

8th International Symposium on Soil Organic Matter

June 26 (Sun) - 30 (Thu), 2022
Grand Walkerhill Seoul · Seoul, Korea

Final Program



Hosted by



Co-hosted by



Supported by





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SOM 2022

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Welcome Message



Welcome to SOM 2022,

It is my great pleasure to invite you to the 8th International Symposium on Soil Organic Matter (SOM) in Seoul, South Korea.

The theme of the symposium “Soil Organic Matter in the Anthropocene” is a reflection of the challenges that the planet faces today. That if SOM is well understood in its in most nature would unleash the hidden strong potentials that could contribute in different ways including of being a core solution to numerous environmental and agricultural problems.

As we all know, SOM in soil is the most important carbon sink and the key factor to mitigate global warming. At the SOM 2022, delegates from all over the world are expected to share unique experiences, knowledge and facts in many aspects of this sensible topic that could bring us together into new perspectives, shift of paradigm as well as elaboration of our existing knowledge on the biological, chemical and physical processes that govern and interact with SOM, including their practical application in an increasingly stressed environment.

In the past two years, the COVID-19 pandemic has changed many aspects of our lives, including the format of many international conferences. We have experienced online and even hybrid meetings during the pandemic. Of course, the pandemic is still going on with us, but it seems like we have been looking forward to seeing each other and talking face to face. In response to this desire, the organizing committee made the difficult decision to hold SOM 2022 as an in-person meeting.

I would like to express my deep gratitude and warm welcome to all of you who attended the SOM 2022 despite the complicated immigration and travel procedures due to the COVID-19 pandemic.

Thank you.

Dr. Pil Joo KIM

President, 8th International Symposium on Soil Organic Matter (SOM)

Professor, Gyeongsang National University, Jinju, South Korea
The Elected President, The Korean Society of Soil Science and Fertilizer

Organizing Committee



Chairs

Pil Joo KIM	Gyeongsang National University	President
Sung-Chul KIM	Chungnam National University	Vice President
Sang Yoon KIM	Sunchon National University	Secretary General
Suvendu DAS	Gyeongsang National University	Academic Committee Chair

Local Organizing Committee

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Gwang Hyun HAN	Chungbuk National University
Chang Oh HONG	Pusan National University
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Byung Keun HYUN	National Institute of Agricultural Sciences, RDA
Goo Bok JUNG	National Institute of Agricultural Sciences, RDA
Kiyuol JUNG	National Institute of Crop Science, RDA
Se-Won KANG	Sunchon National University
Hyuck Soo KIM	Kangwon National University
Kwon-Rae KIM	Gyeongsang National University
Seok-cheol KIM	Gyeonggi-do Agricultural Research and Extension Services
Byeong Gu KO	National Institute of Agricultural Sciences, RDA
Hyun-Hwoi KU	Hankyong National University
Soon Ik KWON	National Institute of Agricultural Sciences, RDA
Chang Hoon LEE	Korea National University of Agriculture and Fisheries
Sang Soo LEE	Yonsei University
Seungheon LEE	Korea Rural Community Corporation
Yong Bok LEE	Gyeongsang National University
Young Han LEE	Gyeongsangnam-do Agricultural Research and Extension Services
Taek-Keun OH	Chungnam National University
Yong Sik OK	Korea University
Jin Hee PARK	Chungbuk National University
Man PARK	Kyungpook National University
Sang Gu PARK	National Institute of Agricultural Sciences, RDA
Seong-Jin PARK	National Institute of Agricultural Sciences, RDA
Dong Cheol SEO	Gyeongsang National University
Myungchul SEO	National Institute of Crop Science, RDA
Yeon Kyu SONN	National Institute of Agricultural Sciences, RDA
Jwakyung SUNG	Chungbuk National University
Young-Man YOON	Hankyong National University
Yeo-Uk YUN	Chungcheongnam-do Agricultural Research and Extension Services



Organizing Committee

International Organizing Committee

Advisory Committee

Paul BODELIER	Netherlands Institute of Ecology, Netherlands, The
Jae E. YANG	Kangwon National University, Korea, Republic of
Yuanhe YANG	Institute of Botany, Chinese Academy of Sciences, China, People's Republic of
Jizhong ZHOU	University of Oklahoma, United States of America

International Committee

Mark FARRELL	CSIRO, Australia
Kazumichi FUJII	Forestry and Forest Products Research Institute, Japan
Tida GE	State Key Laboratory for Managing Biotic and Chemical Threats to the Quality and Safety of Agro-products, Ningbo University, China, People's Republic of
Ilya GELFAND	French Associates Institute for Agriculture and Biotechnology of Drylands, Israel
Kees Jan VAN GROENIGEN	University of Exeter, United Kingdom
Steven James HALL	Iowa State University, United States of America
Dong-Gill KIM	Hawassa University, Ethiopia
Ashish MALIK	University of Aberdeen, United Kingdom
Budiman MINASNY	The University of Sydney, Australia
Pankaj TRIVEDI	Colorado State University, United States of America

Conference Information



Conference Overview

Title	8 th International Symposium on Soil Organic Matter (SOM 2022)
Dates	June 26 (Sun) - 30 (Thu), 2022
Venue	Grand Walkerhill Seoul • Seoul, Korea
Theme	SOM in the Anthropocene
Language	English (no simultaneous interpretation provided)
Hosted by	Korean Society of Soil Science and Fertilizer (KSSSF)  한국토양비료학회 Korean Society of Soil Science and Fertilizer

Secretariat Office

Date	Operating Hours	Location
June 26 (Sun)	16:00-19:00	Ida 2 (B1)
June 27 (Mon)	08:00-16:30	
June 28 (Tue) ~ June 29 (Wed)	08:30-16:30	



The Plan Co.

3F, Jung E&C Bldg., 31-5 Seocho-daero 58-gil
Seocho-gu, Seoul 06632, Korea

E. info@som2022.org T. +82-2-538-2042~3 F. +82-2-538-1540

Registration

Registration Desk

Date	Operating Hours	Location
June 26 (Sun)	16:00-19:00	Grand Hall Foyer (B1)
June 27 (Mon)	08:00-16:30	
June 28 (Tue)	08:30-16:30	
June 29 (Wed)		

Registration Fee Includes

In-person Registration	VOD Pass
<ul style="list-style-type: none"> Admission to all on-site sessions* Admission to all on-site social events, coffee breaks and lunches* Providing a congress kit include final program book, name badge, souvenir and so on Full access to all session VODs from July 18 to September 30, 2022 	<ul style="list-style-type: none"> Full access to all session VODs from July 18 to September 30, 2022 "SOM 2022 Final Program" PDF Download

* Daily Registration: Admission to scientific sessions, coffee breaks and lunch on the purchased day only.

SOM 2022



Conference Information

Invoice, Receipt & Certificate

- Invoices and receipts are automatically created when you complete online registration.
- For onsite registration, your online account information will be sent to you by email and receipts will be available on the website a week after the symposium.
- After logging in, click '**Invoice and Registration Confirmation**' in the '**Overview**' tab to print your invoice and receipt.
- Certificate of attendance (Confirmation of Participation) can be issued on '**Overview**' two weeks after the symposium.

Parking

- Free parking is provided if you enter your vehicle number on a Self-service Parking Payment Kiosk in the Vista Hall foyer (B2) or Grand Hall foyer (B1).

Photo Gallery

- Selected Photos taken during the symposium will be posted on the website by date.

Scientific Program

Oral Presentation Guidelines

1. Duration of Presentation

Category	Presentation	Q&A
Plenary	60 min.	without Q&A
Keynote	30 min.	5 min.
Oral	15 min.	3 min.

2. Preview Room

Date	Operating Hours	Location
June 26 (Sun)	16:00-19:00	Grand Hall 6 (B1)
June 27 (Mon)	08:00-16:30	
June 28 (Tue)	08:30-16:30	
June 29 (Wed)		

- You should visit the Preview Room to check and up-load your presentation file(s) **at least 1 hour before your session starts** to ensure your presentation file(s) appear(s) properly.
- A technician will be ready to assist you with checking and up-loading the file.
- In case of **combining video files with the MS Power Point**, we kindly recommend checking your presentation file **at least 3 hours before your presentation**.
- For those who have presentations in the morning session, please visit the Preview Room until the day before the presentation.
- All presentations will be stored on a network server and will be accessible from the PC in the session room where your presentation will be held.
- Our staff at the Preview Room will help you to upload your file.



3. Audio Visual Equipment in the Session Room

- ① All presenters should use only venue facilities. Each session room will be equipped with the following.
 - Laptop (operated by a technician at the control desk) running MS-Office PowerPoint 2013 operated in Windows 10, equipped with USB drive.
 - A smart pointer, a mouse and a LCD monitor on the podium and a timer monitor under the front of the podium.
 - One beam projector (HDMI)
 - One main screen
- ② To avoid frequently occurring technical problems during the presentation, all presenters are asked to use only IBM compatible PCs and the single LCD projector preset in the session room for all presentations during the session.
- ③ Presenters are requested not to use their own laptop computer to ensure the smooth operations of the session.
- ④ Presenters must upload their presentation file(s) at the Preview Room in advance.

4. Equipment on the Podium



- ① The SEATS for speakers will be reserved on the Left in the FRONT ROW facing the podium and it will be marked as "NEXT SPEAKER". Please sit and stand-by on the "NEXT SPEAKER" seats and step on the stage at your turn.
- ② Before reaching the podium, you will be introduced by the chairperson(s).
- ③ Upon reaching the podium, your first slide will be projected onto the screen.
- ④ The timer monitor will be founded under front of the podium and it will be going for the duration of presentation.
- ⑤ You can operate the screen by clicking the mouse to go to the next slide when you need to.

* A Cue Light is also available for you to go back (Red Arrow) and forth (Green Arrow) in your slides.

Poster Presentation Guidelines

1. Overview

- ① It is the presenter's sole responsibility to print out the poster and attach it to the designated poster board on the designated date, and to collect the poster after the poster session on that day.
- ② There will be no verbal presentations on the posters. However, there must be a least one co-author standing in front of the poster board for Q&A during the poster session on the day of your poster posting.
- ③ Your poster will only be displayed on the day your poster is posted.
- ④ Posters left behind the demounting time will be discarded without notice.

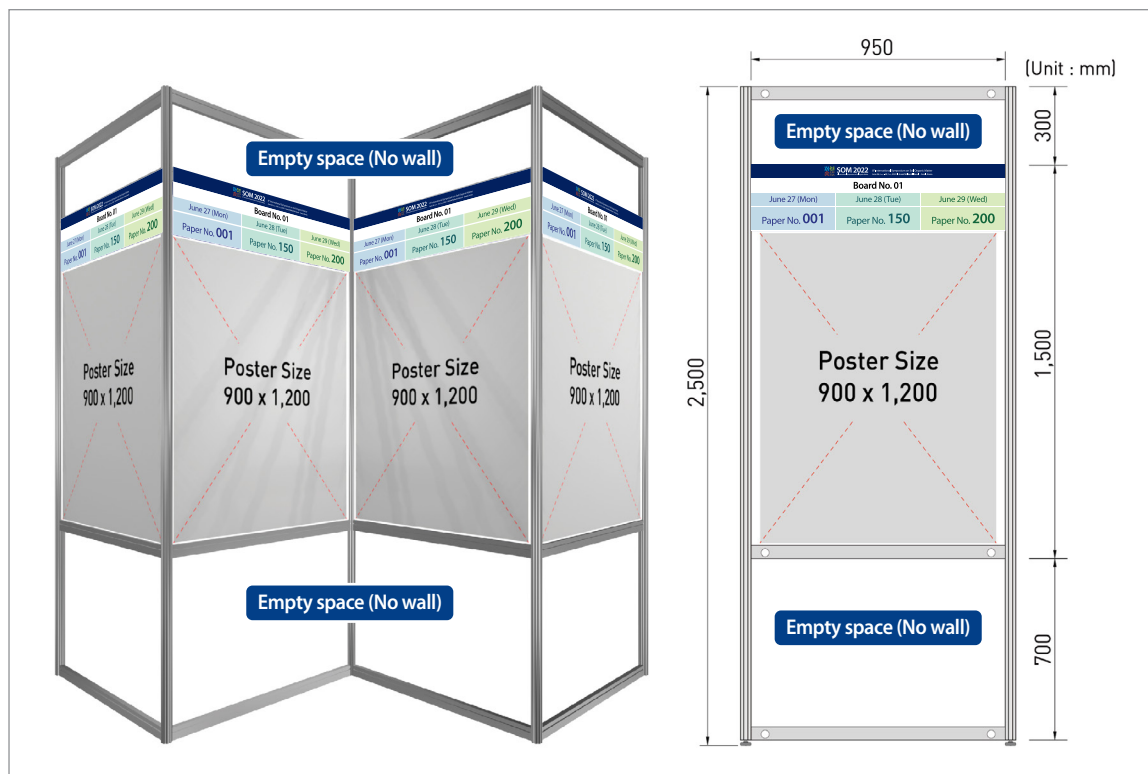
2. Schedule

- Location: Grand Hall 2&3 (B1)
- Schedule:

Session	Session Date & Time	Mounting Time	Demounting Time
Poster Session 1	June 27 (Mon) 15:00-15:30	June 26 (Sun) 16:00-19:00 June 27 (Mon) 08:30-11:10	June 27 (Mon) 17:30-18:00
Poster Session 2	June 28 (Tue) 15:00-15:30	June 28 (Tue) 08:30-11:10	June 28 (Tue) 17:30-18:00
Poster Session 3	June 29 (Wed) 15:00-15:30	June 29 (Wed) 08:30-11:10	June 29 (Wed) 17:30-18:00

Conference Information

3. Poster Preparation



- ① On the top of the poster board, the board number, and the abstract number to be attached by date are posted.
- ② Before attaching the poster, be sure to check the information on the top of the poster board and the date, board number, and abstract number that you were informed of.
- ③ DO NOT write or draw on the poster board. Do NOT use nails, push pins, screws or any tools that may puncture the board.

4. Poster Help Desk

- ① During the poster mounting time, a 'poster help desk' will be installed near the entrance to the poster exhibition hall.
- ② Please attach the poster to the poster board using the items provided on the poster help desk.

VOD Service

- Full access to all session VODs from July 18 to September 30, 2022
- "SOM 2022 Final Program" PDF file will be provided for registered attendees.

Conference Information



Social Program

Please wear your name tag when participating in the events below.

Welcome Reception

- Date & Time: June 26 (Sun), 17:00-19:00
- Venue: Vista Hall Foyer (B2)
- Dress Code: Business Casual Attire
- Menu: Standing Reception with Draft Beer



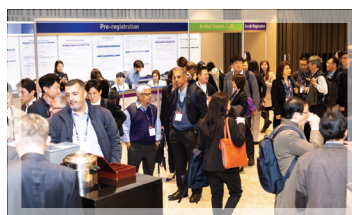
Symposium Dinner

- Date & Time: June 28 (Tue), 18:00-20:00
- Venue: Grand Hall 1 (B1)
- Dress Code: Business Casual Attire
- Menu: Western Set



Coffee Breaks

- Date & Time: June 27 (Mon) ~ 29 (Wed), 11:00-11:30
- Venue: Exhibition Hall @ Vista Hall Foyer (B2)
- Menu: Coffee, Tea with Cookies



Poster Sessions with Coffee Breaks

- Date & Time: June 27 (Mon) ~ 29 (Wed), 15:00-16:00
- Venue: Poster Exhibition Hall @ Grand Hall 2 & 3 (B1)
- Menu: Coffee, Tea with Cookies
- During the poster session, at least one of the co-authors must stand in front of the poster panel for questions and discussions with the attendees.



Lunch

- Date & Time: June 27 (Mon) ~ 29 (Wed), 13:00-14:00
- Venue: Exhibition Hall @ Vista Hall Foyer (B2)
- Menu: Mini Buffet

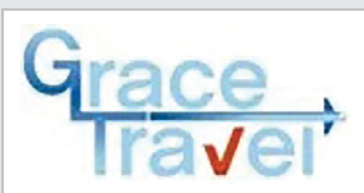


SOM 2022

Conference Information

Field Tour (June 30)

Only those who have made a reservation in advance can participate. On-site reservations are not possible.



If you want personalized tour course,
please contact the official tour agent of the SOM 2022 as follows:

Grace Travel Co., Ltd.
help@triptokorea.com
T. +82-2-332-8946 F. +82-2-336-7334

[T-1] FT-1 Royal Seoul Walking Excursion

09:00-17:30

Tour Fee

- KRW 109,000/person (min. of 20 people)

Included

- English-speaking guide
- Private Vehicle (45 seats) including driver's fee, toll fee, parking fee
- Meals (1 lunch) at local restaurant
- Entrance fees
- Travel insurance (exclusive for foreigners)
- Covid-19 hygiene kit
- Bottle of water
- Taxes

Itinerary

- Gwanghwamun Square
- Palace Royal Guard Changing Ceremony & Gyeongbok Palace
- Jogyesa Temple & Cheonggyecheon Stream
- Lunch
- Namsan Seoul Tower, View of Seoul (including Observatory)
- Bukchon Hanok Village
- Insadong Culture Street (Ssamzigil, etc...)

[T-2] FT-2 Demilitarized Zone Excursion

08:00-14:30

Tour Fee

- KRW 109,000/person (min. of 20 people)

Included

- English-speaking guide
- Private Vehicle (45 seats) including driver's fee, toll fee, parking fee
- Meals (1 lunch) at local restaurant
- Entrance fees
- Travel insurance (exclusive for foreigners)
- Covid-19 hygiene kit
- Bottle of water
- Taxes

Itinerary

- DMZ Tour: Imjingak Park → The Bridge of Freedom → DMZ Theater & Exhibition Hall → The 3rd Infiltration Tunnel → Dora Observatory → Dora Station → Pass by Unification Village
- Paju Imjingak Peace Gondola ride
- Lunch

Conference Information



[T-3] HT-1 Korean Cooking Culinary Experience

13:00-18:00

Tour Fee

- KRW 155,000/person (min. of 10 people)

Included

- English-speaking guide
- Private Vehicle (45 seats) including driver's fee, toll fee, parking fee
- Meals (1 lunch) at local restaurant
- Entrance fees
- Travel insurance (exclusive for foreigners)
- Covid-19 hygiene kit
- Bottle of water
- Taxes

Itinerary

- Making 2 kinds of Korean dishes and tasting (beef bulgogi, Kimchi Pancake, Bibimap, etc / it can be changed)

[T-4] HT-2 Minhwa Experience

13:00-18:00

Tour Fee

- KRW 94,000/person (min. of 10 people)

Included

- English-speaking guide
- Private Vehicle (45 seats) including driver's fee, toll fee, parking fee
- Meals (1 lunch) at local restaurant
- Entrance fees
- Travel insurance (exclusive for foreigners)
- Covid-19 hygiene kit
- Bottle of water
- Taxes

Itinerary

- Bukchon Hanok Village
- [Gahoe Museum] exhibits folk paintings
- Experience of Folk Painting on a fan

[T-5] HT-3 Night View Tour

18:00-22:30

Tour Fee

- KRW 105,000/person (min. of 10 people)

Included

- English-speaking guide
- Private Vehicle (45 seats) including driver's fee, toll fee, parking fee
- Meals (1 lunch) at local restaurant
- Entrance fees
- Travel insurance (exclusive for foreigners)
- Covid-19 hygiene kit
- Bottle of water
- Taxes

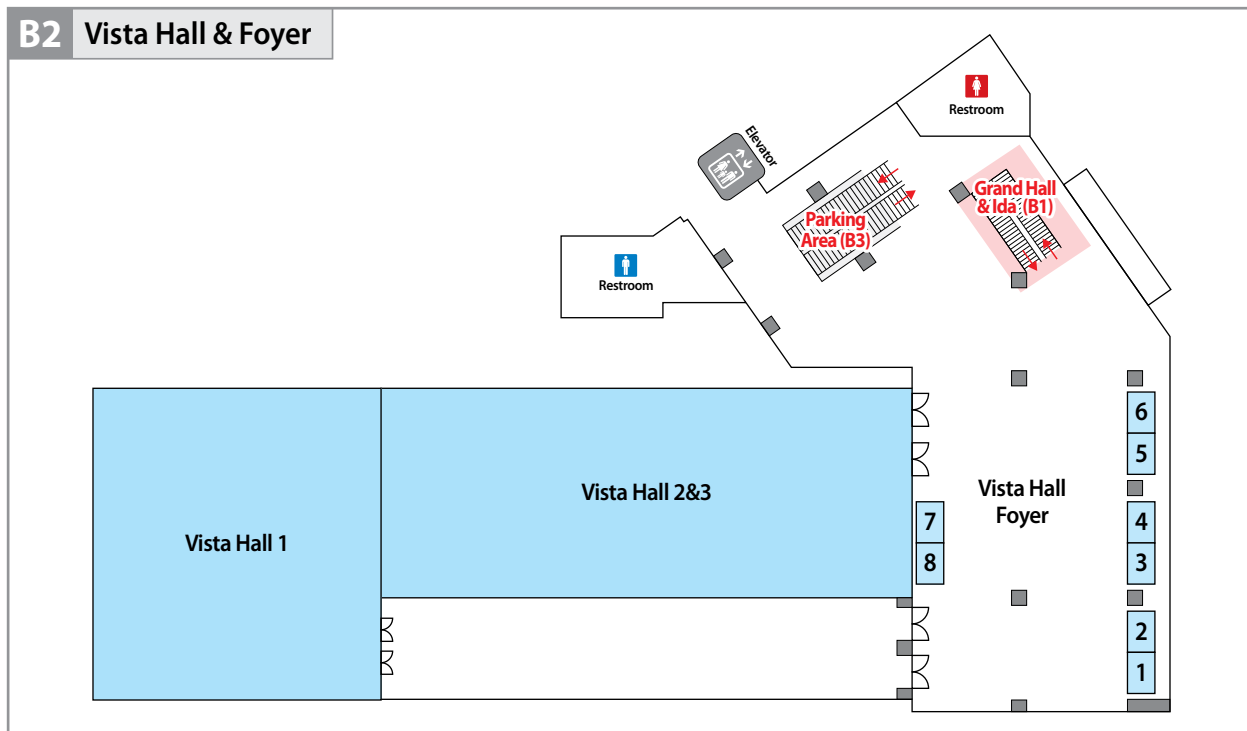
Itinerary

- Namsangol Hanok Village
- Dongdaemun Design Plaza (DDP)
- Mt.Namsan & Seoul Tower
- Some Sevit Floting and Han River Park

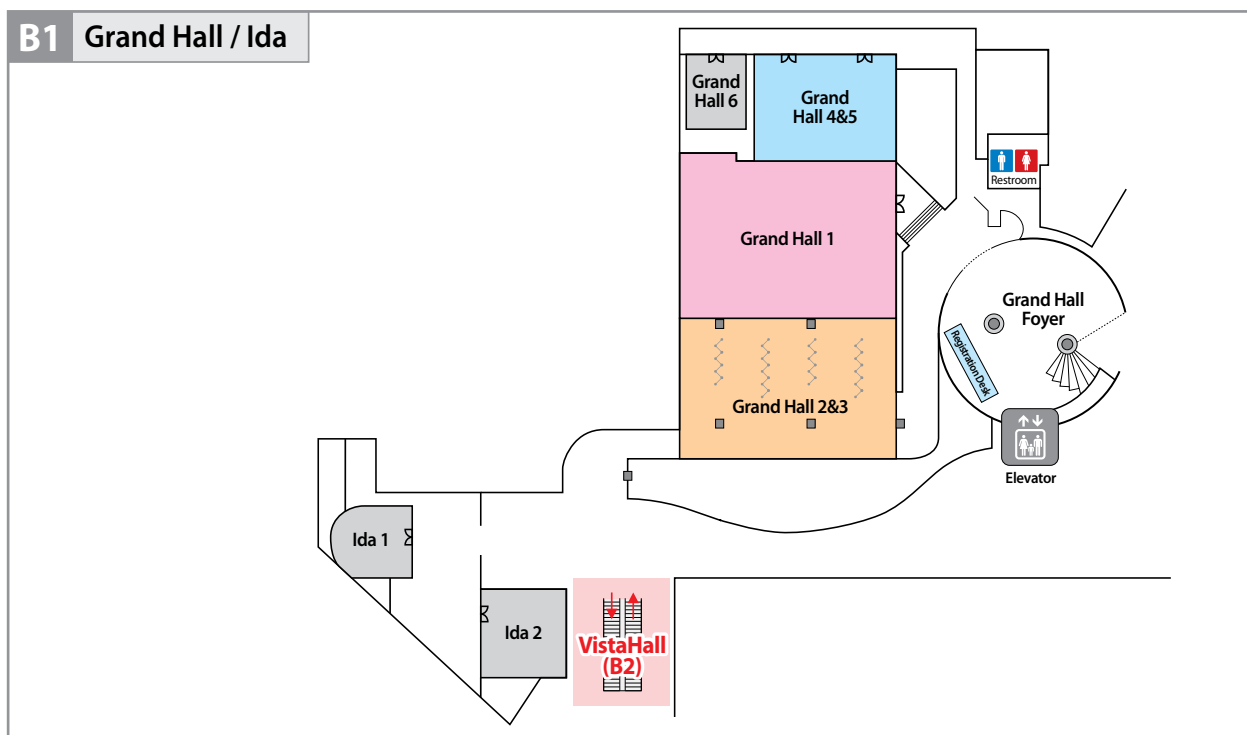
Conference Information

Floor Plan

B2 Vista Hall & Foyer



B1 Grand Hall / Ida



Conference Information



Room	Date to use	Function
Vista Hall 1 (B2)	June 27 (Mon)	Opening Ceremony & Opening Plenary
	June 27 (Mon) ~ 29 (Wed)	Plenary Session 1 ~ 5
		Concurrent Session 1-1, 2-1, 3-1, 4-1, 5-1, 6-1, 7-1, 8-1, 9-1
	June 27 (Mon)	Young Scientists Session
	June 29 (Wed)	Closing Ceremony
Vista Hall 2&3 (B2)	June 27 (Mon) ~ 29 (Wed)	Concurrent Session 1-2, 2-2, 3-2, 4-2, 5-2, 6-2, 7-2, 8-2, 9-2
Vista Hall Foyer (B2)	June 26 (Sun)	Welcome Reception
	June 27 (Mon) ~ 29 (Wed)	Exhibition
		Coffee Breaks & Lunch
Ida 1 (B1)	June 26 (Sun) ~ 29 (Wed)	VIP Room
Ida 2 (B1)		Secretariat Office
Grand 2&3 (B1)	June 27 (Mon) ~ 29 (Wed)	Poster Session with Coffee Breaks
Grand 4&5 (B1)		Concurrent Session 1-3, 2-3, 3-3, 4-3, 5-3, 6-3, 7-3, 8-3, 9-3
Grand 6 (B1)	June 26 (Sun) ~ 29 (Wed)	Preview Room
Grand Hall Foyer (B1)		Registration Desk
Grand 1 (B1)	June 28 (Tue)	Symposium Dinner

SOM 2022

Invited Speakers

Opening Speaking

Opening Plenary

Date & Time: June 27 (Mon), 09:00-10:00

Venue: Vista Hall 1 (B2)



Global Soil Resources at a Critical Crossroads

Abad CHABBI

Senior Research Director
INRAE - National Research Institute for Agriculture, Food and the Environment
Agroécosystèmes
France

Abad CHABBI, is a plant ecologist and soil biogeochemist. He worked at the Louisiana State University, USA; the Faculty of Environmental Science in Cottbus, Germany; the University of Pierre & Marie, Curie (UPMC), France; and the INRAE research council where he has been leading the National Observatory for Environmental Research-Agro-Ecosystems, Biogeochemical Cycles and Biodiversity since 2009.

Abad Chabbi research centers on biogeochemical cycles in the context of climate and land use changes. He is also working with Strategic Research Infrastructures and interested in science policy and societal challenges. Throughout his career, Abad Chabbi has focused on coordinating large international and multidisciplinary projects, including ExpeER and AnaEE under the strategic European Commission framework (FP7).

He also chairs Working Group at the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, at the Hercules Foundation for Investments in Research and Innovation, Brussels... and provides expertise worldwide to numerous research councils.

Abad Chabbi is member of the National Ecological Observatory Network laboratory (NEON), Boulder, Colorado USA and Guest Professor at BIOREN-UFRO, Temuco, Chile. He supervised 18 PhD students and postdocs and has published more than 150 papers in international peer reviewed journals, book chapters, books, and special issues.

Plenary Speakers

Plenary Session 1

Date & Time: June 27 (Mon), 14:00-15:00

Venue: Vista Hall 1 (B2)



Feedback Responses of Grassland Soil Microbial Communities to Climate Warming

Jizhong ZHOU

George Lynn Cross Research Professor
Department of Microbiology & Plant Biology,
School of Civil Engineering and Environmental Sciences Stephenson Research & Technology Center
University of Oklahoma
United States of America

Dr. Jizhong Zhou is a George Lynn Cross Research Professor and Director for the Institute for Environmental Genomics, University of Oklahoma, Norman, OK.

His expertise is on microbial ecology and genomics in the fields of climate change, groundwater bioremediation, wastewater treatments, bioenergy, and theoretical ecology. He was recognized as a top 0.1% globally highly cited researcher by all three major complementary metrics. He received the 2019 ASM Award for Environmental Research, DOE Ernest Orlando Lawrence Award in 2014, and Presidential Early Career Award for Scientists and Engineers in 2001.

He is an Editor-in-Chief for mLife, a senior Editor for ISME J, and a former Senior Editor for mBio and Applied and Environmental Microbiology. He is a Fellow of International Water Association, American Academy of Microbiology, Ecological Society of America, and American Association for Advancement of Science.



Plenary Speakers

Plenary Session 2

Date & Time: June 28 (Tue), 09:00-10:00

Venue: Vista Hall 1 (B2)



Benefits and Trade-offs of Soil Carbon Sequestration

Cornelia RUMPEL

Research Director
Institute of Ecology and Environmental Sciences (IEES)
CNRS
France

Cornelia Rumpel is a soil biogeochemist working for the French National Research Center (CNRS) at the Institute of Ecology and Environment in Paris, France.

Her work is concerned with the dynamics of organic matter at the molecular scale and the biogeochemical cycling of carbon, nitrogen and phosphorus in natural and managed ecosystems.

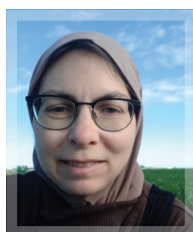
She is dealing with temperate and tropical environments and contributed to the change of several paradigms. Since a few years her work focuses on the development of innovative agroecological strategies to increase soil carbon sequestration.

She supervised 18 PhD students to successful completion of their thesis and has published more than 200 papers in international peer reviewed journals. She is also working at the science policy interphase to communicate the value of soil carbon sequestration as response to global challenges.

Plenary Session 3

Date & Time: June 28 (Tue), 14:00-15:00

Venue: Vista Hall 1 (B2)



Soil Organic Matter as the Paradigm for Soil Quality and Soil Health Assessments

Joann Karen WHALEN

James McGill Professor
Natural Resource Sciences
McGill University
Canada

Joann K. Whalen is a James McGill Professor of Soil Science (endowed research chair) at McGill University and an Adjunct Professor at Gansu Agricultural University, China.

She received her Ph.D. from Ohio State University (USA) and is a professional agronomist in Quebec, Canada. She teaches courses and does research in the areas of soil fertility, soil ecology and environmental soil chemistry. She has published more than 230 peer-reviewed scientific publications and supervised/co-supervised more than 70 students at the M.Sc., Ph.D. and postdoctoral levels.

Dr. Whalen is a Chief Editor for Soil Biology and Biochemistry, an academic journal that publishes original, scientifically challenging research articles that explain soil biological processes. She currently serves as President-Elect of the American Society of Agronomy.

Invited Speakers

Plenary Speakers

Plenary Session 4

Date & Time: June 29 (Wed), 09:00-10:00

Venue: Vista Hall 1 (B2)



SMART Biochar Technology - A Shifting Paradigm towards Advanced Materials and Healthcare Research

Yong Sik OK

Director
Korea Biochar Research Center
Korea University
Korea, Republic of

Dr. Ok is a full professor and global research director of Korea University, Seoul, Korea. He has published over 900 research papers and books, 92 of which have been ranked as Web of Science ESI top papers (90 have been selected as "Highly Cited Papers" (HCPs), and two as "Hot Papers"). He has been a Web of Science Highly Cited Researcher (HCR) since 2018 in Cross Field, Environment and Ecology, and Engineering. In 2019, he became the first Korean to be selected as an HCR in the field of Environment and Ecology. Again in 2021, he became the first Korean HCR in two fields: Environment and Ecology, and Engineering. He is working at the vanguard of global efforts to develop sustainable waste management strategies and technologies to address the rising crisis in electronic and plastic waste, and pollution of soil and air with particulate matter.

Dr. Ok has also served in a number of positions worldwide including, as an honorary professor at the University of Queensland (Australia), a visiting professor at Tsinghua University (China), an adjunct professor at the University of Wuppertal (Germany), and a guest professor at Ghent University (Belgium). He maintains a worldwide professional network by serving as a Co-Editor-in-Chief of Critical Reviews in Environmental Science and Technology, an Editor of Environmental Pollution, a member of the editorial advisory board of Environmental Science & Technology, and an editorial board member of Renewable and Sustainable Energy Reviews, Chemical Engineering Journal, and Environmental Science: Water Research & Technology, and several other top journals. He currently serves as the Director of the Sustainable Waste Management Program for the Association of Pacific Rim Universities (APRU) and the Co-President of the International ESG Association.

Moreover, he has served on the Scientific Organizing Committee of P4G Nature Forum: Climate Change and Biodiversity, and Nature Forum: Plastics and Sustainability. Dr. Ok has also served as the chairman of numerous major conferences such as the Engineering Sustainable Development series (ESD series), organized by the APRU and the American Institute of Chemical Engineers (AIChE). In 2021, Dr. Ok hosted the first Nature conference among South Korean universities in Seoul on waste management and valorization for a sustainable future together with Chief Editors of Nature Sustainability (Dr. Monica Contestabile), Nature Electronics (Dr. Owain Vaughan), and Nature Nanotechnology (Dr. Fabio Pulizzi). Prof. Ok will host the first Nature Forum on Environmental, Social & Governance (ESG) for Global Sustainability: the "E" Pillar for Sustainable Business.

Plenary Session 5

Date & Time: June 29 (Wed), 14:00-15:00

Venue: Vista Hall 1 (B2)



Physical, Chemical and Biological Strategies to Enhance Carbon Storage in Subsoils

Davey JONES

Associate pro-vice chancellor for research
Environment Centre Wales
Bangor University
United Kingdom

Davey Jones holds a Professorial Chair in Soil and Environmental Science at Bangor University and Murdoch University in Western Australia.

A major focus of his research is on understanding below-ground processes with specific focus on nutrients and human pathogen behaviour in water-food-soil-plant-microbial systems.

Current applications of his work include (1) promoting carbon sequestration in agricultural systems and understanding the factors regulating carbon cycling and greenhouse gas emissions, (2) developing ways to improve nutrient use efficiency in cropping systems with specific focus on nitrogen and phosphorus, (3) soil microbial diversity and ecosystem functioning, and (4) the impact of flooding, drought and ozone on ecosystem functioning.

He has published more than 572 journal articles and advises UK government on both their waste and climate change policies.



Keynote Speakers

Concurrent Session 1-1

Date & Time: June 27 (Mon), 10:10-10:40

Venue: Vista Hall 1 (B2)



Soil Fluxomics: Understanding the Microbial Metabolism as Driver of C and Nutrient Cycles

Michaela A DIPPOLD

Professor
Geo-Biosphere Interactions
University of Tuebingen
Germany

Michaela Dippold is biogeochemist with strong focus on biogeochemical fluxes at the plant-soil interface especially the rhizosphere. Her work aims for combining element transformations and fluxes with their biotic drivers focusing on the microbial metabolism. Combining molecular ecological tools across all post-genomic levels with metafluxomics and microbial functions in soils is key methodological emphasis of her work.

Michaela graduated with a diploma in Geoecology and one in Biochemistry at the University of Bayreuth, where she also received her PhD. She then went to the University of Goettingen, first as academic assistant in Agricultural Soil Science, thereafter as independent Junior Professor of the Biogeochemistry of Agroecosystems group. Since 2021 she is head of the Geo-Biosphere Interactions Chair at the Department of Geosciences (University of Tuebingen).

Concurrent Session 1-2

Date & Time: June 27 (Mon), 10:10-10:40

Venue: Vista Hall 2&3 (B2)



Microbial Modulators of Soil Carbon Turnover: From Genes to Ecosystems

Pankaj TRIVEDI

Professor
Agricultural Biology
Colorado State University
United States of America

Dr Pankaj Trivedi is an Associate Professor of Microbiome Science at the Department of Agricultural Biology, Colorado State University.

He is interested in investigating patterns of, and mechanisms underlying, biodiversity and community composition belowground, whilst also trying to establish and quantify potential links between soil biodiversity and belowground community composition and ecosystem processes/functioning and ecosystem services.

Working across natural, agricultural and managed ecosystems, his research aims to improve understanding of how factors such as climate change and land management impact microbial-mediated nutrient transformations, and how this affects productivity and sustainability of soils.

As tools for his research, he uses state-of-art environmental genomics strategies for microbial and whole soil community assessment; stable isotope tracers and chemical approaches to the analyses of ecosystem processes; and advanced statistical and modelling approaches to link belowground diversity with functions.

He has published over 100 research and serves as Editor for Journal of Sustainable Agriculture and Environment.

Invited Speakers

Keynote Speakers

Concurrent Session 1-3

Date & Time: June 27 (Mon), 10:10-10:40

Venue: Grand Hall 4&5 (B1)



CO₂ and CH₄ Dynamics from Organic Matter Decomposition beyond Abrupt Permafrost Thaw Event

Hanna LEE

Associate Professor
Department of Biology
Norwegian University of Science and Technology
Norway

Dr. Hanna Lee is a terrestrial ecosystem ecologist and land surface modeler interested in the feedback cycles of global climate change and ecosystem carbon cycles.

In particular, she has been working on understanding and quantifying how climate warming is accelerating permafrost degradation and the subsequent greenhouse gas emissions from permafrost soil carbon.

Dr. Lee uses in situ observations to understand the processes and develop land surface models to better represent permafrost thaw processes in Earth System Models to ultimately quantify the feedback cycles.

Concurrent Session 2-1

Date & Time: June 27 (Mon), 11:30-12:00

Venue: Vista Hall 1 (B2)



The Existential Challenge of Soil Carbon - Climate Feedbacks

Elise PENDALL

Professor of Soil Science
Hawkesbury Institute for the Environment
Western Sydney University
Australia

Elise Pendall has over 25 years of experience as an interdisciplinary soil and ecosystem ecologist studying the responses of biogeochemical cycling to past and future climate change, ecological disturbances and land management.

She has published nearly 200 papers in top scientific journals, including five papers in Nature; her citation record places her within the top 1% of researchers in environment/ecology.

She is passionate about mentoring and empowering early career researchers, such as in her role as Theme Leader for Soil Biology and Genomics at Western Sydney University and as a recent President of the American Geophysical Union Biogeosciences Section. She has supervised over 70 post-graduate students and postdocs.



Keynote Speakers

Concurrent Session 3-1

Date & Time: June 27 (Mon), 15:30-16:00

Venue: Vista Hall 1 (B2)



Organic Amendments in Rice Paddy: Challenges and Opportunities on Global Warming

Pil Joo KIM

Professor
Division of Applied Life Science
Gyeongsang National University
Korea, Republic of

He continued involving himself in the development of soil management strategies to improve soil quality after his Ph.D. in Soil Science in 1997.

He was appointed as an assistant professor at Gyeongsang National University, Korea in 2001 and later as a full professor and department head in 2008. He published over 250 peer-reviewed journal articles, which focused mostly on improving soil quality and minimizing greenhouse gas emissions from arable soils.

He served as the vice-chairperson of Division 2, IUSS from 2010-2014, and contributed to the success of the 20th WCSS as the Chair of the Editing & Academic Committee. He is working as a specialist to improve agricultural productivity and construct Agricultural Training Centers in Senegal, Africa.

He is organizing the 8th symposium of soil organic matter as the president of the Korean Society of Soil Science and Fertilizer.

Concurrent Session 3-1

Date & Time: June 27 (Mon), 16:00-16:30

Venue: Vista Hall 1 (B2)



Soil Carbon Dynamics in Alpine Grasslands on the Tibetan Plateau

Yuanhe YANG

Deputy Director
State Key Laboratory of Vegetation and Environmental Change
Institute of Botany, Chinese Academy of Sciences
China, People's Republic of

Dr. Yang's work mainly focus on soil carbon and global change, particularly in alpine grasslands on the Tibetan Plateau. He has published more than 120 papers in international journals such as Science Advances, Nature Geoscience, Nature Communications, and Ecology Letters.

He was selected as the National Science Fund for Distinguished Young Scholars in 2018, the National Ten Thousand Talent Program for Leading Scientists in 2019; Elsevier Highly Cited Chinese Researchers in 2021.

He also obtained Early-career Ecologist Award of the Asian Section of the Ecological Society of America in 2012, Young Scientist Award of Chinese Academy of Sciences in 2017, and served as Editorial Board Member of Global Change Biology during 2014-2017.

Invited Speakers

Keynote Speakers

Concurrent Session 3-2

Date & Time: June 27 (Mon), 15:30-16:00

Venue: Vista Hall 2&3 (B2)



Challenges and Opportunities of Managing SOM in Dryland Cropping Systems

Mark FARRELL

Principal Research Scientist
Agriculture & Food
CSIRO
Australia

Dr Mark Farrell is Principal Research Scientist at CSIRO in Adelaide, Australia, where he leads the Biogeochemistry Team.

His research primarily focuses on organic carbon and nitrogen cycling in agricultural systems, but he also has extensive experience in natural systems, particularly in the Australian arid zone.

Mark uses a range of techniques to establish a mechanistic understanding of systems and how they are perturbed by changes to management and environment. These include solid-state NMR, physical fractionation, rapid spectroscopy and stable- and radio- isotopes, coupled with microbial activity assays and the analysis of microbial community structure.

Mark is also Deputy Editor for Soil Chemistry at the European Journal of Soil Research, and chaired the last SOM meeting in Adelaide in 2019.

Concurrent Session 3-3

Date & Time: June 27 (Mon), 15:30-16:00

Venue: Grand Hall 4&5 (B1)



Challenges and Opportunities for Enhancing Food Security and Greenhouse Gas Mitigation in Smallholder Farming in Sub-Saharan Africa

Dong-Gill KIM

Associate Professor
Wondo Genet College of Forestry and Natural Resources
Hawassa University
Ethiopia

Research interests are mainly carbon sequestration, greenhouse gas (GHG) mitigation and climate change resilience in agroecosystems.

He carried out various GHG research in South- Korea, USA, Ireland and New Zealand and currently works at Hawassa University, Ethiopia.

He extensively collaborates with researchers in Africa, Europe, and North and Latin America for enhancing food security and GHG mitigation of smallholder farming systems. He earned his Ph.D. in Environmental Science from Iowa State University, USA.



Keynote Speakers

Concurrent Session 4-1

Date & Time: June 28 (Tue), 10:10-10:40

Venue: Vista Hall 1 (B2)



Balancing SOM Accrual and Greenhouse Gas Emissions in Hydric Agricultural Soils

Steven James HALL

Associate Professor
Ecology, Evolution, and Organismal Biology
Iowa State University
United States of America

Steven is an Associate Professor at Iowa State University, where his research group focuses on soil processes in agricultural and wildland ecosystems. He is particularly interested in understanding the dynamic relationships between organic matter and minerals that jointly protect and decompose SOM, the influence of redox variation on SOM and soil greenhouse gas emissions, and the leveraging power of collaborative research networks for studying SOM at pedon to continental scale.

Concurrent Session 4-2

Date & Time: June 28 (Tue), 10:10-10:40

Venue: Vista Hall 2&3 (B2)



Soil Organic Matter as a Self Organizing Systems

Michelle Mary WANDER

Professor
Natural Resources and Environmental Sciences
University of Illinois
United States of America

Michelle Wander is Professor in the Department of Natural Resources and Environmental Sciences and the Director of the Agroecology and Sustainable Agriculture Program at the University of Illinois where she has studied ecological soil management, soil organic matter, and soil quality for over 25 years.

She co-founded eOrganic, the online National Extension resource for the organic community and co-owns Blue Moon Organic Farm in Urbana IL.

She was the lead author of the 'Agriculture' chapter in ESA-UCS's 'Confronting Climate Change in the Great Lakes Region' and was elected Chair of Division 3 of the Soil Science Society of America, served on the Leonardo Academy's Sustainable Agriculture Standards committee that drafted the ANSI 'Leo 4000' Standard, on the National Soil and Water Conservation Societies' Policy Committee and, on the Soil Health Partnership's Science Advisory Council.

She is an ongoing contributor to Argonne National Labs' GREET model and the 'Carbon Calculator for Land Use Change from Biofuels' and, currently serves on advisory councils for the Foundation for Food and Agriculture Research's Soil Health Council and the Inter-Institutional Foundation for Food and Agricultural Systems.

Invited Speakers

Keynote Speakers

Concurrent Session 4-3

Date & Time: June 28 (Tue), 10:10-10:40

Venue: Grand Hall 4&5 (B1)



The Methane-driven Interaction Network in Terrestrial Methane Hotspots

Adrian HO

Academic staff
Institute for Microbiology
Leibniz University Hannover
Germany

Adrian Ho is a research group leader, currently pursuing his Habilitation (since 2017) at the Leibniz University Hannover, Germany.

His research focuses on elucidating the methanotroph "interactome", addressing the role and relevance of the methane-driven interaction network across kingdoms for community functioning under global change scenarios. Stable isotope labelling in combination with high throughput sequencing and meta-"omics" approaches are applied to probe the interacting members of naturally-occurring complex communities, and complemented by studies using artificially assembled communities.

Adrian Ho is an editorial board member for the journals FEMS Microbiology Ecology and Frontiers in Microbiology, and serves in the review panel for the national funding agencies of Norway, Belgium, Poland, and Germany.

Concurrent Session 5-1

Date & Time: June 28 (Tue), 11:30-12:00

Venue: Vista Hall 1 (B2)



Soil Microbiome-mediated Carbon Sequestration: Understanding the Mechanisms across Different Ecosystems

Ashish MALIK

Lecturer
School of Biological Sciences
University of Aberdeen
United Kingdom

Ashish Malik is a Lecturer in Biogeochemistry at University of Aberdeen since 2019.

His research focuses on understanding soil microbial processes involved in carbon cycling and the underlying mechanisms from population and community to ecosystem scales. A key objective is to determine how environmental change affects microbial physiology, carbon cycling and thus ecosystem functioning.

His group investigates how environmental change affects microbiome-soil carbon linkages to explicitly focus on the underlying mechanisms behind these linkages. Using a multi-scale integrated ecology approach, he hopes to leverage fundamental science to address key societal challenges of sustainable land use, climate change resilience and peatland restoration. He is also keen on exploring newer ways of doing research, improving research culture and promoting diversity and inclusivity in academia and beyond.



Keynote Speakers

Concurrent Session 6-1

Date & Time: June 28 (Tue), 15:30-16:00

Venue: Vista Hall 1 (B2)



Soil Organic Matter C:N:P Stoichiometry and Its Relationship with Soil Texture, Microbial Activity, Vegetation, and Climate

Marie SPOHN

Professor
Soil and Environment
Swedish University of Agricultural Sciences
Sweden

Marie Spohn is a Professor of Biogeochemistry of Forest Soils at the Swedish University of Agricultural Sciences (SLU).

Together with her group, she explores cycling of carbon, phosphorus and nitrogen in terrestrial ecosystems.

She is specifically interested in interactions between different element cycles, and she uses a large range of methods, including soil chemical analyses, isotopes as well as microbiological tools.

Concurrent Session 6-2

Date & Time: June 28 (Tue), 15:30-16:00

Venue: Vista Hall 2&3 (B2)



Occurrence and Effects of Microplastics in Soil

Christian LAFORSCH

Chairholder Animal Ecology
Animal Ecology I
University of Bayreuth
Germany

Prof. Laforsch is Chairholder of Animal Ecology I at the University of Bayreuth since 2012. From 2015 until September 2021 he was Vice President for Research & Junior Scholars at the University of Bayreuth. He began his academic career in Munich at the Ludwig Maximilian University. From 2009 until 2011 he was director of the Limnological Field Station Seelon and Interim Professor in Aquatic Ecology, Department of Biology II, LMU Munich.

Since 2018 he is speaker of the "Sonderforschungsbereich 1357" Collaborative Research Centre Microplastics, funded by the German Research Foundation, DFG. The Collaborative Research Centre (SFB) 1357: "Microplastics - Laws of formation, transport, physico-chemical behaviour and biological effects: From model to complex systems as a basis for new solutions" researches the formation, migration and effects of microplastics and develops new approaches to solving this immense environmental problem.

Since 2019 he also is coordinator of the EU project Limnoplant:

Microplastics In Europe's Freshwater Ecosystems: from sources to solutions

The Innovative Training Network (ITN) LimnoPlast is funded for four years by the EU out of its "Horizon 2020" programme in the framework of the Marie Skłodowska Curie measures.

Invited Speakers

Keynote Speakers

Concurrent Session 6-3

Date & Time: June 28 (Tue), 15:30-16:00

Venue: Grand Hall 4&5 (B1)



Soil Organic Matter (SOM) as a Key Controlling Variable for CH₄ Oxidation in Forest Soils

Hojeong KANG

Professor
School of Civil and Environmental Engineering
Yonsei University
Korea, Republic of

Dr. Kang is a Full Professor at Yonsei University, Seoul, Korea.

He received BSc from Seoul National University and PhD from University of Wales, Bangor, UK. Before joining the current position, he was Professor at Ewha Womans University and a postdoc research fellow at University of Wisconsin, Madison, USA.

Professor Kang has published more than 120 international journal papers including 2 in 'Nature' and 2 in Nature-research journals. He is currently serving as Associate editor for 'Ecological Engineering' and editorial board members for 'Microbial Ecology', 'Ecosystem Services' and 'Pedosphere'. Professor Kang's research focuses on effects of global climate change on soil microbes and GHG emissions.

Concurrent Session 7-1

Date & Time: June 29 (Wed), 10:10-10:40

Venue: Vista Hall 1 (B2)



Application of Artificial Neural Network to Identify Compositional Differences in Coal Mine Affected Soils Analyzed with Ultrahigh-resolution Mass Spectrometry

Sunghwan KIM

Professor
Department of Chemistry
Kyungpook National University
Korea, Republic of

Dr. Kim received his bachelor and master degrees from Seoul National University and PhD from the Ohio State University. After graduation, he worked on FT-ICR Program at National High Magnetic Field Laboratory in Florida State University as a postdoctoral researcher.

He moved to Korea Basic Science Institute as a senior research scientist and subsequently served as assistant, associate, and full professor in Department of Chemistry at the Kyungpook National University.

Dr. Kim has contributed to the molecular level identification of natural organic matters (NOM). His work combining van Krevelen diagram and ultrahigh resolution mass spectrometry data of NOM has pioneered molecular level identification of NOM compounds. His current research is focused on developing new analytical techniques to achieve the goal.



Keynote Speakers

Concurrent Session 7-2

Date & Time: June 29 (Wed), 10:10-10:40

Venue: Vista Hall 2&3 (B2)



Tracing Manure-Derived SOM in Agricultural Watersheds Using Dual $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ and SIAR Model

Woo-Jung CHOI

Professor
Department of Rural and Biosystems Engineering
Chonnam National University
Korea, Republic of

1991-2002
2003-2005
2005-present
2020-present
2020-present
2009-present

Seoul National University (BSc, MSc. & Ph.D. in Environmental Soil Science)
University of Alberta (Post-doc.)
Chonnam National University (Professor)
Director, Agri-Bio Institute of Climate Change Management, CNU
Leader, Unit for Climate-Smart Reclaimed Tideland Agriculture (Brain Korea 21 Project)
Editor (Biology & Fertility of Soils, Journal of Soils & Sediments,
Canadian Journal of Soil Science, Communications in Soil Science & Plant Analysis,
Korean Journal of Soil Science & Fertilizer,
and Korean Journal of Environmental Agriculture)

Concurrent Session 7-3

Date & Time: June 29 (Wed), 10:10-10:40

Venue: Grand Hall 4&5 (B1)



Limits and Benefits of Soil Carbon Sequestration in Croplands

Kees Jan VAN GROENIGEN

Senior Lecturer
Department of Geography
University of Exeter
United Kingdom

Kees Jan van Groenigen is a biogeochemist; through field experiments and data synthesis, he tries to understand how plants and soil respond to environmental change and management practices.

He has studied carbon and nutrient cycles in a wide range of ecosystems, including grasslands, cropland, temperate forests and rice paddies.

He is especially interested in the role of soil microbes in these cycles, using techniques such as incubation experiments, isotopic tracers and analyses of biomarkers. He often uses meta-analytic techniques to synthesize findings in his field of research.

Kees Jan received a BSc, MSc and PhD from Wageningen University. He was a postdoctoral scholar at Trinity College Dublin and Northern Arizona University before he became a faculty member at the University of Exeter in 2017.

Invited Speakers

Keynote Speakers

Concurrent Session 8-1

Date & Time: June 29 (Wed), 11:30-12:00

Venue: Vista Hall 1 (B2)



Not only Soil Organic Matter; Effect of Alternative Fuels Adaptation and Increasing Soil Carbon on Soil Greenhouse Gases Emissions and Atmospheric Carbon Balance

Ilya GELFAND

Senior Lecturer
French Associates for Agriculture and Biotechnologies
Ben Gurion University of the Negev
Israel

Ilya Gelfand's environmental biogeochemistry group using field experiments and laboratory incubations to study soil nitrogen cycle. In recent years he focuses on the interactions between carbon and nitrogen cycles in desert.

In his work before joining the Ben Gurion University of the Negev in 2017 he had explored environmental and climatic effects of widespread use of renewable energy, climatic effects of land-use change, energy balances of agriculture, and effects of land use and land management on soil green-house gases emissions.

Concurrent Session 9-1

Date & Time: June 29 (Wed), 15:30-16:00

Venue: Vista Hall 1 (B2)



Smart Fertilizer Developments Using Natural Organic Matters

Jong-Rok JEON

Associate Professor
Division of Applied Life Science
Gyeongsang National University
Korea, Republic of

Dr. Jeon received his bachelor and PhD from POSTECH. After graduation, he had worked in LG Chem Research Park as a researcher.

His research focuses on understanding physicochemical and biological properties of plant lignin and coal-derived humic substances. He is also interested in developing slow-release and rhizosphere-responsive phosphorus fertilizers using natural polymeric structures containing oxygen-based functional groups.



Keynote Speakers

Concurrent Session 9-2

Date & Time: June 29 (Wed), 15:30-16:00

Venue: Vista Hall 2&3 (B2)



Rusty Sink Mechanisms of Carbon Trap by Iron Plaque: Imaging of Rhizosphere Processes and Global Implications

Tida GE

Professor

State Key Laboratory for Managing Biotic and Chemical Threats to the Quality and Safety of Agro-products

Ningbo University

China, People's Republic of

Ge Tida is Professor of Environmental Soil Science and Biogeochemistry at Ningbo University with expertise in soil ecology, biogeochemistry, land use and agroecology, especially in nutrient cycling.

His research focuses on rhizosphere ecology in agricultural systems and the use of isotopes, sequencing technologies and biomarkers to evaluate soil functioning. He has published >100 papers.

Program at a Glance

Date	June 26 (Sun)	June 27 (Mon)	June 28 (Tue)	June 29 (Wed)	June 30 (Thu)
08:30-16:30		Registration @ Vista Hall Foyer (B2)			Field Tour
08:30-09:00		Opening Ceremony			
09:00-10:00		Opening Plenary	Plenary Session 2	Plenary Session 4	
10:00-10:10		Break			
10:10-11:10		Concurrent Session 1	Concurrent Session 4	Concurrent Session 7	
11:10-11:30		Coffee Break & Exhibition @ Vista Hall Foyer (B2)			
11:30-13:00		Concurrent Session 2	Concurrent Session 5	Concurrent Session 8	
13:00-14:00		Lunch & Exhibition @ Vista Hall Foyer (B2)			
14:00-15:00		Plenary Session 1	Plenary Session 3	Plenary Session 5	
15:00-15:30		Poster Session 1 (with coffee break) @ Grand Hall 2&3 (B1)	Poster Session 2 (with coffee break) @ Grand Hall 2&3 (B1)	Poster Session 3 (with coffee break) @ Grand Hall 2&3 (B1)	
15:30-17:30	Registration (16:00-19:00)	Concurrent Session 3	Concurrent Session 6	Concurrent Session 9	
17:30~	Welcome Reception (17:00-19:00)	Young Scientists Session (18:00-20:00)	Symposium Dinner (18:00-20:00)	Closing Ceremony (17:30-18:00)	



June 26 (Sunday)

June 27 (Monday)

Daily Program

17:00 - 19:00	Welcome Reception	Venue: Vista Hall Foyer (B2)
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08:30 - 09:00	Opening Ceremony	Venue: Vista Hall 1 (B2)
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09:00 - 10:00	Opening Plenary	Venue: Vista Hall 1 (B2)
Chair(s) Pil Joo KIM (Gyeongsang National University, Korea, Republic of)		

09:00 - 10:00	423	Global Soil Resources at a Critical Crossroads <u>Abad CHABBI (INRAE - National Research Institute for Agriculture, Food and the Environment, France)</u>
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10:00 - 10:10	Break
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10:10 - 11:10	Concurrent Session 1-1.	Venue: Vista Hall 1 (B2)
Land Use & Climate Changes on SOM Dynamics and Their Interactions I		
Chair(s) Jin Hee PARK (Chungbuk National University, Korea, Republic of) Michaela A DIPPOLD (University of Tuebingen, Germany)		

10:10 - 10:40	177	Soil Fluxomics: Understanding the Microbial Metabolism as Driver of C and Nutrient Cycles <u>Michaela A. DIPPOLD (Geo-Biosphere Interactions, University of Tuebingen / Biogeochemistry of Agroecosystems, University of Goettingen, Germany)</u> Paul DIJKSTRA, Bruce HUNGATE, Lingling SHI, Weichao WU
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Keynote

10:40 - 10:55	110	Deforestation Effects on Subarctic Soil Organic Carbon Dynamics – the Role of Permafrost Abundance <u>Christopher POEPLAU (Thuenen Institute, Germany)</u> Julia SCHRÖDER, Tino PEPLAU, Edward GREGORICH
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10:55 - 11:10	286	Investigating the Arable Land That Is the Main Contributor to Global Warming between Paddy and Upland Fields under Nitrogen Fertilization <u>Gil Won KIM (Gyeongsang National University, Korea, Republic of)</u> Ji Yeon LIM, Suvendu DAS, Eunhui KIM, Yundeok SEO, Muhammad Israr KHAN, Pil Joo KIM
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SOM 2022



Daily Program

June 27 (Monday)

10:10 - 11:10		Concurrent Session 1-2.	Venue: Vista Hall 2&3 (B2)
		Land Use & Climate Changes on SOM Dynamics and Their Interactions II	
		Chair(s) Sang Yoon KIM (Sunchon National University, Korea, Republic of) Pankaj TRIVEDI (Colorado State University, United States of America)	
10:10 - 10:40	451	Microbial Modulators of Soil Carbon Turnover: From Genes to Ecosystems	
	Keynote	Pankaj TRIVEDI (Colorado State University, United States of America)	
10:40 - 10:55	103	Phosphorus Transformation in the Rhizospheres of Soybean and Rice Grown under Co-Elevated CO₂ and Temperature	
	Video	Jian JIN (Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, China, People's Republic of / Centre for AgriBioscience, La Trobe University, Melbourne Campus, Australia) Lili GUO, Zhenhua YU, Yansheng LI, Guanghua WANG, Xiaobing LIU, Junjie LIU, Judong LIU	
10:55 - 11:10	277	Moisture Regulates Microbial Stoichiometric Homeostasis and Necromass Utilization	
		Kuzyakov YAKOV (Department of Soil Science of Temperate Ecosystems, University of Gottingen, Germany) Baorong WANG, Yanxing DOU, Chao LIANG, Shaoshan AN	
10:10 - 11:10		Concurrent Session 1-3.	Venue: Grand Hall 4&5 (B1)
		Vulnerability and Dynamics of Deep SOM Stocks & Soil Environments I	
		Chair(s) Hanna LEE (Norwegian University of Science and Technology, Norway) Kwon-Rae KIM (Gyeongsang National University, Korea, Republic of)	
10:10 - 10:40	399	CO₂ and CH₄ Dynamics from Organic Matter Decomposition beyond Abrupt Permafrost Thaw Event	
	Keynote	Hanna LEE (Norwegian University of Science and Technology / 2NORCE Norwegian Research Centre, Bjerknes Centre for Climate Research, Norway) Casper T. CHRISTIANSEN, Inge H. J. ALTHUIZEN, Anders MICHELSEN, Peter DÖRSCH, Sebastian WESTERMANN, David RISK	
10:40 - 10:55	309	Impact of Organic Agriculture Practices on Soil Labile Organic Carbon and Carbon Management Index under the Corn Cultivation System	
		Hyun Young HWANG (National Institute of Agricultural Sciences, Korea, Republic of) Nan Hee AN, Sang Min LEE, Cho Rong LEE, Jeong Ah JEONG, Da In KANG	
10:55 - 11:10	150	Changing Climate and Land Use as Drivers of the Deep Soil Microbiome and Soil Carbon	
		Charles W. RICE (Kansas State University, United States of America) Marcos M. V. SARTO, Tiffany POYDRAS, James LIN	
11:10 - 11:30		Coffee Break & Exhibition	Venue: Vista Hall Foyer (B2)

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SOM 2022



Co-hosted by  Korea Rural Community Corporation

11:30 - 13:00	Concurrent Session 2-1.	Venue: Vista Hall 1 (B2)
	Land Use & Climate Changes on SOM Dynamics and Their Interactions III	
	Chair(s) Abad CHABBI (INRAE - National Research Institute for Agriculture, Food and the Environment, France) Elise PENDALL (Western Sydney University, Australia)	

- 11:30 - 12:00 **380** **The Existential Challenge of Soil Carbon - Climate Feedbacks**
Keynote Elise PENDALL (Western Sydney University, Australia)
 Jinquan LI, Nam Jin NOH, Gil Won KIM
- 12:00 - 12:15 **159** **Modeling Land Use History and Mean Annual Precipitation Impacts in the Soil Microbial Community and Soil Organic Carbon**
Carlos BONINI PIRES (Kansas State University, United States of America)
 Marcos SARTO, Benjamin SIKES, Charles RICE
- 12:15 - 12:30 **165** **Adjusting of Ley Grassland Duration in Crop Rotations to Reconcile Food Production and Soil Carbon Stocks**
Teng HU (French National Research Institute for Agriculture, Food and Environment (INRAE) / French National Research Institute for Agriculture, Food and Environment (INRAE), Versailles-Grignon, UMR-ECOSYS, AgroParisTech, France / College of Resources & Environment, Hunan Agricultural University, China, People's Republic of)
 Abad CHABBI
- 12:30 - 12:45 **192** **Effect of No-Tillage on SOM Accumulation and Biological Properties of Andosols from a Long-Term Experiment in Japan**
Video Jeannette ADUHENE-CHINBUAH (Tokyo University of Agriculture and Technology, Japan)
 Soh SUGIHARA, Masakazu KOMATSUZAKI, Tomoyasu NISHIZAWA, Haruo TANAKA
- 12:45 - 13:00 **195** **Different Soil C Sequestration Processes by Ecosystems Hinted from Soil Fractions and Microbial Enzyme Activities**
Ye Lim PARK (Kyung Hee University, Korea, Republic of)
 Junge HYUN, Gayoung YOO

11:30 - 13:00	Concurrent Session 2-2.	Venue: Vista Hall 2&3 (B2)
	Land Use & Climate Changes on SOM Dynamics and Their Interactions IV	
	Chair(s) Kwon-Rae KIM (Gyeongsang National University, Korea, Republic of) Pankaj TRIVEDI (Colorado State University, United States of America)	

- 11:30 - 11:45 **125** **Tipping Points of Priming Regulate the Carbon Sequestration Potential of Cover Crops**
Zhi LIANG (Department of Agroecology, Aarhus University, Denmark)
 Jim RASMUSSEN, Lars ELSGAARD
- 11:45 - 12:00 **137** **Psychrophilic Microbes May Cause Peak Methane Emission at a Low Temperature (5°C) in a High Arctic Soil**
Juyoung SEO (Yonsei University, Korea, Republic of)
 Hojeong KANG
- 12:00 - 12:15 **291** **Root Biomass and Root Traits Varied Spatially in a Young Mediterranean Agroforestry System: Implications for Soil C Storage and Microbial Activity**
Lo re SIEGWART (UMR Eco&Sols, Univ Montpellier, CIRAD, INRAE, IRD, Institut Agro Montpellier SupAgro, France)
 Christophe JOURDAN, Gabin PITON, Soh SUGIHARA, Karel VAN DEN MEERSCH, Isabelle BETRAND



Daily Program

June 27 (Monday)

- 12:15 - 12:30 **264** **Rewetting Dried Soils for Elucidating SOM Dynamics in Andic Soils of a Japanese Temperate Forest**
Hirohiko NAGANO (Niigata University, Japan)
 Mariko ATARASHI-ANDOH, Sota TANAKA, Syuntaro HIRADATE, Kazumichi FUJII, Jun KOARASHI
- 12:30 - 12:45 **325** **Changes of Lycopersicon Esculentum Rhizosphere Microbial Community Structure and Activity under Elevated CO₂**
Kovacs EMOKE DALMA (National Institute for Research and Development in Optoelectronics, Research Institute for Analytical Instrumentation, Romania)
 Kovacs MELINDA HAYDEE
- 12:45 - 13:00 **197** **Effect of Biochar Application on In-Situ CO₂ Flux and SOC Stock in the Tropical Alkaline Soil of South India**
Mayuko SEKI (Tokyo University of Agriculture and Technology, Japan)
 Soh SUGIHARA, Hidetoshi MIYAZAKI, Muniandi JEGADEESAN, Pandian KANNAN, Isabelle BERTRAND, Haruo TANAKA

11:30 - 13:00	Concurrent Session 2-3.	Venue: Grand Hall 4&5 (B1)
	Vulnerability and Dynamics of Deep SOM Stocks & Soil Environments II	
	Chair(s) Hanna LEE (Norwegian University of Science and Technology, Norway) Jae E. YANG (Kangwon National University, Korea, Republic of)	

- 11:30 - 11:45 **172** **From Energy to (Soil Organic) Matter**
Yakov KUZYAKOV (Department of Soil Science of Temperate Ecosystems, Department of Agricultural Soil Science, University of Goettingen, Germany / Peoples Friendship University of Russia (RUDN University), Russian Federation)
 Anna GUNINA
- 11:45 - 12:00 **314** **New Opportunity for Rice Industry to Mitigate Methane Emission and Improve Soil Quality via Silicate Fertilizer Made of Blast Furnace Slag**
Video
Ji Yeon LIM (Gyeongsang National University, Korea, Republic of)
 Snowie Jane C. GALGO, Pil Joo KIM
- 12:00 - 12:15 **453** **Digging Deeper: Role of Subsoils in Organic Matter Dynamics**
Video
Asmeret Asefaw BERHE (University of California, Merced, United States of America)
- 12:15 - 12:30 **198** **Does Physical Organization of Soil Influence Nitrous Oxide Emissions across a Gradient of Land-Use Intensity?**
Asma JERRAY (URP3F, INRAE / UMR ECOSYS, INRAE, AgroParisTech, Université Paris-Saclay, France)
 Xavier LEROUX, Raia Silvia MASSAD, Cornelia RUMPEL, Abad CHABBI
- 12:30 - 12:45 **473** **Water Table Fluctuation in Peatlands Facilitates Fungal Proliferation, Impedes Sphagnum Growth and Accelerates Decomposition**
Video
Jinhyun KIM (School of Civil and Environmental Engineering, Yonsei University, Korea, Republic of)
 Line ROCHEFORT, Chris FREEMAN, Hojeong KANG
- 12:45 - 13:00 **216** **What Determines Temperature Dependency of Soil Organic Matter Decomposition?**
Video
Kazumichi FUJII (Forestry and Forest Products Research Institute, Japan)
 Chie HAYAKAWA, Jinsen ZHENG, Hartono ARIEF, Yoshiyuki INAGAKI, Takashi KOSAKI

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13:00 - 14:00	Lunch & Exhibition	Location: Vista Hall Foyer (B2)
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SOM 2022



14:00 - 15:00	Plenary Session 1	Venue: Vista Hall 1 (B2)
Chair(s) Woo-Jung CHOI (Chonnam National University, Korea, Republic of)		

- 14:00 - 15:00 **281** **Feedback Responses of Grassland Soil Microbial Communities to Climate Warming**
Jizhong ZHOU (University of Oklahoma, United States of America)

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15:00 - 15:30	Poster Session 1 (with Coffee Break)	Venue: Grand Hall 2&3 (B1)
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15:30 - 17:30	Concurrent Session 3-1.	Venue: Vista Hall 1 (B2)
Land Use & Climate Changes on SOM Dynamics and Their Interactions V		
Chair(s) Seunghoon LEE (Korea Rural Community Corporation, Korea, Republic of) Elise PENDALL (Western Sydney University, Australia)		

- 15:30 - 16:00 **106** **Organic Amendments in Rice Paddy: Challenges and Opportunities on Global Warming**
 Keynote Pil Joo KIM (Gyeongsang National University, Korea, Republic of)
- 16:00 - 16:30 **164** **Soil Carbon Dynamics in Alpine Grasslands on the Tibetan Plateau**
 Keynote Yuanhe YANG (Institute of Botany, Chinese Academy of Sciences, China, People's Republic of)
 Video
- 16:30 - 16:45 **205** **Nitrogen as a Key Controller in Managing Soil Organic Matter for Mitigating Climate Change: Distinct Shift in C and N Compositions along with Soil Humus Formation**
Pros KHOK (Chungbuk National University, Korea, Republic of)
 Ye Hoon LEE, Jee Yoon KIM, Kyoung Young KIM, Gwang Hyun HAN
- 16:45 - 17:00 **316** **The Changes of Carbon Contents of Paddy Soil According to Continuous Application of Some Kinds of Organic Material at Rice Cultivation in Korea**
Myungchul SEO (National Institute of Crop Science, Korea, Republic of)
 Wan-Gyu SANG, Jung-Il CHO, Jae-Kyeong BAEK, Dong Won KWON
- 17:00 - 17:15 **107** **Belowground C Allocation of Tropical Rainforests in Response to Drought: An Ecosystem ¹³C₂ Labeling Approach**
Michaela DIPPOLD (Geo-Biosphere Interactions, University of Tübingen, / Biogeochemistry of Agroecosystems, Department of Crop Science, Faculty of Agriculture, Georg August University of Göttingen, Germany)
 Lingling SHI, Pratiksha ACHARYA, Xujuan BAI, Niklas SCHMUECKER, Nemiah LADD, Christiane WERNER, Laura.K. MEREDITH



Daily Program

June 27 (Monday)

Co-hosted by **KOEN** KOREA SOUTH-EAST POWER CO.

15:30 - 17:30		Concurrent Session 3-2.	Venue: Vista Hall 2&3 (B2)
		Links between SOM & Nutrient Cycling I	
		Chair(s) Nam Jin NOH (Kangwon National University, Korea, Republic of) Kees Jan VAN GROENIGEN (University of Exeter, United Kingdom)	
15:30 - 16:00	402 <div>Keynote</div> <div>Video</div>	Challenges and Opportunities of Managing SOM in Dryland Cropping Systems <u>Mark FARRELL (CSIRO, Australia)</u>	
16:00 - 16:15	127	Long-Term Effects of Slurry and Anaerobically Digested Slurry on Soil Organic Matter <u>Tatiana FRANCISCHINELLI RITTL (Norwegian Centre for Organic Agriculture, NORSØK, Norway)</u> Reidun POMMERESCHE, Anne-Kristin LØES	
16:15 - 16:30	140	Suppressed SOM Decomposition by N Enrichment - Insights from Chronic N Addition Experiments across Boreal and Temperate Forests <u>Shun HASEGAWA (Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, Sweden)</u> Serita D. FREY, Torgny NÄSHOLM, Jessica A. M. MOORE, Mark T. L. BONNER	
16:30 - 16:45	149 <div>Video</div>	Soil Organic Matter Differentiates Soil Respiration, Microbial Community, and Extracellular Enzyme Activities between Needleleaf and Broadleaf Forests <u>Jaehyun LEE (Smithsonian Environmental Research Center, United States of America)</u> Hojeong KANG	
16:45 - 17:00	160	Effect of Tillage and Green Manuring on Nitrous Oxide Emissions and Nitrate Leaching in Arable Soils with Different Soil Organic Matter Content, Andisols and Inceptisols <u>Hyun Ho LEE (Yonsei University, Korea, Republic of)</u> Hojeong KANG, Chang Oh HONG	
17:00 - 17:15	203	Comparing Ameliorative Role of Corn cob Residue & Its Biochar on Soil Quality under Drought Conditions <u>Tanvir SHAHZAD (Government College University Faisalabad, Pakistan)</u> Zubda ZAHID, Muhammad SANAUULLAH	
17:15 - 17:30	156	Carbon and Nitrogen Cycling in Acidic Hill Soils as Influenced by Organic Amendments and Land Use <u>Sudip MITRA (Indian Institute of Technology Guwahati, India)</u> Pooja SINGH	

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15:30 - 17:30		Concurrent Session 3-3. Carbon Neutral & Negative Emission	Venue: Grand Hall 4&5 (B1)
		Chair(s) Dong-Gill KIM (Hawassa University, Ethiopia) Yong Bok LEE (Gyeongsang National University, Korea, Republic of)	
15:30 - 16:00	248 Keynote	Challenges and Opportunities for Enhancing Food Security and Greenhouse Gas Mitigation in Smallholder Farming in Sub-Saharan Africa <u>Dong-Gill KIM (Hawassa University, Ethiopia)</u>	
16:00 - 16:15	329	One-Pot Fabrication of Rhizosphere-Responsive Fertilizer Based on Lignin-Fe-Hydroxyapatite Supramolecular Structures <u>Ho Young YOON (Gyeongsang National University, Korea, Republic of)</u> Sumin KWON, Ye Sol LEE	
16:15 - 16:30	113	Perennial Alley Cropping Contributes to Increase Soil Carbon Content and Decrease Soil CO₂ and N₂O Emissions in a Mediterranean Almond Orchard <u>Raul ZORNOZA (Universidad Politecnica de Cartagena, Spain)</u> Virginia SANCHEZ-NAVARRO, Silvia MARTINEZ-MARTINEZ, Jose A. ACOSTA, Maria ALMAGRO, Elvira DIAZ-PEREIRA, Carolina BOIX-FAYOS, Maria MARTINEZ-MENA	
16:30 - 16:45	143	Optimizing Crop Diversification to Mitigate Climate Change in Rainfed and Irrigated Perennial Cropping Systems under Semiarid Mediterranean Conditions <u>Virginia SÁNCHEZ (Universidad Politecnica de Cartagena, Spain)</u> María ALMAGRO, Paula RE, Elvira DÍAZ-PEREIRA, Carolina BOIX-FAYOS, Raúl ZORNOZA, María MARTÍNEZ-MENA	
16:45 - 17:00	206	A Rapid Spectroscopic Determination of Soil Organic Matter for Soil Quality Assessment by Alkaline Extraction and Modelling in Common Mineral and Volcanic Ash Soils <u>Kyoung Young KIM (Chungbuk National University, Korea, Republic of)</u> Pros KHOK, Jae Yong UM, Jung Su LEE, Yong Gook KIM, Jee Won PARK, Ye Hoon LEE, Gwang Hyun HAN	
17:00 - 17:15	243 Video	Variation of Soil Biological Activity and Carbon and Nitrogen Dynamics in Modified Agroforestry Systems, Veracruz, México <u>Diana AYALA MONTEJO (Colegio de la Frontera Sur, Consejo Nacional de Ciencia y Tecnología, CONACYT-Mexico, Mexico)</u> Gerardo Sergio BENEDICTO VALDÉS, Pablo MARTÍNEZ ZURIMENDI, Eduardo VALDÉS VELARDE	
17:15 - 17:30	427 Video	No-Till Is More of Sustaining the Soil than a Climate Change Mitigation Option <u>Debashis CHAKRABORTY (Indian Agricultural Research Institute, India)</u> Surajit MONDAL, Ranjit PAL, Jagdish K. LADKA	



Daily Program

June 27 (Monday)

18:00 - 20:00		Young Scientists Session	Venue: Vista Hall 1 (B2)
		Chair(s) Sang Yoon KIM (Sunchon National University, Korea, Republic of)	
18:00 - 18:15	163	Intracellular Carbon Storage in Grassland Soil: An Intermediate Carbon Reservoir <u>Callum BANFIELD (Biogeochemistry of Agroecosystems, University of Goettingen / Geo-Biosphere Interactions, University of Tuebingen, Germany)</u> Yang DING, Martin KOMAINDA, Kyle MASON-JONES, Michaela DIPPOLD	
18:15 - 18:30	178	Methanotrophic Succession throughout Deglaciation in the Arctic <u>Jeongeun YUN (Yonsei University, Korea, Republic of)</u> Yerang YANG, Mincheol KIM, Hojeong KANG	
18:30 - 18:45	222	Organic Carbon and Pore Characteristics in Soils from Restored Prairie and Monoculture Switchgrass Vegetation Systems <u>Jin Ho LEE (Department of Plant, Soil, and Microbial Sciences, Michigan State University, United States of America)</u> Maik LUCAS, Andrey GUBER, Alexandra KRAVCHENKO	
18:45 - 19:00	228	Are Carbon-Storing Soils More Sensitive to Climate Change? A Laboratory Evaluation for Agricultural Temperate Soils <u>Tchodjowiè P. I. KPEMOUA (UMR Ecosys, INRAE, AgroParisTech, Université Paris-Saclay / Agence de la Transition Écologique, ADEME, France)</u> Sarah LECLERC, Pierre BARRÉ, Sabine HOUOT, Valérie POUTEAU, Cédric PLESSIS, Claire CHENU	
19:00 - 19:15	274	Holistic Evaluation of Biochar Utilization and Its Impact to Mitigate Global Warming in Rice Agroecosystem <u>Ronley Constanca CANATOY (Department of Agricultural Chemistry, Gyeongsang National University, Korea, Republic of / Department of Soil Science, Central Mindanao University, Philippines)</u> Song Rae CHO, Seung Tak JEONG, Pil Joo KIM	
19:15 - 19:30	297	Organic Amendment Application is More Favorable to Soil Carbon Sequestration under Global Warming <u>Hyeon-ji SONG (Gyeongsang National University, Korea, Republic of)</u> So-yeong PARK, Pil Joo KIM	
19:30 - 19:45	354 Video	Millennium Timescale Carbon Stability in an Andisol: How Persistent Is Organo-Metal Complex? <u>Hiroaki SHIMADA (National Agriculture and Food Research Organization, Japan)</u> Rota WAGAI, Kenji TAMURA, Yudzuru INOUE, Maki ASANO	



09:00 - 10:00	Plenary Session 2	Venue: Vista Hall 1 (B2)
Chair(s) Sung-Chul KIM (Chungnam National University, Korea, Republic of)		

- 09:00 - 10:00 **318** **Benefits and Trade-offs of Soil Carbon Sequestration**
Cornelia RUMPEL (CNRS, Institute of Ecology and Environmental Sciences, France)

10:00 - 10:10	Break	
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Co-hosted by  Korea Rural Community Corporation

10:10 - 11:10	Concurrent Session 4-1. Living Part of SOM - Soil Organisms I	Venue: Vista Hall 1 (B2)
Chair(s) Steven James HALL (Iowa State University, United States of America) Kang-Ho JUNG (National Institute of Crop Science, Korea, Republic of)		

- 10:10 - 10:40 **225** **Balancing SOM Accrual and Greenhouse Gas Emissions in Hydric Agricultural Soils**
Keynote Steven James HALL (Iowa State University, United States of America)
 Wenjuan HUANG, Nate LAWRENCE, Chenglong YE
- 10:40 - 10:55 **170** **Intensive Vegetable Production under Plastic Mulch: A Field Study on Soil Plastic and Pesticide Residues and Their Effects on the Soil Microbiome**
Raul ZORNOZA (Universidad Politecnica de Cartagena, Spain)
 Nicolas BERIOT, Esperanza HUERTA LWANGA, Paul ZOMER, Onurcan ÖZBOLAT, Eva LLORET, Paula HARKES, Joris VAN STEENBRUGGE, Violette GEISSEN
- 10:55 - 11:10 **207** **Calculating Soil Organic Matter (SOM) Declines and Exploring Ways to Restore SOM Levels in Australian Cropping Soils with Pasture and Forage Legumes**
Andrew W. H. LAKE (Pristine Forage Technologies, Australia)
 Wendy Hui WANG

10:10 - 11:10	Concurrent Session 4-2. Links between SOM & Nutrient Cycling & Regeneration of SOM with New Resources: Biochar or Artificial Organic Sources I	Venue: Vista Hall 2&3 (B2)
Chair(s) Gwang Hyun HAN (Chungbuk National University, Korea, Republic of) Jizhong ZHOU (University of Oklahoma, United States of America)		

- 10:10 - 10:40 **452** **Soil Organic Matter as a Self Organizing Systems**
Keynote
Video Michelle Mary WANDER (University of Illinois, United States of America)
- 10:40 - 10:55 **114** **Monitoring of Soil EC under Different Soil Water Content and Organic Matter for Prediction of Soil Nutrient Regime**
Han Na KIM (Chungbuk National University, Korea, Republic of)
 Hyo Kyung JEE, Yeong Ju SEOK, Gyung Min PARK, Jin Hee PARK
- 10:55 - 11:10 **175** **Cropping Systems and Tillage Practices Affect the Chemical Characteristics of Organic Matter: Thermal Analysis and FTIR Evidence**
Moazame MESGAR (School of Environmental Sciences, University of Guelph, Canada)
 Adam W. GILLESPIE, Paul R. VORONEY



Daily Program

June 28 (Tuesday)

Co-hosted by **KOEN** KOREA SOUTH-EAST POWER CO.

10:10 - 11:10	Concurrent Session 4-3. Soil Quality & Health I	Venue: Grand Hall 4&5 (B1)
Chair(s) Kirsten Rae BALL (Washington State University, United States of America) Young-Nam KIM (Gyeongsang National University, Korea, Republic of)		

- 10:10 - 10:40 **118** **The Methane-Driven Interaction Network in Terrestrial Methane Hotspots**
Keynote
Video
 Adrian HO (Leibniz University Hannover, Germany)
- 10:40 - 10:55 **472** **Winter Wheat Performance Following One-time High Rate Compost and Annual Cover Crops Planting in Wheat-fallow rotations in South-eastern Wyoming**
 Mavis Badu BREMPONG (National Institute of Agricultural Sciences/RDA, Korea, Republic of / Crops Research Institute, Ghana / Department of Plant Sciences, University of Wyoming, United States of America)
 Urszula NORTON, Jay B. NORTON
- 10:55 - 11:10 **138** **Comparison of the Effect of Compost and Bokashi-Like Ferment on Soil Carbon Pools and Soil Aggregates**
 Vania Scarlet CHAVEZ RICO (Wetsus / Wageningen University, Netherlands, The)
 Paul BODELIER, Miriam VAN EEKERT, Fadel MUHAMMAD, Valentina SECHI, Cees BUISMAN

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11:10 - 11:30	Coffee Break & Exhibition	Location: Vista Hall Foyer (B2)
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11:30 - 13:00	Concurrent Session 5-1. Living Part of SOM - Soil Organisms II	Venue: Vista Hall 1 (B2)
Chair(s) Jin Hee PARK (Chungbuk National University, Korea, Republic of) Steven James HALL (Iowa State University, United States of America)		

- 11:30 - 12:00 **102** **Soil Microbiome-Mediated Carbon Sequestration: Understanding the Mechanisms across Different Ecosystems**
Keynote
Video
 Ashish MALIK (University of Aberdeen, United Kingdom)
- 12:00 - 12:15 **231** **Soil Systems, a Research Program on Systems Ecology of Soils - Energy Discharge Modulated by Microbiome and Boundary Conditions**
 Sören THIELE-BRUHN (Universität Trier, Germany)
 Matthias KÄSTNER, Anja MILTNER, Thomas MASKOW, Marcel LORENZ
- 12:15 - 12:30 **232** **Microorganisms as a Living Part of the SOM are Modified Differently in a Diversified Viticultural System**
 Sören THIELE-BRUHN (Universität Trier, Germany)
 Felix DITTRICH
- 12:30 - 12:45 **176** **Nutrient (C, N and P) Enrichment Induces Significant Changes in the Soil Metabolite Profile and Microbial Carbon Partitioning**
 Robert William BROWN (School of Natural Sciences, Bangor University, Bangor, United Kingdom)
 Dave Robert CHADWICK, Davey Leonard JONES



- 12:45 - 13:00 **132** **Exploring the Link between Bacterial and Fungal Communities and Carbon Use Efficiency in Dry Tropical Cropland and Forest Soils of Tanzania: A DNA-SIP Study**

Video

Soh SUGIHARA (Tokyo University of Agriculture and Technology, Japan)

Hana KOBAYASHI, Kozue SAWADA, Haruo TANAKA, Koki TOYOTA, Jun MURASE, Makoto SHIBATA, Boniface MASSAWE, Mawazo SHITINDI, Isabelle BERTLAND, Takashi KOSAKI

11:30 - 13:00

Concurrent Session 5-2.
Physical & Biogeochemical Reaction of SOM

Venue: Vista Hall 2&3 (B2)

Chair(s) **Jizhong ZHOU** (University of Oklahoma, United States of America)
Chang Oh HONG (Pusan National University, Korea, Republic of)

- 11:30 - 11:45 **233** **Manganese-Oxidizing Antarctic Bacteria (Mn-Oxb) Release Reactive Oxygen Species (ROS) as Secondary Mn(II) Oxidation Mechanisms to Avoid Toxicity**

Video

Ignacio JOFRÉ (Laboratory of Conservation and Dynamics of Volcanic Soils, Department of Chemical Sciences and Natural Resources, Faculty of Engineering and Sciences, Universidad de La Frontera, Chile)

Francisco MATUS, Daniela MENDOZA, Francisco NÁJERA, Carolina MERINO

- 11:45 - 12:00 **229** **Contribution of the Fenton Reaction and Ligninolytic Enzymes to Soil Organic Matter Mineralisation under Anoxic Conditions**

Carolina MERINO (Universidad de La Frontera, Chile)

Francisco MATUS, Yakov KUZAKOV, Jens DYCKMANS, Svenja STOCK, Michaela A. DIPPOLD

- 12:00 - 12:15 **428** **Call for the Return of Native Earthworms (Megascolecidae) to Farmland for Sustainable Agroecosystem in New Zealand**

Young-Nam KIM (Institute of Agriculture and Life Science (IALS), Gyeongsang National University / Division of Applied Life Science (BK21), Gyeongsang National University, Korea, Republic of / Faculty of Agriculture and Life Sciences, Lincoln University, New Zealand)

Nicholas DICKINSON, Keum-Ah LEE, Song Yeob KIM, Hyeonji CHOE, Vimalraj KANTHARAJ, Yong Bok LEE

- 12:15 - 12:30 **213** **Biogeochemical Stability of Additional Soil Organic Carbon under Alternative Cropping Systems and Organic Waste Product (OWP) Application: What Do Granulo-Densimetric Fractionation and Rock-Eval® Thermal Analysis Tell Us?**

Tchodjowié P. I. KPEMOUA (UMR Ecosys, INRAE, AgroParisTech, Université Paris-Saclay / Agence de la transition écologique, ADEME, France)

Sabine HOUOT, Pierre BARRÉ, François BAUDIN, Cédric PLESSIS, Claire CHENU

- 12:30 - 12:45 **280** **Chemical Complexity Matters: Differential Mobilization of Mineral-Associated Organic Matter Driven by Functionally Distinct Rhizodeposits**

Tobias BÖLSCHER (INRAE, France / University of Massachusetts Amherst, United States of America / Lund University, Sweden)

Hui LI, Mariela GARCIA ARREDONDO, Zoe G. CARDON, Matthew WINNICK, Marco KEILUWEIT

- 12:45 - 13:00 **360** **Soil Organic Matter and Total Nitrogen Content Establish Abundance of Nitrification and Denitrification Related Genes in Paddies under Long Term Compost Fertilization**

Denver Inladchang WALITANG (Chungbuk National University, Korea, Republic of / College of Agriculture, Fisheries and Forestry, Romblon State University, Philippines)

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Daily Program

June 28 (Tuesday)

11:30 - 13:00		Concurrent Session 5-3. Soil Quality & Health II	Venue: Grand Hall 4&5 (B1)
		Chair(s) Hyuck Soo KIM (Kangwon National University, Korea, Republic of) Jong-Hwan PARK (Dong-A University, Korea, Republic of)	
11:30 - 11:45	124	Crop Diversification Enhances Key Soil Quality Parameters Related to Soil Functioning without Compromising Crop Yields in a Rainfed Woody Crop System <u>Virginia SÁNCHEZ (Universidad Politecnica de Cartagena, Spain)</u> María ALMAGRO, Elvira DÍAZ-PEREIRA, Carolina BOIX-FAYOS, Raúl ZORNOZA, Paula RE, Cristina FERNÁNDEZ, María MARTÍNEZ-MENA	
11:45 - 12:00	315	Improving Methane Mitigating Functionality of Blast Furnace Slag by Adding Electron Acceptor <u>Snowie Jane C. GALGO (Division of Applied Life Science, Gyeongsang National University, Korea, Republic of)</u> Ji Yeon LIM, Ronley CANATOY, Jisu HA, Jeong Gu LEE, Pil Joo KIM	
12:00 - 12:15	383	The Soil-Environment-Bioprocess Nexus in Wheat and Rapeseed Growing Agrotechnologies <u>Zita KRIAUCIUNIENE (Vytautas Magnus University, Lithuania)</u> Darius JUKNEVICIUS, Sidona BURAGIENE, Aida ADAMAVICIENE, Egidijus SARAUSKIS	
12:15 - 12:30	422	Effect of Application of Organic Residues, Treated with Three Different Technologies on Soil Properties <u>Vania Scarlet CHAVEZ RICO (Wetsus, European Centre of Excellence for Sustainable Water Technology / Department of Environmental Technology, Wageningen University, Netherlands, The)</u> Stijn VAN DEN BERGH, Paul BODELIER, Miriam VAN EEKERT, Yujia LUO, Klaas NIEROP, Valentina SECHI, Adrie VEEKEN, Cees BUIJSMAN	
12:30 - 12:45	183 Video	Effects of Human Activities and Environmental Factors on Soil Microbial Composition and Functional Diversity of Urban Greenspaces <u>Yerang YANG (Yonsei University, Korea, Republic of)</u> Hojeong KANG	
12:45 - 13:00	128	Carbon for Benefit of the Farmer <u>Tatiana FRANCISCHINELLI RITTL (Norwegian Centre for Organic Agriculture, NORSØK, Norway)</u> Sissel HANSEN, Reidun POMMERESCHE	
13:00 - 14:00		Lunch & Exhibition	Location: Vista Hall Foyer (B2)
14:00 - 15:00		Plenary Session 3	Venue: Vista Hall 1 (B2)
		Chair(s) Hojeong KANG (Yonsei University, Korea, Republic of)	
14:00 - 15:00	294	Soil Organic Matter as the Paradigm for Soil Quality and Soil Health Assessments <u>Joann WHALEN (McGill University, Canada)</u>	

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15:00 - 15:30		Poster Session 2 (with Coffee Break)	Venue: Grand Hall 2&3 (B1)
15:30 - 17:30		Concurrent Session 6-1. Links between SOM & Nutrient Cycling & Regeneration of SOM with New Resources: Biochar or Artificial Organic Sources II	Venue: Vista Hall 1 (B2)
		Chair(s) Marie SPOHN (Swedish University of Agricultural Sciences, Sweden) Chang Hoon LEE (Korea National University of Agriculture and Fisheries, Korea, Republic of)	
15:30 - 16:00	293 Keynote	Soil Organic Matter C:N:P Stoichiometry and Its Relationship with Soil Texture, Microbial Activity, Vegetation, and Climate <u>Marie SPOHN (Swedish University of Agricultural Sciences, Sweden)</u>	
16:00 - 16:15	157	Cover Crop Carbon Inputs to Soil as Affected by Long-Term Cropping System Management and Soil Fertility <u>Esben Øster MORTENSEN (Aarhus University, Denmark)</u> Chiara DE NOTARIS, Zhi LIANG, Leanne PEIXOTO, Jørgen Eivind OLESEN, Jim RASMUSSEN	
16:15 - 16:30	158 Video	Long-Term Nitrogen Fertilization Altered the Molecular Composition and Origins of Soil Organic Carbon Rather Than the Storage in a Temperate Agroecosystem <u>Xiao WANG (China Agricultural University, China, People's Republic of)</u> Zhangliu DU, Zhichao ZOU	
16:30 - 16:45	302	Effect of Fresh and Aged Amendments on Alleviating Water-Stress Impacts on Plant Growth and Soil Microbial Functioning <u>Charlotte VEDERE (National Institute for Agricultural Research, Ecosys Soil, UMR INRAE-AgroParisTech, France)</u> Manhattan LEBRUN, Philippe BIRON, Séverine PLANCHAIS, Marianne BORDENAVE JACQUEMIN, Nicolas HONVAULT, Stéphane FIRMIN, Arnould SAVOURE, David HOUBEN, Cornelia RUMPEL	
16:45 - 17:00	268	Plant Residue Decomposition under Salinity along with Drought Stress <u>Muhammad SANALLAH (University of Agriculture, Pakistan)</u> Abdul QADEER, Abdul WAKEEL	
17:00 - 17:15	242	Organic and Inorganic Carbon Transformations in a Calcareous Soil from North of Mexico by Incorporating Vermicompost and Urea <u>Lizbeth Natali JESUS-DE CERON (Tecnologico de Estudios Superiores, Mexico)</u> Gerardo Sergio BENEDICTO-VALDES, Victor Manuel MONTOYA-JASSO, Santos SANTIAGO-MARTINEZ, Diana AYALA-MONTEJO, Laura Liliana ACOSTA-SOTELO	



Daily Program

June 28 (Tuesday)

Co-hosted by **KOEN** KOREA SOUTH-EAST POWER CO.

15:30 - 17:30		Concurrent Session 6-2. Impact of (Micro-) Plastics as Exotic Source on Soil Environments	Venue: Vista Hall 2&3 (B2)
		Chair(s) Hyo Jung LEE (Kunsan National University, Korea, Republic of) Christian LAFORSCH (University of Bayreuth, Germany)	
15:30 - 16:00	296 Keynote	Occurrence and Effects of Microplastics in Soil <u>Christian LAFORSCH (University of Bayreuth, Germany)</u>	
16:00 - 16:15	189 Video	Insufficient Cover Crop Biomass Productivity to Compensate Soil Carbon Stock Decrease under Plastic Film Mulching <u>Jeong Gu LEE (University of Illinois Urbana-Champaign, United States of America)</u> Ho Gyeong CHAE, Hyeon-Ji SONG, Snowie Jane C. CALGO, Pil Joo KIM	
16:15 - 16:30	310	A Long-Term Field Experiment Reveals the Accumulation of High Amounts of Microplastics in Soils Amended with Composted Waste Residues <u>Gabin COLOMBINI (INRAE, CNRS, UMR Institute for Ecology and Environmental Sciences of Paris (iEES-Paris), France)</u> Cornelia RUMPEL, Sabine HOUOT, Philippe BIRON, Claire LHOUTELLIER, Marie-Pierre DENIEUL, Valentin DELTREIL, Marie-France DIGNAC	
16:30 - 16:45	219	Soil Carbon and Nitrogen Dynamics under Drought: A Meta-Analysis and Mechanisms <u>Yakov KUZZYAKOV (Soil Science, Germany)</u> Lei DENG, Changhui PENG, Yulin LIU, Xuying HAI, Qiuyu LIU, Jiwei LI, Zhouping SHANGGUAN	
16:45 - 17:00	236	Impact of Automobile Waste on Heavy Metal Accumulation and Microbial Activity at Two Selected Auto-Mechanic Workshops in Kumasi, (Ashanti Region) - Ghana <u>Samuel Kwasi BENEFO (CSIR-Soil Research Institute, Ghana)</u> Edward YEBOAH, Emmanuel DUGAN, Emmanuel AMOAKWAH, Prince ADDAI	
17:00 - 17:15	270 Video	Biochar and Organic Amendments Irrespective of Crop Establishment Practices Improve Soil Health, Increase Crop Yield and Reduce Actual Carbon Footprint of Wheat Crop in a Rice-Based Cropping System under Organic Matter Deficient Soil <u>Md Khairul ALAM (Bangladesh Agricultural Research Council, Bangladesh, People's Republic of / Murdoch University, Australia)</u> ATMAI MONDOL, N SALAHIN, NC SHIL, S AHMED, MJ ALAM, MF ALAM, MAM HUSSEN	

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15:30 - 17:30		Concurrent Session 6-3. Blue Carbon: Terrestrial, Deep & Extreme Ecosystems and Rice Paddies	Venue: Grand Hall 4&5 (B1)
		Chair(s) Hojeong KANG (Yonsei University, Korea, Republic of) Davey JONES (Bangor University, United Kingdom)	
15:30 - 16:00	462 Keynote	Soil Organic Matter (SOM) as a Key Controlling Variable for CH₄ Oxidation in Forest Soils <u>Hojeong KANG (Yonsei University, Korea, Republic of)</u>	
16:00 - 16:15	448 Video	Grasses for Change: The Hidden Significant <u>Bezaye TESSEMA (Rhodes University, South Africa / Water and Land Resource Centre of Addis Ababa University, Ethiopia)</u> Brian WILSON, Heiko DANIEL	
16:15 - 16:30	348	Sorption to Clay Mineral Reduces Alanine Mineralization in Volcanic Soils <u>Natsuko KITAGAWA (Graduate School of Agriculture, Kyoto University, Japan)</u> Tetsuhiro WATANABE, Kozue SAWADA, Takashi KUNITO, Shinya FUNAKAWA	
16:30 - 16:45	262	Soil Carbon Credits for Climate Mitigation: Opportunities, Challenges and Alternatives <u>Martin WIESMEIER (Technical University of Munich (TUM) / Bavarian State Research Center for Agriculture (LfL), Germany)</u> Carsten PAUL, Katharina HELMING, Axel DON, Uwe FRANKO, Markus STEFFENS, Ingrid KÖGEL-KNABNER	
16:45 - 17:00	450	Best Management Practices: Strategies to Improve Carbon Sustainability under Fourteen-Year Long-Term Rice-Wheat Cropping System <u>Vijay Singh MEENA (CIMMYT-Borlaug Institute of South Asia (BISA), India)</u> Raj K JAT, Vijay Sandeep JAKKULA, RK JHA, Mukesh KUMAR, SP SINGH, JM SUTALIYA, D BIJARNIYA, ML JAT, Ravi G SINGH, Raj K GUPTA	
18:00 - 20:00		Symposium Dinner	Venue: Grand Hall 1 (B1)



Daily Program

June 29 (Wednesday)

09:00 - 10:00	Plenary Session 4	Venue: Vista Hall 1 (B2)
	Chair(s) Christian LAFORSCH (University of Bayreuth, Germany)	
09:00 - 10:00	244 SMART Biochar Technology - A Shifting Paradigm towards Advanced Materials and Healthcare Research	
	<u>Yong Sik OK</u> (Korea University, Korea, Republic of) P. A. WITHANA, X. YUAN, J. H. RHEE, S. Y. HWANG, S. PARK	
10:00 - 10:10	Break	
	Co-hosted by  Korea Rural Community Corporation	
10:10 - 11:10	Concurrent Session 7-1. Qualifying, Quantifying & Visualizing SOM I	Venue: Vista Hall 1 (B2)
	Chair(s) Sunghwan KIM (Kyungpook National University, Korea, Republic of) Abad CHABBI (INRAE - National Research Institute for Agriculture, Food and the Environment (France), France)	
10:10 - 10:40	468 Application of Artificial Neural Network to Identify Compositional Differences in Coal Mine Affected Soils Analyzed with Ultrahigh-resolution Mass Spectrometry	
	<u>Sunghwan KIM</u> (Kyungpook National University, Korea, Republic of)	
10:40 - 10:55	134 Soil Carbon Storage and Its Economic Values of Inland Wetlands in Korea	
	<u>Jaeyoung YOO</u> (School of Civil and Environmental Engineering, Yonsei University, Korea, Republic of) Jinhyun KIM, Jaegun KIM, Jeongcheol LIM, Hojeong KANG	
10:55 - 11:10	171 Biopores as Carbon Highways into the Subsoil: Organic Matter Quality and Turnover in Microbial Hotspots	
	<u>Callum C. BANFIELD</u> (Geo-Biosphere Interactions, University of Tuebingen / Biogeochemistry of Agroecosystems, University of Goettingen, Germany) Johanna PAUSCH, Yakov KUZAKOV, Michaela A. DIPPOLD	
10:10 - 11:10	Concurrent Session 7-2. SOM Modelling, Mapping & Tracing & Carbon Neutral & Negative Emission I	Venue: Vista Hall 2&3 (B2)
	Chair(s) Woo-Jung CHOI (Chonnam National University, Korea, Republic of) Joann Karen WHALEN (McGill University, Canada)	
10:10 - 10:40	247 Tracing Manure-Derived SOM in Agricultural Watersheds Using Dual $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ and SIAR Model	
	<u>Woo-Jung CHOI</u> (Chonnam National University, Korea, Republic of) Young-Jae JEONG, Nuri BAEK, Bo-Seong SEO, Sang-Mo LEE, Hyun-Jin PARK	
10:40 - 10:55	105 Benchmarking Model Representation of Soil Organic Carbon Storage and Dynamics	
	<u>Umakant MISHRA</u> (Sandia National Laboratories, United States of America) Sagar GAUTAM	
10:55 - 11:10	456 A Hybrid Modeling Approach to Simulating Greenhouse Gas Emission from Rice Paddy Fields in South Korea	
	<u>Sumin KIM</u> (Dankook University, Korea, Republic of) Sojung KIM, Jaehak JEONG	



10:10 - 11:10	Concurrent Session 7-3.	Venue: Grand Hall 4&5 (B1)
	SOM with Artificial Intelligence: Big Data, Engineering & Remote Sensing	
	Chair(s) Sang Yoon KIM (Sunchon National University, Korea, Republic of) Kees Jan VAN GROENIGEN (University of Exeter, United Kingdom)	

10:10 - 10:40 **469** **Limits and Benefits of Soil Carbon Sequestration in Croplands**
 Keynote Kees Jan VAN GROENIGEN (University of Exeter, United Kingdom)

10:40 - 10:55 **435** **Developing Dynamic Monitoring, Reporting and Verification (MVR) for Implementing Negative Emission Strategies in Agriculture: A Step towards NetZero**
Jagadeesh YELURIPATI (The James Hutton Institute, Scotland, United Kingdom)
 David CAMERON, Matt AITKENHEAD, Elizabeth COWDERY, David DONNELLY, Fabrizio ALBANITO, Pete SMITH

10:55 - 11:10 **441** **Potential of Sentinel-2 Satellite Images for Monitoring Digestate and Slurry Amendments in Temperate Cropland**
 Video Maxence DODIN (GINRAE, UMR ECOSYS, France)
 Florent LEVAVASSEUR, Antoine SAVOIE, Lucie MARTIN, Christophe STAUB, Jean FOULON, Emmanuelle VAUDOUR

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11:10 - 11:30	Coffee Break & Exhibition	Location: Vista Hall Foyer (B2)
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11:30 - 13:00	Concurrent Session 8-1.	Venue: Vista Hall 1 (B2)
	Qualifying, Quantifying & Visualizing SOM II	
	Chair(s) Ilya GELFAND (Ben-Gurion University of the Negev, Israel) Abad CHABBI (INRAE - National Research Institute for Agriculture, Food and the Environment (France), France)	

11:30 - 12:00 **425** **Not only Soil Organic Matter; Effect of Alternative Fuels Adaptation and Increasing Soil Carbon on Soil Greenhouse Gases Emissions and Atmospheric Carbon Balance**
 Keynote Ilya GELFAND (Ben-Gurion University of the Negev, Israel)

12:00 - 12:15 **285** **Characterization of Organometallic Complexes in Podzolic Soils in Subalpine Forest Using Proximal Sensors**
 Video Yin-Chung HUANG (Department of Agricultural Chemistry, National Taiwan University, Taiwan)
 Cho-Ying HUANG, Zeng-Yei HSEU

12:15 - 12:30 **211** **A Novel Approach to Comprehend the Soil Property Based on Glomalin Protein Content by Thermogravimetry Coupled with Mass Spectrometry**
Sneha PATRA (Global Change Research Institute, Czech Academy of Sciences, Czech Republic)
 Vojtěch POLÁČEK, Josef ČÁSLAVSKÝ, Karel KLEM

12:30 - 12:45 **382** **Sampling Techniques Bias the Quantification of Bioavailable Soil Nitrogen during Litter Decomposition**
 Video Scott James BUCKLEY (Swedish University of Agricultural Sciences, Sweden)
 Richard BRACKIN, Susanne SCHMIDT



Daily Program

June 29 (Wednesday)

Co-hosted by  | 주케이아그로

11:30 - 13:00		Concurrent Session 8-2. SOM Modelling, Mapping & Tracing & Carbon Neutral & Negative Emission II	Venue: Vista Hall 2&3 (B2)
		Chair(s) Joann Karen WHALEN (McGill University, Canada) Sumin KIM (Dankook University, Korea, Republic of)	
11:30 - 11:45	154	Modification of the Rothc Model to Simulate the Effect of Conservation Tillage Using a Decision Tree Analysis and a Single-Objective Optimization <u>Jun Ge HYUN</u> (Department of Applied Environmental Science, Kyung Hee University, Korea, Republic of) Gayoung YOO	
11:45 - 12:00	284	Assessing Soil Carbon Change in the Lower Namoi Valley, Australia Using Mid-Infrared Spectroscopy and Digital Soil Mapping Techniques <u>Ho Jun JANG</u> (The University of Sydney, Australia) Mercedes ROMAN DOBARCO, Budiman MINASNY, Alex MCBRATNEY	
12:00 - 12:15	442	Moving Modelling Forward with Accessible Tools for On-Demand Model-Data Synthesis: The Predictive Ecosystem Analyzer (PEcAn) <u>Elizabeth COWDERY</u> (The James Hutton Institute, United Kingdom) David CAMERON, Pete SMITH, Matt AITKENHEAD, David DONNELLY, Jagadeesh YELURIPATI	
12:15 - 12:30	174	What are the Key Factors of Rhizodeposition? <u>Rainer REMUS</u> (Leibniz Centre for Agricultural Landscape Research (ZALF), Germany) Divya PANDEY, Dietmar LÜTTSCHWAGER	
12:30 - 12:45	391	Effects of Plastic Film Mulching on Soil Organic Carbon Stock and Greenhouse Gas Emission in Maize Cropping System <u>Ho Gyeong CHAE</u> (Division of Applied Life Science (BK21+ program), Gyeongsang National University, Korea, Republic of) Jeong Gu LEE, Ronley C. CANATOY, Pil Joo KIM	
12:45 - 13:00	350 Video	Changes in Carbon Dioxide Emissions and Soil Quality under Contrasting Temperatures in Several Andosols from México <u>Victor Manuel MONTOYA JASSO</u> (Posgrado en Edafología, Mexico) María Susana GARCÍA HERNÁNDEZ, Ana Patricia SÁNCHEZ MUÑOZ, José A. J. MÉNDEZ FOSADO, Gerardo Sergio BENEDICTO VALDÉS, Lizbeth Natali JESUS-DE CERON	

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11:30 - 13:00		Concurrent Session 8-3.	Venue: Grand Hall 4&5 (B1)
		Carbon Neutral & Negative Emission & Land Use & Climate Changes on SOM Dynamics I	
		Chair(s) Yong Bok LEE (Gyeongsang National University, Korea, Republic of) Kees Jan VAN GROENIGEN (University of Exeter, United Kingdom)	
11:30 - 11:45	340	The Missing Link: How Coordinated Soil Health Programs Can Successfully Mechanize Carbon Farming Initiatives on Agricultural Land, a US Perspective <u>Kirsten Rae BALL (Washington State University, United States of America)</u> Georgine Grace YORGEY, Karen HILLS	
11:45 - 12:00	215	Significant Reduction in NH₃ and Greenhouse Gas Emissions through a Combined Application of Organic and Inorganic Fertilizers in Upland Soils during Maize and Cabbage Cultivation: Two-Year Results <u>Yeomyeong LEE (Department of Agricultural Chemistry & Interdisciplinary Program in IT-Bio Convergence System, Sunchon National University, Korea, Republic of)</u> Hyerin AN, Sohee YOON, Suyong PARK, Juhee LEE, Sang Yoon KIM	
12:00 - 12:15	301	How Does Soil Water Status Influence the Fate of Soil Organic Matter? A Review of Processes across Scales <u>Charlotte VEDERE (National Institute for Agricultural Research, Ecosys Soil, UMR INRAE-AgroParisTech, France)</u> Manhattan LEBRUN, Nicolas HONVAULT, Marie-Liesse AUBERTIN, Cyril GIRARDIN, Patricia GARNIER, Marie-France DIGNAC, David HOUBEN, Cornelia RUMPEL	
12:15 - 12:30	320	Evaluating Soil Carbon Sequestration Rates of Alternative Management Practices in the Netherlands <u>Jonas SCHEPENS (Louis Bolk Institute, Netherlands, The)</u> Bart TIMMERMANS, Chris KOOPMANS	
12:30 - 12:45	210	Effect of Varying Levels of Two Biochars on Soil C Cycling, Nutrient Availability and Extracellular Enzyme Activity in an Organic-Matter-Poor Calcareous Soil <u>Tanvir SHAHZAD (Government College University Faisalabad, Pakistan)</u> Afzal AHMED, Muhammad SANAULLAH	
12:45 - 13:00	237	Fostering Soil Carbon Sequestration in Agricultural Soils That Contributes to Climate Change Mitigation: A Roadmap for European Soil Research <u>Claire CHENU (INRAE, France)</u> Saskia KEESSTRA, Peter KUIKMAN, Lars MUNKHOLM, Sophie CORNU, Sophie ZECHMEISTER, Saskia VISSER	
13:00 - 14:00		Lunch & Exhibition	Location: Vista Hall Foyer (B2)



Daily Program

June 29 (Wednesday)

14:00 - 15:00	Plenary Session 5	Venue: Vista Hall 1 (B2)
Chair(s) Elise PENDALL (Western Sydney University, Australia)		

- 14:00 - 15:00 **312** **Physical, Chemical and Biological Strategies to Enhance Carbon Storage in Subsoils**
Davey JONES (Bangor University, United Kingdom)

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15:00 - 15:30	Poster Session 3 (with Coffee Break)	Venue: Grand Hall 2&3 (B1)
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15:30 - 17:30	Concurrent Session 9-1. Links between SOM & Nutrient Cycling II	Venue: Vista Hall 1 (B2)
Chair(s) Davey JONES (Bangor University, United Kingdom) Jong-Rok JEON (Gyeongsang National University, Korea, Republic of)		

- 15:30 - 16:00 **278** **Smart Fertilizer Developments Using Natural Organic Matters**
Keynote Jong-Rok JEON (Gyeongsang National University, Korea, Republic of)

- 16:00 - 16:15 **249** **Variations on CO₂ Emission under Contrasting Moisture from a Calcareous Soil of Comarca Lagunera, Mexico**
Video Santos MARTINEZ-SANTIAGO (Edafologia, Colegio de Postgraduados, Mexico)
 Gerardo Sergio BENEDICTO-VALDES, Armando LOPEZ-SANTOS, Hilda Victoria SILVA-ROJAS, Enrique OJEDA-TREJO, Elsa Marcela RAMIREZ-LOPEZ, Julian DELGADILLO-MARTINEZ, Lizbeth Natali JESUS-DE CERON

- 16:15 - 16:30 **385** **Soil Carbon Sequestration from Organic Inputs Depends on Microbial Catabolic and Anabolic Tradeoffs**
Video Yu LUO (Zhejiang University, China, People's Republic of)

- 16:30 - 16:45 **455** **Soil Management Effects on Soil Organic Matter Properties and Carbon Sequestration (SOMPACS)**
Jerzy WEBER (Wroclaw University of Environmental and Life Sciences, Poland)
 Peter LEINWEBER, Yakov KUZYAKOV, Edyta HEWELKE, Magdalena FRAC, Lilla MIELNIK, Michael HAYES, Urszula NORTON, Riccardo SPACCINI, Vaclovas BOGUZAS, Maria JERZYKIEWICZ, Andy GREGORY

- 16:45 - 17:00 **139** **Carbon Storage Potential in the Topsoil and Subsoil of Temperate Cropland-Grassland Agroecosystems**
Thomas GUILLAUME (Field-crop Systems and Plant Nutrition, Agroscope, Switzerland)
 David MAKOWSKI, Said ELFOUKI, Luca BRAGAZZA, Zamir LIBOHOVA, Sokrat SINAJ



June 29 (Wednesday)

Daily Program

17:00 - 17:15 **343** **Soil Organic Carbon Change in Upland Soil Incorporated with Different Green Manure**
Sung Un KIM (Pusan National University, Korea, Republic of)
 Chang Oh HONG

17:15 - 17:30 **404** **Impact of Wool Pellet Fertilizer on Mongolian Gobi Soil**
Javkhlantuya ALTANSUVD (Mongolian Life Science of University, Mongolia)
 Orkhontuya PUNTSAG, Oyunchimeg EEQUUZEL

15:30 - 17:30	Concurrent Session 9-2. Land Use & Climate Changes on SOM Dynamics	Venue: Vista Hall 2&3 (B2)
Chair(s) Dong Cheol SEO (Gyeongsang National University, Korea, Republic of) Cornelia RUMPEL (CNRS, France)		

15:30 - 16:00 **238** **Rusty Sink Mechanisms of Carbon Trap by Iron Plaque: Imaging of Rhizosphere Processes and Global Implications**
Keynote
Video Tida GE (Ningbo University, China, People's Republic of)

16:00 - 16:15 **218** **Evidence from a 36-Year Field Experiment Reveals the Importance of Labile C Fractions and Fertilizer Quality for Total Organic C Sequestration**
Marius MAYER (Research Institute of Organic Agriculture FiBL, Switzerland)
 Hans-Martin KRAUSE, Andreas FLIESSBACH, Paul MÄDER, Markus STEFFENS

16:15 - 16:30 **445** **Modelling of GHG Emissions due to Artificial Drainage in Peatlands**
Matthias MIMAUULT (The James Hutton Institute, United Kingdom)
 Jagadeesh YELURIPATI

16:30 - 16:45 **292** **Root Distribution and Traits According to Depth in a Sub-Saharan Agroforestry System and Potential Impact on Soil C Stocks**
Lorène SIEGWART (UMR Eco&Sols, Univ Montpellier, CIRAD, INRAE, IRD, Institut Agro Montpellier SupAgro, France)
 Isabelle BETRAND, Christophe JOURDAN

16:45 - 17:00 **446** **How the Crop Residue Management Alter the Carbon Emissions and Soil Health?**
Muhammad SANAULLAH (University of Agriculture, Pakistan)
 Tahseen AFZAL, Tanvir SHAHZAD

17:00 - 17:15 **191** **Soil Nitrogen Pools and Processes under Various Vegetation Types in Adventdalen, Svalbard, as Indicated by Natural ¹⁵N Abundance**
You Jin KIM (Korea Polar Research Institute, Korea, Republic of)
 Sungjin NAM, Woojung CHOI, Sujeong JEONG, Yoo Kyung LEE, Ji Young JUNG

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Daily Program

June 29 (Wednesday)

June 30 (Thursday)

15:30 - 17:30 **Concurrent Session 9-3.** Carbon Neutral & Negative Emission & Land Use & Climate Changes on SOM Dynamics II (*Video Presentations Only*) **Venue: Grand Hall 4&5 (B1)**

15:30 - 15:45 **144** **Soil Carbon Sequestration Determination and Molecular Characteristics Evaluation of the Soil Organic Matter from Tropical Agroforestry Systems**

Video

Ladislau MARTIN-NETO (Embrapa Instrumentação, São Carlos, Brazil)

Amanda M. TADINI, Alberto C. C. BERNARDI, Aleksandar GORANOV, Débora M. B. P. MILORI, Patricia P. A. OLIVEIRA, Jose Roberto PEZZOPANE, Patrick HATCHER

15:45 - 16:00 **246** **Organic C, Moisture, and Microbial Activities in Humic Soils under Green Relative to Pre-Harvest Burning**

Video

Nontokozi MKHONZA (University of Kwa-Zulu Natal, South Africa)

16:00 - 16:15 **267** **Optimization of Vermicompost Rates on Net Global Warming Potential and Net Carbon Budget under Rice-Rice System**

Video

Md Mozammel HAQUE (Bangladesh Rice Research Institute, Bangladesh, People's Republic of)

Jatish Chandra BISWAS, Md Rafiqul ISLAM

16:15 - 16:30 **373** **A Chronosequence Study of the Spectroscopic Characteristics of Humic Substances Isolated from Restored Coal Mine Spoil**

Video

Preeti SINGH (ICAR-IARI / Institute of Agricultural Sciences, Banaras Hindu University, India)

Amlan KUMAR GHOSH, Santosh KUMAR

16:30 - 16:45 **410** **Natural Summer Fire Changes Soil Organic Matter Dynamics in Silvopasture Systems of Semi-arid India**

Video

Avijit GHOSH (Indian Grassland and Fodder Research Institute, India)

Amit K SINGH, Bappa DAS, R V KUMAR, Sunil KUMAR, A K ROY

17:30 - 18:00 **Closing Ceremony** **Venue: Vista Hall 1 (B2)**

08:00 - 18:00 **Field Tour (Ticket Sales)**

Only those who have made a reservation in advance can participate.
On-site reservations are not possible.

SOM 2022



Poster Session 1

Venue: Grand Hall 2&3 (B1)

- Board No. 001 **115** **Temperatural Sensitivity of Antarctic Soil-Humic Substance to Microbial Decomposition during Microcosm Incubation**
Dockyu KIM (Korea Polar Research Institute, Korea, Republic of)
 Mincheol KIM, Seulah LEE, Soon Gyu HONG, Eungbin KIM, Hyoungseok LEE
- Board No. 002 **121** **Carbon Sequestration of Forest Soils in the Context of Changes in Climate and Physicochemical Soil Indicators**
Katalin JUHOS (Department of Agro-Environmental Studies, Hungarian University of Agriculture and Life Sciences, Hungary)
 Áron BÉNI, Zsolt KOTROCZÓ, István FEKETE
- Board No. 003 **185** **Fostering SOC Sequestration in Pastures through Organic Amendments Management to Ensure an Optimal Yield and Soil Quality in Andisols**
Patricia POBLETE-GRANT (Center of Plant, Soil Interaction and Natural Resources Biotechnology, Scientific and Biotechnological Bioresource Nucleous (BIOREN-UFRO), Universidad de La Frontera / Departamento de Ciencias Químicas y Recursos Naturales, Facultad de Ingeniería y Ciencias, Universidad de La Frontera, Chile)
 Leyla PARRA-ALMUNA, Sofia PONTIGO, María de La Luz MORA, Cornelia RUMPEL, Paula CARTES
- Board No. 004 **187** **Climate-Induced Shifts in Composition and Protection Regulate Temperature Sensitivity of Carbon Decomposition through Soil Profile**
Xiali MAO (Zhejiang University, China, People's Republic of)
 Jinyang ZHENG, Wu YU, Xiaowei GUO, Kang XU, Ruiying ZHAO, LiuJun XIAO, Mingming WANG, Yefeng JIANG, Shuai ZHANG, Lun LUO, Jinfeng CHANG, Zhou SHI, Zhongkui LUO
- Board No. 005 **196** **Whole Soil Warming Respiration under Contrasting Grassland Management in a Temperate Region**
Md. Zulfikar KHAN (French National Institute for Agriculture, Food, and Environment (INRAE), France)
 Abad CHABBI, Cornelia RUMPEL
- Board No. 006 **200** **Effect of Combined Fertilization of Compost and Inorganic Fertilizer on Soil Properties and the Yield of Sorghum×Sudangrass Hybrid in Saemangeum Reclaimed Tide Land, Korea**
Jin-Hee RYU (National Institute of Crop Science, RDA, Korea, Republic of)
 Yang-Yeol OH, Su-Hwan LEE, Kang-Ho JUNG
- Board No. 007 **235** **Functioning of Managed Sub-Tropical Peat Land as Evident by the Carbon Biogeochemical Cycle**
Rotem GOLAN (Agricultural Research Organization - Volcani Institute, Israel)
 Eyal WURGAFT
- Board No. 008 **271** **Variations in C, N, and Isotopes across a Precipitation Gradient of Mediterranean Grasslands**
Leila Maria WAHAB (University of California - Merced, United States of America)
 Asmeret BERHE
- Board No. 009 **332** **Carbon Dioxide Emissions as Affected by Land Use in Some Humic Soils of KwaZulu-Ntal, South Africa**
Ntwanano Moirah MALEPFANE (University of KwaZulu-Natal, South Africa)
 Pardon MUCHAONYERWA, Jeffery Charles HUGHES, Rebecca ZENGNI



List of Posters

June 27 (Monday)

Poster Session 1

Venue: Grand Hall 2&3 (B1)

- Board No. 010 **334** **Kenaf (*Hibiscus Cannabinus* L.) Growth Influenced by River Irrigation with Low Quality in Saemangeum Reclaimed Land**
Hee Kyoung OCK (National Institute of Crop Science, Korea, Republic of)
 Yang Yeol OH, Kang Ho JUNG
- Board No. 011 **335** **Effect of Long-Term Crop Rotation on Carbon Sequestration Rate in Winter Wheat Crops**
Lina SKINULIENE (Vytautas Magnus University, Lithuania)
 Vaclovas BOGUŽAS, Vaida STEPONAVIČIENĖ
- Board No. 012 **338** **Long-Term Effects of Litter Treatments on Soil Carbon Content**
István Csaba FEKETE (University of Nyíregyháza, Hungary)
 Katalin JUHOS, Marianna MAKÁDI, Zsolt KOTROCZÓ
- Board No. 013 **349** **Effect of Soil Carbon Saturation Degree on Global Warming Potential in Rice Paddy**
So Yeong PARK (Division of Applied Life Science (BK21 Four), Gyeongsang National University, Korea, Republic of)
 Hyeon Ji SONG, Pil Joo KIM
- Board No. 014 **358** **Drainage Effect of Water Drainage on Ferric Oxide's Functionality as an Electron Acceptor and Methane Emission**
Ji Su HA (Division of Applied Life Science, Gyeongsang National University, Korea, Republic of)
 Pil Joo KIM
- Board No. 015 **359** **Effect of Long-Term Land Management on In-Situ SOM Accumulation Characteristics in Andosols, Japan, by Using ¹³C/¹⁵N-Labeled Residue**
Hideaki YASUNO (Tokyo University of Agriculture and Technology, Japan)
 Soh SUGIHARA, Haruo TANAKA
- Board No. 016 **365** **Agricultural Soil Organic Carbon Stock Changes in Korea**
Seong-Jin PARK (National Institute of Agricultural Sciences, RDA, Korea, Republic of)
 Emmanuel AMOAKWAH, Jae-Hong SHIM, Seong-Heon KIM, Yun-Hae LEE, Soon-Ik KWON
- Board No. 017 **379** **Evaluation of the Adsorption Characteristics and Mechanisms of Phosphate by Egg Biochar Derived from Eggshell**
Ah Young CHOI (Division of Applied Life Science, Gyeongsang National University, Korea, Republic of)
 Su Lim LEE, Jae Hoon LEE, Jun Suk RHO, Su Bin SHIN, Jong Hwan PARK, Dong Cheol SEO
- Board No. 018 **381** **Variability of Soil Organic Carbon in Relation to Soil Properties in Korean Forest Soils**
Nam Jin NOH (Kangwon National University, Korea, Republic of)
 Min Seok CHO, Seung Hyun HAN, Yowhan SON, Elise PENDALL



Poster Session 1

Venue: Grand Hall 2&3 (B1)

- Board No. 019 **406** **Monitoring on Agricultural Water Quality in Chungnam Region**
So Hye CHOI (Chungcheongnam-do Agricultural Research and Extension Service, Korea, Republic of)
 Yeo Uk YUN, Jang Yong CHOI, Jin Il LEE, Sam KANG, Min Kyeong KIM
- Board No. 020 **436** **Effects of Temperature and Freeze-Thaw Cycle on the Sorption of Polycyclic Aromatic Hydrocarbons on Soil Organic Matter in Unsaturated Soil**
Pil-Gon KIM (Korea University, Korea, Republic of)
 Jung-Hwan KWON
- Board No. 021 **443** **Changes in Carbon Stock of Agricultural Soil and Soil Management**
Jung-Hwan YOON (Kangwon National University, Korea, Republic of)
 Seok Soon JEONG, Sang Phil LEE, Hyuck Soo KIM, Myung-suk KIM, Jae E. YANG
- Board No. 022 **463** **Sorption of Organic Contaminants to Stable Organic Matter Fraction in Soils**
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- Board No. 026 **234** **Effect of Green Manure Crops on Soil Conditions**
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- Board No. 030 **261** **Changes in Chemical Properties of Representative Soil in Gyeonggi Province**
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- Board No. 031 **266** **Establishment of Fertilization Standards Based on Soil Testing of Perilla Field as a Minor Crop**
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- Board No. 032 **273** **A Study on Estimating Soil Organic Matter Content Using Soil Color Meter SPAD 5-3 and Soil Organic Color Chart**
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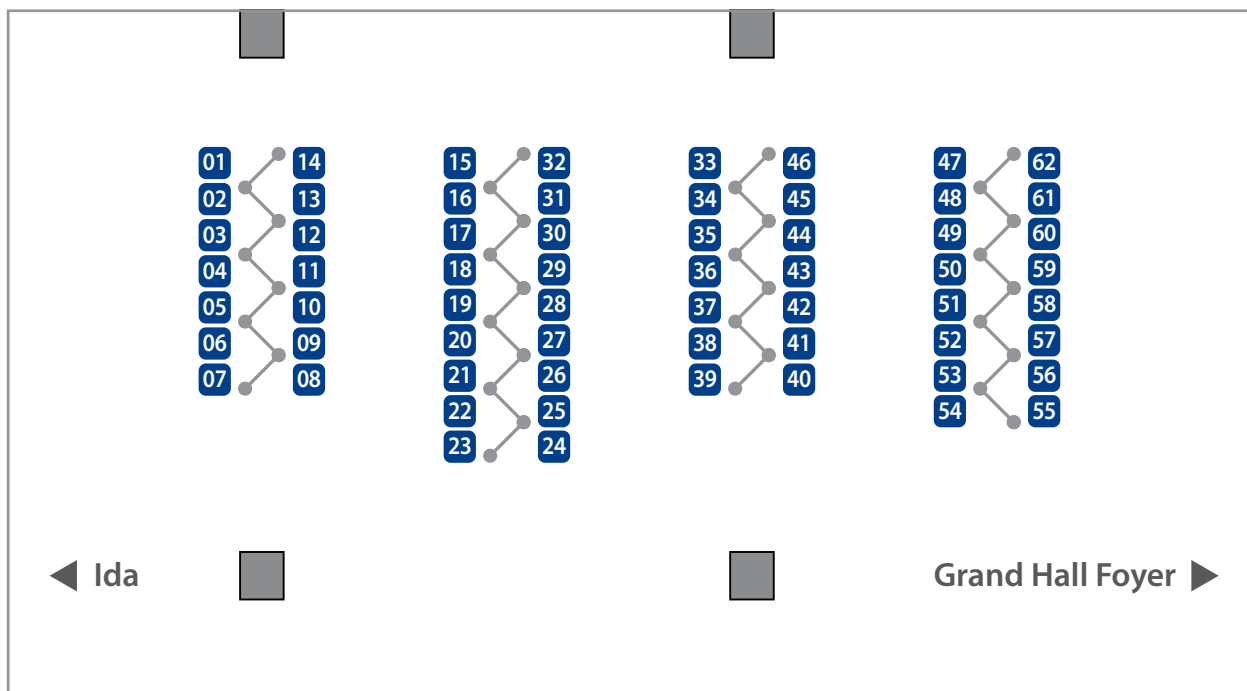
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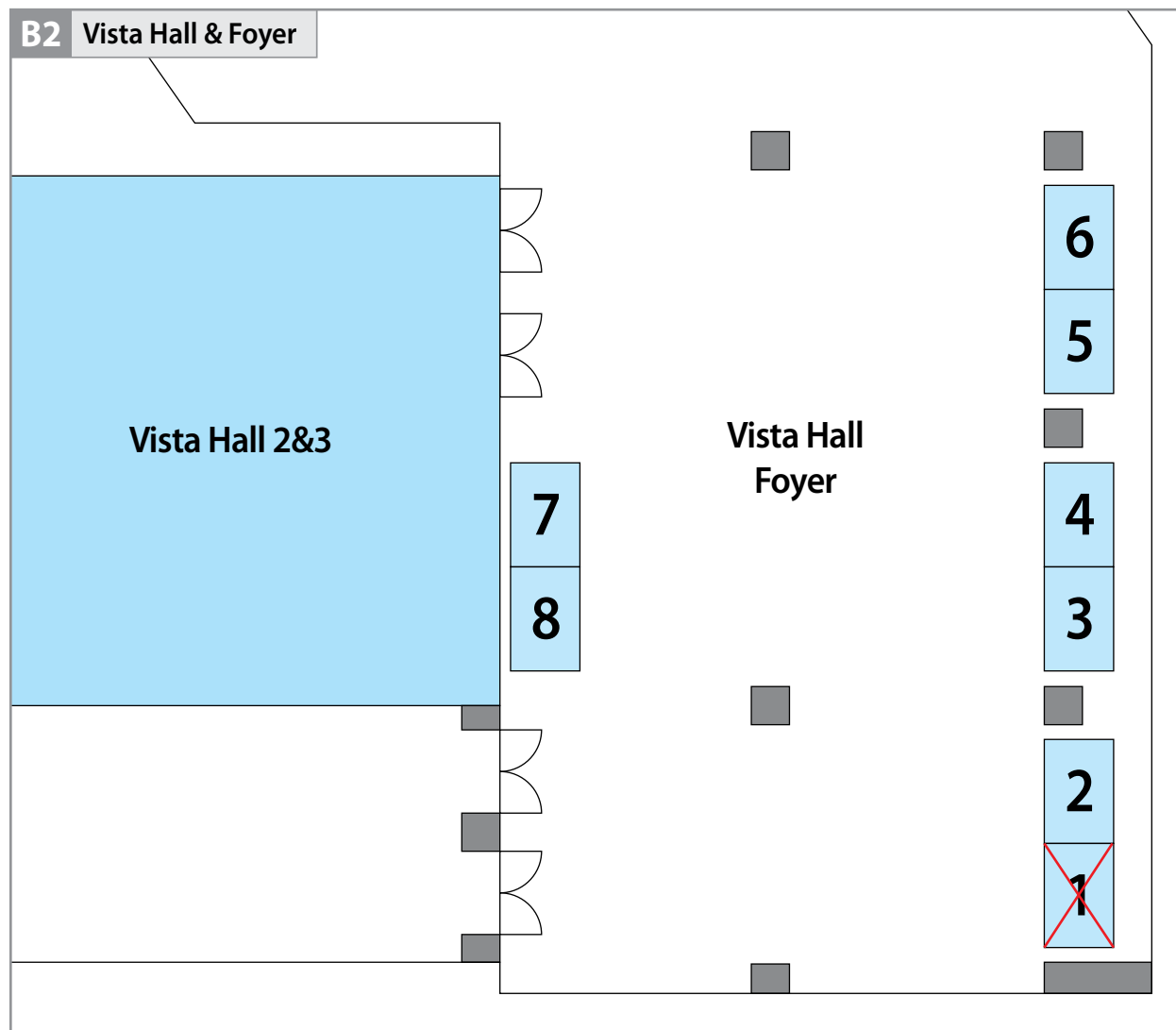


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Detection limit in the ppm range.

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Manufacturing Fields

- Heat Pump Chiller
- Constant Temperature And Humidity Air Conditioner
- **Constant temperature humidity Chamber**
- Plant Factory (Smart Farm)
 - **Convergence Four Seasons Greenhouse**
(Nutrient solution control, environment control, machine control)
- **Growth Chamber**
- Circulation Filtration System



Constant temperature humidity Chamber



Four Seasons Smart Farm Controller



Growth Chamber



Convergence Four Seasons Greenhouse



Dreaming affluent life with
the harmony of humans and nature,
KOREA HYEOP HWA for 50 years.



Soil conditioner
250,000 ton / year



Organic fertilizer
50,000 ton / year



Inorganic fertilizer
200,000 ton / year



**Order production
compound (B.B)
fertilizer**
270,000 ton / year

Overseas sales network

15,000 ton is exported to 12 countries. (Japan, China, Myanmar, Vietnam, Malaysia, Cambodia)

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SOM 2022

8th International Symposium on Soil Organic Matter

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June 26 (Sun) - 30 (Thu), 2022
Grand Walkerhill Seoul · Seoul, Korea







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