



**SO-249 Leg 1+2**  
**BERING**  
**Weekly Report No. 6**  
**(11.07. – 17.07.2016)**



**R/V SONNE**  
52°47'N / 159°28'E

The 6th week of R/V SONNE's cruise SO-249 was characterized by our port call in Petropavlovsk-Kamchatsky, the capital of the Russian region of Kamchatka. On Tuesday, July 12th scientific operations of the first leg of SO-249 ended with two dredges in more than 5,500 m depth at an unnamed fracture zone located west of the northern Emperor Seamounts and southeast of the southern Kamchatka Peninsula ('N/N Fracture Zone'). We then headed towards Petropavlovsk, which is nestled at the northern edge of Avacha Bay. During the morning of the July 14th, R/V SONNE entered Avacha Bay under cloudy skies and arrived at the pier in the afternoon (see photos). This was the first stay of the new R/V SONNE in Russia, and - according to our knowledge - the first port call ever of a German research vessel in Petropavlovsk. During the following two days in the harbor, nine scientists left the vessel for their return trip home, and 15 new, primarily Russian colleagues came on board. In addition, two groups of scientists of the Russian Institute for Volcanology and Seismology in Petropavlovsk (IVS FEB RAS) visited R/V SONNE and attended crew- and scientist-led tours that were met with great interest. Finally, apart from the usual harbor operations, crew and scientists of the ship took part in an excursion organized by our Russian friends to Termalny, a village known for its hot springs located about an hour's drive southwest of Petropavlovsk. We thoroughly enjoyed bathing in the warm, mineral-rich waters and ended the evening with a nice barbeque.

On Sunday afternoon, R/V SONNE left Avacha Bay and continued its scientific cruise heading north, where we shall conduct further investigations of the Russian parts of the Bering Sea. Here, we will be dredging canyons that deeply cut into the southern flank of the so-called Komadorsky block, a formation on which the western-most islands (Medny and Bering) of the Aleutian chain are located. We hope to retrieve old rocks that can provide us with new data on the inception and early geological history of the Aleutian Arc. In the following days we will pass through the island arc to sample young submarine volcanoes immediately north of the islands. These dredging operations are intended to tackle the questions of whether and how the composition of the lavas of the Aleutian volcanoes changes along their western expanse. These data are, among other aspects, needed to reconstruct the physical and chemical parameters during magma generation in this area. This is of particular interest, because the subducting Pacific plate is here moving almost parallel to the Aleutian Arc. Furthermore, sampling of submarine structures is the only way to get insight into recent magmatic processes in this area since the western-most Aleutian islands are uplifted tectonic blocs and young volcanoes do not exist on the islands.

After five weeks at sea, the visit to Petropavlovsk and its surroundings was a welcome and relaxing respite for all on board. Unfortunately, the weather in Petropavlovsk was - with temperatures around 60°F, low clouds, and frequent rain - quite unfavorable. However, near the end of the second leg of cruise SO-249 we will again enter Avacha Bay and then will have a second chance to see the massive volcanoes – some of the largest and most active subduction volcanoes on Earth - that encircle Petropavlovsk. All scientists are well and send their greetings to those at home.

Reinhard Werner (chief scientist SO249 Leg 2) and the cruise participants



R/V SONNE on its way to the pier in the port of Petropavlovsk. The cranes were produced in the ex-GDR. The pier is dotted with bags that contain mining products. (Gesine Wellschmidt)



A Russian tugboat is pushing R/V SONNE gently towards the pier. (Alexander Ziegler)



A view of R/V SONNE with Avacha Bay in the background taken from Leninskaya Street. (Alexander Ziegler)



The town Petropavlovsk was named after the two ships of Vitus Bering, namely the 'St. Peter' and the 'St. Paul'. The monument pictures the two saints. (Alexander Ziegler)