

First Circular & Call for Papers

4TH INTERNATIONAL CONFERENCE

SOIL BIO- AND ECO-ENGINEERING: THE USE OF VEGETATION TO IMPROVE SLOPE STABILITY

Sydney, Australia, 11 – 15 July 2016

Welcome to the 4th international conference on Soil Bio- and Eco-engineering - "The Use of Vegetation to Improve Slope Stability".

We are delighted to bring the symposium to Sydney, capital of New South Wales, Australia.

We warmly invite you to submit an abstract to contribute to the conference by March 1st 2016.

Conference themes include:

- Root-soil interaction
- Root reinforcement
- Slope degradation
- Soil erosion and conservation
- Riverbank and coastline protection measures
- Integrated catchment management with an emphasis on eco-engineering
- Slope stability modelling
- Vegetation and ecology

- Mountain biodiversity and slope stability
- Plant growth versus engineering
- Soil bio- engineering, earth stabilising and retaining techniques
- Eco-engineering and land restoration
- Risk management and decision support systems
- Benefits and liabilities in slope and erosion control

For more information please visit the website:

sydney.edu.au/science/geosciences/soil/index.shtml

The conference website is located on the University of Sydney School of Geosciences home page (sydney.edu.au/science/geosciences).

Important deadlines:

Abstract submission (talk)	-	March 1 st 2016
Abstract submission (poster)	-	May 1 st 2016
Early-bird registration	-	May 1 st 2016

For other important dates please visit the website.

We are certain this will be a well-attended and exciting conference so please plan to join us in Sydney in July 2016.

A/Prof Thomas Hubble

Symposium Convener (On behalf of the Organizing Committee and Editorial Board)

E: tom.hubble@sydney.edu.au

4th International Conference on Soil Bio- and Eco-engineering



Fourth in the series 'The Use of Vegetation to Improve Slope Stability,' this conference will take place at the School of Geosciences, University of Sydney, Sydney, Australia, during 11 - 15 July 2016.

As in the preceding conferences, we will bring together scientific researchers, practitioners, geotechnical and civil engineers, biologists, ecologists, geomorphologists and foresters to discuss current problems in slope stability research, and how to address those 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. Once a landslide has occurred or erosion processes are underway, the replacement of soil on the denuded slope can take thousands of years through natural processes. In a world where the population is expected to reach 9 billion by 2040, agricultural soil is precious and hillslope stability is now a priority for governments needing to feed rapidly increasing populations. Therefore, the prevention of slope 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, advances in research and applications for using vegetation to improve slope stability have been major in 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.'

We hope that you will be able to join us at this meeting, to be held in Sydney, one of the most beautiful and vibrant cities in the world. Sydney is famous for its majestic Sydney Harbour, sparkling ocean, and famous Harbour Bridge and Opera House, Sydney is situated in a unique location, making it the ideal venue for our conference and for post-meeting leisure activities such as a visit to the world heritage listed natural wonder including the Great Barrier Reef, Uluru, and the famous Australian Outback.

A post-conference visit to the steplands of the north-east coast of the north island of New Zealand will be arranged if there is interest.

The Organizing Committee

More information please visit: website: sydney.edu.au/science/geosciences/soil/index.shtml. The conference website is located on the University of Sydney School of Geosciences home page (sydney.edu.au/science/geosciences).

Organizing Committee

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Conference Themes

Root-soil interaction

Root anchorage, root architecture, root/soil interface, root growth, modelling,

Root reinforcement

Root strength, soil cohesion, root density, root morphology, traits

Slope degradation

Debris flow, landslides, avalanches, rockfall, forest fires, pathogens, wind throw, silviculture, human intervention

Soil erosion and conservation

Soil loss by water and wind, run-off, sub-surface erosion, soil quality, soil sealing, desertification, soil and water conservation

Riverbank and coastline protection measures

Flow mitigation, torrent control, hydrological structures, up- and downscaling, sustainable planning, soil bio-engineering techniques

Integrated catchment management with an emphasis on eco-engineering

Slope hydrology, hydrological connectivity reducing sediment budgets, 'green' on and off site remediation of soil erosion, advanced tillage and management methods, infiltration, flooding, sustainability of agricultural crop systems, evapotranspiration, land use change

Slope stability modelling

Mechanistic and empirical models, root reinforcement, hydrology, unsaturated strength, soil moisture relations and vegetation, post-failure, static and dynamic models.

Vegetation and ecology

High-altitude plant ecosystems, disturbance ecology, broad latitudinal and climatic changes, plant establishment, plant management, bio-remediation, species selection, soil ecology, influence of climate change, agroecology

Mountain biodiversity and slope stability

Biological richness, structural diversity, grazing,

Plant growth versus engineering

Temporal factors (seasonality), when to choose which technique? Lifespan of systems.

Soil bio- engineering, earth stabilizing and retaining techniques

New soil fixing techniques, protective techniques, cuttings and embankments, mulches, geotextiles, soil nailing, chemical stabilizers, long-term stability and performance of ground bioengineered structures

Eco-engineering and land restoration

Disaster management, short and long-term measures, eco-restoration, protection forests

Risk management and decision support systems

GIS, modelling, databases, strategic management, choice of tools, new systems, neural networks

Benefits and liabilities in slope and erosion control

Economic factors, resource sustainability, legislation, cost analysis, ecosystem services, disaster management.

Keynote Speakers

Keynote speakers will include:

Dr Massimiliano Schwarz

Bern University of Applied Sciences, Bern, Switzerland

Dr Massimiliano Schwarz from Bern University of Applied Sciences, Switzerland will present on his recent developments in applying the Root Bundle Model to analyzing and understanding the stability and stabilization of steep slopes.

The Root Bundle Model and techniques for applying it effectively will also be covered in our preconference workshop on the practical and analytical techniques and aspects of this field leading workers routinely use.

Prof. Roy Sidle

University of Sunshine Coast, Queensland, Australia

Professor Roy Sidle's research focuses on biogeophysical aspects of sustainability, including natural hazards, catchment hydrology and management, and interactions between socioeconomic pressures and responses and ecosystem processes. Specifically, he has been working on issues of environmental effects of land cover change, erosion processes exacerbated by mountain road building, coastal and mountain hazards – both water and sediment-related, cumulative effects of land use on water supply and sediment, and fundamental research on water movement in mountain catchments.

He has collaborated across a broad range of disciplines including socioeconomists, engineers, aquatic biologists, environmental modellers, geotechnical experts, and agriculture and forestry specialists. His interests in sustainability issues in developing nations of Southeast and East Asia where rapid land use change and shifting demographics are occurring are of particular relevance to the University of the Sunshine Coast's Sustainability Research Centre.

A/Prof Ian Rutherford

University of Melbourne, Melbourne, Australia

Ian Rutherford has 20 years' experience in the water sector. At present he is an Associate Professor in the School of Natural Resource Management and Geography in the University of Melbourne. He recently completed five years working in the water and river management area at a senior level in the Victorian State government.

He completed projects funded by the Australian Research Council (ARC) projects on:

evaluation of environmental flows, understanding nutrient processes in sediments that lead to algal blooms, and optimization of stream management decisions. He also advises on committees including: Melbourne Water's Waterway Advisory Committee, and River Health Expert Advisory Panel; DSE's Technical Advisory Panel; and the Gippsland Lakes Task Force. Ian has also been the Victorian representative on the review of the National Water Quality Management Strategy.

Prof. Mark Adams

University of Sydney, Sydney, Australia

Mark Adams received his B.Sc. Honours and PhD from the University of Melbourne and is currently Professor and Dean of the Faculty of Agriculture and Environment at the University of Sydney. He publishes widely with a focus on sustainability and biogeochemistry of natural and managed ecosystems. His published work includes around 200 peer-reviewed journal articles, books and book chapters.

Mark's research group currently has ARC, and NCRIS and DAFF funding for a range of projects that span from the forested catchments of the high mountain country in south-east Australia to the wide open plains and grasslands and woodlands of the Pilbara, WA. Current projects focus on how we can improve management of native ecosystems from the perspectives of fire risk, water yield and carbon sequestration. They are also initiating long-term studies of soil processes in grasslands and cropping systems, with a focus on greenhouse gas emissions. Across their range of interests, they focus on developing original lines of inquiry.

Dr Andrew Simon

Cardno, Oxford, Mississippi

Andrew Simon is a Senior Consultant at Cardno in Oxford, Mississippi. He received his PhD from Colorado State University under the direction of Professor Stanley Schumm. He has 35 years of research experience, 16 years with the USGS and 16 years at the USDA-ARS, National Sedimentation Laboratory. His process-based research has been in channel response of unstable channels, cohesive-soil erosion, streambank processes and modelling, and quantifying the role of vegetation on fluvial processes. He is the author of more than 100 technical publications, has edited several books and journals and is the senior developer of the Bank-Stability and Toe-Erosion Model (BSTEM). His field research has taken him to Australia, New Zealand, Europe, Asia and across North America. Dr Simon is an adjunct Professor at the University of Mississippi and Special Professor in the School of Geography, University of Nottingham, UK.

Conference Information

Conference abstracts

A book of abstracts will be available for each conference participant. Please submit manuscript/presentation abstracts (1 page maximum) before March 1st 2016 and poster abstracts (1 page maximum) before May 1st 2016. Please also send the abstract submission form with your contribution and use the specified format for writing your abstract. Preference for presentations will be given to authors submitting a full manuscript.

Presentations

Presentations will be made in the form of lectures or posters. Key-note lectures will be 25 minutes long and standard lectures will be 15 minutes long with 5 minutes for questions.

Posters will be on display throughout the conference week and two special poster sessions will be held where authors are requested to present their posters orally for 3 minutes in the lecture hall and then stand by their posters during the poster session.

Conference proceedings

Proceedings will be published in special editions of the journals of Plant and Soil or Ecological Engineering. Manuscripts to be submitted for publication in the proceedings should be submitted during the conference (final date for submission will be July 31st 2016). Instructions for authors will be provided in March 2016.

Arrival and information - Getting to the University of Sydney

From Sydney Kingsford Smith Airport

Take Taxi and ask to be taken to the City Road entrance of the University of Sydney. Fare should be between \$25 and \$35 and take about 25 minutes. Most cabs accept all credit cards.

Take the train from the Airport terminal to Redfern Station. See below for directions to University from Redfern Station.

Take the Airport Express Buses (run frequently between the airport and the CBD (route 300) from approximately 5.00 am to 9.30 pm from outside the terminal (Phone 13 1500). Allow 15-20 minutes between the airport and Central Railway Station, \$7 one way, \$12 return. Central Railway Station is only a short taxi ride from the University.

To drive from the airport, see www.google.com.au/maps

From Sydney CBD by Bus

Take buses 422, 423, L23, 426, 428, L28 from Castlereagh Street or Circular Quay. Take the University of Sydney stop. Cross the road at the set of lights and you are now on the main campus.

From Sydney CBD by Train

Take train from the CBD to Redfern Station. Exit Redfern Station, turn left and walk west on Lawson Street, turn left (south-west) onto Abercrombie Street, and then right (North-ish) on to Codrington Street. Cross the road at the City Road lights and you are now on the main campus.

Detailed directions getting to the USYD campus can be found at:
sydney.edu.au/visitors_community/getting_here/public_transport.shtml

Detailed maps of the USYD campus can be found at:
sydney.edu.au/maps/index.shtml

Pre-conference Workshops

We're pleased to offer an exciting workshop prior to the start of the conference. Led by THOMAS HUBBLE (The University of Sydney), CHRIS PHILLIPS (Landcare Research), ANDREW SIMON (Cardno), ALEXIA STOKES (INRA), and MASSIMILIANO SCHWARZ (Swiss Federal Institute for Forest, Snow and Landscape Research), this workshop will cover data gathering and modelling techniques. The workshop is aimed at researchers working in the field and post-graduate students.

There is no extra cost to attend the workshop, however numbers are limited.

Conference Excursion

A half-day excursion will be available (Taronga Zoo & Sydney Botanical Garden). The excursion will conclude with a ferry ride back to the city past the world famous Opera House. A short walk or second ferry journey will then deliver delegates to the conference dinner venue: The Malaya Restaurant, King Street Wharf, Darling Harbour. Accompanying persons are welcome to attend (please indicate on registration form). The price of the excursion is not included in the conference fees.

Conference banquet

The conference banquet will be held on Wednesday July 13th 2016 at The Malaya Restaurant, King Street Wharf, Darling Harbour. Accompanying persons are welcome to attend (please indicate on registration form). The price of the banquet is not included in the conference fees.

Post-conference Field Trip

A post-conference side trip visit to the steep lands of the north-east coast of the north island of New Zealand will be arranged if there is interest. The price of the side trip is not included in the conference fees.

Accompanying persons:

There will be no separate program for accompanying persons. However, Sydney has an excellent public transport system and many kilometres of waterfront walking trails and parks. The USYD campus has museums and botanical gardens and is surrounded by forested parkland and beaches. Accompanying persons are welcome to join the conference delegates for lunch, excursions, and the conference banquet.

Visa

A letter of invitation for visa application will be sent on request to participants (and accompanying persons) who have registered and have had a talk or poster accepted by the conference scientific committee. Participants who have not submitted a talk or poster need to send, by ordinary surface/air mail, an official inquiry from their scientific institution to the conference address given below asking for a letter of invitation.

Conference venue

The conference will be held in the University of Sydney, Sydney, Australia.

For maps of the campus:

sydney.edu.au/maps/index.shtml

Weather Information:

www.bom.gov.au

Tourism Australia:

www.tourism.australia.com

General Information

Following are some links to websites offering information such as transport and parking guides, restaurant guides, maps and entertainment.

www.cityofsydney.nsw.gov.au/

www.bestrestaurants.com.au/

www.transportnsw.info/

premier.ticketek.com.au/

thesydneyvisitor.com/category/sydney-attractions/

Accommodation

The University of Sydney Campus is located approximately 2 km from the Sydney CBD, and there are many off-campus hotels and a fine selection of on-campus accommodation.

If you wish to stay in downtown Sydney, please book accommodation yourself through an internet site. We have listed a few options for hotels/hostels located near The University of Sydney below. This is not an exhaustive list and there is no relationship between these businesses and The University of Sydney.

Mandelbaum House (Student College)

P: +61 (0) 2 9692 5200 *5 minute walk to venue*

W: www.mandelbaum.usyd.edu.au/short-stays/rates/

This is a modern building located on campus that always has a few rooms available for visiting academics usually staying for a least 3 nights but this can often be negotiated.

International House (Student College) - City Rd, Chippendale

P: +61 (0) 2 9950 9800 *5 minute walk to venue.*

W: sydney.edu.au/internationalhouse/

5 Star Adina Apartment Hotel - Cnr of Ivy and Boundary Sts, Chippendale

P: +61 (0) 2 9311 8800 *10 minute walk to venue*

W: www.adinahotels.com.au/adina-apartment-hotel-chippendale/hotel

Newly built, luxury apartments with Pool, BBQ area, all apartments contain internal kitchen.

4 Star Hotel Mercure 818-820 George St, Sydney

P: +61 (0) 2 9217 6777 *10 minute bus ride to venue*

W: www.mercuresydney.com.au/

24h gym, indoor pool, two restaurants (located Central Station, Bus at door).

Sydney Central YHA Cnr Pitt and Rawson Sts (Central Station)

P: +61 (0) 2 9281 9111 *10 minute bus ride to venue*

W: www3.yha.com.au/hostels/nsw/sydney-surrounds/sydney-central-backpackers-hostel/

Rydges Hotel, Camperdown

P: +61 (0)2 9516 1522

W: www.rydges.com/accommodation/sydney-nsw/camperdown/rooms-and-suites/

Glebe Point YHA, 264 Glebe Point Road, Glebe 2037

P: +61 (0)2 9692 8418 *10 minute bus ride to venue*

E: glebe@yhansw.org.au

Registration fees

	Full Fees^{1, 2}	Students and researchers from developing countries[‡]
Early registration (before 1st May 2016)	\$600 USD	\$300 USD
Late registration (after 1st May 2016)	\$700 USD	\$350 USD

¹ Fees include reception, coffee breaks, lunches, and a copy of the Conference Proceedings.

If you are a member of the following associations, you are entitled to a discount of 25%: IUFRO, WASWC, IEES, IGS, ESSC, and IECA. Please note the association on your registration form and your membership number if appropriate. As fees for students and researchers from developing countries are very low, there will be no discount even if you are a member of the above associations. If you are a member of several associations, you cannot accumulate discount.

[‡]Please contact us first to confirm eligibility (email: samantha.clarke@sydney.edu.au). Students need to send a photocopy of their student card. If you think may be entitled to a discount (if you are retired, unemployed etc.) please also contact us by email.

Payment of registration fees can be made in cash on arrival at the conference, or by bank transfer / money order. Payment details and options will appear on the conference website in January 2016.

ABSTRACT FORMAT SPECIFICATIONS

4th International Conference on Soil Bio- and Eco-engineering: The Use of Vegetation to Improve Slope Stability

The official conference language is English. The abstract must be written in English and should be no longer than one page (A4), including graphics and references. Margins of 2.0 cm should be left on all sides of the text. A standard typeface is to be used, Times Roman 12pt is preferred.

Please use the following layout for the title, authors and address:

Modelling the Influence of Vegetation on Slope Stability over Space and Time

A. Person¹, A.N. Other², A. Third¹

¹Forest Sciences Centre, 2424 Main Mall, Vancouver BC, V6T 1Z4, Canada.

²INRA, UMR AMAP, Bld de la Lironde, Montpellier cedex 5, 34398, France

Most of the existing slope stability models which consider vegetation are of a static nature, i.e. they just consider the distribution of roots at a given time, nevertheless, such models are still useful for estimating landslide risk for a given slope configuration. Exploring the effect of reforestation scenarios or more generally the impact of slope management can be performed making assumptions on the expected rooting patterns and using static models. However, coupling growth models, in particular based on structural-functional notions, with soil, climate and hydrological models is an exciting challenge to answer the question of the consequences of climate change on substrate mass movement.

For any further information, please contact:

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