752
75	7.73	-82.0	2.95	<0,5	0.08	0.54	0.10	4.71	0.038	399.28	0.08	453.38	0.167	1274.33	6.853	11208	0.1	881	13.87	7.63	2.0	19373	66.8	2735
113	7.59	169.0	2.96	<0,5	<0,05	0.55	-0.05	4.85	0.035	398.75	0.01	452.50	0.165	1280.12	7.892	11102	0.2	866	13.87	7.64	1.6	19339	66.5	2734
160	7.62	-66.0	2.96	<0,5	0.05	0.55	0.16	4.69	0.036	401.05	0.07	451.92	0.160	1281.80	8.280	11173	0.0	877	13.89	7.69	1.6	19385	67.1	2739
193	7.69	-13.5	2.97	<0,5	<0,05	0.53	0.03	4.68	0.031	403.66	0.02	449.98	0.159	1293.33	8.238	11229	0.1	877	14.09	7.75	1.7	19405	67.4	2744
243	7.62	75.0	2.93	<0,5	<0,05	0.49	0.08	4.68	0.032	405.76	0.01	449.61	0.157	1294.61	7.914	11258	0.0	876	14.75	7.77	2.1	19562	68.4	2748
301	7.59	185.0	2.95	<0,5	<0,05	0.46	0.06	4.65	0.033	406.11	0.01	447.81	0.159	1296.35	7.511	11253	0.1	887	14.97	7.78	1.5	19411	67.4	2740
349	7.58	138.0	2.94	<0,5	<0,05	0.41	0.02	4.68	0.032	407.32	0.02	450.76	0.154	1299.80	7.184	11356	0.2	882	15.46	7.79	2.4	19426	67.1	2748
393	7.58	169.0	3.04	<0,5	<0,05	0.39	0.12	4.65	0.031	407.55	0.02	443.55	0.161	1298.28	6.741	11303	0.1	874	15.32	7.80	2.1	19422	68.3	2740
430	7.59	169.1	2.97	<0,5	<0,05	0.37	0.09	4.66	0.030	404.54	0.03	444.60	0.159	1290.82	6.422	11308	0.1	881	15.56	7.73	1.6	19473	67.4	2746
463	7.73	169.1	3.02	<0,5	0.06	0.35	-0.04	4.65	0.033	406.27	0.07	451.10	0.157	1291.22	5.872	11225	0.0	875	15.76	7.75	1.9	19377	67.2	2734
505	7.72	-57.8	3.06	<0,5	0.07	0.34	0.01	4.61	0.030	398.22	0.08	438.53	0.148	1265.19	5.503	11065	0.1	852	15.52	7.61	1.9	19564	67.4	2760
524	n.d.	n.d.	3.00	<0,5	<0,05	0.36	0.07	4.74	0.043	405.35	0.12	460.77	0.169	1288.67	5.288	11274	0.1	895	17.18	7.72	1.8	19612	67.7	2754
541	7.75	-77.1	3.00	<0,5	<0,05	0.30	0.12	4.75	0.033	409.12	0.03	458.56	0.167	1294.18	4.998	11390	0.0	874	16.39	7.80	1.9	19583	67.7	2753
574	7.59	168.0	3.01	<0,5	<0,05	0.26	0.00	4.71	0.030	409.19	0.02	449.66	0.159	1295.44	4.410	11279	0.1	881	16.37	7.82	1.2	19476	67.3	2740
634	7.51	196.0	2.96	<0,5	<0,05	0.24	0.03	4.77	0.031	409.40	0.02	450.51	0.161	1299.99	2.825	11395	0.1	888	16.88	7.78	1.9	19636	67.5	2754
691	7.52	308.0	2.94	<0,5	<0,05	0.22	-0.01	4.41	0.029	381.35	0.01	414.31	0.149	1208.80	2.070	10543	0.0	815	15.37	7.18	2.4	19670	67.6	2896
697	7.52	295.0	2.98	<0,5	<0,05	0.23	0.08	4.80	0.030	412.78	0.00	450.39	0.161	1305.67	2.203	11370	0.0	887	16.80	7.81	1.7	19542	66.9	2861
703	7.60	273.0	2.97	<0,5	<0,05	0.25	0.07	4.68	0.030	415.40	0.01	443.52	0.150	1310.45	2.202	11382	0.2	885	16.48	7.84	1.7	19535	67.9	2751
710	7.47	284.0	2.95	<0,5	<0,05	0.22	0.02	4.80	0.037	410.72	0.02	448.32	0.171	1300.95	2.042	11368	0.1	876	16.98	7.75	n.d.	21413	72.0	2991
717	7.60	278.0	2.90	<0,5	<0,05	0.20	0.05	4.81	0.029	405.89	0.01	448.97	0.160	1289.41	1.894	11292	0.2	872	17.22	7.65	1.1	19503	67.2	2727
766	7.55	244.0	2.90	<0,5	<0,05	0.18	-0.01	4.81	0.030	407.86	0.02	451.66	0.169	1299.40	1.604	11370	0.0	896	17.41	7.67	1.6	19589	67.7	2742

n.d. : not determined

Station:										GeoB14612														
Core number:										GeoB14612-1														
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
26	7.46	215.4	2.84	<0,5	<0,05	0.27	0.02	4.85	0.037	401.46	0.00	463.27	0.188	1293.12	1.653	11280	0.1	871	13.46	7.70	n.d.	19424	66.0	2727
76	7.51	203.0	2.89	<0,5	<0,05	0.28	0.09	4.88	0.031	401.27	0.01	468.68	0.179	1292.62	2.532	11434	0.0	886	14.31	7.73	n.d.	19462	63.5	2716
126	7.57	206.0	2.91	<0,5	<0,05	0.26	0.09	4.79	0.035	403.45	0.01	468.94	0.177	1304.31	3.091	11379	0.2	893	15.02	7.81	n.d.	19470	66.5	2732
176	7.58	216.0	2.91	<0,5	<0,05	0.25	0.01	4.75	0.033	405.28	0.02	464.36	0.168	1300.45	3.269	11395	0.1	880	14.61	7.82	n.d.	19491	68.7	2738
226	7.57	215.0	2.96	<0,5	<0,05	0.25	0.14	8.55	0.055	718.41	0.01	849.17	0.324	2308.07	7.171	20492	0.2	1618	27.71	14.00	n.d.	19503	66.4	2732
276	7.54	220.0	2.93	<0,5	<0,05	0.25	0.04	4.87	0.031	406.28	0.01	466.64	0.171	1300.66	4.298	11381	0.1	896	15.34	7.82	n.d.	19505	64.7	2730
326	7.64	183.0	2.97	<0,5	<0,05	0.23	0.04	4.86	0.030	407.15	0.00	466.04	0.169	1303.81	4.705	11473	0.1	889	15.33	7.84	n.d.	19496	68.6	2733
376	7.64	195.0	2.94	<0,5	<0,05	0.21	0.06	4.90	0.029	410.42	0.00	468.60	0.162	1304.85	5.167	11370	0.1	897	15.39	7.93	n.d.	19519	67.1	2728
426	7.64	212.0	2.96	<0,5	<0,05	0.21	0.03	4.80	0.038	411.55	0.03	463.59	0.160	1310.95	5.479	11406	0.0	900	15.27	7.94	n.d.	19549	64.4	2736
476	7.65	235.0	3.00	<0,5	<0,05	0.21	0.05	4.78	0.029	410.83	0.03	460.21	0.163	1311.11	5.762	11347	0.2	882	15.15	7.93	n.d.	19540	68.3	2743
526	7.59	189.0	2.94	<0,5	<0,05	0.19	0.02	4.77	0.030	408.52	0.17	462.39	0.152	1298.73	6.104	11262	0.1	876	15.21	7.95	n.d.	19566	66.3	2736
576	7.65	181.7	3.02	<0,5	<0,05	0.21	0.05	4.75	0.031	410.93	0.02	464.37	0.152	1301.20	6.326	11321	0.1	885	15.33	7.99	n.d.	19553	66.9	2741
626	7.62	150.0	3.00	<0,5	<0,05	0.19	-0.01	4.78	0.027	410.04	-0.01	461.30	0.153	1302.79	6.572	11341	0.1	889	15.38	7.98	n.d.	19569	65.8	2735
676	7.62	176.0	3.01	<0,5	<0,05	0.17	0.02	4.80	0.031	409.41	0.01	463.65	0.147	1303.34	6.847	11456	0.0	901	15.39	8.00	n.d.	19597	62.0	2739
726	7.58	202.0	3.04	<0,5	<0,05	0.18	0.11	4.84	0.028	411.75	0.01	468.19	0.153	1301.76	6.927	11369	0.0	882	15.62	8.03	n.d.	19603	65.4	2745
778	7.59	214.0	3.01	<0,5	<0,05	0.18	0.07	4.79	0.027	413.02	0.00	464.94	0.147	1307.85	7.086	11427	0.1	895	15.35	8.07	n.d.	19601	65.5	2737
824	7.60	197.0	3.01	<0,5	<0,05	0.17	0.05	4.81	0.029	416.14	0.01	466.97	0.153	1313.51	7.223	11414	0.1	889	15.45	8.15	n.d.	19599	66.4	2735
876	7.63	240.0	3.00	<0,5	<0,05	0.16	0.04	4.81	0.028	416.91	0.00	470.51	0.156	1315.58	7.208	11551	0.1	897	15.81	8.20	n.d.	19606	64.3	2741
936	7.61	264.0	3.01	<0,5	<0,05	0.16	0.04	4.92	0.028	414.50	0.00	478.41	0.153	1310.57	7.087	11444	0.1	889	16.42	8.14	n.d.	19601	66.6	2734
976	7.55	239.4	3.01	<0,5	<0,05	0.15	0.01	4.98	0.026	415.14	0.00	471.61	0.147	1312.51	6.919	11420	0.1	891	16.21	8.11	n.d.	19639	67.6	2735
1026	7.66	250.0	3.00	<0,5	<0,05	0.14	-0.05	4.86	0.029	413.12	0.00	478.91	0.154	1301.32	6.782	11347	0.1	912	16.87	8.12	n.d.	19634	66.3	2745

n.d. : not determined

Station:											GeoB14613											
Core number:											GeoB14613-1											
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
10	7.33	223.0	2.86	<0,5	<0,05	0.32	0.00	4.88	0.040	399.86	0.01	455.97	0.197	1293.68	1.208	11218	0.1	888	13.21	7.68	1.1	19702	68.8	2712
60	7.48	237.0	2.85	<0,5	<0,05	0.31	0.05	4.71	0.031	401.31	0.00	455.14	0.181	1288.97	1.425	11193	0.1	889	13.38	7.72	n.d.	20544	70.1	2681
90	7.50	199.0	2.91	<0,5	<0,05	0.30	0.02	4.73	0.030	406.47	0.01	458.69	0.172	1298.53	1.523	11162	0.1	878	13.44	7.83	n.d.	20220	70.2	2904
120	7.51	246.0	2.93	<0,5	<0,05	0.29	-0.02	4.73	0.031	405.13	0.01	461.11	0.182	1302.39	1.525	11204	0.1	872	13.66	7.80	n.d.	20107	70.5	2881
180	7.51	248.0	2.91	<0,5	<0,05	0.27	0.13	4.72	0.068	407.39	0.17	456.50	0.171	1306.63	1.788	11302	0.1	874	14.15	7.83	n.d.	20299	70.1	2646
283	7.49	225.0	2.93	<0,5	<0,05	0.26	0.07	4.75	0.028	406.88	0.01	456.02	0.173	1294.67	1.886	11156	0.0	885	13.98	7.81	1.1	19749	67.9	2719
383	7.53	256.0	2.98	<0,5	<0,05	0.23	-0.06	4.81	0.027	410.68	0.01	458.90	0.166	1309.10	2.013	11318	0.1	893	14.52	7.82	n.d.	19998	68.0	2871
450	7.55	250.0	3.00	<0,5	<0,05	0.21	0.01	4.82	0.025	410.86	0.02	464.45	0.173	1307.57	2.079	11357	0.0	897	15.06	7.85	n.d.	19627	66.5	2628
499	7.41	251.0	2.80	<0,5	<0,05	0.21	-0.03	4.80	0.024	401.53	0.00	453.16	0.161	1306.90	2.205	11278	-0.1	883	14.78	7.76	n.d.	19688	67.8	2837
577	7.64	245.0	2.77	<0,5	<0,05	0.19	0.01	4.81	0.024	401.39	0.72	456.96	0.154	1318.51	2.335	11283	0.1	887	15.10	7.74	n.d.	19763	68.2	2850
673	7.64	202.0	2.76	<0,5	<0,05	0.17	0.13	4.74	0.025	402.20	0.02	452.40	0.157	1314.18	2.238	11281	0.1	876	15.34	7.78	1.2	19812	68.2	2720

n.d. : not determined

Station:										GeoB14614												
Core number:										GeoB14614-1												
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
15	7.61	189.0	3.00	<0,5	<0,05	0.36	0.07	5.14	0.035	403.94	0.02	465.57	0.179	1287.35	2.642	11287	-0.2	889	14.05	7.84	n.d.	19469	69.6	2615
80	7.66	205.0	2.99	<0,5	<0,05	0.35	0.03	4.90	0.035	407.02	0.05	461.76	0.173	1289.36	3.649	11226	-0.1	865	14.02	7.93	n.d.	19528	68.5	2796
180	7.70	160.0	3.07	<0,5	<0,05	0.32	0.06	4.77	0.029	409.51	0.01	457.37	0.164	1301.15	4.794	11226	-0.1	872	14.02	7.97	n.d.	19533	68.5	2790
280	7.71	241.0	3.08	<0,5	<0,05	0.29	0.06	4.84	0.030	413.15	0.02	459.66	0.169	1302.42	5.949	11281	-0.1	902	14.23	8.08	n.d.	19501	66.6	2619
380	7.70	145.0	3.05	<0,5	<0,05	0.26	0.02	4.86	0.030	411.87	0.03	454.87	0.160	1301.59	6.938	11262	-0.1	886	14.10	8.08	n.d.	19610	69.7	2788
480	7.71	154.0	3.11	<0,5	<0,05	0.25	0.01	4.82	0.030	416.53	0.02	454.80	0.158	1312.87	7.565	11295	-0.1	888	13.94	8.23	n.d.	19976	71.5	2836
580	7.67	218.0	3.11	<0,5	<0,05	0.24	0.06	4.84	0.027	416.78	0.02	453.65	0.146	1312.32	7.866	11282	-0.2	885	13.75	8.28	n.d.	19530	66.6	2625
680	7.63	220.0	3.11	<0,5	<0,05	0.20	0.08	4.86	0.027	419.87	0.02	457.89	0.144	1311.50	7.921	11303	-0.2	879	14.10	8.42	n.d.	19633	79.0	2793
780	7.62	250.0	3.10	<0,5	<0,05	0.19	0.04	4.88	0.025	420.62	0.02	456.15	0.151	1307.66	7.666	11357	-0.2	876	14.07	8.45	n.d.	19764	71.0	2794
880	7.64	225.0	3.10	<0,5	<0,05	0.20	-0.02	4.96	0.023	418.51	0.02	458.17	0.149	1303.97	7.388	11284	-0.2	876	14.64	8.35	n.d.	19636	71.3	2633

n.d. : not determined

Station:											GeoB14615													
Core number:											GeoB14615-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
17	7.68	147.0	3.05	<0,5	<0,05	0.43	-0.03	4.75	0.043	407.85	0.00	443.36	0.171	1295.04	5.029	11232	0.2	890	12.74	7.89	n.d.	19565	69.7	2767
24	n.d.	129.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
28	n.d.	121.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
30	n.d.	90.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
32	n.d.	0.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
34	n.d.	-20.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
37	n.d.	-32.0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
53	7.81	-74.0	3.06	<0,5	0.05	0.48	0.05	4.76	0.043	409.26	0.06	463.30	0.165	1290.52	7.899	11136	0.1	889	13.06	7.94	n.d.	20174	70.1	2816
79	7.74	132.0	3.04	<0,5	<0,05	0.54	-0.03	5.02	0.043	408.52	0.02	454.86	0.167	1298.43	9.311	11214	0.3	875	13.30	8.00	n.d.	19824	68.0	2667
105	7.80	49.5	2.98	<0,5	<0,05	0.51	0.05	4.96	0.035	408.54	0.00	471.26	0.175	1292.10	9.447	11252	0.2	878	13.60	7.98	n.d.	20600	0.0	2847
142	7.73	138.0	3.01	<0,5	<0,05	0.57	0.04	5.04	0.035	408.54	0.01	450.53	0.155	1296.08	10.452	11217	0.1	879	13.12	7.95	0.9	20841	71.8	2866
185	7.71	141.0	2.97	<0,5	<0,05	0.58	0.06	4.95	0.036	409.55	-0.01	454.41	0.151	1297.16	10.910	11162	0.1	886	13.47	8.03	n.d.	20265	72.0	2709
251	7.71	101.0	2.93	<0,5	<0,05	0.57	0.05	4.78	0.035	411.54	0.00	452.36	0.143	1300.40	10.488	11185	0.2	874	13.05	8.05	n.d.	20235	68.9	2839
354	7.67	75.0	2.92	<0,5	<0,05	0.55	0.05	4.73	0.032	411.31	0.06	450.33	0.148	1292.75	10.632	11229	0.2	877	13.51	8.03	n.d.	19883	68.2	2795
415	7.63	171.0	2.94	<0,5	<0,05	0.54	0.02	4.80	0.032	415.60	-0.01	454.19	0.140	1302.63	10.202	11221	0.2	891	14.31	8.12	n.d.	19640	64.5	2673
442	7.73	106.0	2.89	<0,5	<0,05	0.52	0.06	4.76	0.032	414.62	0.08	460.68	0.136	1295.33	9.899	11272	0.1	886	14.44	8.09	n.d.	19653	67.4	2787
470	7.62	156.0	2.90	<0,5	<0,05	0.50	0.05	4.84	0.034	413.81	0.02	459.62	0.143	1296.16	9.505	11265	0.1	901	14.87	8.09	n.d.	20400	69.1	2733
550	7.72	-55.3	2.93	<0,5	0.30	0.46	0.05	4.75	0.032	417.97	0.32	459.35	0.143	1293.02	8.363	11312	0.2	873	15.27	8.15	n.d.	20273	68.4	2842
604	7.78	136.0	2.93	<0,5	<0,05	0.37	0.05	4.63	0.030	415.11	0.00	467.72	0.131	1283.79	7.626	11178	0.2	893	15.47	8.07	n.d.	19806	68.5	2805
613	7.58	160.0	2.88	<0,5	<0,05	0.37	0.08	4.78	0.034	421.67	0.01	460.62	0.135	1296.43	7.882	11302	0.1	887	15.42	8.21	n.d.	20698	69.3	2785
618	7.62	197.0	2.94	<0,5	<0,05	0.40	0.06	4.83	0.033	419.40	0.09	459.96	0.132	1293.34	7.800	11185	0.1	882	15.48	8.13	n.d.	20909	69.8	2874
631	7.70	83.2	2.86	<0,5	<0,05	0.36	0.07	4.78	0.031	420.74	0.02	464.17	0.136	1293.77	7.508	11302	0.1	878	15.35	8.20	n.d.	20387	68.4	2826
677	7.65	72.0	2.92	<0,5	<0,05	0.29	0.02	4.86	0.032	421.36	0.02	466.46	0.137	1291.83	7.071	11216	0.1	880	15.32	8.18	n.d.	19780	66.1	2695

n.d. : not determined

Station:											GeoB14616												
Core number:											GeoB14616-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
15	7.74	73.0	3.07	<0,5	<0,05	0.47	0.05	4.81	0.043	406.01	0.00	439.51	0.177	1285.97	6.359	11063	0.1	874	13.30	7.91	n.d.	20269	72.7	2863
40	7.90	27.2	3.05	<0,5	<0,05	0.50	0.03	4.83	0.043	406.45	0.02	448.17	0.179	1283.49	7.957	11115	0.1	882	13.39	7.95	n.d.	20480	73.6	2708
105	7.75	172.0	3.03	<0,5	<0,05	0.55	0.03	5.04	0.035	403.76	0.20	444.19	0.167	1285.17	10.101	11180	0.2	880	13.60	7.86	n.d.	20298	71.9	2866
186	7.74	150.0	2.98	<0,5	<0,05	0.58	-0.02	4.79	0.037	409.96	0.01	444.07	0.164	1291.72	10.478	11106	0.1	872	13.55	8.12	n.d.	19865	71.2	2809
259	7.72	159.0	3.00	<0,5	<0,05	0.56	0.02	4.77	0.033	410.94	0.05	447.28	0.149	1286.74	10.201	11148	0.1	851	13.94	8.15	n.d.	20234	70.2	2673
326	7.67	144.0	2.88	<0,5	<0,05	0.51	0.03	4.77	0.031	411.92	0.00	447.89	0.156	1290.84	9.803	11180	0.1	876	14.17	8.19	n.d.	19872	71.6	2838
397	7.60	182.0	2.89	<0,5	<0,05	0.48	0.15	4.88	0.031	418.25	0.01	454.12	0.146	1291.56	9.295	11250	0.2	870	14.71	8.29	n.d.	19750	69.7	2807
407	7.74	127.0	2.89	<0,5	<0,05	0.47	0.04	4.78	0.030	415.60	0.01	450.33	0.149	1284.21	9.239	10925	0.0	874	14.50	8.28	n.d.	19813	69.6	2636
485	7.72	63.0	2.86	<0,5	<0,05	0.44	-0.02	4.72	0.030	417.42	0.03	451.32	0.147	1291.76	8.408	11136	-0.1	874	14.81	8.30	n.d.	20045	70.1	2851
544	7.77	-12.0	2.83	<0,5	<0,05	0.40	0.09	4.76	0.030	418.33	0.04	448.24	0.149	1281.24	8.212	11107	-0.1	869	14.64	8.34	n.d.	19658	68.6	2813
610	7.60	168.0	2.83	<0,5	<0,05	0.39	0.05	4.78	0.030	422.08	0.00	454.65	0.146	1294.35	8.031	11251	0.0	873	15.23	8.41	n.d.	19828	71.9	2821
659	7.75	77.0	2.88	<0,5	<0,05	0.34	-0.01	4.79	0.028	422.06	0.03	450.67	0.144	1287.40	7.667	11215	0.1	884	15.02	8.39	0.7	20897	72.0	2875
710	7.67	201.0	2.87	<0,5	<0,05	0.32	-0.01	4.89	0.029	422.87	0.00	457.35	0.142	1294.06	7.312	11308	-0.1	871	15.61	8.42	n.d.	20363	71.3	2859

n.d. : not determined

Station:											GeoB14617												
Core number:											GeoB14617-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
35	7.65	147.0	3.05	<0,5	<0,05	0.37	-0.05	4.89	0.039	407.28	-0.01	448.93	0.194	1297.13	4.021	11143	0.1	877	13.96	7.93	1.0	19936	68.5	2752
81	7.68	161.0	3.09	<0,5	<0,05	0.43	0.05	5.02	0.037	400.48	0.02	452.16	0.184	1281.17	5.607	11112	0.1	846	14.48	7.76	1.2	20117	69.5	2769
155	7.75	80.0	3.09	<0,5	<0,05	0.53	-0.05	4.84	0.033	407.95	0.00	451.27	0.168	1287.65	7.338	11168	0.1	858	14.34	7.99	1.3	20183	69.9	2783
255	7.75	150.0	3.11	<0,5	<0,05	0.44	-0.01	4.80	0.031	409.20	0.00	447.58	0.171	1289.03	8.275	11144	0.2	868	14.35	8.02	1.1	20037	69.2	2764
353	7.69	116.7	3.06	<0,5	<0,05	0.38	0.05	4.80	0.034	414.06	0.01	454.63	0.165	1293.85	8.450	11172	-0.1	864	14.92	8.15	1.2	19866	68.3	2739
428	7.76	122.0	3.05	<0,5	<0,05	0.32	0.03	4.74	0.031	416.86	0.01	456.67	0.164	1292.18	8.239	11259	0.0	872	15.17	8.22	1.0	20153	69.1	2774
485	7.62	130.4	3.02	<0,5	<0,05	0.31	0.06	4.80	0.032	415.79	0.09	456.69	0.160	1286.88	8.220	11079	-0.2	864	15.38	8.22	0.9	20065	69.0	2758
523	7.68	40.6	3.03	<0,5	<0,05	0.31	0.05	4.79	0.028	418.75	0.01	456.57	0.157	1290.92	8.088	11289	0.0	875	15.08	8.29	1.2	20392	70.8	2803
587	7.65	191.0	3.01	<0,5	<0,05	0.30	0.06	4.82	0.030	418.37	0.00	456.63	0.158	1285.16	7.899	11194	0.1	866	15.56	8.29	1.2	20020	69.4	2750
621	7.64	133.0	3.04	<0,5	<0,05	0.29	0.04	4.75	0.030	423.06	0.02	455.89	0.156	1290.23	7.701	11121	0.1	871	15.22	8.39	1.0	20062	68.9	2760
688	7.63	139.0	3.04	<0,5	<0,05	0.27	0.01	4.78	0.031	421.00	0.01	458.81	0.153	1285.00	7.601	11203	0.2	863	15.84	8.35	1.1	20196	69.9	2772
747	7.63	127.0	3.00	<0,5	<0,05	0.25	0.12	4.78	0.033	423.07	0.03	455.57	0.165	1285.42	7.493	11197	0.0	872	15.59	8.41	0.8	20172	69.2	2765
819	7.67	123.0	3.03	<0,5	<0,05	0.24	0.07	4.78	0.028	428.76	0.02	458.69	0.150	1290.46	7.148	11189	0.0	871	15.61	8.53	1.0	20191	69.9	2769
882	7.59	168.0	3.03	<0,5	<0,05	0.22	0.09	4.82	0.028	426.37	0.01	458.82	0.147	1275.66	7.041	11242	0.1	860	15.79	8.50	1.0	20298	69.8	2775

n.d. : not determined

Station:												GeoB14619												
Core number:												GeoB14619-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
8	7.59	-168.0	2.90	<0,5	0.24	0.24	0.03	4.85	0.038	398.88	0.26	471.81	0.161	1274.00	0.690	11152	0.2	861	18.15	7.76	1.7	19615	68.2	2714
32	7.63	-88.0	2.85	<0,5	0.13	0.16	0.07	4.79	0.036	403.46	0.19	471.42	0.159	1280.40	0.171	11015	0.0	876	18.32	7.76	1.6	19874	68.5	2746
38	8.09	137.0	2.84	<0,5	0.16	0.20	0.01	4.61	0.037	409.60	0.18	461.32	0.163	1302.65	0.165	11052	0.0	879	17.84	7.96	2.2	20011	67.6	2713
46	7.70	-270.0	2.80	<0,5	0.12	0.16	0.05	4.79	0.042	404.36	0.31	476.20	0.165	1285.39	0.168	11212	0.0	873	18.28	7.82	1.9	19734	68.8	2727
83	7.60	-300.0	2.78	<0,5	<0,05	0.15	0.10	4.82	0.036	400.76	0.07	460.18	0.157	1278.21	0.164	11119	0.0	875	17.97	7.69	1.9	19733	68.0	2722
118	7.69	-262.0	2.79	<0,5	<0,05	0.15	0.06	4.84	0.037	402.01	0.08	469.57	0.160	1285.55	0.158	11049	0.0	868	18.00	7.81	3.3	19822	68.7	2739
145	7.69	-199.0	2.81	<0,5	0.07	0.15	0.11	4.79	0.037	405.43	0.09	474.17	0.155	1290.25	0.159	11159	0.0	857	18.28	7.85	2.6	19671	68.1	2724
151	7.88	138.6	2.80	<0,5	0.07	0.19	0.15	4.51	0.036	409.96	0.09	439.00	0.160	1306.26	0.147	11109	0.0	879	16.59	7.98	1.1	19912	68.8	2753
166	7.75	-283.0	2.77	<0,5	0.10	0.14	0.04	4.88	0.033	403.09	0.14	467.41	0.150	1282.27	0.182	11120	0.0	873	17.58	7.82	2.6	19903	68.7	2742
218	7.75	-300.0	2.77	<0,5	0.10	0.14	0.14	4.90	0.036	402.09	0.16	466.81	0.158	1287.09	0.187	11102	0.1	864	17.77	7.80	2.7	19624	68.4	2712
258	7.94	-265.0	2.76	<0,5	0.10	0.14	0.04	4.81	0.035	401.98	0.11	473.68	0.159	1288.25	0.170	11157	0.0	870	17.42	7.78	2.4	19681	68.1	2715
294	7.75	-262.0	2.76	<0,5	0.11	0.12	0.06	4.78	0.034	404.32	0.89	462.70	0.163	1290.74	0.166	11107	-0.1	857	17.35	7.83	2.1	19749	68.7	2727
325	7.72	-254.0	2.74	<0,5	0.11	0.13	0.18	4.79	0.032	403.12	0.13	468.93	0.172	1293.01	0.150	11138	0.0	867	17.49	7.81	1.9	19680	67.9	2719
358	7.95	-239.0	2.73	<0,5	0.10	0.13	0.15	4.79	0.032	400.72	0.68	466.55	0.164	1286.37	0.133	11145	0.0	844	17.11	7.78	2.2	19670	68.0	2717
394	7.81	-219.0	2.73	<0,5	0.09	0.12	0.08	4.90	0.035	403.74	0.14	477.01	0.157	1287.24	0.123	11068	-0.1	862	17.58	7.84	2.2	19788	68.3	2734
428	7.82	-207.0	2.73	<0,5	<0,05	0.14	0.11	4.78	0.033	400.56	0.10	476.30	0.156	1283.22	0.114	11140	0.1	871	17.15	7.76	2.0	19701	68.0	2722
467	7.82	-162.0	2.73	<0,5	0.08	0.13	0.14	4.77	0.032	406.85	0.11	468.53	0.155	1298.24	0.109	11185	0.1	878	16.77	7.88	2.1	19719	68.2	2726
531	7.88	-110.0	2.58	<0,5	<0,05	0.15	0.02	4.83	0.033	399.32	0.09	472.20	0.160	1287.26	0.093	11146	0.0	876	16.64	7.79	2.6	19677	68.5	2716
567	7.85	-87.0	2.71	<0,5	0.07	0.12	0.12	4.81	0.031	404.22	0.11	464.26	0.165	1299.34	0.091	11113	0.0	870	16.58	7.81	3.0	19828	67.9	2719
632	7.75	-58.0	2.69	<0,5	<0,05	0.13	0.07	4.84	0.034	403.42	0.09	470.69	0.155	1296.45	0.078	11131	0.0	869	16.66	7.83	2.4	19998	69.1	2762
657	7.86	-72.0	2.75	<0,5	<0,05	0.11	0.18	4.70	0.035	406.80	0.43	457.56	0.161	1301.88	0.065	11143	-0.1	875	15.83	7.85	1.8	19816	68.8	2738
671	7.67	94.0	2.70	<0,5	<0,05	0.11	0.06	4.77	0.032	408.73	0.02	459.69	0.166	1306.50	0.069	11236	0.1	881	15.96	7.91	2.0	19741	68.3	2726
732	7.66	42.8	2.69	<0,5	<0,05	0.11	0.20	4.80	0.033	404.23	0.05	456.61	0.156	1300.13	0.087	11117	0.1	874	15.88	7.83	1.8	19745	68.5	2726

Station:												GeoB14620												
Core number:												GeoB14620-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
5	7.58	-77.0	3.05	<0,5	0.16	0.71	0.16	5.03	0.049	403.03	0.23	457.40	0.172	1287.62	6.334	11110	0.2	880	15.54	7.85	n.d.	19651	65.2	2743
20	7.68	-140.0	3.10	<0,5	0.08	0.76	0.17	5.03	0.046	404.77	0.24	457.29	0.175	1289.60	5.988	11089	0.2	878	16.21	7.88	n.d.	19499	66.7	2728
50	7.65	-117.0	3.25	<0,5	0.16	0.91	0.12	4.83	0.043	408.77	0.22	445.46	0.175	1299.15	4.614	11110	0.4	875	16.83	7.95	n.d.	19551	66.1	2735
81	7.70	-160.0	3.34	0.69	0.19	0.90	0.13	4.85	0.041	405.66	0.23	447.17	0.171	1291.48	3.684	11033	0.3	861	17.79	7.89	n.d.	19556	63.2	2726
114	7.71	-185.0	3.43	0.81	0.16	0.94	0.17	4.83	0.038	408.97	0.20	442.36	0.166	1298.84	3.155	11075	0.3	851	17.80	7.94	n.d.	19566	63.4	2725
149	7.77	-198.0	3.50	0.95	0.14	0.92	0.09	4.84	0.037	408.89	0.20	448.65	0.171	1291.88	2.821	11095	0.3	850	18.22	7.93	n.d.	19622	63.5	2730
181	7.73	-203.0	3.54	1.04	0.13	0.87	0.14	4.92	0.040	407.94	0.17	451.78	0.170	1289.37	2.606	11135	0.3	865	18.51	7.91	n.d.	20088	66.2	2783
214	7.74	-256.0	3.54	1.09	0.13	0.84	0.11	4.91	0.037	406.75	0.17	450.62	0.169	1287.82	2.471	11096	0.3	861	18.58	7.87	n.d.	19507	65.4	2704
249	7.84	-215.0	3.56	1.17	0.13	0.85	0.10	4.85	0.035	411.12	0.17	456.49	0.168	1295.16	2.290	11168	0.3	859	18.17	7.96	n.d.	19570	65.7	2720
281	7.77	-238.0	3.57	1.26	0.15	0.81	0.09	4.93	0.045	407.78	0.24	458.69	0.166	1292.20	2.169	11157	0.4	867	18.64	7.88	n.d.	19995	65.2	2775
314	7.74	-250.0	3.55	1.27	0.19	0.85	0.11	4.70	0.039	415.29	0.25	450.07	0.169	1304.36	1.918	10878	0.2	863	17.55	8.07	n.d.	19589	64.9	2724
349	7.68	-271.0	3.41	1.36	0.22	0.57	0.07	5.01	0.033	410.65	0.26	464.31	0.158	1285.98	1.734	11150	0.1	865	18.02	7.93	n.d.	19698	60.9	2740
381	7.81	-270.0	3.43	1.30	0.22	0.55	0.05	4.96	0.035	407.81	0.26	460.52	0.164	1285.64	1.662	11104	0.1	873	18.03	7.85	n.d.	19924	64.2	2771
414	7.80	98.00	3.38	1.29	0.22	0.49	0.05	4.88	0.034	405.12	0.25	460.12	0.167	1273.69	1.600	11038	0.2	857	17.91	7.82	n.d.	19713	66.2	2740
449	7.78	-141.0	3.38	1.24	0.22	0.47	0.12	5.01	0.036	408.18	0.27	467.06	0.170	1284.08	1.583	11144	0.2	866	18.13	7.87	n.d.	20188	65.9	2798
481	7.75	-198.0	3.29	1.16	0.23	0.43	0.09	4.96	0.035	409.52	0.28	462.29	0.166	1285.63	1.541	11099	0.2	863	17.59	7.91	n.d.	19706	65.7	2733
514	7.62	-247.0	3.30	1.11	0.23	0.42	0.25	4.97	0.034	408.32	0.29	467.00	0.164	1281.92	1.513	11111	0.1	872	18.13	7.87	n.d.	19631	67.5	2733
549	7.69	-264.0	3.24	1.02	0.20	0.38	0.14	5.08	0.037	411.86	0.35	473.99	0.166	1293.25	1.499	11196	0.0	866	18.56	7.95	n.d.	19572	63.7	2718
581	7.71	-260.0	3.27	0.97	0.14	0.33	0.15	4.97	0.035	409.99	0.18	465.82	0.156	1291.68	1.467	11115	0.1	856	18.00	7.90	n.d.	19908	66.6	2766
614	7.88	-242.0	3.17	0.86	0.14	0.29	0.11	4.91	0.032	410.14	0.18	462.81	0.163	1296.40	1.418	11133	0.0	879	18.07	7.90	n.d.	19597	64.6	2737
649	7.73	-215.0	3.15	0.70	0.14	0.23	0.16	4.89	0.032	411.50	0.17	469.51	0.157	1299.33	1.326	11188	0.0	871	18.30	7.92	n.d.	19529	66.1	2726
681	7.66	-199.0	3.02	0.57	0.11	0.20	0.14	4.83	0.033	412.11	0.14	461.97	0.167	1305.67	1.260	11197	0.1	871	18.12	7.92	n.d.	19710	66.5	2755
714	7.66	-208.0	3.01	<0,5	0.09	0.18	0.03	4.91	0.031	410.44	0.13	471.57	0.153	1294.74	1.229	11155	0.0	859	18.67	7.90	n.d.	19552	67.3	2738
749	7.63	-115.0	2.88	<0,5	0.05	0.16	0.16	4.86	0.034	408.33	0.10	480.10	0.163	1288.88	1.164	11157	0.1	861	18.71	7.91	n.d.	19910	67.7	2777
n.d. : not determined																								

Station:												GeoB14621												
Core number:												GeoB14621-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
20	7.68	-130.5	3.07	n.d.	n.d.	n.d.	0.20	4.93	0.047	407.89	0.28	463.21	0.172	1297.96	6.175	11124	0.2	876	16.11	7.94	1.2	19733	70.8	2764
68	7.97	168.0	3.15	n.d.	n.d.	n.d.	0.15	4.62	0.041	414.78	0.34	440.70	0.177	1320.41	5.801	11168	0.3	876	15.48	8.11	0.8	19760	69.9	2773
114	7.71	-154.0	3.09	n.d.	n.d.	n.d.	0.10	5.01	0.036	408.50	0.39	468.50	0.171	1292.65	5.375	11195	0.2	866	16.59	7.97	1.4	19740	71.1	2748
164	7.66	-192.0	3.18	n.d.	n.d.	n.d.	0.14	4.94	0.034	410.90	0.37	471.52	0.179	1297.45	5.008	11177	0.2	867	17.03	8.06	1.0	19770	71.1	2760
214	7.69	-212.0	3.20	n.d.	n.d.	n.d.	0.21	4.82	0.035	409.47	0.38	463.66	0.173	1295.40	4.775	11093	0.2	859	16.85	8.02	1.29	19897	71.1	2774
264	7.60	-210.0	3.19	n.d.	n.d.	n.d.	0.21	4.82	0.033	414.39	0.38	459.39	0.160	1310.12	4.819	11177	0.2	873	16.77	8.16	0.9	19954	71.8	2779
314	7.65	-236.0	3.23	n.d.	n.d.	n.d.	0.11	4.81	0.032	413.61	0.41	463.44	0.165	1301.92	4.898	11144	0.2	866	17.20	8.16	1.4	19842	70.7	2766
364	7.59	-242.0	3.26	n.d.	n.d.	n.d.	0.07	4.95	0.031	410.53	0.52	466.41	0.170	1293.83	5.125	11155	0.2	865	17.88	8.13	2.3	19983	71.0	2787
414	7.65	-272.0	3.31	n.d.	n.d.	n.d.	0.17	4.85	0.033	415.17	0.40	463.96	0.167	1301.35	5.168	11216	0.3	872	17.38	8.23	0.8	20215	72.5	2808
464	7.65	-138.0	3.25	n.d.	n.d.	n.d.	0.17	4.94	0.032	412.76	0.38	473.49	0.167	1290.91	5.330	11214	0.1	864	17.72	8.25	2.8	20018	71.7	2777
514	7.67	-266.0	3.35	n.d.	n.d.	n.d.	0.10	4.89	0.030	416.50	0.41	469.11	0.165	1307.87	5.490	11275	0.2	879	17.97	8.31	0.8	20229	72.9	2807
564	7.62	-268.0	3.29	n.d.	n.d.	n.d.	0.17	5.00	0.029	415.92	0.40	471.63	0.171	1293.37	5.709	11256	0.1	872	18.23	8.33	3.1	20132	72.1	2793
614	7.70	-266.0	3.32	n.d.	n.d.	n.d.	0.19	4.90	0.029	418.33	0.38	470.85	0.159	1297.62	5.688	11216	0.1	868	17.93	8.41	1.7	20125	71.8	2788
664	7.69	-199.0	3.35	n.d.	n.d.	n.d.	0.13	4.87	0.031	419.25	0.40	462.03	0.156	1301.29	5.781	11286	0.2	860	17.85	8.47	0.7	20181	72.1	2793
714	7.68	-210.0	3.31	n.d.	n.d.	n.d.	0.20	4.94	0.030	417.58	0.40	463.78	0.156	1299.50	5.916	11259	0.1	863	18.00	8.45	1.2	20227	72.1	2797
764	7.80	-185.0	3.37	n.d.	n.d.	n.d.	0.17	4.88	0.033	419.63	0.34	471.08	0.168	1304.43	5.824	11285	0.1	863	18.02	8.52	1.1	20343	73.1	2809
814	7.66	-162.0	3.38	n.d.	n.d.	n.d.	0.08	4.91	0.031	419.67	0.42	466.77	0.158	1296.66	5.920	11160	0.1	874	18.07	8.56	0.9	20284	72.4	2798
864	7.63	-228.0	3.35	n.d.	n.d.	n.d.	0.15	4.91	0.029	421.20	0.38	476.45	0.153	1288.89	5.919	11231	0.1	858	17.94	8.63	1.6	20253	72.6	2790

n.d. : not determined

Station:										GeoB14622													
Core number:										GeoB14622-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
16	7.54	-39.0	2.65	n.d.	n.d.	n.d.	0.11	4.94	0.045	405.67	0.08	463.50	0.177	1295.01	4.376	11208	0.1	873	14.30	7.89	1.3	20358	72.8	2847
29	7.55	105.0	2.67	n.d.	n.d.	n.d.	0.16	4.88	0.040	406.63	0.04	464.72	0.181	1297.54	6.069	11288	0.1	871	15.49	7.91	1.4	20357	72.9	2847
64	7.65	-111.7	2.65	n.d.	n.d.	n.d.	0.12	4.80	0.031	407.59	0.13	460.85	0.180	1296.68	5.640	11181	0.2	875	15.32	7.93	3.0	20613	73.2	2876
114	7.63	-159.0	2.90	n.d.	n.d.	n.d.	0.10	4.87	0.029	406.21	0.37	466.05	0.181	1291.42	5.085	11298	0.2	861	16.02	7.98	1.3	20472	73.5	2857
164	7.62	-175.0	2.94	n.d.	n.d.	n.d.	0.11	4.89	0.032	407.84	0.25	465.86	0.177	1294.35	4.873	11246	0.1	870	16.44	8.02	1.01	20639	73.8	2884
214	7.62	-147.0	3.00	n.d.	n.d.	n.d.	0.11	4.96	0.032	414.00	0.36	471.92	0.174	1302.85	4.359	11376	0.1	877	17.27	8.21	0.9	20367	72.5	2844
264	7.75	-91.0	2.87	n.d.	n.d.	n.d.	0.14	0.03	0.005	0.33	0.04	-0.35	-0.007	0.97	0.012	-110	0.0	0	-0.03	0.01	1.5	20487	72.9	2854
314	7.75	-165.0	3.02	n.d.	n.d.	n.d.	0.15	4.98	0.030	414.75	0.37	478.28	0.166	1302.13	4.077	11302	0.0	873	17.45	8.32	2.3	20699	74.7	2881
364	7.62	-91.0	3.03	n.d.	n.d.	n.d.	0.10	4.85	0.029	418.72	0.33	471.41	0.169	1304.72	4.009	11295	0.1	870	16.74	8.43	1.5	19759	68.1	2712
414	7.62	-216.0	3.07	n.d.	n.d.	n.d.	0.12	4.93	0.032	417.13	0.32	476.26	0.164	1297.21	4.074	11343	0.1	881	17.04	8.43	1.3	19987	68.6	2740
464	7.62	-221.0	3.13	n.d.	n.d.	n.d.	0.13	4.96	0.029	419.06	0.32	474.57	0.155	1295.62	4.142	11383	0.1	873	17.02	8.52	1.5	19936	69.1	2730
514	7.74	-186.0	3.15	n.d.	n.d.	n.d.	0.22	4.98	0.031	420.39	0.42	468.81	0.159	1299.10	4.301	11273	0.1	889	17.05	8.58	1.9	19736	67.2	2709
564	7.67	-213.0	3.12	n.d.	n.d.	n.d.	0.17	5.00	0.032	422.06	0.45	474.98	0.161	1300.75	4.332	11293	0.0	877	17.32	8.65	1.5	19893	68.5	2726
614	7.69	-221.0	3.18	n.d.	n.d.	n.d.	0.12	4.94	0.030	424.98	0.43	475.38	0.163	1299.58	4.369	11317	0.1	873	17.29	8.74	1.6	19904	68.2	2727
664	7.70	-198.0	3.18	n.d.	n.d.	n.d.	0.14	4.93	0.030	421.74	0.39	468.42	0.148	1298.41	4.342	11273	0.1	871	17.05	8.70	1.3	19863	68.5	2721
714	7.95	-176.0	3.28	n.d.	n.d.	n.d.	0.21	4.73	0.031	424.01	0.30	491.70	0.155	1291.13	4.085	11346	0.1	873	16.61	8.78	3.0	19933	69.6	2724
764	7.84	-135.0	3.08	n.d.	n.d.	n.d.	0.13	4.83	0.032	421.00	0.23	483.78	0.156	1300.34	3.961	11341	0.1	871	16.67	8.78	1.6	19866	68.1	2713
814	7.87	-78.8	3.19	n.d.	n.d.	n.d.	0.10	4.95	0.034	423.51	0.34	484.07	0.156	1293.29	4.323	11318	0.1	880	18.04	8.83	1.7	19982	68.6	2725
817	8.02	233.0	3.26	n.d.	n.d.	n.d.	0.16	4.74	0.047	434.92	0.21	461.00	0.154	1321.71	4.223	11391	0.1	876	16.74	9.11	2.4	19915	68.1	2737

n.d. : not determined

Station:												GeoB14623												
Core number:												GeoB14623-1												
Depth/ cm	**pH**	**Eh [mV]**	**Alk_T [mmol/L]**	**NH_4^+ [mg/L]**	**Fe^{2+} [mg/L]**	**PO_4^{3-} [mg/L]**	**Al [mg/L]**	**B [mg/L]**	**Ba [mg/L]**	**Ca [mg/L]**	**Fe [mg/L]**	**K [mg/L]**	**Li [mg/L]**	**Mg [mg/L]**	**Mn [mg/L]**	**Na [mg/L]**	**P [mg/L]**	**S [mg/L]**	**Si [mg/L]**	**Sr [mg/L]**	**F^- [mg/L]**	**Cl^- [mg/L]**	**Br^- [mg/L]**	**SO_4^{2-} [mg/L]**
4	7.59	-85.9	3.03	n.d.	n.d.	n.d.	0.11	4.96	0.046	407.93	0.09	461.62	0.176	1296.91	6.737	11152	0.2	873	16.06	7.90	1.7	19435	67.2	2679
77	7.62	-156.0	3.04	n.d.	n.d.	n.d.	0.15	4.91	0.034	409.06	0.22	462.21	0.177	1293.58	4.577	11111	0.1	865	16.39	7.92	3.0	19510	67.1	2686
127	7.66	-204.4	3.07	n.d.	n.d.	n.d.	0.11	4.95	0.030	412.78	0.46	472.95	0.169	1294.19	3.280	11248	0.0	875	17.62	7.98	2.0	19566	67.1	2695
177	7.64	-174.0	3.06	n.d.	n.d.	n.d.	0.18	4.95	0.031	414.98	0.31	466.70	0.170	1306.54	3.856	11243	0.2	869	16.84	8.02	1.6	19575	67.4	2698
227	7.65	-214.0	3.13	n.d.	n.d.	n.d.	0.12	5.04	0.032	419.28	0.38	473.73	0.172	1306.04	2.972	11351	0.1	888	17.78	8.13	3.91	19529	67.2	2688
277	7.63	-185.0	3.11	n.d.	n.d.	n.d.	0.16	5.00	0.031	422.11	0.37	475.91	0.160	1313.19	2.788	11336	0.2	888	17.75	8.17	1.4	19583	67.3	2694
327	7.69	-194.0	3.13	n.d.	n.d.	n.d.	0.18	4.95	0.031	419.86	0.39	467.89	0.155	1306.49	2.626	11332	0.1	884	17.33	8.11	1.1	19537	66.9	2686
377	7.71	-207.0	3.12	n.d.	n.d.	n.d.	0.10	5.00	0.031	422.62	0.38	474.26	0.151	1309.89	2.576	11358	0.1	888	17.52	8.16	1.1	19592	67.5	2691
427	7.69	-190.0	3.08	n.d.	n.d.	n.d.	0.16	5.00	0.032	419.19	0.40	471.43	0.155	1302.92	2.529	11268	0.1	876	17.66	8.12	1.2	19804	68.5	2723
477	7.67	-205.0	3.13	n.d.	n.d.	n.d.	0.19	5.10	0.031	424.12	0.37	480.81	0.160	1311.61	2.515	11407	0.0	879	18.08	8.20	1.3	19692	67.5	2702
527	7.80	-215.0	3.00	n.d.	n.d.	n.d.	0.11	4.77	0.028	409.94	0.30	463.77	0.150	1266.01	2.281	11008	0.0	845	16.93	7.92	1.3	19744	67.9	2705
577	7.91	-165.0	3.09	n.d.	n.d.	n.d.	0.12	4.98	0.030	417.82	0.28	478.29	0.150	1299.78	2.320	11348	0.2	880	17.70	8.09	0.9	19674	68.1	2698
627	7.70	-152.0	3.09	n.d.	n.d.	n.d.	0.10	4.96	0.030	422.65	0.37	472.65	0.152	1309.33	2.341	11304	0.1	886	17.88	8.14	1.3	19811	68.3	2726
640	n.d.	n.d.	3.19	n.d.	n.d.	n.d.	0.12	4.80	0.036	427.02	0.11	472.70	0.147	1324.86	2.217	11384	0.0	899	17.25	8.26	1.0	19680	67.2	2714
677	7.73	-136.0	3.05	n.d.	n.d.	n.d.	0.11	5.15	0.030	423.89	0.35	492.67	0.151	1306.84	2.262	11407	0.1	887	18.74	8.19	1.5	19699	68.0	2700

n.d. : not determined

Station:											GeoB14624												
Core number:											GeoB14624-1												
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
44	7.67	-105.0	2.90	n.d.	n.d.	n.d.	0.10	4.89	0.033	405.08	0.20	469.30	0.163	1287.96	0.739	11262	0.1	863	18.00	7.81	1.8	19517	68.5	2686
84	7.74	-185.0	2.83	n.d.	n.d.	n.d.	0.20	4.74	0.033	406.61	0.16	462.77	0.175	1292.48	0.540	11132	0.0	875	17.63	7.84	1.7	19598	68.3	2703
117	7.75	-180.0	2.85	n.d.	n.d.	n.d.	0.13	4.87	0.035	406.27	0.17	477.19	0.166	1295.00	0.544	11189	0.0	871	18.49	7.82	1.1	19553	70.9	2696
144	7.69	-205.0	2.85	n.d.	n.d.	n.d.	0.17	4.99	0.034	407.53	0.16	478.16	0.164	1291.67	0.543	11180	0.1	884	18.60	7.86	1.3	19673	69.1	2712
194	7.68	-220.0	2.83	n.d.	n.d.	n.d.	0.09	4.92	0.033	407.85	0.17	466.63	0.161	1302.01	0.530	11222	0.0	870	17.75	7.85	1.8	19721	68.9	2720
244	7.72	-140.0	2.81	n.d.	n.d.	n.d.	0.17	4.99	0.033	407.57	0.16	473.51	0.165	1299.87	0.520	11229	0.0	884	17.96	7.85	2.5	19857	69.0	2732
294	7.95	-265.0	2.78	n.d.	n.d.	n.d.	0.23	4.84	0.034	410.02	0.14	464.24	0.159	1307.09	0.502	11236	0.1	888	17.14	7.90	1.7	19883	69.2	2745
344	7.74	-315.0	2.78	n.d.	n.d.	n.d.	0.09	4.84	0.031	409.46	0.12	465.17	0.162	1306.48	0.489	11271	0.0	869	17.02	7.89	1.6	19811	68.6	2734
394	7.73	-300.0	2.77	n.d.	n.d.	n.d.	0.11	4.90	0.032	408.73	0.13	471.09	0.167	1304.96	0.497	11183	0.0	874	17.59	7.87	1.7	19805	68.2	2732
444	7.76	-333.0	2.78	n.d.	n.d.	n.d.	0.12	4.84	0.032	411.34	0.12	470.64	0.164	1308.77	0.489	11257	0.0	888	17.14	7.90	1.0	19615	67.6	2704
494	7.69	-330.0	2.69	n.d.	n.d.	n.d.	0.12	5.00	0.035	410.09	0.16	472.24	0.165	1318.00	0.489	11266	0.0	873	17.14	7.93	1.7	19895	70.2	2742
544	7.85	-335.0	2.82	n.d.	n.d.	n.d.	0.14	4.81	0.030	412.80	0.11	465.81	0.162	1317.58	0.478	11308	0.0	868	16.58	7.93	1.3	19775	68.1	2729
594	7.77	-339.0	2.77	n.d.	n.d.	n.d.	0.14	4.85	0.032	410.18	0.13	463.86	0.167	1307.65	0.482	11329	0.1	887	16.40	7.89	0.9	19654	69.9	2707
644	7.71	####	2.73	n.d.	n.d.	n.d.	0.13	4.92	0.033	412.64	0.22	469.89	0.166	1317.91	0.488	11339	0.0	888	16.60	7.95	0.9	20025	68.2	2735
694	7.74	-313.0	2.81	n.d.	n.d.	n.d.	0.07	4.88	0.031	410.46	0.09	469.61	0.165	1303.46	0.483	11278	0.1	880	16.44	7.88	1.3	19832	68.3	2735
744	7.75	-274.0	2.79	n.d.	n.d.	n.d.	0.14	4.88	0.034	413.31	0.10	465.68	0.168	1314.30	0.486	11292	0.0	876	16.08	7.94	0.8	19701	66.7	2710
794	7.75	-292.0	2.73	n.d.	n.d.	n.d.	0.14	4.86	0.030	406.44	0.09	458.88	0.164	1301.61	0.527	11195	0.0	874	16.35	7.84	1.0	19698	68.6	2717
844	7.74	-303.0	2.80	n.d.	n.d.	n.d.	0.10	4.83	0.032	412.73	0.12	462.63	0.159	1309.85	0.631	11289	0.0	879	16.78	7.94	1.1	19673	67.8	2711
894	7.84	-273.0	2.74	n.d.	n.d.	n.d.	0.13	4.86	0.032	410.44	0.13	460.69	0.171	1314.19	0.672	11197	0.1	876	16.77	7.90	0.9	19757	68.6	2719
944	7.84	-232.0	2.75	n.d.	n.d.	n.d.	0.11	4.80	0.031	413.93	0.11	461.05	0.163	1317.13	0.644	11234	0.0	878	16.30	7.96	1.0	19847	68.6	2737
994	7.87	-235.0	2.71	n.d.	n.d.	n.d.	0.17	4.87	0.032	409.34	0.16	462.08	0.172	1311.62	0.624	11333	0.0	866	16.23	7.87	0.8	19821	68.7	2724
1044	7.84	-220.0	2.75	n.d.	n.d.	n.d.	0.06	4.81	0.034	407.82	0.11	457.78	0.159	1297.38	0.594	11151	-0.1	876	15.52	7.82	1.2	19793	69.0	2726

n.d. : not determined

Station:											GeoB14625													
Core number:											GeoB14625-1													
Depth/ cm	pH	Eh [mV]	Alk_T [mmol/L]	NH_4^+ [mg/L]	Fe^{2+} [mg/L]	PO_4^{3-} [mg/L]	Al [mg/L]	B [mg/L]	Ba [mg/L]	Ca [mg/L]	Fe [mg/L]	K [mg/L]	Li [mg/L]	Mg [mg/L]	Mn [mg/L]	Na [mg/L]	P [mg/L]	S [mg/L]	Si [mg/L]	Sr [mg/L]	F^- [mg/L]	Cl^- [mg/L]	Br^- [mg/L]	SO_4^{2-} [mg/L]
30	7.56	-173.0	3.04	n.d.	n.d.	n.d.	0.14	5.01	0.045	415.64	0.37	475.42	0.170	1295.45	3.735	11302	0.3	879	17.81	8.02	1.9	19773	69.2	2739
80	7.56	-165.0	3.14	n.d.	n.d.	n.d.	0.12	5.06	0.068	419.02	0.45	489.94	0.165	1301.18	2.831	11310	0.1	869	18.99	8.06	1.4	20002	69.8	2769
108	7.69	152.0	3.16	n.d.	n.d.	n.d.	0.25	4.66	0.063	431.20	0.54	445.05	0.162	1327.49	2.137	11340	0.1	885	17.33	8.31	0.8	19969	69.9	2776
130	7.76	-313.0	3.20	n.d.	n.d.	n.d.	0.11	5.05	0.036	427.12	0.34	490.23	0.155	1307.22	1.457	11313	0.1	878	19.46	8.17	0.8	20066	70.1	2776
180	7.61	-305.0	3.17	n.d.	n.d.	n.d.	0.08	4.89	0.036	405.16	0.30	466.71	0.145	1240.82	1.372	10793	0.1	852	18.83	7.75	1.3	19891	68.7	2749
230	7.69	-278.0	3.20	n.d.	n.d.	n.d.	0.17	4.95	0.032	429.54	0.32	488.18	0.157	1312.69	1.384	11421	0.0	881	19.48	8.20	1.2	19923	69.2	2754
280	7.66	-290.0	3.16	n.d.	n.d.	n.d.	0.05	5.10	0.034	424.41	0.31	492.57	0.154	1298.69	1.380	11315	0.0	875	19.88	8.13	0.6	19991	69.7	2763
330	7.70	-270.0	3.18	n.d.	n.d.	n.d.	0.20	5.07	0.035	427.35	0.22	491.27	0.152	1313.01	1.327	11425	0.0	894	19.26	8.16	0.7	20048	69.6	2769
380	7.68	-298.0	3.06	n.d.	n.d.	n.d.	0.08	5.07	0.035	424.81	0.28	496.14	0.161	1309.09	1.332	11430	0.1	894	19.94	8.14	0.6	20154	70.2	2787
430	7.72	-310.0	3.15	n.d.	n.d.	n.d.	0.12	5.03	0.033	428.76	0.29	486.17	0.153	1311.73	1.325	11368	0.2	896	19.19	8.20	0.6	20021	69.8	2762
480	7.61	-310.0	3.14	n.d.	n.d.	n.d.	0.20	5.01	0.033	426.31	0.30	485.27	0.159	1302.75	1.332	11373	0.0	883	19.40	8.14	0.7	19973	68.9	2757
530	7.61	-324.0	3.15	n.d.	n.d.	n.d.	0.15	5.10	0.032	428.55	0.30	489.64	0.152	1315.17	1.306	11373	0.1	882	19.64	8.17	0.6	19820	69.1	2731
580	7.64	-239.0	3.10	n.d.	n.d.	n.d.	0.13	5.00	0.033	426.35	0.30	480.92	0.147	1300.76	1.266	11396	0.2	884	19.09	8.15	0.6	19928	69.7	2746
630	7.74	####	3.05	n.d.	n.d.	n.d.	0.17	5.05	0.032	424.54	0.28	480.27	0.153	1306.44	1.264	11361	-0.1	887	19.24	8.15	0.8	19904	68.8	2742
680	7.70	-221.0	3.08	n.d.	n.d.	n.d.	0.11	4.94	0.032	423.00	0.28	477.58	0.146	1301.52	1.228	11325	0.0	878	18.97	8.09	0.7	19852	69.1	2731
730	7.79	-188.0	3.10	n.d.	n.d.	n.d.	0.12	4.92	0.036	428.60	0.25	484.70	0.151	1315.90	1.223	11390	0.0	886	19.01	8.19	2.2	20051	70.1	2760
780	7.67	-75.4	3.04	n.d.	n.d.	n.d.	0.12	5.01	0.033	423.58	0.31	483.76	0.152	1306.26	1.224	11463	0.0	887	19.18	8.11	0.9	19920	69.5	2741
n.d. : not determined																								

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18. Kurzfassung

Im äquatorialen Pazifik werden von verschiedenen Autoren Depressionen in der sedimentären Bedeckung beschreiben, deren Entstehung bislang unklar war. Eine Hypothese zur Genese geht davon aus, dass kaltes Meerwasser über Seamounts in den Untergrund eindringt, dort erwärmt wird und an den Depressionen wieder ausfließt und dabei karbonathaltiges Sediment löst. Dadurch sollen die Depressionen in der sedimentären Bedeckung, auch ‚hydrothermal pits' genannt, entstanden sein. Die Überprüfung dieser Hypothese durch Untersuchungen der sedimentären Struktur innerhalb und außerhalb der Pits, durch Wärmestromdichtemessungen in Pits und an Seamounts und durch die Untersuchung der Sedimente und ihrer Porenwässer war Gegenstand des Forschungsvorhabens.

Die Ergebnisse lassen sich wie folgt kurz zusammenfassen:

- Die seismischen Untersuchungen zeigen, dass innerhalb der Pits Sedimentpakete fehlen, doch ist die zeitliche Einordnung dieser Lücke nicht möglich.
- Der Wärmestrom innerhalb der Pits ist überall höher als außerhalb der Pits, teilweise bis um den Faktor 5. Der Wärmestrom im Umfeld von Seamounts ist extrem niedrig, ein eindeutiger Hinweis darauf, dass kaltes Meerwasser über geologische Zeiträume in die obere Kruste versickert.
- Keine der sedimentologischen Untersuchungen an Proben von Schwerelotkernen geben Hinweise auf Lösungserscheinungen der Karbonate. Porenwasserprofile geben keinen Hinweis auf rezente advektive Fluidtransporte.

Aufgrund dieser Ergebnisse kann man die Pits als fossile Folge von Lösungsprozessen betrachten, die zu einer Zeit entstanden sind, als die Untersuchungsgebiete im Bereich der äquatorialen Hochproduktionszone von Karbonaten lagen. Beim Herauswandern in Richtung Norden setzte pelagische Sedimentation ein, die den Lösungsprozess stoppte.

19. Schlagwörter

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18. abstract

Different authors described depressions in the sedimentary cover in the equatorial Pacific, whose formation has been unknown up to now. One hypothesis of the origination assumes, that cold seawater is penetrating the subsurface through seamounts, is heated up there and flows out of the seafloor at these depressions, hereby solving carbonate contained in the sediment. That would have created the depressions, also called 'hydrothermal pits'. This hypothesis can be tested by investigating the sedimentary structure inside and outside of the pits, by measuring heat flow inside and outside of pits and at seamounts and by analyzing sediments and pore water geochemistry.
The results can be summarized as follows:

- Seismic investigations show that sediment packages inside the pits are missing; however it is not possible to time this hiatus.
- Heat flow inside the pits is always higher compared to background values outside of the pits, sometimes by a factor of five. Heat flow in the vicinity of seamounts is extremely low, a strong indication that cold seawater flows through the seamount into the subsurface over geological time scales.
- None of the investigations on the sediments showed any indication of dissolution processes of carbonates. Profiles of pore water geochemistry show no indication of advective fluid transport.

Based on these results we can conclude that the Pits are fossile relicts of dissolution processes, which were active at a time, when the working areas were situated close to the equatorial high productivity zone of carbonates. When they moved further north they left the high productivity zone and normal pelagic sedimentation took over which stopped the dissolution process.

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