

ECORD Summer School on "Dynamics of Past Climate Changes"

Venue: MARUM, University of Bremen, Germany

September 13 – 24, 2010

Monday

September 13

"Climate response to orbital forcing"

Alan Mix and David Hodell

09:00 - 09:30	Welcome and introduction to the Summer School
09:30 - 10:30	Introduction to key proxies – in ocean sediments, ice cores. Earth's Orbit and development of Milankovitch Theory (Hodell)
10:30 - 11:00	Coffee break
11:00 - 12:30	Intoduction to orbital climate analysis (Mix)
12:30 - 13:30	Lunch
13:30 - 14:30	Presentations by participants
14:30 - 14:45	Break
14:45 - 16:00	Simple timeseries models (Mix)
16:00 - 16:30	Coffee Break
16:30 - 18:00	Orbital Changes, Mid Pleistocene Transition and longer (Hodell)
18:30	Ice Breaker Party at the Café Unique

Tuesday

September 14

"Millennial-scale climate variability"

Luke Skinner, David Hodell and Michael Schulz

09:00 - 09:30	Wrap-up of previous day by students
09:30 - 10:30	The record of rapid change (Hodell)
10:30 – 10:40	Photo shooting: Group photo of all participants
10:40 - 11:00	Coffee break
11:00 - 12:30	Practical: Exploring hysteresis behaviour (Skinner/Schulz)
12:30 - 13:30	Lunch
13:30 - 14:30	Presentations by participants
14:30 - 14:45	Break
14:45 - 16:00	Modelling glacial millennial-scale climate variability (Skinner/Schulz)
16:00 - 16:30	Coffee Break
16:30 - 18:00	Discussion: Millennial-scale variability during interglacials (Skinner, Hodell, Schulz)

Wednesday**September 15****“Linkages between climate and tectonics”*****William Hay and Matthias Prange***

09:00 - 09:30	Wrap-up of previous day by students
09:30 - 10:30	Tectonics and Climate I (Hay)
10:30 - 11:00	Coffee break
11:00 - 12:30	Tectonics and Climate II (Hay)
12:30 - 13:30	Lunch
13:30 - 14:30	Presentations by participants
14:30 - 14:45	Break
14:45 - 16:00	Southern Ocean gateways, global ocean circulation and Antarctic glaciation near the Eocene-Oligocene boundary (Prange))
16:00 - 16:30	Coffee Break
16:30 - 18:00	Tropical ocean gateway closures and Neogene climate cooling (Prange)

Thursday**September 16****“Sea-level changes”*****Ken Miller and André Droxler***

09:00 - 09:30	Wrap-up of previous day by students
09:30 - 10:45	Eustacy (Miller)
10:45 - 11:15	Coffee break
11:15 - 12:30	Carbonate sequences (Droxler)
12:30 - 13:30	Lunch
13:30 - 14:30	Presentations by participants
14:30 - 14:45	Break
14:45 - 16:00	Siliciclastic sequences (Miller)
16:00 - 16:30	Coffee Break
16:30 - 18:00	Atolls and deglaciation (Droxler); Future sea level (Miller)

Friday**September 17****“Paleoproductivity, carbon burial through time, high CO₂ worlds”*****Torsten Bickert, William Hay and Gerhard Fischer***

09:00 - 09:30	Wrap-up of previous day by students
09:30 - 10:30	Carbon cycle and ocean productivity: an introduction (W. Hay)
10:30 - 11:00	Coffee break
11:00 - 12:30	From high to low CO ₂ worlds (W. Hay)
12:30 - 13:30	Lunch
13:30 - 14:30	Presentations by participants
14:30 - 14:45	Break
14:45 - 16:00	A short-term perturbation of the carbon cycle: The PETM (T. Bickert)
16:00 - 16:30	Coffee Break
16:30 - 18:00	Oceanic anoxia - principles and examples from history (G. Fischer)

Saturday**September 18**

Field trip to Late Quaternary landscapes in the vicinity of Bremen
Dierk Hebbeln et al.

Sunday**September 19**

Free time to explore Bremen

Monday

09:00 - 10:00

10:00 - 10:30

10:30 – 11:00

11:00 – 12:00

12:00 - 13:00

13:00 - 14:30

14:30 - 15:00

15:00 - 15:45

15:45 - 16:30

16:30 - 17:15

September 20**Introduction to IODP****IODP and ECORD: Structure and objectives and an introduction to “the Virtual Ship”;** *Ulla Röhl***IODP Core Curation;** *Walter Hale*

Coffee Break

Tour of the IODP Bremen Core Repository; *Walter Hale*

Lunch

Presentations by participants

Coffee Break

Core descriptions – introduction to practical #1;
*Frank Lamy and Mahyar Mohtadi***Physical properties – Introduction to practical #2;** *Holger Kuhlmann***XRF core scanning – introduction to practical #3;** *Ulla Röhl***Tuesday**

09:00 - 11:30

11:30 - 12:30

12:30 - 15:00

15:00 - 15:30

15:30 - 17:00

September 21**Virtual Ship****Visual core description, physical properties and XRF core scanning****Three groups of 10 students rotate for three practicals**

Practical #1: Core description (Frank Lamy, Mahyar Mohtadi)

Practical #2: Physical properties (Holger Kuhlmann)

Practical #3: XRF core scanning (Ulla Röhl, Vera Lukies)

First Lab turn

Lunch break

Second lab turn

Coffee Break

Presentations by participants

Wednesday

09:00 - 09:45

09:45 - 12:30

12:30 - 13:15

13:15 - 14:00

14:00 - 14:45

14:45 - 15:15

15:15 - 17:45

September 22**Virtual Ship****Visual core description, physical properties and XRF core scanning – continued****Core splicing – introduction to practical #4;** *Thomas Westerhold***Third Lab turn**

Lunch break

Integrated stratigraphy – Introduction to practical #5*Thomas Fredrichs and Karl-Heinz Baumann***Pore water sampling – introduction to practical #6;** *Luzie Schnieders*

Coffee break

Core splicing, stratigraphy and pore water sampling**Three groups of 10 students rotate for three practicals**

Practical #4: Core splicing (Thomas Westerhold)

Practical #5: Integrated stratigraphy (Thomas Fredrichs, Karl-Heinz Baumann)

Practical #6: Pore water sampling (Luzie Schnieders)

First Lab turn

Thursday

09:00 - 11:30
11:30 - 12:30
12:30 - 15:00
15:00 - 15:30
15:30 - 17:00
17:30

Friday

09:00 - 10:30
10:30 - 11:00
11:00 - 12:00
12:00 - 12:30

September 23**Virtual Ship**

Core splicing, stratigraphy and pore water sampling – continued

Second Lab turn

Lunch break

Third Lab turn

Coffee break

Introduction to Downhole Logging; *Sarah Davies*

Farewell party at the Café Unique

September 24

How to write an IODP proposal; *Ulla Röhl et al.*

Coffee break

How to write an IODP proposal - continued

Summer School wrap up, award for the best student presentation, and farewell

