



## 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*

<b>Title</b>	<b>Speaker</b>	<b>Date</b>	<b>Time</b>	<b>Room</b>
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 polices 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 polices 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



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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	Forth	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	Lash 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



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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
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**

<b>Session Title</b>	<b>Date</b>	<b>Time</b>	<b>Room</b>	<b>Poster Session</b>
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
27 WG1.01: Progress in understanding cryogenic soils at the ends of the Earth: mountainous, polar and periglacial regions	01/08/22	15:00 – 17:00	Alsh 1	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



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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
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	Forth	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***

<b>Session Title</b>	<b>Date</b>	<b>Time</b>	<b>Room</b>
Natural England	01/08/22	10:00 – 17:30	Dochart 2
Global Soil Health Programme	01/08/22	13:00 – 17:30	Carron 1
STARS Session	02/08/22	09:00 – 13:00	Dochart 1
Natural England	02/08/22	09:00 – 17:30	Dochart 2
Soil Benchmark	03/08/22	09:00 – 13:00	Dochart 1



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Forensic Soil Science – Police Scotland	03/08/22	10:30 – 12:30	Carron 2
Forensic Soil Science – Police Scotland	03/08/22	14:30 – 17:00	Offsite Location
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 Session	04/08/22	15:30 – 16:30	Carron2
ReCon Fringe Event	04/08/22	13:00 – 15:00	Gala



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### FULL PROGRAMME

#### Day 1 Programme Sunday 31 July 2022

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

Opening Ceremony		
18:30 - 19:30	Opening Ceremony	Clyde Auditorium
20:00 - 21:00	Welcome Reception	Glasgow Science Museum



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Day 2 Programme  
Monday 1 August 2022

Plenary Session		
09:00 – 10:00	<b>Soils and Sustainable Food Production</b> Professor Ismahane Elouafi, Chief Scientist, FAO 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>  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
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>	
<b>Interdivisional 2 – Soil Carbon: from particle to planet</b> <b>Chairperson: Curtis Monger</b>		Clyde Auditorium
	Dr Ronald Amundson: Soil Science in the Age of Carbon Sequestration	





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	<p>Prof. Ellen Kandeler: Microbial Carbon Transfer between Microhabitats</p> <p>Mr. Lucas Lesaint: Carbon storage in soils of hedge agroforestry systems: new insights on the drivers controlling storage potential</p> <p>Jose Padarian: Mapping and monitoring changes in soil organic carbon stocks of the world</p> <p>Alba Otero-Fariña: CARBON IN SOILS: AGGREGATION AND STABILITY</p> <p>Dr José Padarian: Soil organic carbon storage potential in global croplands</p> <p>Dr Nikola Patzel: Humus as a problem of civilisation: hopes of climate politicians, business expectations of certificate traders, conflicts between conservationists and farmers</p>	
<b>16 Division 2: Nitrogen cycling and soil health:</b> <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. Prof Sophie Zechmeister-Boltenstern: Agri-environmental measures reduce N<sub>2</sub>O emissions without compromising yields</li> <li>3. 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>4. 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>5. Dr Muhammad Riaz: Aggregate size, moisture regime, substrate quality and phosphorus control on biogeochemical N cycling in floodplain soil</li> <li>6. Dr Michaela Reay: Elucidating the effects of land management and role of soil microbes in nitrogen transfer in a clover-ryegrass pasture</li> <li>7. 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> <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> <b>Chairperson:</b>		Alsh 2
13:00 – 15:00	Lunch, Exhibition & Poster Presentations	Hall 4
13:00 – 15:00	Soil Use and Management (SUM): 'Meet the Journal Editors'	Gala
13:15 – 14:45	Early Careers Professionals' Networking Event	Carron 2



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13:00 – 15:00	IUSS Council Meeting – <i>invited IUSS representatives only</i>	Dochart 2
13:45 – 14:30	UKRI – Gold Sponsor Symposia - TBC	Lomond Auditorium

15:00 – 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. Dr Piero Manna: 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. <i>Dan Yaalon young scientist Division 1 award (with Commission 1.6)</i></li> </ol>	
<b>Interdivisional 2 – Soil Carbon: from particle to planet 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> <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>		M1



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<b>Chairperson Professor Phil Haygarth</b>		
	<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>		Forth
<b>Chairperson: Prof. Liz Baggs</b>		
	<ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Jaehak Jeong: Recent developments in rice paddy modelling research on water balances and water quality assessment</li> <li>2. Prof Xiaoyuan Yan: Soil pH-dependent nitrogen transformation controls nitrogen use efficiency in rice paddies</li> <li>3. Dr Jonathan Holland: Long-term N fertilization effects on soil N dynamics, plant N use efficiency and ecosystem N balance</li> <li>4. Dr Yunru Chloe Lai: Simulating nitrogen loss due to ammonia volatilisation after urea fertiliser application in APSIM</li> <li>5. Dr Kairsty Topp: Characterising the variation in UK background emissions of nitrous oxide</li> <li>6. Mr Carlos Bonini Pires: On-farm strategies for improving soil health: Building a network in Kansas - USA</li> <li>7. Dr Nikolaos-Christos Vavlas: Remote sensing of cover crop legacies on soil health and main crop N-uptake dynamics</li> </ol>	
<b>27 WG1.01: Progress in understanding cryogenic soils at the ends of the Earth: mountainous, polar and periglacial regions</b>		Alsh 1
<b>Chairperson: Alexey Lupachev</b>		
	<ol style="list-style-type: none"> <li>1. Mr Stanislav Chuvanov: Biological Activity of Palsa Mire Soils In The North Western Siberia</li> <li>2. Dr Aleksei Lupachev: Soil-Cryogenic Complex: The evidence of Late Pleistocene-Holocene coevolution of permafrost and cryogenic soils</li> <li>3. Mr Marco Pfeiffer: High mountain soils in the Andes of Central Chile</li> <li>4. Mr Marcus Schiedung: Pyrogenic carbon age and stocks in permafrost mineral soils of Northern Canada</li> </ol>	
<b>30 WG1.04: Global soil map; main advances and ways forward</b>		Alsh 2
<b>Chairperson:</b>		
	<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 Feng Liu: Developing China Soil Information Grids</li> <li>4. Dr László Pásztor: Recent steps in the DSM related development of the Hungarian Soil Spatial Data Infrastructure</li> <li>5. Dr Laura Poggio: Global mapping of complex soil properties</li> </ol>	



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	6. Prof Rosa M Poch: The Global Maps of the Global Soil Partnership: from bottom to top	
17:00 – 17:30	Refreshment Break, Exhibition & Networking	Hall 4

17:30 – 19:30	Parallel Session 3	
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<b>Inter-divisional 3 – Interdisciplinary soil science for impact</b> <b>Chairperson Professor Phil Haygarth</b>	M1
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	<ol style="list-style-type: none"> <li>1. Keynote speaker: Mrs Nancy Francis: Trend and network analysis to reveal disciplinary position of soil science and its subdisciplines</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> <li>7. Ms Diana Wall: Addressing Change in Global Soil Biodiversity</li> </ol>
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<b>14 Division 1 Commission 1.2: Soil geography: basic science and new technologies: Chairperson: Professor Thomas Scholten</b>	Lomond Auditorium
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	<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 Dharumarajan: 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>
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<b>24 Division 4 Commission 4.5: History, philosophy and sociology of soil science: Chairperson:</b>	Forth
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	1. Prof Lorna Dawson: Ethics and law in forensic soil science and forensic geology: developing a global White Paper
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	<ol style="list-style-type: none"> <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. Dr Andrei Rozanov: Philosophy and economy of soil science and soil scientists</li> <li>6. Dr Said Al-Ismaily: PEDO: Citizen Assisted Science-Based Digital Android Application for Omani soils</li> <li>7. Prof Alex R. Toland: Soilkin: Relational exercises with soil and stones</li> </ol>	
<b>35 WG1.9 – Advances in understanding soils as reflected by the 4th edition of the WRB</b>		Alsh 1
	<ol style="list-style-type: none"> <li>1. TBC</li> <li>2. Vincent Bunes: A Field Guide as an annex of the WRB 2022</li> <li>3. Dr Stefaan Dondeyne: How to identify soil diagnostic horizons? A key to the diagnostic features of the World Reference Base for soil resources</li> <li>4. Dr Einar Eberhardt: WRB and Soil Information Systems - steps to harmonized world soil information</li> <li>5. J.G.B. Leenaars: Semi-detailed survey and mapping of WRB soil resources in Ethiopia using different pathways to optimise between accuracy and precision</li> <li>6. Prof Erika Micheli: Taxonomic distance studies of the units of the modernized Hungarian Soil Classification with WRB RSGs.</li> <li>7. Dr Peter Schad: The 4th edition of the WRB (2022)</li> </ol>	
20:00 – 21:30	British Society of Soil Science Council Meeting – <i>closed meeting</i>	Offsite

Fringe Events		
10:00 – 17:30	Natural England	Dochart 2
13:00 – 17:30	Global Soil Health Programme	Carron 1



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### Day 3 Programme Tuesday 2 August 2022

09:00 – 11:00	Parallel Session 1	
<b>Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production:</b> <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. Dr Maria Marin: Impact of root hairs on microscale soil physical properties in the field</li> <li>3. Prof Doris Vetterlein: Modelling the spatial and temporal evolution of rhizodeposition as a function of plant's carbon balance and soil properties</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> <b>Chairperson: Alfred Hartemink</b>		Lomond Auditorium
	<ol style="list-style-type: none"> <li>1. Dr Alexis Thoumazeau: 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>	
<b>12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology: Chairperson: TBC</b>		Boisdale 1
	<ol style="list-style-type: none"> <li>1. Mr Andrew Brown: Open-source Tools for U.S. Soil Taxonomy Applications</li> <li>2. Dr Einar Eberhardt: The revised German Soil System - improved structure, new soil types and an alternative diagnostic horizon approach</li> </ol>	



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	<ol style="list-style-type: none"> <li>3. Mr Danny Itkin: Soil formation paths in West-Mediterranean calcareous stone-wall bench terraces</li> <li>4. Prof Cezary Kabala: Classification of paleosols: needs, concepts, and doubts</li> <li>5. Ms Anastasiia Kurgaeva: Did Palaeolithic Technosols exist? Palaeopedological study at the Upper Palaeolithic sites Kostenki 14 and 17, Central Russian Plain</li> <li>6. Prof Fabio Scarciglia: Paleoclimate, land use and geomorphic changes recorded in archaeological and natural Holocene soils and paleosols of Italy</li> <li>7. Dr Darrell Schulze: Visualizing soil landscapes by mining soil survey taxonomic data</li> <li>8. 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</b> <b>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. Miss Rachel Hunter: Seasonal impact of phosphate-based fire retardants on soil chemistry following the prophylactic treatment of vegetation</li> <li>6. Dr Steffen Seitz: Soil properties as predictors of biodiversity in forests: Is there a Critical Soil Depth?</li> <li>7. Dr Carlos Tornquist: Soil carbon stocks as affected by land use changes in the pampas of southern Brazil</li> <li>8. 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:</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





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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
11:30 – 13:30	Wiley Symposia Session	Carron 2
13:00 – 15:30	Kiss the Ground: Screening of the Netflix documentary	Boisdale 2
15:30 – 17:30	Kiss the Ground: Screening of the Netflix documentary	Boisdale 2
20:00 – 21:30	British Society of Soil Science: Publications Committee Meeting – <i>closed meeting</i>	Offsite

13:00 – 15:00	<b>Parallel Session 2</b>	
	<b>Interdivisional 4: Plant soil interactions and their roles in soil formation and sustainable crop production:</b> <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. Yutari 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> <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> </ol>	





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	<ol style="list-style-type: none"> <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>	
<b>12 Division: 1 Commission 1.4, Commission 1.6 – Soil classification and palaeopedology: Chairperson: TBC</b>		Boisdale 1
<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 Nick Bouskill: Climate history dictates microbial metabolic response to drought stress: from semi-arid soils to tropical forest precipitation gradients</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 Simon Bo Lassen: 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:</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> </ol>	

<b>15:30 – 17:30</b>	<b>Parallel Session 3</b>	
<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> </ol>	



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	<ol style="list-style-type: none"> <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 Upadhayay: 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. Ms Olga Shopina: Trends in soil and vegetation recovery in Smolenskoe Poozerye National Park after ploughing: the case study of pine forests (Russia)</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: Yes 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> <li>5. 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>6. Dr Gupta Vadakattu: Managing functional resilience of soil microbiomes for sustainable production and ecosystem health</li> <li>7. Prof Yongguan Zhu: Understanding antimicrobial resistance in soil-plant system for One Health</li> </ol>	



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	8. Dr Miriam Muñoz-Rojas: Emerging soil microbial-based strategies for restoring biodiversity and enhancing climate resilience of degraded ecosystems	
<b>34 WG1.8 – Advances in universal soil classification:</b>		Alsh 2
<b>Chairperson:</b>		
	1. Dr Yuri Gelsleichter: Evaluation of centroid units from Brazilian to Universal Soil Classification System 2. Dr Andrei Rozanov: Universal soil classification for soil map legends and soil information systems	
<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
	1. TBC 2. Dr Sunendra Joshi: The effect of salinity on dissolved organic C and nutrients in non-saline soils 3. Ms Rika Ratna Sari: Soil protection or nutrient supply? Dual role of litter layer in cacao agroforestry systems 4. Dr Marcelo Valadares Galdos: Modelling soil carbon dynamics under different tillage, crop rotation and climate scenarios in Southeastern Brazil 5. Mr Laudelino Vieira da Mota Neto: Soil Carbon affected by N rates in tropical maize intercropped with forages 6. 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 7. Dr Chunhao Gu: The impacts of sea level rise on phosphorus cycling in coastal soils 8. Prof Masahiko Kato: CO <sub>2</sub> retention on wood ashes from different raw materials and CO <sub>2</sub> release after soil mixing	
17:30 – 18:00	Refreshment Break, Exhibition & Networking	Hall 4
15:30 – 17:30	Kiss the Ground: Screening of the Netflix documentary	Boisdale 2
<b>Plenary Session</b>		
18:00 – 19:00	<b>How transforming land use change could change our future</b> Dr Debra Roberts, Co-Chair of Working Group II of the IPCC Durban, South Africa	Clyde Auditorium
20:00 – 21:30	British Society of Soil Science: Publications Committee Meeting – <i>closed meeting</i>	Offsite
<b>Fringe Events</b>		
09:00 – 13:00	STARS Session	Dochart 1
09:00 – 17:30	Natural England	Dochart 2



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Policy Programme		
10:00 – 17:30	Further details available - <a href="https://22wcoss.org/programme/policy-programme/">https://22wcoss.org/programme/policy-programme/</a>	Carron 1

### Day 4 Programme Wednesday 3 August 2022

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

08:00 – 10:00	Parallel Session 1	
<b>Interdivisional 7: Soil securing humanity   Humanity securing soil: Chairperson: Professor Damien Field</b>		Lomond Auditorium
	<ol style="list-style-type: none"> <li>1. Penelope Wensley: Australia's National Soils Advocate</li> <li>2. Prof Rosa M Poch: connecting soils with people: initiatives of the Global Soil Partnership</li> <li>3. Prof Damien Field: Securing soil through its connectivity</li> <li>4. Dr Karen Vancampenhout: The Green Green Sand of Home: immersive experiences for creating soil awareness</li> <li>5. Miss Prapa Taranet: Soil doctors program: a smart farmer approach for sustainable soil management and food security in Lancang-Mekong Countries</li> <li>6. Prof Cristine Muggler: Agroecology and healthy soils to ensure food security and sovereignty</li> <li>7. Dr Liesl Wiese-Rozanov: Assessing countries' commitments for soil organic carbon protection and sequestration under the three Rio Conventions</li> </ol>	
<b>Interdivisional 8: Sustainable land use: Chairperson: Professor Claudio Zaccone</b>		M1
	<ol style="list-style-type: none"> <li>1. Prof Sonoko Bellingrath-Kimura: New land use arrangement that harmonize various ecosystem services of agricultural landscape</li> <li>2. Ms Nur Azima Busman: Long-term monitoring of carbon dioxide and methane fluxes from different types of tropical peat swamp forests</li> <li>3. Dr Claire Chenu: Climate-smart AND sustainable management of agricultural soils: identifying synergies and addressing trade-offs</li> <li>4. Mr Olivier Heller: The potential of innovative soil management practices to address soil challenges across Europe - Outcomes of the i-SOMPE Project</li> <li>5. Professor Alfred Hartemink: Soil and environmental issues in sandy soils</li> <li>6. 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> </ol>	



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	<ol style="list-style-type: none"> <li>7. Dr Michael Löbmann: Soil Mission Support: Participatory identification of research &amp; innovation gaps for a sustainable soil and land use practice</li> <li>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</li> </ol>	
<b>17 Division 2: Sustainable use of legacy soil phosphorus:</b> <b>Chairperson: Karl Dunfield</b>		Gala
	<ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Andrew Margenot: Quantifying how much, where, and what form of legacy P across scales: the case of Illinois</li> <li>2. Dr Jehangir Bhadha: Addressing phosphorus legacies and efficiencies through the Science and Technologies for Phosphorus Sustainability (STEPS) Center initiative</li> <li>3. Dr Deb Jaisi: Residual and recalcitrant phosphorus pools and isotope signatures to track legacy sources</li> <li>4. Prof Leo Condrón: Impact of green manures on legacy soil phosphorus mobilisation and crop performance</li> <li>5. Dr Antonio Rafael Sánchez-Rodríguez: Legacy soil phosphorus and biobased P fertilizers in the wheat/oleaginous-leguminous crop rotation in Mediterranean Vertisols</li> <li>6. Miss Wen-hui Li: Solution for the phosphorus crisis: environmental friendly hybrid LDH serves as slow release phosphate fertilizer</li> <li>7. Prof Mark Tibbett: Too much of a good thing: the legacy of phosphorus fertilisation in restored landscapes of high biodiversity value</li> </ol>	
<b>22 Division 3 Commission 3.1 – Soil evaluation and land use planning: Chairperson:</b>		Forth
	<ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr. Anders Bjørn Møller: A cautionary tale of machine learning, land use and land suitability assessment</li> <li>2. Chantal Hendricks: Stocktaking for agricultural soil quality and ecosystem services indicators and their reference values; The EJP SOIL 'SIREN' project</li> <li>3. Mrs Ana Flavia Boeni: Linking soil and vegetation variables in assisted natural regeneration in the Doce river basin, Brazil</li> <li>4. Mr Gilles Colinet: Assessing potential soil ecosystemic services in urban green areas from measurements of soil properties: insight from the URBSERSOI project</li> <li>5. Dr Mulenga Kalumba: Functional evaluation of digital soil hydraulic property maps through comparison of simulated and remotely sensed maize canopy cover</li> <li>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</li> </ol>	
<b>28 WG1.2 – Digital soil mapping: advances towards Digital Soil Assessment: Chairperson: Dr Laura Poggio</b>		Alsh 1
	<ol style="list-style-type: none"> <li>1. Mr Bryan Fuentes: rassta: Raster-based Spatial Stratification Algorithms and their Application in Digital Soil Mapping</li> <li>2. Dr Carla Gavilan: Representative Elementary Areas to optimize field soil sampling under logistical constraints</li> <li>3. 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>4. Ms Jessica Philippe : Utilizing Digital Soil Mapping Products for Environmental management Decisions in the United States</li> <li>5. Dr Laura Poggio: Quantifying pedodiversity at different scales</li> </ol>	



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	6. Dr George van Zijl: "Digital Soil Mapping and Hydrological Modelling produces solutions for severe infrastructure damage in Cosmo City, South Africa"	
<b>45 WG4.1 - The application of Soil Science in the Criminal Justice System: Chairperson: Professor Lorna Dawson</b>		Alsh 2
	<ol style="list-style-type: none"> <li>1. Keynote Speaker: DCI Brian Geddes: The role of physical evidence in the investigation/detection of major crime In Scotland</li> <li>2. Prof Lorna Dawson: Trace evidence comparison between soil on footwear and reference site locations: application to a murder investigation</li> <li>3. Dr Rosa Maria Di Maggio: Geology and Civil Protection: when foreseeable hydrogeological disasters cause victims</li> <li>4. Dr Laurance Donnelly: Forensic 'fingerprinting' (provenance determination) in the predictive geolocation of the global trade in illicit minerals and metals</li> <li>5. Prof Robert Fitzpatrick: Soil material evidence in 2 crime investigations involving both primary and secondary transferences of soil materials</li> </ol>	
10:00 – 10:30	Refreshment Break, Exhibition & Networking	Hall 4

10:30 – 12:30	Parallel Session 2	
<b>Interdivisional 7: Soil securing humanity   Humanity securing soil: Chairperson: Professor Alex McBratney</b>		Lomond Auditorium
	<ol style="list-style-type: none"> <li>1. Prof Alex McBratney: Developing and implementing a diagnostic soil security assessment framework for Australia and beyond</li> <li>2. Dr Laura Poggio: Global modelling of soil functions to support soil security</li> <li>3. 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>4. Dr Mercedes Roman Dobarco: Digital pedogenon mapping for assessing changes in soil condition from local to continental scale</li> <li>5. Ms Anna Abramova: The global agricultural domestication of soil over time</li> <li>6. Dr Eric Brevik: Securing soil to secure human health</li> <li>7. Dr Claudia Erber: Application of organic materials on land - Regulatory challenges in implementing circular economy principles in Scotland</li> <li>8. Prof Tom Vanwalleghem: Impact of soil erosion on soil security under global climate change: insights from simulation of soil water dynamics and drought</li> </ol>	
<b>Interdivisional 8: Sustainable land use Chairperson: Professor Sonoko Bellingrath-Kimura</b>		M1
	<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. Miss Megan Tresise : Estimating and mitigating greenhouse gas emissions from farming using Life Cycle Assessment methods</li> <li>3. Ms Catriona Willoughby: Using soil health testing to design crop rotations that are fit for the future by balancing productivity with sustainability</li> </ol>	



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	<ol style="list-style-type: none"> <li>4. Prof Ying Zhao: The "Groundwater Benefit Zone" in saline agriculture, proposals, contributions, and new scientific issues</li> <li>5. Dr John Scullion: Trade-offs needed in delivering environmental services through extensification of improved UK upland pasture soils</li> <li>6. Dr Kristi Mingus: Soil Health is the Guide: Three lessons from assessing grazing management practices in the western United States</li> </ol>	
<b>17 Division 2: Sustainable use of legacy soil phosphorus:</b> <b>Chairperson: Kari Dunfield</b>		Gala
	<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. Mr Andrew Tweedie: Organic carbon additions affect phosphorus cycling in agricultural soils</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. Ms Lawrie Brown: Arbuscular mycorrhizal fungi are more important than root hairs of maize for utilizing legacy P in soils</li> <li>5. Dr Issifou Amadou: Adsorption and desorption dynamics of organic phosphorus forms from Fe/Al oxyhydroxides and clay minerals.</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> <b>Chairperson: Lillian Oygrden</b>		Forth
	<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. Mr Amir Sadeghpou: Does long term no-till decrease soil nitrous oxide emissions during corn years in a corn-soybean rotation?</li> <li>7. Kazuyuki Inubushi: Effects of biodegradable plastics on soil properties and greenhouse gas productions</li> </ol>	
<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> </ol>	





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	<ol style="list-style-type: none"> <li>5. Ms Zsófia Adrienn Kovács: Elaboration of a national soil spectrum library - preliminary results of predictivity tests</li> <li>6. Dr Pavel Kust: Soil at the microscale: from traditional micromorphology to quantitative analysis and modelling based on XCT, SAXS techniques.</li> </ol>
<b>37 WG2.2 – Modelling soil processes from ped to global scale: Chairperson: Professor Martine van Pleog</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>

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	IUSS Council Meeting – <i>invited IUSS representatives only</i>	Boisdale 1
13:00 – 14:30	British Society of Soil Science: Grants and Awards Committee – <i>closed meeting</i>	Gala
12:30 – 14:30	Cranfield Symposia	Dochart 2

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. Prof Thomas Baumgartl: Beyond environmental benefit: designing a framework for economic and social benefits of regenerative farming systems</li> <li>2. Dr Nathaniel Looker: Scalable targets for soil health improvements in regenerative agriculture</li> <li>3. Dr Gerhard Du Preez: Restoring soil ecosystem health and functioning in regenerative-based grain crop production systems</li> <li>4. Dr Tom Storr: Implementing regenerative agriculture and measuring soil health on the farm</li> </ol>	





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	<ol style="list-style-type: none"> <li>5. Mr Vagish Ramborun: Shifting to regenerative agriculture improves maize yield and soil quality in a conventionally driven farming system in Mauritius</li> <li>6. Dr Richard Gantlett: Soil carbon sequestration beyond global targets: soil organic matter increases in a modern arable and ley farming system</li> <li>7. Associate Prof Abbey Wick: Evaluating Soil Health Practices at Field Scale</li> <li>8. 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>1. Mrs Sarah Donoghue: Predicting urban locations at risk of high soil Pb concentrations using a random forest model.</li> <li>2. Prof Sabine Grunwald: Pedo-econometric assessment of the efficiencies of soil functions</li> <li>3. Dr Gerard Heuvelink: Spatial cross-validation is not the right way to evaluate soil map accuracy</li> <li>4. 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>5. Dr Gábor Szatmári: Estimating soil organic carbon stock change at regional scales: Challenges and possible solutions</li> <li>6. Mr Stephan Van Der Westhuizen: Measurement error-filtered machine learning in digital soil mapping</li> <li>7. Mr Hunter Winsor: Discovering quantitative soil-landscape relationships from soil survey data.</li> <li>8. 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 Oygrden</b>		Forth
	<ol style="list-style-type: none"> <li>1. TBC</li> <li>2. Samira Daroub: Impact of soil properties and land management on water quality</li> <li>3. Darsani Kumaragamage: Mitigating flooding-induced phosphorus losses from soils using inorganic soil amendments.</li> <li>4. 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>5. Martyn Roberts: Hold it there- utilizing soil hydrology and temporary storage areas to attenuate surface runoff.</li> <li>6. Marie E.Muehe: Climate impacts on metal bioavailability in agricultural soils.</li> <li>7. Nasrollah Sepehernia: <i>Escherichia coli</i> and <i>Rhodococcus erythropolis</i> transport and fate: straining or attachment?</li> <li>8. Caitlin Lewis Hidden dangers of converting UK conifer forests to broadleaf woodlands</li> </ol>	
<b>31 WG1.5: Sensing soil chemical, physical and biological properties - advances and emerging techniques: 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> </ol>	



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	<ol style="list-style-type: none"> <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: physical and economic aspects</b> Prof Suzi Huff Theodoro Professor of Soil Geology, Pesquisadora Universidade de Brasília	Clyde Auditorium
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### Fringe Events

09:00 – 13:00	Soil Benchmark	Dochart 1
10:30 – 12:30	Forensic Soil Science – Police Scotland	Carron 2
14:30 – 17:00	Forensic Soil Science – Police Scotland	Offsite Location



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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> Dr Ranveer Chandra CTO Agri-Food, Microsoft, USA	Clyde Auditorium
09:00 – 09:30	Refreshment Break & Networking	Hall 4

09:30 – 12:30	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	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>	



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<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> <li>3. Ms. Julia Königer: Stage free for the diversity of soil eukaryotes: an EU-wide metabarcoding analysis correlating biodiversity with environmental drivers</li> <li>4. Dr Rodica Pena: Shifts in root-associated fungal communities under variations in soil N:P stoichiometry - the effects on forest ecosystem processes</li> <li>5. Mr Daniel Wasner: The relationship of soil organic matter and bacterial community structure in grasslands across major soil zones</li> <li>6. Dr Tiffany Carter: Toward a national assessment of soil biodiversity: A framework for systematic data collection</li> <li>7. Dr Vince Lang: Soil metagenomic analysis of different WRB diagnostic units under different management systems for soil health assessment</li> <li>8. Dr Andrew Margenot: Progress towards a mechanistic soil enzymology to put the 'bio' in biogeochemistry (TBC)</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>1. Dr Felicity Crotty: Where pedology meets pedagogy</li> <li>2. Prof Rosa M Poch: Soil cakes: unexplored resources to improve soil awareness</li> <li>3. Dr Said Al-Ismaïly: Soil Skills: a problem-based field challenge towards active learning ethos for undergraduate soils students</li> <li>4. Dr Klaus Jarosch: Changing sides: Experiences with a “flipped classroom” format for teaching soil science to bachelor students in physical geography.</li> <li>5. Prof. Damien Field: Do we need to new set of soil principles to guide general soil education</li> <li>6. Ednalva Duarte: The virtual Roraima soil museum to support soil education</li> <li>7. Ms Emmeline Topp: Farmer field schools for improved soil literacy among Mediterranean dryland farmers: Insights from the ConServeTerra project</li> <li>8. 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>1. Tegbaru Gobezie: Soil 'Data-Hyperlooping': An Automated Framework for Curating Soil Data</li> <li>2. 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>3. Dr José Padarian: Integrating information and inference systems</li> <li>4. Prof Tomas Reznik: Developments and open challenges of information model for global soil information system</li> <li>5. Ms Fenny van Egmond: EJP SOIL: Working towards a European soil data infrastructure</li> </ol>



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	6. Dr Adam Csorba: Establishment of the Hungarian Soil Spectral Library	
<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>1. Dr Eva Högfors-Rönnholm: From sulfidic sediment to acid sulfate soil: novel results from a microbiological perspective</li> <li>2. Ms Emily Leyden: Seawater inundation induces trace metal mobilisation in freshwater soils: Impact of sea level rise on metal biogeochemistry in coastal environments</li> <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>	

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
11:30 – 13:00	British Society of Soil Science PPC Committee Meeting – <i>closed meeting</i>	Boisdale 2
12:00 – 12:45	Soil Science of America - Gold Sponsor Symposia	Lomond

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> </ol>	



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	8. Mr. Collin J. Weber: Is it enough to seek and find? How to tackle (micro-)plastic contamination in soils using a spatio-temporal approach	
<b>15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure - Observation, resilience and its role in ecosystem functioning</b>		M1
<b>Chairperson: Professor Stephen Peth</b>		
	<ol style="list-style-type: none"> <li>1. Dr Andy Gregory: The soil structure - soil organic carbon interaction as controlled by agricultural management</li> <li>2. Dr Haojie Liu: Soil structure of peat and its role in ecosystem functioning</li> <li>3. Dr Franziska B. Bucka: Organic matter induced soil structure formation generates distinct architectural features at the microscale</li> <li>4. Dr Vincent J. M. N. L. Felde: Investigating the link between soil water repellency and biological soil crust surface dynamics upon wetting</li> <li>5. Dr Xavier Portell: Functional habitat connectivity in soils: more than just pore sizes</li> <li>6. Dr Olivier Fouché-Grobla: Experimenting hydraulic fatigue of soil biopores</li> <li>7. Dr Nicholas Jarvis: Modelling the interactions between soil structure, carbon cycling, hydrological processes, and crop production</li> <li>8. Dr Anna Yudina: Dual nature of soil structure: the unity of aggregates and pores</li> </ol>	
<b>18 Division 2 Commission 2.2 – Biogeochemical cycles in the soil - processes linking the abiotic and biotic realms:</b>		Forth
<b>Chairperson:</b>		
	<ol style="list-style-type: none"> <li>1. Keynote Speaker: Dr Avni Malhotra: Linking roots to soil carbon: methods, data and models</li> <li>2. Dr Kirsten Ball: Inorganic carbon mediates tillage effects on soil organic carbon stocks in arid agricultural soils</li> <li>3. Dr Felipe Aburto: Differential response of carbon, nitrogen and phosphorus pools after conversion from native forest to exotic plantation in soils of contrasting origin.</li> <li>4. Ms Julia Schroeder: Microbial carbon use efficiency as affected by land use conversion from boreal forest to agricultural land</li> <li>5. 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>6. Dr Sarah Duddigan: Above and belowground biotic responses to long-term acidification of pH neutral grasslands</li> <li>7. 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:</b>		Alsh 1
	<ol style="list-style-type: none"> <li>1. Dr Antonio Bispo: A review of existing soil monitoring systems to pave the way to the EU Soil Observatory</li> <li>2. Dr Erik Grüneberg: Germany's National Forest Soil Inventory: results of accompanied studies to harmonise soil sampling and lab analysis</li> <li>3. Dr Gerard Heuvelink: Machine learning in space and time for global modelling of soil organic carbon change</li> <li>4. Dr Jose Luis Munera-Echeverri: Digging into the bulk density and coarse fragment data of the French soil quality monitoring network</li> <li>5. 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>6. Dr Fiona Seaton: Monitoring increases in soil pH in response to sulphur deposition at a national scale</li> </ol>	



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<b>IUSS Gender Balance Meeting including division 26</b>	Dochart 2

<b>15:30 – 17:30</b>	<b>Parallel Session 3</b>	
	<b>15 Divisions 1 and 2 Commission 1.1, Commission 2.1– Soil structure: Observation, resilience and its role in ecosystem functioning 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 Mailet: 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: Chairperson:</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>	



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<b>23 Division 3 Commission 3.3 – Effects and processes of biochar and soil organic matter on plant nutrition: 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 Hua Ma: 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> <li>5. Raúl Castejón-del Pino: Radish growth and N<sub>2</sub>O emissions using a N-enriched biochar-based fertilizer</li> <li>6. TBC</li> <li>7. TBC</li> <li>8. TBC</li> </ol>	
<b>42 WG 3.3 – SUITMA: Soils of Urban, Industrial, Traffic, Mining and Military Areas: Chairperson: TBC</b>		Alsh 1
	<ol style="list-style-type: none"> <li>1. Prof Paola Adam: 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> <li>5. TBC</li> <li>6. TBC</li> <li>7. TBC</li> <li>8. TBC</li> </ol>	

15:30 – 16:30	Sustainability and the World Congress of Soil Science 2022	Carron 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

<b>Fringe Events</b>		
09:30 – 13:00	Global Soil Health Session 2	Carron 2
09:30 – 17:30	Ecological Continuity Trust (ECT)	Dochart 1
13:00 – 15:00	ReCon Drinks Reception	Gala
15:30 – 16:30	Sustainability Session	Carron 2





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### Closing Ceremony

17:30 – 18:30	Including a closing message from a very special guest	Clyde Auditorium
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