

日本海溝のホルスト・グラーベン構造を被覆する堆積物表層の岩相と物性：新青丸KS-15-3航海コア
解析速報

Lithology and physical property of sediments covering horst-graben structures of the Japan
Trench: Preliminary results of KS-15-3 sediment core analysis

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Large coseismic slip along the shallow portion of the plate boundary fault beneath the Japan Trench
caused the catastrophic tsunami of the 2011 Tohoku Earthquake (e.g. Fujiwara et al., 2011; Ito et
al., 2011; Kodaira et al., 2012). Researches on core samples taken by D/V Chikyu (IODP Expedition
343, JFAST) revealed that the plate boundary fault at the IODP Site C0019 of the Japan Trench is
composed of pelagic clay layer which contains large fraction of smectite, and low coseismic
friction of smectite would contributed to the coseismic slip propagation along the shallow portion
of the plate boundary fault (Ujiie et al., 2013; Kameda et al., 2015; Moore et al., 2015). However,
high-resolution seismic profiles indicate heterogeneous distribution of pelagic clay layer, and
there are several portions where the thicknesses of the incoming sediments are very thin (less than
50 m). To reconcile the nature of the "thin" incoming sediments, we sampled seven piston cores from
horst-graben structures of the Japan Trench during the KS-15-3 cruise (R/V Shinsei Maru, May 3-19,
2015).

Cores were taken from four different settings: PC01 from graben, PC02 and PC07 from graben edge,
PC03 and PC04 from horst, PC05 and PC06 from seaward trench slope, respectively. We present
preliminary results of core analysis including visual core descriptions, X-ray CT images and
successive density and magnetic susceptibility values measured by multi-sensor core logger (MSCL),
and discuss sedimentation process of horst-graben structures that causes the diversity of incoming
sediments.