

## Long-term Monitoring of Surface Deformation over Datun Volcanoes

Yi-Ning Hong<sup>1</sup> Feng-Yu Yang<sup>2</sup> and Shih-Yuan Lin<sup>3</sup>

<sup>1</sup>graduate student, Dept. of Land Economics, National Chengchi University,  
NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan; Tel: +886-2-29393091#50610;  
E-mail: [100257026@nccu.edu.tw](mailto:100257026@nccu.edu.tw)

<sup>2</sup>graduate student, Dept. of Land Economics, National Chengchi University,  
NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan; Tel: +886-2-29393091#50610;  
E-mail: [98257023oliver@gmail.com](mailto:98257023oliver@gmail.com)

<sup>3</sup>Assistant Professor, Dept. of Land Economics, National Chengchi University,  
NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan; Tel: +886-2-29393091#51651;  
E-mail: [syl@nccu.edu.tw](mailto:syl@nccu.edu.tw)

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**ABSTRACT:** Datun Volcanoes is the largest volcano group in Taiwan. The existing monitoring over this area reveals that **inside Datun Volcano still has volcanic activity** and it is of potential to erupt in the future. As the volcanoes are very close to Taipei City and Yangmingshan National Park, it is critical to understand the behavior of the volcanoes. To this end, this paper aims to apply remote sensing method to monitor the surface deformation of the Datun Volcanoes. As Synthetic Aperture Radar (SAR) data are capable of penetrating cloud, and the most importantly, centimeters level accuracy is achievable after interferometric processing, SAR and associate processing techniques are proposed as the main method for deformation monitoring. A number of 12 ENVISAT's ASAR archived images covering 2003 to 2008 were acquired. Persistent Scatterers Interferometric SAR (PS-InSAR) technique is then performed to determine surface deformation over Datun Volcanoes. To demonstrate the reliability, the resultant deformation will be compared against accurate discrete GPS and leveling survey data.