



Towards a whole-system
approach for ecosystem science





Sergey Borisov
TU Graz, Austria

Sergey M. Borisov received his Ph.D. degree in chemistry from the Herzen State Pedagogical University (St. Petersburg, Russia) in 2003. In 2004–2006 he worked in the group of Prof. Otto Wolfbeis at the University of Regensburg as Post-Doctoral Fellow. He joined the Institute of Analytical Chemistry and Food Chemistry at the Graz University of Technology in 2006.

His main research interests are in the chemistry of porphyrins and related compounds, synthesis and application of new luminescent dyes in optical sensing, the use of luminescent micro- and nanomaterials in bioanalytical methods, sensing applications of inorganic phosphors and application of optical sensors in oceanography, marine biology and medicine.

Keynote presentation:

[Luminescent Sensors for Continuous Monitoring of Important Analytes in Ecosystems](#)



23–27 June – Tampere, Finland

Nina Buchmann is a professor at ETH Zürich, specializing in plant ecology and ecosystem research. Her work focuses on the interactions between vegetation and the climate, particularly in understanding how different land use practices influence carbon and nutrient cycles.



Nina Buchmann

ETH Zürich, Switzerland

Buchmann employs innovative experimental approaches to study plant responses to environmental changes and their role in ecosystem services. Her research is instrumental in informing sustainable land management and climate adaptation strategies.

With numerous publications in leading scientific journals, she is recognized for her contributions to advancing our understanding of plant-environment interactions in a changing world.

Keynote presentation:

[Forest ecosystem functioning in a changing climate: Fluxes, drivers, feedbacks at multiple scales](#)



23–27 June – Tampere, Finland

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Jordi Cortina

University of Alicante, Spain

Jordi Cortina is a researcher based in Spain, affiliated with the University of Alicante and the Institute of Ecology and Biodiversity (IEB). His work focuses on ecosystem restoration, particularly the processes that promote plant community recovery in degraded landscapes.

Cortina employs both experimental and field-based approaches to study the interactions between plant species, soil health, and environmental conditions. His research is crucial for developing effective restoration strategies that enhance biodiversity and ecosystem resilience.

With numerous publications in leading scientific journals, he actively contributes to advancing knowledge in ecological restoration and sustainable land management practices.

Keynote presentation:

[Challenges and collaborative solutions for Mediterranean ecosystem restoration: a view from Spain](#)



23–27 June – Tampere, Finland

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Ricardo Diaz-Delgado is a researcher at the Doñana Biological Station (EBD) in Spain, where he focuses on landscape ecology and the effects of environmental change on biodiversity.

His research investigates the interactions between land use, climate change, and ecosystem services, aiming to understand how these factors influence species distribution and habitat quality.

Diaz-Delgado employs a range of ecological modeling and remote sensing techniques to assess and predict changes in ecosystems.

He is committed to informing conservation policies and sustainable land management practices through his work and has published extensively in leading scientific journals.



Ricardo Diaz-Delgado

Doñana Biological Station
(EBD), Spain

Keynote presentation:

[Drones contributing to LTER: challenges and opportunities](#)



23–27 June – Tampere, Finland

Michael Dietze is a professor at Boston University, specializing in ecological modeling and environmental science. His research focuses on the dynamics of ecosystems in response to climate change, land use, and other anthropogenic influences.

Dietze employs advanced computational models to understand plant and carbon dynamics, integrating data from field studies to inform predictions about ecosystem behavior.

His work aims to enhance our understanding of ecological resilience and inform management strategies for sustainable ecosystems. With numerous publications in leading journals, he is a prominent figure in the field of ecological modeling.



Michael Dietze

Boston University, USA

Keynote presentation:

[The PEcAn+SIPNET Terrestrial Carbon Cycle Reanalysis:
Development and Validation](#)



23–27 June – Tampere, Finland

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Jennifer Druhan

University of Illinois Urbana-Champaign, USA

Jennifer Druhan is a researcher at the University of Illinois Urbana-Champaign, specializing in environmental geochemistry and biogeochemistry. Her research focuses on the interactions between natural and anthropogenic processes that influence water quality and nutrient cycling in various ecosystems.

Druhan employs advanced analytical techniques to study the impacts of land use and climate change on water resources and soil health. Her work is essential for developing sustainable management practices and policies to protect water quality and ecosystem functions.

She has published extensively in leading scientific journals and actively engages in interdisciplinary collaborations.

Keynote presentation:

[Signatures of the deep rhizosphere: Novel instrumentation and predictive models](#)



23–27 June – Tampere, Finland

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Helmut Haberl

BOKU, Austria

Helmut Haberl is a researcher at the University of Natural Resources and Life Sciences (BOKU) in Austria, specializing in sustainability science and land use research. His work focuses on the interactions between human activities and ecosystems, particularly in understanding the implications of land use change for biodiversity and ecosystem services.

Haberl employs interdisciplinary approaches to study the socio-economic drivers of land use and their environmental impacts.

His research is vital for developing sustainable land management practices and informing policies aimed at balancing ecological integrity with human needs. He has published extensively in leading scientific journals and is recognized for his contributions to advancing sustainability research.

Keynote presentation:

[Socioecological metabolism: investigating sustainability across scales](#)



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Florian Hartig

University of Regensburg,
Germany

Florian Hartig is a researcher at the University of Regensburg in Germany, specializing in theoretical ecology and biodiversity science.

His research focuses on understanding the dynamics of ecological networks and the implications of biodiversity loss for ecosystem function and stability.

Hartig employs mathematical models and simulations to explore how species interactions and environmental changes influence ecological processes. His work is essential for developing effective conservation strategies and managing ecosystems in the face of global change.

He has published extensively in prominent scientific journals and is actively involved in interdisciplinary collaborations that bridge ecology and environmental policy.

Keynote presentation:

[Towards a robust framework for data assimilation and uncertainty quantification in environmental forecasting](#)



23–27 June – Tampere, Finland

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Toke Thomas Høye

University of Aarhus,
Denmark

Toke Thomas Høye is a researcher at the University of Aarhus in Denmark, specializing in ecology and evolutionary biology.

His research focuses on the effects of climate change on insect populations and their interactions with plants and ecosystems. Høye employs field experiments and ecological modeling to investigate how shifts in temperature and precipitation patterns influence species distribution and ecological dynamics.

His work is critical for understanding biodiversity responses to environmental change and informing conservation strategies. He has published extensively in prominent scientific journals and is actively involved in collaborative research efforts aimed at addressing climate impacts on ecosystems.

Keynote presentation:

[Globally standardised species monitoring with sensor networks and deep learning models](#)



23–27 June – Tampere, Finland

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W. Daniel Kissling

University of Amsterdam,
Netherlands

W. Daniel Kissling is an associate professor at the University of Amsterdam, with a research focus on ecology, quantitative biodiversity science, and global change. He has compiled large ecological and environmental datasets to study species distributions, trophic interactions, functional traits, ecosystem structure and animal habitats across space and time.

His work often bridges from ecology and biodiversity science to other disciplines such as informatics, data science, computer vision, Earth Observation, and environmental policy. He is particularly interested in the use of digital sensors and remote sensing for measuring and monitoring biodiversity change, and in the development of automated data streams and high-throughput processing workflows for biodiversity research. He has published extensively in prominent scientific journals and is actively involved in various national and international, multi-institutional and multi-disciplinary projects.

Keynote presentation:

[Using big data to address global environmental challenges](#)



23–27 June – Tampere, Finland

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Ain Kull

University of Tartu, Estonia

Ain Kull is a researcher at the University of Tartu in Estonia, specializing in ecology and environmental science. His work focuses on plant ecology, particularly the dynamics of plant communities and their responses to environmental changes.

Kull employs a combination of field studies and theoretical approaches to investigate biodiversity patterns and ecosystem functioning. His research contributes to understanding the effects of climate change and human activities on ecosystems, informing conservation strategies and sustainable land use practices.

He has published numerous articles in reputable scientific journals and is actively engaged in interdisciplinary collaborations within the ecological community.

Keynote presentation:

[Peatlands in wind of change in Estonia – do paludiculture, rewetting or restoring drained peatlands turn the tables and ecological values will dominate?](#)



23–27 June – Tampere, Finland

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Markku Kulmala

University of Helsinki, Finland

Markku Kulmala is a professor at the University of Helsinki, specializing in atmospheric science and aerosol research. His work focuses on the formation and evolution of aerosols and their effects on climate and air quality.

Kulmala is known for his pioneering research in particle formation mechanisms and their interactions with clouds and climate systems. He has played a crucial role in establishing long-term atmospheric monitoring networks in Finland and globally.

With over 1,000 publications and numerous accolades, Kulmala is recognized as a leading figure in atmospheric and environmental sciences, contributing to both scientific understanding and policy development for a sustainable environment.

Keynote presentation:

[The importance of continuous comprehensive Integrated observations: from feedback loop analysis to CarbonSink+](#)



23–27 June – Tampere, Finland

Nolwenn Lesparre is a Chargée de Recherche at CNRS and serves as an Equality Officer at ITES.

Her research focuses on geophysical imaging techniques, including electrical resistivity tomography, proton magnetic resonance, ground-penetrating radar, and gravimetry.

She specializes in solving inverse problems and advancing the parameterization of hydrological models.

Nolwenn's work aims to enhance hydrological model parameterization through insights gained from geophysical data, with applications ranging from meter-scale investigations to watershed-scale studies.



Nolwenn Lesparre

Université de Strasbourg,
France

Keynote presentation:

[Groundwater reserves in a mountainous headwater catchment
Insights from geophysics performed on the Strengbach Critical Zone
Observatory](#)



23–27 June – Tampere, Finland

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Samu Mäntyniemi

Natural Resource Institute
Finland, Finland

Samu Mäntyniemi is a researcher at the Natural Resources Institute Finland (Luke). His work focuses on sustainable forest management and the ecological dynamics of forest ecosystems.

Mäntyniemi specializes in the interactions between forest management practices, biodiversity, and ecosystem services.

Through his research, he aims to enhance the resilience of Finnish forests in the face of climate change while promoting sustainable use of forest resources.

His contributions are vital for developing evidence-based policies that support both environmental sustainability and economic viability in the forestry sector.

Keynote presentation:

[Integrating Long-Term Ecological Research and Adaptive Management – Theoretical Solutions and Practical Challenges](#)



23–27 June – Tampere, Finland

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Per-Erik Mellander
Teagasc, Ireland

Per-Erik Mellander is a Senior Research Officer in Catchment Science with Teagasc, the Irish Agriculture and Food Development Authority.

He is the lead scientist and manager of the water quality section of the Agricultural Catchments Programme. His research mostly concerns advancing knowledge in water quality issues for a sustainable environment and food production system under the impacts of changing climate.

Currently he manages a team of three Research Officers, three Technologists, two Technicians and supervises three PhD students.

Keynote presentation:

[Challenges of improving river water quality in diverse settings with changing drivers](#)



23–27 June – Tampere, Finland

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Igor Ogashawara is a researcher at the Leibniz-Institut für Gewässerökologie und Binnenfischerei (IGB) in Germany.

His work focuses on freshwater ecology, specifically examining the dynamics of aquatic ecosystems and the impacts of environmental changes on biodiversity.

Ogashawara employs a multidisciplinary approach, integrating field studies and laboratory experiments to explore nutrient cycling, species interactions, and ecosystem health in freshwater systems.

His research contributes to understanding the effects of anthropogenic stressors on aquatic environments and informs conservation efforts aimed at preserving freshwater biodiversity.



Igor Ogashawara

Leibniz-Institut für Gewässerökologie
und Binnenfischerei (IGB), Germany

Keynote presentation:

[Transforming inland water monitoring: integrating remote sensing and next-generation in situ technologies](#)



23–27 June – Tampere, Finland

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Ram Oren

Duke University, USA;
University of Helsinki, Finland

Ram Oren serves as the Nicholas Professor of Earth Systems Science at Duke University, as well as a visiting scholar at the University of Helsinki.

With his graduate students and colleagues, he quantifies components of the water cycle, and their responses to biotic and abiotic factors at scales ranging from tree organs to forest ecosystems.

Relying on strong links between the carbon and water cycles, he also studies carbon flux components. Based on theory, local mass balance approaches, and detailed measurements of these fluxes and driving variables in the soil, plants, and atmosphere, he has been attempting to imagine the likely responses of forest ecosystems, from the equator to the arctic circle, to climate and environmental changes, and management.

Keynote presentation:

[Water use and carbon accumulation in a pine forest under elevated atmospheric \[CO₂\]](#)



23–27 June – Tampere, Finland

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Pilar Andres Pastor
CREAF, Spain

Pilar Andres Pastor is a researcher at the Center for Ecological Research and Forestry Applications (CREAF) in Spain.

Her work focuses on soil ecology and holistic planning and restoration of terrestrial ecosystems. She studies the interactions between vegetation, soil, and climate, aiming to understand how these relationships affect carbon and nutrient cycling.

Pilar Andrés employs field studies and modeling approaches to inform sustainable agricultural management and biodiversity conservation strategies.

She has published numerous articles in reputable scientific journals, and policy reports contributing to the advancement of knowledge in ecological research and to its practical application.

Keynote presentation:

[Introducing soil in NbS Monitoring Plans: in search of a compromise between feasibility and reliability](#)



23–27 June – Tampere, Finland

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Josep Peñuelas is a Research Professor at the National Scientific Research Council of Spain (CSIC) at the Center for Ecological Research and Forestry Applications (CREAF). He is internationally recognized for his influential contributions to ecology, particularly in understanding ecophysiological mechanisms related to carbon and oxygen utilization in terrestrial and aquatic ecosystems.

Peñuelas has co-developed key remote-sensing techniques, such as the photochemical reflectance index (PRI) and the water index (WI), enhancing the study of ecosystem dynamics. With over 1,800 publications and an H-index of 182, his work addresses global change, biodiversity, and the impacts of human activities on ecosystems. He has received numerous prestigious awards for his research and serves as an editor for leading ecological journals. Additionally, he actively engages in public outreach and science communication to promote sustainability.



Josep Peñuelas

CREAF, Spain



23–27 June – Tampere, Finland

Nick Pepin is an Associate Professor in Climate Science at the University of Portsmouth, specializing in mountain climates and their response to global warming.

His research focuses on temperature change in mountainous regions, elevation-dependent warming, and surface temperature modeling in complex terrains.

Dr. Pepin has led climate monitoring projects in regions such as Kilimanjaro, the Pyrenees, and Arctic Lapland. He collaborates internationally with institutions like NOAA, the Chinese Academy of Sciences, and INSTAAR. His work examines how climate change impacts mountain environments, including the retreat of summit ice fields and the role of land use changes.



Nick Pepin

University of Portsmouth,
United Kingdom

Keynote presentation:

[Understanding spatial patterns of elevation-dependent climate change and associated impacts in mountain regions of Europe and the world.](#)



23–27 June – Tampere, Finland

Dr. Kumar joined as a faculty at Univ. of Illinois in 1995 where he has been since. His research deals with Hydrocomplexity, the quantitative understanding and prediction of emergent patterns of form and function that arise from complex non-linear multi-scale interactions between soil, water, climate, vegetation and human systems; and how this understanding can be used for innovative solutions to water and sustainability challenges.

He has made extensive, deep and signature contributions pertaining to information theory in geosciences, biosphere-hydrosphere interactions, multi-scale variability of hydrologic processes, hydro-geomorphology and hydroinformatics. He is the leader in the study of Critical Zone in human modified environments. He presently serves as the Executive Director of the Prairie Research Institute (PRI) which houses all five of the Illinois State Scientific Surveys.



Praveen Kumar

University of Illinois, Prairie
Research Institute, USA

Keynote presentation:

[From Information Flow to Generative Insights: Advancing AI/ML Applications for Predicting Solute Dynamics in Streams](#)



23–27 June – Tampere, Finland

Pamela Templer is a professor at Boston University, specializing in ecosystem ecology and biogeochemistry. Her research focuses on the interactions between climate change, nutrient cycling, and forest health, particularly in how nitrogen deposition affects forest ecosystems. Templer employs a combination of field studies and experimental approaches to investigate ecosystem responses to environmental changes.



Pamela Templer
Boston University, USA

Her work is crucial for understanding the impacts of human activities on ecosystem functions and informing strategies for sustainable forest management.

She has published extensively in leading scientific journals and is actively involved in mentoring the next generation of ecologists.

Keynote presentation:

[Drivers of Carbon Sequestration and Inorganic Nitrogen Export in Temperate Forest Ecosystems](#)



23–27 June – Tampere, Finland

Kris Verheyen is a professor at Ghent University in Belgium, specializing in forest and landscape ecology. He leads research on the ecological functioning of forests and the impacts of environmental changes on biodiversity, ecosystem services, and forest management.

His work often focuses on plant-soil interactions, forest restoration, and how human activities like land use and climate change influence forest ecosystems.

With numerous publications and international collaborations, Verheyen contributes significantly to sustainable forest management and conservation efforts globally.



Kris Verheyen

Ghent University, Belgium

Keynote presentation:

[Understanding long-term forest vegetation dynamics in response to global change using an integrated approach](#)



23–27 June – Tampere, Finland

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Stefan Vriend is a researcher at the Netherlands Institute of Ecology (NIOO-KNAW), where he focuses on the interactions between biodiversity and ecosystem functioning.

His research examines how species interactions and community dynamics influence ecological resilience and sustainability. Vriend employs a combination of field studies and experimental approaches to investigate ecological patterns and processes.

His work contributes to understanding the role of biodiversity in ecosystem health and informs strategies for conservation and management in various ecosystems.



Stefan Vriend

Netherlands Institute of Ecology, Netherlands

Keynote presentation:

[Integrating ecological research for ecosystem understanding across multiple scales: building digital twins of LTER sites](#)



23–27 June – Tampere, Finland

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Richard Bindler is a researcher at Umeå University in Sweden, specializing in environmental science and biogeochemistry. His research focuses on the effects of human activities on soil and water quality, particularly in relation to acidification and nutrient cycling in forest ecosystems.



Richard Bindler

Umeå University, Sweden

Bindler employs a multidisciplinary approach, integrating field studies and laboratory experiments to understand the long-term impacts of pollution and climate change on terrestrial environments. His work is vital for informing sustainable land management practices and contributes to the development of policies aimed at restoring ecosystem health.

He has published extensively in leading scientific journals and collaborates with international research teams.

Keynote presentation:

[How 'long term' is long term enough? Bridging neo- and paleo-ecological timescales](#)



23–27 June – Tampere, Finland

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Ying Fan Reinfelder is a professor and researcher at Rutgers University's Institute of Earth, Ocean, and Atmospheric Sciences and the Department of Earth and Planetary Sciences.

Her work focuses on hydrology, climate dynamics, and the global water cycle, exploring how water influences Earth's structure and function. In 2017, she highlighted the role of soil hydrology in shaping global patterns of plant root depths. Reinfelder's research interests span global water and biogeochemical cycles, water-mediated environmental changes in Earth's geologic past, plant ecology and ecophysiology, and the co-evolution of land plants with the terrestrial environment.

She was named a Fellow of the American Geophysical Union in 2022.



Ying Fan

Rutgers University, USA

Keynote presentation:

[Groundwater influence on vegetation: water source, waterlogging, or both?](#)