Invited speaker Topic 3

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Profile

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Nationality: Italian, Polish

Titles

2011-present: Visiting Professor at the Research School of AridEnvironment and Climate Change, Lanzhou University, Gansu, China
2011-present: Science Officer of the Natural Hazards Group Programme, European Geosciences Union (EGU)
2007-present: Associate Editor of the *Quarterly Journal of Engineering Geology and Hydrogeology* (The Geological Society, London)
2007-present: Member of the Editorial Board of the journal *Engineering Geology* (Elsevier)

Position Held

1989-present: Research Geologist at CNR-IRPI (National Research Council-Institute for Geo-hydrological Protection)

Research Interests

Exploitation of air/space-borne remote sensing in slope/ground instability investigations
Slope instability and landslide hazard assessment
Seismically induced landslides

Education

PhD in Geology, State University of New York at Buffalo, USA, 1987
MA in Geology, State University of New York at Buffalo, USA, 1983
Undergraduate study in Geology, Jagiellonian Unversity, Krakow, Poland,1979

Abstract

High resolution satellite multi-temporal interferometry for detecting and monitoring landslide and subsidence hazards

With the increasing number of radar satellites and improved data processing tools, multi-temporal interferometry (MTI)can considerably enhance our capabilities of monitoring landslide and subsidence hazards.MTI provides long-term (years), regular (weekly-monthly), precise (mm) measurements of ground displacements over large areas (thousands of km^2), combined with high spatial resolution (up to 1-3 m) and possibility of multi-scale (regional to site-specific) investigations using the same series of radar images. To highlight the great potential of high resolution MTI we discuss application examples from two seismically active regions prone to land instability: i) Albania, including the large plain area occupied by the city of Tirana and nearby scarcely populated mountains, and ii) Haiti, including the Port-au-Prince metropolitan area, with coastal and mountain zones destabilized by the 2010 Mw 7.0 earthquake. It is shown that MTI can provide very useful results in a wide range of geomorphic, climatic and vegetation environments.

Keywords: landslide, subsidence, hazard, detection, monitoring, satellite interferometry