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On the use of wavelet for extracting feature patterns from Multitemporal google earth satellite data sets

R. Lasaponara
CNR, CNR-IMAA, Tito Scalo, Italy (lasaponara@imaa.cnr.it, 0039 0971 427271)

On the use of wavelet for extracting feature patterns from Multitemporal google earth satellite data sets
Lasaponara Rosa
CNR-IMAA, C.da S. Loja 85050 Tito Scalo (PZ), Italy. E-mail: lasaponara@imaa.cnr.it
The great amount of multispectral VHR satellite images, even available free of charge in Google earth has opened new strategic challenges in the field of remote sensing for archaeological studies. These challenges substantially deal with: (i) the strategic exploitation of satellite data as much as possible, (ii) the setting up of effective and reliable automatic and/or semiautomatic data processing strategies and (iii) the integration with other data sources from documentary resources to the traditional ground survey, historical documentation, geophysical prospection, etc.
VHR satellites provide high resolution data which can improve knowledge on past human activities providing precious qualitative and quantitative information developed to such an extent that currently they share many of the physical characteristics of aerial imagery. This makes them ideal for investigations ranging from a local to a regional scale (see. for example, Lasaponara and Masini 2006a,b, 2007a, 2011; Masini and Lasaponara 2006, 2007, Sparavigna, 2010). Moreover, satellite data are still the only data source for research performed in areas where aerial photography is restricted because of military or political reasons.
Among the main advantages of using satellite remote sensing compared to traditional field archaeology herein we briefly focalize on the use of wavelet data processing for enhancing google earth satellite data with particular reference to multitemporal datasets. Study areas selected from Southern Italy, Middle East and South America are presented and discussed. Results obtained point out the use of automatic image enhancement can successfully applied as first step of supervised classification and intelligent data analysis for semiautomatic identification of features of archaeological interest.

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