

## Love-wave group velocity distribution in the Antarctic region

# Reiji Kobayashi[1], Dapeng Zhao[2]

[1] GRC, Ehime Univ., [2] GRC, Ehime Univ

Seismicity in the Antarctic plate is very low, except the high seismicity along the plate boundaries. Body waves provide us with local structures. Surface waves are very suitable to estimate structure in the Antarctic region.

In our previous study, the 2-D Rayleigh-wave group velocity distribution in the Antarctic region were determined by using a tomographic technique. In this study, we estimated the Love-wave group velocity distribution by using the same method.

Love waves are sensitive to shallower structure than Rayleigh waves, and are not affected by a water layer. Love wave data constrain give us more information on the estimation of the crustal and upper mantle structure. Since Rayleigh waves reflect SV-wave structure and Love waves reflect SH-wave ones, the difference between Rayleigh and Love group-velocity patterns can suggest the distribution of radial anisotropy.

We used data recorded during 1990-1998. The data, requested by IRIS Wilber II system, contain not only GSN data but other FDSN network data and PASSCAL data. The range of station and epicenter location is between 30S and 90S. The magnitudes are larger than 5.5.

Fundamental-mode Love-wave group velocities were measured by using the multiple filter technique (Dziewonski et al. 1969). The period range is between 20 s and 150 s. Anomalous dispersion curves were removed from the database. Group velocity distributions were estimated by using a tomographic technique of Barmin et al. (2001).

In East Antarctica, a low velocity anomaly corresponding to the thickness of ice and crustal layers appears even at longer periods, while high velocity anomalies appear in the Rayleigh group velocity maps. This suggests that Love waves do not reflect deeper structure. West Antarctica exhibits low velocity anomalies as shown in the Rayleigh group velocity maps. Volcanoes located along the Andean Orogen affects the velocity structure. Low velocity anomalies along the ridges do not clearly appear except for the eastern part of the northeastern Indian Ridge.