

ARK XXIV/2 [26.07. – 02.08.2009]

### 3. Weekly Report / Wochenbericht

#### **Last days at Håkon Mosby and the return voyage begins !**

The last week onboard ! But again wind and waves influenced our station work. After safe recovery of the ROV QUEST on Sunday noon, another dive was impossible due to wind speed of 6-7 Beaufort. Instead we deployed the temperature lance which had been recovered the week before for another one year period in the center of the Håkon Mosby. Afterwards the lift system „Colossus“ (this name has been given because of it's enormous dimension and weight) was lowered to the seafloor in preparation of the scheduled next dive of the ROV. Monday afternoon QUEST was deployed because wind and sea – state had significantly decreased. During the night numerous samples were taken and instruments placed at the seafloor. Early in the morning a piezometer, measuring pore water pressure in the sediments, which had been deployed the year before by the Norwegian research vessel „Jan Mayen“, was fortunately localized by the ROV pilots. The subsequent recovery was supported by relatively calm sea-state. However, not only our French colleagues from IFREMER were more than happy that this expensive device was back onboard.

Tuesday afternoon the Autonomous Underwater Vehicle (AUV) of AWI, equipped with a newly developed water sampler system was launched. Although the planned mission had still the characteristics of a sea trial the launch and recovery procedures had considerably improved through various discussions between scientists and crew so that a very good mission followed. In contrast to underwater vehicles like the ROV QUEST AUVs are independent from the surface vessel after deployment. They are self-propelled, have their own batteries and a pre-programmed mission file in their control computer. Because they have to react autonomously once underway these systems are rather complex and each mission is always a challenge for the vehicle and the operators. After receiving sufficient GPS information about it's actual position the vehicle started to dive to a water depth of 500 m which needed approximately 15 minutes. At this depth the water sampler started to collect discrete samples along a straight transect towards the final waypoint where the AUV started to ascend. All

systems did work properly so that scientists and engineers of the AUV team were eager to launch a second mission immediately afterwards, but unfortunately we had no time slot to be allocated as a reserve for such additional station work.

Instead the lift system was lowered for the last time during our cruise leg, the ROV QUEST followed afterward. While the final tasks were done at 1250 m water depth, we expected the Norwegian research vessel „Jan Mayen“ which made a brief stop-over on her way from Longyearbyen to Tromsø. The scientists onboard had to release an ocean bottom seismometer (OBS) which was deployed last year at Håkon Mosby. This work was a further contribution of the University of Tromsø as partner institution in ESONET to the LOOME demonstration mission. This meeting was planned and organised long before we started our cruise leg so that neither the master of „Polarstern“ nor the chief scientist were excited about a vessel at such close distance to our position which we could not leave because the ROV was still at depth. However, such meetings at high sea occur relatively seldom, thus the radar systems of „Polarstern“ classified the „Jan Mayen“ as a „dangerous target“ because of her comparatively close distance to us. The release command had been sent to the OBS by our Norwegian colleagues and soon after the orange floating unit was sighted by the seaman on watch onboard „Polarstern“ at first. The device was then safely recovered and the collected seismometer data stored on shipboard computer. Wednesday morning the OBS had been re-deployed at a position proposed by the LOOME coordinator onboard „Polarstern“. Afterwards the „Jan Mayen“ continued her transit to Tromsø and after a while her silhouette disappeared at the horizon and we were alone again at the Håkon Mosby Mud Volcano.

In the meantime we did not count days but remaining hours of station time during our cruise leg. The very last activities were the recovery of a free falling lander, a final CTD cast and another temperature lance transect to further improve our knowledge about the heat regime of this active mud volcano. On Thursday morning at 2 o'clock the Temperature-lance was back on the main working deck and our station work formally closed. We immediately started our transit to Reykjavik with southwesterly course. All onboard are actually packing their scientific equipment, stowing it into containers and starting to clean-up their laboratories and cabins.

We will arrive on Monday morning the 3rd of August at the bunker pier of the harbour of Reykjavik to take over some hundred tons of fuel for the coming cruise leg of „Polarstern“. Afterwards we will move to our regular berth at Skavabaken until „Polarstern“ will leave at the 5th of August for her last cruise leg into the Arctic for 2009.

Most of us – crew and scientists – will return home either on 4th or 5th of August. All of us are looking forward to meet our families and friends – we have a lot to talk about !

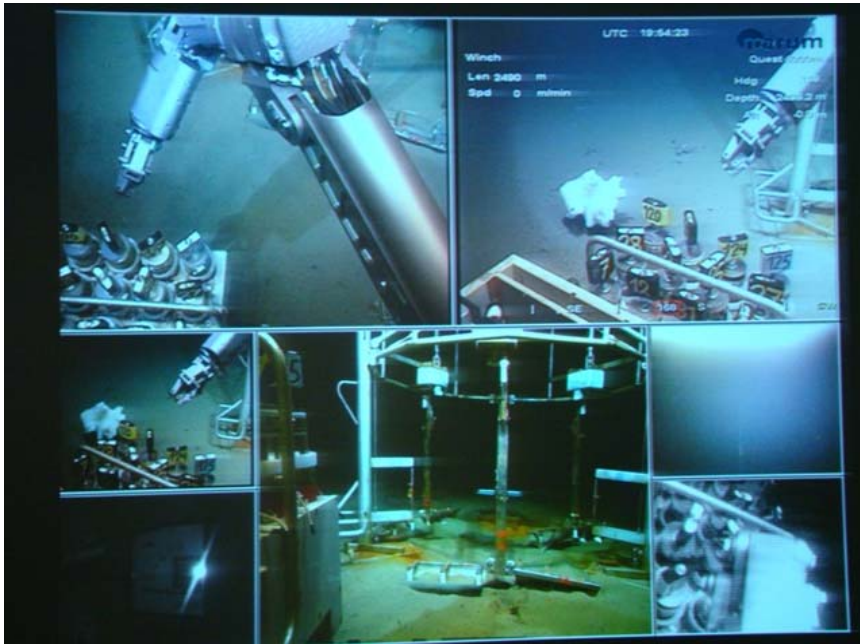
On behalf of all scientists, engineers, technicians and students onboard I would like to thank the master of „Polarstern“ and his crew for all their competent help and assistance during this cruise leg !

Michael Klages



The Norwegian Research Vessel "Jan Mayen" meets "Polarstern" in the early morning of the 29th of July at Håkon Mosby

Photo: D. Olonschek, AWI



Overview of all video camera imagery of QUEST  
Photo: Marum, University of Bremen



The deployment of the Autonomous Underwater Vehicle is supported by the ship crew keeping the ropes tight.  
Photo: D. Olonschek, AWI



Deployment of the ROV QUEST using the A-frame.  
Photo: D. Olonschek, AWI