



## SO264 SONNE-EMPEROR

Weekly Report No. 8  
(August 13-19, 2018)

The eighth week of the SO264 cruise is over. It started with station work on a small volcanic area south of Detroit Seamount at about 50°N. Three geostations were routinely carried out with the piston corer and the multicorer. The sediment deposits allowed a core recovery of approx. 47 m from 2500-3500 m water depth. We could not have done better! The core logging data suggest that diatomaceous sediment types prevail, which can easily be correlated with each other, but can also be bound to our sedimentary records located further south. In terms of time we cover the last glacial / interglacial cycles. Unfortunately, we were unable to open and visually describe the newly recovered sediment cores. In fact, this very long expedition has brought us an unpredictably large core recovery, so we nearly ran out of packaging material. We decided to just log the cores and postpone the opening of these last cores to the time at home. At the end of the geo-related work, another multi-net/CTD/water program was started east of our study area at 5000 m water depth.



*Rolling home.*

Most of the past week was spent on Detroit Seamount, at about 50-51°N and 167-168°E. We have reached the US and Russian territorial waters, except for a few miles, to complete our successful coring program. Detroit Seamount, comparable in area to Hawaii, is already a very well studied region with many existing sediment cores and excellent publications. Our US colleague Lloyd Keigwin from the Woods Hole Oceanographic Institution did a great job here in the late 1990s and gave new ideas to the community. We have revisited a few of his important core locations to extract fresh sediment material for new analytical approaches. By email, we were in contact with him and received quite a few good tips.



*Lloyd Keigwin,  
paleoceanographer,  
Woods Hole Oceanographic  
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A total of ten coring stations were completed in three days in water depths of 2400-3900 m. Unfortunately, we were followed by bad luck at the end of our journey. After two operations with strongly bent piston corers (called "bananas"), this device was no longer usable. We accordingly changed to our gravity and box corers, which unfortunately no longer provided the long core recovery we were used to. But the short and big box corers brought unexpected amounts of sediment and the hangar-laboratory looked pretty "muddy" afterwards. The logging data promise very high-quality sediment records, on which many scientist generations can work. Finally, one last plankton/water station was accomplished west of Detroit Seamount.

In the night from Thursday to Friday, at 02:00 in the morning, we stopped station works, the expedition program ended and the transit towards Yokohama started. Approximately 1500 nautical miles are still ahead of us to the port of disembarkment. Hopefully no typhoons will hinder our backtrip. I think we can say that we have used the ship efficiently, thanks to the fantastic crew, but also thanks to the many technicians, scientists and students, who worked tirelessly and brought the hard and ever-lasting work to an end.



*Waves ahead.*

Along a north-south-oriented transect along approximately 179°E we finally completed an extensive water sampling program across the North Pacific from 7°N to 50°N as well as a closely-spaced sediment sampling program along the Emperor Seamount Chain from 33°N to 51°N. At 77 stations, we ran 183 devices.



*Banana.*

Even in the 8th week, the weather remained benign with relatively little wave and moderate winds. It is noteworthy that the northernmost of our volcanoes was not named after a Japanese ruler, but - as unromantic - after the US warship "USS Detroit", which was destroyed in Pearl Harbor last World War. Still with the best mood, the energetic support from the SONNE crew, and especially with the prospect of a fresh beer in Japan, we send the very best greetings from now already 41°N 150°E to those who stayed at home. On behalf of all cruise participants

Dirk Nürnberg