5th international conference on Soil, Bio- and Eco-Engineering SBEE

19-25 June 2021 | 1st call

Conference venue: Museum of natural history, Bern, Switzerland

Hosts: Bern University of Applied Sciences, EcorisQ

Partner organisations:

ecorisQ
international association for natural hazard risk management
www.ecorisq.org

IUFRO

EFIB

INGENIEURBIOLOGIE
GÉNIE BIOLOGIQUE
INGEGNERIA NATURALISTICA
INSCHENIERA BIOLOGICA

FACHSTELLE FÜR FORSTLICHE BAUTECHNIK
CENTRE POUR LE GÉNIE FORESTIER
CENTRO PER IL GENIO FORESTALE
POST SPEZIALISÀ PER TECNICA DA CONSTRUCZIUN FORESTALA
Bund, Kantone und Fürstentum Liechtenstein

Bern University of Applied Sciences
School of Agricultural, Forest and Food Sciences HAFL
Division Forest Science

5th international conference on Soil, Bio- and Eco-Engineering

As in the preceding SBEE conference series, we will bring together researchers, practitioners, geotechnical and civil engineers, biologists, ecologists, geomorphologists and foresters to discuss current problems in soil-resource sustainability, soil erosion and slope-stability research, and how to address these problems using soil, bio- and eco-engineering techniques.

Over the last 50 years, alterations in land use coupled with the consequences of climate change have led to severe degradation of mountainous and hilly regions around the world, compromising several aspects related to their ecosystem services (e.g., protection against natural hazards, water quality, sustainability of soil resources, etc.). Once erosion processes are underway, the replacement of soil on the denuded slope can take thousands of years through natural processes. The world's population is expected to reach 9 billion by 2040 and as such, agricultural soil is precious, and the importance of hillslope stability is becoming more a priority of governments needing to protect and feed the rapidly increasing populations. Therefore, the prevention of hillslope instability, the restoration of degraded slopes and the correct management of steep farmed slopes is of utmost importance. In response to the need for better mitigation strategies, major advances in research and applications for using vegetation to improve slope stability have been established during the last ten years, largely due to the development of techniques and models for the study of root-soil interactions at different scales. These advances will be presented and discussed at the conference, where sessions will focus on root-soil mechanics, vegetation on slopes over time and space, vegetation for reversing soil degradation and soil bioengineering case studies. Proceedings will be published in special editions of the international journals 'Plant and Soil' and 'Ecological Engineering'.

Conference topics include

- Root-soil interactions and distribution
- Root reinforcement
- Soil erosion and conservation
- Riverbank and coastline protection measures
- Slope stability modelling
- Effects of vegetation on hillslope hydrology
- Bioengineering, ecology and biodiversity
- Eco-DRR measures, protection forests, and soil bioengineering
- Risk management and decision support systems
- Benefits and liabilities in slope and erosion control

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Institution

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Organizing committee and affiliations

- **Prof Jean-Jacques Thormann**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Zollikofen, Switzerland
- **Prof Dr Luuk Dorren**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Zollikofen, Switzerland; EcorisQ
- **Dr Massimiliano Schwarz**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Zollikofen, Switzerland; EcorisQ
- **Eric Gasser**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland
- **Dr Armin Rist**, Department of Architecture, Wood and Civil Engineering AHB, Bern University of Applied Sciences, Burgdorf, Switzerland
- **Dr Filippo Giadrossich**, Department of Agriculture, University of Sassari, Sassari, Italy
- **Dr Denis Cohen**, Department of Earth and Environmental Science, New Mexico Tech, Socorro, NM, USA
- **Prof Dr Gian Battista Bischetti**, Department of Agricultural and Environmental Science, University of Milan, Milan, Italy
- **Dr Alexia Stokes**, French National Institute for Agricultural Research INRA, University of Montpellier, Montpellier, France
- **Dr Giovanni de Cesare**, Platform of Hidraulic Constructions, École Polytechnique Fédéral de Lausanne, Switzerland

Additionally, local partners will be involved (i.e., cantons, private companies, Swiss Federal Office for the Environment).

Scientific committee

- **Dr Alexia Stokes**, French National Institute for Agricultural Research INRA, University of Montpellier, Montpellier, France
- **Prof Dr Thomas Hubble**, School of Geosciences, The University of Sydney, Sydney, Australia
- **Dr Massimiliano Schwarz**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland; EcorisQ
- **Dr Filippo Giadrossich**, Department of Agriculture, University of Sassari, Sassari, Italy
- **Dr Chris Phillips**, Manaaki Whenua Landcare Research, Lincoln, New Zealand
- **Prof Dr Luuk Dorren**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland; EcorisQ
- **Prof Jean-Jacques Thormann**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland
- **Dr Stéphane Burgos**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland
- **Prof Dr Gian Battista Bischetti**, Department of Agricultural and Environmental Science, University of Milan, Milan, Italy
- **Dr Kenneth Loades**, James Hutton Institute, Invergowrie, Dundee, UK
- **Prof Dr Roy Sidle**, Mountain Societies Research Institute, University of Central Asia, Khorog, Tajikistan
- **Dr Hans Peter Rauch**, Institute of Soil Bioengineering and Landscape Construction, University of Natural Resources and Life Sciences BOKU, Vienna, Austria
- **Dr Filippo Lechthaler**, School of Agricultural, Forest and Food Sciences HAFL, Bern University of Applied Sciences, Bern, Switzerland

Programme

For the scientific sessions, a keynote lecture will introduce a review of the topic session.

Time organization:

- Morning session (8:30 - 12:00): 1 session, initial keynotes (30 min. keynotes) and 4 x 15 min. presentations.
- Afternoon session (13:30 - 17:00): 1 session, initial keynotes (30 min. keynotes) and 4 x 15 min. presentations.
- Poster-aperitif (17:00 - 19:00)

Conference schedule (19th-25th June 2021)

	Sat	Sun	Mon	Tue	Wed	Thu	Fri
8:30-10:00	Tools courses	Tools courses	Keynote S1	Keynote S5	Keynote S9	Excursions	Practical courses
10:30-12:00	Tools courses	Tools courses	Keynote S2	Keynote S6	Keynote S10	Excursions	Practical courses
13:30-15:00			Keynote S3	Keynote S7	Keynote S11	Excursions	Practical courses
15:30-17:00		Welcome gala	Keynote S4	Keynote S8	Keynote S12	Excursions	Practical courses
17:00-19:00		Welcome gala	Posters	Posters	Posters	Excursions	EcorisQ GA
		Welcome gala			Conference dinner	Excursions	

Logistics:

- From June 21st to June 23rd, morning and afternoon sessions will take place at the museum of natural history, Bernastrasse 15, 3005 Bern.
- All poster sessions will also take place at the museum of natural history

Pre-conference courses

Tool courses - Academic workshops (for PhD students, post-docs, research associates, etc.) on Saturday 19th and Sunday 20th June 2021:

- RBM and field measurements (**I. Murgia** & **F. Giadrossich**), root reinforcement modelling and measurements

Scientific sessions, Monday – Wednesday

- S1 Root distribution modelling and measurements (keynote: **I.C. Meier**; chair: **A. Stokes**)
- S2 Root reinforcement modelling and measurements (keynote: **F. Giadrossich**; chair: **K. Loades**)
- S3 Surface erosion and vegetation (keynote: **J. Poesen**; chair: **S. Burgos**)
- S4 Shallow landslides and vegetation (hillslope scale) (keynote: **Z. Mao**; chair: **D. Cohen**)
- S5 Shallow landslides and vegetation (catchment scale) (keynote: **T. Hales**; chair: **C. Phillips**)
- S6 Hydropedology and vegetation (keynote: **T. Bogaard**; chair: **M. Schwarz**)
- S7 Riverbank stability and vegetation (keynote: **P. Perona,** chair: **E. Gasser**)

- S8 Protection forest management (keynote: **R. Sidle**, **B. Lang**; chair: **J.J. Thormann**)
- S9 Soil bioengineering and temporal technical construction in slope stability (keynote: **G. De Cesare**; chair: **G.B. Bischetti**)
- S10 Soil bioengineering and temporal technical construction in riverbank stability (keynote: **P. Raymond**; chair: **H.-P. Rauch**)
- S11 Bio-economics for SBEE (keynote: **L.M. Castro**; chair: **F. Lechthaler**)
- S12 The role of vegetation in eco-DRR in mountain regions (keynote: **C. Moos**; chair: **L. Dorren**)

Excursions

Excursions, Thursday:

- Eco-DRR along roads: Gotthard region, cantons of Uri and Ticino / Visp-Simplon, canton of Valais (**L. Dorren**)
- Protection forest management in the Swiss Alps (disturbances, coppice woods, neophytes): Adelboden, canton of Bern (**J.J. Thormann**)
- Bioengineering and torrent control measures: canton of Bern (**M. Schwarz**)

Post-conference courses

Post-conference courses on model applications, Friday:

- SOSlope (**D. Cohen**), slope stability and vegetation
- Rockyfor (**L. Dorren**), rockfall and vegetation
- BankforMAP (**M. Schwarz**), streambank stability and vegetation
- SlideforMAP (**F. van Zadelhoff**), slope stability and vegetation
- Tree stability (**L. Sani**)

Conference fees

	Early-bird registration	Late registration
Conference fee online	CHF 250	CHF 350
Conference fee in Bern	CHF 500	CHF 650
Conference dinner	CHF 60	CHF 60
Pre-conference courses	CHF 150	CHF 200
Excursions	CHF 150	CHF 150
Post-conference courses	CHF 250	CHF 350

Registration

Information regarding conference registration and abstract submission will follow as soon as possible.

General information

Access to the conference centre via airport, train and car:

Bern has a continental airport (Bern-Belp) and the nearest international airports (approximately 1 h to 1.5 h train ride from/to Bern) are Zurich, Basel, Geneva (2 h) and Milan (3.5 h).

The main conference (21th-23th June 2021) will take place at the museum of natural history in Bern. From the main train station in Bern, the museum is approximately 11 min. by tram plus an additional 3 min. by foot. The tool and practical courses (19th, 20th and 25th June 2021) will take place at the School of Agricultural, Forest and Food Sciences (HAFL), Bern University of Applied Sciences. From the main train station in Bern, the campus is approximately 8 minutes by train plus 10 minutes on foot. The campus is easily accessible by car. Please note that parking is limited and not free of charge.

Recreational and tourist amenities in the area include the cities of Bern, Thun, Spiez, Fribourg, the north Alps and Prealps such as Simmental, Emmental, Grindelwald (Eiger north face), Gantrisch natural reserve and Swiss Jura (Jurassic) region.