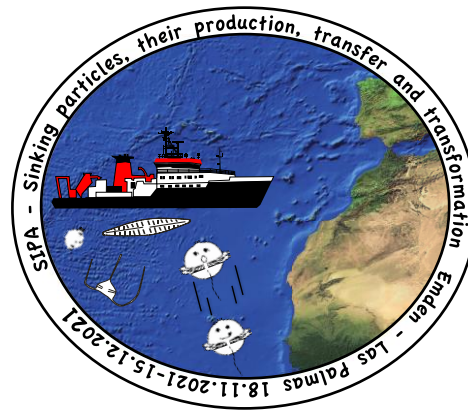


RV MARIA S. MERIAN
Cruise MSM104 (GPF 20-1_69)
18.11.2021 - 15.12.2021
Emden - Las Palmas

SIPA
Sinking particles, their production
transfer and transformation

Weekly Report No. 2
22.11.21 - 28.11.2021



After a spectacular sunset Friday evening, we arrived at our first research station. The transit towards this station in the international waters off cape blanc was characterized by quite sea conditions. During a short passage of international waters between Portugal and the Canary Islands we took in sea water to start several experiments to study particle formation out of dissolved organic matter. This water also allowed us to perform final tests of our equipment in salt water conditions to discover and repair potential transport induced damage. On Tuesday, early morning before sunrise, we past the Canary Islands with a view on La Palma. As we approach the island, the glowing lava flow winding its way down the mountainside became visible. The volcano on the island experienced at that moment an extremely active phase.



Picture 1. Volcanic eruption on La Palma (Photo: Götz Ruhland)

In the early night of Friday to Saturday station work was started by deploying a CTD followed by the deployment of a drifting trap. Satellite imaging has revealed that at the moment one of the filaments of water that had its origin about 180 miles east of the current position, passes our sampling area. This water contains high nutrient conditions and as result of that high phytoplankton concentrations. Our drifting trap is released to collect the particle export production below the distal part of such a filament.

Saturday a small window with good weather with little wind and low waves was used to recover one of the MARUM sediment trap moorings and the dust buoy "Carmen" of the Royal Netherlands Sea Research. At this location, the MARUM deploys the world-wide longest sediment trap series that started in the year 1988. With help of moored sediment traps the relationship between changing environmental and climatic conditions and (inter-)annual variability of the marine particle flux reflecting upper ocean productivity is monitored. Dust buoy "Carmen" is deployed by the NIOZ since 2013 and collects dust blown into the area from the Sahara with the same temporal frequency as the MARUM sediment traps collect sinking particles. This allows a direct correlation between Sahara dust input and successive particle export production.

Recovery of the both the sediment trap mooring and dust buoy went without problems. Both traps and buoy had functioned perfectly and no damage could be discovered. This caused that the servicing of the buoy only took a few hours and she could be released to the ocean for another year of dust collection in the late afternoon.



Picture 2. Recovery of dust buoy "Carmen" (Photo: Karin Zonneveld)

After recovering and servicing of the mooring and buoy station work was resume by collecting water, suspended matter and sediments.

The following days will finish our research activities in this first research area to resume our activities on the shelf and slope region off Banque d'Aquin (Mauretania).

We enjoy the summer weather with water and air temperatures over 25°C (and until Saturday evening also little wind) and look forward to the next week, where we aim to take a closer look at one of the active upwelling cells near Mauretania.

on behalf of all cruise participants
met beste groet van de blauwe oceaan

Karin Zonneveld
(MARUM – Center for Marine Environmental Sciences at the University of Bremen)