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Cruise MSM72

Heraklion – Cádiz

02.03.2018 – 03.04.2018

2nd weekly report: 12.03.2018

This week our measurement program took us to Greek waters around Crete (Fig. 1). We started with CTD stations north-east of Crete in the Aegean Sea, carried out CTD stations in the Strait of Kasos, and then moved south of Crete to the west into the Ionian Basin. Along the Strait of Antikythera we steamed northwards and are now at the height of the Peloponnese.

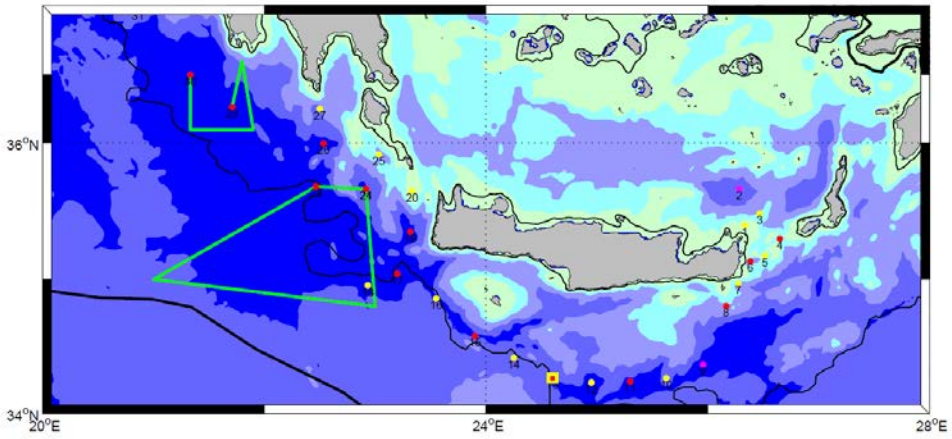

Fig. 1: Stations taken during the second week of the cruise. Red dots: CTD stations including chemical sampling. Magenta dots: CTD stations with two casts. Yellow dots: CTD stations without chemical sampling. Yellow square: Additional deployment of ARGO Floats. Green Line: high resolved uCTD/ADCP measurements.

We mainly carry out CTD stations. Here, the biogeochemists take water samples from several depths to determine different parameters (nutrients, oxygen, inorganic carbon, etc.). We take biogeochemical samples in about every second station, because the laboratory analysis is sometimes very time-consuming. At a few stations, the CTD is run twice in order to cover the demand for water for additional biogeochemical measurements. Our deepest CTD station was station 23 with 4528 m water depth. From station 15 onwards, we additionally took underway CTD measurements between the CTD stations. During these measurements we reduce the ship's speed to about 3 knots, so that we can reach depths between 600 - 800 m with the uCTD. On station 13 we deployed the first AVOR float and a surface drifter. After station 21, we interrupted our CTD work in order to investigate eddies for the first time on our cruise with fine resolved measurements (Fig. 1). For this purpose, the uCTD was run about every hour, the ship speed between the stations was about 8 nm, while during uCTD measurements it was reduced to 3 nm. The route was determined using maps of dynamic topographies. Another "eddy track" followed after station 28. On these sections we are especially interested in the continuous ship's ADCP measurements, which we hope will help us to recognize the eddies also in their vertical extension.

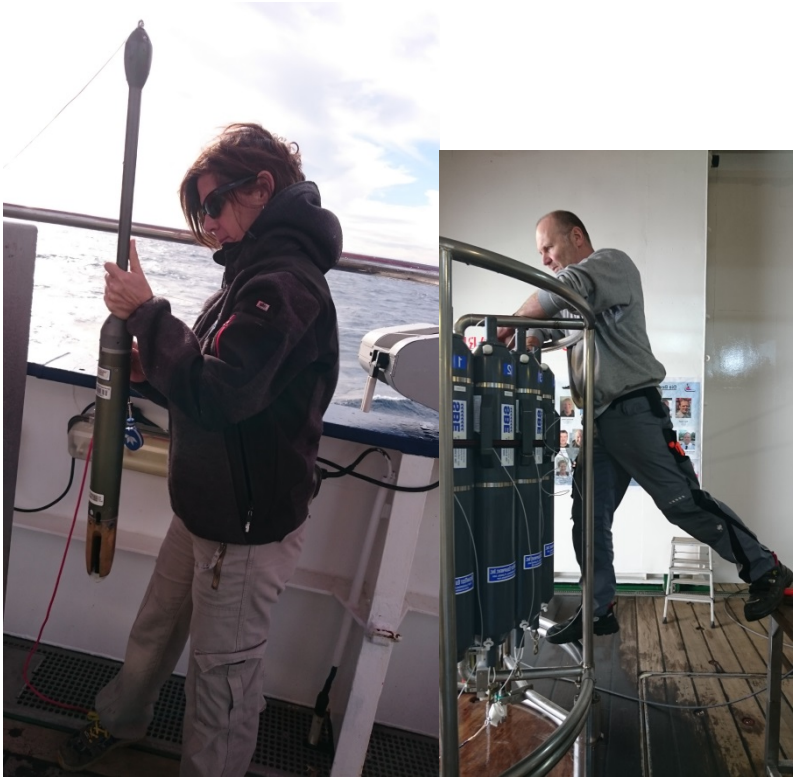

Fig. 2: Vanessa finished an uCTD-cast and Andreas is busy on repairing the CTD.

Unfortunately, we had to contend with considerable technical problems with the CTD this week. On Monday, March 6 at 22:00 hrs, station 18, the rosette returned on deck with 2 missing and 3 broken Niskin bottles. First of all, we suspected an operating error when clamping one or more bottles. But then the release unit also stopped working. From now on, none of the bottles could be closed electronically in the water. So we swapped plugs, cables and devices. We first drove our own CTD and rosette and finally the CTD and rosette of the ship. But nothing helped. We also exchanged the winches. From station 21 onwards, we decided to carry out the "eddy track" program to save time for reasonable troubleshooting and repair. It turned out that the errors were caused by the defective releaser unit of our rosette and by the termination of the winches. Communication with the release unit was interrupted during tension and movement. On the next station everything worked fine, but on station 24 some of the bottles did not close again, and this time there were also faulty data transfers. The CTD was then replaced again. The CTD profiles are now without spikes and the bottles close all. We hope that this will solve the problem.

The mood is nevertheless good on board, especially since all our "flu" patients recovered and three members of the crew had their birthday.

Greetings on behalf of all scientists on board

D. Hainbucher

photo: Abed El Rahaman Hassoun