

IODP Expedition 363: Western Pacific Warm Pool

Week 1 Report (6–8 October 2016)

Operations

Expedition 363 (Western Pacific Warm Pool) officially began with the first line ashore at Jetty 2A of the Loyang Offshore Supply Base, Singapore, at 0848 h on 6 October 2016. The Co-Chief Scientists, IODP JRSO staff, and Expedition Project Manager boarded the vessel at 0930 h on the first day of port call. The Siem Offshore crew change occurred at 0730 h on the second day of the port call (7 October), with the Expedition 363 science party boarding the vessel at 1000 h. One member of the science party was delayed until the evening of 8 October.

Bulk loading began on the first day of port call, with 40 short tons of Class G cement being loaded. Bulk loading continued through the third day of port call, with 40 short tons of barite and 120 short tons of sepiolite loaded. In addition, 12 joints of 10¾ inch screened casing were loaded and stored in the riser hold for use on an upcoming expedition. A derrick inspection to determine maintenance requirements began on the third day and continued through the port call.

Science Results

IODP Western Pacific Warm Pool (WPWP) Expedition 363 (based on IODP Proposal 799-Full2) aims to understand the interaction between climate and the WPWP from the middle Miocene to Holocene. A series of sites will be drilled in the western equatorial Pacific and eastern Indian Ocean to investigate (1) the role and response of the WPWP to millennial climate variability during the late Quaternary, (2) changes in the WPWP and relation to monsoon activity on orbital timescales during the Pliocene-Pleistocene, (3) changes in the Indonesian Throughflow during the Pliocene-Pleistocene, and (4) the long-term evolution of WPWP sea-surface (SST) and intermediate water temperatures and ocean chemistry since the middle Miocene.

Sediments obtained from these sites will serve to investigate the relationships between millennial-scale variability in the tropical Pacific and in the northern Atlantic; the controls on tropical Pacific SST patterns on various timescales; the response of the hydrologic cycle and the mechanisms controlling these variations; the evolution of the WPWP from the mid-Miocene Climate Optimum to the present; and the relationships between changes in the equatorial Pacific mean climate state and dynamical processes and how they relate to the Pliocene-Pleistocene transitions. These objectives will be achieved by double or triple coring at eight primary sites in the eastern Indian and Western Pacific Oceans, with total penetration depths ranging from 100–490 m below seafloor (mbsf) in water depths of 1000–2600 m.

The science party for Expedition 363 includes scientists of 11 nationalities from 10 IODP member countries, as well as an Education and Outreach Officer from Australia and a filmmaker from the United States. The first three days of the expedition were spent introducing the scientists to life aboard the *JOIDES Resolution* and what to expect during the expedition. The scientists received instruction in shipboard safety and were given a tour to familiarize them with the ship. They also completed personal laptop computer setup and were given a detailed core flow laboratory tour by the Expedition Project Manager.

Technical Support and HSE Activities

The following technical support activities took place during Week 1.

Port Call

- Crossover with offgoing technical staff was completed on 6 October.
- Daily staff meetings were held during port call.
- Laboratory tours were conducted for three groups on 7 October.
- Expedition 362 cores (one container) and World Courier shipment were offloaded.
- Expedition 363 surface and air shipments were received.

Laboratory Activities

- Laboratories are being prepared for coring.
- A water leak in the Chemistry Laboratory fume hood was caused by a 2 inch diameter hole in the fiberglass fan housing. The hole appears to have been part of the design, suggesting that it lost its plug. The hole has been sealed.
- 2G conducted a service call for the Superconducting Cryogenic Magnetometer.
- Fifteen LED lights were installed in the Core Laboratory, the Paleontology Preparation Laboratory, and at the entry to the core deck.
- Developers started beginning of expedition activities, including creating laboratory data management accounts for participants and new staff, as well as beginning routine setups.

HSE Activities

- Conducted life at sea and laboratory safety talk and tour for scientists.
- Safety awareness sheets were completed for Chemistry, Physical Properties, Whole-Round Multisensor Logger track, and Paleomagnetism Laboratories.