

3. Weekly Report SO271/2 (INDEX2019)

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At the beginning of the second week in the work area, measurements with the Golden Eye at the KAIMANA sulfide field were completed on Monday morning. After a short transit and maintenance work on the device, the measurements with the dipole-dipole system of the Golden Eye in the KAIREI sulfide field, which had been postponed in the previous week mainly due to scheduling, could be carried out on the most important profiles from Monday noon. After a total of 47 Golden Eye landings during this second survey, work on the KAIREI field was successfully completed on Tuesday afternoon (New Year's Eve).

For the remainder of 2019, the towed magnetometer system was deployed again and the magnetic mapping of license cluster # 5 with a profile distance of 2.5 km was completed by the evening of New Year's Day. While the crew's and scientists' watches continued without a break, the new year was duly welcomed on board in light rain and a fresh wind of 5-6 Bft.

During the night to Thursday, we transited north to license cluster # 4, where the Golden Eye was deployed at the ALPHA sulfide field in the early morning hours of Thursday. The wind had abated after a rough night. At the same time, we felt the swell emanating from the cyclone Calvinia, which raged northwest of us in the area of Mauritius and La Réunion. The measurements at the ALPHA field were again carried out in an almost regular measuring point grid. In this case, we started with the dipole-dipole measurements after the configuration of the receiver electrodes had been corrected beforehand. The IP measurements were completed on Friday evening after 69 Golden Eye landings on the ocean floor.

Immediately afterwards and without getting the device on deck, measurements of the electrical conductivity distribution in the sea floor began with the coil system of the Golden Eye. It is always astonishing to see how exactly the navigation of the device on the sea floor is possible, so that in many cases the landing points of the Golden Eye from the previous measurements, visible as imprints in the sediment, could be occupied again. The traces of earlier measurements and geological sampling are also visible in the sediment. This is particularly true for the KAIREI field, which has been investigated by various nations for 20 years.

In somewhat unstable weather conditions on the trailing end of the tropical storm moving to the south west of our position, the coil measurements with the Golden Eye on the ALPHA field were successfully completed in the night to Sunday after 84 landings of the device on the seabed. This was again accompanied by the systematic mapping of the seabed fauna. The uninterrupted deployment of the Golden Eye, which requires a high level of concentration on the part of all science watchdogs, winch drivers, and navigators on the bridge, lasted for 68 hours.

Due to the smooth progress of the measurements up to this point, there is now time to add to the Golden Eye measurements carried out in 2015 in cluster # 4 at the SCORE sulfide field. After a short transit, the Golden Eye was deployed for the last

time on early Sunday morning. In the course of Monday we will finish the measurements and start the transit back to Port Louis. During the transit we will measure with the towed magnetometer again until the EEZ of Mauritius is reached.

Everyone on board is well and happy about the successfully completed measurements on three sulfide fields in less than ideal weather conditions.

With best regards,

PD Dr. Udo Barckhausen, chief scientist

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Retrieving Golden Eye, photo: Robert Sommerfeldt