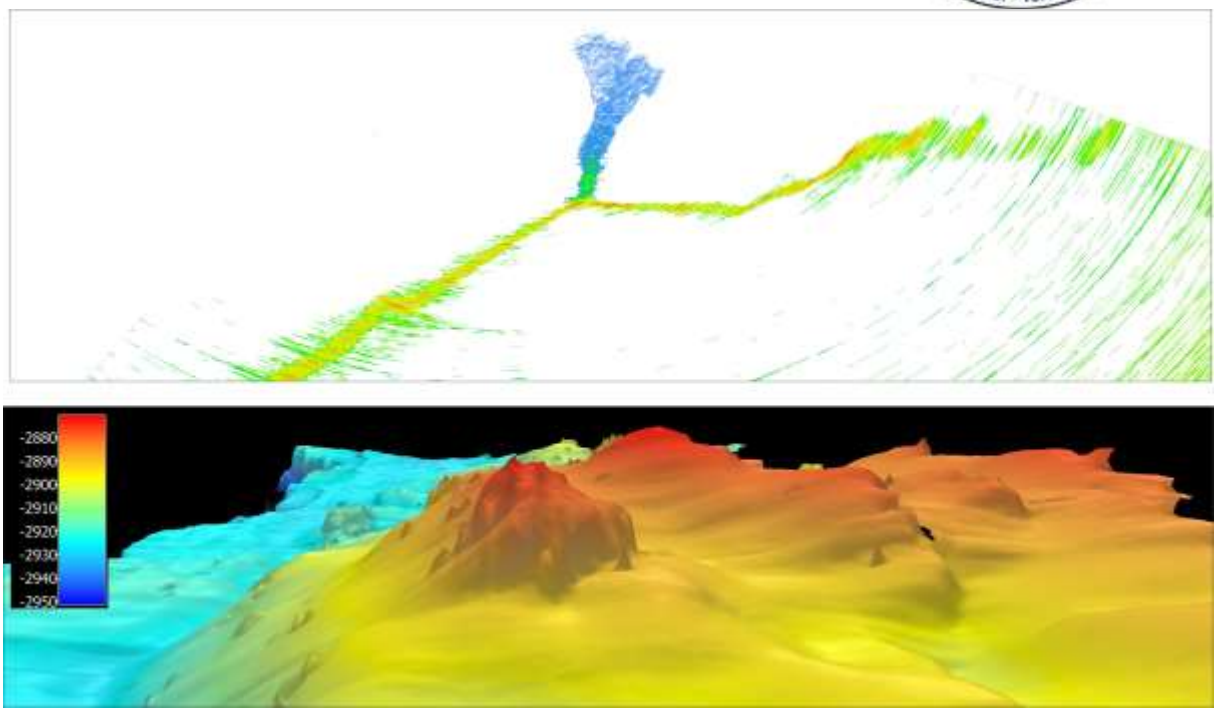
5th Weekly Report SO259 (INDEX 2017)

24.09.2017

Following a HOMESIDE survey in cluster 12 with the identification of anomalies in the water column, which morphological origin in the bathymetric map has some similarities with vent edifices, a subsequent STROMER video sled station only identified a heavily structured basaltic edifice without any indication for hydrothermal activity. The activities in cluster 12 were finished for this cruise with additional rock sampling by dredge stations and a sediment station at the easternmost limit of the cluster. Beside a gravity core station with about 4 m of sediment, the multicorer sampled successfully additional surface sediments. Heat flow measurements concluded a temperature increase of 3°C over 10m of sediment, the so far highest heat flow measured along the northern Southeast Indian Ridge. As the measurements were performed 15 km east of the current graben axis, a reasonable potential for hydrothermal activity even at distance from the axial graben is suggested.

Exploration work continued in cluster 11 with bathymetric, magnetic and gravity profiling over a distance of 190 km in 7 profile lines. The following survey along the only 4 km wide axial graben with the plume sled suggested a water column anomaly at the northern end of cluster 11, which again is characterized by an intense redox anomaly indicating hydrothermal origin. The water depth of 2950m implies an origin from the graben flanks. The subsequent deep-towed HOMESIDE mapping indeed identified two additional water column anomalies at the eastern graben flank. Their water depths of only 2870m, however, preclude their source character for the deeper first anomaly. The HOMESIDE survey was continued over an area of 20km length and 3-4 km width along the eastern graben wall and the respective water depths. A first interpretation of the map suggests two active hydrothermal vent fields with a distance of about 700m to each other. The next stations beginning this week are planned to verify the potential vent sites.

5th Weekly Report SO259 (INDEX 2017)



Plume signal at the eastern graben wall of license cluster 11

The petrological sampling program in cluster 11 is continued with wax corer and currently two dredge stations.

All participants are still quite happy and full of passion for the ongoing program and stations. The last full week in the working area is starting today before we envisage our long transit to Cape Town. The weather improved, and is not affecting our program.

With best regards,

Dr. Ulrich Schwarz-Schampera, Chief Scientist

www.planeterde.de
www.bgr.bund.de/DE/Themen/Marine Rohstoffforschung/Meeresforschung
www.wissenschaftsjahr.de.