



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



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

PhD course, 4 ETCS

Pieve Tesino (Trento) Italy
26th -30th June 2016

Centro Studi Alpino dell'Università degli Studi della Toscana



Dipartimento per l'Innovazione nei sistemi Biologici, Agroalimentari e Forestali

Welcome to a cross-disciplinary course!

Chemical

Physical

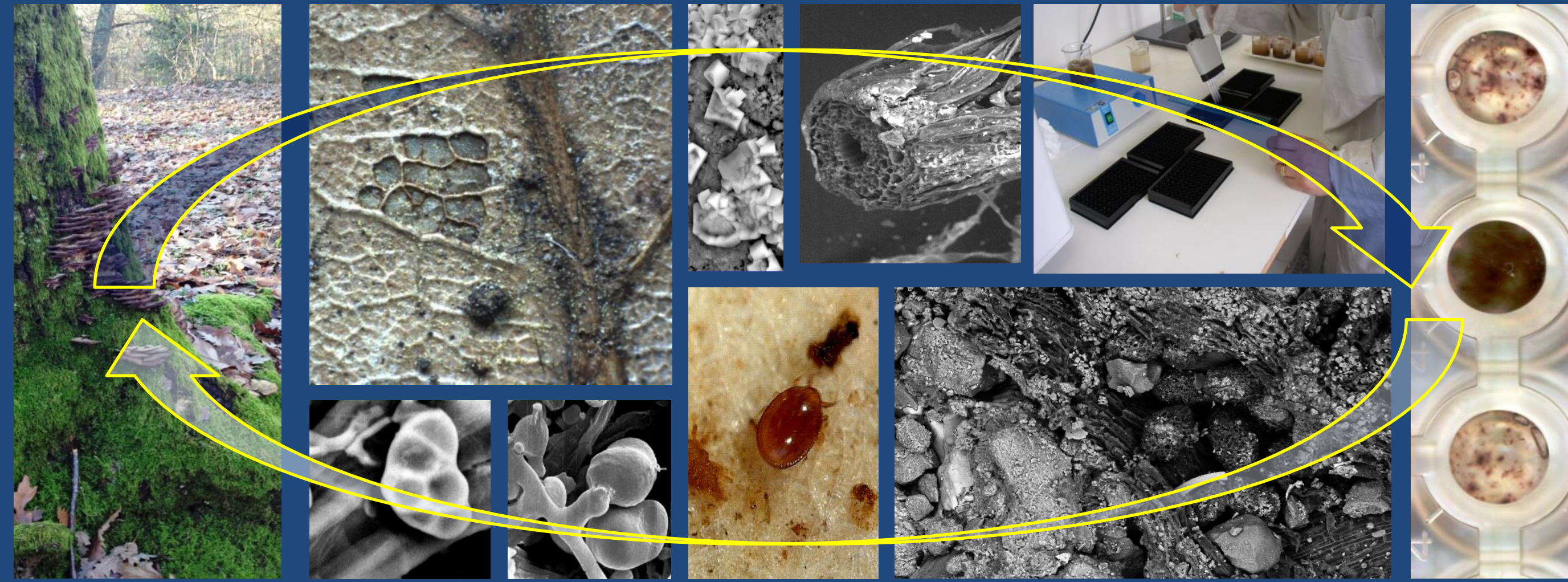
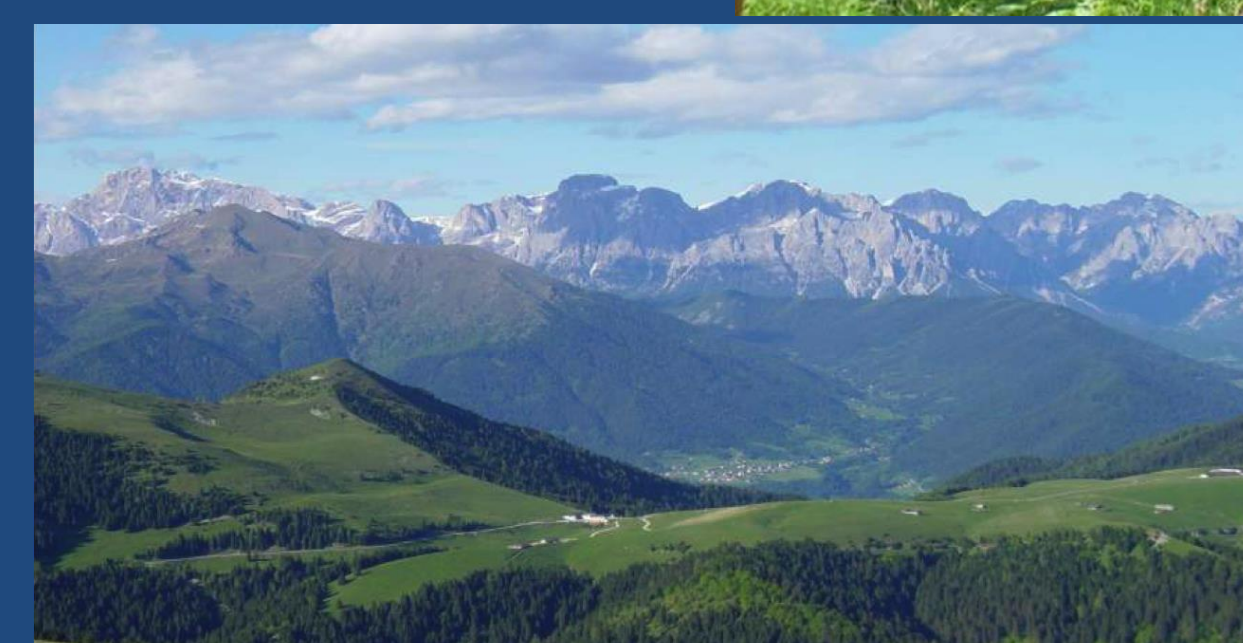
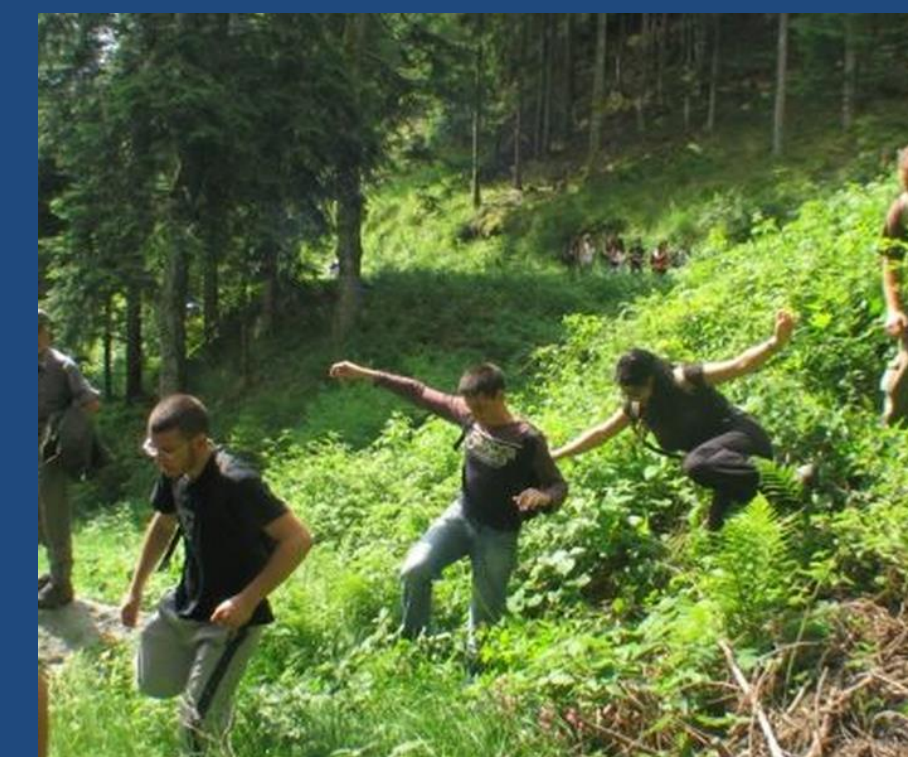
Biological

Mineralogical

Soil properties and processes

that control transport, cycling, speciation and bioavailability of elements or molecules

The methods of soil analysis at multiple scales ranging from global to atomic



To get 4 ECTS you need to:

- Participate to the lectures and seminars.
- Write and hand-in a one A4 page critical reflection of a given scientific task/question.
- Pass the final multiple choice test

Tentative Program

Sunday 26th June

Arrival

Monday 27th June

Introduction to the summer school

Lectures

Soil landscape analysis and landform mapping

An overview of the soils of the Trentino and Lagorai Group

Can geo-spatial decision support systems be a valuable tool for soil and landscape management?

Peat bogs as natural archives of human activity and environmental changes throughout centuries

Are humus forms, mesofauna and microflora in subalpine forest soils sensitive to thermal conditions?

Environmental SEM and microanalysis applications in soil and geomicrobiological studies

Exploring soil microbial diversity and functions through Geochip microarrays and Next generation Sequencing (NGS) approaches

Discussion

Thursday 28th June

Lecture

Soil survey: how to describe a soil profile

Field trip to Monte Mezza and Malga Cavallara: spatial variability of soils, soil formation on granite and evidence for climate change

Wednesday 29th June

Lectures

Mineralogy and Related Properties of Forest Soils

The rhizosphere as a driving force for pedogenesis

Fire as a soil forming factor

The interplay between measurements and processes - at different scales - in soil hydrology

Soil characteristics in snow avalanche sites

Soil aggregation, erodibility, and aggregate-C relationships in mountain soils

Advanced methodology to investigate soil organic carbon dynamics

Soil carbon dynamics in a changing environment: monitoring activities in the Trentino Region

Soil temperature as limiting factor for nitrogen uptake in arctic and alpine vegetation in Scandinavia

Discussion

Thursday 30th June

Lecture

Climate and vegetation change: effect on mineral weathering in alpine soils

Conclusion: putting it all together.

Visit to Museum of Science (MUSE, Trento)

How to apply:

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



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