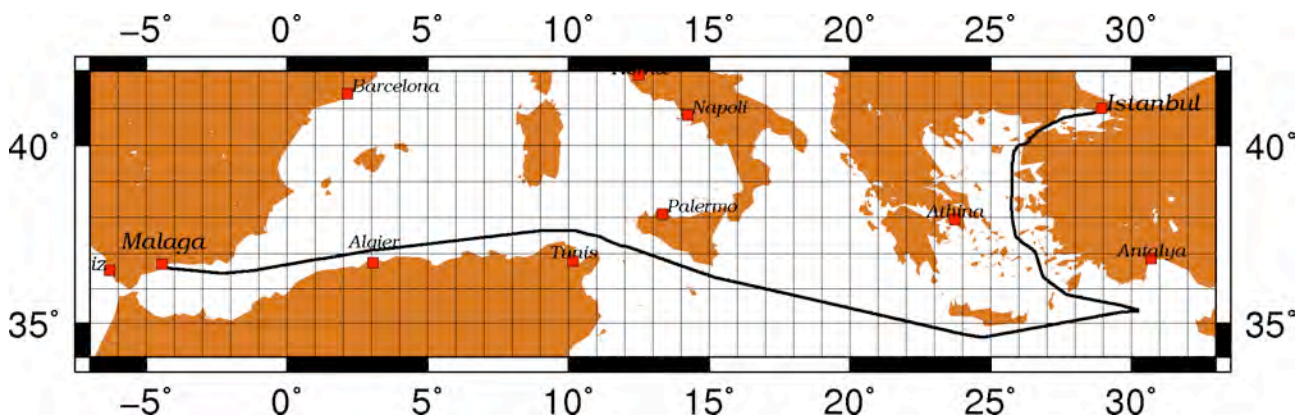


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Short Cruise Report
R/V Maria S. Merian MSM-35T

Istanbul - Málaga
05.02.2014 - 15.02.2014
Chief Scientist: Dr. Tomas Feseker
Captain: Ralf Schmidt



Objectives

The objective of cruise MSM-35T was to install an un-cabled seafloor observatory at Athina mud volcano, located in the Anaximander mountains approximately 100 nm SSE of Antalya at 1800 m water depth. The observatory will monitor the temporal variability of fluid emissions in order to provide insights into the relationship between seismic activity and fluid emissions, and the role of gas hydrates at this mud volcano. The observatory consists of two independent devices. One device will measure the temperature profile in the upper 5 meters of the sediment column. The other device will measure absolute pressure at the sea floor and the pressure gradient between the seafloor and 3 m below the sea floor. In addition, it will collect pore water samples from 3 m below the sea floor. Both devices were deployed close to the peak of the mud volcano, where previous sediment temperature measurements have indicated high seepage rates. The instruments will be recovered using the ROV Quest 4000 during our next cruise to this area with R/V Meteor in November / December 2014.

Narrative

R/V Maria S. Merian left the port of Istanbul on Tuesday, 5 February 2014 at around 17:00 LT under good weather conditions. We crossed the Marmara Sea and the Dardanelles without any delay, and headed east towards the working area, approximately 180 km south of Antalya at 1800 m water depth. During the transit, we set up the two instruments on the working deck and prepared the deployments. Immediately after arriving at Athina mud volcano on Friday at 14:00 LT, we started to deploy the temperature lance (Fig. 1). The weather conditions were excellent. Everything went as planned until the temperature lance had penetrated the sea floor and the acoustic releaser, which should disconnect the lance from the ship's wire, did not free the instrument. After heaving the lance back to sea surface, it turned out that the lance had remained on connected to the wire even though the releaser had opened. Only when trying to secure the lance using a second rope, the connection suddenly broke and the lance sank uncontrolled through the water column. Using another releaser provided by the ship, the pore pressure lance was installed afterwards without further difficulties (Fig. 2).

After the two deployments, we mapped the mud volcano using the ship's multibeam system (Fig. 3). The scientific program was terminated at 19:00 LT. The following transit from the working area to Málaga was without any special incidents. As scheduled, *R/V Maria S. Merian* arrived at the port of Málaga on 15 February 2014 at 08:00 LT.



Fig. 1: Deployment of the temperature lance.

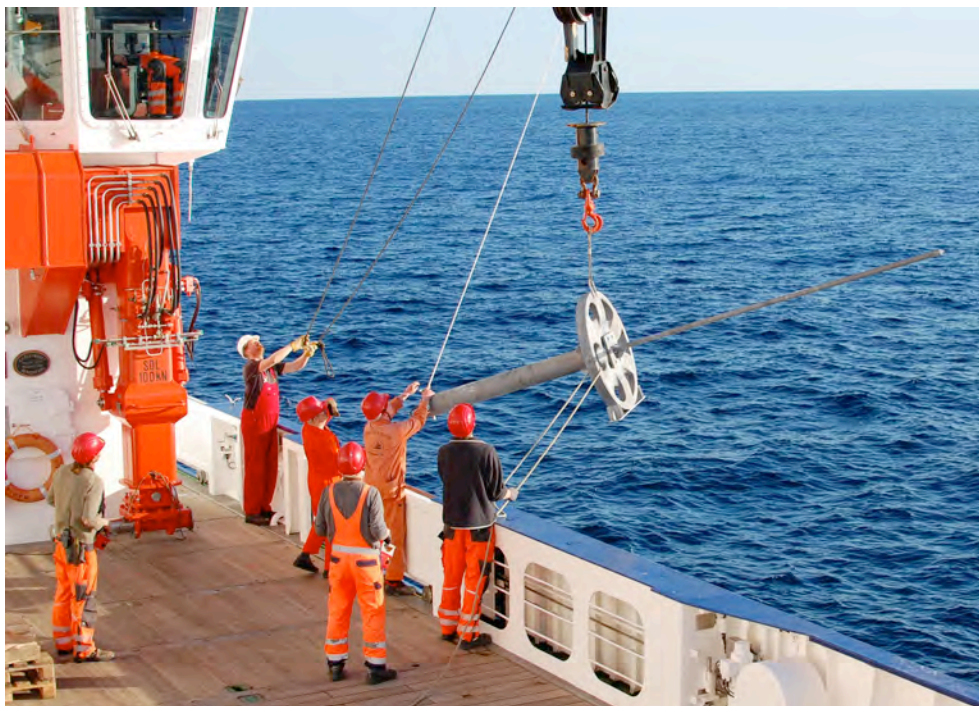


Fig. 2: Deployment of the pressure and pore water sampling lance.

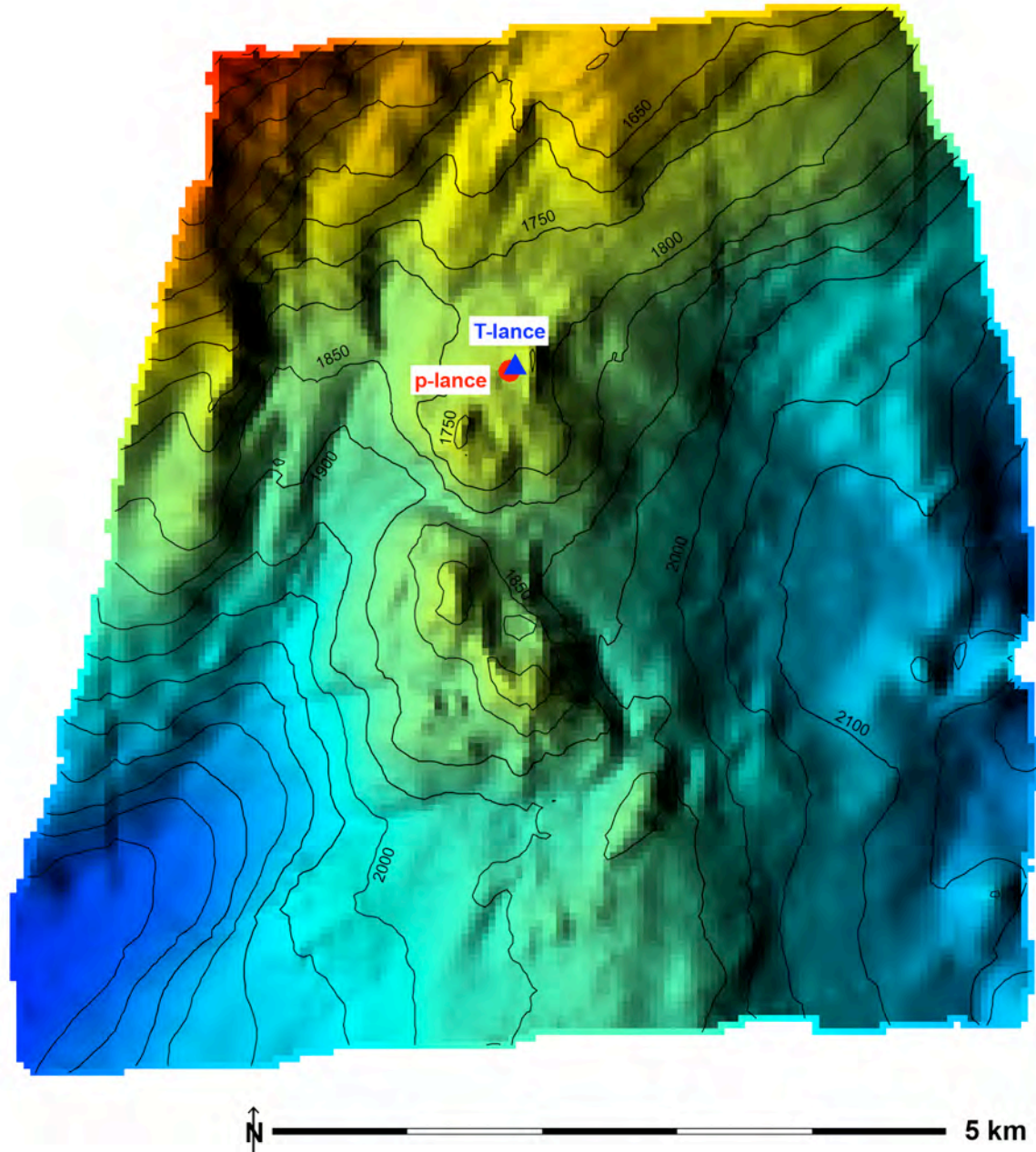


Fig. 3: Shaded relief map of the working area, based on multibeam data acquired during cruise MSM-35T. The blue triangle and the red circle indicate the deployment positions of the temperature lance and the pressure lance, respectively. The contour interval is 50 m.

Acknowledgements

We would like to thank Captain Ralf Schmidt and his entire crew for their excellent work at sea. We are grateful for the invaluable support from our Turkish partners at the Institute of Marine Science and Technology at Dokuz Eylül University in Izmir, represented by Prof. Dr. Günay Çifçi.

Cruise participants

1. Dr. Tomas Feseker	<i>Chief Scientist</i>	MARUM/GeoB
2. Walter Menapace	Observatory installation	MARUM
3. Dr. Enis Darilmaz	Observer Turkey	IMST
4. Elif Büşra Tatlı	Observer Turkey	IMST

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List of stations

a) Athina mud volcano observatory

Station number	Gear	Latitude	Longitude	Date and time
MSM35/257-1	T-lance	N 35° 23.566'	E 030° 12.899'	2014-02-07 13:46
MSM35/258-1	p-lance	N 35° 23.554'	E 030° 12.870'	2014-02-07 14:50

b) Multibeam profile across Athina mud volcano

Station number	Gear	Latitude	Longitude	Date and time
MSM35/259-1	start of profile	N 35° 24.961'	E 030° 12.937'	2014-02-07 15:58
MSM35/259-1	end of profile	N 35° 20.975'	E 030° 12.955'	2014-07-07 16:39