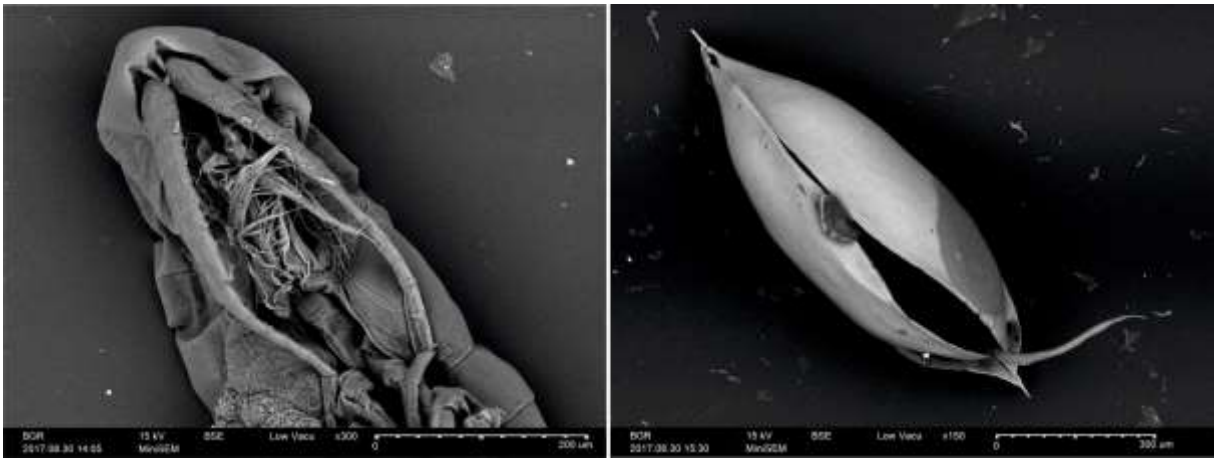
03.09.2017

We finished an intense first week with a general focus on our environmental baseline studies. During the transit into the German license area, we studied and sampled the water column during three oceanographic stations with the CTD rosette down to 5,100 m water depth. The complex structure and the stacking of different water masses with quite different characteristics, e.g. in temperature, density, salinity, oxygen concentrations and current directions largely influence the oceanographic conditions in the license area and the results of our studies are necessary for any future environmental impact plans. Southward moving, oxygen-depleted water from the Arabian Sea undulates and intercalates in the direction of the working area with northward flowing cold Medium Antarctic Deep Water. The modelling allows new evidences for the complex and variable currents in the license area. Since Thursday, we work in the license area and started the collection of environmental baseline data with gravity corer (up to 8,70m core length), multicorer, CTD rosette and heat flow probe. First studies of the biodiversity and the variation of the sedimentation process were carried out. Among other measurements, we used our new mobile scanning electron microscope for the first time for the identification of planktonic animals.



Scanning electron microscope pictures of Copepoda (left) und and Ostracoda (right) from oceanographic CTD stations in the surroundings of the license area (HIROX SH4000-M).

Yesterday and today, we recovered two sediment trap moorings with current meters successfully. The traps collected sediment particles from the water column in a monthly

routine in the license clusters 1 and 3 since the last exploration cruise end of last year. Current directions close to the seafloor are recorded as well. In Cluster 1 we deployed again a new multiannual sediment trap mooring 500m above the seafloor.

Deployment of a sediment trap for the measurements of particle fluxes close to the seafloor in cluster 1 of the German license area.

The surface sediments in the area of the sediment trap installation were sampled with the multicorer. The petrological sampling for the study of magma chamber processes and magma differentiation as an important aspect in the formation of massive sulfide deposits were continued successfully during this cruise with the first deployments of a wax corer from the University of Erlangen.

A series of evening talks by a number of cruise participants introduced the scientific work to the other participants. Following a rather windy start of the cruise, the weather

improved since two days. All participants join the workings and tasks with great engagement and enthusiasm, and the interest in the different marine observation and sampling tools and stations is consistently high.

Very best regards from R/V SONNE,

Dr. Ulrich Schwarz-Schampera, Chief Scientist