

TiPES H2020 Workshop, Denmark 2-4th June 2020



Tuesday, 2 June 2020 - Thursday, 4 June 2020

Scientific Programme

Abrupt climate and ecosystem transitions in paleoclimate.**

Abstract

Several subsystems of the Earth system have been suggested to exhibit the potential to shift abruptly between different stable states. Key examples of such 'tipping elements' are the polar ice sheets, the Atlantic Meridional Overturning Circulation, as well as the tropical rainforests and monsoon systems. The only hard empirical evidence for multistability in these subsystems comes from paleoclimatic proxy records, which encode climate and ecosystem variability in the long-term past, from tens of thousands to millions of years before present. In order to give reliable assessments of the likelihood that abrupt transitions will occur under ongoing global warming in the future, we need to significantly improve our understanding of the mechanism that have lead to abrupt transitions in past.

In this workshop, we aim to bring together experts in paleoclimate proxy reconstruction, dating, time series analysis, and modelling, to share and combine their knowledge about past abrupt transitions in climate and ecosystems.

Key issues we plan to address are:

- Uncertainties in the data basis derived from ice core, terrestrial, and marine archives, with a focus on dating uncertainties
- Synchronization of different proxy archives and the limits imposed by proxy data resolution
- Insights into the mechanisms of past abrupt transitions from the hierarchy of Earth system models
- Propagation patterns of abrupt transitions across the globe, from both proxy and corresponding modelling perspectives
- Interactions between abrupt climate transitions and shifts between different ecosystem states

We currently have four invited speakers:

Frank Mayle, University of Reading

Hai Cheng, Xi'an Jiaotong University

Tim Lenton, University of Exeter

Peter Hopcroft, University of Birmingham