

INTERNATIONAL 2007 ◊ 2008
POLAR YEAR



Time Table

International and Interdisciplinary IPY Polar Field School 2009

June 15th – July 3rd 2009

A cooperative effort between,
IPY Norway
University of The Arctic
The University Centre in Svalbard
The Association of Polar Early Career Scientists

WITH RESERVATION TO POSSIBLE CHANGES

Last update: 10.06.09, Elise Strømseng, 79 02 33 93/ elises@unis.no

International and Interdisciplinary IPY Polar Field School 2009

Background

The International Polar Year (IPY) is a large scientific programme focused on the Arctic and the Antarctic lasting from March 1st 2007 to March 1st 2009.

IPY, organized through the International Council for Science (ICSU) and the World Meteorological Organization (WMO), is actually the fourth polar year, following those in 1882-3, 1932-3, and 1957-8. In order to have full and equal coverage of both the Arctic and the Antarctic, IPY 2007-8 covers two full annual cycles from March 2007 to March 2009. 200 projects, with thousands of scientists from over 60 nations examining a wide range of physical, biological and social research topics, will be involved. IPY 2007-2008 will also be an unprecedented opportunity to demonstrate, follow, and get involved with, cutting edge science in real-time.



The idea of an IPY Polar Field School (FS) for students at the termination of IPY 2007-2008

International cooperation in research, education and outreach has been a common aim for all IPY participating countries. The idea of an IPY Field School (FS) was raised during an APECS/IPY Youth conference in Stockholm, Sweden, in September 2007. The project on realizing this FS started a month later and has kept on until the present date. Funding was an essential issue, however today we can proudly say that the IPY FS is fully financed thanks to IPY Norway and The University of the Arctic (UArctic). The University Centre in Svalbard (UNIS) will host this FS and arrange it as an UNIS course worth 10 ECTS, hence UNIS is contributing with coordination, lecturers, facilities and logistics. The planning has been carried out by IPY Norway/UNIS representative Elise Strømseng, representatives from APECS, Elizabeth Thomas and Melissa Rohde, as well as Professor Hanne H. Christiansen from UNIS.

The FS is meant to be a final event for internationally recruited students at the termination of IPY – focusing on Polar issues and initiate future networking of students with interests for Polar Science through APECS. This will also be a unique opportunity for the IPY research projects to perform outreach and present their new IPY-data to the future Polar scientists.

The focus of the FS will be interdisciplinary – involving several of the aspects of the research performed during IPY, i.e. also the human dimension. 23 students will be given admission and experience great nature, exiting field work and excursions and meet a lot of encouraged students at Svalbard in 3 weeks in the summer of 2009.

We wish you welcome to Longyearbyen and UNIS.

Best regards,

Elise Strømseng
Coordinator
IPY Norway/UNIS
/UArctic

Hanne H. Christiansen
Professor
UNIS/
IPY Norway

Elizabeth Thomas
British Antarctic Survey
APECS

Melissa Rohde
Student
APECS

AFS-201 International Polar Field School (10 ECTS)

Objective:

To give an interdisciplinary introduction to environmental change in the Polar areas based upon past, present and future research being done in the Arctic during IPY. The course will offer a unique field-training experience for internationally recruited students (undergraduate/early graduate) in a high-arctic environment, further on providing them with the latest IPY research data and information to be used for interdisciplinary project work during the field-school.

Content:

This course will focus on the impacts of climatic changes on the Polar regions, and students will accordingly get a general overview of topics including geology, glaciology, permafrost, oceanography, meteorology, biology, Polar social science and management/decision making in the Polar areas. The field-school will provide hands-on activities, field-work, group work and lectures covering the main topics, but also a deeper look into present polar research being accomplished during IPY 2007-2009. Students will work with group projects and thus get training to improve report writing and presentation skills. The projects will be based on data collected during fieldwork, the lectured scientific topics and the lectures regarding management systems and the legal framework applying to the Polar region. A unique lecture topic for this course is the inclusion of the effects of environmental changes on the human population, hence including some lectures on indigenous people in Polar areas.

In total the course provides facts and information on a variety of issues within the main concerns mentioned, and introduces students to field-work in the Arctic, methods in different disciplines, skills in how to make a good presentation and perform research outreach, and finally how to see Polar research in a broader perspective.

The course will be conducted as a concluding part of The International Polar Year (IPY) 2007-2009, and as a collaborative initiative between IPY Norway, UNIS, UArctic and the Association of Early Career Polar Scientists (APECS).

Prerequisites:

Meet one or more of the prerequisites for the undergraduate courses in biology, geology, technology or geophysics, currently taught at UNIS, 45-90 ECTS in natural sciences/earth sciences.

Period:	Summer 2009
Teaching:	40 hrs lectures, 30 hrs seminars, 3 days of field activity/excursions
Evaluation:	Oral presentation and approved report.
Course responsible:	Hanne H. Christiansen, hannec@unis.no
Unis responsible person:	Elise Strømseng, elises@unis.no

DAYPROGRAMME

Friday June 12th			
TIME	EVENT	WHERE	RESPONSIBLE
10:00 →	Buying food for the barracks <ul style="list-style-type: none"> • Make welcome letter for each kitchen with the kitchen rules, food access and the way of ordering more food when the fridge gets empty for something. 	Svalbardbutikken	UNIS/ APECS/ UNIS-students
13:45	Arrivals Transport to Student Hostels - Nybyen	<i>Longyearbyen Airport</i>	UNIS/ UNIS-students
14:00 →	<ul style="list-style-type: none"> • Welcome letters (printcode/username) • Organize transport to Nybyen 	UNIS	UNIS
<i>Evening</i>	<i>Free evening for those already arrived, organize your own dinner!</i>	<i>Longyearbyen</i>	
23:30	Arrivals Transport to Student Hostels - Nybyen	<i>Longyearbyen Airport</i>	UNIS/ UNIS-students

Saturday June 13th			
20:15	Arrivals Transport to Student Hostels - Nybyen	<i>Longyearbyen Airport</i>	UNIS/ UNIS-students
<i>Evening</i>	<i>Free evening for those already arrived, organize your own dinner!</i>	<i>Longyearbyen</i>	

Sunday June 14th			
14.00	Arrival Longyearbyen <ul style="list-style-type: none"> • Transport to Student Hostels - Nybyen • Unpacking and a light meal at Nybyen (organized within each kitchen) 	<i>Longyearbyen Airport</i>	UNIS/APECS
16.30	Welcome to UNIS and Svalbard <ul style="list-style-type: none"> • UNIS 25 min • IPY 25 min • UArctic 10 min • APECS 10 min • Practical information 	<i>Longyearbyen UNIS Room: Lassegrotta</i>	Speakers: Gunnar Sand/ Elise Strømseng/ Hanne H. Christiansen/ Elizabeth Thomas
17:30	Guided tour around UNIS	UNIS	Elise Strømseng Hanne H. Christiansen

18:00→	Pizza at UNIS + “get to know games”...	<i>Pizza delivered by Puben!</i>	Elise Strømseng
00:30	Arrivals Transport to Student Hostels - Nybyen	<i>Longyearbyen Airport</i>	UNIS/ UNIS-students

Monday June 15th			
TIME	EVENT	WHERE	RESPONSIBLE
08:30 –16:30	Safety Course <i>- Remember to make your own lunch in Nybyen before going to UNIS and bring warm clothes!</i>	Longyearbyen UNIS/Rifle range <i>Meet at room: Lassegrotta</i>	UNIS Logistics
17:30	Dinner at Huset	Huset	All
<i>Evening</i>	<i>Free evening</i>		
Tuesday June 16th			
09.15 -10.00 10:15 -11:00	Lecture: Climate of the Arctic; Past and Present	UNIS <i>Room: Lassegrotta</i>	Lecturer: Ole Humlum
11.00 -12.00	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen</i>	UNIS	UNIS
12.15 -13:00 13:15 -14.00	Lecture: Paleoclimateology - Ice cores – the polar time capsule - Rapid Climate Change	UNIS <i>Room: Lassegrotta</i>	Lecturer: Elizabeth Thomas
14:15 -15:00	Lecture: Meteorology of the Arctic, with special emphasis on Svalbard	UNIS <i>Room: Lassegrotta</i>	Lecture: Ole Humlum
15:15 – 16:00	Discussion	UNIS <i>Room: Lassegrotta</i>	Ole Humlum/ Elizabeth Thomas
17:30	Dinner at Huset	Huset	All
<i>Evening</i>	<i>Free evening</i>		

DAYPROGRAMME

Wednesday June 17th			
TIME	EVENT	WHERE?	RESPONSIBLE
09.15 -10.00	Lecture: Geology - introduction	UNIS <i>Room:</i> <i>Lassegrotta</i>	Lecturer: Hanne H. Christiansen
10:15 – 11:00 11:15 – 12:00	Lectures: Glaciology - IPY-project: Glaciodyn	UNIS <i>Room:</i> <i>Lassegrotta</i>	Lecturer: Monica Sund
12:00 – 12:30	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen. Bring some extra food for excursion after lunch.</i>		
13:00 →	Excursion to Longyearglacier/morain <i>* Can be changed!</i>	Longyearglacier	Monica Sund
18:30	Dinner at Huset	Huset	All
<i>Evening</i>	<i>Free evening</i>		
Thursday June 18th			
09.15 - 11.00	Lecture: Permafrost and periglacial landforms - Including results from the IPY project: TSP Norway.	UNIS <i>Room:</i> <i>Lassegrotta</i>	Lecturer: Hanne H. Christiansen
11:15 – 12:00	Lecture: Avalanches High arctic mountain slope processes, especially snow avalanches and their impact on human activity in Svalbard (The Cryoslope Svalbard project).	UNIS <i>Room:</i> <i>Lassegrotta</i>	Lecturer: Markus Eckerstorfer
12.00 -13.00	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen</i>		
13.00 - 17.00	Excursion: IPY-project, TSP Norway Active layer dynamics - Old Auroral Station, History, loess sedimentation, Boreholes, CALM grid, resistivity monitoring. Fieldwork: UNISCALM grid probing. Slope landforms and processes in Endalen - Borehole, resistivity monitoring, solifluction Monitoring, avalanche activity in Endalen. Ice wedge dynamics	Advent valley	Lecturer: Hanne H. Christiansen, Markus Eckerstorfer, Håvard Juliussen
18:00 →	Dinner at Huset	Huset	All

DAYPROGRAMME

Friday June 19th			
TIME	EVENT	WHERE?	RESPONSIBLE
09:15 -10:00 10:15 -11:00	Lectures: Oceanography I - Ocean motions and their importance for climate - The Atlantic thermohaline circulation and the role of the high-latitude oceans	UNIS <i>Lassegrotta</i>	Lecturer: Helen Johnson
11:00-12:00	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen</i>	UNIS	
12:15 -13:00	Oceanography II - Evolution and paleoceanography in the Arctic Ocean - IPY-project: “Classroom in the Ice”	UNIS <i>Lassegrotta</i>	Lecturer: Yngve Kristoffersen
13:15 -15:00	Oceanography III - The Barents Sea and its role in Arctic climate. - IPY and BIAC: An overview	UNIS <i>Lassegrotta</i>	Lecturer: Marius Årthun
15:30 – 16:30	Discussion	UNIS <i>Lassegrotta</i>	Helen, Marius, Yngve?
16:00 →	Friday Gathering and Dinner at UNIS (Pizza)	UNIS	All
Saturday June 20th			
TIME	EVENT	WHERE?	RESPONSIBLE
10.15 - 12.00	Lecture: Biology - Introduction to Invertebrate’s Biology - The Arctic winter, the invertebrate’s story	UNIS <i>Lassegrotta</i>	Lecturer: Steve Coulson/ Maria Jiménez
12:00 – 12:30	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen</i>	UNIS	
12.30 – 15.00	Lecture: Botany (including some outside activity)	UNIS <i>Lassegrotta</i>	Lecturer: Eike Muller
15:15 -16:00	Lecture: Scavenging guilds on sub-arctic tundra	UNIS <i>Lassegrotta</i>	Lecturer: Elise Strømseng
18:30 →	Dinner at Huset	Huset	All

DAYPROGRAMME

Sunday June 21st

TIME	EVENT	WHERE?	RESPONSIBLE
10.15 - 11.00	Lecture: Marine Ecosystems in the Arctic	UNIS <i>Lassegrotta</i>	Lecturer: Cecilie H. von Quillfeldt
11.15 -12:00	Lecture: Zooplankton - IPY-project: CLEOPATRA	UNIS <i>Lassegrotta</i>	Lecturer: Janne Søreide
12:00 – 13:00	Lunch – <i>bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen</i>	UNIS	
13:15 – 14:00	Lecture: Fish – The Polar Cod	UNIS <i>Lassegrotta</i>	Lecturer: Ole J. Lønne
14:15 - 15.00 15:15 - 16:00	Lecture: Marine Mammals: Polar Bears “Polar bears and their ecology in a changing habitat”	UNIS <i>Lassegrotta</i>	Jon Aars
18:00 →	Dinner at Huset	Huset	Elise Strømseng

Monday June 22nd

	FREE DAY		
18:00 →	Dinner at SAS-hotel – Brasseri Nansen	SAS -hotel	Elise Strømseng

Tuesday June 23rd

08:30 – 18:00	Field work - Biology Remember to bring your own lunch!	Bjørndalen/ Isfjorden	Biol.dep. UNIS
19:00 →	Barbeque	Sailing Club	UNIS-students

Wednesday June 24th

09:15 – 10:00	Projects/assignments - Presentations of projects, making project groups (å 4-5 pax), planning project	UNIS - <i>Lassegrotta</i> Hanne Christiansen, Janne Søreide, Steve Coulson/Maria Jimenez	
10:15- 11:00	Biology – IPY Project: Arctic Predators “Top predators of the Arctic tundra: drivers or indicators of the ecosystem?”	UNIS <i>Lassegrotta</i>	Nigel Yoccoz
11:00-12:00	Lunch – <i>bring your own lunch from Nybyen</i>	UNIS	
12:15-16:00	Group-work/Lab-work, literature search etc.	UNIS	Students
16:15 - 17:00	Lecture: Auroras	UNIS <i>Lassegrotta</i>	Kjellmar Oksavik
17:00	Dinner in the UNIS cantina	UNIS	ISS

DAYPROGRAMME

Thursday June 25th			
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TIME	EVENT	WHERE?	RESPONSIBLE
09.15 - 10.00	Lecture: The Human Dimension	UNIS	Lars Kullerud
10:15 -11:00	Lecture: On Thin Ice: Arctic peoples in a changing climate	UNIS	Grete Hovelsrud
11.00 -12.00	Lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen	UNIS	
12:15 -13:00	Lecture: Adaptation and Vulnerability in Arctic communities: Climate change is but one critical factor - IPY-project: CAVIAR	UNIS	Grete Hovelsrud
13.15 - 15.00 Including 20 min break!	Lecture: Effects of changes in climate on reindeer herding in the Arctic region. - IPY-Project: EÁLAT	UNIS	Anders Oskal
15:15 – 16:00	Discussion		Grete/Anders/Lars
18:00 →	Dinner at SAS-hotel – Brasseri Nansen	SAS-hotel	

Friday June 26th			
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10:15-14:00	<i>Free-time and lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen. Use the time for packing private equipment for fieldwork the next morning.</i>		
14.00 – 15:00	Information regarding Fieldwork and packing of equipment to Kapp Linné.	UNIS	Hanne H. Christiansen
15:15 – 17:00	Lecture: Svalbard History		Thor B. Arlov
17:00 – 20:00	Walking excursion – Longyearbyen		Thor B. Arlov/ Hanne H. Christiansen
20:00	Dinner at Kroa	Kroa	ALL

DAYPROGRAMME

Saturday June 27th			
TIME	EVENT	WHERE?	RESPONSIBLE
09:00 – 09:30	Meet at UNIS – departure to Kapp Linné <i>(remember to bring large lunch bag)</i> <i>NB! Weather dependent!</i>	Kapp Linné	UNIS Logistics + organizers and students
12:00-16:00	Excursion to Festningen – remember to bring your lunch and to wear warm clothes!	Kapp Linné	Hanne H. Christiansen/Maria Jensen
17:00	Dinner	Kapp Linné	
Evening	Social activities	Kapp Linné	Students
Sunday June 28th			
08:30 – 09:30	Breakfast (remember to make lunch)	Kapp Linné	
09:30-13:00	Excursion incl. lunch	Kapp Linné	
14:00	Departure to Barentsburg	Barentsburg	
16:00	Excursion and dinner in Barentsburg	Barentsburg	
18:00	Departure to Longyearbyen	Barentsburg	UNIS logistics
21:00	Arrival Longyearbyen	Longyearbyen	

TIME	EVENT	WHERE?	RESPONSIBLE
09:00 – 09:30	Meet at UNIS – departure to Kapp Linné <i>(remember to bring large lunch bag)</i> <i>NB! Weather dependent!</i>	Kapp Linné	UNIS Logistics + organizers and students
12:00-16:00	Excursion to Festningen – remember to bring your lunch and to wear warm clothes!	Kapp Linné	Hanne H. Christiansen/Maria Jensen
17:00	Dinner	Kapp Linné	
Evening	Social activities	Kapp Linné	Students
Sunday June 28th			
08:30 – 09:30	Breakfast (remember to make lunch)	Kapp Linné	
09:30-13:00	Excursion incl. lunch	Kapp Linné	
14:00	Departure to Barentsburg	Barentsburg	
16:00	Excursion and dinner in Barentsburg	Barentsburg	
18:00	Departure to Longyearbyen	Barentsburg	UNIS logistics
21:00	Arrival Longyearbyen	Longyearbyen	

DAYPROGRAMME

Monday June 29th

09:15 – 10:00	Career development <i>“Giving your best presentation”</i>	UNIS	Dave Carlson
10:15 – 12:00	Group work/ project work	UNIS	Students
12.00 -13.00	Lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen	UNIS	
13:00-16:00	Group work/ project work	UNIS	Students
16:15-17:00	Career development <i>“The Art of Poster Presentation”</i>	UNIS	Jenny Baseman
17:00	Dinner in UNIS cantina	UNIS	ISS

Tuesday June 30th

09:15-10:00	Lecture: A Tour of the IPY	UNIS	Dave Carlson
10:15 – 12:00	Group work/ project work	UNIS	Students
12.00 -13.00	Lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen	UNIS	
13:00-16:00	Group work/ project work	UNIS	Students
16:15-17:00	Career development: <i>“Building Scientific Information into Political Impact”</i>	UNIS	Dave Carlson and Jenny Baseman
17:00	Dinner in UNIS cantina	UNIS	ISS

DAYPROGRAMME

Wednesday July 1st

TIME	EVENT	WHERE?	RESPONSIBLE
09:15 - 10:15	Lecture: A View of the future Polar Science and of Science	UNIS	Dave Carlson
10:15 -12:00	Group work/ Project Work	UNIS	Students
12.00 -13.00	Lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen	UNIS	
13:00-16:00	Group work/ Project Work	UNIS	
16:15-17:00	Career Development: <i>“Managing and Advancing Your Career in Polar Science”</i>	UNIS	Jenny Baseman
19:00	Dinner at SAS-hotel – Brasseri Nansen	SAS-hotel	All

Thursday July 2nd

09:00 – 10:30	Preparations for presentations		All groups
10:30 – 12:30	Presentations		
12.30 -13.30	Lunch – bring your own lunch from Nybyen in the morning or buy it in the UNIS Canteen	UNIS	
13:30-15:00	Discussion		
15:00-18:00	FREE TIME		
18:00 →	Concluding dinner/barbeque and party	UNIS	

Friday July 3rd

→ 10:00	Cleaning of room and bathroom in Nybyen		Students
10:30	Course evaluation and farewell gathering/lunch	UNIS	All
13:00	Bus transport to Nybyen to pick up luggage		Elise Strømseng
13:30	Transport to Airport		Elise Strømseng
14:45	Departure		
→17:00	Cleaning and sum-up organizers		Elise Strømseng

SYLLABUS

This is a list of recommended literature for the Polar IPY Field School. An updated literature list will be handed out at the beginning of the Field School. Additionally: Most literature will be available at UNIS after your arrival.

Terrestrial/ Marine Biology	Sakshaug, E. 2004 Primary and Secondary Production in the Arctic Seas (in: The Organic Carbon Cycle in the Arctic Ocean; eds.: Ruediger Stein & Robie W. Macdonald). Springer-Verlag Berlin Heidelberg.
	Falk-Petersen S, Timofeev, S., Pavlov, V., Sargent, J. R. 2007. Climate variability and the effect on Arctic food chains. The role of Calanus. Arctic-Alpine Ecosystems and People in a Changing Environment (ed. Ørbæk, J.R., Tombre, T., Kallenborn, R, Hegseth, E., Falk-Petersen, S. Hoel, A. H.) (Springer, Berlin, 2007).
	Steen H., Vogedes D., Broms F., Falk-Petersen S. & Berge, J. 2007. Little auks (Alle alle) breeding in a High Arctic fjord system: bimodal foraging strategies as a response to poor food quality? Polar Research 26:118-125
	Ims, R.A. & Fuglei, E. 2005. Trophic Interaction Cycles in Tundra Ecosystems and the Impact of Climate Change. Bioscience 55: 4; 311-322.
	Lecomte, N., Ehrlich, D., Ims, R.A. & Yoccoz, N.G. 2009. Toward understanding the effect of top predators on ecosystems. Biology Reports 1:26. The electronic version of this article is the complete one and can be found at: http://F1000.com/Reports/Biology/content/1/26
	Gradinger, R.R. & Bluhm, B.A., 2004. In-situ observations on the distribution and behaviour of amphipods and Arctic cod (<i>Boreogadus saida</i>) under the sea ice of the High Arctic Canada Basin. Polar Biol. 27: 595-603p.
	Wiig, Ø., Aars, J. & Born, E. W., 2008. Effects of climate change on polar bears. Science Progress, 91 (2), 151-173.
	Pugh, P.J.A. & McInnes, S.J. 1998. The origin of Arctic terrestrial and freshwater tardigrades. Polar Biol. 19: 177-182.
	Coulson, S.J. 2000. A review of the terrestrial and freshwater invertebrate fauna of the High Arctic archipelago of Svalbard. Norw. J. Entomol, 47: 41-63.
	Strathdee, A.T. & Bale, J.S. 1995. Factors limiting the distribution of <i>Acyrtosiphon svalbardicum</i> (Hemiptera: Aphididae) on Spitsbergen. Polar Biol. 15:375-380.
	Hodkinson, I.D. & Coulson, S.J. 2004. Are high Arctic terrestrial food chains really that simple? _ The Bear Island food web revisited. OIKOS 106:2, 427-431.
	Coulson, S.J., Hodkinson I.D., & Webb, N.R. 2003. Microscale distribution patterns in high Arctic soil microarthropod communities: the influence of plant species within the vegetation mosaic. ECOGRAPHY 26: 801-809.
	Jónsdóttir, I.S. 2005. Terrestrial ecosystems on Svalbard: heterogeneity, complexity and fragility from an arctic island perspective. Biology and Environment 105B, 155-165.
Elvebakk, A. 1997. Tundra diversity and ecological characteristics of Svalbard. In: Wielgolaski, F.E. (ed.) Ecosystems of the World 3: Polar and alpine tundra, pp. 347–359. Elsevier, Amsterdam, NL.	

SYLLABUS

Permafrost / Geology	Sund, M., Eiken, T., Haven, J.O., & Kääh, A. 2009. Svalbard surge dynamics derived from geometric changes. <i>Annals of Glaciology</i> 50(52).
	Steel, R.J. & Worsley, D. 1984. Svalbards postCaledonian strata an atlas of sedimentological patterns and paleogeographic evolution. In Spencer A.M.(ed.): <i>Petroleum geology of the North European Margin</i> , 109135. Norwegian Petroleum Society, Graham and Trotman.
	Humlum, O., Instanes, A. & Sollid, J-L., 2003: Permafrost in Svalbard: a review of research history, climatic background and engineering challenges. <i>Polar Research</i> , 22, 191-215, 25 p.
	Eckerstorfer, M., Neumann, U., Christiansen, H.,H., 2008. High arctic avalanche monitoring in maritime Svalbard. <i>Proceedings of the International Snow Science Workshop 2008</i> . Whistler, Canada. 784-791.
Human dimension	Crate, S.A. 2008. Gone the Bull of Winter? Grappling with the Cultural Implications of and Anthropology's Role(s) in Global Climate Change. <i>Current Anthropology</i> 49: 4. 569-595.
	TBA
Oceanography	Schiermeier, Q. 2006. A Sea Change. <i>Nature</i> 439: 7074, pp. 256-260.
	Rahmstorf, S. 2006. Thermohaline Ocean Circulation. <i>In Encyclopedia of Quaternary Sciences</i> , ed. by S. A. Elias. Elsevier, Amsterdam 2006
	Skagseth et al. 2008. Volume and heat transport to the Arctic Ocean via the Norwegian and Barents Seas. <i>In: Arctic Subarctic Ocean Fluxes</i> (Springer).
	Gammelsrød et al. 2009. Mass and heat transport in the NE Barents Sea: Observations and models. <i>Journal of Marine Systems</i> 75, 56-69
	http://oceanmotion.org/ - this NASA website has a wealth of basic information about ocean circulation and its role in climate.
	<i>More advanced:</i> http://oceanworld.tamu.edu/resources/ocng_textbook/contents.html - an online and downloadable textbook on Physical Oceanography for those with a deeper interest.

Contact persons / Lecturers

FUNCTION	NAME	PHONE	E-MAIL
Coordinator/ Contact-persons			
IPY/UNIS - coordinator	Elise Strømseng	79 02 33 93/ 95 70 79 72	elises@unis.no
UNIS-professor	Hanne H. Christiansen	79 02 33 20	hanneh@unis.no
Safety	Fred S. Hansen	79 02 33 40	Fred.hansen@unis.no
Reception	UNIS	79 02 33 00	reception@unis.no
EMERGENCY CALLS	Governor of Svalbard	79 02 43 00	
	Hospital in Longyearbyen	79 02 42 00	
Lecturers			
Avalanches/Snow	Markus Eckerstorfer		Markuse1@unis.no
Biology	Jon Aars		Jon.aars@npolar.no
Biology	Steve Coulson		stevec@unis.no
Biology	Pernille B. Eidessen		pernillee@unis.no
Biology	Nigel Yoccoz		nigel.yoccoz@uit.no
Biology	Janne Søreide		jannes@unis.no
Biology	Cecilie H. von Quillfeldt		quillfeldt@npolar.no
Biology	Ole Jørgen Lønne		olel@unis.no
Biology	Maria A. Jiménez		Maraj1@unis.no
Biology	Eike Müller		Eike.mueller@unis.no
Career Development	Jenny Baseman		jbaeseman@gmail.com
Climate/Geology	Ole Humlum		ole.humlum@geo.uio.no
Geology/permafrost/IPY	Hanne H. Christiansen		hanneh@unis.no
Geology	Maria Jensen		mariaj@unis.no
Glaciology	Monica Sund		monicas@unis.no
Human Dimension	Lars Kullerud		Lars.Kullerud@uarctic.org
Human Dimension	Anders Oskal		anders.oskal@reindeercentre.org
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Longyearbyen and Svalbard

Svalbard is an archipelago in the High Arctic, situated between 74° and 81°N and 10° and 35°E. The seven large and many small islands cover a total area of some 63 000 sq.km. Glaciers cover about 60% of the land.

Settlements

The Svalbard Treaty of 1920 gave Norway sovereignty over the archipelago, and since the Treaty was enforced in 1925, Svalbard has been part of the Kingdom of Norway. There are two main communities on Svalbard: Longyearbyen (Norwegian) with ca. 2100 inhabitants; and Barentsburg (Russian) with a total of about 500 inhabitants. There are also smaller settlements in Ny-Ålesund, Svea and Hornsund.

Climate

The climate is relatively mild in comparison with other areas at these latitudes. The mean temperatures vary from -14° C in the winter to +6° C in the summer. Svalbard can be characterized as "Arctic semi-desert", with an annual precipitation of only 200 - 300 mm.

The midnight sun can be seen in Longyearbyen from April 19 until August 24, but between October 28 until February 16 the sun does not appear above the horizon at all.

Longyearbyen

Longyearbyen is a small, compact community, and the centre of Norwegian presence on Svalbard.

The Governor ("Sysselmanen") is the highest authority in Svalbard, and the Governor's office is in Longyearbyen. The main industrial activity is mining and export of coal. Tourism and service industries, education and research are other important industries.

During the Field-School we will visit Longyearbyen, Barentsburg and Kapp Linné on the west-coast of Spitsbergen, Svalbard.



ARRIVAL



- All students need to be present in Longyearbyen in time for the course. Latest arrival is Monday June 15th at 00:30, we recommend student to arrive with the day-flight (14:00) on Sunday, June 14th.
- A representative from UNIS will meet you at the airport in Longyearbyen. The person will carry a poster with a large UNIS logo, and will be found in the arrival area. You will be transported to the student accommodation in Nybyen. All new students will receive an envelope with information about UNIS and Longyearbyen.

FOOD



- The kitchen and the fridge should be filled up with food every other day. Report missing items/products to the organizers at UNIS throughout the whole Field School. Remember to make your own lunch from the food available in the kitchen – unless you want to buy lunch in the cantina at UNIS. Dinners are organized through the Field School from June 15th – July 3rd. If you are arriving earlier/staying longer you need to organize your own meals, including dinners, on the days outside this period.

VISA & INSURANCE



- No visa is required for staying on Svalbard. If you are an international student from outside the European Union and travelling to Svalbard through Norway, you are required to obtain a transit visa if citizens of your country need a visa to go to Norway. Please see the Norwegian Directorate of Immigration's webpage for more information about visa.
- It is your responsibility to ensure that you have the appropriate types of insurance. This includes travel-, accident- and health insurance. All UNIS students are insured during activities that UNIS initiate, however during leisure time you will need private insurance coverage. All Nordic citizens are insured through the Norwegian public health insurance. All other citizens should check with their local authorities whether their home country insurance is valid on Svalbard.

SAFETY FIRST



- The students will be introduced to some of the safety guidelines that apply on Svalbard through the safety courses when they arrive. The safety guidelines form a foundation, upon which the students may continue to build.
- UNIS takes no responsibilities for activities students choose to do in their spare time. Most students staying on Svalbard will take the opportunity to do some exploring. This requires that students take the necessary safety precautions and make the preparations essential for such trips.
- In preparation of your UNIS stay you can have a look at the UNIS Health, Safety and Environment webpages concerning safety issues.
- The students that have attended the safety course at UNIS will be allowed to borrow rifles and ammunition for protection against polar bears when out in the field.

CLOTHING



- The average temperature in Svalbard in June is approx. 3°C, but both warmer and even temperatures below 0°C are not uncommon. We recommend that you bring some warm clothing and suitable footwear for Arctic summer conditions.
- At UNIS and several other buildings (the hotels) people are asked to use indoor footwear – due to the problems of coal dust.

Clothes that are recommended to bring:

- Woollen underwear and woollen socks
- Warm hat and scarf
- Warm and/or windproof gloves/mittens
- Warm and/or wind/waterproof jackets
- Outdoor (windproof and/or water resistant) trousers
- Outdoor shoes and regular shoes (UNIS can provide rubber boots)
- Regular clothes for everyday use (jeans, sweaters, t-shirts, shoes)
- Indoor shoes and /or woollen socks

TRANSPORT



The walk from the Student hostels (Nybyen) to UNIS is approx 2km (20 min). There is no public transport system. Taxis can be helpful:

- Taxi: 79 02 13 05 or 79 02 13 75

SHOPS



- There is only one grocery store “**Svalbardbutikken**”
Opening hours are 10.00 a.m. to 8.00 p.m. every day, except:
Saturday (10.00 am to 3.00 pm) and Sunday (3.00 pm to 6.00 pm).
Svalbardbutikken also market souvenirs, some clothing and sports equipment.
- For buying alcohol you need to bring your plane-ticket due to special restrictions on alcohol quotas in Svalbard. The liquor store is inside Svalbardbutikken.
- Almost all shops are located in the middle of the town. There are several sports- and souvenir shops. In addition there are other shops (clothes/ sports equipm.), hair dressers, cafés, a post-office and a bank in the same nearby area. The price range on things and food are considere to be from average to high.

PLACES TO VISIT

- Gallery of Svalbard (Art)
- The Svalbard Museum
- The Church of Svalbard
- Spitsbergen Airship Museum
- Svalbardhallen (gym/swimmingpool)