



## **Assessment of Very High Resolution (VHR) satellite imagery in landslide analysis**

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Landslide inventory maps are generally obtained through the interpretation of a mix of environmental characteristics, such as geomorphology, soil type, derived by traditional photointerpretation techniques of aerial imagery. To this purpose detailed scales larger than 1:5000 are required and often scales from 1:2000 to 1:500 are used. This level of detail implies a sub-meter spatial resolution of image data.

Although remote sensing techniques represent a new powerful tool to obtain information of the Earth surface at various spatial resolutions and different spectral ranges, much work is still needed to evaluate the effective usefulness of remotely sensed data in landslide identification and monitoring. Hence it derives the importance to assess the information quality of the last generation of Very High Resolution satellite sensors with respect to traditional aerial photography.

In the framework of the MORFEO project, funded by the Italian Space Agency (ASI), which aims at the exploitation of Earth Observation technology for landslide risk study, this work compares the information derived over a large test area located in Umbria region (Central Italy) from an IKONOS satellite data set (panchromatic and multispectral), with a correspondent aerial photograph orthorectified through traditional photogrammetric techniques. To this purpose, a methodological approach that elaborates the aerial cover so as to simulate a correspondent acquisition by IKONOS is adopted. Afterwards, the resulting images are comparatively analysed by skilled geologists and the landslide environmental features are mapped. At last, the relative efficiency is obtained by comparison with the available detailed landslide inventory map.