

MAPPING THE DEFORMATION OF MAN-MADE LINEAR FEATURES USING DINSAR TECHNIQUE

H. Wu^{*a} Y. Zhang^a J. Zhang^a X. Chen^b

^a Chinese Academy of Surveying and Mapping, Laboratory of Mapping from Space of State Bureau of Surveying and Mapping, Beijing 100830, 100830, Beijing, China

^b East China Institute of Technology, , Nanchang 330013, 330013, Nanchang, China

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ABSTRACT:

Man-made linear features like dams, highways, airports, and so on are very important infrastructures in any society. However, due to natural and human activities, ground deformation is threatening many linear features all over the world. Because of groundwater over-exploration, land subsidence has taken place in Taiyuan, China for many years. The South Ring Expressway and Wushu International Airport in the southern suburb of Taiyuan, is being threaten by severe ground subsidence. In this paper, 13 Envisat Advanced Synthetic Aperture Radar (ASAR) images from 2006 to 2009 have been acquired to monitor the southern Taiyuan City using small baseline differential interferometric SAR (DInSAR) technique. Along the South Ring Expressway, the maximum deformation lies in the central section, with an average velocity about -50 ~ -90 mm/a. The eastern section has the minimum deformation about -15 mm/a while the western section has a velocity about -10 ~ -50 mm/a. Over the Wushu International Airport, the deformation velocity is around -42 mm/a in the southwest and -20 mm/a in the northeast. Precise levelling data in the study area validate our results.

TOPIC: Change detection and process modelling

ALTERNATIVE TOPIC: Change detection and process modelling