

MSM93 Emden-Emden
Weekly report 2
29.06. – 05.07.2020

Parts of the remainder of our transit from Emden to our working area was rather wavy and most of the scientists got acquainted with sea sickness. Thus, we were all the more excited when, on Thursday, we then arrived in our working area, the Fram Strait.

So far, we were able to test our towed system, the Triaxus on two days. A lot of components of it have worked very well so far and we hope to get a handle on the remaining aspects soon. Hopefully more about in the next weekly report, because first we wanted to do mooring work.

We use moorings in order to be able to measure various parameters in the ocean during winter when no ships can be in the area and around the clock in general. An anchor (we use old railroad wheels) is located on the sea floor, a line is fastened to it and on top there are glass balls, which want to move upwards in the water. If moorings are in the water for two years, then it is quite common that the orange protective covers of the glass balls are grown over (Photo 1). We can attach instruments such as current meters and temperature sensors to the line. An acoustic releaser is directly mounted above the anchor. When we return to recover the mooring, we send an acoustic signal to the releaser and it cuts its connection to the anchor so that everything rises to the sea surface, where we can then collect it. That at least is the theory and when one sends the signal, it is always quite suspenseful whether the mooring will really come up to the surface.



Photo 1: The recovery of a mooring, which since 2018 had measured the temperature and speed of the water that flows into the Arctic Ocean. (Photo: W.-J. von Appen)

During our cruise, that has worked really well so far, we have already recovered five moorings. The instruments are all back on deck and we can look at the data soon. That will then hopefully show us if and how the temperature and current has changed. The Alfred Wegener Institute has been measuring here in the West Spitsbergen Current for the past 23 years. That is because the current transports warm water (at 4°C relatively warm for this area) northwards into the Arctic Ocean. The water influences the melting of sea ice in the Arctic and also influences the glaciers of Svalbard and Greenland. But now our next task is to deploy moorings again such that in two years' time we shall be able to have information on the development over the preceding 25 years.

We have also already prepared other instruments and measurements. We take photos of sinking particles in the water column and collect the particles for laboratory analyses. We measure light and how particles change light in the water column. Additionally, we have taken water samples for nutrient analyses and also for fluorochlorocarbons and noble gases. And all that we intend to do in much more detail directly at the sea ice edge in the coming days.



*Photo 2: With perfect visibility, we could see Svalbard to the east of our position.
(Photo: T. Kalvelage)*

In breaks of our work we could enjoy the view. We were able to see Svalbard (Photo 2) and sea gulls and puffins flew in front of our ship. And of course, there were blows of whales to be seen.

It is fun to be at sea and to work, but we are also busy.

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