Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

SSS30-18 Room:Main Hall Time:April 28 16:15-16:30

Ogasawara Bending Slab and Mantle Convection

NIITSUMA, Nobuaki[1*]

[1]Inst. GeoSciences, Shizuoka Univ.

Ogasawara Slab is not only steeply dipping, but also, bending concentrically and reaching to bottom of upper mantle, which are shown with the hypocenters of 14 May 2013 M7.3 (619 km depth) and 7 February 1998 M6.4 (552 km depth).

Pacific Plate is spreading along East Pacific Rise, and subducting along Japanese Islands down to bottom of upper mantle as slab. If we consider the mass balance in upper mantle on Plate motion with accompaning beneath mantle, the mantle should convect from subduct area toward spreadin area.

The allover concentric bending within the upper mantle realizes overturn of the slab. The slab surface contacts with upper surface of lower mantle where upper mantle minerals change phase for higher pressure. The coldest slab surface in the upper mantle could not change the phase, and might float on the surface of lower mantle toward opposit direction of Plate motion. The return flow of the upper mantle, induced by the floating slab surface, might allow the high speed of the largest Pacific Plate motion.

Izu Slab, north extend of Ogasawara Slab, is bending concentrically above ca. 410km of depth and unbending blow the depth as flat slab. The geometry of the shape from Ogasawara Salb to Izu Salb should intercalate discontinuous part of the slab. Nishinoshima erupted in Nobember 2013 on the slab discontinuous part. The forcal mechanisms on the slab discontinuous part change before and after the East Japan Super Erthquake.

Keywords: Ogasawara Slab, Concentric Bending, Mantle Convection, Upper Mantle Bottom, Nishinoshima Eruption