

RV MARIA S. MERIAN - MSM106 (26.02. - 19.03.2022)
1st Weekly Report (23. - 27.02.2022)



On 23 February, MARIA S. MERIAN arrived in the port of Mindelo and a first team boarded shortly after arrival to hand over some equipment and samples with the team from the previous cruise. Shortly before, the entire MSM106 team had conducted a Corona PCR test in Mindelo, the first physical meeting of all scientists and students.

The MSM106 cruise is a combined research and training cruise, a so-called "floating university", in which current research projects off West Africa are continued on the one hand and a training programme with students from West Africa is carried out on board ("training-through-research") on the other. MSM106 takes place within the framework of the international WASCAL programme (West African Science Service Centre for Climate Change and Adapted Land Use), which comprises a total of 11 member states from West Africa and is funded by the Federal Ministry of Education and Research (BMBF). WASCAL has been running a Master's degree programme in Cabo Verde on "Climate Change and Marine Sciences" at the Universidade Técnica do Atlântico (UTA) in Mindelo since 2019. A total of 14 students from West Africa spend almost 2 years for their education in Mindelo to further develop their knowledge in marine sciences. The trip on the MARIA S. MERIAN is part of the curriculum. The aim of WASCAL is to provide the future generation of scientists and decision-makers in West Africa with the necessary knowledge to enable sustainable management of (marine) ecosystems in times of an increasingly changing climate. The marine master's programme as well as MSM106 are official contributions to the UN Decade of Ocean Research for Sustainable Development.



Figure 1 – Science team during MSM106.

During MSM106, a total of 13 nations are thus represented on board and together they used the time in port on February 24th/25th to set up and install the scientific equipment they had brought with them. On February 26th at 8:30 in the morning, the time had finally come and we set sail, after two previously cancelled trips (due to the pandemic), many corona tests and some uncertainty as to whether everyone would remain healthy until departure.

Only a few hours after setting sail, the first working area was reached at Nola Seamount, where a mooring with a newly developed surface buoy was deployed near the summit at a water depth of 200 m. Among other things, the buoy is equipped with a measuring system that can measure with high accuracy the partial pressure of CO₂ both in seawater and in the atmosphere above it. Thanks to the professionalism of the deck crew and the GEOMAR engineer, the operation went smoothly. Subsequently, an autonomous surface vehicle was deployed (Wave Glider), which generates its propulsion through wave energy and obtains the electrical energy for navigation and for supplying the scientific sensors from solar collectors. The Wave Glider also has a measuring system for CO₂ on board, which is identical to the one on the buoy, and will measure the submesoscale variability in the near field of the buoy in the coming weeks.

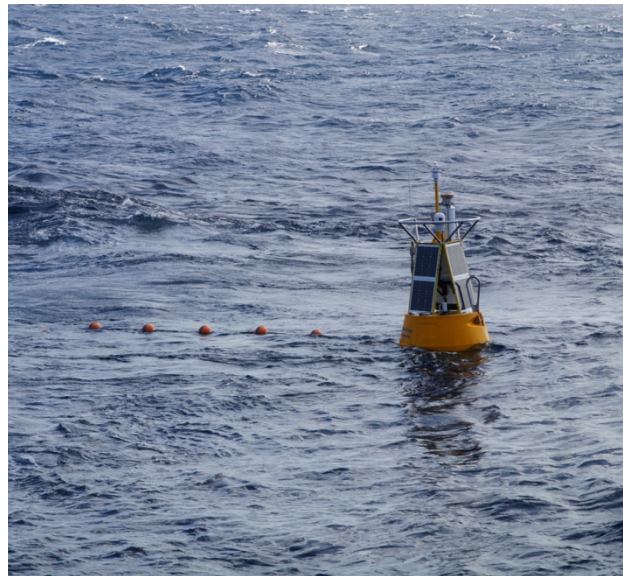


Figure 2 – Deployed surface buoy at Nola Seamount.

Subsequently, a total of 3 sections were made over the two peaks of Nola Seamount to investigate the currents with the onboard 75 kHz ADCP current meter and the biomass distribution around the seamount with a SIMRAD EK80 echosounder (WBT Mini, 38/200kHz), which was brought along and installed in the moonpool. A section across a mesoscale eddy was conducted as well, which had previously been identified with the help of satellite data.

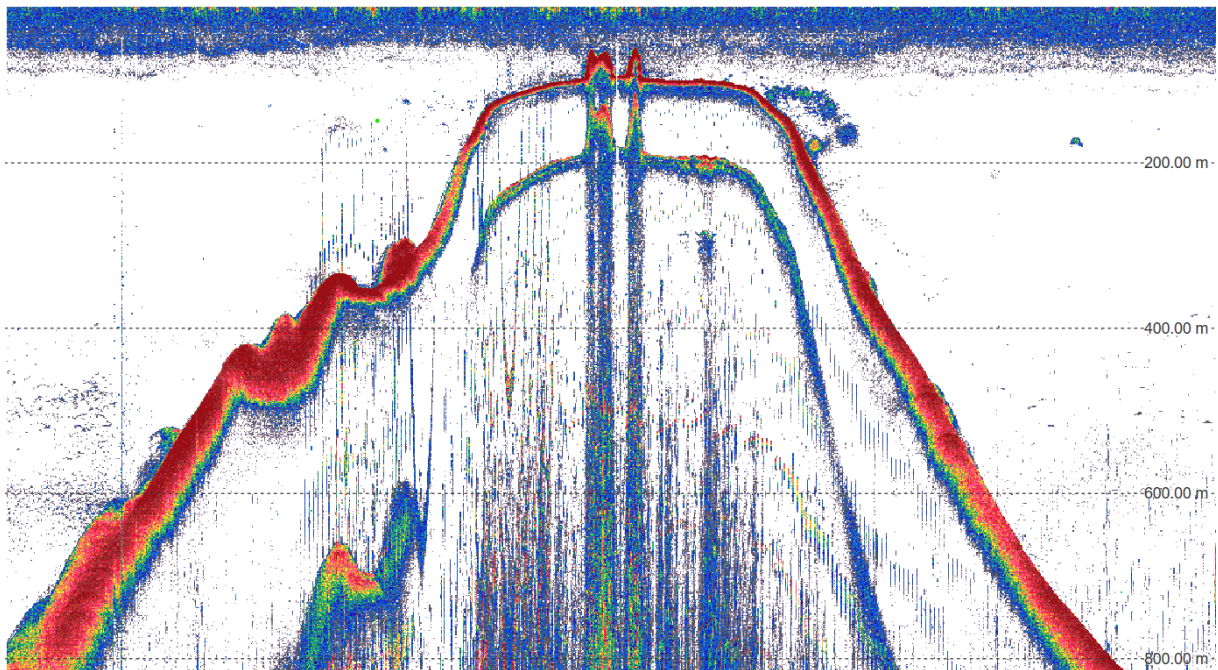


Figure 3 - Screenshot from the EK80 scientific echosounder after a passage of the northeastern summit of the Nola-Seamount at ca. 20:00 UTC, 26.02.2022 / 17°15.2 N, 25°28.5 W. Minimum depth over the summit during the passage was at ca. 70 m. Note the aggregations of organisms on the summit and in the shallower areas of the slope.

The sea around Cabo Verde is currently quite choppy and the trade winds are blowing constantly at force 6, sometimes even force 7. Some of the students have been dealing with seasickness for the first two days and have been looked after very carefully by the ship's doctor. Slowly, everyone seems to have settled in. The students will report on their experiences at sea in an expedition blog: <https://www.oceanblogs.org/capeverde/>

The cooperation between the ship's crew and the scientists is running smoothly and everyone finds themselves in a very familiar and yet professional environment already on the first day at sea.

With tropical regards,

Björn Fiedler and all MSM106 participants

GEOMAR Helmholtz-Centre for Ocean Research Kiel