



## **MULTI-RISK ASSESSMENT OF ALPINE ENVIRONMENT - THE CASE STUDY OF NORTHERN PIEDMONT (NW Italy)**

### **INTRODUCTION**

After the positive experience of the Summer School held in 2017 in the area of Monte Bianco, the initiative is also proposed for 2018.

The topic chosen this year is "Multi risk assessment of alpine environment," i.e., the synoptic characterization of natural risks in the mountain environment.

The fragility of mountain areas and their sensitivity to climate change, land use and management are becoming more evident. The exposure of population and infrastructures to natural hazards is also increasing.

Floods, landslides, debris flows, and avalanches are examples of phenomena that are expected to affect mountainous areas with increasing frequency and intensity due to climate change.

In this context, systemic attention regarding hazards, vulnerability, and resulting risk assessment is needed.

The educational and field activities will take place in the Ossola region (northern part of Piedmont region) and its valleys, which represent an operating environment suitable for multi-risk analysis and an exemplary context in the European panorama.

The variety of landscapes (from Monte Rosa to Valle Formazza, from Devero and Veglia alps to Maggiore and Orta lakes) and the numerous exogenous processes that characterize this territory represent particular aspects of the entire Alpine sector, in scientific, application and risk prevention terms.

Topographical and ecological heterogeneity determine a variety of environments, characterized by heterogeneous human settlements and infrastructures, and subjected to different types of natural hazards that produce a varied set of vulnerabilities.

The primary objective of this school is to provide an experience related to the use of modern technologies of observation and mapping of the environment and natural processes (drones, low-cost photogrammetric systems, remote- and proximal sensing).

The focus will be dedicated not only to space/territory and its different scales but also to time.

The territory of Ossola offers a significant benefit: the possibility to link new technologies with the memories witnessing to the signs and the efforts of those who lived in the mountains for centuries, experiencing their evolution.

**ORGANIZING COMMITTEE:** Dott. Daniele Giordan, Prof. Roberto Seppi, Dott. Francesco Zucca



## **SUMMER SCHOOL PROGRAM**

### **July 10, 2018**

- 9 - 9.30 Seppi: introduction
- 9.30 - 11 Chiarle: high mountain hazardous processes and relations with climate change
- 11 - 12 Turconi: Debris flows processes and case studies
- 14 - 16 Maggioni: an introduction to Snow avalanches dynamic
- 16 - 17 Bollati: The contribution of dendrogeomorphological analyses for geomorphological risk assessment in mountain environment
- 17 - 17.30 Zanoletti: geo-tourism in Ossola region

### **July 11, 2018**

Field trip – visit to Belvedere Glacier

### **July 12, 2018**

- 9 - 10 Monserrat: Introduction to SAR satellite applications
- 10 - 11 Zucca: Remote sensing applications for landslides identification and monitoring
- 11 - 12 Luzi: Introduction to Ground-Based SAR applications
- 14 - 16 Cina: GNSS solutions for landslides monitoring
- 16 - 17 Giordan: the use of unmanned aerial vehicles for landslides mapping and characterization

### **July 13, 2018**

Field trip – Gravitational processes of Ossola region

## **LOCATION**

Laboratorio Geologico G.B: Castiglioni  
Centro Visite del Parco Naturale Veglia-Devero  
Frazione Bagni, Via Provinciale, 288  
Crodo (VB)