

## Biostratigraphy and Paleomagnetostratigraphy in Sites IODP C0001 and C0002, Expedition 315: NanTroSEIZE Megasplay Riser Pilot

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The first *Chikyu* scientific coring expedition; IODP Expedition 315 (15th Nov - 19th Dec., 2007) reached depths of 458 and 1057 mbsf (meter below sea-floor) at Sites **C0001** and **C0002** in the slope apron and forearc basin respectively in the Kumano Trough area.

An excellent biostratigraphy was established for the interval **Units IA&B** (between 0-196.76 mbsf) at site **C0001** due to a combination of events of calcareous nannofossils and planktonic foraminifers. Paleomagnetic data in the interval reveal clear polarity changes matching well to the biostratigraphy results. The stratigraphic results reveal a relatively constant sedimentation rate (140 to 180 m/m.y.) and no remarkable gaps in the studied interval. On the other side it was suggested that there is a large time break around **Unit IC** (196.76 to 207.17 mbsf), which is characterized by thick sand layers. Although correlation of paleomagnetic polarities is unclear below this horizon, several identified biostratigraphic events suggest that **Unit IIA** (accretionary prism) ranges from the early Pliocene to late Miocene with the sedimentation rates ranging from 31 to 44 m/m.y.

At Site **C0002**, coring began from at 475mbsf and penetrated through down to 1052.5 mbsf. Nannofossil events indicate a constant and higher sedimentation rate (400-800 m/m.y.) between 475 and 830.4 mbsf. Although magnetic data between 475 and 642 mbsf was compromised due to drilling disturbance, a polarity change at 848 mbsf is regarded as the top of Olduvai (1.778 Ma). Nannofossil data demonstrate that the sedimentation slowed down in **Unit III** (830.4-935.6 mbsf) to ca 18-30 m/m.y., and the age of accretionary prism (**Unit IV**) underneath Kumano forearc deposits corresponds to the late Miocene.

Paleomagnetic data were also used to orient the structural data of fault, bedding, and veins. The orientated normal faults observed in the slope and forearc-sediments reveal a similar stress direction to that expected by the borehole break out in Expedition 314. On the other side, the older multi-deformation stages were identified successfully in accretionary sections at **C0002**. Not only paleomagnetic declination but inclination has also valuable information concerning the sequence structure. It is regarded that the inclination bias in the interval between 840 and 935.6 mbsf in **C0002** reflects the bedding attitude, which probably inclines northward.

The age and directional information obtained during the cruise is quite important to understand the complex structure of forearc-architecture, and consequently those data are crucial to establish the growth of the fault system in the study area.