KARTHAUS-2015 / GLACIERS AND ICE SHEETS IN THE CLIMATE SYSTEM
Programme

Exercises and computer projects

The 36 participants are divided into 12 teams. In the first part of the afternoon, 6 teams do exercises, supervised by the teacher indicated in the programme. Meanwhile, the other 6 teams work on computer projects. In the second half of the afternoon the teams switch. A particular team of 3 students works on the same project during the entire course, guided by a teacher. At the end of the course there will be 15-minute presentations on the outcome of the projects.

Tuesday 8

Afternoon	Arrival / check-in
19:30	DINNER

Wednesday 9

08:30 - 08:50	Welcome / practical announcements *(Reijmer)*
08:50 - 09:30	Continuum mechanics-I *(Gudmundsson)*
09:40 - 10:30	Continuum mechanics-II *(Gudmundsson)*
10:40 - 11:00	coffee break
11:00 - 11:50	Rheology of ice *(Karlsson)*
12:00 - 12:50	Thermodynamics of ice *(Ng)*
13:00	LUNCH
14:00 - 16:00	Exercises for all groups *(Gudmundsson)*
16:00 - 16:30	coffee break
16:30 - 17:30	5-min presentations by students
19:30	DINNER

Thursday 10

08:30 - 09:20	Commonly used approximations in ice flow modelling *(Gudmundsson)*
09:30 - 10:20	Analytical models of ice sheets *(Oerlemans)*
10:20 - 10:40	coffee break
10:40 - 11:30	Climates of ice sheets and glaciers *(Reijmer)*
11:40 - 12:30	Modelling glacier surface and near-surface processes *(Reijmer)*
13:00	LUNCH
14:30 - 15:30	5-min presentations by students
16:00 - 16:30	coffee break
16:30 - 17:30	5-min presentations by students
19:30	DINNER

Friday 11

08:30 - 09:20	Numerical modeling of ice sheets and ice shelves I *(Pattyn)*
09:30 - 10:20	Numerical modeling of ice sheets and ice shelves II *(Pattyn)*
10:20 - 10:40	coffee break
10:40 - 11:30	Sliding *(Ng)*
11:40 - 12:30	Glacier hydrology *(Ng)*
12:45	LUNCH
14:00 - 15:30	Group II: exercises *(Karlsson)* / Group I: computer projects
15:30 - 16:00	coffee break
16:00 - 17:30	Group I: exercises *(Karlsson)* / Group II: computer projects
19:30	DINNER

Saturday 12

08:30 - 09:20	Numerical modeling of ice sheets and ice shelves III *(Pattyn)*
09:30 - 10:20	Geophysical and remote-sensing methods in glaciology I *(Eisen)*
10:20 - 10:40	coffee break
10:40 - 11:30	Geophysical and remote-sensing methods in glaciology II *(Eisen)*
11:40 - 12:30	Interaction of ice shelves with the ocean-I *(Jenkins)*
12:45	LUNCH
14:00 - 15:30	Group I: exercises *(Pattyn)* / Group II: computer projects
15:30 - 16:00	coffee break
16:00 - 17:30	Group II: exercises *(Pattyn)* / Group I: computer projects
19:30	DINNER

Sunday 13

08:30 - 09:20	Minimal glacier models *(Oerlemans)*
09:30 - 10:20	Tidewater glaciers *(Oerlemans)*
10:20 - 10:40	coffee break
10:40 - 11:30	Introduction to glacial geomorphoplogy *(Stroeven)*
11:40 - 12:30	Basal processes and geomorphology *(Ng)*
12:45	LUNCH
	free afternoon
19:30	DINNER

Monday 14

08:30 - 09:20	Geomorphology and mapping of paleo-ice sheets *(Stroeven)*
09:30 - 10:20	Geophysical and remote-sensing methods in glaciology III *(Eisen)*
10:20 - 10:40	coffee break
10:40 - 11:30	Interaction between ice sheets and the solid earth *(Van de Wal)*
11:40 - 12:30	Extra-terrestrial ice *(Karlsson)*
12:45	LUNCH
14:00 - 15:30	Group II: exercises *(Eisen)* / Group I: computer projects
15:30 - 16:00	coffee break
16:00 - 17:30	Group I: exercises *(Eisen)* / Group II: computer projects
19:30	DINNER

Tuesday 15

	Excursion to the glaciers of the Oetztal Alps *(Grüner)*
19:30	DINNER

Wednesday 16

08:30 – 09:20	Interaction of ice shelves with the ocean-II *(Jenkins)*
09:30 – 10:20	Interaction of ice shelves with the ocean-III *(Jenkins)*
10:20 – 10:40	coffee break
10:40 – 11:30	Ice cores I *(Blunier)*
11:40 – 12:30	Ice cores II *(Blunier)*
12:45	LUNCH
14:00 - 15:30	Group I: exercises *(Jenkins)* / Group II: computer projects
15:30 - 16:00	coffee break
16:00 - 17:30	Group II: exercises *(Jenkins)* / Group I: computer projects
19:30	DINNER

Thursday 17

08:30 - 09:20	Ice cores III *(Blunier)*
09:30 - 10:20	Inverse modelling *(Gudmundsson)*
10:20 - 10:40	coffee break
10:40 - 11:30	The response of glaciers to climate change *(Oerlemans)*
11:40 - 12:30	The mass budget of the Greenland and Antarctic ice sheets *(Reijmer)*
12:45	LUNCH
14:00 - 15:30	Group II: exercises *(Blunier)* / Group I: computer projects
15:30 - 16:00	coffee break
16:00 - 17:30	Group I: exercises *(Blunier)* / Group II: computer projects
19:30	DINNER

Friday 18

08:30 - 09:20	Geodynamics and sea level *(Van de Wal)*
09:30 - 10:20	Ice sheet modelling through the Cenozoic *(Van de Wal)*
10:20 - 10:40	coffee break
10:40 - 12:30	*working on project presentations*
12:45	LUNCH
14:00 - 15:30	Presentation of computer projects (6x)
15:30 - 16:00	coffee break
16:00 - 17:30	Presentation of computer projects (6x)
17:30 - 18:00	Discussion
19:30	DINNER

Saturday 19

	Departure

Computer projects

The organizing committee will make a proposal about the distribution of students over the projects. The list will be posted on the first day of the course. Some (limited) changes can then be made before the projects start on friday.
A number of Mac's will be available in a local network. Participants may also bring their own laptops. We will have a wireless net to have ties with the outside world. Practice has shown that these ties are not very fast.

GROUP I:

Project 1:   Glacial geomorphology I *(Stroeven)*

Project 2:   Glacial geomorphology II *(Stroeven)*

Project 3:   Sea level and geodynamics *(Van de Wal)*

Project 4:   Gedodynamic effects in an ice flow model *(Van de Wal)*

Project 5:   Energy balance of glacier surface *(Reijmer)*

Project 6:   SIA glacier model *(Reijmer)*

GROUP II:

Project 7:   Ice on Mars *(Karlsson)*

Project 8:   Dating of ice using RES layers *(Karlsson)*

Project 9:   Inverse modelling *(Gudmundsson)*

Project 10:   Ice shelf – ocean interaction *(Jenkins)*

Project 11:   Ice-sheet model *(Pattyn)*

Project 12:   Geophysical methods *(Eisen)*