AOB Seminar

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場　　所: 地震・噴火予知研究観測センター　別館第一会議室
講演題目: Thrust fault strengthening after the 1999 M7.6 Chi-Chi earthquake

We observe changes in the waveforms of repeating earthquakes in eastern Taiwan following the 1999 Mw7.6 Chi-Chi earthquake, while their recurrence intervals appear to be unaffected. There is a clear reduction in waveform similarity and velocity changes indicated by delayed phases at the time of the Chi-Chi event. These changes are limited to stations in and paths that cross the 70×100 km region surrounding the Chi-Chi source area, the area where seismic intensity and co-seismic surface displacements were largest. This suggests that damage at the near-surface is responsible for the observed waveform changes. Delays are largest in the late S-wave coda, reaching approximately 120 ms. This corresponds to a path averaged S wave velocity reduction of approximately 1%. There is also evidence that damage in the fault-zone caused changes in waveform character at sites in the footwall, where source-receiver paths propagate either along or across the rupture. The reduction in waveform similarity persists through the most recent repeating event in our study (November 15, 2007), indicating that the subsurface damage induced by the Chi-Chi earthquake did not fully heal within the first 8 years following the Chi-Chi earthquake.