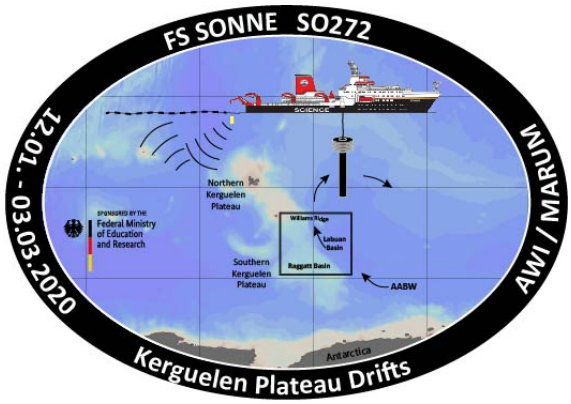
Expedition SO272
Post Louis – Cape Town

Weekly report No. 3
28. January – 2. February 2020

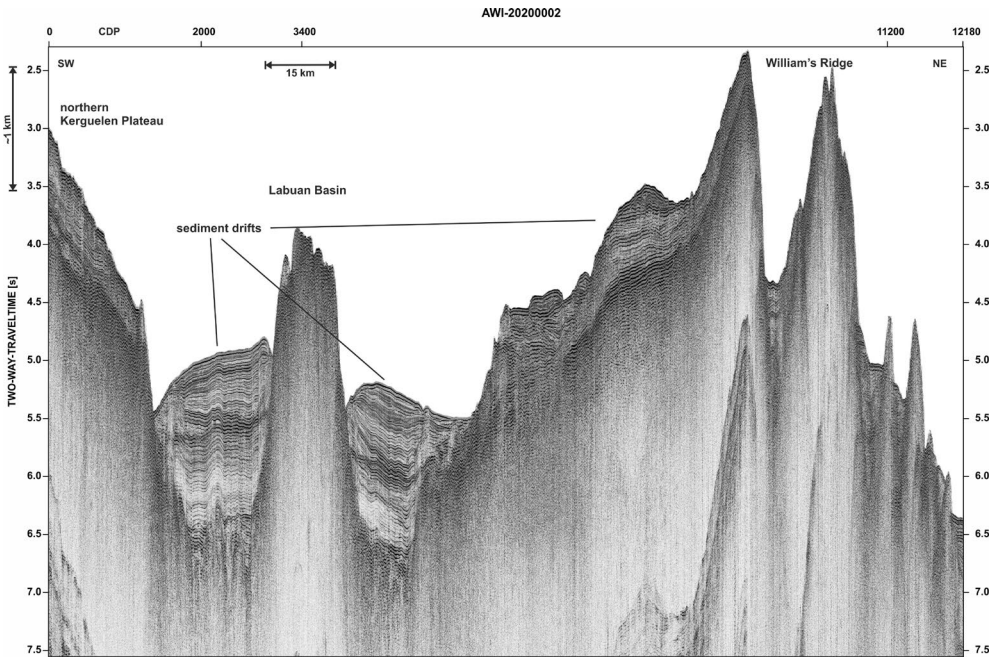


The third week of our cruise has started. Finally, we have arrived in our working area. We have reported that we intend to study current-controlled sedimentary structures to improve our understanding of the modifications in climate during the past 60 million years. But how do we plan to achieve this?

One of our tools is seismic profiling. We generate seismic pulses immediately below the sea surface. The depth of the seismic sources is controlled by so called Norwegian buoys, orange plastic balls. Where the material changes in the subsurface, e.g., from sedimentary rocks to basalt, or where geological events such as erosion are documented the seismic waves are reflected back to the surface. There, they are recorded by a ‘streamer, a 3 km long logging cable. This streamer records the traveltime of the waves from the seismic source to the reflector in the subsurface and back to the sea surface. The streamer is towed behind the vessel and the depth at its end is controlled by a tail buoy. The tail buoy provides the position of the streamer’s end; it is equipped with a flash light and GPS. Our tail buoy very much resembles a very prominent yellow submarine….

Plotted next to each other the reflected pulses form a seismic profile and show an image of the subsurface. The figure shows a seismic profile, which has been collected northern Kerguelen

Plateau across the Labuan Basin to William's Ridge. One can clearly see the sediment drifts in the Labuan Basin formed by Antarctic Bottomwater. We can also detect sediment drifts at the western flank of William's Ridge. The activity of the water masses can also be seen in erosional unconformities, where deposited sediment is picked up and transported away by the water masses. In this way, we survey the Labuan Basin to develop an idea on the distribution and structure of the sedimentary sequences.



All participants are busy working and enjoy the cruise. We send home cheerful greetings.

Southern Indian Ocean, February 2 2020, 54° 39.5' S / 83° 34.95' E

Gabriele Uenzelmann-Neben
Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung (AWI)

https://www.awi.de/en/science/geosciences/geophysics/research-focus/gateways-of-the-southern-ocean.html under ***Southern Indian Ocean circulation is archived in Kerguelen Plateau structures***

https://www.awi.de/forschung/geowissenschaften/geophysik/expeditionen.html