



MICMoR-LUC4C Technical Short Course

Putting People on the Land. Introducing the interactions between terrestrial ecosystems, climate and society

Institute of Meteorology and Climate Research (KIT/IMK-IFU),
Garmisch-Partenkirchen, Germany
March 3-6, 2015



The terrestrial biosphere forms the interface between the atmosphere and much of the Earth's land surface; it mediates the carbon, nitrogen and hydrological cycles, and profoundly influences the surface energy balance. Thus, the biosphere exerts a substantial control on both local and global climate, particularly through its sequestration of anthropogenic carbon emissions. It also performs a wide range of other services such as the provision of food and raw materials, removal of air pollutants and suppression of pests and diseases. However, the composition and performance of the biosphere is greatly influenced by human-induced alteration of the climate and atmospheric composition, whilst anthropogenic land-use change has completely transformed ecosystems and their interactions with the surrounding Earth system.



This course aims to give a broad overview of the role of the terrestrial biosphere in the Earth system, with a strong focus on anthropogenic land-use change and management, and their implications. The course consists of lectures and model-based practical sessions. It is especially aimed at those new to the field, although more experienced researchers are welcome.

There is a course fee of € 60 (the fee is waived for MICMoR Fellows). Participants are responsible for their own travel and accommodation costs.



Application

The course is open to doctoral students and postdocs. To apply please send a motivation letter (max. 1 page), a CV and a recommendation letter from your supervisor or mentor to the MICMoR Coordination Office at info@micmor.kit.edu by Monday, 24th November 2014. Successful applicants will be notified by 15th December. Participants must provide their own laptops.

Speakers

Dr. Thomas Pugh (Biogeochemical modelling of land-use change; KIT) – *coordinator*
Prof. Mark Rounsevell (Land use responses to environmental change; University of Edinburgh, UK)

Prof. Almut Arneth (Terrestrial biogeochemistry, global vegetation modelling; KIT)
Dr. Jo House (Emissions estimation and mitigation, life-cycle impacts, socio-economic context; University of Bristol, UK)

Dr. Ralf Kiese (Biosphere-atmosphere exchange of trace gases; KIT)
Dr. Benjamin Quesada (Biophysical land-atmosphere interactions; KIT)
Dr. Anita Bayer (Modelling ecosystem services; KIT)

MICMoR Coordination Office
KIT / IMK-IFU
Kreuzeckbahnstraße 19
82467 Garmisch-Partenk.

www.micmor.kit.edu
info@micmor.kit.edu

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Initial timetable

Tuesday, 3rd March 2015 (9:30 – 17:30)

Overview of the Earth system
Introduction to land-use change (LUC)
Practical session 1: Investigating future scenarios of LUC
Introduction to global carbon cycle
Evening dinner

Wednesday, 4th March 2015 (9:00 – 17:30)

The terrestrial nitrogen cycle
The surface energy balance
Ecosystem services provided by the terrestrial biosphere
Practical session 2: Modelling carbon emissions from LUC
Local and regional climate perturbations from biophysical effects of LUC

Thursday, 5th March 2015 (9:00 – 17:00)

Forest management/Agricultural emissions
Effects of land-use change on SLCPs and air quality.
International climate policy and links to LUC
Practical session 3: Climate reporting and policy

Friday, 6th March 2015 (9:30 – 13:00)

Making trade-offs between ecosystem functions and services
Making projections of LUC as part of the Earth system
Departure

This Technical Short Course has been funded by the Helmholtz Research School MICMoR and the EU Project LUC4C. LUC4C has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement number 603542.