

# Mineralogy, geochemistry, micromorphology and WRB classification of a soil-sedimentary sequence on limestone in Monte Coronichi (Istria, Croatia)

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Conference presentation / Izlaganje na skupu

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## 22<sup>nd</sup> World Congress of Soil Science

# Congress Programme

### KEY INFORMATION

In person and online poster presentations will be held at the following times:

- Poster Session 1: 1 August - 13:00 - 15:00
- Poster Session 1: 2 August - 11:00 - 13:00
- Poster Session 2: 3 August - 12:30 - 14:30
- Poster Session 2: 4 August - 11:30 - 13:00

The Opening and Closing ceremonies, Plenary and Interdivisional sessions will be live streamed from the Congress.

All streaming and sessions will take place in British Summer Time (BST).

### OVERVIEW

#### ***Plenary sessions***

| Title  | Speaker                 | Date     | Time          | Room             |
|--|-------------------------|----------|---------------|------------------|
| Soils and Sustainable Food Production  | Prof Ismahane Elouafi   | 01/08/22 | 09:00 – 10:00 | Clyde Auditorium |
| How transforming land use change could change our future                                     | Dr Debra Roberts        | 02/08/22 | 18:00 – 19:00 | Clyde Auditorium |
| Rock dust - a reverse weathering mechanism for tropical soils: physical and economic aspects | Prof Suzi Huff Theodoro | 03/08/22 | 17:00-18:00   | Clyde Auditorium |
| Empowering Soil Scientists with Data-Driven Techniques                                       | Dr Ranveer Chandra      | 04/08/22 | 08:00 – 09:00 | Clyde Auditorium |



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### ***Interdivisional Sessions***

| <b>Session Title</b>   | <b>Date</b> | <b>Time</b>   | <b>Room</b>       | <b>Poster Session</b> |
|--|-------------|---------------|-------------------|-----------------------|
| Interdivisional 1: Spatial decision making and mapping for implementing policies for sustainable soil management | 01/08/22    | 11:00 – 13:00 | Lomond Auditorium | Poster Session 1      |
| Interdivisional 2 – Soil carbon: from particle to planet   | 01/08/22    | 11:00 – 13:00 | Clyde Auditorium  | Poster Session 1      |
| Interdivisional 1: Spatial decision making and mapping for implementing policies for sustainable soil management | 01/08/22    | 15:00 – 17:00 | Lomond Auditorium | Poster Session 1      |
| Interdivisional 2 – Soil carbon: from particle to planet   | 01/08/22    | 15:00 – 17:00 | Clyde Auditorium  | Poster Session 1      |
| Interdivisional 3 – Interdisciplinary soil science for impact  | 01/08/22    | 15:00 – 17:00 | M1                | Poster Session 1      |
| Interdivisional 3 – Interdisciplinary soil science for impact  | 01/08/22    | 17:30-19:30   | M1                | Poster Session 1      |
| Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production     | 02/08/22    | 09:00-11:00   | M1                | Poster Session 1      |
| Interdivisional 9: Novel methods and techniques  | 02/08/22    | 09:00-11:00   | Lomond Auditorium | Poster Session 1      |
| Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production     | 02/08/22    | 13:00 – 15:00 | M1                | Poster Session 1      |
| Interdivisional 9: Novel methods and techniques  | 02/08/22    | 13:00 – 15:00 | Lomond Auditorium | Poster Session 1      |
| Interdivisional 6: Dynamics of soil erosion and land loss under present and future environments                  | 02/08/22    | 15:30 – 17:30 | Lomond Auditorium | Poster Session 1      |
| Interdivisional 7: Soil securing humanity   Humanity securing soil   | 03/08/22    | 08:00 – 10:00 | Lomond Auditorium | Poster Session 2      |
| Interdivisional 8: Sustainable land use  | 03/08/22    | 08:00 – 10:00 | M1                | Poster Session 2      |
| Interdivisional 7: Soil securing humanity   Humanity securing soil   | 03/08/22    | 10:30 – 12:30 | Lomond Auditorium | Poster Session 2      |
| Interdivisional 8: Sustainable land use  | 03/08/22    | 10:30 – 12:30 | M1                | Poster Session 2      |
| Interdivisional 5: Soil science and the emerging philosophy of regenerative agriculture                          | 03/08/22    | 14:30 – 16:30 | Lomond Auditorium | Poster Session 2      |
| Interdivisional 10: Land contamination and degradation, including Urban Land                                     | 04/08/22    | 09:30 – 11:30 | Lomond Auditorium | Poster Session 2      |
| Interdivisional 10: Land contamination and degradation, including Urban Land                                     | 04/08/22    | 13:00 – 15:00 | Lomond Auditorium | Poster Session 2      |



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### ***Divisional Sessions***

| <b>Session Title</b>  | <b>Date</b> | <b>Time</b>   | <b>Room</b>       | <b>Poster Session</b> |
|---|-------------|---------------|-------------------|-----------------------|
| 16 Division 2: Nitrogen cycling and soil health   | 01/08/22    | 11:00 – 13:00 | Forth             | Poster Session 1      |
| 16 Division 2: Nitrogen cycling and soil health   | 01/08/22    | 15:00 – 17:00 | Forth             | Poster Session 1      |
| 14 Division 1 Commission 1.2: Soil geography: basic science and new technologies:                           | 01/08/22    | 17:30 – 19:30 | Lomond Auditorium | Poster Session 1      |
| 24 Division 4 Commission 4.5: History, philosophy and sociology of soil science:                            | 01/08/22    | 17:30 – 19:30 | Forth             | Poster Session 1      |
| 12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology                      | 02/08/22    | 09:00 – 11:00 | Boisdale 1        | Poster Session 1      |
| 12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology                      | 02/08/22    | 13:00 – 15:00 | Boisdale 1        | Poster Session 1      |
| 19 Division 2 Commission 2.3: Soil microorganisms under changing environment                                | 02/08/22    | 13:00 – 15:00 | Forth             | Poster Session 1      |
| 11 Soil Genesis   | 02/08/22    | 15:30 – 17:30 | M1                | Poster Session 1      |
| 19 Division 2 Commission 2.3: Soil microorganisms under changing environment                                | 02/08/22    | 15:30 – 17:30 | Forth             | Poster Session 1      |
| 17 Division 2: Sustainable use of legacy soil phosphorus  | 03/08/22    | 08:00 – 10:00 | Gala              | Poster Session 2      |
| 22 Division 3 Commission 3.1 – Soil evaluation and land use planning  | 03/08/22    | 08:00 – 10:00 | Forth             | Poster Session 2      |
| 28 WG1.2 – Digital soil mapping: advances towards Digital Soil Assessment                                   | 03/08/22    | 08:00 – 10:00 | Alsh 1            | Poster Session 2      |
| 17 Division 2: Sustainable use of legacy soil phosphorus  | 03/08/22    | 10:30 – 12:30 | Gala              | Poster Session 2      |
| 21 Division 3, Commission 3.2 - Soil water, pollutant and gas movement in the context of a changing climate | 03/08/22    | 10:30 – 12:30 | Forth             | Poster Session 2      |
| 13 Division 1 Commission 1.5: How Pedometrics can cross boundaries and change society                       | 03/08/22    | 14:30 – 16:30 | M1                | Poster Session 2      |
| 21 Division 3, Commission 3.2 – Soil water, pollutant and gas movement in the context of a changing climate | 03/08/22    | 14:30 – 16:30 | Forth             | Poster Session 2      |
| 20 Division 2 Commission 2.3- Soil biology in transition: from descriptive to mechanistical understanding   | 04/08/22    | 09:30 – 11:30 | M1                | Poster Session 2      |
| 25 Division 4 Commission 4.4: Soil education – in School, university, and In-Service training               | 04/08/22    | 09:30 – 11:30 | Forth             | Poster Session 2      |



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|   |          |               |                   |                  |
|---|----------|---------------|-------------------|------------------|
| 15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure - Observation, resilience and its role in ecosystem functioning | 04/08/22 | 13:00 – 15:00 | M1                | Poster Session 2 |
| 18 Division 2 Commission 2.2 – Biogeochemical cycles in the soil - processes linking the abiotic and biotic realms                  | 04/08/22 | 13:00 – 15:00 | Forth             | Poster Session 2 |
| IUSS Gender Balance Meeting including Divisional session 26   | 04/08/22 | 13:00 – 15:00 | Dochart 2         | N/A              |
| 15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure: Observation, resilience and its role in ecosystem functioning  | 04/08/22 | 15:30 – 17:30 | M1                | Poster Session 2 |
| 18 Division 2 Commission 2.2 – Biogeochemical cycles in the soil - processes linking the abiotic and biotic realms                  | 04/08/22 | 15:30 – 17:30 | Forth             | Poster Session 2 |
| 23 Division 3 Commission 3.3 – Effects and processes of biochar and soil organic matter on plant nutrition                          | 04/08/22 | 15:30 – 17:30 | Lomond Auditorium | Poster Session 2 |

## Working Group Sessions

| Session Title   | Date     | Time          | Room   | Poster Session   |
|---|----------|---------------|--------|------------------|
| 36 WG2.1: The Legacy of Henry Lin and the future of Hydropedology   | 01/08/22 | 11:00 – 13:00 | Alsh 1 | Poster Session 1 |
| 39 WG3.1: General Meeting of the acid sulfate soils working group   | 01/08/22 | 11:00 – 13:00 | Alsh 2 | Poster Session 1 |
| 30 WG1.04: Global soil map; main advances and ways forward  | 01/08/22 | 15:00 – 17:00 | Alsh 2 | Poster Session 1 |
| 35 WG1.9 – Advances in understanding soils as reflected by the 4th edition of the WRB   | 01/08/22 | 17:30 – 19:30 | Alsh 1 | Poster Session 1 |
| 41 WG3.2: Advances in innovative technologies and methods for quantifying biogeochemical cycles of carbon and nutrients in forest soils | 02/08/22 | 09:00 – 11:00 | Alsh 1 | Poster Session 1 |
| 44 WG3.4: Mitigation and adaptation strategies for climate change in rice-based systems   | 02/08/22 | 09:00 – 11:00 | Alsh 2 | Poster Session 1 |
| 43 WG 3.4: Recent advances in nutritional, biological and physical processes in paddy soils   | 02/08/22 | 13:00 – 15:00 | Alsh 1 | Poster Session 1 |
| 34 WG1.8 – Advances in universal soil classification  | 02/08/22 | 15:30 – 17:30 | Alsh 2 | Poster Session 1 |



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|  |          |               |        |                  |
|--|----------|---------------|--------|------------------|
| 40 WG3.2: Carbon and nutrient cycles under intensifying climate change and land management             | 02/08/22 | 15:30 – 17:30 | Alsh 1 | Poster Session 1 |
| 45 WG4.1 - The application of Soil Science in the Criminal Justice System                              | 03/08/22 | 08:00 – 10:00 | Alsh 2 | Poster Session 2 |
| 29 WG1.3 – Progress in Digital Soil Morphometrics - deeper and more precise soil observations          | 03/08/22 | 10:30 – 12:30 | Alsh 2 | Poster Session 2 |
| 37 WG2.2 – Modelling soil processes from ped to global scale   | 03/08/22 | 10:30 – 12:30 | Alsh 1 | Poster Session 2 |
| 31 WG1.5: Sensing soil chemical, physical and biological properties - advances and emerging techniques | 03/08/22 | 14:30 – 16:30 | Alsh 1 | Poster Session 2 |
| 46 WG4.2: Culture and Soil. Outlook and insights from around the world                                 | 03/08/22 | 14:30 – 16:30 | Alsh 2 | Poster Session 2 |
| 32 WG1.6: Soil information standards and systems - current initiatives and advances                    | 04/08/22 | 09:30 – 11:30 | Alsh 1 | Poster Session 2 |
| 38 WG3.1: Acid sulfate soils, sulfidic materials and wetland soils                                     | 04/08/22 | 09:30 – 11:30 | Alsh 2 | Poster Session 2 |
| 33 WG1.7 – Advances in soil monitoring   | 04/08/22 | 13:00 – 15:00 | Alsh 1 | Poster Session 2 |
| 42 WG 3.3 – SUITMA: Soils of Urban, Industrial, Traffic, Mining and Military Areas                     | 04/08/22 | 15:30 – 17:30 | Alsh 1 | Poster Session 2 |

### ***Fringe meetings***

| Session Title  | Date     | Time          | Room      |
|--|----------|---------------|-----------|
| Global Soil Health Programme   | 01/08/22 | 13:00 – 19:30 | Carron 1  |
| Reaching higher ground: the next generation of soil science through collaborative postgraduate training and learning" everywhere it appears? | 02/08/22 | 09:00 – 13:00 | Dochart 1 |
| Soil Benchmark   | 03/08/22 | 09:00 – 13:00 | Dochart 1 |
| Cranfield Session  | 03/08/22 | 12:30-14:30   | Dochart 2 |
| Global Soil Health Session 2   | 04/08/22 | 09:30 – 13:00 | Carron 1  |
| Ecological Continuity Trust (ECT)  | 04/08/22 | 09:30 – 17:30 | Dochart 1 |
| Sustainability and the World Congress of Soil Science 2022   | 04/08/22 | 15:30 – 16:30 | Carron 2  |

## **FULL PROGRAMME**

### **Day 1 Programme Sunday 31 July 2022**



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|                  |   |      |
|------------------|---|------|
| 10:00 -<br>14:45 | IUSS Executive Committee Meeting – <i>closed meeting</i>    | Fyne |
| 15:00 –<br>16:30 | BSSS Board Meeting – <i>closed meeting</i>                  | Fyne |
| 17:15 –<br>18:00 | Press Conference – <i>Invited members of the press only</i> | M3   |

### Opening Ceremony

|                  |                  |                        |
|------------------|------------------|------------------------|
| 18:30 –<br>19:30 | Opening Ceremony | Clyde Auditorium       |
| 20:00 –<br>21:00 | Civic Reception  | Glasgow Science Centre |



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Day 2 Programme  
Monday 1 August 2022

| Plenary Session |   |                  |
|-----------------|---|------------------|
| 09:00 – 10:00   | <b>Soils and Sustainable Food Production</b><br>Professor Ismahane Elouafi, Chief Scientist, FAO<br>Rome, Italy                                     | Clyde Auditorium |
| 10:00 – 10:40   | <b>Russell Review paper: Are plant roots only 'in' soil or are they 'of' it? Roots, soil formation and function:</b><br><br>Professor Peter Gregory | Clyde Auditorium |

|               |   |            |
|---------------|---|------------|
| 10:30 – 11:00 | Refreshment Break, Exhibition & Networking          | Hall 4     |
| 10:00 – 19:30 | Division 3 Business Meeting – <i>closed meeting</i> | Boisdale 1 |
| 10:00 – 19:30 | Division 4 Business Meeting – <i>closed meeting</i> | Boisdale 2 |
| 10:00-11:00   | Division 1 Meeting – <i>closed meeting</i>          | Gala       |
| 10:00-11:00   | Division 2 Meeting – <i>closed meeting</i>          | Dochart 2  |

|               |  |                   |
|---------------|--|-------------------|
| 11:00 – 13:00 | Parallel Session 1   |                   |
|               | <b>Interdivisional 1: Spatial decision making and mapping for implementing policies for sustainable soil management: Chairperson: Prof. Fabio Terribile &amp; Dr Jack Hannam</b>   | Lomond Auditorium |
|               | <ol style="list-style-type: none"> <li>1. Dr Giuliano Langella: Geospatial decision support systems embedding digital soil mapping engines</li> <li>2. Dr Rachel Opitz: The ipaast-czo Project: Exploring the Interoperability of Precision Agricultural and Archaeological Remote and Near-Surface Sensing Methods and Data</li> <li>3. Elisa Bruni: Reaching the 4 per 1000 target in Europe: feasibility and additional carbon input required</li> <li>4. Mr Caleb Niemeyer: Digital Soil Mapping predicts spatial patterns in economic yield response to foliar fungicide in maize</li> <li>5. Prof Rosa M Poch: Strengthen global and national capacities on soil information, soil mapping to support Sustainable Soil Management (SSM) decision planning</li> <li>6. Dr Stewart Wilson: Soils and Catastrophic Wildfire: Predictive Mapping of Soil Burn Severity</li> <li>7. Dr Brian Needelman: Digital Soil Mapping to predict and enable cover crop adoption and performance with multi-scale decision support systems</li> <li>8. Dr Nicolas P.A. Saby: National evaluation of an agricultural soil quality index based on the organic matter to clay ratio</li> </ol> |                   |





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| <b>Interdivisional 2 – Soil Carbon: from particle to planet</b><br><b>Chairperson: Curtis Monger</b>  |  | Clyde Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker - Dr Ronald Amundson: Soil Science in the Age of Carbon Sequestration</li> <li>2. Prof. Ellen Kandeler: Microbial Carbon Transfer between Microhabitats</li> <li>3. Mr. Lucas Lesaint: Carbon storage in soils of hedge agroforestry systems: new insights on the drivers controlling storage potential</li> <li>4. Prof Budiman Minasny: Mapping and monitoring changes in soil organic carbon stocks of the world</li> <li>5. Alba Otero-Fariña: CARBON IN SOILS: AGGREGATION AND STABILITY</li> <li>6. Dr José Padarian: Soil organic carbon storage potential in global croplands</li> <li>7. Dr Nikola Patzel: Humus as a problem of civilisation hopes of climate politicians, business expectations of certificate traders, conflicts between conservationists and farmers</li> </ol>   |                  |
| <b>16 Division 2: Nitrogen cycling and soil health:</b><br><b>Chairperson: Prof. Liz Baggs</b>  |  | Forth            |
|   | <ol style="list-style-type: none"> <li>1. Keynote speaker - Prof Keishi Senoo: Unveiling microbial drivers of nitrogen transformation in agricultural soils: towards novel and practical soil management for soil health</li> <li>2. Dr Conor Bracken: Nitrogen cycling differences associated with grassland sward composition reveal promising N loss mitigation strategies at key times of the year</li> <li>3. Ms Rosie O'Neill: The interaction between key soil nutrients; carbon, nitrogen and phosphorus on N-cycling, productivity and N<sub>2</sub>O emissions</li> <li>4. Withdrawn</li> <li>5. Dr Michaela Reay: Elucidating the effects of land management and role of soil microbes in nitrogen transfer in a clover-ryegrass pasture</li> <li>6. Dr Aoife M. Duff: Assessing the long-term impact of urease and nitrification inhibitor use on microbial community composition, diversity and function in grassland soil</li> </ol> |                  |
| <b>36 WG2.1: The Legacy of Henry Lin and the future of Hydropedology</b><br><b>Chairperson: Prof. Hans- jörg Vogel &amp; Dr Johan van Tol</b> |  | Alsh 1           |
|   | <ol style="list-style-type: none"> <li>1. Dr Antonello Bonfante: Soil types and modelling as carriers of dynamic soil degradation information.</li> <li>2. Prof Johan van Tol: Hydropedological interpretation of soil information to serve the hydrological community</li> <li>3. Dr George van Zijl: Soil Mapping for hydropedological assessments</li> <li>4. Dr Hans-jörg Vogel: Current challenges in Hydropedology</li> </ol>  |                  |
| <b>39 WG3.1: General Meeting of the acid sulfate soils working group</b>  |  | Alsh 2           |

|               |  |           |
|---------------|--|-----------|
| 13:00 – 15:00 | Lunch, Exhibition & Poster Presentations   | Hall 4    |
| 13:00 – 15:00 | Meet the Journal Editors, hosted by Soil Use and Management, British Society of Soil Science | Gala      |
| 13:15 – 14:45 | Early Careers Professionals' Networking Event  | Carron 2  |
| 13:00 – 15:00 | IUSS Council Meeting – <i>invited IUSS representatives only</i>                              | Dochart 1 |



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|------------------|---|-------------------|
| 13:45 –<br>14:30 | <p>UKRI Symposia</p> <p>The Future of UK Soil Science<br/>Session Speakers:<br/>Dr Laura Cardenas: Atmospheric Chemist (Net Zero and Resilient Farming), Rothamsted Research<br/>Matt Fry, Environmental Informatics Manager, UK Centre for Ecology and Hydrology<br/>Professor Paul Hallett, Chair in Soil Physics, University of Aberdeen</p> | Lomond Auditorium |
|------------------|---|-------------------|

|   |   |                   |
|---|---|-------------------|
| 15:00 –<br>17:00  | <b>Parallel Session 2</b>   |                   |
| <b>Interdivisional 1: Spatial decision making and mapping for implementing policies for sustainable soil management: Chairperson: Dr Jack Hannam &amp; Prof Erika Micheli</b> |   | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Prof Dr Hermann F. Jungkunst: Matter of scale: merging process understanding and decision-making in soil-carbon-climate predictions</li> <li>2. Miss Naila Hina: Using Spatially Explicit Soil Mapping and Modelling to Understand and Mitigate Nitrate Leaching in an Agricultural Catchment</li> <li>3. Dr Yash Dang: ConstraintID: web-based tool for spatial diagnosis of soil constraints</li> <li>4. Dr Antonello Bonfante: A geospatial dss for soil health: a regional scale case study</li> <li>5. Prof Fabio Terribile: A web-based open-access Spatial Decision Support tool to monitor soil sealing and support decision making in urban planning</li> <li>6. Dr Clementine Chirol: Semi-quantitative evaluation and mapping of bundles of soil ecosystem services in agricultural and forested lands at the regional scale</li> <li>7. Prof Jess Davies: Future of UK soil carbon and nutrient cycles - modelling climate and land use and management scenarios</li> <li>8. Dan Yaalon young scientist Division 1 award (with Commission 1.6)</li> </ol> |                   |
| <b>Interdivisional 2 – Soil Carbon: from particle to planet<br/>Chairperson: Curtis Monger</b>  |   | Clyde Auditorium  |
|   | <ol style="list-style-type: none"> <li>1. Dr Alexandra Sandhage-Hofmann: Wildlife conservation accumulates carbon and lignin in soils</li> <li>2. Dr A. Peyton Smith: Pedogenesis in the Phyllosphere: Do arboreal histosols increase soil carbon capture in the tropics?</li> <li>3. Dr Soh Sugihara: Low OC stabilization capacity of mineral-associated organic matter in tropical-alkaline soils of southern India</li> <li>4. Miss Lucy Weidner: Catastrophic Carbon Movement: Tracing Changes to Icelandic Carbon Cycling due to Increasing Erosion over the past Millennium</li> <li>5. Dr Han Weng: Soil carbon research from past, present, and future using synchrotron-based techniques</li> </ol>   |                   |



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|---|--|--------|
|   | <ol style="list-style-type: none"> <li>6. Dr Martin Wiesmeier: Soil carbon credits for climate mitigation: opportunities and challenges</li> <li>7. Prof. Martin Gerzabek: Soil organic carbon and fine particle stocks change along a volcanic chrono- and elevation-sequence on the Galápagos archipelago</li> <li>8. Noella Garcia Franco: Changes in SOC stocks and aggregates in alpine and pre-alpine grassland soils in a changing climate</li> </ol>   |        |
| <b>Inter-divisional 3 – Interdisciplinary soil science for impact</b><br><b>Chairperson Professor Phil Haygarth</b> |  | M1     |
|   | <ol style="list-style-type: none"> <li>1. Keynote speaker: Prof Yves Coquet: Soil science skills for the future: a European perspective</li> <li>2. Prof William Blake: Integrating land-water-people connectivity concepts across disciplines for co-design of soil erosion solutions: the Jali Ardhi [Care for the Land] project</li> <li>3. Dr Winfried E.H. Blum: Linking the soil microbiome with human health</li> <li>4. Dr Patricia Bruneau: Lessons learn from the development and use of Scotland's soils website - <a href="https://soils.environment.gov.scot/">https://soils.environment.gov.scot/</a></li> <li>5. Dr Charlotte Chivers: Using social science approaches to integrate local knowledge when modelling the impact of natural flood management measures</li> <li>6. Dr Sarah Duddigan: Understanding the adoption of zero budget natural farming in Andhra Pradesh, India</li> <li>7. Ms Nerea Ferrando Jorge: Participation in citizen science is a promising avenue for fostering environmental stewardship</li> </ol> |        |
| <b>16 Division 2: Nitrogen cycling and soil health:</b><br><b>Chairperson: Prof. Liz Baggs</b>                      |  | Forth  |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Prof Sophie Zechmeister-Boltenstern: N<sub>2</sub>O emissions from cropland and grassland – key drivers and mitigation options</li> <li>2. Keynote Speaker: Dr Jonathan Holland: Long-term N fertilization effects on soil N dynamics, plant N use efficiency and ecosystem N balance</li> <li>3. Dr Yunru Chloe Lai: Simulating nitrogen loss due to ammonia volatilisation after urea fertiliser application in APSIM</li> <li>4. Dr Kairsty Topp: Characterising the variation in UK background emissions of nitrous oxide</li> <li>5. Mr Carlos Bonini Pires: On-farm strategies for improving soil health: Building a network in Kansas – USA</li> <li>6. Dr Nikolaos-Christos Vavlas: Remote sensing of cover crop legacies on soil health and main crop N-uptake dynamics</li> </ol>   |        |
| <b>30 WG1.04: Global soil map; main advances and ways forward</b><br><b>Chairperson: Dr Dominique Arrouay</b>       |  | Alsh 2 |
|   | <ol style="list-style-type: none"> <li>1. Dr Colby Brungard: Multi-scale soil property mapping with conventional soil survey data for the continental U.S.</li> <li>2. Dr S Dharumarajan: IndianSoilGrids project- Advances, Challenges, and way forward</li> <li>3. Dr László Pásztor: Recent steps in the DSM related development of the Hungarian Soil Spatial Data Infrastructure</li> <li>4. Dr Laura Poggio: Global mapping of complex soil properties</li> <li>5. Dr Natalia Rodriguez Eugenio: The Global Maps of the Global Soil Partnership: from bottom to top</li> </ol>   |        |
| 17:00 – 17:30   | Refreshment Break, Exhibition & Networking   | Hall 4 |



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|   |   |                   |
|---|---|-------------------|
| 17:30 – 19:30   | Parallel Session 3  |                   |
| <b>Inter-divisional 3 – Interdisciplinary soil science for impact</b><br><b>Chairperson Professor Phil Haygarth</b>             |   | M1                |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr. Dan Richter: Towards a Science of City-Soil Pedogenesis</li> <li>2. Dr Samantha Grover: Finding common ground; developing a shared understanding of tropical peat swamp forest fires and restoration across disciplines and cultures</li> <li>3. Dr Christian Adler Phares: Farmers characteristics, indigenous knowledge and soil management practices influenced carbon stock and emissions in contrasting agroecological zones of Ghana</li> <li>4. Dr Taru Sandén: Using data mining techniques to model citizen scientist collected data on litter decomposition in Austrian urban school soils</li> <li>5. Ms Antonia Taddei: Metaphors about soil. An interdisciplinary investigation to reveal biases and foster action for soil preservation</li> <li>6. Mr Matthew Tarnowski: Transdisciplinary research: assemblages of disciplines meet assemblages of microorganisms</li> </ol>   |                   |
| <b>14 Division 1 Commission 1.2: Soil geography: basic science and new technologies: Chairperson: Professor Thomas Scholten</b> |   | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Dr Dylan Beaudette: Quantitative uses of soil color for the development and presentation of soil survey data in the United States</li> <li>2. Alexander Bonhage: Large scale survey of anthropogenic soil landscapes in New England, USA, using state-of-the-art machine learning techniques (Yolov4)</li> <li>3. Dr S Dharumaran: Comparison of global versus soil-order models for soil properties estimation from Vis-NIR Laboratory spectral data of Northern Karnataka (India)</li> <li>4. Prof Thomas Scholten: Multi-scale terrain feature construction and machine learning for the spatial interpretation of soil organic carbon stocks in West Greenland</li> <li>5. Ms Paulina Grigusova: Effect of animal bioturbation on chemical and physical soil properties and sediment redistribution across climate gradients</li> <li>6. Prof Daniela Sauer: Soils as a key factor for recovery of forest patches after disturbance in the central Mongolian forest-steppe</li> <li>7. Dr Christoph Weihrauch: Bridging the gap with SNAp? Combining localized soil sampling with network analysis to tackle elemental migration through the soilscape</li> <li>8. Ms Hayfa Zayani: Predicting changes over time of local soil organic carbon contents using a regional spectral library</li> </ol> |                   |
| <b>24 Division 4 Commission 4.5: History, philosophy and sociology of soil science: Chairperson:</b>                            |   | Forth             |
|   | <ol style="list-style-type: none"> <li>1. Prof Lorna Dawson: Ethics and law in forensic soil science and forensic geology: developing a global White Paper</li> <li>2. Prof Sabine Grunwald: Feminine Psycho-Spiritual-Social Constructs of Nature, Land, Earth, and Soil</li> <li>3. Prof Margaret Oliver: The history of soil and human health</li> <li>4. Dr Nikola Patzel: Outer and Inner Soil</li> <li>5. TBC</li> </ol>  |                   |



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|  | 6. Dr Said Al-Ismaily: PEDO: Citizen Assisted Science-Based Digital Android Application for Omani soils<br>7. Prof Alex R. Toland: Soilkin: Relational exercises with soil and stones  |         |
| <b>35 WG1.9 – Advances in understanding soils as reflected by the 4th edition of the WRB</b> |  | Alsh 1  |
|  | 1. Dr Peter Schad: The 4th edition of the WRB (2022)<br>2. Vincent Bunes: A Field Guide as an annex of the WRB 2022<br>3. Dr Einar Eberhardt: WRB and Soil Information Systems - steps to harmonized world soil information<br>4. Dr Stefaan Dondeyne: How to identify soil diagnostic horizons? A key to the diagnostic features of the World Reference Base for soil resources<br>5. Prof Erika Micheli: Taxonomic distance studies of the units of the modernized Hungarian Soil Classification with WRB RSGs.<br>6. Prof. Cezary Kabala: War and peace - complementary factors of urban soil formation in Central Europe<br>7. Stephan Mantel: Improving accuracy assessment of global WRB predictions using taxonomic distance<br>8. Stephan Mantel: Semi-detailed survey and mapping of WRB soil resources in Ethiopia using different pathways to optimise between accuracy and precision |         |
| 20:00 – 21:30  | British Society of Soil Science Council Meeting – <i>closed meeting</i>  | Offsite |

### Fringe Events

|               |                              |          |
|---------------|------------------------------|----------|
| 13:00 – 19:30 | Global Soil Health Programme | Carron 1 |
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### Day 3 Programme Tuesday 2 August 2022

|             |  |            |
|-------------|--|------------|
| 08:00-09:00 | Division 3 Meeting – <i>closed meeting</i> | Forth      |
| 08:00-09:00 | Division 1 Meeting – <i>closed meeting</i> | Gala       |
| 08:00-09:00 | Division 2 Meeting – <i>closed meeting</i> | Boisdale 2 |
| 08:00-09:00 | Division 4 Meeting – <i>closed meeting</i> | Carron 2   |

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|---|---|-------------------|
| 09:00 – 11:00   | Parallel Session 1  |                   |
| <b>Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production:</b><br><b>Chairperson: Professor Peter Gregory</b> |   | M1                |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Philippe Hinsinger: Root foraging and mining strategies shape ecosystem services – a focus on biogeochemical cycling and soil formation in low-input agroecosystems</li> <li>2. Prof Paul Hallett: Impact of root hairs on microscale soil physical properties in the field</li> <li>3. Prof Doris Vetterlein: Hairs matter at field scale for shoot growth and nutrient uptake, but root trait plasticity is primarily triggered by texture</li> <li>4. Dr Frederic Rees: Modelling the spatial and temporal evolution of rhizodeposition as a function of plant's carbon balance and soil properties</li> <li>5. Dr Siul Ruiz: A pore scale characterisation of extracellular polymeric substances to describe biofilms and plant exudates - integrating imaging, NMR, and modelling</li> <li>6. Prof Richard Dick: Shrub-crop microbiome and mycorrhizal hyphal interactions: a novel rhizosphere alliance to mitigate in-season drought in the Sahel</li> <li>7. Mr José Rocha Araujo: Organic matter modulates the influence of different earthworms species on plant-soil interactions</li> </ol> |                   |
| <b>Interdivisional 9: Novel methods and techniques</b><br><b>Chairperson: Alfred Hartemink</b>  |   | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Dr Alain Brauman: Biofunctool: An in-field package to assess soil quality based on soil functioning</li> <li>2. Mr Vincent Geoffroy: Inner organization of soil crusts: new insights from two-dimensional X-ray microdiffraction</li> <li>3. Miss Munisath Khandoker: Can smartphone applications revolutionise how we measure aggregate stability?</li> <li>4. Dr Alastair Marsh: Novel insights into Fe and Al co-ordination in soils from STEM-EELS and laboratory-based ST-XAS</li> <li>5. Miss Wartini Ng: Calibration transfer: a case study using LDSF spectral library</li> <li>6. Prof Dr. Chris Oostenbrink: Vienna Soil Organic Matter Modeler 2 (VSOMM2) –computational microscope for SOM systems</li> <li>7. Miss Jill Pitcher Farrell: X-ray CT analysis of forest root growth on high-pH peaty soils: it's not all black and white</li> <li>8. Dr A H Jean Robertson: FTIR-ATR: A method giving unique insights into the composition of soil</li> </ol>   |                   |



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| <b>12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology: Chairpersons: Elizabeth Solleiro-Rebolledo and Curtis Monger</b>                          |   | Boisdale 1 |
|  | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Prof Cezary Kabala: Classification of paleosols: needs, concepts, and doubts</li> <li>2. Mr Andrew Brown: Open-source Tools for U.S. Soil Taxonomy Applications</li> <li>3. Dr Einar Eberhardt: The revised German Soil System - improved structure, new soil types and an alternative diagnostic horizon approach</li> <li>4. Prof Fabio Scarciglia: Paleoclimate, land use and geomorphic changes recorded in archaeological and natural Holocene soils and paleosols of Italy</li> <li>5. Dr Darrell Schulze: Visualizing soil landscapes by mining soil survey taxonomic data</li> <li>6. Prof Tibor Tóth: Practical evaluation of Soil Taxonomy, Hungarian classification and WRB in terms of NDVI and elevation, inside a salt-affected alluvial plot</li> </ol>   |            |
| <b>41 WG3.2: Advances in innovative technologies and methods for quantifying biogeochemical cycles of carbon and nutrients in forest soils<br/>Chairperson: Professor Zhihong Xu</b> |   | Alsh 1     |
|  | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Prof Chris Johnson: Long-term trends in calcium and soil acidity in forest soils after whole-watershed application of calcium silicate</li> <li>2. Dr Felipe Aburto Guerrero: Soil forest C N P dynamics and pools altered after deciduous native forest conversion to pine plantations</li> <li>3. Dr Wanderson de Sousa Mendes: Peatlands spectral data influence in global spectral modelling of soil organic carbon and total nitrogen using diffuse reflectance spectroscopy</li> <li>4. Ms Mary Hodgson: Savanna Soil Carbon: interactive impacts of fire, grazing and climate on soil resilience</li> <li>5. Dr Steffen Seitz: Soil properties as predictors of biodiversity in forests: Is there a Critical Soil Depth?</li> <li>6. Dr Carlos Tornquist: Soil carbon stocks as affected by land use changes in the pampas of southern Brazil</li> <li>7. Professor Sami Ullah: Stimulation of soil nitrogen cycling processes after three years of Free Air CO<sub>2</sub> Enrichment of mature temperate forests at BIFoR-FACE</li> </ol> |            |
| <b>44 WG3.4: Mitigation and adaptation strategies for climate change in rice-based systems: Chairperson: TBC</b>   |   | Alsh 2     |
|  | <ol style="list-style-type: none"> <li>1. Dr Yan He: Residual chlorinated organic pollutants in paddy soil may induce methane release as revealed by coupling between methanogenesis and reductive dichlorination</li> <li>2. Mr Frank Linam: Rice husk/biochar amendment increases soil carbon and alters greenhouse gas emissions in an Ultisol paddy soil</li> <li>3. Hyeon-ji Song: Soil saturation degree in rice paddy: the key factor to determine biomass application rate for minimizing global warming impact</li> <li>4. Hyeon-ji Song: Under global warming: More organic amendment is essential to compensate soil carbon loss</li> </ol>  |            |
| 09:30 – 11:00  | Kiss the Ground: Screening of the Netflix documentary   | Boisdale 2 |
| 11:00 – 12:00  | British Society of Soil Science Annual General Meeting and 75th Birthday Reception  | Gala       |





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|---------------|--|------------|
| 11:00 – 13:00 | Lunch, Exhibition & Poster Presentations   | Hall 4     |
| 11:00 – 13:00 | Wiley Workshop and Networking Session: Unearthing Open Access for Soil Science Researchers | Carron 2   |
| 13:00 – 15:00 | Kiss the Ground: Screening of the Netflix documentary                                      | Boisdale 2 |

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|--|---|-------------------|
| 13:00 – 15:00  | Parallel Session 2  |                   |
| <b>Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production:</b><br><b>Chairperson: Phillipe Hinsinger</b> |   | M1                |
|  | <ol style="list-style-type: none"> <li>1. Prof Liz Baggs: Root traits for soil organic matter mineralization: The route to breeding for sustainability</li> <li>2. Mx Imelda Uwase: Crop diversity decreases soil organic matter decomposition in the rhizosphere</li> <li>3. Ms Franziska Steiner: Drought alters the influence of functional rhizosphere traits on soil aggregation and soil organic carbon dynamics under different maize cultivars</li> <li>4. Mr Frank Linam: Rice root Fe plaque formation in North American paddy soils</li> <li>5. Dr David Boldrin: Modifying soil hydraulic and mechanical properties with contrasting herbaceous plants</li> <li>6. Dr Csilla Hudek: Using roots to bio-engineer soil: The multi-functional role of cover crop roots to mitigate soil degradation</li> <li>7. Miss Ayesha Alam: Evaluation of Arabian Desert ornamental native plant species for long-term impact on soil properties, water use efficiency and mycorrhizal association</li> <li>8. Yutaro Takahashi: Response of root development of leaf vegetables to soil heterogeneous fertilization by combined application of phosphorus and water-soluble organic matter</li> </ol> |                   |
| <b>Interdivisional 9: Novel methods and techniques</b><br><b>Chairperson: Stephen Hiller</b>   |   | Lomond Auditorium |
|  | <ol style="list-style-type: none"> <li>1. Mr Lieven Waeyenberge: Nematode amplicon sequencing is useful to reveal inter- and intraregional (functional) biodiversity differences in conventional and organic farming systems</li> <li>2. Dr Han Weng: Probing the nature of soil organic matter: a theory-driven review</li> <li>3. Mr Richard York: Molecular-level characterisation of damaged and restored peat soils using molecular tagging and advanced NMR spectroscopy</li> <li>4. Dr Mario Fajardo: Space-Time selection of soil samples for local calibration of spectral models</li> <li>5. Dr Frédéric Vanwindekens: The "QuantiSlakeTest", a low-tech technique for assessing structural stability of soils in farming systems</li> <li>6. Dr Scott Buckley: Simulating root exudation processes using microdialysis – examining short-term C supply and N availability in near real-time.</li> <li>7. Dr Julien Guigue: Mapping molecular composition heterogeneity of particulate organic matter during the decomposition of organic fertilizer at different depths</li> </ol>   |                   |





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| <b>12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology: Chairpersons: Curtis Monger and Elizabeth Solleiro-Rebolledo</b> |  | Boisdale 1 |
|   | <ol style="list-style-type: none"> <li>1. Dr Mark Stolt: Fundamental Changes in Soil Taxonomy</li> <li>2. Dr Atsushi Nakao: K-Ar dating and oxygen isotopic analysis for tracing Asian dust inclusion in aeolian depositions during the last glacier period</li> <li>3. Dr Thomas Raab: Relict Charcoal Hearth (RCH) soils – properties and classification</li> <li>4. Mr Marco Pfeiffer: Paleoenvironmental signification of Late Pleistocene Palustrine calcretes in the Maipo basin, Central Chile</li> <li>5. Dr Elizabeth Solleiro-Rebolledo: Could Vertisols record geomorphic history in volcanic landscapes of Mexico?</li> <li>6. Dr Erika Di Iorio: The paleo-environmental reconstruction of a central-southern Apennine peat bog and the implications in the climate changes</li> <li>7. Mr Danny Itkin: Soil formation paths in West-Mediterranean calcareous stone-wall bench terraces</li> </ol>  |            |
| <b>19 Division 2 Commission 2.3: Soil microorganisms under changing environment: Chairperson: Magdalena Frac</b>  |  | Forth      |
|   | <ol style="list-style-type: none"> <li>1. Dr Christian Adler Phares: Biochar and co-inoculated plant growth promoting bacteria enhanced Inorganic NPK fertilizer uptake and use efficiency by maize</li> <li>2. Louis J.P. Dufour: Energetic return on investment determines overall soil microbial activity</li> <li>3. Miss Katy Faulkner: High rainfall disturbs soil microbial structure and function in a mature temperate forest under elevated carbon dioxide</li> <li>4. Mr Matias Fernandez: Molecular approaches to examine microbial diversity (long-term experimental sites)</li> <li>5. Dr Paul George: Bioprospection and sentinel organisms as monitoring tools for assessing the impact of climate warming on soils in the Canadian North</li> <li>6. Dr Lukas Kohl: Microbial inputs at the litter layer translate climate into altered organic matter properties</li> <li>7. Mr Kristian Koefoed Brandt: Impacts of soil properties and farming practice on prokaryotic microbiomes across nine European pedoclimatic regions</li> <li>8. Dr Jane Lucas: Anthropogenic and climatic stressors interact to disrupt soil communities and nutrient cycling</li> </ol> |            |
| <b>43 WG 3.4: Recent advances in nutritional, biological and physical processes in paddy soils: Chairperson: TBC</b>  |  | Alsh 1     |
|   | <ol style="list-style-type: none"> <li>1. Dr Jehangir Bhadha: Cultivating flooded rice as a treatment technology to mitigate nutrient loads and improve soil quality from agricultural watersheds</li> <li>2. Mr Weichen Huan: Is rice field a nitrogen source or sink for the environment?</li> <li>3. Mr Md Dhin Islam: Exploration of soil macropores in a compacted plough pan by rice genotypes</li> <li>4. Dr Ram Prakash Tata: Changes in soil properties and soil quality in long-term rice-based cropping system under conservation agriculture.</li> <li>5. Prof Junta Yanai: Long-term changes in paddy soil fertility in tropical Asia under the Green Revolution from 1960s to 2010s</li> <li>6. Prof Bob Rees: Green manuring can reduce Chinese dependence on fertilizer nitrogen by 40% in rice production system</li> </ol>   |            |



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| 15:30 –<br>17:30  | Parallel Session 3  |                   |
| <b>Interdivisional 6: Dynamics of soil erosion and land loss under present and future environments: Chairperson: Professor Artemi Cerda</b> |   | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Dr Olivier Cerdan: "Off-site economic costs induced by soil erosion in the northwestern European loess belt for the last two decades (Normandy, France)"</li> <li>2. Ms Corinna Gall: On the effect of pioneer biocrust communities on soil erosion after disturbances in a European temperate forest ecosystem</li> <li>3. Mr Francis Matthews: A crop phenology-based approach to quantify the C-factor at the field-parcel scale in Europe</li> <li>4. Mr Ariel Nahalieli: Piping formation and distribution in a semi-arid environment: A new conceptual model</li> <li>5. Dr Hari Ram Upadhyay: Disentangling prolonged rainfall and land use change interactions on catchment sediment source dynamics from multi-biotracers isotope composition</li> <li>6. Dr Xihua Yang: Predicting nutrient loss due to water and wind erosion across New South Wales, Australia</li> <li>7. Prof Vincent Logah: Integrating biochar into cropping systems reduces soil loss and run-off characteristics in Ghana</li> <li>8. Ms Estela Nadal-Romero: The legacy of the historic land use/land cover changes after cropland abandonment: effects on soil properties, nutrients, and redistribution processes</li> </ol> |                   |
| <b>11 Soil Genesis: Chairperson: Endre Dobos</b>  |   | M1                |
|   | <ol style="list-style-type: none"> <li>1. Prof Alfred Hartemink: The importance of soil horizons in pedology</li> <li>2. Dr Kate Schofield: Reconstructing soils from waste: barriers and opportunities</li> <li>3. Mr Marco Pfeiffer: High mountain soils in the Andes of Central Chile</li> <li>4. Dr Zoltán Szalai: Accelerated soil development due to seasonal water-saturation under hydric conditions</li> <li>5. Dr Tetsuhiro Watanabe: Disentangling the pedogenic factors controlling active Al and Fe concentrations in soils of the Cameroon volcanic line</li> <li>6. Prof. Cezary Kabala: Age and polygenetic origin of Planosols in postglacial areas of Central Europe</li> <li>7. Dr. Janis Boettinger: Toposequence of soils formed in Pleistocene Lake Bonneville deposits, Utah, USA</li> <li>8. M.Eng. Magdalena Tarnawczyk: Soil-forming factors controlling properties of Technosols developed on historical mining and metallurgical sites in the Tatra Mountains, southern Poland</li> </ol>   |                   |
| <b>19 Division 2 Commission 2.3: Soil microorganisms under changing environment: Chairperson: Magdalena Frac</b>                            |   | Forth             |
|   | <ol style="list-style-type: none"> <li>1. Leidiane Dos Santos Lucas: Arbuscular Mycorrhizal Fungi in Buriti, Cerrado Cashew and Peki in Cerrado soil</li> <li>2. Dr Ashish Malik: Soil microbiome-mediated carbon sequestration: understanding the mechanisms across different ecosystem</li> <li>3. Dr Vanessa Pino: Moody microbes! Cycles of soil temperature and pedogenic variations disentangle soil microbiome predictions in Australian soils</li> <li>4. Dr Flavia Pinzari: Effects of a fungal invasion on soil bacteria</li> </ol>   |                   |



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|  | <ol style="list-style-type: none"> <li>Dr Juliana Silva Rodrigues Cabral: An antique association between fungi and plants that can save the future of agricultural production in the face climate change</li> <li>Dr Rodica Pena: Soil fungal interactions change from negative to positive under lower fertility</li> <li>Prof Yongguan Zhu: Understanding antimicrobial resistance in soil-plant system for One Health</li> <li>Dr Miriam Muñoz-Rojas: Emerging soil microbial-based strategies for restoring biodiversity and enhancing climate resilience of degraded ecosystems</li> </ol>   |            |
| <b>34 WG1.8 – Advances in universal soil classification: Chairperson: Budiman Minasny &amp; Alex McBratney</b>   |   | Alsh 2     |
|  | <ol style="list-style-type: none"> <li>Dr Yuri Gelsleichter: Evaluation of centroid units from Brazilian to Universal Soil Classification System</li> <li>Prof Alex McBratney: CSCS2.0: A comprehensive soil classification system for quantitatively identifying soils across the world: Brief update report</li> </ol>  |            |
| <b>40 WG3.2: Carbon and nutrient cycles under intensifying climate change and land management: Chairperson: Prof Zhihong Xu &amp; Prof Chris Johnson</b> |   | Alsh 1     |
|  | <ol style="list-style-type: none"> <li>TBC</li> <li>Dr Sunendra Joshi: The effect of salinity on dissolved organic C and nutrients in non-saline soils</li> <li>Ms Rika Ratna Sari: Soil protection or nutrient supply? Dual role of litter layer in cacao agroforestry systems</li> <li>Dr Marcelo Valadares Galdos: Modelling soil carbon dynamics under different tillage, crop rotation and climate scenarios in Southeastern Brazil</li> <li>Mr Laudelino Vieira da Mota Neto: Soil Carbon affected by N rates in tropical maize intercropped with forages</li> <li>Dr Han Weng: Shining a light on in situ distribution of soil carbon functional groups in an 8-year Free-Air Carbon Dioxide Enrichment study</li> <li>Dr Chunhao Gu: The impacts of sea level rise on phosphorus cycling in coastal soils</li> <li>Prof Masahiko Katoh: CO<sub>2</sub> retention on wood ashes from different raw materials and CO<sub>2</sub> release after soil mixing</li> </ol> |            |
| 17:30 – 18:00  | Refreshment Break, Exhibition & Networking  | Hall 4     |
| 15:30 – 17:30  | Kiss the Ground: Screening of the Netflix documentary   | Boisdale 2 |

### Plenary Session

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|---------------|---|------------------|
| 18:00 – 19:00 | <b>How transforming land use change could change our future</b><br>Dr Debra Roberts, Co-Chair of Working Group II of the IPCC<br>Durban, South Africa | Clyde Auditorium |
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| 20:00 –<br>21:30 | British Society of Soil Science: Publications Committee Meeting – <i>closed meeting</i> | Offsite |
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### Fringe Events

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| 09:00 –<br>13:00 | Reaching higher ground: the next generation of soil science through collaborative postgraduate training and learning” everywhere it appears? | Dochart 1 |
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### Policy Programme

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| 10:00 –<br>17:30 | Further details available - <a href="https://22wcsc.org/programme/policy-programme/">https://22wcsc.org/programme/policy-programme/</a> | Carron 1 |
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## Day 4 Programme Wednesday 3 August 2022

### Division Meetings

|                  |   |            |
|------------------|---|------------|
| 08:00 –<br>12:00 | Division 1 Business Meeting – <i>closed meeting</i> | Boisdale 1 |
| 15:00 –<br>17:00 | Division 1 Business Meeting – <i>closed meeting</i> | Boisdale 1 |

### 08:00 – 10:00 Parallel Session 1

#### Interdivisional 7: Soil securing humanity | Humanity securing soil: Chairperson: Professor Damien Field

Lomond Auditorium

1. The Honourable Penelope Wensley: Australia's National Soils Advocate
2. Isabelle Verbeke: connecting soils with people: initiatives of the Global Soil Partnership
3. Prof Damien Field: Securing soil through its connectivity
4. Dr Karen Vancampenhout: The Green Green Sand of Home: immersive experiences for creating soil awareness
5. Miss Prapa Taranet: Soil doctors program: a smart farmer approach for sustainable soil management and food security in Lancang-Mekong Countries
6. Prof Cristine Muggler: Agroecology and healthy soils to ensure food security and sovereignty
7. Dr Liesl Wiese-Rozanov: Assessing countries' commitments for soil organic carbon protection and sequestration under the three Rio Conventions

#### Interdivisional 8: Sustainable land use: Chairperson: Professor Claudio Zaccane

M1

1. Prof Sonoko Bellingrath-Kimura: New land use arrangement that harmonize various ecosystem services of agricultural landscape
2. Dr Claire Chenu: Climate-smart AND sustainable management of agricultural soils: identifying synergies and addressing trade-offs



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|  | <div>3. Mr Olivier Heller: The potential of innovative soil management practices to address soil challenges across Europe - Outcomes of the i-SoMPE Project</div> <div>4. Dr Michael Löbmann: Soil Mission Support: Participatory identification of research &amp; innovation gaps for a sustainable soil and land use practice</div> <div>5. Ms Nur Azima Busman: Long-term monitoring of carbon dioxide and methane fluxes from different types of tropical peat swamp forests</div> <div>6. Prof John Quinton: Impacts of soil redistribution by tillage on crop production</div> <div>7. Dr Jingyi Huang: Soil and environmental issues in sandy soils</div> <div>8. Ms Estela Nadal-Romero: Land uses/land cover management after cropland abandonment as a strategy for enhancing ecosystem services: soil quality and organic carbon sequestration</div>   |
| <div>17 Division 2: Sustainable use of legacy soil phosphorus: Chairperson: Karl Dunfield</div> <div>Gala</div>                      |   |
|  | <div>1. Keynote Speaker: Dr Andrew Margenot: Quantifying how much, where, and what form of legacy P across scales: the case of Illinois</div> <div>2. Dr Jehangir Bhadha: Addressing phosphorus legacies and efficiencies through the Science and Technologies for Phosphorus Sustainability (STEPS) Center initiative</div> <div>3. Dr Deb Jaisi: Residual and recalcitrant phosphorus pools and isotope signatures to track legacy sources</div> <div>4. Prof Leo Condon: Impact of green manures on legacy soil phosphorus mobilisation and crop performance</div> <div>5. Dr Antonio Rafael Sánchez-Rodríguez: Legacy soil phosphorus and biobased P fertilizers in the wheat/oleaginous-leguminous crop rotation in Mediterranean Vertisols</div> <div>6. Miss Wen-hui Li: Solution for the phosphorus crisis: environmental friendly hybrid LDH serves as slow release phosphate fertilizer</div> <div>7. Prof Mark Tibbett: Too much of a good thing: the legacy of phosphorus fertilisation in restored landscapes of high biodiversity value</div> |
| <div>22 Division 3 Commission 3.1 – Soil evaluation and land use planning: Chairperson: TBC</div> <div>Forth</div>                   |   |
|  | <div>1. Keynote Speaker: Dr. Anders Bjørn Møller: A cautionary tale of machine learning, land use and land suitability assessment</div> <div>2. Chantal Hendricks: Stocktaking for agricultural soil quality and ecosystem services indicators and their reference values; The EJP SOIL 'SIREN' project</div> <div>3. Mrs Ana Flavia Boeni: Linking soil and vegetation variables in assisted natural regeneration in the Doce river basin, Brazil</div> <div>4. Mr Gilles Colinet: Assessing potential soil ecosystemic services in urban green areas from measurements of soil properties: insight from the URBERSOI project</div> <div>5. Dr Mulenga Kalumba: Functional evaluation of digital soil hydraulic property maps through comparison of simulated and remotely sensed maize canopy cover</div> <div>6. Dr Ahmed Al Arazah: Assessment of the hydrological status of Marshlands in the South of Iraq using a combination of remote sensing and drought indices</div>  |
| <div>28 WG1.2 – Digital soil mapping: advances towards Digital Soil Assessment: Chairperson: Dr Laura Poggio</div> <div>Alsh 1</div> |   |
|  | <div>1. Mr Bryan Fuentes: rassta: Raster-based Spatial Stratification Algorithms and their Application in Digital Soil Mapping</div> <div>2. Dr Colby Brungard: Representative Elementary Areas to optimize field soil sampling under logistical constraints</div>  |



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|   | <ol style="list-style-type: none"> <li>Mr Stefan Oechslin: Development of a digital soil mapping based decision framework for management of degraded organic soils for the Swiss Rhine Valley</li> <li>Ms Jessica Philippe : Utilizing Digital Soil Mapping Products for Environmental management Decisions in the United States</li> <li>Dr Laura Poggio: Quantifying pedodiversity at different scales</li> <li>Dr George van Zijl: "Digital Soil Mapping and Hydrological Modelling produces solutions for severe infrastructure damage in Cosmo City, South Africa</li> </ol>  |
| <b>45 WG4.1 - The application of Soil Science in the Criminal Justice System: Chairperson: Professor Lorna Dawson</b> |  |
|   | <ol style="list-style-type: none"> <li>Keynote Speaker: DCI Brian Geddes: The role of physical evidence in the investigation/detection of major crime In Scotland</li> <li>Prof Lorna Dawson: Trace evidence comparison between soil on footwear and reference site locations: application to a murder investigation</li> <li>Dr Rosa Maria Di Maggio: Geology and Civil Protection: when foreseeable hydrogeological disasters cause victims</li> <li>Dr Laurance Donnelly: Forensic 'fingerprinting' (provenance determination) in the predictive geolocation of the global trade in illicit minerals and metals</li> <li>Prof Robert Fitzpatrick: Soil material evidence in 2 crime investigations involving both primary and secondary transferences of soil materials</li> <li>Prof Lorna Dawson: The Search for Moira</li> </ol> |
| 10:00 – 10:30   | Refreshment Break, Exhibition & Networking   |
|   | Hall 4   |

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| 10:30 – 12:30  | <b>Parallel Session 2</b>  |                   |
| <b>Interdivisional 7: Soil securing humanity   Humanity securing soil: Chairperson: Professor Alex McBratney</b> |  | Lomond Auditorium |
|  | <ol style="list-style-type: none"> <li>Prof Alex McBratney: Developing and implementing a diagnostic soil security assessment framework for Australia and beyond</li> <li>Dr Laura Poggio: Global modelling of soil functions to support soil security</li> <li>Mr Jonah Prout: soil organic carbon to clay ratio: effective for monitoring management activities to achieve improved carbon status and condition of soils.</li> <li>Dr Mercedes Roman Dobarco: Digital pedogenon mapping for assessing changes in soil condition from local to continental scale</li> <li>Professor Ronald Amundson: The global agricultural domestication of soil over time</li> <li>Dr Eric Brevik: Securing soil to secure human health</li> <li>Dr Claudia Erber: Application of organic materials on land - Regulatory challenges in implementing circular economy principles in Scotland</li> <li>Prof Tom Vanwallegghem: Impact of soil erosion on soil security under global climate change: insights from simulation of soil water dynamics and drought</li> </ol> |                   |



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| <b>Interdivisional 8: Sustainable land use</b>  |  | M1    |
| <b>Chairperson: Professor Sonoko Bellingrath-Kimura</b>   |  |       |
|   | <ol style="list-style-type: none"> <li>1. Dr Zach Simpson: Co-benefits and tradeoffs of conservation agriculture management on multiple ecosystem services: a synthesis of meta-analyses</li> <li>2. Ms Catriona Willoughby: Using soil health testing to design crop rotations that are fit for the future by balancing productivity with sustainability</li> <li>3. Prof Ying Zhao: The "Groundwater Benefit Zone" in saline agriculture, proposals, contributions, and new scientific issues</li> <li>4. Dr Jack Hannam: Land use decisions under climate change: Reconciling food production and tree planting</li> <li>5. Dr Kristi Mingus: Soil Health is the Guide: Three lessons from assessing grazing management practices in the western United States</li> <li>6. Dr John Scullion: Trade-offs needed in delivering environmental services through extensification of improved UK upland pasture soils</li> <li>7. Dr Deborah January-Bevers: Improving soil ecosystem services in Houston, Texas through large-scale tree planting frameworks providing sustainable land use and air pollution reductions</li> <li>8. Prof Rosa M Poch: Protect Black Soils to Achieve Food and Environmental Security: Report of the Global Status of Black Soils</li> </ol> |       |
| <b>17 Division 2: Sustainable use of legacy soil phosphorus:</b>  |  | Gala  |
| <b>Chairperson: Kari Dunfield</b>   |  |       |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Jolanda Reusser: Associations of inositol phosphates and complex phosphomonoesters with soil organic matter</li> <li>2. TBC</li> <li>3. Miss Jennifer Davies: Simulating the capacity of legacy soil phosphorus to maintain long-term crop productivity under reduced phosphorus fertiliser inputs</li> <li>4. Dr Tim George: Arbuscular mycorrhizal fungi are more important than root hairs of maize for utilizing legacy P in soils</li> <li>5. Withdrawn</li> <li>6. Juanjuan Ai: What controls the availability of organic and inorganic P sources in top- and subsoils? A <sup>33</sup>P isotopic labelling study</li> <li>7. Dr Klaus Jarosch: Phosphorus fractions and availabilities in different soil depths after 20 years of continuous soil P management.</li> </ol>  |       |
| <b>21 Division 3, Commission 3.2 - Soil water, pollutant and gas movement in the context of a changing climate:</b> |  | Forth |
| <b>Chairperson: Lillian Øygarden</b>  |  |       |
|   | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Bob Rees &amp; Phil Haygarth: Soil and their biogeochemical impacts in a changing climate</li> <li>2. Fabian Fernandez: Nitrous oxide emissions in poorly drained soils in a corn and soybean cropping system: Effect of drainage and N applications.</li> <li>3. Matteo Longo: Understanding GHGs dynamics of alternative management practices under shallow water table conditions</li> <li>4. Fabian Fernandez: Nitrate, nitrous oxide, and ammonia loss mitigation with optimum rate of enhanced efficiency nitrogen fertilizer and application timing in corn</li> <li>5. Alex Woodley: Trade-offs or co-benefits of carbon input strategies on greenhouse gas emissions in low organic matter soils of the Southeast U.S.</li> <li>6. Dr. Amir Sadeghpour: Does long-term no-till decrease soil nitrous oxide emissions during corn years in a corn-soybean rotation?</li> </ol>  |       |





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|   | 7. Kazuyuki Inubushi: Effects of biodegradable plastics on soil properties and greenhouse gas productions  |        |
| <b>29 WG1.3 – Progress in Digital Soil Morphometrics - deeper and more precise soil observations: Chairperson</b> |  | Alsh 2 |
|   | <ol style="list-style-type: none"> <li>1. TBC</li> <li>2. Dr Julien Guigue: Effects of pre-processed organic fertilizers on soil organic matter and nutrient stocks in agricultural soils</li> <li>3. Dr. David Hopkins: Value added pedology, a micromorphologic rewrite of a Natrudoll (Solonetz) case study in North Dakota, USA</li> <li>4. Yin-Chung Huang: Characterization of podzolic soils using digital soil morphometrics in subtropical subalpine forests</li> <li>5. Withdrawn</li> </ol>   |        |
| <b>37 WG2.2 – Modelling soil processes from ped to global scale: Chairperson: Professor Martine van der Ploeg</b> |  | Alsh 1 |
|   | <ol style="list-style-type: none"> <li>1. Mrs Mina Azizi-Rad : Model selection from incubation data for representing soil carbon dynamics</li> <li>2. Mr Francis Durnin-Vermette: Including manure-amendments to croplands in Canadian modelled estimates of soil organic carbon sequestration and greenhouse gas emissions</li> <li>3. Dr Daniel Gimenez: Linking static and dynamic properties to define soil heterogeneity at the meter-scale</li> <li>4. Dr Umakant Mishra : Machine learning to investigate model representation of SOC storage and dynamics</li> <li>5. Mr Mahyar Naseri: Experimental, theoretical, and modelling approaches to characterize hydraulic properties of stony soils</li> <li>6. Prof Anne Verhoef: Modelling the impact of land-management based natural flood management measures using combined soil hydrological and surface-groundwater models</li> <li>7. Dr Michael Young: Forecasting soil water content with soil models and weather information</li> <li>8. Dr. Brigitta Szabó: Derivation and harmonization of soil data for SWAT+ modelling in European catchments</li> </ol> |        |

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|---------------|--|------------|
| 12:30 – 14:30 | Lunch & Poster Presentations   | Hall 4     |
| 12:30 – 14:30 | European Journal of Soil Sciences (EJSS) Associate Editors' Meeting                  | Boisdale 2 |
| 12:30 – 14:30 | Cranfield VR Experience  | Dochart 2  |
| 12:30 – 14:30 | IUSS Council Meeting – <i>invited IUSS representatives only</i>                      | Carron 1   |
| 13:00 – 14:30 | British Society of Soil Science: Grants and Awards Committee – <i>closed meeting</i> | Fyne       |

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|---|--|-------------------|
| 14:30 – 16:30   | Parallel Session 3   |                   |
| <b>Interdivisional 5: Soil science and the emerging philosophy of regenerative agriculture: Chairperson: Christine Watson</b> |  | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Professor And Head Jodi Johnson-Maynard: Crop Diversification and Soil Health in Dryland Wheat-Based Agroecosystems in the Inland Pacific Northwest USA</li> </ol> |                   |





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|   | <ol style="list-style-type: none"> <li>Dr Nathaniel Looker: Scalable targets for soil health improvements in regenerative agriculture</li> <li>Dr Gerhard Du Preez: Restoring soil ecosystem health and functioning in regenerative-based grain crop production systems</li> <li>Dr Tom Storr: Implementing regenerative agriculture and measuring soil health on the farm</li> <li>Dr Karen Vancampenhout: A tree against hunger: Enset-based farming systems for building soil health in the tropics</li> <li>Dr Richard Gantlett: Soil carbon sequestration beyond global targets: soil organic matter increases in a modern arable and ley farming system</li> <li>Associate Prof Abbey Wick: Evaluating Soil Health Practices at Field Scale</li> <li>Miss Emily Howes: The impact of leys and sheep grazing on soil structure and hydrological functioning</li> </ol>  |       |
| <b>13 Division 1 Commission 1.5: How Pedometrics can cross boundaries and change society: Chairperson: Nicolas Saby</b>                           |  | M1    |
|   | <ol style="list-style-type: none"> <li>Mrs Sarah Donoghue: Predicting urban locations at risk of high soil Pb concentrations using a random forest model.</li> <li>Prof Sabine Grunwald: Pede-econometric assessment of the efficiencies of soil functions</li> <li>Dr Gerard Heuvelink: Spatial cross-validation is not the right way to evaluate soil map accuracy</li> <li>Dr Madlene Nussbaum: What is the accepted level of erroneous decision for the Swiss arable land inventory? Uncertainty perception of digital soil maps.</li> <li>TBC</li> <li>Mr Stephan Van Der Westhuizen: Measurement error-filtered machine learning in digital soil mapping</li> <li>Mr Hunter Winsor: Discovering quantitative soil-landscape relationships from soil survey data.</li> <li>Dr Tobias Rentschler: The relevant range of scales for 3D multi-scale contextual spatial modelling</li> </ol>                            |       |
| <b>21 Division 3, Commission 3.2 – Soil water, pollutant and gas movement in the context of a changing climate: Chairperson: Lillian Øygarden</b> |  | Forth |
|   | <ol style="list-style-type: none"> <li>TBC</li> <li>Samira Daroub: Impact of soil properties and land management on water quality</li> <li>Darsani Kumaragamage: Mitigating flooding-induced phosphorus losses from soils using inorganic soil amendments.</li> <li>Tobias Klöffel: Climate change-induced alterations in freeze-thaw patterns in Sweden – implications for pore space characteristics and hydraulic properties of agricultural soils.</li> <li>Martyn Roberts: Hold it there- utilizing soil hydrology and temporary storage areas to attenuate surface runoff.</li> <li>Marie E.Muehe: Climate impacts on metal bioavailability in agricultural soils.</li> <li>Nasrollah Sepeherna: <i>Escherichia coli</i> and <i>Rhodococcus erythropolis</i> transport and fate: straining or attachment?</li> <li>Caitlin Lewis Hidden dangers of converting UK conifer forests to broadleaf woodlands</li> </ol> |       |



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| <b>31 WG1.5: Sensing soil chemical, physical and biological properties - advances and emerging techniques:</b><br><b>Chairperson: Dr Asim Biswas</b> |  | Alsh 1 |
|  | <ol style="list-style-type: none"> <li>1. Dr Keith Shepherd: Global soil spectral calibration library and estimation service</li> <li>2. Dr Yuxin Ma: Convolution neural network for simultaneous prediction of soil properties in New Zealand</li> <li>3. Mr Vikram Narayanan Dhamu: Evaluation of an in-situ electrochemical sensor towards the quantification of Soil Organic Carbon</li> <li>4. Dr Luana Circelli: Combination between Vis-NIR spectroscopy and Sentinel-2 to assess the variability of soil carbon pools in organic farming of southern Italy</li> <li>5. Dr Asim Biswas: Estimating soil organic matter from cell phone images</li> <li>6. Dr Thorsten Knappenberger: Evaluation of Mn and Fe oxide reduction dynamics using a rhizosphere camera and image analysis</li> <li>7. Dr Josh Heitman: Soil structure revealed from covariation in thermal and electrical properties</li> <li>8. Dr Stefan Hinck: Analyse-to-go on the field: prototypes4soil2data</li> </ol> |        |
| <b>46 WG4.2: Culture and Soil. Outlook and insights from around the world: Chairperson: Dr Sabine Grunwald</b>                                       |  | Alsh 2 |
|  | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Nikola Patzel: Cultural understanding of soils. Results from an inter-cultural project.</li> <li>2. Danny Itkin: Degrees that train students for careers in soil science: Perspectives from diverse countries</li> <li>3. Prof Sabine Grunwald: How mindfulness meditation practices impact how people relate to soils and nature: traditional Buddhist and contemporary North American perspectives</li> <li>4. Dr Jude Allen: Soil Voices</li> <li>5. Dr Jim Scown: 'Decolonizing narratives of conservation': Blood and soil politics and the long histories of colonial violence</li> <li>6. Ms Emmeline Topp: Understanding farmers' cultural relations with soil: a cross-country comparison in the Mediterranean</li> <li>7. Dr Nikola Patzel: European cultural roots of relating to soil</li> <li>8. Dr Eric Brevik: Native American origin myths and potential links to modern culture</li> </ol>                      |        |
| 16:30 – 17:00  | Refreshment, Exhibition Break & Networking   | Hall 4 |

### Plenary Session

|               |   |                  |
|---------------|---|------------------|
| 17:00 – 18:00 | <b>Rock dust: a reverse weathering mechanism for tropical soils: environmental and economic aspects</b><br><br>Prof Suzi Huff Theodoro<br>Professor of Soil Geology,<br>Pesquisadora Universidade de Brasília | Clyde Auditorium |
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### Fringe Events

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| 09:00 – 13:00 | Soil Benchmark | Dochart 1 |
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### Day 5 Programme Thursday 4 August 2022

| Plenary Session |  |                  |
|-----------------|--|------------------|
| 08:00 – 09:00   | <b>Empowering Soil Scientists with Data-Driven Techniques</b><br>Dr Ranveer Chandra<br>CTO Agri-Food, Microsoft, USA | Clyde Auditorium |
| 09:00 – 09:30   | Refreshment Break & Networking   | Hall 4           |

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|---------------|---|------------|
| 08:00 – 11:30 | IUSS Research Forum Meeting – <i>invited IUSS participants only</i> | Carron 2   |
| 09:30 – 17:30 | Division 2 Business Meeting – <i>closed meeting</i>                 | Boisdale 2 |
| 09:30-11:30   | Division 2 Business Meetings – closed meeting                       | Dochart 2  |

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|---|--|-------------------|
| 09:30 – 11:30   | Parallel Session 1   |                   |
| <b>Interdivisional 10: Land contamination and degradation, including Urban Land: Chairperson: Professor Junta Yanai</b>                       |  | Lomond Auditorium |
|   | <ol style="list-style-type: none"> <li>1. Mr Benoit Bergen: Uranium and cadmium accumulation in European agricultural soils due to mineral phosphate fertiliser applications</li> <li>2. Mr Francesc Xavier Dengra i Grau: Bioavailability and colloidal characterization of heavy metals and radionuclides in waterlogged, contaminated Belgian soils via diffusive gradients in thin films</li> <li>3. Dr Elio Padoan: Assisted phytoextraction of Zn from contaminated soils using alternate submersion cycles; a novel approach</li> <li>4. Dr Magdalena Sut-Lohmann: Using remote sensing to monitor heavy metals in plants at the former sewage farm near Berlin</li> <li>5. Dr Takuro Shinano: Radiocesium uptake by vegetables in different soils after nuclear accident of FDNPP</li> <li>6. Miss Hadee Thompson-Morrison: Trace elements in palm oil production systems: Implications for international agriculture</li> <li>7. Mr Manuel Gabriel Velásquez Ramirez: Soil mercury levels in a natural protected area degraded by illegal artisanal and small-scale gold mining in the Peruvian Amazon</li> <li>8. TBC</li> </ol> |                   |
| <b>20 Division 2 Commission 2.3- Soil biology in transition: from descriptive to mechanistical understanding: Chairperson: Ellen Kandeler</b> |  | M1                |
|   | <ol style="list-style-type: none"> <li>1. Prof Kari Dunfield: Functional gene analysis of phosphorus-cycling microbial communities in organic and upper mineral soil horizons from a temperate rain forest chrono sequence</li> <li>2. Dr Stefanie Heinze: Going deep - Microbial C-turnover in flow path and matric subsoil</li> </ol>  |                   |



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|  | <ol style="list-style-type: none"> <li>Ms. Julia Köninger: Stage free for the diversity of soil eukaryotes: an EU-wide metabarcoding analysis correlating biodiversity with environmental drivers</li> <li>Dr Rodica Pena: Shifts in root-associated fungal communities under variations in soil N:P stoichiometry - the effects on forest ecosystem processes</li> <li>Mr Daniel Wasner: The relationship of soil organic matter and bacterial community structure in grasslands across major soil zones</li> <li>Dr Tiffany Carter: Toward a national assessment of soil biodiversity: A framework for systematic data collection</li> <li>Dr Vince Lang: Soil metagenomic analysis of different WRB diagnostic units under different management systems for soil health assessment</li> <li>Dr Andrew Margenot: Progress towards a mechanistic soil enzymology to put the 'bio' in biogeochemistry</li> </ol>   |        |
| <b>25 Division 4 Commission 4.4: Soil education – in School, university and In-Service training: Chairperson: Cristine Muggler</b> |  | Forth  |
|  | <ol style="list-style-type: none"> <li>Dr Felicity Crotty: Where pedology meets pedagogy</li> <li>Prof Rosa M Poch: Soil cakes: unexplored resources to improve soil awareness</li> <li>Dr Said Al-Ismaïly: Soil Skills: a problem-based field challenge towards active learning ethos for undergraduate soils students</li> <li>Dr Klaus Jarosch: Changing sides: Experiences with a “flipped classroom” format for teaching soil science to bachelor students in physical geography.</li> <li>Prof. Damien Field: Do we need to new set of soil principles to guide general soil education</li> <li>Ednalva Duarte: The virtual Roraima soil museum to support soil education</li> <li>Ms Emmeline Topp: Farmer field schools for improved soil literacy among Mediterranean dryland farmers: Insights from the ConServeTerra project</li> <li>Jean Haley: Network-based approaches for adoption of soil and agronomic management practices</li> </ol> |        |
| <b>32 WG1.6: Soil information standards and systems - current initiatives and advances: Chairperson: Fenny van Egmond</b>          |  | Alsh 1 |
|  | <ol style="list-style-type: none"> <li>Tegbaru Gobezie: Soil 'Data-Hyperlooping': An Automated Framework for Curating Soil Data</li> <li>Dr Maria Fantappiè: On soil data sharing: legal framework and general sharing policies resulting from the investigation done in EJP SOIL H2020 programme</li> <li>Dr José Padarian: Integrating information and inference systems</li> <li>Prof Tomas Reznik: Developments and open challenges of information model for global soil information system</li> <li>Ms Fenny van Egmond: EJP SOIL: Working towards a European soil data infrastructure</li> <li>Dr Adam Csorba: Establishment of the Hungarian Soil Spectral Library</li> </ol>   |        |
| <b>38 WG3.1: Acid sulfate soils, sulfidic materials and wetland soils: Chairperson: Anton Boman</b>                                |  | Alsh 2 |
|  | <ol style="list-style-type: none"> <li>Dr Eva Högfors-Rönnholm: From sulfidic sediment to acid sulfate soil: novel results from a microbiological perspective</li> <li>Ms Emily Leyden: Seawater inundation induces trace metal mobilisation in freshwater soils: Impact of sea level rise on metal biogeochemistry in coastal environments</li> </ol>   |        |



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|  | <ol style="list-style-type: none"> <li>3. Ms Minna Mäkelä: Microbial N<sub>2</sub>O production in a peaty acid sulphate soil derived from black schists</li> <li>4. Dr Miriam Nystrand: Long term effects of groundwater management and subsurface irrigation on the water quality from boreal acid sulfate soil farmland</li> <li>5. Dr Peter Österholm: Effects of subsoil injection of ultrafine-grained limestone, peat and urine on geochemistry and crop/root growth in an acid sulfate soil</li> <li>6. Mr Jouni Pihlaja: Mapping of acid sulfate soils in Finland</li> <li>7. Dr Heidi Salo: Modelling geochemical processes and transport in acid sulfate soils under steady state inflow and variable drainage depths</li> <li>8. Dr Asko Simojoki: Response of nitrous oxide and carbon dioxide production to liming in different horizons of boreal acid sulfate soil</li> </ol> |
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|---------------|--|------------|
| 11:30 – 13:00 | Lunch, Exhibition & Poster Presentations   | Hall 4     |
| 11:30 – 13:00 | IUSS Council Meeting – <i>Invited IUSS participants only</i>   | Boisdale 1 |
| 12:00 – 12:45 | Soil Science Society of America Symposia<br><br>Soil Health Bridges Gaps to Human and Planetary Health<br>Session Speaker: Carrie Laboski, Ph.D. | Lomond     |

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| 13:00 – 15:00  | Parallel Session 2   |                   |
| <b>Interdivisional 10: Land contamination and degradation, including Urban Land: Chairperson: Tom Aspray</b>   |  | Lomond Auditorium |
|  | <ol style="list-style-type: none"> <li>1. Ms Shaswati Chowdhury: Circular urban land-use: Bringing brownfields back in use as Urban Greenspaces (UGS) by integrating Nature-Based Solutions (NBS)</li> <li>2. Mrs Claire Froger: Spatial variation of organic pollutants in French soils</li> <li>3. Prof Kari Dunfield: Toluene biodegrading microbial communities associated with soil and roots of a poplar phytoremediation system in an urban landscape</li> <li>4. Dr Ana Barreiro: Presence of antibiotics in sludge from wastewater treatment plants and amended soils and crops</li> <li>5. Dr Charlotte Chivers: Exploring the environmental implications of micro- and nano-plastic debris on agricultural soils</li> <li>6. Dr Luana Circelli: Using of Vis-NIR and FTIR spectroscopy to identify microplastics in biosolids produced in New York City</li> <li>7. Miss Jordan Grigg: Characterization and quantification of microplastics on agricultural fields amended with municipal compost.</li> <li>8. TBC</li> </ol> |                   |
| <b>15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure - Observation, resilience and its role in ecosystem functioning<br/>Chairperson: Professor Stephen Peth</b> |  | M1                |
|  | <ol style="list-style-type: none"> <li>1. Dr Andy Gregory: The soil structure - soil organic carbon interaction as controlled by agricultural management</li> </ol>  |                   |



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|  | <ol style="list-style-type: none"> <li>Dr Haojie Liu: Soil structure of peat and its role in ecosystem functioning</li> <li>Dr Franziska B. Bucka: Organic matter induced soil structure formation generates distinct architectural features at the microscale</li> <li>Dr Vincent J. M. N. L. Felde: Investigating the link between soil water repellency and biological soil crust surface dynamics upon wetting</li> <li>Dr Xavier Portell: Functional habitat connectivity in soils: more than just pore sizes</li> <li>Mrs Nermine Marzouki: Experimenting hydraulic fatigue of soil biopores</li> <li>Dr Nicholas Jarvis: Modelling the interactions between soil structure, carbon cycling, hydrological processes, and crop production</li> <li>TBC</li> </ol>  |           |
| <b>18 Division 2 Commission 2.2 – Biogeochemical cycles in the soil - processes linking the abiotic and biotic realms:</b><br><b>Chairperson: Ashish Malik &amp; Karen Vancampenhout</b> |   | Forth     |
|  | <ol style="list-style-type: none"> <li>Keynote Speaker: Dr Avni Malhotra: Linking roots to soil carbon: methods, data and models</li> <li>Dr Kirsten Ball: Inorganic carbon mediates tillage effects on soil organic carbon stocks in arid agricultural soils</li> <li>Mr Oscar Crovo: Differential response of carbon, nitrogen and phosphorus pools after conversion from native forest to exotic plantation in soils of contrasting origin.</li> <li>Ms Julia Schroeder: Microbial carbon use efficiency as affected by land use conversion from boreal forest to agricultural land</li> <li>Binyan Sun: Will root biomass degrade faster in deep soil under +4°C in temperate forests? Lessons from a long-term field incubation experiment</li> <li>Dr Sarah Duddigan: Above and belowground biotic responses to long-term acidification of pH neutral grasslands</li> <li>Prof Gloria Falsone: Soil quality regulates litter decomposition and soil CO<sub>2</sub> emission in chestnut stands</li> </ol> |           |
| <b>33 WG1.7 – Advances in soil monitoring: Chairperson: Nicolas Saby</b>   |   | Alsh 1    |
|  | <ol style="list-style-type: none"> <li>Dr Antonio Bispo: A review of existing soil monitoring systems to pave the way to the EU Soil Observatory</li> <li>Withdrawn</li> <li>Dr Gerard Heuvelink: Machine learning in space and time for global modelling of soil organic carbon change</li> <li>Dr Jose Luis Munera-Echeverri: Digging into the bulk density and coarse fragment data of the French soil quality monitoring network</li> <li>Dr Maryam Gebleh-Goydaragh: Changes in carbon and nitrogen soil stocks according to the sampling protocol by the ICOS over the last decade.</li> <li>Dr Fiona Seaton: Monitoring increases in soil pH in response to sulphur deposition at a national scale</li> <li>Dr Camille Imbert: The RMQS-Biodiversity as a project of large-scale soil biodiversity monitoring in France</li> </ol>   |           |
| <b>IUSS Gender Balance Meeting: How to move towards gender equality?</b>   |   | Dochart 2 |
| 1. Dr Eric Brevik: Gender Equity in Soil Science: A View from Multiple Countries   |   |           |



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| 15:30 – 17:30  | Parallel Session 3  |                   |
| <b>15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure: Observation, resilience and its role in ecosystem functioning</b><br><b>Chairperson: Professor Stephen Peth</b>  |   | M1                |
|  | <ol style="list-style-type: none"> <li>1. Dr Richard Heck: Application of structure function analysis to quantifying soil micromorphology from X-ray CT imagery</li> <li>2. Dr Ranjith Udawatta: Cover crop effects on <math>\mu</math>CT-measured geometrical pore characteristics</li> <li>3. Mr Gerhard Zacher: Imaging of roots and pore networks in soil systems by using high resolution X-ray micro-CT</li> <li>4. Mrs Marine Lacoste: ImageSol: a new database to boost explorations of the links between soil structure and soil functioning.</li> <li>5. Dr Rainer Horn: Soil deformation – how far are shear induced coupled mechanical and hydraulic processes fundamental for the predictions of trafficability</li> <li>6. TBC</li> <li>7. Mr Alejandro Romero-Ruiz: Modelling soil structure dynamics in compacted soils induced by livestock treading</li> <li>8. Mr Emile Maillet: Multi-scale study of soil structure in relation to nitrous oxide emissions</li> </ol>   |                   |
| <b>18 Division 2 Commission 2.2 – Biogeochemical cycles in the soil - processes linking the abiotic and biotic realms:</b><br><b>Chairperson: Ashish Malik &amp; Karen Vancampenhout</b> |   | Forth             |
|  | <ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Kirsten Hofmockel: Abiotic and biotic controls on microbial derived carbon cycling</li> <li>2. Dr Tom Sizmur: Mixing cover crop residues increases soil microbial biomass with no resultant priming of SOM decomposition</li> <li>3. Dr Eleanor Reed: Molecular Characterisation and Pb-210 Dating to Explore Carbon Accumulation in Peat</li> <li>4. Mr Luke Harrold: The Priming Arena: soil mineralogy and structure interact with the chemical composition of plant-derived inputs to mediate priming effects.</li> <li>5. Dr Ana Natalio: Soil organic carbon response to different management practices following conversion to no-till in an arable system</li> <li>6. Prof Sandra Spielvogel: Soil microbial necromass as an essential carbon, nitrogen and phosphorus reservoir in forest soils</li> <li>7. Ms Noora Manninen: Characteristics of dissolved organic matter in agricultural mineral soils in Boreal region</li> <li>8. Luis Colocho Hurtarte: Responses of organic carbon fractions and phosphorus distribution at microscale to land use change in Amazonian Dark Earth and Acrisol</li> </ol> |                   |
| <b>23 Division 3 Commission 3.3 – Effects and processes of biochar and soil organic matter on plant nutrition:</b><br><b>Chairperson: TBC</b>  |   | Lomond Auditorium |
|  | <ol style="list-style-type: none"> <li>1. Prof Kwame Frimpong: Biochar co-compost can promote sustainable agricultural intensification in highly weathered Ghanaian soils</li> <li>2. Prof Vincent Logah: Biochar improves crop nutrient uptake and economic viability of tropical cropping systems</li> <li>3. Dr Difuza Egamberdieva: Systematic analysis of biochar performance on plant growth in soybean cropping system at marginal area in Germany and China</li> <li>4. Ms Evelyne M Delbos: Characterisation of biochar: the power of combining FTIR and SEM/EDS Analysis</li> </ol>   |                   |



## 22<sup>nd</sup> World Congress of Soil Science

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|   | 5. Raúl Castejón-del Pino: Radish growth and N <sub>2</sub> O emissions using a N-enriched biochar-based fertilizer  |        |
| <b>42 WG 3.3 – SUITMA: Soils of Urban, Industrial, Traffic, Mining and Military Areas: Chairperson: Przemyslaw Charzynski</b> |  | Alsh 1 |
|   | <ol style="list-style-type: none"> <li>1. Prof Paola Adamo: Fostering a sustainable use of soil and enhancing food quality and safety in urban agricultural areas of Naples</li> <li>2. Dr Felipe Aburto: Rapid response of soil functions to soil covers after rehabilitation of a Fly-Ash Landfill.</li> <li>3. Ms Floriane Guillevic: Pb and Sb transfer processes in soils contaminated by ancient mining activities in the Pb-Ag mine of Peisey-Nancroix (France)</li> <li>4. Dr. Remigio Paradelo Núñez: Summary of four years of research on urban soils in Santiago de Compostela (Spain)</li> </ol> |        |

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|---------------|---|------------|
| 15:30 – 16:30 | Sustainability and the World Congress of Soil Science 2022                          | Carron 2   |
| 15:30 – 16:30 | Division 1 Business Meeting – <i>closed meeting</i>                                 | Alsh 2     |
| 18:30 – 19:30 | IUSS Executive Meeting – <i>closed meeting</i>                                      | Boisdale 1 |
| 18:30 – 19:30 | British Society of Soil Science Education Committee Meeting – <i>closed meeting</i> | Boisdale 2 |

### Fringe Events

|               |  |           |
|---------------|--|-----------|
| 09:30 – 13:00 | Global Soil Health Session 2                               | Carron 2  |
| 09:30 – 17:30 | Ecological Continuity Trust (ECT)                          | Dochart 1 |
| 15:30 – 16:30 | Sustainability and the World Congress of Soil Science 2022 | Carron 2  |

### Closing Ceremony

|               |  |                  |
|---------------|--|------------------|
| 17:30 – 18:30 | Including a closing message from His Royal Highness, Prince Charles, the Prince of Wales | Clyde Auditorium |
|---------------|--|------------------|