

Clay minerals in the Nankai Trough accretionary sediments as a function of depth

HOSHINO, Koki^{1*} ; KANAGAWA, Kyuichi¹

¹Department of Earth Sciences, Chiba University

We investigated how clay minerals in the Nankai Trough accretionary sediments change in content with depth from ≈ 950 mbsf (meters below seafloor) to ≈ 3030 mbsf at IODP Site C0002 off Kii Peninsula. Quantitative XRD analyses reveal that the content of smectite relative to total clay minerals decreases with depth from ≈ 76 wt% to ≈ 40 wt %, while those of illite and kaolinite increase with depth from ≈ 10 wt% to ≈ 30 wt%. Borehole temperature measurement at this Site revealed the temperature at 900 mbsf to be 38 °C, while the temperature at ≈ 3000 mbsf has been estimated to be ≈ 100 °C based on the temperature and heat flow data at ≈ 900 mbsf and logging-while-drilling bit resistivity data. Thus the observed changes in contents of clay minerals likely reflect a temperature increase with depth.

Keywords: clay minerals, accretionary sediments, Nankai Trough