Geologic ages of the NanTroSEIZE cores based on calcareous nannofossils and correlation of the Neogene and Quaternary strata from the Kumano Forearc to the Shikoku Basins

Koji Kameo (Chiba Univ.), Shun Chiyonobu (RITE), and IODP Expedition 338 Scientists

The Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) started along the subduction zone of the southwest Japan in the Kumano transect since 2007 (e.g., Kinoshita et al., 2009; Moore et al., 2013). This multiyear drilling plan has collected good stratigraphic data of deep-sea sediments along the transect, the Kumano Forearc Basin-Trench-Slope Basins-the Shikoku Basin, offshore the Kii Peninsula. No corresponding deep-sea facies around the Kii Peninsula are exposed and thus geological and geophysical data of the NanTroSEIZE sediments are very important to understand geologic history during the Neogene-Quaternary in the southwestern Japan. This study presents summaries of previous calcareous nannofossil biostratigraphies of the main cores during the NanTroSEIZE and new age data obtained by recent Expedition 338 (Moore et al., 2013). At the same time, the reliability of nannofossil datums during the Neogene and Quaternary around offshore the Kii Peninsula are evaluated. Calcereous nannofossil biostratigraphies at each area are summarized as follows;

**Kumano Basin:** On the basis of results from Sites C0009 (Saffer et al., 2010) and C0002 (Kinoshita et al., 2009), thick middle Pliocene and Quaternary sediments (corresponding above nannofossil zone CN15; ~3.79 Ma>) overlies the accretionary sediments (CN9; ~5.59 Ma>). Some biostratigraphic data in the Pleistocene section at Site C0002 are newly added by Expedition 338.

**Trench-Slope Basins:** In these areas, the Pliocene and Quaternary sediments (above ~CN15) are distributed and stratigraphic reversals are frequently observed due to activity of megaspray faults and/or mass transport of sediments (Kinoshita et al., 2009; Saffer et al., 2010; Henry et al., 2012). Several repetitions of nannofossil datums in a hole are found in the Pleistocene sediments in Holes C0022B and C0021B.

**Shikoku Basin:** Early (middle) Miocene though the Pleistocene nannofossil datums (entire Neogene and Quaternary zones) were recognized in Holes C0011B-D and C0012B-D (Saito et al., 2010; Henry et al., 2012).

Calcereous nannofossil examinations in the NanTroSEIZE sites clarified reliable Neogene and Quaternary nannofossil datums around the southwestern Japan. Twelve datums in the Miocene and 17 datums from the Pliocene to Quaternary are applicable at offshore the Kii Peninsula. In order to evaluate their chronological accuracy, however, future study of oxygen isotope stratigraphy of the NanTroSEIZE cores should be needed.

References


