Safety training: Sentinel for Geohazards regional monitoring and forecasting

Context and overview

The main objective of the Safety project is providing Civil Protection Authorities (CPAs) with the capability of periodically evaluating and assessing the potential impact of geohazards (volcanic activity, earthquakes, landslides and subsidence) on urban areas. This goal includes the implementation of a procedure involving new free accessible tools and methods that can produce periodically updated geohazard activity maps and impact assessment maps on infrastructure networks and built-up areas.

The produced maps are based on deformation activity maps derived from Satellite SAR interferometry techniques (InSAR), like Persistent Scatterer Interferometry (PSI). The PSI based deformation activity maps are usually not a standard type of input for CPAs. For this reason, a proper interpretation requires a full understanding of the whole production process, as well as a well understanding of how must be used. Moreover, its integration with different layers, like geohazard inventories or critical infrastructures, provides the capability of generating periodically geohazard activity maps and vulnerability elements at risk. The main goal of the training is to help the potential final users of the Safety products with the knowledge to properly interpret and use them.

Audience

The main target group of the training is represented by Civil Protection Authorities technicians of the different EU countries that deals with geohazard maps in prevention activities. This group will have priority during the registration period. It is also expected the attendance of different organizations like geological surveys that usually works with regional and national authorities.

Course material

Copies of the presentations and other materials presented during the course.

Modules

- Basic introduction to InSAR and PSI.
- Discussion of some key aspects of PSI: main PSI features, e.g. Persistent Scatterers, Line-of-sight, linear model, etc.; main advantages and limitations of PSI data; hints to exploit the data; examples and counter-examples.
- Generation and use of the deformation activity maps: main procedure; hints for interpretation and discussion of the two test sites of the project.
- Generation and use of the susceptibility maps: main procedure, hints for interpretation, discussion of the two test sites of the project.
- Generation and use of the geohazard activity maps: main procedure; hints for interpretation and discussion of the two test sites of the project.
- Generation and use of the vulnerability elements at risk maps: procedure; hints for interpretation and discussion of the two test sites of the project.

Lecturers

The lectures will be delivered by experts of the Safety Consortium, with long experience in the different fields covered by project: SAR remote sensing and geohazard mapping and monitoring. The Safety Consortium is formed by seven independent partners: the Technological Centre of Telecomunications of Catalonia (CTTC), the Instituto Geológico Minero de España (IGME), the Università di Firenze (UniFi), the Consiglio Nazionale delle Ricerche (CNR), Centro Nacional de Información Geográfica and the Instituto Geográfico Nacional CNIG (CNIG-IGN) and the Italian and Canarian CPAs (IDCP and CDCP).