



## **Lateral variation of the core-mantle boundary structure from PKP travel times observed by regional seismic network in Taiwan**

B. Huang

Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan (hwbs@earth.sinica.edu.tw)

Differential travel times of PKP-AB (called AB in this study) and PKP-DF (called DF in this study) from local seismic network in Taiwan are used to study the lateral heterogeneity of the P velocity structure of the core-mantle boundary (CMB). In this study, short period seismograms are collected from southern American earthquakes as recorded by the short period array in Taiwan. The selected events have sampled large area of the Pacific Ocean and northern Central America. The differential travel time residuals from different paths show an azimuth variation of 3 s with a mean value which is 0.5 s faster than the iasp91 model but similar to the PERM model. The largest variations in the AB-DF data are associated with paths sampling the CMB beneath northern Central America. The mean value of their differential travel times is about 1.3 s relatively smaller than those from ray paths which have crossed the Pacific Ocean from the eastern to the western side. As for the P wave velocity structure of the PERM, if we changed the lowermost 150 km mantle as a flat discontinuity of 1.3 % fast or as a linear increasing to 2.4 % fast, then the discrepancy can be explained. In general, the observation of this study for regional variations in the D" is consistent with anomalies inverted by tomographic methods using the ISC data which include AB phases in their inversions; however, the residuals here are larger. The array observation of this study suggests that the significant data scattering of AB-DF in a nearby area is due to the small-scale velocity heterogeneities in the D" or the short-period CMB topographic variations, or the combined effects of both.