

Late Pleistocene preliminary Tephrostratigraphy in Kumano Trough for understanding its sedimentary-tectonic evolution

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A stratigraphic correlation of marine-tephras recovered from Kumano Trough during IODP NanTroSeize Stage 1A and other conventional piston-core operations is studied in order to obtain age information of sedimentary sequences. These stratigraphic information provide a opportunity to understand the sedimentary-tectonic evolution of Kumano Trough. Refractive index of glasses and mineral assemblage are measured to identify the characteristics of the tephra layers. Preliminary correlation between studied and previously reported was examined based on these data. General spatiotemporal distribution of tephra layers are documented as followings. No identification of the younger tephra than Sanbe-Ukinuno (Suk: ca. 20ka) in the southern Kumano Trough. Suk interbedding occurs at the shallow depths within a few-m below sea surface in the southern Kumano Trough. On the other side, sediments in the center of Kumano Trough involve the younger tephra such as Kikai-Akahoya (K-Ah: ca. 7.3ka). No identification of K-Ah in the southern Kumano Trough implies either the slower sedimentation which may cause dispersion of the tephra layer by bioturbation, or hiatus (including erosion). A general sedimentation pattern estimated from the tephra stratigraphy is that the slower in the southern and higher in the northern. This fact is concordant with the sedimentary layer structure inferred from the seismic profile. At IODP site C0001, which located at the upper slope we recovered a series of tephra layers. The shallowest (3.91-m) is recognized as Ata-Torihama (Ata-Th: ca 240 ka). Subsequent downward tephra layers (3.91-30.6-m) are correspondent to Holocene tephras such as Ksm series. The depth-age plot of C0001 suggests that a change in sedimentation rates to the slower in around 400 ka. It may relate to tectonic movement. For example uplifting of C0001 area could make this sedimentation pattern. Concerning recovered tephras at the other lower slope sites (IODP sites C0004, C0006, and C0007), they are not likely younger tephra layers, at least we have not identified Holocene layers there. A possible interpretation for this occurrence is that the younger tephra was reworked and consequently dispersed or was totally eroded.