

R/V METEOR

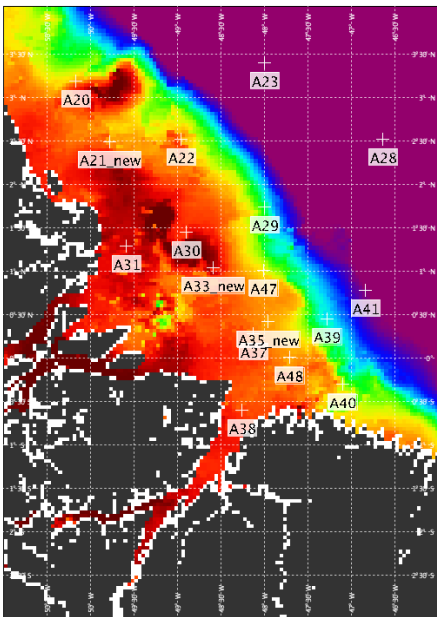
M174 "N-Amazon"

Las Palmas - Emden, 12.04. - 30.05.2021



3. Weekly Report 19. - 25.04.2021

Towards the end of the second week of work on board, we can already look back on an extensive and valuable dataset of the two major rivers, the Para and the Amazon. We have approached the estuary from the northeast, completing several stations in clear water before crossing the shelf and approaching the estuary. Although the intertropical convergence zone is directly overhead, it is possible to generate clear images of the



Satellite image showing KD490 value, a proxy for dissolved organic matter carried by the Para and Amazon rivers.

extent of the river plume from the satellite data. These satellite images have been processed to reveal dissolved organic matter, indicating the precise extent of the river plumes. They match salinity levels remarkably well. We also have data available from the TSG system, which gives us spatially accurate salinity and temperature data.

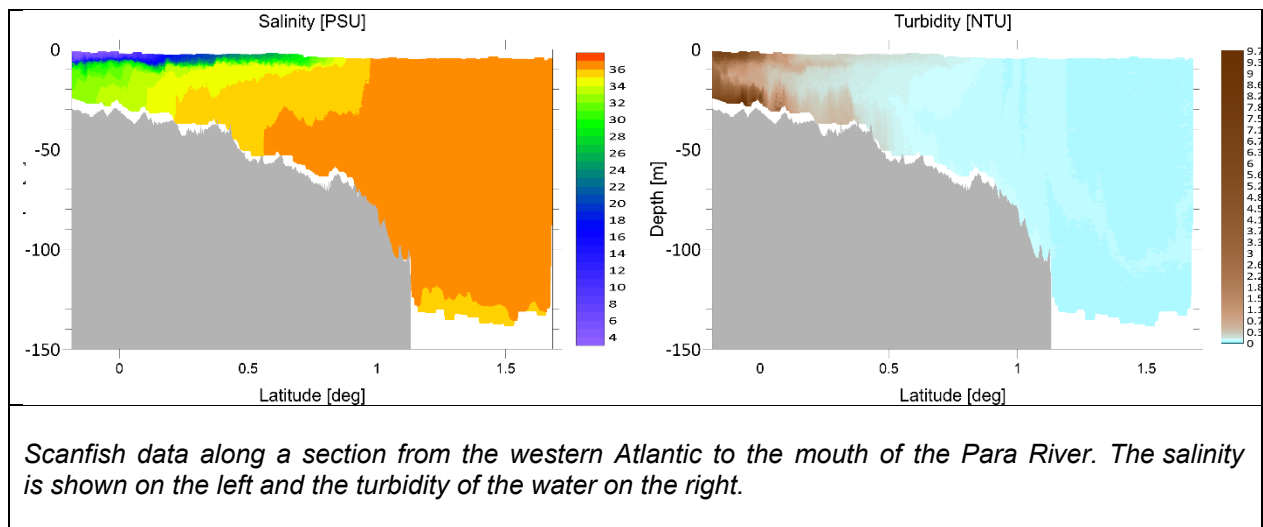
We spent April 23 off the Para, entering the estuary at low tide so far that we encountered almost pure fresh water. For the arms of the Amazon estuary, however, this is more difficult because there are large offshore sandbanks. For this reason, our stations are a little further seaward, but still have salinities below 1psu. High loads of sediment and plant debris are visible by the brown color of the water alone, and are a typical feature that allows identification of river water with the naked eye.

Light reaches only a few meters into the water and oxygen levels are reduced due to increased respiration near the bottom. We expected these conditions and are therefore amazed at the

abundance of zooplankton populated with larval juveniles and young adults. What food sources are available for this biodiversity is one of the questions we hope to answer. Particle camera data recorded with each CTD will hopefully provide clues to plankton abundances. Our Brazilian colleagues will analyze these data. They will also do the species determinations of the zooplankton samples, as they are the real experts on the biodiversity in this area.

The first section we surveyed with the Scanfish extended from the western tropical North Atlantic to near the mouth of the Para River. We were able to survey high-resolution profiles along the transect from the surface to depths of 150 meters, and correspondingly to shallower depths near land. The data gave us an accurate picture of the extent of the river plume to the east.

Decreased salinity - compared to the Atlantic - can be seen in the upper 50m almost to the shelf edge. The mentioned high turbidity and sediment load is also visible. With the help of another transect we want to verify this pattern and then determine the first station where a drifter will be deployed and we want to work for several days. To have such an experienced group of physicists as those around Volker Mohrholz and from the IOW's instrumentation department with us is a huge scientific enrichment.



So far, all the work is going according to plan, and in the laboratories we are filtering and measuring late into the night. And although we also start station work early in the morning at 3 a.m., all scientists are enthusiastic and persistent.

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(Leibniz Institute für Baltic Sea Research)

Link to the blog of the cruise: <https://www.io-warnemuende.de/fs-meteor-m174-2021.html>