Climate Change – Causes and Scenarios

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Prof. Dr. rer.-nat. Fred Hattermann

Deputy Head of Research Department
Working Group Leader

Fred F. Hattermann is Deputy Head of Research Department II - Climate Resilience and Leader of Working Group Hydroclimatic Risks.
Furthermore, he is an honorary professor at the Eberswalde University for Sustainable Development (HNEE). He coordinates several water and hydrology modeling projects using SWIM - Soil and Water Integrated Model, an ecohydrologic process-based semi-distributed model.

TRANSECT

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Dr Michael Spies

Head of Research Group

Michael is a human geographer with broad experience in transdisciplinary human-environmental research. As an initiator and group leader of TRANSECT, his main research interests are reflected in the project design and include social-ecological dynamics of farming systems, participatory approaches to natural resource management and transboundary perspectives of agrarian change in Central Asia and Pakistan.

https://www.pik-potsdam.de/members/fred

https://www.transect.de/team/dr-michael-spies

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Fundamentals of climate change (Day 1):

- How does it work physically?
- Climate history?

Climate modelling and climate scenarios (Day 2):

- Global IPCC scenarios and projections
- Regionalised projections, case study

Strategies (Day 5 – student presentations):

- Mitigation and adaptation strategies (what does this mean?)
- The role of forests & agriculture

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Co-teaching from HNEE and PIK
(Potsdam Institute for Climate Impact Research)

- Lectures
- Some readings and discussions
- Input from students for students

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Schedule:

TIME	CONTENTS	
MON. 17.03.2025 **9:30 – 16:00**	Fundamentals of Climate Change	Fred Hattermann *Lecture room 11.103*
TUE. 18.03.2025 **9:30 – 16:00**	Climate Change Scenarios	Michael Spies *Lecture room 11.103*
WED. 19.03.2025 **9:30 – 12:30**	Coaching for student presentations (online)	Michael Spies
THU. 20.03.2025	Self-study time (preparing student presentations)	
FRI. 21.03.2025 **9:30 – approx. 14:30**	Student presentations (final examination)	Fred Hattermann & Michael Spies *Lecture room 11.103*

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Examination form:

- Presentation
- Group presentations (2-3 students)
- 20 minutes presentation + max. 15 minutes open discussion
- Presentation upload before 9:00am on 21.3.2025 via Nextcloud link: https://nextcloud.hnee.de/s/H4aRJMDoZywcE7M

Other course data:

- Module: “Environmental Policy in Times of Climate Change”
- Semester: 4
- Credits: 3
- SWH: 2
- Language: English

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Proposed student presentation topics:

1. **Mitigation in general**? What does mitigation mean? What are the most important things to be done on a global scale, and what are the main challenges?
2. **Mitigation and forests (or agriculture) agriculture**:
   Which role do forests (or the agricultural sector) play for mitigation?
3. **Adaptation in general**: What does it mean? What are the most important things to be done, where, and in which sectors?
4. **Adaptation and forests (or agriculture)**: What role do forests or agricultural systems play for a adaptation to climate change? What needs to be done, and how?
5. **Integration of mitigation and adaptation**: Opportunities and challenges of their integration

Thank you for your attention!

Picture Sources

Background picture: Siegmund Missall. Established from:

Precambrian Landscapte: last retrieved on January 17, 2023, from: https://static.wikia.nocookie.net/prahistorische-lebewesen-und-erdzeitalter/images/a/a7/Archaikum.jpg/revision/latest/smart/width/250/height/250?cb=20191019104107&path-prefix=de

Industrial Site: „Fluss mit rauchenden Schloten einer Fabrik im Hintergrund“, akg/North Wind Picture Archives, last retrieved on January 17, 2023, from: https://www.planet-wissen.de/natur/umwelt/umweltverschmutzung/umweltverschmutzung-industrialisierung-100~_v-gseapremiumxl.jpg

Carbon Forest: „Steinkohlewald – Landschaft mit Vegetation des Karbon“, akg, last retrieved on January 17, 2023, from: https://www.planet-wissen.de/geschichte/urzeit/deutschland_in_der_urzeit/index.html