

IODP Expedition 382: Iceberg Alley and Subantarctic Ice and Ocean Dynamics

Week 1 Report (20–23 March 2019)

The first week of the International Ocean Discovery Program (IODP) Expedition 382, Iceberg Alley and Subantarctic Ice and Ocean Dynamics, consisted entirely of port call activities in Punta Arenas, Chile. All times in this report are in ship local time (UTC – 3 h).

Operations

The Iceberg Alley expedition started on 20 March 2019. Because of the early arrival in port of the previous expedition, Amundsen Sea, much of the oncoming surface freight was loaded before the start of Expedition 382. The vessel was berthed at Mardones Pier, 2.5 mi north from the originally planned berth at Prat Pier.

The Expedition 382 Co-Chief Scientists and Expedition Project Manager boarded the vessel at 0930 h on 20 March and met with the offgoing science party. The IODP JRSO technical staff conducted their crossover with the departing staff, who left later in the afternoon. Oncoming freight continued to be loaded, and the Siem Offshore and IODP air freight arrived in port.

The Expedition 382 science party boarded at 1030 h on 21 March. We held presentations about life aboard the vessel and general safety. A ship tour was held for a group from the local university. The Expedition 379 cores and the remaining IODP outgoing freight were offloaded, and the vessel left the pier at 2135 h to make way for a commercial vessel and moved to anchorage close to Punta Arenas.

Science Results

IODP Expedition 382, Iceberg Alley and Subantarctic Ice and Ocean Dynamics, will investigate the long-term climate history of Antarctica, seeking to understand how polar ice sheets responded to changes in atmospheric CO₂ in the past and how ice sheet evolution influenced global sea level. We plan to drill six sites in the Scotia Sea, east of the Antarctic Peninsula, providing the first deep drilling in this region of the Southern Ocean. We expect to recover >600 m of late Neogene sediment at the southerly sites that will be used to reconstruct the past history and variability in Antarctic Ice Sheet mass loss and associated changes in oceanic and atmospheric circulation.

On 22 March, the scientists met with the IODP technical staff and were introduced to laboratory safety, followed by a guided walk-through of the laboratories. The science party met to discuss the primary objectives of the Iceberg Alley expedition and participated in the Captain's

introduction and safety meeting. The scientists met in their laboratory groups and the technicians introduced them to the laboratory instruments, procedures, and software.

On 23 March, the Operations Superintendent gave three guided tours of the vessel to scientists and new technicians. The Curator trained the science party in sampling procedures, and the scientist teams continued to learn their laboratory procedures, such as the core description software and the X-radiograph instrument, which was first used during the Amundsen Sea expedition. A lifeboat drill was held at 1300 h.

Technical Support and HSE Activities

Technical staff moved aboard, completed their crossover with the offgoing staff, and started preparing the laboratories and science party for the upcoming expedition.

Port Call Activities

- Crossover with offgoing IODP JRSO technical staff was completed on 20 March.
- Daily staff meetings were held during port call.
- Expedition 379 core, surface, air, and temperature-controlled shipments were offloaded.

Laboratory Activities

- The new compressor was installed in the liquid nitrogen generator. The generator is operating normally.
- Rad Van A/C units were serviced by a local vendor to remove any remaining Freon and confirm they are both empty.
- New IODP JRSO technical staff are training in assigned laboratories.
- The science party was introduced to laboratories by technical staff.
- PmagPy software was installed on Mac computer in Paleomagnetism Laboratory.
- Laboratories are being prepared for coring.

Application Support Activities

- Crossover with offgoing developers held regarding projects they worked on and outstanding issues.
- Crossover with offgoing Laboratory Officer held regarding new X-ray imager whole-round track software and bug fixes to IMS-SRM.
- Performed BOX to purge Expedition 379 data from database; set up science software accounts for oncoming scientists and technicians; configured database for Expedition 382.
- Installed Correlator 3.0 on Mac correlation station on Core deck.
- Presented introduction to SCORS and Correlator software to stratigraphic correlators.

- Attended Cold-weather training class presented by physician.

IT Support Activities

- Conducted crossover with offgoing Marine Computer Specialist staff.
- Completed BOX tasks to prepare computing environment for Expedition 382.
- Attended expedition IT meeting with scientists.
- Assisted scientists with connecting devices to network, email, and server access.

HSE Activities

- Conducted ship and laboratory safety orientation for science party and new IODP JRSO technical staff.
- Radiation and Laser Safety training given to new IODP JRSO technical staff.
- X-ray imaging system safety and operation training begun for science and technical personnel.
- Abandon ship and fire drill held on Saturday 23 March.
- Safety showers and eyewash stations were tested.