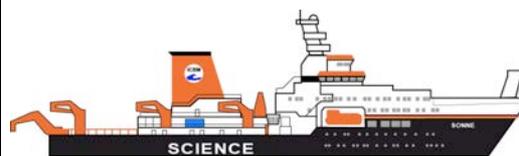




**SO-249 Leg 1**  
**BERING**  
**Weekly Report No. 2**  
**(13.06. – 19.06.2016)**



**R/V SONNE**  
52°08' N / 174°30' E

On board the R/V Sonne, we had a short week, since we skipped Monday after crossing the 180° meridian. Therefore the day shift went to bed on Sunday and woke up on Tuesday. On board we use UTC (Coordinated Universal or Greenwich Time), so the missing day does not show up in any of the cruise-related reports.

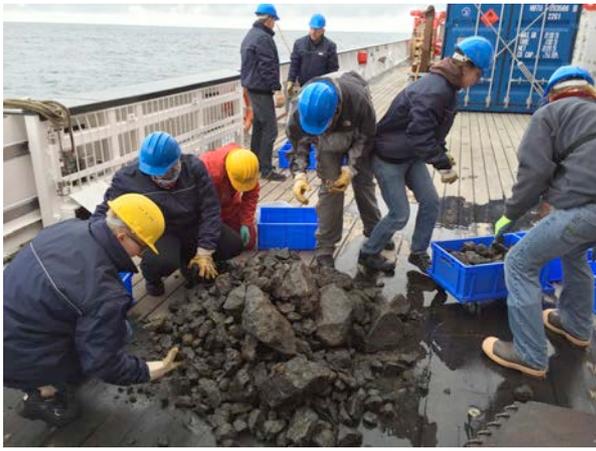
On June 13 we left Amchitka Canyon at the southern side of the Aleutian Arc and crossed the Aleutian Deep-sea Trench onto the Pacific Plate. We attempted to sample three seamounts south of the trench. From one seamount, we recovered volcanoclastic, plutonic and metamorphic rocks. Although some of the samples are subangular, others are well rounded, suggesting that they were transported by glaciers and dropped onto the seamount when the glaciers melted. Such rocks are referred to as dropstones. On June 4, we reached the Rat Fracture Zone, oriented north-south and thus perpendicular to the trench. The fracture zone consists of two parallel troughs elongated north-south with an elevated region in between. The elevated region was divided into narrow east-west oriented ridges. We interpret this as an uplifted block between splays of the Rat Fracture Zone that was divided into east-west oriented ridges through faulting caused by the bending of the subducting plate south of the trench. Four dredges along the Rat Fracture Zone brought up a variety of volcanic (basalts and volcanoclastic rocks) and plutonic (diorites) rocks including manganese crusts.

On June 16, we crossed the trench again and began dredging in Murray Canyon, located southwest of Kiska Island. All eight dredge hauls were successful, bringing large amounts of rocks on deck (see photos). Six of the dredge hauls were carried out along the base of the western, northern and southern canyon walls. Along the NE wall of the canyon, two shallower dredge hauls formed a profile with one of the deeper dredges extending from the base of the canyon to intermediate canyon depths. A wide variety of plagioclase-clinopyroxene-amphibole-olivine-mica phyric volcanic rocks, dioritic to gabbroic intrusive rocks, and a variety of sedimentary rocks were recovered with many very fresh samples. Unfortunately our deepest dredge track thus far at the base of the forearc slope, just above the sediment fill in the trench, brought up a third a dredge of consolidated mud. Thus far the dredging has proceeded exceptionally well with 83% of the dredge hauls being successful.

The second week of the cruise resulted in more biological samples being brought up from the North Pacific seafloor, including some organisms caught while the dredge was being brought back to the surface. Apart from the very successful sediment sampling aimed at obtaining meiofaunal organisms, the dredging stations in and around the Rat Fracture Zone, south of the Aleutian Trench, did not yield any macrofauna. However, the sampling stations in Amchitka and Murray Canyons north of the Aleutian Trench were rich in macrofaunal organisms. The specimens collected represent a wide taxonomic range of zoological samples (see photos), including bristle worms (Polychaeta), sea cucumbers (Holothuroidea), sponges (Porifera), brittle stars (Ophiuroidea), crustaceans (Crustacea), sea lilies (Crinoidea), moss animals (Bryozoa), and jellyfish (Cnidaria). The latter usually get entangled in the dredge's metal cable during uplift - the last sample taken was probably a specimen of the highly toxic Portuguese man o' war (*Physalia physalis*, Siphonophorae). In the meantime, Dr. Hiroshi Senou, an ichthyologist at the Kanagawa Prefectural Museum of Natural History in Japan was able to identify the "mysterious" specimen dredged up at Adak Canyon and pictured in the last weekly report: instead of being part of a crustacean's carapace or leg, this sample represents part of the skull of a deep sea predatory bony fish (see photo), either from a snake mackerel (Gempylidae) or a frostfish (Trichiuridae).

The weather on the cruise thus far has primarily been cool, foggy and rainy. Despite rarely seeing the sun and the hard work, everyone on board is doing well and in high spirits.

Kaj Hoernle (chief scientist SO249) and the cruise participants



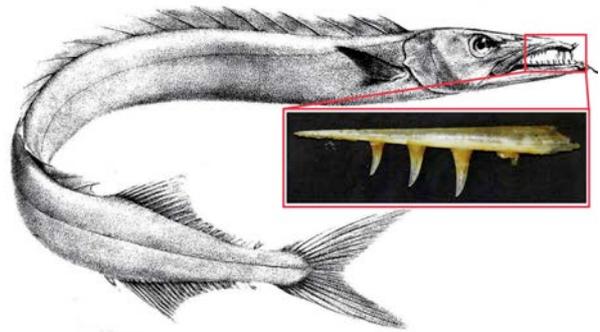
It was a busy week on board. (Kaj Hoernle)



Sawing rocks is a dirty job. (Kaj Hoernle)



Despite the hard work, the scientists are still in very good spirits. (Kaj Hoernle)



The "mysterious" specimen dredged from Adak Canyon last week was identified as part of the jaw of either a snake mackerel or a frostfish. (Alexander Ziegler)



In Amchitka and Murray Canyons, multiple bristle worm tubes were found. The animal itself with its large tentacle crown can be extracted from its protective tube using forceps. (Alexander Ziegler)



The benthic fauna in Amchitka and Murray Canyons also included two brittle star species. (Alexander Ziegler)