

SSS031-03

Room:105

Time:May 23 11:15-11:30

## Geometry of the Philippine Sea slab beneath the northeastern part of the Kanto plain, central Japan

Hiroshi Sato<sup>1\*</sup>, Susumu Abe<sup>2</sup>, Eiji Kurashimo<sup>1</sup>, Takaya Iwasaki<sup>1</sup>, Naoshi Hirata<sup>1</sup>, Shigeharu Mizohata<sup>2</sup>, Shin'ichi Sakai<sup>1</sup>, Kazumi Asao<sup>3</sup>, Tanio Ito<sup>4</sup>

<sup>1</sup>ERI, Univ. Tokyo, <sup>2</sup>JGI. Inc., <sup>3</sup>Chiba Prefectural Government, <sup>4</sup>Dept. Earth Sci., Chiba Univ.

### Introduction

Beneath the metropolitan Tokyo, the Philippine Sea plate (PHS) subducts on the Pacific plate. To reveal the interaction of two slabs is significant for understanding the potential of devastating slab earthquake. In June to July 2010, we performed the deep seismic profiling along the Kujukuri-Kasumigaura seismic line at the northeastern part of the Kanto plain to reveal the geometry of down going PHS-slab. To obtain the detailed image of contact part of the two slab, we deployed the linear array of seismometers along Tsukuba-Mito and Kasumigaura-Tsukuba (Kurashimo et al., 2011: JpGU).

### Kujukuri-Kasumigaura Seismic line

Onshore-offshore integrated seismic survey was carried out along the off Kujukuri to Kasumigaura. The length of seismic line is about 70 km, including 50 km long onshore seismic line. The used seismic sources were air-guns (3,020 cu. Inch), four vibroseis trucks and dynamite shots (< 200 kg). Seismic signals were recorded by fixed 1520 channel recording system. Shot interval is 100-150 m at onshore line, and 50 m at offshore seismic line. High-energy shots by stationary sweeps of vibroseis trucks, stationary shooting of air-guns and explosives were carried out at 12 locations along the seismic line.

### Upper surface of PHS

We made a low-fold stacking section using the high-energy shot records. The depth section was produced using the velocity structure obtained by earthquake tomography observed by MeSo-net data. The obtained seismic section portrays the northward dipping reflectors. At the Kujukuri the depth of the upper surface of the reflectors is 25 km and the reflective part has 5 km thickness. The reflectors can be traced down to the 38 km in depth beneath Kasumigaura.

### Shallow sediment layer

On the seismic section, 750 to 1000 m thick Upper Pliocene sediments cover the pre-Tertiary rocks. The upper surface of Pre-Tertiary shows horizontal geometry. At the southern part of the seismic section, the sediments show onlap with northward dipping at 10 degrees. This onlap is result regional uplift of the Boso peninsula in middle Pliocene.

Keywords: Philippine Sea plate, seismic reflection profiling, slab geometry, crustal structure, Kanto, tectonics