

IODP Expedition 318: Wilkes Land Glacial History Week 2 Report (10-16 January 2010)

OPERATIONS

During this second week of the Wilkes Land Expedition 318, the vessel continued on a SSW course coming within 30 nautical miles of Auckland Island the morning of 12 January. Once the vessel moved south of the protection of Auckland Island, it was exposed to the open expanse of the Southern Ocean and the powerful low-pressure systems that populate this region. The vessel negotiated through intense winds and sea conditions from 12 January until the morning of 15 January. Frequent course changes and reductions in speed were made to avoid the most intense parts of a large and severe low-pressure system that was crossing the projected ship track. Although the vessel remained on the other edge of the system, the combined sea and swell reached 40 feet and the winds were clocked as high as 60 knots. Vessel motion ranged from moderate to heavy and on one occasion the ship experienced a 13° roll.

The vessel began to ride more smoothly in improving sea conditions by the afternoon of 15 January and was proceeding at nearly 10 knots to Prospectus Site WLSHE-09B. During the evening, the first penguins were observed hinting that we might be approaching ice-strewn waters. At 0345 hr on 16 January, the first iceberg was spotted on radar at 9 nmi and then visually observed at 5 nmi through the fog and mist as it passed on the port side. It was pinnacled and rigged and estimated to be approximately 300 feet long and 50 feet high. There were also a few growlers in the vicinity. During the day, the vessel speed had to be reduced when fog and mist reduced the visibility to less than 1/8th nmi. At 0440 hr on the morning of 17 January, ship's radar picked up a large iceberg at 17 nmi with a calculated closest point of approach of 7 nmi to starboard.

By midnight on 16 January, the vessel had traveled 1505 nmi at an average speed of 8.3 knots. The estimated time of arrival on site is midmorning on 18 January. Satellite analysis of ice coverage in the region indicates the area is mostly free of large icebergs and floes. The winds at our first site are forecasted to pick up and peak at about 40 knots the evening of 18 January and then decrease; temperatures are expected to be around 0°C. The new long-range outlook through 22 January indicates good weather conditions on site.

Throughout the week, the drilling crew continued preparations for drilling operations in the severe Antarctic weather conditions. A wind wall was constructed around the drill floor, exposed piping (heating, air, drain, and water) was insulated, electrical lines were run for heaters in the mud pump room and behind the drawworks, and external space heaters were tested.

SCIENCE RESULTS

During this second week of the Wilkes Land expedition we continued discussing the expedition science background, preparing the laboratories and refining methods, and providing orientation to the scientific participants. A series of science talks were given covering various aspects of Antarctic climate and ice sheet history based on previous Antarctic drilling. Meetings covered education and outreach activities, ice/weather observation and forecasting, co-chief scientist science presentation for drilling and USIO staff, and expedition operations planning.

The curator provided training on core handling and sampling, and scientists conducted core flow and data acquisition on practice cores. Core Description and Paleontology groups worked with specialists to refine work flow and data acquisition. Scientists are finalizing their shipboard methods and shipboard sampling plans are being refined. The Operations Superintendent and Coring Technicians gave scientists an introduction to drilling operations and coring tools.

TECHNICAL SUPPORT AND HSE ACTIVITIES

The technical staff continued preparing the lab for coring. Meetings were held to prepare for potential use of seismic sources. This included a meeting with all operational staff to ensure all involved understand procedures for proper implementation of seismic source use. A marine mammal orientation was held for all technicians who will be standing marine mammal watches during seismic and check shot activities.

A safety orientation regarding safe handling, spill response and burn treatment for hydrofluoric acid was provided for all the scientists and technical staff working in and around the chemistry lab. All safety showers and eyewash stations were tested. A fire and boat drill was conducted that included all scientists donning their survival suits.