



## **Geomatics applied to landslide digital field mapping**

G. Gallerini, L. Brucciattelli, M. De Donatis, S. Susini

(1) L.In.E.E. - Lab. of Info-tech. for Earth and Environment - Universita' degli Studi di Urbino "Carlo Bo" - (g.gallerini@uniurb.it / Phone: +39.0722.304295)

Digital field mapping techniques integrating new technologies and software solutions (Tablet PC, GPS, MapIT- GIS software) has been applied applied for landslide survey. This methods offer a lot of advantages optimizing and reducing time in survey work, homogenizing data acquired from different surveyors, simplifying digital mapping work as write on a field map and a field book. The application of this methods for landslide mapping follows the standard form of IFFI (acronym: Italian Landslide Inventory in Italy) project. The fieldwork is organized using a specific form to acquire data about morphometry, geology, lithology, landslide classification and activity. The first field operation consists of walking around the landslide to survey its characteristics and to acquire the external boundary with GPS. The second action is to acquire the position of the highest crow elevation in the landslide using GPS and to fill the related digital form. Moreover photos, voice comments registered using tablet pc microphone and other documents found during the preparation of fieldwork can be collected and georeferenced. It is possible to examine the aerial photo (prepared before the fieldwork) directly in field, in order to understand and to discover the evolution, the style and the distribution of the landslide. It is possible to write notes and make sketches on the map using the pen of the tablet pc. The survey work integrated and supported by the digital field mapping with tablet pc offers these advantages:

- the real time positioning of all data and information with GPS increases mapping precision;
- the digital form helps to save time and to reduce typing or other errors connected to post-field digitization work;
- the capability to see the digital map directly during field-work operations is useful in order to clearly read the cartographic final product;

- time and costs for survey work and for final map elaboration are reduced;
- the digital field approach reduces loss of information from field work to final map in office (i.e. sketch/section elaborations and photo interpretations are possible directly in field in front of the landslide, directly in digital mode);
- the content, reliability, and accuracy of field survey data are greatly improved.