ANNUAL REPORT
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Cover photo: Tephra shard from the Hekla-3 eruption c. 2950 cal yr BP identified in Klaxåsmossarna, Värmland. Photo: M. Brosse
1. Introduction

The Department of Physical Geography and Quaternary Geology is one of the larger departments at the university, with about 144 employees: 16 professors, 50 lecturers and researchers, 48 PhD students and 25 technical/administrative staff. Our personnel consist of an exciting mix of people coming from around the world, together creating a very dynamic and creative research and education environment.

Together with our neighbours, the Department of Geological Sciences, the Department of Applied Environmental Science and the Department of Human Geography, in the Geosciences building at the campus of Stockholm University, we constitute one of the most complete geocentres in Scandinavia. Within one building, we have all the facilities of a modern university: library, laboratories, and equipment to conduct advanced scientific studies and offer stimulating and awarded education to current and prospective students.

We conduct multi-disciplinary research in the fields of landscape ecology, geomorphology and paleoglaciology, glaciology, hydrology, paleoclimatology, Quaternary geology, remote sensing and GIS, and tropical geography. Our research can be grouped under the following research profiles: i) climate, environment and landscape development; ii) glacier and polar environments; iii) land and water resources and iv) landscape analysis and geomatics. Basic research is oriented towards furthering our understanding of short- and long-term processes and interactions that lead to landscape development and environmental and climate changes. The behaviour of past and present systems and interactions between systems are modelled for predictions of future trends. The department is equipped with a state-of-the-art GIS and remote sensing cluster, and microscopy, sediment and dendroclimatology laboratories.

We also take pride in providing a broad high-quality education at basic, Masters and postgraduate levels. The goal of the undergraduate and Masters education is to offer high quality learning, reflecting the research profiles of the department, and meeting the society’s need for a sound theoretical competence. The department carries out undergraduate education in geography, earth sciences, integrated biology-earth science, and in environmental sciences. We offer a wide range of Masters education subjects, tailored to our research profiles, and taught in English. Every year slightly more than 1700 students attend our undergraduate and Master education programmes. Postgraduate education consists of four years and, given its high standard and international staff, it constitutes an important cornerstone of the department’s profile.

Arjen Stroeven
Head of the Department
History

Geography was established at Stockholm University as a subject in its own right in 1912, but it was not until 1929 that the first professor, Hans W:son Ahlmann, was appointed. He held this position until 1950. Gunnar Hoppe was appointed professor in 1954, one year before the division between Physical Geography and Human Geography commenced. Professor Hoppe retired in 1980 and was succeeded by Gunnar Østrem, Wibjörn Karlén, and, in 2003, by Peter Kuhry. Hans W:son Ahlmann, particularly interested in Arctic research, led several expeditions to the Arctic and initiated the establishment of a glaciological research station in the Swedish mountains, the Tarfala Research Station. Valter Schytt was appointed professor of glaciology in 1970 and held the position until 1985. Per Holmlund succeeded him in 1999.

Gunnar Hoppe pioneered the incorporation and interpretation of aerial photographs in geomorphological research. His strong interest in remote sensing led to the creation of a professorship in remote sensing at the Department of Physical Geography in 1980, a position held by Leif Wastenson until 2001. Johan Kleman succeeded him. Leif Wastenson developed and expanded the field of remote sensing leading to the establishment of a professorship in ecological geography, held by Margareta Ihse between 1997 and 2008. In 2005, following a strategic decision to develop the Department’s profile in hydrology, a new professorship in hydrology, hydrogeology and water resources was established. The position is held by Georgia Destouni.

As long as geology has been a subject at Stockholm University, Quaternary Geology has received considerable attention. Two early professors of geology, Gerard De Geer (1897-1924) and Lennart von Post (1929-1950) had international reputations in Quaternary geology, De Geer for his invention of the clay-varve dating method and von Post as the father of pollen analysis. In 1956 von Post’s successor, Ivar Hessland, created an assistant professorship, the first holder of which was Carl-Gösta Wenner, who gave the department new direction towards applied geology. In 1962 Quaternary Geology became an independent subject and in 1963 a Department on its own. Jan Lundqvist succeeded Wenner in 1980 and became the first full professor of Quaternary Geology at Stockholm University. Lundqvist retired in 1993 and was succeeded by Bertil Ringberg, and, from 2002 to 2007, by Barbara Wohlfarth.

The Department of Physical Geography and the Department of Quaternary Research amalgamated to create the Department of Physical Geography and Quaternary Geology on January 1, 2001. Research interests of other professorships at the department are in tropical geography (Carl Christiansson), paleoclimatology (Karin Holmgren and Gunhild Rosqvist), glaciology (Margareta Hansson and Peter Jansson), paleoglaciology (Clas Hättestrand and Arjen Stroeven), landscape ecology (Sara Cousins), and Quaternary geology (Frank Preusser and Stefan Wastegård). Together with the aforementioned professorships we successfully straddle both traditional and innovative directions in physical geography and Quaternary geology.
2. Current Research

Research groups in the fields of ecological geography, geomorphology and paleoglaciology, glaciology, hydrology, paleoclimatology, Quaternary geology, remote sensing and GIS, and tropical geography contribute to four research profiles described below. All research groups are involved in the Bert Bolin Centre for Climate Research program (2.5).

2.1. Glaciers and polar environments

*Research themes and areas*

Research focusses on glaciers, ice sheets and cold (permafrost) environments in a global perspective. Study areas include Antarctica and Greenland, alpine environments in Scandinavia (and elsewhere), and the tundra regions. In a temporal perspective we are working with three different time slots: the entire quaternary period (last 2 million years), the present (last 200 years) and the future. Research activities can be subdivided into:

- Climate related processes and impacts of Global Change.
- Glacial processes and ice physical properties
- Paleoglaciological inverse and numerical modelling of past and present ice sheets.
- Coupling between high latitude land ecosystems and the global climate system.

A significant number of projects are linked to Tarfala Research Station in the Kebnekaise massif where the department is running an extensive monitoring programme. Tarfala is used as a platform for both education and for national and international research programmes.

Tarfalajaure and the Kebnepakte glacier, Tarfala. Photo: Ewa Lind
Ongoing projects

1. Marginal ice dynamics / Ahlkrona J, Kirchner N
2. Snow volume estimation from InSAR / Brown I
3. Multi-scale investigations of microwave snowpack observations (MIMSO) / Brown I, Ingvander S, Jansson P
4. Estimating volume changes of Patagonian glaciers using inventory data and scaling techniques / De Angelis H
5. Exploring the conditions for stability and modes of behaviour of glacier systems / De Angelis H
6. Modelling the transfer of supraglacial meltwater to the bed of glaciers through moulins and lake drainages / Clason C
7. Modelling the Late Weichselian Scandinavian Ice Sheet and its sensitivity to surface meltwater-enhanced basal sliding / Clason C
8. The impact of glacial erosion on northern shields (GEONORTHS) / Ebert K, Kleman J
9. The north Greenland Eemian ice drilling / Hansson M
10. The European Programme on Ice Coring in Antarctica / Hansson M, Holmlund K, Karlin T

11. Climate, glaciers and permafrost in the Swedish mountains / Holmlund P
12. Subglacial thermal conditions through a glaciation phase / Holmlund P
14. Terrestrial history of the Muonionalusta meteorites / Hättestrand C
15. Spatial and temporal snow accumulation patterns along an icedivide in Dronning Maud Land, Antarctica / Ingvander S
16. The hydrology and dynamics of the Greenland ice sheet / Jansson, P
17. Glacier mass balance and tree rings as indicators of atmospheric circulation / Jansson P
18. Spatial and temporal variations in surficial melt on the Greenland ice sheet and the effects on glacier dynamics / Johansson M
19. The north Greenland Eemian ice drilling / Karlin T
20. Weichselian Ice dammed lakes - formation and climatic significance
21. (WeiDFoCS) / Kirchner N
22. Nuclei of glacial inception: The role of Novaya Zemlya during the MIS3-2 glaciation of the Barents-Kara Seas region / Kirchner N
23. A Bayesian Hierarchial Modeling approach to investigate former ice shelf configurations in the Arctic Ocean region / Kirchner N
24. CARBO-north project / Kuhry P
27. Landscape partitioning and lability mapping of soil organic matter in permafrost terrain / Palmtag J
28. On the age and origin of glacial overdeepening in the Alps / Preusser F
29. The fate of hydrocarbon pollution in Kebnekaise / Rosqvist G, Jarsjö J
30. Simulation of the Cordilleran Ice Sheet through a glacial cycle / Seguinot J, Stroeven A.P, Kleman J, Zhang Q
31. Paleoglaciology of the northern sector of the Cordilleran ice sheet / Stroeven A.P, Margold, M

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Juri Palmtag
Julien Seguinot
Matthias Siewert
2.2. Climate, environment and landscape development

Research themes and areas
Our research is aimed at describing climate, environment and landscape changes in time and space, and understanding underlying processes and causes. Investigations address recent and rapid change as well as long term evolution over millions of years. We work over the whole world with ongoing projects in the Nordic countries, the rest of Europe, Africa, South-America, northern Russia, Canada, China, Antarctica and Greenland.

We make use of long instrumental records as well as natural archives such as lake sediments, peat deposits, ice cores, drip stones, tree rings, glacial sequences and archeological evidence to investigate changes in climate, environment and associated biological, chemical and physical processes. The comparison between multiple archives allows a better reconstruction of past changes at local, regional and global scales. We interpret landscape, landforms and sediment layers to understand landscape development. Regional reconstructions of landscape and ice sheet development are performed through a combination of spatial analyses based on aerial photos, satellite images, digital terrain models and field mapping with studies of sediments and their stratigraphy, and dating of landforms and sedimentary deposits. We also apply computer simulations to investigate how glaciers, ice sheets and global sea level are affected by climatic change.

Southern beech forest in Tongariro National Park, on a Geography field course to New Zealand. Photo: Britta Sannel.
**Ongoing projects**

1. Reconstruction of environmental and climate changes in Vindelfjällen, northern Sweden, using lake sediments / Berntsson A
2. Measuring earthquake periodicity and calculating chemical weathering rates with a portable XRF and cosmogenic isotopes / Fritzon R, Goodfellow B, Stroeven A.P, Skelton A
3. Climate vs past human use in mountain forest ecotones, Sweden The Scottish Pine Project / Gunnarson B
4. NEEM project / Hansson M, Wastegård S
5. Holocene Climate Variability in southern Greece / Holmgren K, Finné M, Sundqvist H
7. Late Quaternary climate variability and vegetation dynamics in southern Greece / Holmgren K, Boyd M, Finné M, Norström E, Sundqvist H
8. European isotope-climate reconstruction for the last 2000 years based on lake sediments, speleothems and treerings / Sundqvist, Holmgren K
9. Formation and age of Veiki moraine, northern Sweden / Hättestrand M, Hättestrand C
11. Holocene climate change in high latitudes recorded by stable isotopes in peat / Kaislahti Tillman P
12. A Bayesian Hierarchial Modeling approach to investigate former ice shelf configurations in the Arctic Ocean region / Kirchner N
13. Nuclei of glacial inception: The role of Novaya Zemlya during the MIS3-2 glaciation of the Barents-Kara Seas region / Kirchner N
14. Weichselian Ice dammed lakes-formation and climatic significance (WeIDFoCS) / Kirchner N
16. Landscape analysis, thermochronology, and the development of elevated passive continental margins / Lidmar-Bergström K
17. Stratigraphic Landscape Analysis and geomorphological paradigms: Scandinavia as an example of Phanerozoic uplift and subsidence / Lidmar-Bergström K
18. Plains, steps, and hilly relief in northern Sweden – review, interpretations, and implications / Lidmar-Bergström K
19. Tephrochronology of the north Atlantic region during the early Holocene / Lind E, Wastegård S
20. Landscape analysis for tectonic applications / Lidmar-Bergström K
21. Reconstructing Climate in the last millennium / Moberg A
22. Climate data-model comparisons for the last millennium / Moberg A, Grudd H
23. Past climate variability and environmental change in southern Mozambique / Norström E
24. Climate dynamics and environmental change during the Eemian Interglacial (MIS 5e) in Scandinavia inferred from a unique sediment sequence at Sokli (northern Finland) / Plikk A, Helmens K
25. Vegetation development and introduction of cultural landscape in Småland, southern Sweden / Regnell M
27. Prehistoric plant use, agriculture and environment in southern Sweden / Regnell M
28. Holocene climate and glacier change in northern Sweden / Rosqvist G
29. Reconstructions of past changes in precipitation using geochemical signatures in lake sediments / Rosqvist G
30. Environmental changes in the eastern parts of Lake Mälaren, west of Stockholm, during the last 8000 years / Risberg J
31. Construction of palaeogeographical maps for eastern Svealand for the last 7000 years / Risberg J
32. Climate change in southern Mozambique during the last 4000 years / Risberg J
33. Climate change in northwestern Tanzania / Risberg J
34. Black carbon aspect of climate change / Rosqvist G
35. Modelling plant species dispersal in fragmented landscapes / Cousins S, Schmucki R
36. Early Holocene deglaciation and the Holocene thermal maximum at high latitudes as recorded by multi-proxy evidence / Shala S, Helmens K
37. DAPHNE-dated speleothem archives of the paleoenvironment / Sundqvist H, Holmgren K
38. Constraining the chronology of glacial advances on Svalbard–Kapp Ekholm revisited / Preusser F
39. Reconstructing the environmental history of Arabia / Preusser F
40. Towards a revised chronology of the glaciation history of northern Switzerland / Preusser F
41. Geoarchaeology of Amiternum, central Italy / Preusser F
42. Sharpening the tools–improving tephrochronology around the Atlantic Sea / Wastegård S
43. SMART project (synchronising marine and ice-core records using tephrochronology) / Wastegård S
44. Potrok Aike Lake sediment archive drilling project / Wastegård S
45. Current expansion and past dynamics of small-holder irrigation farming in African drylands-measuring landscape, labour and climate interactions / Westerberg L-O
46. Factors affecting mangroves of the Rufiji Delta and impact on the livelihood of surrounding communities / Westerberg L-O, Mwansasu S, Dahlberg A
47. Environmental change in northern Tanzania during the last 1000 years / Öberg H

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2.3. Landscape analysis and geomatics

Research themes and areas
Research and education in these fields comprises methods development in satellite image processing, air photo interpretation, positioning, geographical information systems, and the application of these methods to a wide variety of geoscientific, bioscientific, landscape ecological and environmental issues. Study areas are in Sweden, other Nordic countries, the British Isles, Russia, Canada, South America, Eastern Africa, Southeast Asia, Antarctica and Greenland.

Research in glacial and periglacial environments include glacial geomorphological mapping for reconstructions of paleoglaciological and long-term landscape evolution, the mapping of recent dynamics in permafrost landscapes, and glaciological remote sensing. Remote sensing and modelling techniques are developed to monitor changes in water quality and coastal ecosystems. The research of landscape ecological questions includes vegetation mapping for change detection in sensitive mountainous environments, analysis of landscape ecological structures, and mapping and monitoring of biodiversity and biological values in cultural landscapes. GIS is applied for monitoring and analysis of the cultural landscape and for environmental management and protection in urban/semiurban areas.

The Department has been instrumental in the development of the National Atlas project and its GIS components, as in applied projects of landscape and habitat inventory and monitoring in cooperation with the Swedish Environmental Protection agency in the Landscape Monitoring project of the agricultural landscapes, LiM, and the Natura 2000 program.

Ongoing projects

1. Measuring environmental change in Darfur, Sudan: implications for the conflict / Brown I
2. Land use change and effects of functional and spatial connectivity on historical and present biodiversity patterns / Cousins S, Aggemyr E
3. Historical land use influence on dispersal and diversity of grassland species in rural landscapes / Cousins S, Auffret A
4. Modelling plant species dispersal in fragmented landscapes / Cousins S, Scmuki R.
5. Changes in wetland distribution and consequences for biodiversity and ecosystem services / Cousins S, Ermold M
6. A multiscale, cross-disciplinary approach to the study of climate change on natural resources, ecosystem services and biodiversity (EKOKLIM) / Cousins S, Ermold M, Lindborg R, Plue J, Tränk L
7. Linking management and feedback across scales in social-ecological systems - examples from forest ecosystem / Eriksson I
8. Effect of agricultural land use on biodiversity and function in Swedish wetlands / Ermold M
9. Multiproxy dendroclimatology in Greece /Grudd H, Krusic P
10. Tree-ring density and stable isotopes from Torneträsk, northern Sweden / Grudd H
11. Pollution investigations in trees / Grudd H
12. Finding the key to shipwreck preservation / Grudd H
13. Studies of actual and medieval vegetation in summer farming areas of Snorre Sturlisson, Iceland / Ihse M
14. Influence of Environmental and Social factors on Wildlife Dispersal Areas in Malagarasi-Moyovosi Ramsar Site, Western Tanzania / Kalumanga E, Cousins S
15. Harnessing Biodiversity for Sustaining Agricultural Production and Ecosystem Services (SAPES) / Lindborg R
16. Ecosystem services in agricultural landscapes: the development of a framework for assessing synergies and dealing with trade-offs among multiple services / Lindborg R
17. Habitat restoration in fragmented landscapes: effects on biodiversity and ecosystem functions / Lindborg R
18. How do seed banks contribute to species persistence in fragmented landscapes / Plue J, Cousins S
19. The effect of grazing and land use patterns in the inner archipelago / Reimark J, Cousins S
20. EMMA Environmental Mapping and Monitoring with Airborne laser and digital images / Skånes H
21. NILS (National inventory of landscapes in Sweden) hosted by Swedish University of Agricultural Sciences / Skånes H

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Jessica Lindgren
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2.4. Land and water resources

*Research themes and areas*

We investigate natural processes and anthropogenic effects in different land, soil and water environments and their changes in space and time.

The research relates also to other Earth and environmental sciences, and to environmental monitoring, management and regulation of land and water resources in different applications. We carry out research for different parts of the world on:

- Land, water and waterborne substance interactions, flow and transport dynamics and changes in space and time.
- Freshwater interactions with climate, coastal and marine waters, snow/ice and socio-economic systems.
- Land and water resources in different physical, biogeochemical, ecological and cultural environments.
- The interaction between climate extremes, air pollution, soil conditions and forest ecosystems.
- Climate feedbacks and effects on land-water systems within the cross-disciplinary Stockholm University Climate Research Environment (Bert Bolin Centre for Climate Research)

In this research, we use, develop and couple tools such as hydrological flow and solute-pollutant transport models, geographical information systems and remote sensing for both basic process quantifications and different applications.

Sea ice in Forlandssundet, Prins Karls Forlandet, Svalbard. Photo: Ewa Lind
Ongoing projects

1. Untangling the role of permafrost in determining the distribution of subsurface hydrologic flow pathways in the sub-arctic / Dahlke H
2. Unraveling the spatial variation of organic and inorganic carbon fluxes in two sub-arctic catchments in northern Sweden / Dahlke H
4. Pan-Arctic hydrological and biogeochemical responses to climate change / Destouni G, Mård Karlsson J, Lyon S, Dyurgerov M, Peterson G
5. The subsurface water system role for land-to-atmosphere and land-to-sea vapor-water partitioning and solute mass flows / Destouni G, Asokan S, Prieto C, Darracq A.
8. FutureLearn: Utveckling av ett simulerings- och visualiseringsverktyg för flöde- och transportprocesser inom hydrologisk utbildning / Frampton A
9. Flow and tracer transport in crystalline fractured media / Frampton A
10. The role of permafrost, hydrological and ecosystem shifts for arctic hydro-climatic interactions and carbon fluxes / Jantze E
11. Quantifying the potential of carbon dioxide storage, long-term retention and surface return flow minimization in Swedish bedrock / Jarsjö J, Destouni G, Desouche C
13. Modelling of regional hydro-climatic interactions, changes and feedbacks / Gong L
14. Modeling permafrost spatial distributions and thawing rates in arctic/sub-arctic Sweden using recession flow analysis / Lyon S, Destouni G
16. Improved streamflow and flood monitoring using remotely sensed LiDAR data / Lyon S, Nathansson M
17. Cross-scale modeling of coupled hydrological-permafrost interactions and carbon transport in a changing climate / Lyon S, Frampton A
18. Analytical single-potential, sharp-interface solutions for regional seawater intrusion in sloping unconfined coastal aquifers, with pumping and recharge / Mazi E, Destouni G
19. Hydrological vulnerability thresholds and regime changes in coastal aquifers under sea-level change / Mazi, E, Destouni G
20. Classification and comparative study of Mediterranean coastal aquifers subject to climate changes with the use of the analytical single-potential, sharp-interface solution / Mazi E
21. Hydro-climatic trends and interactions in the Mediterranean region / Mazi E, Destouni G
22. Stream flow modeling and variation of runoff in a boreal landscape / Nathanson M
24. The effect of biomass withdrawal on the nutrient balance in forest soils / Schlyter P, Stjernquist I
27. Determining and mapping spatial distributions and thawing rates of inland permafrost under climatic change in the Arctic and Sub-Arctic / Sjöberg Y
28. Mapping permafrost using ground penetrating radar for validation of hydrological modeling of permafrost distributions / Sjöberg Y
29. Modeling permafrost spatial distributions and thawing rates in arctic and sub-arctic Sweden using recession flow analysis / Sjöberg Y
30. Green Infrastructures for ecological sustainability and human well-being: a network of forest rural and urban landscapes as laboratories for integrative research / Stjernquist I
31. Near-coastal spatiotemporal variation of temperature in response to insolation / Vercauteren N

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2.5. The Bert Bolin Centre for Climate Research

The centre conducts a 10-year research and research environment-building program, funded by a Linné-grant from FORMAS and VR. The research program brings together the climate research expertise in four departments, and the program is coordinated by the Department of Physical Geography and Quaternary Geology. The research program focuses on five cross-disciplinary core themes; climate variability, atmospheric and ocean circulation, geodata for circulation system modeling, biogeochemical cycles, and climate governing small-scale processes. The financial framework is 10 Mkr (1.7 mill $)/year over the 10-year period 2006-2016, with an additional 2 Mkr/year for the associated research school.

Important policy decisions for sustainable development are based on climate scenarios derived through numerical climate modeling. Such models are a synthesis of our current understanding of climate-influencing processes in the various components of the climate system. Our challenge and aim is to provide improved knowledge about climate-influencing processes, over a range of time-scales and subsystems. The Bert Bolin Centre for Climate Research program embraces natural climate processes and variability, as well as changes imposed by man’s ever-increasing impact on the climate system through emission of greenhouse gases and aerosols, and changes in land-use, vegetation and hydrology. With the present strong public and political interest in climate research, interaction with media and policy makers is an important task for many of the researchers involved in the program. There is already a strong involvement by Bert Bolin Centre for Climate Research researchers in IPCC, and on the policy side in the climate commission of the Swedish government.

2.6. Navarino Environmental Observatory (NEO)

Navarino Environmental Observatory (NEO), a cooperation between Stockholm University, the Academy of Athens and TEMES S.A., the developer of Costa Navarino, is dedicated to research and education on the climate and the environment of the Mediterranean region. Located at Costa Navarino, NEO will develop into a dynamic hub where scientists from all over the world conduct frontline research, develop new tools and methods, as well as meet to exchange knowledge and ideas.

Covering a wide range of topics of both local and global relevance, the research activities of NEO are carried out by scientists from the Bert Bolin Centre for Climate Research at Stockholm University and the Atmospheric Environment Division of Biomedical Research at the Academy of Athens. Atmospheric composition and meteorological parameters are continuously monitored in order to track the origin of particulate and gaseous pollutants and detect climate change signals. Global and regional scale modeling is applied for climate projections and future pollution level simulations. Hydrological research, monitoring and evaluation are undertaken in order to understand past, present and future processes and to develop suitable water resource management strategies for the region. Tectonic, climate, environment and landscape studies are carried out on a long-term perspective, in order to understand the physical science basis of our earth, and on a short-term perspective, in order to understand the role of natural versus human induced climate/environmental changes. An important perspective is to analyze the role of physical factors in the context of tourism and urbanism. All monitoring activities are linked to international networks.
The establishment of NEO is a very important step toward strengthening Swedish-Greek cooperation in the area of climate and environmental research. The operation of NEO presents a real example of how the academic community and the private sector can work together to focus on issues of great importance to society and nature.

Navarino Environmental Observatory in Peleponessos, Greece. Photo: Giorgos Maneas.
3. Publications

Reviewed articles


Other publications

5. Destouni, G. 2012. Från nederbörd till flöden: Vad är avgörande i processen?
4. Publication series

Ongoing

Dissertations from the Department of Physical Geography and Quaternary Geology, 2006-
Reports from the Department of Physical Geography and Quaternary Geology, 2002-
Tarfala Research Station Annual Reports, electronic pdf-based series, 1998-

Past

Thesis in Quaternary Geology, 2002-2005
Thesis in Geography with emphasis on Physical Geography, 2001-2006
The Department of Physical Geography, Stockholm University Dissertation Series, 1994-2000
Research Report, Department of Physical Geography, 1968-2000
Meddelanden från Naturgeografiska institutionen, 1965-1994

5. Education

The goal of the undergraduate education at the Department of Physical Geography and
Quaternary Geology is to offer a high quality education, reflecting the research profile of the
Department, and meeting the society’s need for theoretical and practical competence within the
fields of education. The department offers education at undergraduate (bachelor's) level in
geography, earth sciences, integrated biology-earth science, and in environmental studies. In
addition, a wide spectrum of graduate (master’s level) programmes and courses are given,
reflecting the research profiles of the department. Every year almost 2000 students attend our
undergraduate and graduate education.

At Stockholm University degrees are has structured its education in accordance with the Bologna
Model of higher education:
First cycle: Kandidatexamen (Bachelor’s Degree) 3 years
Second cycle: Magisterexamen 1 year, Masterexamen (Master’s Degree) 2 years;
Third cycle: Licentiatexamen 2 years, Doktorsexamen (Doctorate) 4 years.

Stockholm University uses the European Credit Transfer and Accumulation System, ECTS. One
academic credit (Sw. högskolepoäng or hp; Eng. translation Higher Education Credit or HEC),
corresponds to one ECTS credit or approximately 3 days of full time studies. One semester is
composed of 30 credits, corresponding to approximately 20 study weeks, and a full study year is
composed of 60 credits, corresponding to 40 study weeks.

5.1. Bachelor's level (First Cycle)
Three undergraduate (Bachelor’s) programmes are given by the Department of Physical
Geography and Quaternary Geology:
Bachelor’s programme in Geography
Bachelor’s programme in Earth Science
Bachelor’s programme in Biology-Earth Science
Bachelor’s programme in Geography
The Geography programme includes courses up to 180 credits, which correspond to three years of full-time studies:
1-30 credits: Geography I, 30 credits
31-60 credits: Geography II, 30 credits
61-90 credits: Geography III, 30 credits
91-165 credits: Elective and Optional courses
166-180 credits: Geography, Degree Project (Bachelor’s Thesis), 15 credits

The Department of Physical Geography and Quaternary Geology and the Department of Human Geography at Stockholm University collaborate within the geography education, and much of the education is integrated physical and human geography. Every year 100-120 students start their Geography studies. They study geography either as a part of ordinary university studies or as a part of the theoretical education within the teachers' training programme at Stockholm University. Geography can be studied within a programme framework or as independent courses. Seen over a period of ten years, the influx of students has increased substantially. One reason for this increase is the elevated interest, and need for knowledge, in the field of geography in a world where globalization is steadily increasing.

Bachelor’s Programme in Earth Science
The Bachelor’s Programme in Earth Science (180 credits) is given in collaboration with the Department of Geological Sciences at Stockholm University. Courses can be taken within the programme framework or as stand-alone courses, both study paths leading to a Bachelor’s Degree. Within the programme, the first year (60 credits) consists of mandatory courses where students learn the basics in earth science: Physical Geography and Quaternary Geology (30 credits) and Geology (30 credits), respectively. After the first year the students specialize within Physical Geography, Hydrology, Quaternary Geology, Geology, Marine Geoscience, or Geochemistry. The programme is completed with a 15 credits Degree Project (Bachelor’s Thesis), which at the Department of Physical Geography and Quaternary Geology is either in Quaternary Geology, Physical Geography, or in Hydrology and Hydrogeology.

Bachelor’s Programme in Biology-Earth Science
The Biology-Earth Science study programme encompasses 180 credits, and is carried out in collaboration with the Department of Biology Education at Stockholm University. The programme consists of 90 credits mandatory courses in earth sciences and environmental issues and 90 credits in biology. A 15 credits Degree Project (Bachelor’s Thesis) ends the programme. A distinctive feature of the programme is the integration between Earth Science and Biology. The Earth Science parts focus particularly on Biogeography, Climatology, Geomorphology, Cartography, Soil Science, Aerial Photograph Interpretation and GIS, and Environmental Issues and Nature Conservation.

Environmental Studies
The Department of Physical Geography and Quaternary Geology offers a wide range of courses on Environmental Issues on Bachelor's level (first cycle). The courses are independent courses that are optional within the study paths of the bachelor programmes in Geography, Earth Science, Biology, and many other subjects.
5.2. Master's level (Second Cycle)

The Department of Physical Geography and Quaternary Geology offers advanced courses in Glaciology and Glacial Geomorphology, Climatology and Palaeoclimatology, Palaeoecology, Quaternary Geology, Hydrology and Hydrogeology, Geographic Information Systems, Cartography, Remote Sensing and Landscape Ecology. In addition the department offers courses in Political Ecology, Environmental Issues and Environment and Health Protection. The courses provide the prospective geoscientist and geographer with an overall breadth to be used in working with, for example, nature and environmental control, geoscientific examinations, planning, risk assessment and research.

The advanced courses are compiled in a number of Master’s Programmes. These are all two years long and always include a research task in the form of a Degree Project. The programmes in general start with 1.5-2 semesters of mandatory courses with a certain topical emphasis. Thereafter the students take 1-1.5 semester of elective or optional courses and finish the programmes with a Degree Project of 1-2 semesters.

Master’s Programmes

• Biology-Earth Sciences
• Environment and Health Protection
• Environmental Management and Physical Planning
• Geography
• Glaciology and Polar Environments
• Hydrology, Hydrogeology and Water Resources
• Landscape Analysis with Remote Sensing, GIS and Cartography
• Physical Geography and Quaternary Geology
• Quaternary Science and Climate Development

Other courses

The course “Science Communication, 15 credits” is an advanced course, which offers a generally deepened understanding of the role that scientific research plays in society and the problems attached to it, and offers a practice in the style of scientific writing and in communicating science in media.

Summer courses at field stations

The summer course “Glaciers and High Mountain Environments 7.5 credits” is a glaciology field course held at the Tarfala Research Station, northern Sweden. The field-based part of the course introduces different methods of measurement and analysis and the study of glacial or periglacial landscapes and processes. Another summer course, “Ecohydrology - a Mediterranean Perspective 7.5 credits”, is based on theory and field-based experimentation relevant for ecohydrology. The field-based part of the course is held the Navarino Environmental Observatory (NEO) in Greece. The last summer course offered by the department is “Urban Farming – Planning, Environment and Health 7.5 credits”.
5.3. Postgraduate (Third Cycle) education

The postgraduate education program at the Department of Physical Geography and Quaternary Geology, Stockholm University, includes courses, seminars, excursions and the writing and defence of a Licentiate and a Doctoral thesis. Students can choose to either graduate in “Physical Geography” or in “Quaternary Geology”. The success of our postgraduate programme is reflected in the amount and quality of Doctoral theses produced (see section 6 in this report for a list of recent theses). Below, we will tabulate currently enrolled students and their projects within each examination subject.

**Geography, Physical Geography:**

<table>
<thead>
<tr>
<th>Student</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elsa Aggemyr</td>
<td><em>Land use change and effects of connectivity on past and present plant patterns in the archipelago</em></td>
</tr>
<tr>
<td>Josefin Ahlkrona</td>
<td><em>Marginal ice dynamics: higher order modeling of ice streams and their impact on coupled ice sheet/ice shelf systems</em></td>
</tr>
<tr>
<td>Alistair Auffret</td>
<td><em>Historical land use effects on dispersal of grassland species in rural landscapes</em></td>
</tr>
<tr>
<td>Robin Blomdin</td>
<td><em>Paleoglaciology and paleoclimate history of Central Asia bordered by the Kunlun Shan, Tian Shan and Altai Mountains</em></td>
</tr>
<tr>
<td>Emma Bosson</td>
<td><em>Water balances and water exchange between deep groundwater and surface water in a periglacial landscape with Permafrost</em></td>
</tr>
<tr>
<td>Meighan Boyd</td>
<td><em>Speleothems in Warm Climates – Holocene records from the Caribbean and Mediterranean</em></td>
</tr>
<tr>
<td>Arvid Bring</td>
<td><em>Arctic Climate and Water Change: Information Relevance for Assessment and Adaptation</em></td>
</tr>
<tr>
<td>Benoit Dessirier</td>
<td><em>Multi-phase flow in porous and fractured media</em></td>
</tr>
<tr>
<td>Matti Ermold</td>
<td><em>Changes in wetland distribution and consequences for biodiversity and ecosystem services</em></td>
</tr>
<tr>
<td>Martin Finné</td>
<td><em>Holocene climate variability in southern Greece</em></td>
</tr>
<tr>
<td>Ruben Fritzon</td>
<td><em>Earthquake periodicity in southern Greece from geochemical and geochronological studies of fault surfaces</em></td>
</tr>
</tbody>
</table>


Ping Fu
*Glacial Geomorphology of the Haizi Shan area, SE Tibetan Plateau*

Natacha Gribenski
*Comparison of dating methods for glacier chronology in the Central Asia mountains*

Christian Helanow
*Theory for water routing through ice sheets*

Lindsey Higgins
*Environmental history and climate change in relation to historical land use changes in East Africa*

Elin Jantze
*The role of permafrost, hydrological and ecosystem shifts for arctic hydro-climatic interactions and carbon fluxes*

Fernando Jaramillo
*Nutrient sources, retention-attenuation and transport in hydrological catchments under climate change*

Elikana Kalumanga
*Movement and distribution of wild mammals in Malagarasi-Muyovozi Ramsar site, North-West Tanzania*

Alexander Koutsouris
*Land management effect on water resources in Tanzania, Africa*

Paul Krusic
*Dendroclimatic reconstruction: Eastern Mediterranean region*

Norris Lam
*Improving streamflow and flood monitoring using LiDAR*

Jessica Lindgren
*Small remnant habitats additive value for biodiversity and ecosystem services in intensively utilized landscapes*

Elidio Massuanganhe
*Modeling sustainability of the Mozambican coastal zone – Geomorphology and changes of the Mozambican coast*

Ekaterina Mazi
*Hydro-climatic trends and interactions in the Mediterranean region*

René Mbanguka
*Modelling water resources effects of land-water management in Tanzania, Africa*

Andrew Mercer
*Accuracy of methods used for monitoring regional glacier mass balance changes*
Shilpa Muliyal Asokan
*Basin-scale hydrological impacts of climate and land use changes*

Simon Mwansasu
*Factors affecting mangroves of the Rufiji Delta and impact on the livelihood of surrounding communities*

Johanna Mård Karlsson
*Mapping Arctic social-ecological resilience to hydrological change*

Marcus Nathanson
*Stream flow modeling and variation of runoff in a boreal landscape*

Michaela Nylund
*Mass movements in the Kenyan highlands – Land use and vulnerability*

Juri Palmtag
*Landscape partitioning and lability mapping of soil organic matter in permafrost terrain*

Julien Seguinot
*Simulation of the Cordilleran Ice Sheet through a glacial cycle*

Matthias Siewert
*High-resolution mapping of soil organic matter storage and remobilization potential in periglacial landscapes*

Ylva Sjöberg
*Determining and mapping spatial distributions and thawing rates of inland permafrost under climatic change in the Arctic and Sub-Arctic*

Claudia Teutschbein
*Hydrological modelling for climate change impact assessment*

Rebecka Törnqvist
*Basin-scale hydrological och pollutant load impacts of land use and climatic changes*

Lucile Verrot
*Soil moisture and linked hydrological flow and transport changes*

Emelie Waldén
*Effects of local and regional processes on biodiversity in restored semi-natural grasslands*

**Quaternary Geology:**

Annika Berntsson
*Reconstruction of environmental and climate changes in Vindelfjällen, northern Sweden, using lake sediments*

Hans Johansson
*Late Quaternary tephrochronology of the Azores*
Torbjörn Karlin
*Deep ice core analysis of processes in the climate system*

Carl Lilja
*Synchroneity of late-glacial tephra horizons*

Ewa Lind
*Tephrochronology of the north Atlantic region during the early Holocene*

Anna Plikk
*Climate dynamics and environmental change during the Eemian Interglacial (MIS 5e) in Scandinavia inferred from a unique sediment sequence at Sokli (northern Finland)*

Mats Regnell
*Prehistoric plant use, agriculture and environment in southern Sweden*

Shyhrete Shala
*Early Holocene deglacial environment and hypsithermal warming at high latitudes (N Fennoscandia) as recorded by multi-proxy evidence*

Sandra Sitoe
*Reconstructing flooding events in the Limpolo River flood-plain area, Mozambique*

**List of examinations for 2012**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helena Öberg</td>
<td>3 February</td>
<td>PhD, Physical Geography</td>
</tr>
<tr>
<td>Martin Margold</td>
<td>10 February</td>
<td>PhD, Physical Geography</td>
</tr>
<tr>
<td>Marcus Nathanson</td>
<td>12 March</td>
<td>PhLic, Physical Geography</td>
</tr>
<tr>
<td>Malin Johansson</td>
<td>20 April</td>
<td>PhD, Physical Geography</td>
</tr>
<tr>
<td>Päivi Kaislahti Tillman</td>
<td>11 May</td>
<td>PhD, Quaternary Geology</td>
</tr>
<tr>
<td>Jakob Granit</td>
<td>7 June</td>
<td>PhD, Physical Geography</td>
</tr>
</tbody>
</table>

Excursion with students from Biogeo to Kuopervagge. Photo: Ewa Lind
6. Dissertations

The Department of Physical Geography and Quaternary Geology, Stockholm University
Thesis in Geography with emphasis on Physical Geography (2001-2006)


ANNA ALLARD, 2003: Vegetation changes in mountainous areas - A monitoring methodology based on aerial photographs, high-resolution satellite images, and field investigations. Dissertation No. 27. Faculty opponent: Doc. Timo Helle

PER KLINGBJER, 2004: Glaciers and climate in northern Sweden during the 19th and 20th century. Dissertation No. 28. Faculty opponent: Dr. Georg Kaser

JOHAN M. BONOW, 2004. Paleosurfaces and paleovalleys on North Atlantic previously glaciated passive margins-reference forms for conclusions on uplift and erosion. Dissertation No. 30. Faculty opponent: Dr. Adrian Hall


LENA RUBENSDOTTER, 2006. Alpine lake sediment archives and catchment geomorphology; causal relationships and implications for paleoenvironmental reconstructions. Dissertation No. 33. Faculty opponent: Prof. Catherine Souch

The Department of Physical Geography and Quaternary Geology, Stockholm University


LAIMDOTA KALNINA, 2001. Middle and Late Pleistocene environmental changes recorded in the Latvian part of the Baltic Sea basin. Dissertation No. 9.


The Department of Physical Geography and Quaternary Geology, Stockholm University


RATHNASIRI PREMATHILAKE, 2003: Late Quaternary palaeoecological event stratigraphy in the Horton Plains, central Sri Lanka - with contributions to the recent pollen flora. Dissertation No. 2. Faculty opponent: Prof. Francoise Gasse

ANGELICA FEURDEAN, 2004: Palaeoenvironment in north-western Romania during the last 15,000 years. Dissertation No. 3. Faculty opponent: Prof. Katherine J. Willis
ANDERS BORGMARK, 2005: The colour of climate: changes in peat decomposition as a proxy for climate change. Dissertation No. 4. Faculty opponent: Dr. Bas van Geel

JENS HEIMDAHL, 2005: Urbanised nature in the past – site formation and environmental development in two Swedish towns, AD 1200-1800. Dissertation No. 5. Faculty opponent: Dr. Jane Sidall

Dissertations from the Department of Physical Geography and Quaternary Geology (2006-)

HÅKAN GRUDD, 2006: Tree rings as sensitive proxies of past climate change. Dissertation No. 1. Faculty opponent: Prof. Brian Luckman

ULF JONSELL, 2006: Sulfur in polar ice and snow. Interpretations of past atmosphere and climate through glacial archives. Dissertation No. 2. Faculty opponent: Dr. Mark Curran.


YOSHIHIRO SHIBUO, 2007: Modelling water and solute flows at land-sea and land-atmosphere interfaces under data limitations. Dissertation No. 7. Faculty opponent: Dr. Clifford Voss.


ELIN NORSTRÖM, 2008: Late Quaternary climate and environmental change in the summer rainfall region of South Africa - A study using trees and wetland peat cores as natural archives. Dissertation No. 11. Faculty opponent: Prof. Michael Meadows.


BRADLEY W GOODFELLOW, 2008: Relict non-glacial surfaces and autochthonous blockfields in the northern Swedish mountains. Dissertation No. 14. Faculty opponent: Dr. Adrian Hall.

MARTINA HÄTTESTRAND, 2008: Vegetation and climate during Weichselian ice free intervals in northern Sweden – interpretations from fossil and modern pollen records. Dissertation No. 15. Faculty opponent: Prof. Donatella Magri.


SOFIA ANDERSSON, 2010: Late Holocene humidity variability in central Sweden. Dissertation No. 20. Faculty opponent: Prof. Frank Chambers.


TIMOTHY JOHNSEN, 2010: Late Quaternary ice sheet history and dynamics in central and southern Scandinavia. Dissertation No. 22. Faculty opponent: Prof. James T. Teller.


INGVANDER SUSANNE, 2011: Snow particle size investigations using digital image analysis - implications for ground observations and remote sensing of snow. Dissertation No. 27. Faculty opponent: Prof. Matti Leppäranta.


ÖBERG HELENA, 2012: Diatoms in Lake Duluti - Tracking Environmental Variability in Northern Tanzania during the Past 1000 Years. Dissertation No. 29. Faculty opponent: Prof. Dr. Robert Marchant.

MARGOLD MARTIN, 2012: Retreat pattern and dynamics of glaciers and ice sheets: reconstructions based on meltwater features. Dissertation No. 30. Faculty opponent: Dr, Reader Chris Stokes.


Fieldwork at Prins Karls Forlandet, Svalbard. Photo: Ewa Lind
7. International exchange

INK has the perfect preconditions for international exchange. Our department is popular among incoming students from our partner universities (and other universities). This has always been the case but English Master Courses have increased INKs popularity. Some students get back to us after their Erasmus-stay as visiting students to write their thesis here. We can observe an increased interest among our own students to study in other countries.

7.1. Lecturer exchange

Lecture at Purdue University in School of Civil Engineering, Ecological Sciences and Engineering Interdisciplinary Graduate / Steve Lyon

Visiting lecturer in water conflict management, UNESCO-IHE Institute for Water Education, Delft, the Netherlands / Arvid Bring

Exchange programme and joint master programme with the Inst. of Environmental Science and Management, Univ. of Latvia, Latvia / Peter Schlyter, Ingrid Sjernquist

Green Enterprising and Innovation as a Component of Environmental Management Studies: A Swedish-Russian-Latvian Long-term Network Cooperation with the Russian State Hydrometeorological University, St Petersburg, Russia; the Arkhangelsk State Technical University, Arkhangelsk, Russia; Dept of Environmental Management, Univ of Latvia, Riga, Latvia and the Royal Institute of Technology, Stockholm, Sweden / Peter Schlyter, Ingrid Sjernquist

7.2. Student exchange

Erasmus exchange (coordinator: K. Ebert)

Freiburg/Tyskland
Innsbruck/Österrike
Bern/Schweiz
Dijon/Frankrike
Leuven/Belgien
Ostrava/Tjeckien
Grenoble/Frankrike
La Sorbonne, Paris/Frankrike
Coventry/UK
Murcia/Spain
Aachen/Tyskland
Gent/Belgien
Turku/Finland
Novia/Finland
Patras/Grekland
8. Conferences and seminars

**January**

Lind: *Nordic Geological Winter Meeting Reykjavik, Iceland*

**February**

Ihse: *Kungliga Skogs- och Lantbruksakademins sammankomst*

Kirchner: *Arctic Council at the Swedish Polar Research Secretariat, Stockholm, Sweden*

Sundqvist: *Daphne 4th Workshop, Heidelberg, Germany*

Lam: *International LiDAR mapping forum, Hyatt Regency Denver at Colorado Convention Center, Denver, Colorado, USA*

Waldén: *Meeting of the Swedish Oikos Society in Linköping, Sweden*

**March**

Ebert: *Arctic Workshop, Winter Park, Colorado, USA*

Holmgren: *Environmental studies in Africa – Past and Present Perspectives, Stockholm, Sweden*

Kirchner: *Nordic Grand Challenge Research Programme on eScience in Climate and Environmental Research Workshop Arlanda, Sweden*

Sjöberg: *March, Polarforum, Stockholm, Sweden*

Stjernquist: *Framtidens allér – förändring, funktion och forskning. Idéseminarium, SLU, Alnarp, Sweden*

**April**

Frampton, Hind: *EGU, General Assembly, Vienna, Austria*

Kirchner, Lind, Lyon, Nathanson, Wastegård

Ihse: *Introduction to Northscape Workshop, Stockholm, Sweden*

- *Landskapets helhet – utgångspunkt och strategi för kunskapsuppbyggnad och analys av landskapets värden – Festseminarium för Ann Norderhaug, Bioforsk Midt-Norge, Kvithamar, Norge*

- *Den svenska hagen i våra hjärtan- Observatoriekullen, Stockholm, Sweden*
May
Berntsson, Lind:  
BBCC Climate Research PhD Conference 2012, Körunda, Sweden

Plikk, Shala, Sjöberg,

Frampton:  
International Conference on Groundwater in Fractured Rocks, Prague, Czech Republic

Kirchner:  
6th Arctic Paleoclimate and its Extremes (APEX), Oulu, Finland.

Moberg:  
Natural and man-made climate change, The Royal Swedish Academy of Sciences, Stockholm, Sweden

Plikk:  
Nordic Diatomists’ Meeting 2012, Copenhagen Denmark

Preusser:  
German Subcommission on Stratigraphy, Illmensee-Höchsten, Germany

June
Bring, Sjöberg:  
Tenth International Conference on Permafrost, Salekhard, Russia

Holzkämper & Wastegård:  
BioCold field workshop, Longyearbyen, Svalbard

Seguinot:  
IGS Symposium on Glaciers and ice sheets in a warming climate, Fairbanks, Alaska

July
Preusser:  
Luminescence and ESR dating conference, Torun, Poland
Climate change and prehistoric occupation of the Arabian Peninsula, University of Bern, Switzerland

August
Berntsson, Rosqvist & Shala  
International Paleolimnology Symposium (IPS2012), Glasgow, Scotland

Regnell:  
History and evolution of agriculture in the Nordic countries and beyond. “. Kongsvold, Norway

Stjernquist:  
The Delta Kappa Gamma Society International Conference, Baden-Baden, Germany

30th International Conference of the System Dynamics Society, St. Gallen, Switzerland

September
Clason:  
International Glaciological Society British Branch Meeting at University of Aberdeen, UK
**October**

**Bring:**  
Arctic Resilience Report Workshop, Kautokeino, Norway

Anpassning till klimatförändringar – Särskilt med avseende vattnets roll i jord- och skogsbruk, KSLA, Stockholm

**Frampton:**  
Future permafrost hydrology research in Svalbard

**Holmgren, Sundqvist:**  
The 2nd NEO Research Workshop: Climate and Environmental Change in the Mediterranean Region, Costa Navarino, Messinia, Greece

**Ihse:**  
Vad vi äter- och hur det påverkar biodiversitet och landskap-Seminarium om Future Agriculture, SLU, Ultuna, Sweden

**Lyon:**  
Association of Polar Early Career Scientists (APECS) – Stockholm, Sweden

**Preusser:**  
Earthtime-EU, Santorini, Greece  
German Luminescence and ESR Dating (LED) Conference, Mannheim, Germany

**Clason, Seguinot:**  
IGS Nordic Branch meeting, Stockholm, Sweden

**Stjernquist:**  

Green Enterprising and University Innovation for a Sustainable Future. International Conference, GESBAR, Lomonosov Moscow State University, Russia

**November**

**Preusser:**  
INTIMATE meeting, Bludenz, Netherlands

**Schlyter & Stjernquist:**  

**December**

**Bring, Clason:**  
AGU Fall Meeting, San Francisco, USA

**Hugelius, Rosqvist, Stroeven**
9. Conference/Seminar convers, Editorships, PhD opponents

Clason: Organiser and chair of session “Surpaglacial and Englacial Hydrology” at AGU Fall Meeting, San Francisco, USA, December

Eknert: Organizing a seminar together with Svenska golfförbundet: Multifunktionella golfbanor - hur kan golfbanor utformas och skötas för att gynna biologisk mångfald? Sweden, May

Finné, Lind: Organizing committee: BBCC PhD Climate Research Conference, Körunda, Sweden, May

Holmgren: Organized conference: Environmental studies in Africa – Past and Present Perspectives, Sweden, March

Organized the 2nd NEO Research Workshop: Climate and Environmental Change in the Mediterranean Region, Costa Navarino, Messinia, Greece, October

Hättestrand, Hättestrand, & Kleman Organising of 3rd Annual SWEDQUA field trip to Northern Sweden, August

Jansson: Editor-in-Chief, Geografiska Annaler, an international Wiley-Blackwell journal in Physical Geography, 2010–.

Scientific Editor, Zeitschrift für Gletscherkunde und Glazialgeologie 2005–.

Kirchner: Convenor of the 26th FRISP workshop (Forum for Research into Ice Shelf Processes), Utö, Stockholm Archipelago, Sweden, May

Opponent at the PhD defense of Anne Munck Solgaard, Faculty of Science, University of Copenhagen, Centre for Ice and Climate, Denmark, December

Lyon: Doctoral examination board for John Juston, Land and Water Resources Engineering, KTH, Sweden, November

Mård Karlsson, Ingvander, Sjöberg Organizing committee: APECS Sweden’s workshop on field methods and project design, Sweden
Preusser: Editor Quaternary Geochronology

Sannel: Winner of the Stockholm regional final and fourth place in the national final of Research Grand Prix, a national competition among researchers. Co-ordinated by Vetenskap & Allmänhet and arranged by the research councils FAS, Formas, Vetenskapsrådet and VINNOVA.

Schlyter, Stjernquist: Green Enterprising and the Innovation for a Sustainable Future. Conference within the project Green Enterprising and Innovation as a Component of Environmental Management Studies: A Swedish-Russian-Latvian Long-term Network Cooperation at Stockholm University Green Enterprising and University Innovation for a Sustainable Future. Lomonosov Moscow State University. Member of the organisation committee.

Stjernquist: Member of the International Education Excellence Committé, DKG Society International, US

Wastegård: Convener of NORDVULK summer school on tephra studies, Leirubakki and Kirkjubærjarklaustur, Iceland, August

Geography students at the slope of the active volcano Mt Ruapehu, New Zealand. Photo: Britta Sannel.
10. Financial support

**GRANT ORGANIZATIONS**

EU  
European Union

FORMAS  
The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Forskningsrådet för miljö, areella näringar och samhällsbyggnad)

IPRO  
International Programme Office for Education and Training

RS  
Swedish National Space Board (Rymdstyrelsen)

SI  
Swedish Institute

SGU  
Geological Survey of Sweden (Sveriges geologiska undersökning)

SIDA  
Swedish International Development Cooperation Agency (Styrelsen för internationellt utvecklingssamarbete)

SKB  
Swedish Nuclear Fuel and Waste Management (Svensk kärnbränslehantering AB)

SSM  
Swedish Radiation Safety Authority

SU  
Stockholm University

TRI  
Top-level Research Initiative

VR  
The Swedish Research Council (Vetenskapsrådet)

<table>
<thead>
<tr>
<th>RESEARCH GRANT RECEIVER</th>
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<td>Konferens - Green innovation and entrepreneurship for a sustainable future - how can education contribute?, S:t Petersburg 111023--24, inom ramen för Svenska institutets Östersjöprogram/ Visbyprogrammet</td>
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11. Staff (autumn 2012)

Department Chairman/Head: Professor Arjen Stroeven
Vice Chairman: Dr Ingrid Stjernquist

PROFESSORS

Christiansson, Carl  Professor of Physical Geography,
Cousins, Sara Professor of Physical Geography
Destouni, Georgia Professor of Hydrology, Hydrogeology and Water Resources
Hansson, Margareta Professor of Environmental Science with emphasis on Physical
Geography/Quaternary Geology
Holmgren, Karin Professor of Physical Geography
Holmlund, Per Professor of Glaciology
Hättestrand, Clas Professor of Physical Geography
Jansson, Peter Professor of Physical Geography
Kleman, Johan Professor of Remote Sensing
Kuhry, Peter Professor of Physical Geography
Kuylenstierna, Johan visiting Professor of Water Resources
Preusser, Frank Professor of Quaternary Geology with emphasis on
Environmental Reconstruction
Rosqvist, Gunhild Professor of Geography, especially Physical Geography
Stroeven, Arjen Professor of Physical Geography
Sverdrup, Harald visiting Professor
Wastegård, Stefan Professor of Quaternary Geology

ACADEMIC STAFF

Associate Professors (PhD, Docenter)

Brown, Ian senior lecturer
Dahlberg, Annika senior lecturer
Gunnarson, Björn director of studies, researcher
Helmsen Femke, Karin researcher
Holzkämper, Steffen senior lecturer
Jansson, Kristofer senior lecturer
Jarsjö, Jerker senior lecturer
Lindborg, Regina senior lecturer
Lyon, Steve senior lecturer
Moberg, Anders researcher, also senior lecturer
Risberg, Jan senior lecturer
Seibert, Jan senior lecturer

PhD

Borgström, Ingmar senior lecturer
Clason, Caroline postdoctor
Dahlke, Helen postdoctor
De Angelis, Hernán research associate
Frampton, Andrew associate senior lecturer
Gong, Lebing postdoctor
Goodfellow, Bradley postdoctor
Grudd, Håkan  research engineer
Hind, Alistair  postdoctor
Hugelius, Carl-Gustaf  researcher
Hättestrand, Martina  researcher
Ingvander Susanne  postdoctor
Kirchner, Nina  senior lecturer
Kaislahti Tillman, Päivi  researcher
Kirchner, Nina  senior lecturer
Margold, Martin  researcher
Norström, Elin  researcher
Plue, Jan  postdoctor
Prieto, Carmen  research engineer
Quin, Andrew  postdoctor
Rader, Romina  postdoctor
Rogberg, Peter  researcher
Sannel, Britta  senior lecturer
Schlyter, Peter  senior lecturer
Selroos, Jan-Olof  researcher
Skånes, Helle  senior lecturer
Stjernquist, Ingrid  senior lecturer
Sundqvist, Hanna  researcher
Vercauteren, Nikki  postdoctor
Westerberg, Lars-Ove  senior lecturer, director of undergraduate studies
Zhang, Qiong  senior lecturer
Öberg, Helena  postdoctor

PhLic, MSc, BSc
Ekner, Bo  PhLic, lecturer
Fridfeldt, Anders  BSc, lecturer, director of undergraduate studies
Karlsson, Sven  PhLic, researcher
Nordström, Anders  PhLic, senior lecturer
Regnell, Mats  PhLic, researcher
Yrgård, Anders  PhLic, lecturer

Postgraduate students (PhLic, MSc, BSc)
Aggemyr, Elsa
Ahlkrona, Josefin
Auffret, Alistair
Berntsson, Annika
Bosson, Emma
Boyd, Meighan
Bring, Arvid
Dessirier, Benoit
Ermold, Matti
Finné, Martin
Fritzson, Ruben
Fu, Ping
Gribenski, Natacha
Helanow, Christian
Higgins, Lindsey
Jantze, Elin
Jaramillo, Fernando
Johansson, Hans
Kalumanga, Elikana
Karlin, Torbjörn
Koutsouris, Alexander
Krusic, Paul
Lam, Norris
Lilja, Carl
Lind, Ewa
Lindgren Jessica
Massuanganhe, Elidio
Mazi, Ekaterina
Mbanguka, René
Mercer, Andrew
Muliyl Asokan, Shilpa
Mwansasu, Simon
Mård Karlsson, Johanna
Nathanson, Marcus
Nylund, Michaela
Palmtag, Juri
Plikk, Anna
Seguinot, Julien
Siewert, Matthias
Shala, Shyhrete
Sitoe, Sandra
Sjöberg, Ylva
Teutschbein, Claudia
Törnqvist, Rebecka
Verrot, Lucile
Waldén, Emelie
Wahlstrand, Anna
Weiss, Niels

Teaching assistants
Dawson, Lucas
Delrue, Josefien
Gilljam, Carl
Yotis Petersson, Lena
Wennbom, Marika

Administrative Staff
Blåndman, Susanna BSc, BA, human resources administrator
Damberg, Maria MSc, study advisor
Ebert, Karin PhD, educational administrator
Hansson, Erik MSc, educational administrator
Henriksson, Carina University certified administrator, senior administrative officer
<table>
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<tr>
<td>Hörnby, Kerstin</td>
<td>MSc, educational administrator</td>
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<td>Isdal, Maija-Liisa</td>
<td>BSc, financial administrative officer</td>
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<td>Maneas, Giorgos</td>
<td>PhD, station manager Navarino Environmental Observatory</td>
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<td>Kesselberg, Margareta</td>
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<td>Reuterstård, Karin</td>
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<td>Richert, Linus</td>
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<td>Schaffer, Christina</td>
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<td>Åkerblom, Lena</td>
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**TECHNICAL STAFF**

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<tr>
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<tr>
<td>Alm, Göran</td>
<td>PhLic, systems engineer</td>
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<td>Spångberg, Martin</td>
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<td>Wolff, Jennifer</td>
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<td>Österlin, Carl</td>
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**PROFESSORS EMERITI**

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<td>Ihse, Margareta</td>
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