

ECORD Summer School

Submarine Landslides, Earthquakes and Tsunamis

Venue: MARUM, University of Bremen, Germany

September 03 – 13, 2012

Monday

09:00 - 09:45

September 03

Welcome and introduction to the Summer School, *Dierk Hebbeln, Michael Strasser, Katrin Huhn, Ursula Röhl*

Introductory Lectures to the Topic

09:45 - 10:45

Plate boundary dynamics and earthquakes, *Jan Behrmann*

10:45 - 11:15

Coffee break

11:15 - 12:00

Tsunamis, *Stefano Tinti*

12:00 - 13:00

Submarine landslides along Earth continental margins, *Angelo Camerlenghi*

13:00 - 14:30

Lunch

14:30 - 15:30

IODP and ECORD: Structure and objectives and an introduction to the “Virtual ship”; *Rüdiger Stein and Ulla Röhl*

15:30 - 16:00

IODP Core curation; *Walter Hale*

16:00 - 16:30

Tea break

16:30 - 17:30

Guided tour through MARUM and IODP Bremen Core Repository (BCR)

17:45

ECORD Summer School Icebreaker

Tuesday

September 04

Earthquakes and Tsunamis

09:00 - 09:15

Review of previous day's contents by participants

09:15 - 10:30

Seismology at active plate boundaries, *Marco Bohnhoff*

10:30 - 10:45

Photo shooting: Group photo of all participants

10:45 - 11:15

Coffee break

11:15 - 12:45

Tsunamis from earthquakes and submarine landslides, *Stefano Tinti*

12:45 - 14:00

Lunch

14:00 - 15:00

Presentations by participants

15:00 - 15:30

Tea break

15:30 - 16:00

Virtual ship: Introduction to R/V Sonne Cruise Tohoku; *Michael Strasser*

16:00 - 16:30

Virtual ship: Core description – introduction to laboratory exercise #1; *Angelo Camerlenghi*

16:30 - 17:00

Virtual ship: Physical properties – introduction to laboratory exercise #2; *Andre Hüpers*

17:00 - 17:30

Virtual ship: Pore water geochemistry – introduction to laboratory exercise #3; *Luzie Schnieders*

Wednesday**September 05****Submarine Landslides**

09:00 - 09:15	Review of previous day's contents by participants
09:15 - 10:45	Assessing the stability of submarine slopes and triggering mechanisms of submarine landslides, <i>Roger Urgeles</i>
10:45 - 11:15	Coffee break
11:15 - 12:00	Sediment mass transport processes, deposition and stratigraphic record, <i>Michael Strasser</i>
12:00 - 12:45	Submarine slides in the geological record, <i>Angelo Camerlenghi</i>
12:45 - 14:00	Lunch
14:00 - 15:00	Presentations by participants
15:00 - 15:30	Tea break

Virtual ship**Three groups of 10 students rotate for three laboratory sessions**Laboratory #1: Core Description, (*Angelo Camerlenghi, Michael Strasser,*)Laboratory #2: Physical Properties, (*Andre Hüpers, Jan Behrmann, Roger Urgeles*)Laboratory #3: Pore Water Geochemistry (*Luzie Schnieders, Martin Kölling*)

15:30 – 17:45	Virtual ship - first laboratory session - laboratory #1 to #3
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Thursday**September 06****Submarine Landslides**

09:00 - 09:15	Review of previous day's contents by participants
09:15 - 10:00	Submarine landslides along active margins, <i>Jan Behrmann</i>
10:00 - 10:45	Submarine landslides at passive margins, <i>Roger Urgeles</i>
10:45 - 11:15	Coffee break
11:15 - 12:00	Submarine landslides along glaciated margins, <i>Angelo Camerlenghi</i>
12:00 - 12:45	Submarine landslides at volcanic margins, <i>Roger Urgeles</i>
12:45 - 14:00	Lunch
14:00 - 15:00	Presentations by participants
15:00 - 15:30	Tea break
15:30 - 17:45	Virtual ship - second laboratory session - laboratory #1 to #3

Friday**September 07**

09:00 - 09:15	Review of previous day's contents by participants
09:15 - 10:45	Numerical modeling principles in submarine landslide, earthquake and tsunami research, <i>Katrin Huhn</i>
10:45 - 11:15	Coffee break
11:15 - 12:45	EXERCISE: Proposing a drill site and providing site survey data, <i>Roger Urgeles, Angelo Camerlenghi, Michael Strasser</i>
12:45 - 14:00	Lunch
14:00 - 15:00	Presentations by participants
15:00 - 15:30	Tea break
15:30 - 17:45	Virtual ship - third laboratory session - laboratory #1 to #3

Saturday

08:00 - 18:00

September 08

Full day field trip to visit coastal protection infrastructures and discuss the preparedness to potential offshore geohazards in the low-lying coastal areas along the North Sea coast line

Sunday**September 09**

Free time to explore Bremen

Monday**September 10****Plate Boundary Dynamics and Earthquakes**

09:00 - 09:15

Review of previous week's contents by participants

09:15 - 10:45

Development of margins and hazards, *Lisa McNeill*

10:45 - 11:15

Coffee break

11:15 - 12:45

Seismogenic zone experiments – fault rock drilling, *Harold Tobin*

12:45 - 14:00

Lunch

14:00 - 15:00

Presentations by participants

15:00 - 15:30

Tea break

15:30 - 16:00

Virtual ship: Introduction to Leg 156 & Exp 316/333; *Michael Strasser*

16:00 - 16:30

Virtual ship: Structural geology – visual core description – introduction to laboratory exercise #4; *Harold Tobin*

16:30 - 17:00

Virtual ship: X-ray Computed Tomography – introduction to laboratory exercise #5; *Michael Strasser*

17:00 - 17:30

Virtual ship: Numerical Modelling – introduction to laboratory exercise #6; *Katrin Huhn***Tuesday****September 11****Plate Boundary Dynamics and Earthquakes**

09:00 - 09:15

Review of previous week's contents by participants

09:15 - 10:45

Hydrology of active margins, *Nina Kukowski*

10:45 - 11:15

Coffee break

11:15 - 12:45

Observatories and in situ technology, *Harold Tobin / Michael Strasser*

12:45 - 14:00

Lunch

14:00 - 15:00

Presentations by participants

15:00 - 15:30

Tea break

15:30 - 17:30

Virtual ship: Introduction to downhole logging; *Jenny Inwood*

Wednesday September 12**Plate Boundary Dynamics and Earthquakes**

- 09:00 - 09:15 Review of previous day's contents by participants
09:15 - 10:45 In situ stress and seismic cycle, *Lisa McNeill / Harold Tobin*
10:45 - 11:15 Coffee break
11:15 - 12:45 Geotechnical laboratory experiments – demonstrations: *Matt Ikari, Andre Hüpers*
12:45 - 14:00 Lunch
14:00 - 15:00 Presentations by participants
15:00 - 15:30 Tea break

Virtual ship**Three groups of 10 students rotate for three laboratory sessions**

- Laboratory #4: Structural geology – visual core description (Tobin, McNeill)
Laboratory #5: X-CT (*Strasser, incl. tour to X-ray CT scanner: Kuhlmann*)
Laboratory #6: Numerical modelling (Huhn)
15:30 - 17:45 **Virtual ship - fourth laboratory session - laboratory #4 to #6**

Thursday**September 13**

- 09:00 - 11:15 **Virtual ship - fifth laboratory session - laboratory #4 to #6**
11:15 - 11:45 Coffee break
11:45 - 12:45 Early warning systems, *Thorsten Dahm*
12:45 - 14:00 Lunch
14:00 - 15:00 Presentations by participants
15:00 - 15:30 Tea break
15:30 - 17:45 **Virtual ship - sixth laboratory session - laboratory #4 to #6**
17:45 **ECORD Summer School Barbeque**

Friday**September 14**

- 09:00 - 10:30 **How to write an IODP proposal, Jochen Erbacher, Ulla Röhl, Rüdiger Stein**
10:30 - 11:00 Coffee break
11:00 - 12:00 **How to write an IODP proposal - continued**
12:00 - 12:30 **Summer School debriefing, award for the best student presentation, and farewell**



ECORD Mission Specific Platforms

