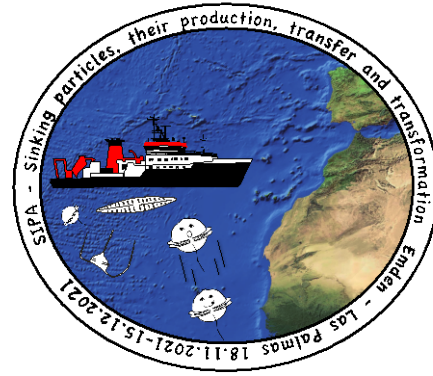


RV MARIA S. MERIAN  
Cruise MSM104 (GPF 20-1\_069)  
18.11.2021 - 15.12.2021  
Emden - Las Palmas

SIPA  
Sinking particles, their production  
transfer and transformation

Weekly Report No. 1  
18.11. - 21.11.2021



On Thursday morning, the cables were released, we waved a goodbye to the RV METEOR that entered the port of Emden and steered to the lock that connects the port with the Wadden Sea. We, that are 18 students, PhD students, postdocs, technicians and PI's from the MARUM – Center for marine environmental sciences at the University of Bremen, Alfred-Wegener-Institut Bremerhaven, the University of Oldenburg and the Royal Netherlands Institute of Sea Research (NIOZ). We scientifically cooperate within the MARUM's Cluster of Excellence ›The Ocean Floor – Earth's Uncharted Interface. To be more precise; our research forms part of activities in the Research Units "The ocean Floor as RECEIVER" and "The Ocean Floor as RECORDER".

Currently we are on a transit to our first station in the upwelling region off Cape Blanc where the MARUM executes a long-term monitoring program since 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. The Cape Blanc upwelling region is among the most productive marine regions world-wide as both the upwelling of nutrient rich deep waters as well as trace element loaded Sahara dust ventilate the upper ocean waters in the region. In the region, we will concentrate our research activities on three regions namely on an area with active upwelling, an offshore drifting upwelling filament and the open oceanic region. Scientific activities of participants of the RECEIVER Unit will focus on the production, transfer and transformation of marine organic matter in the water column and upper sediments. This includes both naturally produced organic matter as well as microplastic. The participants of RECORDER unit will investigate the variability of the upwelling ecosystem during the pre-industrial - industrial transition as recorded in high temporal resolution sediment archives.

Apart from servicing our moored sediment traps and investigating the production, lateral and vertical transport as well as alteration of marine organic matter, we will service two NIOZ dust buoys. These buoys collect airborne dust being blown out of the Sahara. Through the long year cooperation between the NIOZ and the MARUM the relationship between dust input in the region and variability in upper water productivity and particle flux can be established.

After leaving port, our days were filled with unpacking, installing our equipment as well as technical and scientific briefings. So far we crossed the wavy North Sea and more quiet English Channel. At the moment, we are sailing in the Bay of Biscay with a sporadically blue sky. For the next days, we will be hiding steadily south passing the Iberian Peninsula, the Canary Islands to reach the "upwelling region" off Cape Blanc at the end of next week.



*Figure 1 Evening at the North Sea (photo: Daan Elderink)*

We send the best wishes from a blue/gray ocean and take this opportunity to especially thank the German Research Foundation, the German Research Fleet Coordination Centre, the Briese Research shipping company and the crew of the RV MARIA S. MERIAN for all the support they have given in the course of preparing for this cruise.

On behalf of all cruise participants

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