

### 3rd Weekly Report SO259 (INDEX 2017)



10.09.2017

We continued our work in the license area during the last week. In the license clusters 3 and 4 two sediment traps were recovered after little more than nine months of particle sampling. In cluster 4, a 2,800m long mooring was reinstalled with a total of three sediment traps, two current meters and several chemical passive samplers. A CTD rosette station in the deep graben axis aimed at the characterization of the different water masses and measurements and sampling of the particle stream and plankton variability. Two Golden Eye stations for controlled source electromagnetic measurements in the known ALPHA sulfide field suffered from the weather conditions with more than 10m/s wind and more than 3m swell. Following a difficult deployment, we had to recover the system earlier than planned after functional failure, cable damages and a strong heave in the water column. However, we were very successful with our petrological sampling program with seven and four deployments of a wax corer and dredge, respectively. The sampling aimed at the identification of the magmatic and volcanic inventory and the characterization of magmas with compositions typical for volcanic-hosted massive sulfide deposit settings. We retrieved volcanic glass from the immediate graben axis and a surprising variability of different magma types, which may have consequences for the understanding of the particular metallogenetic situation in cluster 4 with the large sulfide areas ALPHA and EDMOND-GAUSS-SCORE. During two extensive profiles of the bathymetry sled HOMESIDE we measured an area of 58 square kilometers with a total length of 110 km in the wider surrounding of the known sulfide fields and identified again prospective exploration targets. A first deployment of the sensor sled in cluster 5 determined the currents in the area of the KAIREI field and identified a prime location for the one-year installation of an ADCP mooring for water current measurements. The weather conditions were not appropriate again to deploy the Golden Eye in the KAIREI field.

The work in the laboratories is continuing. It provided a number of new and interesting results from the biodiversity and the quality of the volcanic glasses by scanning electron microscopy. Sediments from the uppermost ocean floor and its bottom water are analyzed for the faunal composition and the various species

### 3rd Weekly Report SO259 (INDEX 2017)



collected. In a new approach during the cruise, we could extract and subsequently sequence the DNA from 26 individual animals.



*Deployment of a wax corer in cluster 4*

The weather conditions in the working area are still unstable and rather cool. A storm to the south produced a significant swell, which affected the working plan. The attitude onboard, however, is very good and so are the working routines. More information about SO259 (INDEX2017) at [www.planeterde.de/logbuecher](http://www.planeterde.de/logbuecher), [www.bgr.bund.de/DE/Themen/Marine Rohstoffforschung/Meeresforschung](http://www.bgr.bund.de/DE/Themen/Marine_Rohstoffforschung/Meeresforschung) and [www.wissenschaftsjahr.de](http://www.wissenschaftsjahr.de).

Very best regards from R/V SONNE,  
Dr. Ulrich Schwarz-Schampera, Chief Scientist