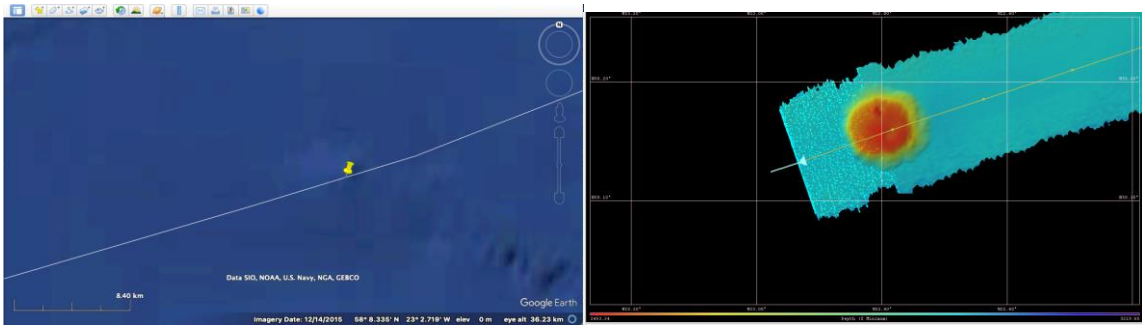
# 2nd Weekly Report – MARIA S. MERIAN MSM129/1

The last week was filled with many activities. One activity of the DAM Underway Research Data project, which is the main focus of leg one of the cruise MSM129, is the "situation-adapted" survey, particularly without using any additional ship-time. "Situation-adapted" means in that case that marginal changes in the cruise-track of the ship lead to an improvement in the data availability relevant for specific research questions.

In the particular case of MSM129/1 this is conducted with the example of the validation of possible seamounts. A seamount is an elevation of the seafloor not reaching the surface and therefore not an island. Seamounts often arise from extinct volcanoes and can reach heights of 1 to 4 km above the surrounding seafloor. For many marine disciplines like geology, biology, and oceanography it is significant to know where seamounts are. Hints for the existence of seamounts can be derived from satellite measurements and there is a database of possible seamounts. Through surveying and mapping though it is possible to determine whether it's a seamount or some other formation on the seafloor.

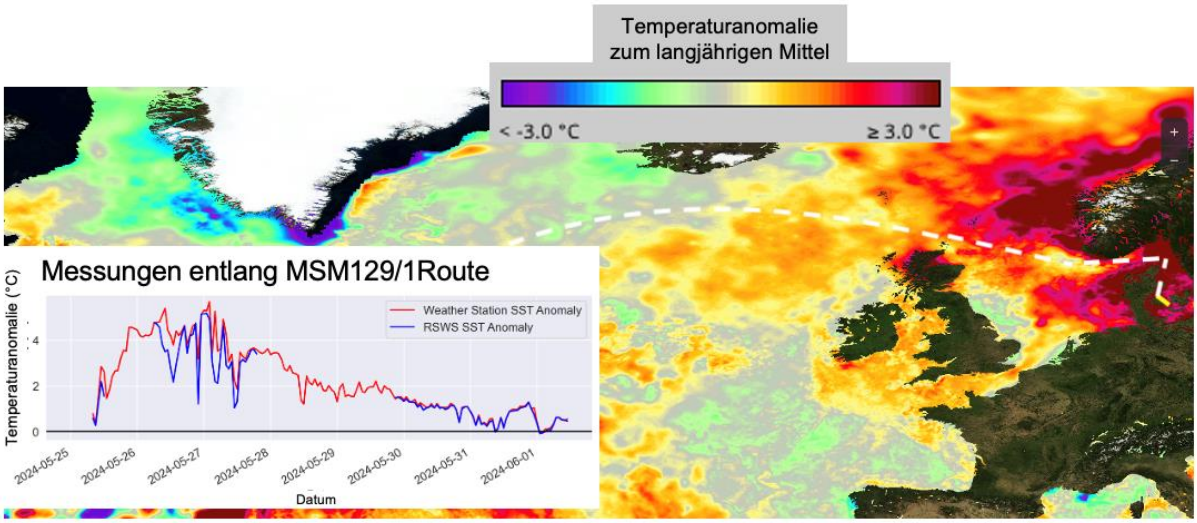
For the open Atlantic crossing of 1300 nautical miles (2400 km) on MSM129/1 Daniel Damaske elaborated a marginally changed cruise track for passing seven possible seamounts. The effect on the transit time is negligible and leads to an extension of 40 minutes of the 5-day voyage. This example is a perfect showcase for the scientific additional value of a „situation-adapted" survey and also for the workflows on the ship and the exchange with experts on land.




***Survey of a possible seamount: left is the position of the possible seamount with usual seafloor representation on Google Earth (yellow pin), and right is the survey during MSM129/1. Similar latitude-longitude-scale on both figures.***

Another topic which is moving several people not only on board is the concerning heating of the Atlantic Ocean, first observed last year and enhancing. A particular question is, whether our observational data do confirm this heating? To elaborate this, we subtracted the long-term averages for the particular day from the measured data on MSM129/1. Regions with more than 5°C warmer water are clearly visible in the eastern North Atlantic and in the North and the Baltic Sea.

*Route: https://www.oceanblogs.org/msm129/*
*Blog: https://beluga.geomar.de/msm129*




***Satellite-data derived anomalies of sea surface temperature (background figure) related to the 22-year-average (2002-2024) on the 1st of June and from measurements along the cruise track of MSM129/1 (lower left figure).***

With reaching the open Atlantic also swell and wind increased leading to a more choppy sea. After the calm seas in the Baltic Sea and the North Sea not everybody felt comfortable with the new situation. But this is already past us and again we can enjoy the tasty food from the two chefs Frank and Matthias. For the general well-being also the perfect service of the stewardess Bianca, the crew with bosun Enno Vredenborg and master Sören Janssen makes an important contribution.

Best wishes from on board on behalf of all participants

Michael Schlundt (GEOMAR) Co-Chief Scientist MSM129/1