Magnetic depth estimation along subducted plate off Nankai trough to the eastern Shikoku

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Several magnetic dipole anomalies have been observed from the magnetic map using CCOP data set at the Mt. Hanezuru, northern Shikoku and along the Kurosegawa tectonic belt, Yaechi, the southern Shikoku. Preliminary result of magnetic depth estimation and simulation of 2-D forward model show as that; (1) distribution of Eclogite facies around Mt. Hanezuru are consistent with location of magnetic dipole anomaly, (2) it is difficult to explain magnetic anomaly on Yaechi the existence of surface distribution of serpentinite. Deeper and wider magnetic roots are needed to built a magneitc model consistently.

Further more intensive discussion among geological and geophysical evidences are requested to reveal the subducting history of Nankai Trough, the northern edge of the Philippine Sea plate.

Frontier Research Program for Subduction Dynamics have been cooperative experiment with the explosive seismology group on land Shikoku and the northern Shikoku Basin using the R/V Kairei in 1997 and 1999. The purposes of this study are: (1) to obtain a consistent geophysical interpretation for variations in situ crustal structure, gravity, magnetics, and geological structure; (2) to quantify on a fine scale crustal velocity, density distribution, and magnetic intensity variations; (3) to understand the northern edge of the Philippine Sea plate.

Geological investigation and rock sampling has been carried out along the on land track line in August, 1999. 80 rock samples have been measured magnetic intensity, sonic velocity, density and metamorphic properties with description of magnetic pole position. A half of samples are obtained along the explosive line, a quarter is north of Shikoku and the rest is from Sanbagawa metamorphic belt.

Several magnetic dipole anomalies have been observed from the view of magnetic map using CCOP data set at the Mt. Higashi-Akaishi, northern Shikoku and along the Kurosegawa tectonic belt, the southern Shikoku. Preliminary result of magnetic intensity and simple simulation of 2-D forward model show as that; (1) distribution of Eclogite facies around Mt. Higashi-Akaishi are consistent with location of magnetic dipole anomaly, (2) it is difficult to explain magnetic anomaly on the Kisawa-son the existence of surface distribution of serpentinite. Deeper and wider magnetic roots are needed to built a magneitc model consistently.

Further more intensive discussion among geological and geophysical evidences are requested to reveal the subducting history of Nankai Trough, the northern edge of the Philippine Sea plate.