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## Imprint

Conference Programme

BONARES Conference 2018 - Soil as a Sustainable Resource

Berlin, 26-28 February 2018

BonaRes Centre for Soil Research c/o Helmholtz Centre for Environmental Research - UFZ

Layout and typesetting: UFZ & F&U confirm, Leipzig

Print: DDF Digitaldruckfabrik, Leipzig

We would like to welcome you at the BONARES Conference 2018: “Soil as a Sustainable Resource” in Berlin.

The conference brings together researchers from all disciplines of soil science to discuss functionality of soil ecosystems and how to develop strategies towards sustainable soil management. A sustainable bioeconomy requires integration of soil productivity and a wide range of other soil functions including nutrient cycling, carbon storage, water retention and filtering as well as being habitat of a myriad of organisms and their activities. For sustainable soil management, we need to understand soils at a systemic level and to assess their value in a socio-economic framework.

We are looking forward to inspiring discussions about soil science in the light of sustainable soil management.

Cordially,  
The BONARES 2018 organisers

# General Information

## Registration Desk

If you require any assistance throughout the conference please see Susanne Lange, Christiane Wolf and/or Lena Roos at the registration desk in the Atrium. The registration desk is open as follows:

Monday, 26<sup>th</sup> February, 9:00 - 18:30

Tuesday, 27<sup>th</sup> February, 8:00 - 18:00

Wednesday, 28<sup>th</sup> February, 8:00 - 15:30

The conference notice board is placed at the registration desk. It is used to display conference information, programme changes, announcements and messages. Please check the board regularly.

Contact phone numbers during conference: +49(0)176 200 74 216 / +49(0)163 62 49 571

Please note that luggage storage is available at the hotel reception on Monday and Tuesday. On Wednesday please use room MOA 1.

## Name Badges

Please wear your name badge all the time.

## Cell Phones

Please ensure that cell phones and /or pagers are turned off or switched to silent during all presentations.

## Refreshment Breaks

Coffee breaks and lunches will be served at the Atrium. If you have informed us of your special dietary requirements, please ask caterers for personalized meals.

## WI-FI Access

Please choose one of the following networks "m3connect" or "mercure".

Open the internet browser if it does not work automatically.

Please confirm the general terms and conditions and log in.

## Presentations

For regular presentations (except plenary and keynotes lectures) the allocated time for the speaking slot is 15 min including discussion. We emphasise the importance of starting and finishing on time – for parallel sessions to stay synchronised. Session chairs were instructed to ensure you do not exceed your allocated time (yellow card – "time to wrap up" and red card – "time is up"). Presenters are asked to sit in the front for a fast changeover of speakers.

Please arrive at your session room at least 10 minutes before starting time and check your presentation runs correctly. All presentations must be MS PowerPoint files (2007 or 2010) or PDFs, please bring the file on a memory stick with the presenters name in file name. We suggest bringing a backup copy of your presentation files on a second memory stick in case of data corruption or other unexpected IT difficulties.

Mac users should test the compatibility of their presentations on Windows beforehand.

## Poster Organisation

There are two poster sessions: Monday 26<sup>th</sup> 15:00 – 16:30 / Tuesday 27<sup>th</sup> 13:00 – 14:30.

Presenters should mount their poster before Monday 26<sup>th</sup> September, 12.00am to their respective board identified in the conference programme. Poster format is A0, portrait. Posters are to be displayed during the complete conference and must be removed immediately at the end of the conference. Materials to fix posters to boards are provided by technical staff or can be collected at the registration desk. Posters are organized by numbers (see poster list). We ask authors to stay at their posters during the assigned poster sessions.

The poster presentations are not in conflict with any other conference activities. All attendees can actively participate and network.



## Harnessing ecological knowledge for the sustainable management of soils

**Richard Bardgett**

(School of Earth and Environmental Sciences, University of Manchester)

Soils are at the heart of many of the major challenges that face our planet, including the provision of food, climate mitigation, water security, and conservation of biodiversity. However, they are also under threat, especially intensive land use and climate change, which in many places are causing extensive soil degradation and limiting soils capacity to deliver ecosystem services. This degradation has led to increasing calls to halt soil degradation, but also to devise sustainable ways of managing soils in order to use resources, such as nutrients and water, more efficiently, and increase the resilience of key soil functions to future environmental change. There are many facets to these challenges, but what I want to focus on in this talk is how recent advances in plant and soil ecological research might contribute to the challenge of sustainable management of soils at local and regional scales. In particular, I will consider recent developments in our understating of how: (a) the functioning of soils is influenced by interactions between plants, their roots, and highly complex soil microbial communities, and (b) how these biotic interactions can promote properties key to soil health, such as carbon sequestration, nutrient retention, stable aggregate formation, and resilience of soil functions to climate extremes. I will also consider some of the hurdles and

constraints that need to be overcome to reap the benefits of such ecological knowledge, including improved understanding of potential trade offs in soil functions and ecosystem services that result from management for different land use objectives.

## Early Career Student Oral Presentation and Poster Awards

At the conference, we will present BonaRes Early Career Student Oral Presentation and Poster Awards. There will be one award for the best oral presentation and a second award for the best poster presentation. Eligible are:

1. first authors who personally present an oral or poster presentation at the conference;
2. current undergraduate (e.g., BSc), postgraduate (e.g., MSc) students, or PhD candidates.

# Topics & Keynote Speakers

## Topic 1: Impact of agriculture and cropping systems on soil functions and ecosystem services

Agricultural soils are increasingly under pressure due to the event increasing demands of crop production for food and bioenergy. It is a formidable challenge to maintain or even increase the productivity of soils and, at the same time, to preserve all other basic soil functions beyond plant production. These soil functions are in the same way indispensable for the functioning of terrestrial ecosystems: reactor for nutrient cycling, filter and buffer for water, storage of carbon and habitat for an overwhelming biodiversity. They emerge from complex interactions between physical, chemical and biological processes in soil. Because of their complex nature, there are no simple and direct means to quantify soil functions as required for any scientific analysis. Instead, a systemic perspective is required to evaluate the impact of agricultural systems on soil functions.

The intention of this session is threefold. We seek contributions which (i) broaden and advance our perspective on soil functions, (ii) enhance our current process understanding of how soil management practices impact one or more of the basic soil functions, and (iii) show how to quantify soil functions based on suitable proxies or indicators.

**Marcel von der Heijden (Agroscope, Zurich):**

*How to manage our land? Soil multifunctionality in an agricultural context*

**Christopher Collins (University of Reading):**

*The UK Soil Security Programme – Responses of the soil system to change*



## Topic 2: Effects of plant - microbe - fauna interactions on soil functions

Soil biota can be considered as the architects of soil quality and health. The functional traits provided are unique and drive important ecosystem services including plant development, degradation of xenobiotics, carbon sequestration and protection from erosion. However, selected soil biota also act as plant pathogens and induce the formation of climate relevant trace gases like methane and N<sub>2</sub>O. Thus it is important to understand how agricultural management as well as site-specific conditions trigger the structure and function of the soil biome. However, due to the enormous diversity of biota in soil, only recent methodological developments have made an assessment of the soil biome possible.

This session invites contributions related to (i) understanding interaction patterns between plants and biomes under different agricultural management, (ii) defining strategies to overcome imbalances in the soil biome, causing increased levels of plant diseases, (iii) unraveling plant responses on the genetic and physiological level to soils with imbalances in the soil biome (such as replant soils, diseased soils...), (iv) understanding drivers for organismic interactions of different trophic levels.

**Mark Mazzola (USDA):**

*Mobilizing the rhizosphere microbiome to enhance orchard system resilience*



## Topic 3: Nutrient and carbon dynamics within the root zone as affected by soil management

Soil management, e.g. the major form of land use (forest, grassland, arable), the intensity of soil management (e.g. fertilizer and pesticide applications; frequency of cropping and harvests etc.) and detailed management measures (e.g. crop rotations, tillage, fertilization and manuring) all affect the transformations of organic matter and nutrients in soil. Therefore, soil management also affects the economic and environmental soil functions, which are related to nutrient and organic matter turnover. The root zone is a hot spot of these transformations and biogeochemical processes, because of the close and intensive interactions of plants, microbes and reactive soil surfaces. This session invites contributions to a better understanding of these interlinked processes in soils that are differently managed. Therefore, studies based on investigations of long-term experiments, climate change studies, and on interdisciplinary approaches are especially welcome. In particular, studies demonstrating the knowledge gains by applications of advanced molecular-biological approaches and chemical-analytical techniques, imaging techniques, rhizosphere microsensors, as well as stable isotope applications to rhizosphere-related transformation processes are expected in this session. The outcome of the session contributions shall stimulate new approaches to a better soil management under current and/or future climatic conditions by improved understanding of benefits and limitations arising from various management options.

**Philippe Hinsinger (INRA Montpellier):**

*Nutrient and carbon dynamics in agroecosystems from a rhizosphere biogeochemistry perspective*



# Topics & Keynote Speakers



## Topic 4: Soil structure and water dynamics as affected by soil management

Soil structure, that is the spatial organization of pores and solid material in soil, is of fundamental importance for many soil functions. It determines the dynamic distribution of water and gas, the soil's accessibility for roots, and it forms the habitat of the huge diversity of soil biota. Soil structure is heavily affected by agricultural soil management. This is obvious for traffic loads and tillage practices. It is also true for crop rotations since different plants have different capacities for soil structure formation especially below the upper tilled layer. This session invites contributions related to i) structure formation by tillage and plants, ii) relation of soil structure to soil functions (water dynamics, root growth, biological activity, nutrient and carbon dynamics) and iii) methodological tools to quantify soil structural properties as potential indicators for soil functions.

**Iain Young (University of Sydney):**

*Plant roots redesign the rhizosphere to alter water dynamics*

**Paul Hallett (University of Aberdeen):**

*Plant exudates as a driver of soil physical behaviour*

## Topic 5: New sensing technologies, soil monitoring approaches and related decision support systems for sustainable soil management

Effective management of arable soils usually takes place at the field scale. The farmer is directly working with the soil while he is influenced by agronomic extensionists, consultants, machine manufacturers and socio-economic conditions. Wrong management decisions can deteriorate soil fertility, e.g. by soil compaction and over-fertilization. To take and apply appropriate measures, farmers and their advisors need information about relevant soil properties. However, facing the spatio-temporal in-field variability of soils, classical methods of soil assessment, based on soil sampling and laboratory analysis, are often too costly and time-consuming to provide effective information for practical decision making in modern agriculture.

In-situ sensing technologies, which provide timely information with high resolution and at low cost, will play a central role in assessing the soil condition for future farming. These sensing technologies include e.g. machine mounted sensors, sensor platforms or single hand sensors which detect different soil and plant parameters. In combination, sensing technologies and soil monitoring approaches give a hint about the spatial and temporal variability at field or regional scale. This approach, however, will create a huge amount of data that needs to be managed and evaluated. Thus, sensing technologies and soil monitoring approaches cannot be thought without reliable decision support systems which transfer data into knowledge. These decision support systems should cope with new sensor based data, which includes automatic screening, compression and calibration. They should include dynamic soil and crop models and they should operate in real- or near-real-time. The combination of sensors, models and decision support systems could help the farmers to apply soil conserving measures and new management techniques as well as to optimize machine parameters or tillage and fertilizer application.

We seek contributions on soil fertility management at the field scale by (i) new proximal soil and machine sensing technologies related to physical, chemical, biological parameters of soil fertility; (ii) mathematical methods for interpreting sensor data (calibration, data fusion); (iii) new methods of soil monitoring approaches e.g. monitoring of soil parameters, soil stresses or plant development. (iv) spatio-temporally resolved soil and crop models that make use of data from modern sensors; (v) decision support systems that include data from new sensor systems (off-line or real-time decision on, e.g., fertilization, tillage, trafficking, machine adjustment).



**Cornelia Weltzin (ATB Potsdam):**

*Agriculture 4.0 and new technologies for measuring and monitoring soil attributes*

**Peter Weiskopf (Agroscope Switzerland), (Co-authors: Matthias Stettler, Thomas Keller):**

*Integrated soil structure management – a smart key to sustainable farming*

# Topics & Keynote Speakers

## Topic 6: Assessment and governance for sustainable soil management

The role of soil functions for achieving Sustainable Development Goals is multifarious. The productivity function is essential for food and biomass provision in support of food security (SDG 2) and energy security (SDG 7), soil carbon sequestration is paramount for climate action (SDG 13), and water purification and retention, nutrient and matter cycling, and the habitat function are essential for maintaining ecosystem services (SDG 15). While these soil functions emerge from interactive soil processes, it is the soil management that determines the functional performances of soils relative to their geo-biophysical potentials. The key for sustainable soil management is to stimulate soil processes such that trade-offs between functions are minimized and their performances and synergies are optimized. In addition to improved soil process knowledge this requires profound interdisciplinary methods built upon systemic perspectives for the assessment and governance of sustainable soil management. What are the impacts of soil management practices on sustainability targets in specific geophysical and socio-economic contexts? What methodological approaches, indicators and metrics are suitable to assess, inter alia, resource efficiencies, ecosystem services, cost-benefit-ratios and risks to human health? What are the opportunities and risks of current and future soil management technologies with regards to sustainability targets? How can different spatio-temporal settings and spill-over effects be addressed? How can institutions and governance instruments be improved to enable decision makers to take action on sustainable soil management? How can soil management impacts be valued in light of varying normative perspectives and ethical concepts? What roles do stakeholders and their perceptions play for impact valuing of soil management decision making?

This session welcomes contributions dealing with methodological improvements and applications for impact assessment and governance of soil management systems from the perspective of sustainable developments. Thematic contributions may include: Farmers perceptions on soil management, metrics and indicators for assessing resource efficiency of soil management, relation between soil functions and ecosystem services, ethical considerations of sustainable soil management, institutional issues, governance instruments and policy analysis. The session is connected to a special issue under the same topic in the journal Sustainability (MDPI). Contributors are highly welcomed to submit a manuscript to this special issue with the deadline 31. March 2018.

**Gudrun Schwilch (CDE Bern):**

*Sustainable soil management through a transdisciplinary assessment and valuation of ecosystem services*



## Topic 7. Linking data and models in soil science – Towards efficient workflows for data-model integration

Soil models, especially those operating at larger scales, require a large amount of information from different sources. Compiling this information for modeling purposes often is the most tedious task within the workflow. Consequently, the soil modeling community calls for “standardized and harmonized data” for a more efficient data-model integration. At the same time, there are several national and international initiatives operating soil and related data repositories for different purposes, most of them aiming to make the data available in a standardized and harmonized form. These initiatives often look for use cases identifying the key data needs and requirements of the user community.

This session aims to bring together scientists from both, the data and the modeling communities to inform each other about the existing opportunities and demands and to discuss possibilities to establish workflows for an efficient data-model integration. We welcome presentations that i) present existing data bases and initiatives, ii) explain existing efforts for data collection, standardization and harmonization within their field of research or standardization bodies, iii) show opportunities for interlinkage of different data bases, like linked open data, iv) show existing demand from the modeler’s perspective (potential use cases) and v) present examples for a successful data-model integration.

**Marta Dondini (University of Aberdeen):**

*Data for models or models for data? A reciprocal connection for predicting the fate of our soils*

**Niels Batjes (ISRIC, Wageningen):** *Towards efficient workflows for data standardisation and model integration: the ISRIC approach for generating open soil data*





## Science meets Practice – Knowledge needs to implement a sustainable bioeconomy

Tuesday- Feb 27<sup>th</sup>, 2018: 15:00 – 17:00

How does scientific research support decision making in practice? The theme of the BonaRes 2018 conference is **“Breaking new ground for sustainable management of soil functions along the frontiers of soil ecosystem research”**. Such groundbreaking requires science based evidence in as much as action by practitioners in farming, policy and planning. The ambition of the research programme “BonaRes - Soil as a sustainable resource for the Bioeconomy” is to essentially expand and provide the required knowledge about the functionality of soils, and to formulate reliable options for action.

The BonaRes Conference brings together researchers from various disciplines of soil science. They share latest research on the functionality of soil ecosystems and the assessment and governance of soil management options. But what does this actually mean for farmers, industry, regulation and policy makers? What are the knowledge demands from policy and practice perspectives? How can knowledge supply and knowledge demand best be aligned?

In this **“Science meets Practice”** special session, scientists engage in a dialogue with distinguished representatives of target users of scientific research: entrepreneurs on smart and digital farming, administrators on soil status and soil monitoring and policy makers in the soils and sustainable development arena.

The facilitated discussions will introduce the knowledge requirements and demands of the different user groups to develop strategies towards soil management in a sustainable bioeconomy. As scientist, you will meet the stakeholders of your research. They will meet on stage renowned scientists to address questions such as:

- Which knowledge is needed to foster ground breaking progress?
- How to channel scientific contributions into practice for sustainable soil management?
- Which soil processes or services are most relevant for stakeholders in specific contexts?

All conference participants are invited to get engaged in the discussion. Already before the session, everybody can note a comment or question to be picked in the discussion by the moderators.

### Session outline

- Perspectives from Practice (10 minute talks)
  - o Martin Schneider | Agricon: Smart and digital farming – the future of farming
  - o Rainer Baritz | European Environment Agency (EEA): Soils and SDGs – What knowledge is needed for policy making?
  - o Frank Glante | German Environment Agency (UBA): Soil monitoring and soil status – what do regulators need to know about soils?
- Perspectives from Science (5 minute pitches)
  - o Kate Scow | University of Davis
  - o Robin Gebbers | Leibniz Institute for Agricultural Engineering and Sustainability
  - o Gudrun Schwilch | Centre for Development & Environment, University Bern
  - o Nicolas Brüggemann | FZ Jülich
- Open dialogue
  - o In the panel discussion, the perspectives from Practice and Science meet to discuss together and engage with the audience.
  - o Moderators – Katharina Helming | ZALF and Stephan Bartke | UFZ – facilitate the dialogue by picking up collated comments from the conference participants.



# Programme at a glance

<b>MONDAY 26 February 2018</b>			
Registration - <i>Atrium</i>			09:00
<b>MOA 5</b>	<b>MOA 4</b>	<b>MOA 3</b>	
Welcome Address <i>MinR'in Andrea Noske (BMBF) &amp; Prof. Dr. Hans-Jörg Vogel (BonaRes Centre)</i>			10:45
Plenary by Prof. Richard Bardgett   University of Manchester, UK			11:00
Lunch Break, Posters - <i>Atrium</i>			12:00
<b>1.1 Sustainable use of agricultural systems</b>	<b>2.1 Soil biomes and plant health</b>	<b>5.1 Sensor based soil mapping, modelling and management I</b>	13:00
Coffee Break, Posters - <i>Atrium</i>			14:30
Poster Session – <i>Atrium</i> Topic 1: Impact of agriculture and cropping systems on soil functions and ecosystem services Topic 2: Effects of plant – microbe – fauna interactions on soil function Topic 5: New sensing technologies, soil monitoring approaches and related decision support systems for sustainable soil management			15:00
<b>1.2 Indicators of soil functions</b>	<b>2.2 Soil biomes and nutrient turnover</b>	<b>5.2 Sensor based soil mapping, modelling and management II</b>	16:30
<b>TUESDAY 27 February 2018</b>			
Registration - <i>Atrium</i>			08:00
<b>1.3 Modeling and mapping of soil functions</b>	<b>2.3 Plant-soil interactions</b>	<b>5.3 Sensor based soil mapping, modelling and management III</b>	08:30
Coffee Break, Posters - <i>Atrium</i>			10:00
<b>1.4 Impact of management on the soil microbiome and its activity I</b>	<b>7 Linking data and models in soil science – Towards efficient workflows for data-model integration</b>	<b>3.1 Rhizosphere constituents and processes</b>	10:30
Lunch Break, Posters - <i>Atrium</i>			12:00
Poster Session – <i>Atrium</i> Topic 3: Nutrient and carbon dynamics within the root zone as affected by soil management Topic 4: Soil structure and water dynamics as affected by soil management Topic 6: Assessment and governance for sustainable soil management Topic 7: Linking data and models in soil science – Towards efficient workflows for data-model integration			13:00
Coffee Break, Posters - <i>Atrium</i>			14:30
<b>Science meets Practice:</b> Stakeholders from industry, administration and policy meet soil scientists to discuss knowledge needs and how to channel scientific work into practice for sustainable soil management and to implement the bioeconomy			
Conference Dinner - <i>MOA Restaurant</i>			19:00
<b>WEDNESDAY 28 February 2018</b>			
Registration - <i>Atrium</i>			08:00
<b>1.5 Impact of management on the soil microbiome and its activity II</b>	<b>6.1 Sustainable management of soil functions</b>	<b>3.2 Nutrient status and dynamics across scales and dimensions</b>	08:30
Coffee Break, Posters - <i>Atrium</i>			10:00
<b>4.1 Soil Structure as a key for physical soil properties</b>	<b>6.2 Governance of soil functions</b>	<b>3.3 Nutrient status and dynamics, and soil amendments</b>	10:30
Lunch Break, Posters - <i>Atrium</i>			12:00
<b>4.2 Impact of soil management on soil structure</b>	<b>6.3 Impact assessment of soil management</b>	<b>1.6 Carbon, nutrient and water cycling and fluxes in agroecosystems</b>	13:00
Coffee Break, Posters - <i>Atrium</i>			14:30
Early Career Awards & Farewell - <i>Atrium</i>			14:45

## MONDAY 26 February 2018

Room	MOA 5	MOA 4	MOA 3
10:45	<b>Welcome Address</b> <i>MinR'in Andrea Noske (BMBF) &amp; Prof. Dr. Hans-Jörg Vogel (BonaRes Centre)</i>		
11:00	<b>Plenary lecture</b> by Prof. Richard Bardgett (University of Manchester, UK) Harnessing ecological knowledge for the sustainable management of soils		
12:00	<b>Lunch Break, Posters - Atrium</b>		
Time	<b>1.1 Sustainable use of agricultural systems</b> Chair: PhD Rita Grosch (IGZ)	<b>2.1 Soil biomes and plant health</b> Chair: Prof. Barbara Reinhold-Hurek (Bremen Universität)	<b>5.1 Sensor based soil mapping, modelling and management I</b> Chair: Robin Gebbers (ATB)
13:00	<i>Marcus Schmidt, Leonie Göbel, Christian Markwitz, Rowena Gerjets, Josef Langenberg, Anita Swieter, Maren Langhof, Carolin Rudolf, Marife D. Corre, Edzo Veldkamp</i>  Sustainable intensification of agriculture through agroforestry – Ecological and economical evaluation <i>(Highlight Presentation Signal)</i>	<b>Keynote: Marc Mazzola   USDA, ARS   United States</b>  Mobilizing the rhizosphere microbiome to enhance orchard system resilience	<b>Keynote: Cornelia Weltzin   Germany</b>  Agriculture 4.0 and new technologies for measuring and monitoring soil attributes
13:15	<i>Leonie Göbel, Marcus Schmidt, Florian Heinlein, Edzo, Marife D. Corre</i>  Nutrient losses and nutrient retention efficiencies in temperate agroforestry systems versus conventional agricultural systems		
13:30	<i>Ralf Kiese, Anke Jentsch, Ingrid Kögel-Knabner, Michael Schlöter, Michael Dannemann, Thomas Köllner, Alexander Krämer</i>  SUSALPS: Sustainable use of alpine and pre-alpine grassland soils in a changing climate <i>(Highlight Presentation SusAlps)</i>	<i>Maik Lucas, Alicia Balbín Suárez, Cornelia Smalla, Doris Vetterlein</i>  Is apple replant disease systemic? Root growth, function and rhizosphere microbiome analysed in a split-root experiment (Highlight Presentation ORDIAMUR)	<i>Fenny van Egmond, Martin Knotters, Ronald Koomans, Dennis Walvoort, Han Limburg, Steven van der Veeke</i>  Comparison between UAV airborne and proximal measurements of a gamma-spectrometer for soil texture mapping
13:45	<i>Jonas Groß, Johannes Brunner, Bernhard Bauer</i>  Influence of cover crops on yield architecture of maize, field beans and winter wheat in crop rotations	<i>Viviane Radl, Jana Barbro Winkler, Luhua Yang, Susanne Kublik, Peter Schröder, Michael Schlöter</i>  Apple replant causes changes on microbial networks of co-occurrence in a nursery soil	<i>Tobias Heggemann, Gerhard Welp, Wulf Amelung, Sylvia Koszinski, Matthias Leenen, Karsten Schmidt, Stefan Pätzold</i>  High resolution texture estimation for precision farming via mobile gamma spectrometry
14:00	<i>Jürgen K. Friedel, Andreas Surböck, Markus Heinzinger, Andreas Klik, Maria Isabel Garcia-Meca, Bernhard Freyer</i>  Yield effects of a hedge in the adjacent arable field	<i>Souvik Kusari, Sebastian Zühlke, Michael Spitteller</i>  Fungal and bacterial endophytes harbored in apple: diversity, species richness and potential as biocontrol agents against replant disease-causing pathogens	<i>Maïke Siekmann, Marco Lorenz, Joachim Brunotte, Klaus Nolting, Berthold Ortmeier</i>  Soil compaction by heavy sugar beet harvester: measuring soil pressure and soil deformation
14:15	<i>Christian Schneider, Jürgen Heinrich</i>  The impact of peasant and industrialized agricultural systems on soil degradation in Central Europe	<i>Xorla Kanfra, Holger Heuer</i>  Nematodes play an essential role in Apple Replant Disease complex	<i>Marco Lorenz, Joachim Brunotte, Maïke Siekmann, Klaus Nolting, Berthold Ortmeier</i>  From machine to soil functions – linking mechanical load of agricultural machines to changes in soil properties
14:30	<b>Coffee Break, Posters - Atrium</b>		

MOA 5	MOA 4	MOA 3	Room
<b>Poster Session - Atrium</b>			<b>15:00</b>
<b>Topic 1: Impact of agriculture and cropping systems on soil functions and ecosystem services</b>			
<b>Topic 2: Effects of plant – microbe – fauna interactions on soil function</b>			
<b>Topic 5: New sensing technologies, soil monitoring approaches and related decision support systems for sustainable soil management</b>			
<b>1.2 Indicators of soil functions</b> Chair: Prof. Hans-Jörg Vogel (UFZ)	<b>2.2 Soil biomes and nutrient turnover</b> Chair: Rita Grosch (IGZ)	<b>5.2 Sensor based soil mapping, modelling and management II</b> Chair: Fenny van Egmond (ISRIC)	
<b>Keynote: <u>Chris D. Collins</u>   University of Reading   United Kingdom</b> The UK Soil Security Programme – Responses of the soil system to change	<u>Julia Große</u> , <u>Claudia Sofia Burbano</u> , <u>Ulf Feuerstein</u> , <u>Bernhard Bauer</u> , <u>Georg Guggenberger</u> , <u>Thomas Hurek</u> , <u>Barbara Reinhold-Hurek</u> Different catch cropping regimes affect maize yield, root and soil microbiomes already after one season (Highlight Presentation CATCHY)	<u>Lara Sophie Theurer</u> , <u>Martin Maiwald</u> , <u>Bernd Sumpf</u> Shifted Excitation Raman Difference Spectroscopy for soil analysis (Highlight Presentation I4S)	<b>16:30</b>
<u>Nicolas Brüggemann</u> , <u>Michael Bonkowski</u> , <u>Kathleen Lemanski</u> , <u>Rüdiger Reichel</u> , <u>Mathias Rillig</u> , <u>Julien Roy</u> , <u>Michael Schloter</u> , <u>Christoph Schmid</u> , <u>Peter Schröder</u> Recovery of soil functions along an agricultural recultivation chronosequence after open-cast lignite mining (Highlight Presentation inplamint)	<u>Norman Gentsch</u> , <u>Jens Boy</u> , <u>Claudia Sofia Burbano</u> , <u>Barbara Reinhold-Hurek</u> , <u>Dörte Schwenecker</u> , <u>Ulf Feuerstein</u> , <u>Georg Guggenberger</u> Incorporation of diverse catch crop mixtures in crop rotation cycles improve microbial diversity and nutrient supply in agricultural soils	<u>Daniel Riebe</u> , <u>Toralf Beitz</u> , <u>Hans-Gerd Löhmannsröben</u> Laser-induced Breakdown Spectroscopy for Proximal Soil Sensing: From First Experiments to Current Challenges	<b>16:45</b>
<u>Rüdiger Reichel</u> , <u>Mathias Hänsch</u> , <u>Nicolas Brüggemann</u> Indication of rapid soil food web recovery by nematode-derived indices in restored agricultural soil after open-cast lignite mining	<u>Marta Fogt</u> , <u>Marie Uksa</u> , <u>Doreen Fischer</u> , <u>Anne Schöler</u> , <u>Timo Kautz</u> , <u>Gisle Vestergaard</u> , <u>Michael Schloter</u> , <u>Stefanie Schulz</u> Biopores in subsoil differ in their ability to use nitrate	<u>Eleanor Hogley</u> , <u>Sara L. Bauke</u> , <u>Markus Steffens</u> , <u>Wulf Amelung</u> , <u>Ingrid Kögel-Knabner</u> Hyperspectral imaging for continuous prediction of C down the soil profile	<b>17:00</b>
<u>Giulia Bongiorno</u> , <u>Ron De Goede</u> , <u>Lijbert Brussaard</u> , <u>Else Bünemann-Köning</u> Determination of soil quality indicators by labile carbon and nematode community in 10 European long field trials	<u>Christel Baum</u> , <u>Manuela Goers</u> , <u>Nora Vitow</u> , <u>Martin Grafe</u> , <u>Theresa Zicker</u> , <u>Bettina Eichler-Löbermann</u> , <u>Stefanie Schulz</u> , <u>Michael Schloter</u> , <u>Peter Leinweber</u> Predominate use of fertilizer P in the microbial biomass under maize in a long-term field experiment in Northern Germany	<u>Asa Gholizadeh</u> , <u>Nimrod Carmon</u> , <u>Ales Klement</u> , <u>Eyal Ben-Dor</u> , <u>Lubos Boruvka</u> Prediction of agricultural soil properties: Effects of spectral measurement protocol and data mining technique	<b>17:15</b>
<u>Julien Roy</u> , <u>Rüdiger Reichel</u> , <u>Nicolas Brüggemann</u> , <u>Stefan Hempel</u> , <u>Mathias Rillig</u> Succession of arbuscular mycorrhizal fungi along a 52-year agricultural recultivation chronosequence	<u>Michael Dannenmann</u> , <u>Changhui Wang</u> , <u>Zhe Chen</u> , <u>Silvia Gschwendtner</u> , <u>Michael Schloter</u> , <u>Klaus Butterbach-Bahl</u> , <u>Ralf Kiese</u> Climate change amplifies gross nitrogen turnover in montane grasslands of Central Europe both in summer and winter seasons	<u>Sebastian Vogel</u> , <u>Ingmar Schröter</u> , <u>Charlotte Kling</u> , <u>Swen Meyer</u> , <u>Jörg Rühlmann</u> , <u>Eckart Kramer</u> , <u>Robin Gebbers</u> Using proximal soil sensors for precision liming in the Federal State of Brandenburg	<b>17:30</b>
	<u>Julien Roy</u> , <u>Rüdiger Reichel</u> , <u>Nicolas Brüggemann</u> , <u>Stefan Hempel</u> , <u>Mathias Rillig</u> Succession of arbuscular mycorrhizal fungi along a 52-year agricultural recultivation chronosequence	<u>Alexandru Milcu</u> , <i>et al.</i> Assessing the impact of lumbricid earthworms (keystone species) on greenhouse gasses, soil quality, water fluxes, carbon sequestration and productivity in an agricultural context – a multifunctional approach	<b>17:45</b>

## TUESDAY 27 February 2018

Room	MOA 5	MOA 4	MOA 3
	<b>1.3 Modelling and mapping of soil functions</b> Chair: Marcus Schmidt (Uni Göttingen)	<b>2.3 Plant-soil interactions</b> Chair: Traud Winkelmann (Leibniz University Hannover)	<b>5.3 Sensor based soil mapping, modelling and management III</b> Chair: Marco Lorenz (Thünen-Institute of Agricultural Technology)
08:30	<u>Hans-Jörg Vogel, Katrin Daedlow, Katharina Helming, Ingrid Kögel-Knabner, Eva Rabot, David J. Russell, Bastian Stößel, Livia Urbanski, Ulrich Weller, Martin Wiesmeier, Ute Wollschläger</u> A systemic approach for modelling soil functions (Highlight Presentation Bonares Centre)	<u>Felix Mahnkopp, Traud Winkelmann</u> Bacterial endophytes in M26 apple rootstocks growing in apple replant disease or healthy soils	<b>Keynote: Peter Weiskopf, Matthias Stettler, Thomas Keller</b> Integrated soil structure management – a smart key to sustainable farming
08:45	<u>Victoria Janes Bassett, Jessica Davies, Edwin Rowe, Ed Tipping</u> Modelling plant-soil carbon, nitrogen and phosphorus in agricultural systems	<u>Stefan Weiß, Benye Liu, Dennis Reckwell, Ludger Beerhues, Traud Winkelmann</u> Apple replant disease induced phytoalexin cytotoxicity in Malus domestica 'M26' roots	
09:00	<u>Noelia Garcia-Franco, Anna Kühnel, Martin Wiesmeier, Ralf Kiese, Michael Dannenmann, Melanie Treisch, Ingrid Kögel-Knabner</u> Drivers of carbon dynamics in grassland soils of Bavaria between 1986 and 2016	<u>Doreen Babin, Soumitra Paul Chowdhury, Martin Sandmann, Loreen Sommermann, Andreas Fließbach, Paul Mäder, Jörg Geistlinger, Kornelia Smalla, Michael Rothballer, Rita Grosch</u> Influence of long-term organic or mineral fertilization practices on the rhizosphere microbiome and plant health evaluated under controlled growth-chamber conditions	<u>Katja Augustin, Michael Kuhwald, Rainer Duttmann</u> Be on the right track - monitoring of traffic intensities in the field using an automated model (Highlight Presentation SOILASSIST)
09:15	<u>Krischan Petersen, Ralf Kiese, David Kraus</u> Simulation of C and N cycling and associated losses of montane grassland soils under contrasting climate and management conditions	<u>Francois Rineau, Natalie Beenaerts, Jan Clerinx, Anne Nobel, Nele Witters, Sebastien Lizin, Michele Moretti, Robert Malina, Jaco Vangronsveld</u> Effects of climate change on heathland ecosystem services	<u>Michael Kuhwald, Katja Augustin, Rainer Duttmann</u> Development of a soil information model to monitor the trafficability of agricultural used fields
09:30	<u>Uwe Franko</u> Carbon costs of soil carbon sequestration	<u>Yueling Qi, Amalia Mejia Pelaez, Xiaomei Yang, Esperanza Huerta, Nicolas Beriot, Paolina Garbeva, Violette Geissen</u> Microplastics in terrestrial ecosystem: effect of plastic mulch residues on plant growth	<u>Kai Lingemann, Sebastian Stock, Stefan Stiene</u> Towards a semantically grounded harvesting assistance system
09:45	<u>Bastian Steinhoff-Knopp, Benjamin Burkhard</u> Mapping the impact: linking long-term soil erosion monitoring data with decreases in soil functions and ecosystem services	<u>Sonja Schmidt, Stephanie Ellis, Mario Martínez-Araya, Jonathan Atkinson, Malcolm Bennett, Murray Lark, Sacha Mooney, Karl Ritz</u> Do wheat plants modulate soil structure depending on their genotype?	<u>Soeren Schulte-Ostermann, Peter Wagner</u> Economic Effects of site specific basal dressing and liming – pH & P
10:00	Coffee Break, Posters - Atrium		

MOA 5	MOA 4	MOA 3	Room
<p><b>1.4 Impact of management on the soil microbiome and its activity I</b></p> <p>Chair: Prof. Michael Schlöter (German Research Centre for Environmental Health)</p>	<p><b>7 Linking data and models in soil science – Towards efficient workflows for data-model integration</b></p> <p>Chair: PhD Ute Wollschläger (UFZ)</p>	<p><b>3.1 Rhizosphere constituents and processes</b></p> <p>Chair: Prof. Peter Leinweber (University of Rostock)</p>	
<p><b>Keynote: <u>Marcel van der Heijden</u></b></p> <p>How to manage our land? Soil multifunctionality in an agricultural context</p>	<p><b>Keynote: <u>Niels Batjes</u>, Eloi Ribeiro, Ad van Oostrum, Bas Kempen, Rik van den Bosch</b></p> <p>Towards efficient workflows for data standardisation and model integration: the ISRIC approach for generating open soil data</p>	<p><b>Keynote: <u>Philippe Hinsinger</u>   INRA Montpellier   France</b></p> <p>Nutrient and carbon dynamics in agroecosystems from a rhizosphere biogeochemistry perspective</p>	10:30
	<p><u>Fenny van Egmond, Ben Schaap, Rainer Baritz, Rik van den Bosch</u></p> <p>Advancing interoperable soil data exchange formats for global soil data information systems</p>		10:50
<p><u>Julia Siebert, Thomas Reitz, Martin Schädler, Madhav Thakur, Nico Eisenhauer</u></p> <p>Land-use intensity alters climate change effects on the magnitude and phenology of soil biological activity</p>	<p><u>Susanne Stein</u></p> <p>Landscape of research data repositories in soil sciences</p>	<p><u>Christel Baum, Kai-Uwe Eckhardt, Fred Eickmeyer, Peter Leinweber</u></p> <p>Intraspecific variability of the quality of the rhizodeposition of <i>Lupinus angustifolius</i> L. for P-mobilization in the soil</p>	11:00
			11:05
<p><u>Davide Francioli, Andrea Leptin, Elke Schulz, Guillaume Lentendu, Tesfaye Wubet, Ellen Kandeler, François Buscot, Thomas Reitz</u></p> <p>Fertilization-induced changes of the soil microbiome can improve or impair agroecosystem functioning in the long-term</p>	<p><u>Bastian Stöbel, Birgit Lang, Eva Rabot, Felix Richter, Livia Urbanski, Hans-Jörg Vogel, Ulrich Weller, Martin Wiesmeier, Ute Wollschläger</u></p> <p>The BonaRes Knowledge Portal – collecting, structuring, and visualizing knowledge on soil processes</p>	<p><u>Chantal Herzog, Andrea Corona Ramírez, Shuai Zhao, Bing Yang, Samiran Banerjee, Marcel van der Heijden</u></p> <p>Management practices alter soil N cycling processes, microbial communities and nematode abundance in the unexplored vegetable farming systems</p>	11:15
			11:20
<p><u>Rita Grosch, Martin Sandmann, Jörg Geistlinger, Loreen Sommermann, Kornelia Smalla, Doreen Babin, Andreas Schlüter, Johanna Nelkner, Günter Neumann, Saskia Windisch, Soumitra Paul Chowdhury, Michael Rothballer</u></p> <p>Impact of long-term farming strategies on soil and associated rhizosphere microbiomes</p> <p>(Highlight Presentation DiControl)</p>	<p><b>Keynote: <u>Marta Dondini</u></b></p> <p>Data for models or models for data? A reciprocal connection for predicting the fate of our soils</p>	<p><u>Trung Hieu Mai, Andrea Schnepf, Jan Vanderborght, Harry Vereecken</u></p> <p>A virtual root soil system for water and nutrient uptake from the single root scale to the whole root system scale</p>	11:30
			11:35
<p><u>Loreen Sommermann, Doreen Babin, Andreas Schlüter, Annette Deubel, Ingo Schellenberg, Rita Grosch, Kornelia Smalla, Jörg Geistlinger</u></p> <p>Long-term farming strategies shape the soil microbiota</p>	<p><u>Mohammad I. Khalil, Bruce A. Osborne</u></p> <p>Making proper use of limited activity data for precise estimation of soil organic carbon stocks and their long-term changes in agricultural soils</p>	<p><u>Muhammad Sanallah, Mutez Ali Ahmed, Yakov Kuzyakov</u></p> <p>Role of root mucilage in rhizo-microbial community composition and functioning in the rhizosphere under drought</p>	11:45
			11:50
Lunch Break, Posters - Atrium			12:00



TUESDAY 27 February 2018			
Room	MOA 5	MOA 4	MOA 3
13:00	<p align="center"><b>Poster Session – Atrium</b></p> <p align="center"><b>Topic 3: Nutrient and carbon dynamics within the root zone as affected by soil management</b></p> <p align="center"><b>Topic 4: Soil structure and water dynamics as affected by soil management</b></p> <p align="center"><b>Topic 6: Assessment and governance for sustainable soil management</b></p> <p align="center"><b>Topic 7: Linking data and models in soil science – Towards efficient workflows for data-model integration</b></p>		
14:30	Coffee Break, Posters - <i>Atrium</i>		
15:00	<p align="center"><b>Science meets practice</b></p> <p>Knowledge needs to implement a sustainable bioeconomy – Stakeholders from industry, administration and policy meet soil scientists to discuss knowledge needs and how to channel scientific work into practice for sustainable soil management and to implement the bioeconomy</p>		
19:00	Conference Dinner - <i>MOA Restaurant</i>		

WEDNESDAY 28 February 2018			
Room	MOA 5	MOA 4	MOA 3
	<p><b>1.5 Impact of management on the soil microbiome and its activity II</b></p> <p>Chair: PhD Rita Grosch (IGZ)</p>	<p><b>6.1 Sustainable management of soil functions</b></p> <p>Chair: Prof. Katharina Helming (ZALF)</p>	<p><b>3.2 Nutrient status and dynamics across scales and dimensions</b></p> <p>Chair: PhD Michael Dannenmann (KIT)</p>
08:30	<p><i>Samiran Banerjee, Florian Walder, Lucie, Tino Colombi, Juliane Hirte, Jochen Mayer, Thomas Keller, Johan Six, Raphael Charles, Marcel van der Heijden</i></p> <p>Agricultural intensification alters soil properties and reduces microbial network complexity</p>	<p><b>Keynote: Gudrun Schwilch</b>   University of Bern   Switzerland</p> <p>Sustainable soil management through a transdisciplinary assessment and valuation of ecosystem services</p>	<p><i>Wulf Amelung, Ingrid Kögel-Knabner, team Soil3</i></p> <p>Sustainable Subsoil Management (Highlight Presentation SOIL3)</p>
08:45	<p><i>Baerbel U. Foessel, Barbara Stempfhuber, Marcus Zistl-Schlingmann, Michael Dannenmann, Ralf Kiese, Stefanie Schulz, Michael Schloter</i></p> <p>Soil microbiome diversity and function along an altitudinal gradient of (sub) alpine grassland sites</p>		<p><i>Julia von Chamier, Owen Fenton, Kay Knöller, Marion Martienssen</i></p> <p>Stable isotopes as a proxy for process assessment of nitrogen transformation in the unsaturated zone on intensive grassland farms</p>
09:00	<p><i>Christoph Schmid, Peter Schröder, Martin Armbruster, Michael Schloter</i></p> <p>Organic amendments in a long-term field trial – consequences for the bulk soil bacterial community as revealed by network analysis</p>	<p><i>Laura Poggio, Alessandro Gimona</i></p> <p>Soil properties, soil functions, soil security for sustainable management</p>	<p><i>Heide Spiegel, Georg Dersch, Andreas Baumgarten, Johannes Hösch, Taru Sandén</i></p> <p>Effects of different arable management on soil organic carbon and nutrient cycling in time and space</p>
09:15	<p><i>Martin Grafe, Manuela Goers, Sabine von Tucher, Christel Baum, Kerstin Panten, Dana Zimmer, Peter Leinweber, Gisle Vestergaard, Susanne Kublik, Michael Schloter, Stefanie Schulz</i></p> <p>Bacterial potential for uptake, solubilization and mineralization of extracellular phosphorous in agricultural soils under different fertilization regimes</p>	<p><i>Patrick Poppenborg, Thomas Köllner, Ralf Kiese, Andrea Früh-Müller, Vera-Maria Hänsel</i></p> <p>The role of ecosystem services in shaping grassland management decisions under climate change</p>	<p><i>Sara L. Bauke, Martina I. Gocke, Bernd Honermeier, Kathlin Schweitzer, Michael Sommer, Federica Tamburini, Alexandra Sandhage-Hofmann, Wulf Amelung</i></p> <p>Subsoil nutrient dynamics in selected long-term trials in Germany</p>

Room	MOA 5	MOA 4	MOA 3
09:30	<i>Karin Pirhofer Walzl, Beat Frey, Jasmin Joshi, Matthias Rillig</i> Soil microbial influence of natural landscape elements and landscape structure on agricultural fields	<i>Armin Keller, Raneiro Della Peruta, Lucie Greiner, Alfred Zimmermann, Rainer Schulin</i> A regional soil monitoring tool to predict agricultural soil management and their impact on soil functions	<i>Jin Fu, Rainer Gasche, Klaus Butterbach-Bahl, Katrin Schneider, Ralf Kiese</i> Climate and management effects on water balance and nitrogen leaching from montane grassland soils of s-germany
09:45	<i>Lisa Joos, Caroline De Tender, Lieven Clement, Jane Debode, Vandecasteele Bart</i> Understanding soil microbiology in function of soil resistance and resilience by means of 5 long-term field trials	<i>Julie Ingram, Jane Mills</i> Are advisory services 'fit for purpose' to support sustainable soil management? A review of advisory capacity in Europe	<i>Ashour Ahmed, Peter Gros, Stella Gypser, Dirk Freese, Peter Leinweber, Oliver Kühn</i> Molecular-level picture of phosphorous binding mechanisms to soil constituents
10:00	Coffee Break, Posters - Atrium		
	<b>4.1 Soil Structure as a key for physical soil properties</b> Chair: Prof. Hans-Jörg Vogel (UFZ)	<b>6.2 Governance of soil functions</b> Chair: Prof. Bernd Hansjürgens (UFZ)	<b>3.3 Nutrient status and dynamics, and soil amendments</b> Chair: Prof. Wulf Amelung (Rheinische Friedrich-Wilhelms University Bonn)
10:30	<b>Keynote: Iain Young</b>   University of Sydney   Australia Plant roots redesign the rhizosphere to alter water dynamics	<i>Beatrice Garske, Jessica Stubenrauch, Felix Ekardt</i> Governance Aspects of Soil Phosphorus Management	<i>Wondemagegnehu Eshetu Bekele</i> Biochar Application Change Soil Chemical Properties, and Increase Phosphorus uptake, AMF Colonization, and Yield of Hot Pepper ( <i>Capsicum Annuum L.</i> ) Grown in Tropical Nitisol, Southwest Ethiopia
10:45		<i>Bartosz Bartkowski, Stephan Bartke</i> Leverage points for soil governance: a synthesis of empirical studies of farmers' decision-making	<i>Dana Zimmer, Kerstin Panten, Nina Siebers, Jens Kruse, Mohsen Morshedizad, Peter Leinweber</i> Bone char effects on soil as revealed by wet chemical and spectroscopic techniques
11:00	<i>Monika Joschko, Matthias Willms, Bernhard Illerhaus, Guido Fritsch, Ines Grassmel, Dietmar Barkusky, Jürgen Reinhold, Katrin Kuka, Tamas Harrach, Jana Epperlein, Anita Beblek</i> Soil structure assessed by X-ray computed tomography in differently tilled soils as diagnosis tool for agriculture f	<i>Kirstin Marx, Johanna Fick</i> Which recommendations do government agencies give the public on avoiding soil compaction? Results of the analysis of online accessible recommendations	<i>Martina I. Gocke, Axel Don, Arne Heidkamp, Wulf Amelung</i> Evaluation of the P status of German farmland with respect to soil type and texture
11:15	<i>Julia Pöhlitz, Jan Rücknagel, Steffen Schlüter, Hans-Jörg Vogel, Olaf Christen</i> Soil physical and X-ray computed tomographic measurements with different tillage and matric potential	<i>Silvia Tobias, Bronwyn Price, Jasmin Leuthard</i> Cropland protection in Europe: a review of spatial planning instruments	<i>Maximilian Koch, Christopher Guppy, Stella Gypser, Roland Bol, Wulf Amelung, Nina Siebers</i> Bioaccessibility of phosphorus associated to amorphous oxides: Evaluation of the phosphorus supply potential to wheat
11:30	<i>Nicholas Jarvis, Thomas Kätterer, Jumpei Fukumasu, John Koestel, Mats Larsbo</i> The impacts of soil organic carbon on structural pore networks and preferential flow	<i>Felix Ekardt, Beatrice Garske</i> Animal Food, Land-Use Governance, and Phosphorus Governance	<i>Mikhail Makarov, Vladimir Onipchenko, Alexei Tiunov, Tatiana Malysheva, Maxim Kadulin, Igor Buzin, Rida Sabirova</i> Effect of long-term fertilizers application in alpine meadows on soil properties



Room	MOA 5	MOA 4	MOA 3
11:45	<p><u>Ulrich Weller</u>, <u>Birgit Lang</u>, <u>Eva Rabot</u>, <u>Bastian Stößel</u>, <u>Livia Urbanski</u>, <u>Hans-Jörg Vogel</u>, <u>Martin Wiesmeier</u>, <u>Ute Wollschläger</u></p> <p>Modelling structure dynamics and its influence on soil's hydraulic properties</p>	<p><u>J. Daniel Dahm</u></p> <p>Diversity of interests, perspectives, needs: Converging and diverging understandings of interest groups towards sustainable agriculture and soil management</p>	<p><u>Marcus Zistl-Schlingmann</u>, <u>Jinchao Feng</u>, <u>Ralf Kiese</u>, <u>Ruth Stephan</u>, <u>Wu Xing</u>, <u>Zhe Chen</u>, <u>Jin Fu</u>, <u>Bärbel Fösel</u>, <u>Stefanie Schulz</u>, <u>Michael Schloter</u>, <u>Klaus Butterbach-Bahl</u>, <u>Michael Dannemann</u></p> <p>Dinitrogen soil emissions as an overlooked key component of the N balance of montane grasslands</p>
12:00	Lunch Break, Posters - Atrium		
	<p><b>4.2 Impact of soil management on soil structure</b></p> <p>Chair: Prof. Rainer Duttmann (CAU Kiel)</p>	<p><b>6.3 Impact assessment of soil management</b></p> <p>Chair: Prof. Thomas Köllner (University Bayreuth)</p>	<p><b>1.6 Carbon, nutrient and water cycling and fluxes in agroecosystems</b></p> <p>Chair: Prof. Nicolas Brüggemann (Forschungszentrum Jülich GmbH)</p>
13:00	<p><b>Keynote: <u>Paul Hallett</u>   University of Aberdeen   United Kingdom</b></p> <p>Plant exudates as a driver of soil physical behaviour</p>	<p><u>Bernhard Osterburg</u>, <u>Sandra Ledermueller</u></p> <p>Manure spreading in springtime – trade-offs between soil protection and improved nutrient use efficiency</p>	<p><u>Bas van Wesemael</u>, <u>Caroline Chartin</u>, <u>Martin Wiesmeier</u></p> <p>An indicator for managing organic matter in agricultural soils</p>
13:15		<p><u>Carsten Paul</u>, <u>Katrin Daedlow</u>, <u>Katharina Helming</u></p> <p>Metrics, indicators, and methods for sustainability assessment of soil management and soil functions – the platform</p>	<p><u>Peter Leinweber</u>, <u>Christel Baum</u>, <u>Uwe Buczko</u>, <u>Felix Ekaradt</u>, <u>Bettina Eichler-Löbermann</u>, <u>Michael Schloter</u>, <u>Nina Siebers</u>, <u>Sabine von Tucher</u></p> <p>Advances in soil P speciation and -mobilization, and agronomic consequences (Highlight Presentation InnoSoilPhos)</p>
13:30	<p><u>Birgit Lang</u>, <u>David J. Russell</u></p> <p>Effects of soil faunal activity on soil structure</p>	<p><u>Johanna Fick</u>, <u>Nele Gnutzmann</u>, <u>Kirstin Marx</u></p> <p>Is avoiding soil compaction a relevant issue for German famers? - results of an online survey</p>	<p><u>Sabine Seidel</u></p> <p>Soil P dynamics and crop response to P-deficiency in a long-term experiment (&gt;110 years)</p>
13:45	<p><u>Arne Hanssen</u>, <u>Iris Zimmermann</u>, <u>Rainer Horn</u></p> <p>Improvement of soil-water-use-efficiency in plant production by optimized liming</p>	<p><u>Maria Müller-Lindenlauf</u>, <u>Mara Bonney</u>, <u>Nils Rettenmaier</u>, <u>Guido Reinhardt</u></p> <p>Sustainability Assessment of Novel Management Options for Soil Fertility: Challenges and Results for the Application of Substrates with a wide C:N ratio</p>	<p><u>Rowena Gerjets</u>, <u>Falk Richter</u>, <u>Martin Jansen</u>, <u>Andrea Carminati</u></p> <p>Hydraulic redistribution of poplar trees in a column and field experiment – a stable isotope approach to identify tree-crop interactions</p>
14:00	<p><u>Horst H. Gerke</u>, <u>Michael Sommer</u></p> <p>Crop, soil, and water interactions in a hummocky landscape with erosion-affected pedogenesis</p>	<p><u>Ana Freluh Larsen</u>, <u>Mandy Hinzmann</u>, <u>Evelyn Lukat</u>, <u>Zoritzza Kiresiewa</u></p> <p>The invisible subsoil: An exploratory view of societal acceptance of subsoil management in Germany</p>	<p><u>Thorsten Ruf</u>, <u>Christoph Emmerling</u></p> <p>Cultivation of perennial bioenergy crops under periodic soil water stagnation: Effects on soil properties, plant performance and biochemical methane potential</p>
14:15	<p><u>Susanne Eich-Greatorex</u>, <u>Annbjørg Øverli Kristoffersen</u>, <u>Jan Stabbetorp</u>, <u>Trine A. Sogn</u></p> <p>Effects of biogas digestates on soil water retention and aggregate stability</p>		<p><u>Violette Geissen</u>, <u>Vera da Silva</u>, <u>Coen Ritsema</u></p> <p>Pesticide residues in European agricultural soils - a threat for people and environment?</p>
14:30	Coffee Break, Posters - Atrium		
14:45	Closing Session, Early Career Awards & Farewell - Atrium		

No.	Title   Authors of Posters
<b>Topic 1: Impact of agriculture and cropping systems on soil functions and ecosystem services</b>	
1-1	<u>Meike Grosse</u> , <u>Wilfried Hierold</u> <i>Long-term Field Experiments in Germany – Aims of the BonaRes Data Centre</i>
1-2	<u>Yash Dang</u> <i>Sustainability of no-till farming systems in north-eastern Australia</i>
1-5	<u>Claudia Breitzkreuz</u> , <u>Mika Tarkka</u> , <u>Thomas Reitz</u> , <u>François Buscot</u> <i>Abundance and functional traits of soil bacteria are affected by land use and climatic conditions</i>
1-6	<u>Anita Swieter</u> , <u>Maren Langhof</u> <i>Comparing long-term crop yields of a short rotation alley cropping agroforestry system and of a conventionally cultivated arable field in northern Germany</i>
1-7	<u>René Beuschel</u> , <u>Hans-Peter Piepho</u> , <u>Rainer Georg Joergensen</u> , <u>Christine Wachendorf</u> <i>Spatial variability of microbial biomass, saprotrophic fungi and extracellular enzyme activity in three silvo-arable agroforestry systems in Germany</i>
1-8	<u>Stefano Brenna</u> , <u>Alessia Perego</u> , <u>Mauro Piazzì</u> , <u>Marco Acutis</u> <i>Enhancement of agro-ecosystem services through conservation agriculture practices in Northern Italy</i>
1-9	<u>Thi Huyen Thai</u> <i>Long term effect of combined application of chemical nitrogen with organic materials on crop yields in sandy soil in Müncheberg, Germany</i>
1-10	<u>Michael Dannenmann</u> , <u>Martin Wiesmeier</u> , <u>Andreas von Heßberg</u> , <u>Anne Schucknecht</u> , <u>Ralf Kiese</u> , <u>Ingrid Kögel-Knabner</u> , <u>Michael Schloter</u> , <u>Thomas Köllner</u> , <u>Anke Jentsch</u> , <u>Alexander Krämer</u> <i>The SUSALPS Grazing Experiment: how does re-vitalization of a 60 years-abandoned mountain pasture change soil functions and ecological services?</i>
1-11	<u>Christian Markwitz</u> , <u>Alexander Knohl</u> , <u>Lukas Siebicke</u> <i>Evapotranspiration over temperate Agroforestry systems and microclimatic effects</i>
1-12	<u>Kathleen Lemanski</u> , <u>Michael Bonkowski</u> <i>Linking soil microbial nutrient limitation to fertilizer regime and sugar beet yield</i>
1-13	<u>Michael Sommer</u> , <u>Jürgen Augustin</u> , <u>Mathias Hoffmann</u> , <u>Rainer Remus</u> , <u>Gernot Verch</u> , <u>Michael Kaiser</u> <i>4 per 1000 – What can we learn from the erosion - carbon nexus?</i>
1-14	<u>Bernd Berauer</u> , <u>Peter Wilfahrt</u> , <u>Andreas von Heßberg</u> , <u>Anke Jentsch</u> <i>Shifts in above ground productivity and community composition of alpine grasslands under simulated climate warming</i>
1-15	<u>Steve Kwatcho Kengdo</u> , <u>Marcus Zistl-Schlingmann</u> , <u>Ursina Tobler</u> , <u>Bernd Berauer</u> , <u>Peter Wilfahrt</u> , <u>Andreas von Heßberg</u> , <u>Rainer Gasche</u> , <u>Anne Schucknecht</u> , <u>Martin Wiesmeier</u> , <u>Ingrid Kögel-Knabner</u> , <u>Bärbel Fösel</u> , <u>Michael Schloter</u> , <u>Anke Jentsch</u> , <u>Ralf Kiese</u> , <u>Michael Dannenmann</u> <i>Nitrogen use efficiency of montane grasslands as affected by management intensity and climate change: A 15N manure labeling experiment</i>
1-16	<u>Johanna Nelkner</u> , <u>Sebastian Jaenicke</u> , <u>Doreen Babin</u> , <u>Kornelia Smalla</u> , <u>Rita Grosch</u> , <u>Alfred Pühler</u> , <u>Alexander Sczyrba</u> , <u>Andreas Schlüter</u> <i>Effect of soil cultivation and fertilization on the soil microbiome analyzed by metagenome sequencing, assembly and binning</i>
1-17	<u>Johanna Nelkner</u> , <u>Julia Hassa</u> , <u>Rita Grosch</u> , <u>Boyke Bunk</u> , <u>Jörg Overmann</u> , <u>Alfred Pühler</u> , <u>Andreas Schlüter</u> <i>Comparative genome analyses of the biocontrol strain <i>Pseudomonas brassicacearum</i> 3Re2-7</i>
1-18	<u>Carolin Rudolf</u> , <u>Katharina Winter</u> <i>The Main player</i>
1-20	<u>Anneke Beylich</u> , <u>Ulfert Graefe</u> , <u>Rüdiger Schmelz</u> <i>Tillage effects on enchytraeid diversity: Comparison of two field trials in Germany and Sweden</i>
1-21	<u>Saskia Windisch</u> , <u>Doreen Babin</u> , <u>Soumitra Paul Chowdhury</u> , <u>Günter Neumann</u> , <u>Martin Sandmann</u> <i>Implications of long-term agricultural soil management on plant signaling and rhizodeposition responses in <i>Lactuca sativa</i></i>

No.	Title   Authors of Posters
1-22	<i>Melanie Armbruster</i> <i>Functional relevance of soil microbial land use indicators</i>
1-23	<i>Laura Sophie Schnee, Albert Ngakou, Hartmut Koehler, Juliane Filser</i> <i>Interactions between soil biota, organic amendments and carbon stabilisation at different soil and climatic conditions</i>
1-24	<i>Sarah Malec, Rüdiger Graß, Michael Wachendorf</i> <i>Agroforestry - Maintaining ecosystem services: Management effects on grassland yields in a silvopastoral agroforestry system</i>
1-25	<i>Martin Wiesmeier, Livia Urbanski, Eleanor Hobley, Birgit Lang, Erika Marin-Spiotta, Margit von Lützwow, Bas van Wesemael, Mareike Ließ, Eva Rabot, Noelia Garcia-Franco, Ute Wollschläger, Hans-Jörg Vogel, Ingrid Kögel-Knabner</i> <i>Soil organic carbon storage as a key function of soils - A review of drivers and indicators at various scales</i>
1-26	<i>Eckart Priesack, Florian Heinlein</i> <i>Development of Agro-Forestry Models to assess productivity and environmental protection capacity</i>
1-27	<i>Pawel Wisniewski, Mariusz Kistowski</i> <i>The use of agricultural soils as a source of nitrous oxide emission in selected communes of Poland</i>
1-28	<i>Jessica Clayton, Kathleen Lemanski, Michael Bonkowski</i> <i>Changes in Soil- and Microbial Nutrient Content, and Stoichiometry over a 52 year Chronosequence from Post-Mining Arable Land</i>
1-29	<i>Johannes Brunner, Jonas Groß, Bernhard Bauer</i> <i>Impact of soil parameters on the yield potential of wheat in a small area of a field</i>
1-30	<i>Christopher Brock, Meike Oltmanns, Hartmut Spieß, Christoph Matthes, Cornelius Sträßer</i> <i>Soil fertility in organic farming systems under biodynamic management – Design of a new long-term field experiment</i>
<b>Topic 2. Effects of plant - microbe - fauna interactions on soil functions</b>	
2-1	<i>Noshin Ilyas</i> <i>Soil and its microorganisms: Key to understand climatic change on (&amp; in) the ground</i>
2-2	<i>Allen Hao Zhang</i> <i>Impact of Thinning on Physico-chemical properties, Soil Microorganism biomass, and Soil Enzyme Activities in Hong Kong Plantation</i>
2-3	<i>Ulrike Cavael, Diehl Katharina, Peter Lentzsch</i> <i>Modelling the economic impact of Apple Replant Disease based on an indicator of visual appearance of trees and micro-ecological changes in soils</i>
2-4	<i>Jacques Roy, Michèle Tixier-Boichard, Sonny Rathod, Karel Klem, Ivan Nijs, Klaus Steenberg Larsen, Marcelo Sternberg</i> <i>A European infrastructure for the experimental study of ecosystem processes under environmental changes (AnaEE)</i>
2-5	<i>Annamarie-Deetja Rohr, Benye Liu, Ludger Beerhues, Traud Winkelmann</i> <i>Early reactions of apple rootstock 'M26' growing in three apple replant disease soils in terms of growth, candidate gene expression and phytoalexin content</i>
2-6	<i>Carolin Popp, Gisela Grunewaldt-Stöcker, Edgar Maiss</i> <i>Contribution of fungal root endophytes to ARD?</i>
2-7	<i>Stefanie Reim, Christin Siewert, Thomas Wöhner, Traud Winkelmann, Felix Mahnkopp, Magda-Viola Hanke, Henryk Flachowsky</i> <i>Evaluation of tolerance to apple replant disease (ARD) in Malus germplasm</i>
2-8	<i>Mehda Smail, Hamdi-Aïssa Baelhadj, Oustani Mabrouka, Hadj-Mahammed Mahfoud</i> <i>The effect of the presence of biological soil crusts in the environment on the concentration of phenolic compounds contained in the plant zygophyllum album in the Algerian Sahara</i>
2-9	<i>Oustani Mabrouka, Chenchouni Haroun, Mehda Ismail</i> <i>Carbon and nitrogen mineralization from added organic matter in saline soils</i>

No.	Title   Authors of Posters
2-10	<u>Moisés Sosa-Hernández</u> , <u>Matthias Rillig</u> <i>Arbuscular Mycorrhizal Fungi in agricultural subsoils.</i>
2-11	<u>Jessica Schimmel</u> , <u>Patrick Liebmann</u> , <u>Jens Boy</u> , <u>Leopold Sauheitl</u> , <u>Georg Guggenberger</u> <i>Carbon bleeding as a result of apple replant disease</i>
2-12	<u>Ina-Maria Zickenrott</u> , <u>Maik Lucas</u> , <u>Doris Vetterlein</u> <i>Role of soil spatial organization for replant disease</i>
2-13	<u>Julia Michaelis</u> , <u>Rainer Meyhöfer</u> <i>Impact of apple replant disease (ARD) on soil mesofauna biodiversity</i>
2-14	<u>Nilupuli Thushangi</u> , <u>Rainer Meyhöfer</u> <i>Effects of apple replant disease (ARD) on patch selection behavior of Collembola</i>
2-15	<u>Alicia Balbín Suárez</u> , <u>Felix Mahnkopp</u> , <u>Traud Winkelmann</u> , <u>Kornelia Smalla</u> <i>Apple Replant Disease-dependent shifts in microbial communities across different microhabitats</i>
2-16	<u>Andreas Wrede</u> , <u>Margaux Therese Simon</u> , <u>Wulf Amelung</u> , <u>Eva Lehdorff</u> , <u>Stefan Pätzold</u> , <u>Simon Richartz</u> , <u>Traud Winkelmann</u> <i>Long term field experiments to induce and maintain experimental sites with replant disease</i>
2-17	<u>Steffen Rothardt</u> , <u>Ingo Pahlmann</u> , <u>Henning Kage</u> <i>N-Immobilization through substrate amendment: Effects on N-leaching and N<sub>2</sub>O-emissions</i>
2-18	<u>Sven Pabst</u> , <u>Anabel Schöllhorn</u> , <u>Gerhard Baab</u> , <u>Michaela Schmitz</u> <i>Specific stress-responses of Malus under replant conditions as an indicator for the definition of resistant/tolerant apple rootstocks</i>
<b>Topic 5: New sensing technologies, soil monitoring approaches and related decision support systems for sustainable soil management</b>	
5-1	<u>Benjamin Mahns</u> , <u>Volker Dworak</u> , <u>Jörn Selbeck</u> , <u>Robin Gebbers</u> , <u>Weltzien Cornelia</u> <i>Terahertz Spectroscopy for Proximal Soil Sensing</i>
5-2	<u>Steffen Beck-Broichsitter</u> , <u>Heiner Fleige</u> , <u>Rainer Horn</u> <i>In situ Monitoring of the "Rastorf landfill - a combined field and laboratory study</i>
5-3	<u>Martin Sandmann</u> , <u>Jan Gräfe</u> , <u>Rita Grosch</u> <i>The capability of features obtained via the non-contact methods of fluorescence, thermography and NDVI to detect biotic stressed lettuce</i>
5-4	<u>Matthias Leenen</u> , <u>Stefan Pätzold</u> , <u>Tobias Heggemann</u> , <u>Gerhard Welp</u> <i>Mid infrared spectra database as a tool for precision farming applications</i>
5-5	<u>Manuela Sarah Kaufmann</u> , <u>Christian von Hebel</u> , <u>Lutz Weihermüller</u> , <u>Micheal Baumecker</u> , <u>Thomas F. Döring</u> , <u>Kathlin Schweitzer</u> , <u>Eleanor Hoble</u> , <u>Wulf Amelung</u> , <u>Harry Vereecken</u> , <u>Jan van der Kruk</u> <i>Interpreting fertilizer and irrigation applications in long term agricultural experiments using geophysical multi-configuration electromagnetic induction measurements</i>
5-6	<u>Kai Lingemann</u> , <u>Sebastian Stock</u> , <u>Stefan Stiene</u> <i>Towards an assistance system for maize harvesting ensuring soil protection</i>
5-7	<u>Dominique Büchele</u> , <u>Madlen Rühlmann</u> , <u>Thomas Schmid</u> , <u>Markus Ostermann</u> <i>Robust XRF-analysis for determination of macro and minor nutrients in German soils</i>
5-8	<u>Madlen Rühlmann</u> , <u>Dominique Büchele</u> , <u>Markus Ostermann</u> , <u>Thomas Schmid</u> <i>Determination of plant essential nutrients in soils using DP-LIBS</i>
5-9	<u>Alexander Krämer</u> <i>Application of drone-technologies within the SUSALPS-project</i>
5-10	<u>Olga Fishkis</u> , <u>Ursula Noell</u> , <u>Susanne Stadler</u> <i>Capabilities of electrical resistivity tomography in the visualization of water and solute flow at plot scale</i>

No.	Title   Authors of Posters
5-12	<u>Coleen Carranza</u> , <u>Martine van der Ploeg</u> <i>Using surface soil moisture to assess field trafficability: insights on the potential of using satellite-derived data for soil monitoring</i>
5-13	<u>Mohamed Bourouah</u> <i>Soil processing system for ion sensing with ion selective electrodes</i>
5-14	<u>Andrea Schmiedgen</u> , <u>Bettina Tonn</u> , <u>Johannes Isselstein</u> <i>Spatio-temporal response pattern of the herbaceous vegetation in a silvopastoral system</i>
5-15	<u>Maike Siekmann</u> , <u>Marco Lorenz</u> , <u>Joachim Brunotte</u> , <u>Klaus Nolting</u> , <u>Berthold Ortmeier</u> <i>Traffic-induced soil compaction – Experimental field measurements during harvest</i>
5-16	<u>Marco Lorenz</u> , <u>Joachim Brunotte</u> , <u>Norbert Fröba</u> , <u>Franz-Josef Löpmeier</u> <i>Concept of a planning system - foresighted planning of soil conserving measures and processing chains</i>
5-17	<u>Kurt Heil</u> , <u>Urs Schmidhalter</u> <i>Digital Soil Mapping – Fusion of sensor data to derive soil parameters</i>

## Poster Session 2

No.	Title   Authors of Posters
<b>Topic 1: Impact of agriculture and cropping systems on soil functions and ecosystem services</b>	
3-1	<u>Imran Ashraf</u> , <u>Diedrich Steffens</u> , <u>Sven Schubert</u> <i>Bioavailability of aged phosphates: A strategy for increased phosphorus acquisition in white lupin</i>
3-2	<u>Anne Schucknecht</u> , <u>Benjamin Wolf</u> , <u>Rainer Gasche</u> , <u>Na Wang</u> , <u>Georg Willibald</u> , <u>Christoph Sörgel</u> , <u>Klaus Butterbach-Bahl</u> , <u>Ralf Kiese</u> <i>Impacts of climate change on GHG exchange (CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>) of extensively and intensively managed pre-Alpine grasslands soils – insights from a novel automatic chamber system</i>
3-3	<u>Evelyn Wallor</u> , <u>Kurt-Christian Kersebaum</u> , <u>Dietmar Barkusky</u> <i>Modelling carbon dynamics in the long-term by using data from LTFE</i>
3-4	<u>Sardar Alam Cheema</u> , <u>Safdar Hussain</u> , <u>Muhammad Farooq</u> , <u>Muhammad Sanaullah</u> <i>Impact of Crop Residue Mulches and Inorganic Nitrogen Application on Soil Carbon and Nitrogen Dynamics under Rice-Wheat Cropping System in Pakistan</i>
3-5	<u>Richard van Duijnen</u> , <u>Hannah Uther</u> , <u>Vicky M. Temperton</u> <i>Identity of nutrient added (N or P) rather than timing of application affects root system architecture responses of <i>Hordeum vulgare</i></i>
3-6	<u>Quynh Hoang</u> <i>Nutrients composition of so-called organic fertilizer in the Vietnam's market</i>
3-7	<u>Sascha Klefenz</u> , <u>Anne Schucknecht</u> , <u>Michael Dannenmann</u> , <u>Martin Wiesmeier</u> , <u>Noelia Garcia-Franco</u> , <u>Klaus Butterbach-Bahl</u> , <u>Ralf Kiese</u> <i>The effects of climate change and soil management on carbon and nitrogen contents of montane grassland soils</i>
3-8	<u>Fabian Kirsten</u> , <u>Jürgen Heinrich</u> <i>The influence of different tillage regimes on humus and nutrient dynamics on arable fields in Central Saxony – Methods, results and uncertainties</i>
3-10	<u>Rüdiger Reichel</u> , <u>Jing Wei</u> , <u>Muhammad Saiful Islam</u> , <u>Nicolas Brüggemann</u> <i>Effects of organic soil amendments on microbial and chemical nitrogen retention</i>
3-11	<u>Anne E. Berns</u> , <u>Ying Xing</u> , <u>Bei Wu</u> , <u>Kathlin Schweitzer</u> , <u>Micheal Baumecker</u> , <u>Wulf Amelung</u> <i>Fe isotope fractionation in long-term field trials</i>

No.	Title   Authors of Posters
3-12	<i>Yi Wang, Bei Wu, <u>Anne E. Berns</u>, Roland Bol, Erwin Klumpp, Micheal Baumecker, Kathlin Schweitzer, Wulf Amelung</i> <i>Magnesium isotope signatures in long-term field trials in Germany</i>
3-13	<i><u>Michael van Laak</u>, Theresa Zicker, Uwe Buczko, Sabine von Tucher, Bettina Eichler-Löbermann</i> <i>Development of modified p fertility classes</i>
3-14	<i><u>Sanja A. Schwalb</u>, Michael Hemkemeyer, Stefanie Heinze, Rainer Georg Joergensen, Florian Wichern</i> <i>Soil ionoMICS – Importance of elemental composition of microorganisms for the fertility and C and N storage capacity of soil</i>
3-15	<i><u>Kerstin Panten</u>, Dana Zimmer, Peter Leinweber</i> <i>Evaluation of the chemical solubility of recycling fertilisers in comparison to their agronomic value tested in a vegetation trial</i>
3-16	<i><u>Diana Heuermann</u>, Nicolaus von Wirén</i> <i>Nutrient scavenging by catch crop variants and its influence on the nutritional status of subsequently grown maize</i>
3-18	<i><u>Elizabeth Chávez García</u>, Christina Siebe Grabach</i> <i>Rehabilitation of saline-sodic soils in the former lake Texcoco, Mexico</i>
3-19	<i>Stella Gypser, <u>Elisabeth Schütze</u>, Dirk Freese</i> <i>Influence of crystallization of iron- and aluminum hydroxides on phosphate desorption with organic and inorganic compounds</i>
3-20	<i><u>Rainer Remus</u>, Michael Kaiser, Markus Kleber, Jürgen Augustin, Michael Sommer</i> <i>Erosion influences the incorporation of root-derived carbon into mineral-associated organic carbon fractions of soil and its occlusion within aggregates</i>
3-21	<i><u>Sebastian R.G.A. Blaser</u>, Doris Vetterlein</i> <i>Dynamics of Nitrogen Species in Soil and their Relevance for Root System Morphology – What Have We Learned from Drew?</i>
<b>Topic 4: Soil structure and water dynamics as affected by soil management</b>	
4-1	<i><u>Yacine Louadj</u>, Ahcene Semar, Salah Belghemmaz</i> <i>The effect of sodicity on the reversibility of saturated hydraulic conductivity in a low saline environment</i>
4-5	<i><u>Florian Schneider</u>, Axel Don</i> <i>How many agricultural subsoils are compacted in Germany? Results of the national soil inventory</i>
4-7	<i>John Koestel</i> <i>A pilot study on deriving complete 3-D water retention curves using X-ray difference-imaging</i>
4-8	<i><u>Laura Sophie Schnee</u>, Thilo Eickhorst, Albert Ngakou, Hartmut Koehler</i> <i>Compost is more effective than biochar for the improvement of soil structure and microbial colonisation in a tropical soil (Adamaoua, Cameroon)</i>
4-9	<i><u>Mutez Ahmed</u>, Mohsen Zarebanadkouki, Félicien Meunier, Mathieu Javaux, Andrea Carminati</i> <i>Root type matters: measurement of water uptake by seminal, crown and lateral roots in maize</i>
4-10	<i><u>Stefan Koch</u>, Petra Kahle, Bernd Lennartz</i> <i>Using in-situ micro-lysimeters to assess phosphorus losses from soil after manure application</i>
4-11	<i><u>Anna Hess</u>, Nicholas Jarvis, Mats Larsbo, John Koestel</i> <i>Quantifying macropore flow by X-ray tomography to improve model predictions of solute leaching in soil</i>
4-12	<i><u>Noelia Garcia-Franco</u>, Anna Kühnel, Martin Wiesmeier, Ralf Kiese, Michael Dannenmann, Benjamin Wolf, Marcus Zistl-Schlingmann, Ingrid Kögel-Knabner</i> <i>Aggregation and C dynamics in grassland soils along an elevation gradient in the northern limestone Alps of Germany</i>
4-13	<i><u>Mahyar Naseri</u>, Sascha Iden, Andre Peters, Wolfgang Durner</i> <i>Effect of compaction on soil water retention and hydraulic conductivity: measurement and modelling</i>
4-14	<i><u>Lennart Rolfes</u>, Joachim Brunotte, Hans-Heinrich Voßhenrich, Berthold Ortmeier</i> <i>Investigation and assessment of soil functions – derivation of solution strategies for a soil-protective timber harvest</i>

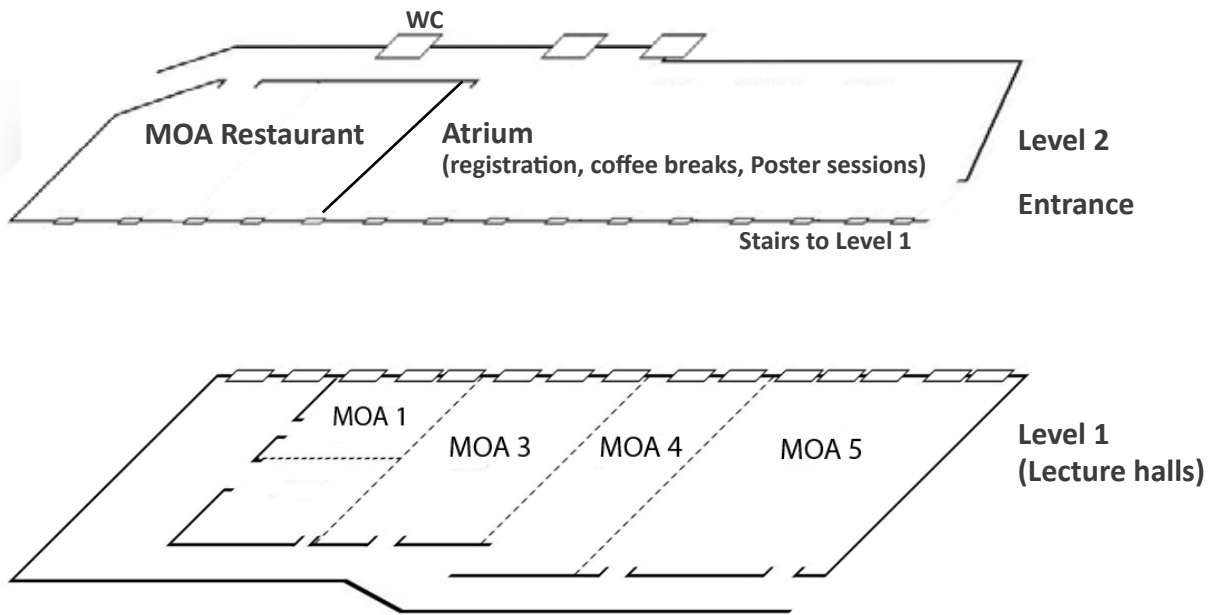
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<b>Topic 6: Assessment and governance for sustainable soil management</b>	
6-1	<u>Thanh Hien Huynh</u> , Thanh Hien Huynh, Thanh Hien Huynh, Sonoko Dorothea Bellingrath-Kimura, Sonoko Dorothea Bellingrath-Kimura, Johannes Hufnagel, Angelika Wurbs <i>Effect of soil tillage, crop rotation and irrigation on maize yield and its development from 2008 – 2016, in Müncheberg, Germany</i>
6-2	<u>Anja-K. Techen</u> , Katharina Helming <i>Emerging agricultural soil management pressures in germany</i>
6-3	Roland Olschewski, <u>Sergio Villamayor-Tomas</u> <i>To plant or not to plant? Analysing landowners' (dis-)incentives to participate in environmental schemes</i>
6-4	<u>Lucie Greiner</u> , Armin Keller, Madlene Nussbaum, Stephan Zimmermann, Andreas Papritz <i>Uncertainty of soil function maps – Improving transparency for decision-making in spatial planning</i>
6-5	<u>Elisabeth Schaber</u> , Sophia Neuner, Clemens Geitner <i>Soil protection in the Alps – New concepts, networks and communication strategies</i>
6-6	<u>Jessica Stubenrauch</u> , Felix Ekardt, Beatrice Garske <i>Comparative analyses of Phosphorus legislation and ecological consequences of P-overuse in Latin America and Germany</i>
6-7	<u>Bartosz Bartkowski</u> , Stephan Bartke <i>Precision governance: Towards site-specific soil governance to induce sustainable soil management</i>
6-8	<u>Sandra Ledermueller</u> , Bernhard Osterburg <i>A multi-data approach to assess the potential risk of soil compaction on arable land in Lower Saxony</i>
6-10	Shadananan Nair <i>Soil management in the dry zones of India under a changing climate</i>
6-11	Nicole Petzke <i>Comprehensive socio-economic analysis of regional production systems and evaluation of adaption strategies for overcoming replant disease in horticultural soil use management</i>
6-12	Elke Ries, Ernst-August Nuppenau, <u>Arnoud Maaswinkel</u> <i>Farmers perspective of catch cropping for a sustainable land use and remaining soil fertility</i>
6-13	<u>Thomas Schmitt</u> , Andrea Früh-Müller, Vera-Maria Hänsel, Patrick Poppenborg, Krischan Petersen, Ralf Kiese, Thomas Köllner <i>An agent-based model for gaining a better understanding of farmers' decision-making concerning grassland management</i>
6-14	<u>René Schatten</u> , Ute Kalbe, Tony Szuppa <i>Monitoring of soil materials for potential re-use</i>
6-15	<u>Stephen Boahen Asabere</u> , Thorsten Zeppenfeld, Kwabena Abrefa Nketia, Volker Haering, Daniela Sauer <i>Influence of urbanisation on cation exchange capacity and nutrient availability in arable soils of Kumasi (Ghana)</i>



No.	Title   Authors of Posters
<b>Topic 7: Linking data and models in soil science – Towards efficient workflows for data-model integration</b>	
7-1	<u>Sina Schulz</u> , Einar Eberhardt <i>Conformity key – a quality assurance tool for soil data in German nomenclature</i>
7-2	<u>Nikolai Svoboda</u> , Philipp Gärtner, Md Abdul Muqit Zoarder, Thomas Kühnert, Carsten Hoffmann, Uwe Heinrich <i>Enhancing the reuse of data by providing with a digital object identifier (DOI)</i>
7-3	<u>Carsten Hoffmann</u> , Nikolai Svoboda, Md Abdul Muqit Zoarder, Thomas Kühnert, Uwe Heinrich <i>Quality assurance for BonaRes research data: Needs and implementations</i>
7-4	<u>Horst H. Gerke</u> , Sylvia Koszinski <i>3D mass balancing for reconstruction of an erosion-affected agricultural soil landscape</i>
7-5	Philipp Gärtner, Thomas Kühnert, Nikolai Svoboda, Md Abdul Muqit Zoarder, Uwe Heinrich, <u>Xenia Specka</u> <i>The BonaRes Data Portal</i>
7-6	Alexander Krämer, Johannes Engel, David Kraus, Krischan Petersen, Ralf Kiese, <u>Xenia Specka</u> <i>The SUSALPS Decision Support System – a user friendly tool for farmers to optimize grassland management</i>
7-7	<u>Abdul Muqit Zoarder</u> , Nikolai Svoboda, Philipp Gärtner, Thomas Kühnert, Carsten Hoffmann, Uwe Heinrich <i>Support for data modeling and automated metadata generation at BonaRes Data Centre</i>
7-9	<u>Kirsten Rehbein</u> , Urs Grob, Leta Klauser <i>The Swiss Soil Information System NABODAT</i>
7-10	<u>Victoria Janes Bassett</u> , Jessica Davies, Graham Dean, Ross Towe, Vatsala Nundloll, Gordon Blair <i>Six soil data challenges and four ways semantic web technologies can help</i>
7-11	<u>Matthias Kuhnert</u> , Maaïke van Agtmaal, Pete Smith <i>Biodiversity and microbial communities in soil organic carbon models</i>
7-12	<u>Diana-Maria Seserman</u> , Maik Veste, Dirk Freese <i>Modelling Tree Growth in Relation to Soil Water Dynamics in Alley-Cropping Systems in Brandenburg, Lower Saxony, and Thuringia, Germany</i>
7-13	Mareike Ließ <i>Creating unbiased models from unbiased data - smart.clhs - a new algorithm for balanced sampling</i>

# Conference Venue

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## How to find the Conference Venue



### Arrival by public transport...

From the train station... Please take S-Bahn no. S5 (direction Westkreuz), S3 or S75 (direction Spandau) and get off at the stop Zoologischer Garten. Change to underground/subway U9 (direction Osloer Straße) and get off at the stop Birkenstraße. Our hotel is about 100 m away.

From Tegel airport... Your best choice is bus TXL (direction S+U Alexanderplatz). Get off at the stop Turmstraße and change to bus M27 (direction S+U Pankow) and get off at the stop Havelbergstraße. From there it is a short walk of around 5 minutes to the Mercure Hotel MOA Berlin.

### Arrival by car...

The MOA offers 550 parking spaces for reasonable prices and direct entrance to the hotel. The car park is part of the shopping centre „MOA Bogen“, please enter Birkenstrasse 21 into your GPS. After the entrance barrier turn left, at the top deck you will find the direct entry to the hotel reception.



Source: Mercure Hotel MOA Berlin