DORIS

Ground Deformations Risk Scenarios: an Advanced Assessment Service

TOWARDS A BETTER UNDERSTANDING OF LANDSLIDES AND SUBSIDENCE

Whilst taking on the detection, mapping, monitoring and forecasting of ground deformations in Europe, DORIS integrates Earth Observation technologies with ground based information in order to improve our understanding of phenomena that result in ground deformations.

DORIS is set to explore the application of remote sensing for a better understanding of landslides and subsidence, and of the damage these processes can cause to the European public. In this respect, DORIS:

- Exploits the unique ESA ERS-1/2 and ENVISAT C-band Synthetic Aperture Radar (SAR) archives, and evaluates new SAR sensors, including COSMO-SkyMed and TerraSAR-X, to provide long time-series of ground deformations.
- Moves forwards the combined application of satellite and ground-based DInSAR, coupled with GPS measurements and geophysical probing, for the long-term monitoring of ground deformations.
- Uses high and very-high resolution optical images to identify and classify elements at risk, for the assessment of damage caused by ground deformations, and in the design of risk scenarios.
- Explores the use of thermal images for landslide susceptibility and hazard zonation.

DORIS is designed to deliver products to national and local civil defence authorities. Tested in six study areas in Hungary, Italy, Poland, Spain, and Switzerland, its successful application in these areas is set to guarantee that the service will work in Europe.

DORIS is a research and technological initiative of a consortium of leading research institutes, large and small enterprises, and public administrations with consolidated experience in the exploitation of EO technology for civil defence applications.

Fausto **GUZZETTI**
IS PROJECT COORDINATOR

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DORIS is an advanced European downstream service for the detection, mapping, monitoring and forecasting of ground deformations caused by landslides and land subsidence.

Questions & Answers

What do you want to achieve with this project?

DORIS intends to test an operational service to detect, map, monitor and forecast ground deformations caused by landslides and subsidence. For the purpose, DORIS exploits existing and innovative European satellite technology, in conjunction with ground based information.

Why is this project important for Europe?

Europe is a leader in the use of satellite technology to detect, map and monitor natural hazards, including landslides and subsidence. DORIS will secure this leadership, and will advance our understanding of natural and human induced phenomena with potential harmful consequences.

How does your work benefit European citizens?

In Europe, landslides and subsidence are frequent and widespread phenomena, induced by natural triggers and human causes. Improving our ability to detect, map, monitor and predict ground deformations will help reduce the damage they cause, and minimise harm to the population.

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LIST OF PARTNERS

- University of Florence, Italy
- Italian Space Agency, Italy
- Dipartimento della Protezione Civile, Italy
- Tele-Rilevamento Europa, Italy
- ALTAMIRA Information, Spain
- Gamma Remote Sensing, Switzerland
- Institute of Geology and Mineralogy of Spain, Spain
- Booz & Company, Germany
- Eotvos Lorand Geophysical Institute of Hungary, Hungary
- Federal Office for the Environment, Switzerland
- Polish Geological Institute, National Research Institute, Poland
- Technologies for Earth Observation and Natural Hazards, Italy

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PROJECT INFORMATION

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an Advanced Assessment Service(DORIS)
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GMES Downstream Services