



FIRST SUMMER SCHOOL OF THE INTERNATIONAL ASSOCIATION FOR ENGINEERING GEOLOGY AND THE ENVIRONMENT

IMPACT OF SLOPE INSTABILITIES ON LARGE INFRASTRUCTURES

Among the most essential activities of engineering geology, there is proactive support in correct planning, realization and of course maintenance of large infrastructures.

Large infrastructures (eg. dams, bridges, tunnels) are as a rule, often realized in complex environments, where number of geological and natural risks (geo status, processes, and events) and their interplay, represent a potential threat to the functionality and safety of infrastructures, workers and users, and as a consequence to the health of citizens as well as to the welfare and functions of communities and their economy. The European Alpine environment represents an excellent example in this sense: complex geological setting and the presence of different slope instabilities together with extreme climate events can hamper the construction and pose at risk the management of infrastructures during their life.

In 2022 the first official IAEG Summer School is organized in the Aosta Valley region, in the North West of Italy, and in Tyrol in Western Austria and is indeed aimed to describe the possible impacts of different infrastructures like dams, tunnels, and other construction realized in the last century in an alpine region. The school will be focused on the description of impacts, but it also will put attention towards correct approaches for the definition of the geological model, the design of the infrastructure, its maintenance, and besides on the proper communication efforts.

The IAEG Summer School participation is free of charge. The number of participants is limited to 25 people, and primarily reserved for Ph.D. students. Post Doc and Master degree students will be considered if places would be available.

SCIENTIFIC COMMITTEE: Giovanni Crosta, Daniele Giordan, Francesco Zucca, Jean Hutchinson, Jean Alain Fleurisson, Vassilis Marinou, Haris Saroglou, Akos Torok, Christian Zangerl

ORGANIZING COMMITTEE: Daniele Giordan, Giovanni Crosta, Christian Zangerl, Francesco Zucca, Marco Alderighi, Raffaele Rocco, Davide Bertolo, Jean Pierre Fosson, Niccolò Dematteis

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SUMMER SCHOOL PROGRAM

4 – 15 July, 2022

The Summer School is divided into two parts, part I which is held in Italy and part II in Austria. For each part a certificate of participation will be issued, comprising 6.5 ECTS for part I and 5 ECTS for part II.

Part I: Italy, Aosta Valley

Monday 4.7.2022

16.00-18.30 Summer school registration

Tuesday 5.7.2022 (Summer school introduction)

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)

10.30 – 11.00 Coffee break

11.00 – 12.00 Introduction to geology and geomorphology of the Aosta Valley Region (Prof. Franco Gianotti)

12.00 – 13.30 Lunch

13.30 – 15.15 Engineering Geology, Geohazards and Infrastructures, Risk and Cost-Benefit Analysis (Farrokh Nadim, PhD)

15.15 – 16.45 Engineering geology from conceptual model construction to investigation for the design and long term maintenance of hydroelectric structures and infrastructures (Michele Sapigni)

17.00 - 18.00 Students' presentations

18.00 – 19.00 Ice-break cocktail

Wednesday 6.07.2022 (Impacts assessment and monitoring solutions of slope instabilities)

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9.00-10.45 Deep seated gravitational slope deformations in the Alps (Prof. Giovanni Crosta)

10.45 – 11.15 Coffee break

11.15-13.00 Rockfalls risk assessment (Prof. Michel Jaboyedoff)

13.00-14.30 Lunch

14.30-16.15 Innovative solutions for landslide monitoring (Daniele Giordan, PhD)

16.30 – 18.00 Students' presentations

Thursday 7.07.2022 - Field trip

Giordan, Crosta, Bertolo, Zucca - Mont Blanc Tunnel, Skyway, Mont de La Saxe Rockslide, Planpincieux Glacier

Friday 8.07.2022 (design, construction, maintenance, and economic impact evaluation of large infrastructures)

9.00-10.45 High mountains glacial instabilities and possible impacts (Fabrizio Troilo)

10.45-11.15 Coffee break

11.15-13.00 Construction of large infrastructures in complex geology (prof. Vassilis Marinou)

13.00-14.30 Lunch

14.30-16.15 The relevance of best practices in the engineering maintenance of large infrastructures (Lorenzo Artaz)

16.15-18.00 Feasibility study and cost/benefit economic evaluation of large infrastructures (Prof. Marco Alderighi)

Saturday morning 9.07.2022 - Field trip

Giordan - Interaction between the Beaugard Dam and deep-seated gravitational slope deformation

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Part II: Austria, Tyrol

Sunday 10.07.2022 – Transfer from the Aosta Valley to Austria, Tyrol, Ötz

Monday 11.07.2022 - Field trip

Zangerl, Holzmann - Landslides in the Kaunertal Valley (Gepatsch Rock Slides, etc.)

Tuesday 12.07.2022 - Field trip

Zangerl - Landslides in the Kaunertal Valley (Gepatsch Rock Slides)

Wednesday 13.07.2022 - Field trip

Zangerl, Kuschel - Landslides and rock glaciers in the Sellraintal Valley and visit of the Lake Piburg near Ötz

Thursday 14.07.2022 - Field trip

Zangerl - Landslides in the Ötztal Valley (Koefels Rock Slide)

Friday 15.07.2022 - Field trip

Prager - Landslides in the Ötztal Valley and at the Fernpass area (Tschirgant and Fernpass Rock Slide)

Closure of the event at the **Ötztal Bahnhof Train Station** at 17:00, with the possibility of a have a transport to **Innsbruck**.

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