

IMAGE PROCESSING OF SATELLITE IMAGES TO HIGH RESOLUTION (QUICKBIRD).

Francesco Immordino (*); **Paolo Luciani (**)**; **Lorenzo Moretti (***)**; **Salvatrice Di Bennardo (****)**.

(*) Protezione del Territorio e dell'Ambiente - Prevenzione e Mitigazione Rischi Naturali
Via Martiri di Monte Sole 4, BOLOGNA, Tel. 0039-051-6098089, Fax 051-6098544,
immo@bologna.enea.it

(**) lucianipaolo@libero.it

(***) Protezione del Territorio e dell'Ambiente, via Don Fiammelli 2 , BOLOGNA,
lorenzo.moretti@bologna.enea.it

(****) s.dibennardo@libero.it

Municipal administration of Foligno (PG) has commissioned to ENEA BOLOGNA (Protection of the Territory and the Atmosphere -Prevention and Mitigation Natural Risks), a study relative to the valuations of the potentialities uses of territory in relation to hydro-geologic susceptibility/hazard.

The analysis of high resolution satellite images QuickBird (0,7 meters Pancromatic; 2,8 meters Multispectral) allows to obtain a modernization a lot detailed of land uses, the association of the coming from multiple data from the spectral bands increases the ability to inquire and to recognize the shapes and the superficial ones. The satellite images are geocoded in UTM (WGS84) coordinated but they are not orthorectified, the first step have been reproject the images in Gauss-Boaga (Roma40) system and from the comparison with the official cartography (Regional Technical Papers) they introduce a approximately disagreement of 200 meters, to such purpose has executed a geocoded that has allowed to reduce remarkably error (<10 meters) but not sufficient in order to obtain a modernization of the cartography. The image processing it is however possible, the job method has previewed a series of survey, in way of having a perfect acquaintance of the territory, for being able to execute a supervised classification. Result of classification has been confronted with another trades software (ENVI®), without to find particular differences. The modernizations, that they will be derives to you from the analysis of the images, will produce levels informed to you reported to the use they of the ground puts into effect to insert in a GIS on-lines (accessible to the user with whichever Internet browser), which will be confronted to you with the characteristics space of territory and will concur the writing of analysis of the potentialities land uses.

The activities that have carried to the realization of the described products over, are:

- Acquisition of the images QuickBird (Pancromatic and Multispectral) of the entire municipal territory.

- Geomorfology and vegetation reliefs for the validation of the QuickBird images;
- Georeferenze of the satellite images in relation to the official cartography;
- Image Processing on the satellite scenes for the definition of it uses puts into effect them of the territory and comparison with turns out to you obtained with ENVI;
- Integrated Analysis and elaboration of the preexistents data and modernizations extracted from the images;
- Realization of a Web GIS through MapServer connecting the levels informed you to a database