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Room:Convention Hall

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Mineral compositions and microstructures of accretionary mud samples cored at Site C0002 of the IODP Exp. 315

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We report the results of X-ray diffraction analyses and microstructural observations on mud samples cored by D/V "Chikyu" from the shallow Nankai-Trough accretionary prism during the IODP Exp. 315, which was conducted from November 16 to December 18 in 2007. We also discuss their relations to the failure and permeability properties of these samples which will be reported separately by Takahashi et al. in this session.

We analyzed two mud samples cored from about 945 and 1049 mbsf at Site C0002. Their in situ temperatures estimated from the geothermal gradient measured are 40-44 degrees C, while their in situ pressures estimated from depth-dependent densities and in situ pore pressures calculated assuming hydrostatic pressures are 36-38 MPa and 28-29 MPa, respectively. Triaxial compression experiments and permeability measurements conducted at room temperature and in situ confining and pore pressures revealed contrasting failure and permeability properties of these two samples (Takahashi et al., this session). We have done X-ray diffraction analyses and microstructural observations of these two samples in order to investigate what are responsible for the contrasting failure and permeability properties.

Keywords: Nankai-Trough accretionary prism, mud sample, mineral composition, microstructure, failure property, permeability