

Resumé of the 2nd IAEG Summer School: *CLIMATE CHANGE: IMPROVING KNOWLEDGE TO HELP REDUCING GEO-HYDROLOGICAL RISKS OF EXTREME EVENTS*

Aosta (Italy), 3 – 11 July 2023

Following the successful First Edition that was held between Italy and Austria, in 2023 the 2nd IAEG Summer School took part in Aosta, hosted by the University of the Valle d’Aosta.

The topic concerned the impacts of geo-hydrological risks related to extreme events which are increasing due to action of the global warming. The lectures (conducted by prominent international researchers) focused on processes’ mechanisms, cascade events, hazard management and communication by local authorities and resilience/adaptation strategies.

More than 70 students all around the globe applied for attending the summer school. However, due to logistic issues, the number of participants was limited. Doctoral students on related fields were selected and 29 students were admitted (7 of them withdrawn) and thus, the actual students were 22, with provenience from 12 countries (Figure 1). The participants’ gender was equally balanced, with 11 males and 11 females.

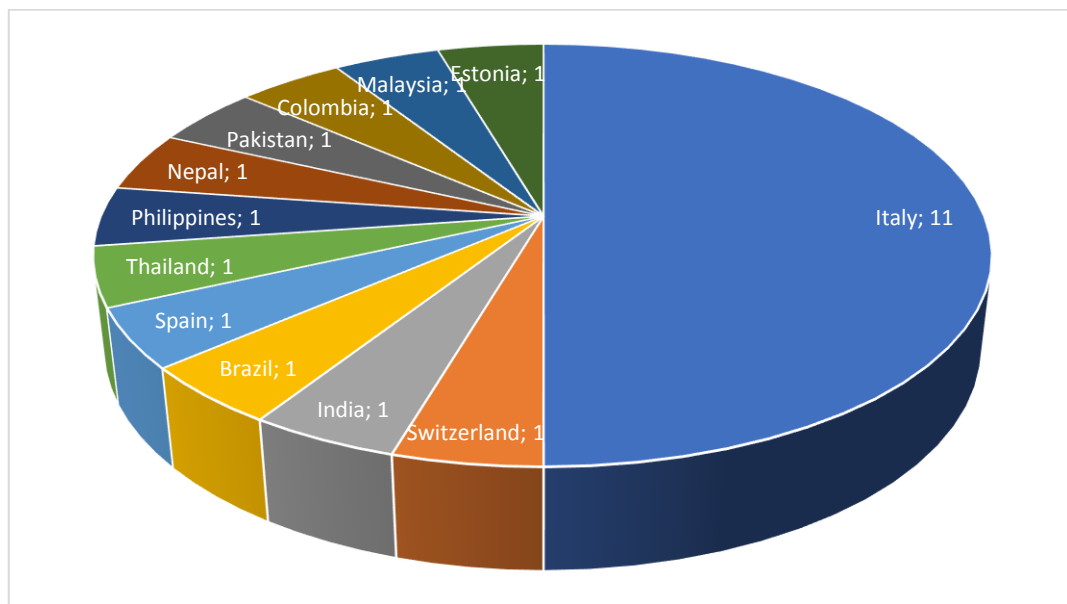


Figure 1. Nationalities of the summer school students.

The program of the summer school included 1-2 hours frontal lectures, two field trips in high alpine environment, and two workshops on remote sensing techniques, organized as follows:

Monday – July 3 2023 – Introductions and background to school and fundamental concepts

8.00 – 9.30 Summer school registration

9.30 – 10.00 Introduction to the IAEG Summer School and presentation of IAEG activities

10.00 –10.30 Welcome to the Aosta Valley Region Raffaele Rocco – Sara Ratto (Aosta Valley region Authority)

10.30 – 11.00 Coffee break

11.00 – 12.00 Introduction to climatic characteristics of the Aosta Valley Region and local climate change effects – Edoardo Cremonese (ARPA VDA)

12.00 – 13.00 The management of geo-hydrological processes and effects in by the Centro Funzionale of Aosta Valley region – Sara Ratto (Aosta Valley region Authority)

13.00 – 14.30 Lunch

14.30 – 16.15 Climate change and its amplified effects in the mountains – Elisa Palazzi (UNITO)



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16.15 – 18.00 Students' presentations
18.00 – 19.00 Ice-break cocktail

Tuesday July 4 2023 – Hydro-metrological Hazards

9.00-10.45 Hydrology in a climate change – Bruno Majone (UNITN)
10.45 – 11.15 Coffee break
11.15-13.00 Extreme rainfall events: dynamic and critical points – Antonio Parodi (CIMA)
13.00-14.30 Lunch
14.30-16.15 Impacts of climate changes to related processes in high mountains – Marten Geertsema (UNBC)
16.30 – 18.00 Impacts of extreme rainfall on slope stability – Paolo Frattini (UNIMIB)

Wednesday – Field trip July 5 2023

Goillet Dam dam and power plant (Grand Sometta rock glacier and Cime Bianche DSGSD)

Thursday – workshop July 6 2023 – Remote sensing techniques to aid mapping

9.00-10.45 workshop (Google Earth Engine for flood and landslide mapping)
10.45-11.15 Coffee break
11.15-13.00 workshop (Google Earth Engine for flood and landslide mapping)
13.00-14.30 Lunch
14.30-16.15 workshop (Python course on digital image correlation)
16.15-18.00 workshop (Python course on digital image correlation)

Friday July 7 2023 – Cascading hazards

9.00-10.45 Windstorms: impacts on slope instabilities and restoration procedures – Emanuele Lingua (UNIPD)
10.45-11.15 Coffee break
11.15-13.00 Snow avalanches and cascading mass movements - Michael Kyburz (SLF)
13.00-14.30 Lunch
14.30-16.15 Debris Flow: dynamic and risk assessment – Marco Cavalli (CNR IRPI)
16.15-18.00 Monitoring snowpack dynamics and related water resources with Earth Observation data – Claudia Notaricola (EURAC)

Saturday – Field trip July 8 2023

Brenva Rockslide, Planpincieux Glacier, Mont de La Saxe Rockslide (Giordan, Crosta, Bertolo, Zucca)

SUNDAY July 9 2023

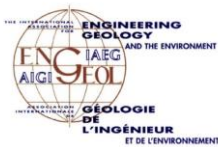
Free day

Monday July 10 2023 – Management of climate change and hazard impacts

9.00-10.45 Management of the impact of climate change in high mountain regions – Wilfried Haerberli (UZH)
10.45-11.15 Coffee break
11.15-13.00 Mud eruptions – Giovanni Crosta (UNIMIB)
13.00-14.30 Lunch
14.30-16.15 The role of groundwater in adaptation to climate change impacts – Tibor Stigter (IHE Delft)
16.15-18.00 Climate changes, economy and adaptation (UNIVDA)

Tuesday – July 11 2023 – Risk management of geo-hydrological processes and correct communication procedures

9.00-10.45 Management of geo-hydrological processes at the regional scale – (Aosta Valley region Authority)
10.45-11.15 Coffee break
11.15-13.00 Management and communication of risks related to large landslides – Davide Bertolo (Aosta Valley region Authority)
13.00-14.30 Lunch
14.30-16.15 Communication of risks in high mountain regions – Jean Pierre Fosson (FMS)



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PHOTO GALLERY



Figure 2. Students and lecturers at the University of the Aosta Valley



Figure 3. Group's picture at Goillet Lake with the Matterhorn in background during the field trip of Cervinia

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Figure 4. On field lecture on permafrost measurements during the field trip of Cervinia



Figure 5. Students at work during the Python workshop

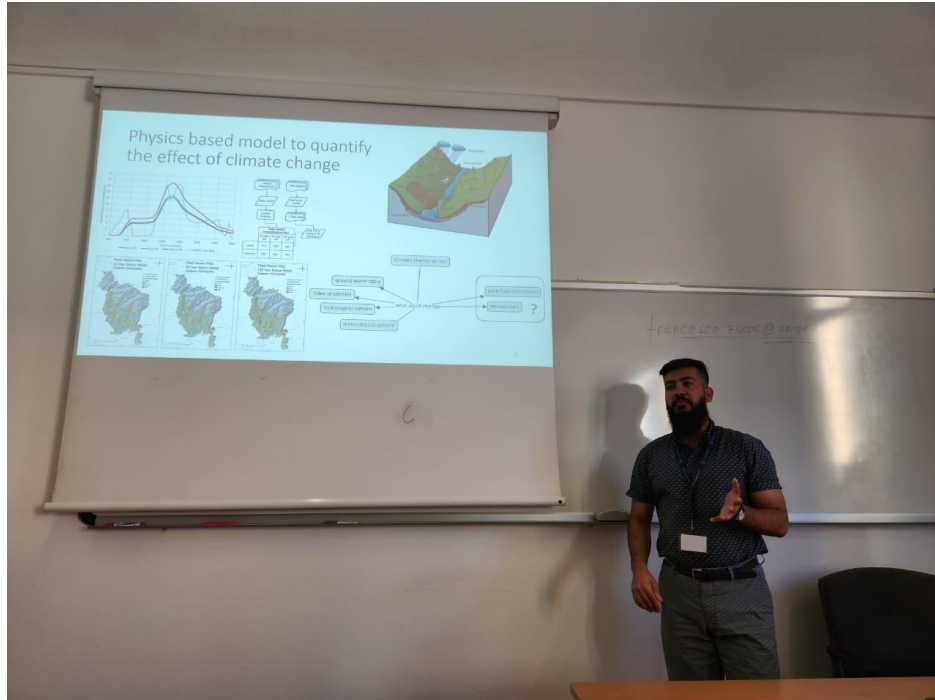


Figure 6. One of the students' presentation on Monday 3rd



Figure 7. Launch break during the field trip of Courmayeur