



Active deformation of coastal plain near the deformation front in SW Taiwan by persistent SAR interferometry

Jyr-Ching Hu (1), Yuyia Wu (1), Chung-Pai Chang (2), and Chih-Heng Lu (2)

(1) Department of Geosciences, National Taiwan University, Taipei, Taiwan (jchu@ntu.edu.tw), (2) Center for Space and Remote Sensing Research, National Central University, Chungli, Taiwan

Taiwan is situated along the collision boundary between the Eurasian plate and Philippine Sea plate and the ongoing subduction with different polarity occurs in northeastern and southwestern offshore area near Taiwan. The northward extension of Manila trench loses its subduction signature and connects to the deformation front of an accretionary wedge offshore southwestern Taiwan and Taiwan orogenic mountain belt. The most southwestern surface exposure of the fold-and-thrust belt is considered along the western edge of the Tainan Tableland, an elongated north-south-trending topography with an altitude of 20-25 m. It is the significant morphological feature of an active growing folding near the deformation front close to the foreland belt of southwestern Taiwan. The fast uplift rate of about 1 cm/yr and the nonlinear deformation rate across the Tainan tableland have been well studied by GPS, D-InSAR, PS-InSAR and precise leveling. The new results of PS-InSAR from 2005 to 2008 demonstrate a deformation rate change along the LOS toward to satellite of 5-10 mm/yr in Tawan lowland east of Houchaili fault. The previous study demonstrated a slight subsidence in the same area observed in 1995-1999. In addition, the maximum SRD rate of about 20 mm/yr are observed from the coastal plain northern of Hsinhua fault towards to the junction of the Hinshua, the Tsochen fault and Lonchou fault. This significant uplift area is located the southern margin of the Peikang High with high seismicity. It implies that the compressional deformation is propagated from western Foothills to coastal plain with active growing folding initiated by western propagation of major thrust systems.