



## **Application of Radar Interferometry for Monitoring the Landslide Creeping of Jiufen Area, Northern Taiwan**

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Taiwan is one of the most active landslide areas in the world because of its high precipitation and active tectonic. Landslide, which destroys buildings and human lives, causes a lot of hazard and economical loss in the recent years. Jiufen, which have been determined as a creeping area with previous studies, is one of the famous tourist place in northern Taiwan. Therefore, detection and monitoring of landslide and creeping thus play an important role in risk management and help us decrease the damage from such mass movement. In this study, we apply Interferometric Synthetic Aperture Radar (InSAR) techniques at Jiufen area to monitor the creeping of slope. InSAR observations are obtained from ERS and ENVISAT, which were launched by European Space Agency, spanning from 1994 to 2008. Persistent Scatterer InSAR (PSInSAR) method is also applied to reduce the phase contributed from atmosphere and topography and help us get more precise measurement. We compare the result with previous studies carried out by fieldwork to confirm the possibility of InSAR techniques applying on landslide monitoring. Moreover, the time-series analysis helps us to understand the motion of the creeping along with time. After completion of some amelioration measures, time-series can illustrate the effect of these structures. Then, the result combining with fieldwork survey will give good suggestion of future remediation works. Furthermore, we estimate the measuring error and possible factors, such as slope direction, dip angle, etc., affecting InSAR result and. The result helps us to verify the reliability of this method and gives us more clear deformation pattern of the creeping area.