

## **IODP Expedition 351: Izu Bonin Mariana Arc Origins**

### **Week 1 Report (30 May–1 June 2014)**

#### **Operations**

The IODP IBM Arc Origins Expedition officially began with the first line ashore Honmoku Jetty, Berth No. 3 (Yokohama, Japan) at 1106 h on 30 May 2014. The first week of our expedition consisted entirely of port call activities. The Co-chief Scientists and IODP staff arrived dockside at 1230 h. Activities began upon arrival with immigration clearance, which was completed by ~1500 h. This was immediately followed by the IODP crew change and crossover. The following day (31 May) the ship's crew change and crossover took place.

Logistical operations during the port call included: replacing the damaged fiber optic cable of the subsea camera system; installing syntactic foam blocks on the camera systems vibration isolated television frame (VIT) to reduce the payload weight in water, which effectively lowers the target buoyancy benefit from the planned 1300 to 800 lb; offloading 308 joints of potentially damaged IODP 5 inch drill pipe; loading 189 joints of borrowed CDEX 5 inch drill pipe and assembling it into stands for the racker; loading 32 joints of 16 inch and 62 joints of 10.75 inch casing; loading all other operational hardware, including mud motors, underreamers and reentry cones; loading local fresh food along with all other dry goods, and refrigerated/frozen food. Two boxes of core liners were also loaded. Approximately 20 short tons of bulk class G cement and ~160 short tons of bulk Sepiolite sea gel were loaded via pneumatic truck (P-truck). The bulk material was shipped in sacks to Japan and transferred locally to P-trucks. In addition, an NSF business systems review team toured the ship.

Departure of the *JOIDES Resolution* remains on schedule for 0600 h on 4 June.

#### **Science Results**

The IBM Arc Origins expedition will core and log one primary site in the Amami Sankaku Basin to investigate the initiation and evolution of an intra-oceanic arc. The four primary objectives of this expedition are: (1) determining the nature of the pre-existing crust and mantle prior to subduction onset in the Middle Eocene; (2) identifying and modeling the subduction initiation process and initial arc crust formation; (3) determining the Paleogene compositional evolution of the IBM arc; (4) establishing the geophysical properties of the Amami Sankaku Basin. Additionally, there are several secondary objectives, including: (1) reconstructing early Tertiary or older oceanographic conditions in the eastern Tethys-western Pacific; (2) studying the onset and persistence of the East Asian Monsoon, as well as other climate-modulated events; (3) recovering an ash record to document the evolution of the Ryuku Arc.

## **Education and Outreach**

This week we prepared the devices needed for workflow at sea, both for social media and educational broadcasts. The iPad was fully updated for conference calls, including the new installation of the Polycom application, and we familiarized ourselves with the capabilities and limitations of the network. Teachers were contacted about expedition broadcasts, and test connections were scheduled with shore and their respective institutions. The various social media outlets (Facebook, Twitter, Instagram) were updated, with photos and posts successfully uploaded from the ship. The *JOIDES Resolution* website was populated with photos and information on the Science Party, in addition to updating the “Current Expedition” with Expedition 351 information. The website “Vessel Tracker” was linked to the *JOIDES Resolution* website, which allows for real time GPS tracking of the ship. We began to develop a workflow for producing photography and videos to post online, as well as documenting the Port Call and initial Science Party meetings. We started discussions with Science Party members about collaboration during educational broadcasts, in addition to creating content to send to their home institutions.

## **Technical Support and HSE Activities**

After the IODP staff boarded the vessel at Honmoku Berth 3 on 30 May, the following activities took place:

### Laboratories

- Chemistry
  - Training for new chemistry technician
  - Laboratory prepared for upcoming coring
  - Training for possible use of hydrofluoric acid (HF)
- XRD
  - Service call by Bruker; XRD at present is up and running
  - Training of new technician in XRD Lab
- Laboratories being readied for coring
- Freight distributed
- Microscope service call

### Miscellaneous

- Scientists introduced to labs
- Tours of ship

## Freight

- Offloaded
  - Air freight
  - World courier
  - One flat
  - 4 gas bottle racks for storage on shore
- Received
  - IODP air shipment
  - IODP surface shipment container
  - Casing and drill pipe

## Health and Safety Activities

- Safety tours
- Safety awareness sheets completed for chemistry, physical properties, the whole-round multisensor track, and paleomagnetic areas
- Safety showers and eyewash stations tested
- Hoods checked
- Technicians given HF safety and awareness training