

SIT038-P10

会場:コンベンションホール

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## トンガ海溝深部陸側斜面から採取されたマントル最上部由来の岩石の構造岩石学的研究

### Tonga trench peridotites revealing forearc extension

新海 優里<sup>1\*</sup>, 道林 克禎<sup>1</sup>, 石井 輝秋<sup>2</sup>

Yuri Shinkai<sup>1\*</sup>, Katsuyoshi Michibayashi<sup>1</sup>, Teruaki Ishii<sup>2</sup>

<sup>1</sup>静岡大学理学部地球科学科, <sup>2</sup>海洋研究開発機構

<sup>1</sup>Instit. Geosci. Shizuoka Univ., <sup>2</sup>JAMSTEC

The Tonga trench is one of the deepest trenches in the world. We retrieved samples of peridotite from dredge hauls collected from Boomerang Leg 8 Cruise aboard R/V Melville in 1996 at the deep landward trench slope (19°15.19S, 172°56.29W; depth 8,194-9,371m). Most of samples are remarkably fresh despite of their ocean-floor origin, indicating that intense tectonic erosions have been taken place in the Tonga trench. The samples are harzburgites and show some variation in microstructure consisting of dominantly coarse (>5mm) equigranular texture to minor fine-grained (~0.5mm) parts. They contain high-Cr# spinels in a range between 0.5 and 0.8 with very low Ti contents, suggesting that these peridotites were derived from the Tonga forearc. Olivine fabrics are characterized by intense [100]-fiber pattern. Such olivine fabrics could be developed by transtension type of strain according to a numerical study (Tommasi et al., 1999, EPSL). It suggests that rapid slab rollback of the Tonga trench resulted in substantial extension within the overlying plate.

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