ENHANCING THE RESILIENCE CAPACITY
OF SENSITIVE MOUNTAIN FOREST
ECOSYSTEMS UNDER
ENVIRONMENTAL CHANGE

SOCIETÀ ITALIANA
DELLA SCIENZA DEL
SUOLO
MEMBER OF THE
INTERNATIONAL UNION OF SOIL SCIENCES

Joint International Summer School

Advanced methods and new integrated approaches to study soil processes in mountain ecosystems

Alpine Study Center

Pieve Tesino (Trento, Italy)

26th -30th June 2016

COST is supported by the EU Framework Programme Horizon 2020

Scientific organizer committee

Carmelo Dazzi (President SISS)
Sara Marinari (Coordinator of Division 2 - SISS)
Gloria Falsone, Gilmo Vianello (Division 1 - SISS)
Stefano Mocali, Flavia Pinzari, Angelo Basile, Valeria D'orazio (Division 2 - SISS)
Giuseppe Corti, Alberto Agnelli (Division 3 - SISS)
Michele Freppaz, Livia Vittori Antisari (Division 4 – SISS)
Edoardo Costantini (Adviser - SISS)

Stefano Grego, M. Cristina Moscatelli, Kari Laine, Oddvar Skre, Svetla Bratanova – Doncheva, Jouko Inkeröinen (SENSFOR - COST Action)

Local organizer committee

Dipartimento per l'Innovazione nei Sistemi Biologici, Agroalimentari e Forestali, Università degli Studi della Tuscia
Via San Camillo de Lellis
01100 Viterbo, Italy

Sara Marinari, Tommaso Chiti, Luigi Portoghesi, M. Cristina Moscatelli

The Joint International Summer School is organized by both the Italian Society of Soil Science (SISS) and the COST ACTION "*Enhancing the Resilience Capacity of Sensitive Mountain Forest Ecosystems under Environmental Change*" (SENSFOR). The Italian Society of Soil Science (SISS) is designed to promote progress, coordination and dissemination of Soil Science and its applications, and to foster relations and cooperation among its members. SENSFOR is a COST Action started in 2012, and is investigating the drivers and extent of contemporary and future environmental changes in European mountain forests, developing methods for estimating their resilience and define consequences for society.

The summer school will focus on soil properties to study, as integrated approach, soil processes in mountain ecosystems. The school is devoted to PhD students and young researchers interested to know innovative methods to study in a wider meaning. The integration of physical, chemical, biological, and mineralogical properties is adopted in order to understand fundamental soil processes that control transport, cycling, speciation and bioavailability of elements or molecules in soil. These phenomena are studied at multiple scales ranging from global to atomic. During the school an overview of the soils in the Trentino region will be provided as a model of mountain ecosystem. Moreover, traditional and new soil forming factors will be discussed, and special attention will be given to the advanced method on soil analysis. In addition to lectures students will be involved in field trip to Passo Brocon (1650 m a.s.l.), so as to furnish an example of multifunctional use of high mountain environment (food and wood production, landscape and environment resources). Furthermore, in a specific context the soil pedogenesis will be analyzed showing two pedon profiles. Finally, discussion among lectures and students will be encouraged to promote their full involvement in order to have a complete vision of soil as a key component of forest ecosystem.

PROGRAM

Sunday 26th June

Arrivals
17:00-19:00 Participants introduce themselves
20:00 Dinner

Monday 27th June

9:00 – 10:00 Registration
10:00–10:30 Introduction to the summer school (Grego S. SENSFOR; Marinari S. Division 2 - SISS)
10:30-11:20 Soil landscape analysis and landform mapping (Costantini E.)

11:20-11:40 Coffee break

11:40-12:30 An overview of the soils of the Trentino and Lagorai Group (Sartori G. MUSE)

Lunch time : Sandwiches and drinks

14:30-15:20 Can geo-spatial decision support systems be a valuable tool for soil and landscape management? (Basile A., Terribile F.)
15:20-16:10 Peat bogs as natural archives of human activity and environmental changes throughout centuries (Zaccone C.)

16:10- 17.40 *Coffee break*

16:40-17:00 Are humus forms, mesofauna and microflora in subalpine forest soils sensitive to thermal conditions? (Ascher J.)
17:00-17:30 Environmental SEM and microanalysis applications in soil and geomicrobiological studies (Pinzari F.)
17:30-18:00 Exploring soil microbial diversity and functions through Geochip microarrays and Next generation Sequencing (NGS) approaches (Mocali S.)

18:00- 18:30 Discussion

18:30-19:00 Brief introduction to the excursion

20:00 Dinner

Tuesday 28th June

9:30-10:00 Soil survey: how to describe a soil profile (Corti G.)

Field trip to Passo Brocon (Malga Cavallara): spatial variability of soils, soil formation on granite and evidence for climate change

Wednesday 29th June

9:30–10:10 Mineralogy and Related Properties of Forest Soils (Wilson J.)
10:10-10:50 The rhizosphere as a driving force for pedogenesis (Agnelli A.)
10:50-11:30 Fire as a soil forming factor *(Certini G.)*

11:30-11:50 Coffee break

11:50-12:30 The interplay between measurements and processes - at different scales - in soil hydrology (Basile A.)

12:30-13:00 Discussion

Lunch time : sandwiches and drinks

14:40-15:20 Soil characteristics in snow avalanche sites (Freppaz M.)
15:20-16:00 Soil aggregation, erodibility, and aggregate-C relationships in mountain soils (Falsone G.)

16:00-16:30 Coffee break

16:30-17:10 Advanced methodology to investigate soil organic carbon dynamics (Chiti T)
17:10-17:50 Soil carbon dynamics in a changing environment: monitoring activities in the Trentino Region (Rodeghiero M.)
17:50-18:30 Soil temperature as limiting factor for nitrogen uptake in arctic and alpine vegetation in Scandinavia (Skre O.)

18:30-19:00 Discussion

20:00 Dinner

Thursday 30th June

9:30-10:20 Climate and vegetation change: effect on mineral weathering in alpine soils (Egli M.)

10:20- 11:00 Conclusion: putting it all together

11:00-12:00 Final multiple choice test

Lunch time : sandwiches and drinks

13:30 Leaving to Trento

14:30- 17:00 Visit to Museum of Science (MUSE, Trento)

How to apply and fees

The Application form is available at the SENSFOR website http://www.sensfor-cost.eu/

Please send the registration form filled in, signed, and scanned, to sbrat@abv.bg, oddvar@nmvskre.no and marinari@unitus.it by **15 February 2016.**

- 15 SensFor COST Action grants will be available covering max 160€ per day for trainees. The first criteria of the selection will be to assure the presence of students from SENSFOR countries. The list of 15 students winning the COST grants will be available by **30th march 2016** at the SENSFOR website http://www.sensfor-cost.eu/

For all other participants, supported by the Italian Society of Soil Science, the reduced registration fee (70 euro) is due before **15th April 2016.**

Payable to:
University of Tuscia - Dipartimento per l'Innovazione nei Sistemi Biologici Agroalimentari e Forestali (DIBAF) Back: CARIVIT Ag. n. 3

IT15 R060 6514 5081 0000 0300 007, Swift Code: CRVIIT3V

Please specify the reason for payment: **Summer School June 2016 (Pieve)**