

## Virtual Summer School *Land Use and Ecosystem Change*

**9.-20. August 2021**



**Overview:** Food and bioenergy demands of a growing global population and societies' changing lifestyles are increasing the pressures on land and ecosystems. Further pressures arise from the demands on land resources for other ecosystem services, and the variable (often negative) impacts of climate change on plant productivity. These multiple, often seemingly conflicting demands on land and ecosystems are a considerable stumbling-block for achieving sustainability goals. The Karlsruhe Institute of Technology (KIT) will run an ONLINE international Summer School on the topic of *land use and ecosystem change* between the 9.-20. August 2021. The summer school courses will students to a wide range of issues related to ecosystem functioning, socio-ecological systems and land use change by covering:

1. Both the biophysical and human processes and concepts needed to understand the broader issues of socio-ecological systems. This will include, amongst others, ecosystem functioning, biodiversity,



ecosystem services, resilience, vulnerability, risk management, tipping-points, sustainability and related concepts in the field. We will also explore current understanding of how environmental change (both physical and human changes in the environment) will affect socio-ecological systems. This will include content on international assessment processes such as the IPCC and IPBES.

2. Different aspects of land use change processes across geographic scales and for the past, present and future drivers of change. This will include, for example, land abandonment, extensification vs intensification, deforestation, the role of social networks and knowledge diffusion, the role of pollinators and land management. There will be a focus on land use change assessment methods, including the role of observational data (e.g. from remote sensing and other sources) and land use modelling approaches using interactive exercises and case studies.



**Format:** The summer school will include a mix of webinars, group and individual exercises and student presentations. The course is open to students currently studying for an MSc or PhD degree with backgrounds in environmental sciences, geography, environmental economics, meteorology and ecology.

Time	Day 1 - Mon	Day 2 - Tues	Day 3 - Thurs		Day 4 - Fri	Day 5 - Mon		Day 6 - Tues	Day 7 - Thurs		Day 8 - Fri	
09.00-10.00	Welcome, overview & introductions  Ice-breaker*	Lecture and Q&A on <i>land use change processes and observation</i> (Fuchs & Winkler)	One day break (Wedts)	Lecture and Q&A on <i>modelling land use change futures</i> (Brown)	Lecture and Q&A on <i>land use in science-policy processes: IPBES and IPCC</i> (Rounsevell)	Weekend break (Sat & Sun)	Lecture and Q&A on <i>species, habitat and biodiversity</i> (Whitehorn)	Lecture and Q&A on <i>ecosystem functioning concepts and modelling</i> (Rabin)	One day break (Wedts)	Lecture and Q&A on <i>ecosystem services, valuation and trade-offs</i> (Lee & Bayer)	Lecture and Q&A on <i>challenges for biodiversity policy: CBD, EU biodiversity strategy</i> (Arneth)	
10.00-11.00	Lecture and Q&A on <i>land use change</i> (Rounsevell)	Introduction to group exercise: Start group exercise		Introduction to group exercise: Start group exercise	Discussion forum: post a comment		Introduction to group exercise: Start group exercise	Introduction to group exercise: Start group exercise		Introduction to group exercise: Start group exercise	Introduction to group exercise: Start group exercise	Discussion forum: post a comment
11.00-12.00	Student introductions	Exercise continues		Exercise continue	Discussion forum: post a comment Respond to comments		Exercise continues	Exercise continues		Exercise continues	Exercise continues	Discussion forum: post a comment Respond to comments
12.00-14.00	Break	Break		Break	Break		Break	Break		Break	Break	Break
14.00-15.00	Lecture and Q&A on <i>ecosystem change</i> (Arneth)	Exercise continues		Exercise continues	Discussion forum: respond to comments		Exercise continues	Exercise continues		Exercise continues	Exercise continues	Discussion forum: respond to comments
15.00-16.00	Student introductions	Prepare group report backs		Prepare group report backs	Summary of DF and general discussion (Rounsevell)		Prepare group report back	Prepare group report back		Prepare group report back	Prepare group report back	Summary of DF and general discussion (Arneth)
16.00-17.00	Facilitated discussion*	Group report backs and discussion		Group report backs and discussion	Drop-in clinic End of week 1		Group report backs and discussion	Group report backs and discussion		Group report backs and discussion	Group report backs and discussion	Wrap-up, evaluation, ...: end of week 2

\*Options include [Mentimeter](#) polls/questions, completing the online ES survey, iconic landscapes/objects, ...

**Lecturers (KIT):** Prof. Dr. Almut Arneth, Prof. Dr. Mark Rounsevell, Dr. Calum Brown, Dr. Richard Fuchs, Dr. Sam Rabin, Dr. Heera Lee, Dr. Penelope Whitehorn, Dr. Anita Bayer, Dr. Bumsuk Seo and Karina Winkler.



**Applications:** Applications are open until 30 April 2021. Please send your CV and a letter of motivation (limited to one page) on one document, signed by your supervisor, to: [sylvia.kratz@kit.edu](mailto:sylvia.kratz@kit.edu)

This summer school contributes to the Global Land Project (GLP) and the Analysis & Integrated Modelling of the Earth System (AIMES) project of Future Earth.

