



Preliminary investigation of surface deformation in the mountainous and vegetated regions of central Taiwan using Persistent Scatterer SAR Interferometry

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The rapid convergence between the Eurasian plate and the Philippine Sea plate has been deforming the crust near the plate boundary in Taiwan. The fast deformation in the crust produces many active faults and geomorphic traces in Taiwan. There have been many researches and monitoring equipments installed by various academic institutes and government agencies. However, most of these efforts have been concentrated in the lower altitude areas where access to equipments are easy. In spite of the importance of surface deformation information in the mountainous area, the inaccessibility in the mountainous area have kept researchers from surveying in the area, and rely mostly on the theoretical data. In this research, we use a modern radar interferometric method - Persistent scatterer SAR interferometry (PSI) to investigate the surface deformation in the mountainous region of central Taiwan. The PSI method has been proved to work in rural areas but area such as the Central Range of Taiwan is heavily forested with great relief, which can be difficult for any geodetic surveys. Our preliminary finding shows that in the test area, longer wave-length deformation trends extracted PSI signals from Envisat and ALOS satellites are comparable. However, shorter wave-length features and magnitudes of deformation vary. Our derived results also showed good correlation when compared to the leveling data along the selected profiles.