

Root-soil/slope interactions workshop

Incorporating the 2016 ISRR Dundee Medal Lecture on Root Research .

Wednesday 25th May 2016, The James Hutton Institute, Dundee DD2 5DA

09:30 Arrival and registration – if appropriate, please report to visitor reception

First Session (New Seminar Room): Chair Paul Hallett (Uni. Aberdeen)

09:55 Welcome to meeting - Glyn Bengough (UoD & JHI)

10:00 Mao Zhun (Montpellier)

"Roots as Tools for Stabilizing Slopes: Case Studies in the Alps"

10:30 Anthony Leung (UoD)

"Centrifuge testing of transpiration effects on slope stability"

10:45 Gertjan Meijer (UoD/Forest Research/JHI)

"Field measurements of mechanical root-reinforcement using a cork-screw device"

11:00 Coffee/Tea (New Seminar Room)

Second Session (New Seminar Room): Chair Jonathan Knappett (UoD)

11:30 John Lane (Railway Standards and Safety Board)

"Slope hazards, embankment loading and climate change"

11:50 Paul Hughes (Uni. Durham)

"BIONICS embankment study"

12:10 Joel Smethurst, University of Southampton

"Atmosphere-plant-soil interactions – observations from a clay infrastructure slope"

12:30 David Boldrin (UoD/JHI)

"Correlating hydrological reinforcement of soil with plant traits"

12:45 General Discussion

13:00 Lunch in canteen

Third Session (New Seminar Room): Chair Iain Young (Uni. Sydney)

14:00 Sonja Schmidt, (Uni. Southampton)

"Dynamic studies of root soil interactions using timelapse X-ray microtomography"

14:15 Muhammad Naveed (Uni. Aberdeen)

"Nature's amazing biopolymers: Physical and mechanical properties of soil affected by plant exudates"

14:30 Courtney Giles (JHI)

"Complementary root exudation traits for improved soil phosphorus acquisition"

Fourth Session (New Seminar Room, then D block): Posters & Pico talks Chair Blair McKenzie

14:45 Quick poster outline presentations (1 slide each x 1 minute, up to 8 posters)

15:00 Poster Session with tea/coffee at 15:30 (Ground floor D-block corridor)

Final Session (Canteen) Chair: Tim George (JHI)

16:00 **2016 ISRR Dundee Root Medal Lecture: Professor Peter Gregory (Uni. Reading).**

"Getting to the root of deep-rooting and dwarfing: recent research with wheat and apple"

Chair: Glyn Bengough & Philip White

17:00 Presentation and photo, followed by Reception in Canteen

17:30 Disperse



List of posters

Mathematical Modelling of the Brassinosteroid signalling Pathway

Henry Allen and Mariya Ptashnyk

Mathematics, University of Dundee, DD1 4HN, Dundee, UK

Influence of Plant Roots on Soil Resistance to Earthquake-Induced Liquefaction

AJ Brennan, K Wang, JA Knappett, AG Bengough, S Robinson

Civil Engineering, University of Dundee, DD1 4HN, Dundee, UK

Correlating hydrological reinforcement of soil with plant traits

David Boldrin^{1,2}, Anthony Leung² and A. Glyn Bengough^{1,2}

1 The James Hutton Institute, Invergowrie, DD2 5DA, Dundee, UK; 2 Division of Civil Engineering, University of Dundee, DD1 4HN, Dundee, UK

On the role of vegetation in earthquake induced landslides

T. Liang^{1,2}, J.A. Knappett¹, A.G. Bengough^{1,2}, D. Muir Wood¹

1. School of Science & Engineering, University of Dundee, Dundee, UK; 2 The James Hutton Institute, Invergowrie, Dundee

The Casparian Strip influences root penetrability of strong layers.

Licida Giuliani^{1,2}, Paul D. Hallett¹, David E Salt¹, Kenneth W. Loades², Gordon McDougall²

1 Institute of Biological and Environmental Sciences, University of Aberdeen, AB24 3UU; 2 Environmental and Biochemical Sciences, The James Hutton Institute, DD2 5DA

Modelling of root growth linked with soil-water flux and soil strength

Moacir Tuzzin de Moraes^{1,2}, A. Glyn Bengough¹, Daniel Leitner³, Andrea Schnepf⁴, Henrique Debiasi⁵, Renato Levien²

1The James Hutton Institute, Ecological Science, Dundee, UK; 2Federal University of Rio Grande do Sul, Soil Science, Porto Alegre, Brazil; 3University of Vienna, Computational Science Center, Vienna, Austria; 4 Institute of Bio-and Geosciences, Forschungszentrum Jülich GmbH, Jülich, Germany; 5Embrapa Soybean, Soil management, Londrina, Brazil

Tissue-specific accumulation of mineral elements in roots

Paula Pongrac^{1,2}, Philip J. White¹, Mitja Kelemen³, Primož Vavpetič³, Primož Pelicon³, Oren Shelef⁴

1The James Hutton Institute, Invergowrie, Dundee DD2 5DA, UK; 2Department of Biology, Biotechnical Faculty, University of Ljubljana, Jamnikarjeva 101, SI-1000 Ljubljana, Slovenia; 3Jožef Stefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia; 4The French Associates Institute for Agriculture and Biotechnology of Drylands, The Jacob Blaustein Institutes for Desert Research, Ben Gurion University of the Negev, Sde Boker Campus 84990, Israel

Plant water uptake: influence on infrastructure embankments

Dr Joel Smethurst, Prof. William Powrie, Dr Derek Clarke, Dr Fleur Loveridge, Prof. Tiina Roose, Dr Andrew Hudson
University of Southampton