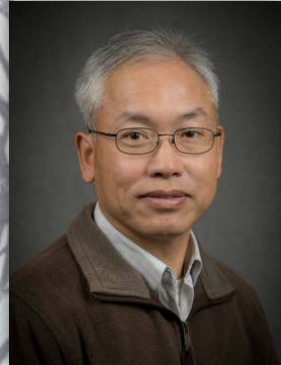


Crustal and Upper Mantle Structure of Eastern China and Its Implications on Extension of Continental Lithosphere



Prof. Lupei Zhu

*Department of Earth & Atmospheric Sciences,
Saint Louis University*

We used teleseismic P-wave receiver functions and the H-kappa stacking method to obtain crustal and mantle transition zone (MTZ) thicknesses beneath 121 permanent stations in southeastern China, using nearly 700 teleseismic events in 2009 and 2010. We then combined them with results of previous work to map detailed Moho and MTZ geometries in the area. We also combined the results with seismic velocity variation to estimate temperature and water content variations in the MTZ. The results show that in addition to overall thin crust of 30 km in thickness throughout southeastern China, there are two NS-oriented narrow zones of extensive crustal thinning in the region. Seismic tomography and receiver function CCP images show a cold and dry stagnant slab in the MTZ beneath eastern China, resulting from a retreating western Pacific subduction since late Mesozoic. We suggest that water released from the subducting slab hydrated and weakened the cratonic mantle lithosphere above the slab and the ocean-ward trench migration caused extension and thinning of continental lithosphere in eastern China.

18 Mar 2016



11:30 a.m.



**Conference Room, 3/F,
Mong Man Wai Building**



Enquires: 3943 9624 essc@cuhk.edu.hk