



On the use of COSMO-SkyMed time series for the identification of Archaeological traces dating from the Eastern-Han to Northern-Wei Dynasties in Luoyang city.

Fulong Chen (1), Nicola Masini (2), Ruixia Yang (1), Dexian Feng (3), and Rosa Lasaponara (4)

(1) International Centre on Space Technologies for Natural and Cultural Heritage under the Auspices of UNESCO, No. 9 Dengzhuang South Road, Haidian District, Beijing 100094, China , (2) Institute for Archaeological and Architectural Heritage, National Research Council, C.da SantaLoja, 85050 Tito Scalo (PZ), Italy , (3) Institute of Geography, Henan Academy of Sciences, Zhengzhou 450052, China , (4) Institute of Methodologies for Environmental Analysis, National Research Council, C.da Santa Loja, 85050 Tito Scalo (PZ), Italy

The availability of Very High Resolution (VHR) Synthetic Aperture SAR (SAR) data (Lasaponara and Masini 2013, Tapete et al. 2013), such as TerraSAR-X and Cosmo Sky Med launched in 2007, opened a new era in the spaceborne SAR remote sensing, including archaeology remote sensing previous mainly based on optical data (see for example Lasaponara and Masini 2012, Ciminale et al. 2009, Masini and Lasaponara 2006). They provide powerful tools, based on active sensors from space operating in the microwave frequency range, which are useful to extract information about the contemporary landscape and make possible, in some conditions, to infer changes in the former environment and to detect archaeological remains. Nevertheless, the capability of satellite radar technology in archaeology has so far not been fully assessed.

This paper (Chen et al 2015) is a pioneering effort to assess the potential of satellite SAR X-band data in the detection of archaeological marks. We focus on the results obtained from a collaborative contribution jointly carried out by archaeologists and remote sensing experts in order to test the use of COSMO-SkyMed data in different contexts and environmental conditions. The methodological approach we adopted is based on multi-temporal analysis performed to reduce noise and highlight archaeological marks. Results from multi-temporal data analysis, conducted using 40 scenes from COSMO-SkyMed X-band Stripmap data (27 February to 17 October 2013), enable us to detect unknown archaeological crop, soil, and shadow marks representing Luoyang city, dating from the Eastern-Han to Northern-Wei Dynasties.

Reference

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