

RESEARCH FIELD:

Geomorphology and Geomatics: new tools and methods for field survey and geothematic mapping

RESEARCH TOPIC:

Geomatics for Earth Sciences analysis: in particular relating to cartography, glaciers, landslides and dissemination but also research activities aimed to the recognition, prevention and risk management.

PARTICIPANTS:

Marco Giardino, Luigi Perotti, Mauro Palomba, Enrico Giordano, Marco Bacenetti, Stefania Bertotto, Alessandra Magagna, Stefania Lucchesi, Stefano Russo, Elena Rapisardi, Luca Ghiraldi, in collaboration with Museo di Scienze Naturali

RESEARCH DESCRIPTION:

Remote sensing, GIS , digital photogrammetry, Laser scanner and GNSS applied to Geomorphology , Environmental and Applied Geology .

The research work is based on the "investigation" of tools and methods of Geomatics that have the best affinity with the geomorphological research. This assumption is accompanied by a wish to maintain the "digital" data and to deepen the knowledge to deal with data collection and analysis of different "geomatics" techniques and tools for managing data and the define complex aspects relating to the data accuracy.

The research starts from simple analisys to perform morphometric analysis from the simplest to the most complex three-dimensional ground models, slope stability analysis, qualitative observation of the environment to the precise quantification of geological phenomena and geological and geomorphological processes.

GeoSITLab is currently developing its research through the use of innovative geomatic methodologies from remote sensing, digital photogrammetry, and Information Systems for the study of the resources and hazards in the alpine environment, with particular regard to the environmental dynamics due to climate changes .

Applied research conducted in the laboratory: environmental and spatial data management for the production of geothematic maps (landslide susceptibility, risk and hazard zonation), satellite images elaboration for classification and environmental / territorial characterization.

LABORATORIES OF THE DST IN USE:

GeoSITLab, Gis and Geomatics Laboratory

RESEARCH PRODUCTS:

- Perotti, L. and Bacenetti, M. and Zamparutti, P. and Giardino, M – 2012 - Tecniche geomatiche per lo studio dell'assetto Geo-Morfo-Strutturale della Val Veny (Courmayeur, AO). WLF Rome 2012
- Giardino, M., Perotti, L., Lanfranco, M., Perrone, G. – 2012 GIS and geomatics for disaster management and emergency relief: A proactive response to natural hazards (2012) Applied Geomatics, 4 (1), pp. 33-46
- Borgogno Mondino, Enrico; Perotti, Luigi; Piras, Marco – 2012 High resolution satellite images for archeological applications: the Karima case study (Nubia region, Sudan)_EUROPEAN JOURNAL OF REMOTE SENSING Volume: 45 Issue: 2 Pages: 243-259 DOI: 10.5721/EuJRS20124522 Published: 2012

- Nigrelli, G. and Chiarle, M. and Nuzzi, A. and Perotti, L. and Torta, G. and Giardino, M. – 2012 A web-based, relational database for studying glaciers in the Italian Alps. Computers & Geosciences 2012
- Perotti, L. and Conte, R. and Lanfranco, M. and Perrone, G. and Giardino, M. and Ratto, S. – 2010. Earth sciences, GIS and geomatics for natural hazards assessment and risks mitigation: a civil protection perspective EGU General Assembly Conference Abstracts, 12 pp 9597
- Giordano, E. and Ghiraldi, L. and Perotti, L. – 2011 Digital tools for collection and visualization of geoscientific data International Symposium on Geosites Management p.17
- Giardino, M. and Brandolini, P. and Perotti, L. - 2010 Sentieristica nelle Alpi Cozie: nuovi strumenti per la fruizione sicura e la valorizzazione del patrimonio geologico e geomorfologico.
- Giardino, M., Perotti, L., Carletti, R. and Russo, S. 2010 - Creation and test of a mobile GIS application to support field data collection and mapping activities on geomorphosites Mapping Geoheritage, Lausanne Institute de geographie, Geovision, 35, pp 115—127
- Giardino M., Alberto W. & Perotti L. - Integrazione di geomatica e geomorfologia per l'analisi delle morfostrutture e delle deformazioni gravitative profonde di versante. Applicazioni in Valle di Susa (Alpi Occidentali), APAT.
- Borgogno Mondino, E., Giardino, M., Perotti, L. A neural network method for analysis of hyperspectral imagery with application to the Cassas landslide (Susa Valley, NW-Italy). (2009) Geomorphology, 110 (1-2), pp. 20-27.
- Ghiraldi, L. and Coratza, P. and de Biaggi, E. and Giardino, M. and Marchetti, M. and Perotti, L. – 2009. Development and usage of Geosites: new results from research and conservation activities in the Piemonte Region (Italy) Studia UBB, Geologia 54 (2), pp 23-26

GROUP CONTACT: Luigi Perotti