

Summer Term 2010

[ESSReS-L7: Paleoclimate: from proxies to climate data](#)

This course will focus on the introduction to the fundamental understanding of Earth's history and its evolution on long time scales. Lectures and interactive modules will show how climate history can be reconstructed in order to understand the mechanisms and impacts of past global environmental variability related to natural driving forces of climate change. This can be achieved by interpreting chemical signatures of biologic, oceanographic and climatic processes that are preserved in the marine sediment record.

Special modules on basic and expert level will be provided.

Date: May 10 - 12, 2010

Location, time: AWI Bremerhaven, room to be announced, 9 am - 5 pm

Language: English

Lecturers: Dr. Frank Lamy, Prof. Dr. Ralf Tiedemann (AWI Bremerhaven), PD Dr. Bernhard Diekmann (AWI Potsdam)

The Programme: [ESSReS-L7.pdf](#)

Winter Term 2009/2010

[ESSReS-L6: Workshops on Earth System Modelling](#)

The two workshops on earth system modelling are proposed for PhD students interested and dealing with computational modelling of the earth system in general. Both workshops are held by guest professors from the UK and Australia.

Workshop I

will give an introduction to and practical hands-on learning in Earth system modelling. It will provide a chance to explore the dynamics of the Earth's climate system as well as of global carbon cycling and the biogeochemical impacts of fossil fuel CO₂ emissions. The workshop is held by **Prof. Dr. Andy Ridgwell from the University of Bristol, UK**, and organized by [POLMAR](#)

[A Hitchhikers Guide to the Black Arts of Earth System Modeling \('or why you should you not want to know what is in the sausage'\)](#)

Date: April 19 - 20, 2010

Location, time: AWI Bremerhaven, Building E-4005 (Weserturm), 9 to 5 pm

Language: English

Registration via: [info.polmar\(at\)awi.de](mailto:info.polmar(at)awi.de)

Workshop II

will give an introduction to [GPlates software](#), an interactive plate-tectonic reconstruction, geographic information system (GIS) functionality and raster data visualisation tool. It enables the interactive manipulation of plate-tectonic reconstructions and visualization of associated data through geological time, including paleomagnetic data. Users can build regional to global plate models, and import their own data.

The workshop is held by **Prof. Dr. Dietmar Müller, University of Sydney, Australia**.

GPlates, an introductory course on plate-tectonic reconstruction

Date: April 28, 2010

Location, time: AWI Bremerhaven, Building E-4005 (Weserturm), 9 to 5 pm

Language: English

Registration via: [info\(at\)earth-system-science.org](mailto:info(at)earth-system-science.org)

ESSReS-L5: Atmospheric modes and teleconnection patterns

1-day course: 30 September 2009 by ESSReS guest scientist Dr. Norel Rimbu

Location: AWI

Responsible: **N. Rimbu**, K. Grosfeld

Email: [info\(at\)earth-system-science.org](mailto:info(at)earth-system-science.org)

Klaus.Grosfeld@awi.de

Dr. Norel Rimbu is senior scientist and lecturer at the Faculty of Physics, Department of Geosciences at the University of Bucharest, Romania. He is specialized in climate data analysis, especially in the field of atmospheric teleconnections and climate variability and predictability at different time scales. Dr. Rimbu has great experience in the analysis of proxy data time series in combination with climatic forcing fields (such as large scale sea level pressure, temperature or other climate data) which is a key process when transferring local climate record information into the large scale areal and temporal context. The understanding of climate teleconnection patterns of the present day climate is a precondition in the understanding of the global Earth system.

The course will provide two lectures, one introductory (more general) and one advanced lecture on climate modes.

Lecture I: The North Atlantic Oscillation and the Pacific North American patterns and their relation with El Nino-Southern Oscillation

Structure of the lecture:

- 1) an overview of the basic atmospheric teleconnection patterns and their relationships with the basic elements of the large-scale Northern Hemisphere atmospheric circulation
- 2) the North Atlantic Oscillation (NAO) as a dominant pattern of the Northern Hemisphere atmospheric circulation variability
- 3) the Pacific North American Pattern (PNA) and its relationship with El Nino-Southern Oscillation (ENSO)
- 4) extratropical ENSO teleconnections and their relations with NAO and PNA.

Lecture II: Atmospheric teleconnections during present, past and future climate

Structure of the lecture:

- 1) sectorial (PNA + NAO) versus annular (Arctic Oscillation; AO) description of the present Northern Hemisphere atmospheric circulation variability: statistical and dynamical arguments.
- 2) stability of the teleconnections with focus on the 1970's shift
- 3) atmospheric teleconnections in past climate
- 4) atmospheric teleconnections in future climate

Extended Abstracts: ESSReS-L5.pdf

Lecture Material for download: [Lecture I](#), [Lecture II](#)