



**Department of Physical Geography
and Quaternary Geology
Stockholm University**



VALENTINA RADIĆ (ED.)

**ANNUAL REPORT
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Cover photo by Peter Kuhry: Erratics of the Laurentide Ice Sheet in southwestern Alberta
(Canada)

1. Introduction

The Department of Physical Geography and Quaternary Geology is one of the larger departments at the university, with about 100 employees: 10 professors, 30-40 lecturers and researchers, ca 30 PhD students and 24 technical/administrative staff. The staff now consists of a broad mix of people from around the world, together creating a very dynamic and creative research and education environment at the department.

Together with our neighbours, the Department of Geology and Geochemistry 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 increasingly successful scientific studies and offer stimulating and advanced education to current and prospective students.

We conduct multi-disciplinary research in the fields of ecological geography, geomorphology and paleoglaciology, glaciology, hydrology, paleoclimatology, Quaternary geology, remote sensing and GIS, and tropical geography. In 2004 we reorganised the research fields and defined 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 likely trends. The department is equipped with sediment laboratories and a dendroclimatological laboratory.

We also take pride in providing a broad high-quality basic education. The goal of the undergraduate 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. Every year around 1000 students attend our undergraduate education programmes.

Karin Holmgren
Head of 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 since 1997. 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, in 2002, 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), glaciology (Peter Jansson), remote sensing (Bengt Lundén) and paleoglaciology (Arjen Stroeven). 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 newly defined research profiles described below.

2.1. Glaciers and polar environments

Research themes and areas

We investigate glaciers, ice sheets and adjacent polar and alpine environments from a past, present and future time perspective. Work is carried out across the globe with ongoing projects in the Nordic countries, North-America, Russia, Patagonia, Antarctica and Greenland.

Research on glaciers and ice sheets aims at understanding glacial processes and the ice-climate connection. Our studies include research on ice movement, glacial hydrology, mass balance and ice cores. Paleoglaciological research, encompassing studies on landforms and sediment sequences from former ice sheet areas, aims at presenting reconstructions of ice sheet and ice stream evolution that can be used for ice sheet and climate modelling. Research on ecosystems in polar and alpine environments aims to assess how sensitive periglacial areas will be affected by global warming and feedbacks between terrestrial ecosystems in permafrost regions and the global climate system.

The Department runs the Tarfala Research Station, located in the high-alpine environment of the Swedish Kebnekaise massif. The station is used as a platform for education, national and international research programmes, and monitoring activities.



Glacier in southern Alaska (USA). Figure provided by Peter Kuhry.

Ongoing projects

1. Glacial dynamics and deglaciation chronology in southern Sweden / *Alexanderson H.*
2. Quaternary glaciations and ice-free periods on Jameson Land, East Greenland / *Alexanderson H.*
3. Preglacial, glacial and periglacial landforms in southern Härjedalen and northern Dalarna. (SGU-project) / *Borgström I.*
4. Parameterisation of ENVISAT ASAR Backscatter from snow and ice / *Brown I.*
5. Global Land Ice Measurements from Space / *Brown I.*
6. Glacier monitoring within the "Polar View" Consortium - Global Monitoring for Environment and Security program / *Brown I., Hock R.*
7. Response of glacier melt and discharge to future climate / *de Woul M., Hock R.*
8. EPICA-MIS / *Hansson M.*
9. Biogeochemical Processes and Climate Feedback Mechanisms, atmospheric composition over 1 million years through ice core studies / *Hansson M.*
10. Late Quaternary glaciation history in northern Fennoscandia and Kola peninsula / *Hättestrand C.*
11. Glacial history and ice sheet dynamics of the Welsh Ice Cap / *Jansson K.*
12. Subglacial hydrology beneath ice sheets. / *Jansson P., Näslund J.-O.*
13. Timing and rate of accumulation on Storglaciären determined by snow chemistry / *Jansson P.*
14. En- and subglacial hydrology, Storglaciären / *Jansson P.*
15. The Dynamics of an advancing cold glacier terminus, Storglaciären. / *Jansson P., Pettersson R., Holmlund P.*
16. Modelling and model verification of the glacier system: 'Svalbard'-type polythermal glaciers – a case study on Storglaciären, Sweden. / *Jansson P.*
17. Paleo-ice streams in the northern Laurentide Ice Sheet / *Kleman J., De Angelis H.*
18. Modelling of future sea level rise from the retreat of glaciers / *Radić V., Hock R.*
19. Temporal and Spatial Dynamics of Subarctic Peat Plateau; Thermokarst Lake Complexes / *Sannel B.*
20. Deciphering the finest imprint of glacial erosion: Objective analysis of striae patterns on bedrock / *Stroeven A.*
21. Glacial chronology and erosion patterns of the eastern margin of the Tibetan Plateau (using cosmogenic radionuclides) / *Stroeven A.*
22. Post Younger Dryas deglaciation of Fennoscandia / *Stroeven A.*
Glacial modelling of the Fennoscandian ice sheet through one glacial cycle / *Stroeven A.*
23. Reconstructing the Cordillera Ice Sheet with geomorphology, cosmogenic isotopes and ice sheet modelling / *Stroeven A.*

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2.2. Climate, environment and landscape

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, Antarctica and Greenland.

We make use of 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.



Mid-summer at Bodø, Norway. Lofoten in far background to left. Photo by Tim Johnsen.

Ongoing projects

1. Terrestrial response to DO-cycles and HE-events / *Ampel L.*
2. Dating and correlation of mid Holocene climate events in Scandinavia / *Andersson S.*
3. Regional and temporal patterns in climate / *Holmgren K.*
4. People Land and Time in Africa / *Holmgren K.*
5. EU-GLIMPSE (Global implications of Arctic climate processes and feedbacks) / *Holzschläger S.*
6. Palaeorelief, saprolites, uplift and denudation of cratons / *Lidmar-Bergström K., Näslund J.-O., Jansson K.*
7. Uplift, erosion and fault reactivation in southwest Greenland. SNF, Denmark. / *Lidmar-Bergström K.*
8. GEOS – Landskapsutvikling/dypforvitring. (Landscape evolution/deep weathering) / *Lidmar-Bergström K.*
9. Geochemical studies on stalagmites from Tanzania and South Africa. / *Lundblad, K., Holmgren, K.*
10. Climate and vegetation changes in South Africa during the Holocene / *Norström E., Holmgren K.*
11. Shore displacement in northwestern Uppland / *Risberg J.*
12. Siliceous microfossils in a cooking hearth from a Mesolithic dwelling Site / *Risberg J.*
13. Palaeoenvironmental changes in southern Uppland / *Risberg J.*
14. Environmental history in the central Baltic Sea / *Risberg J.*
15. Shore displacement on the peninsula Södertörn / *Risberg J.*
16. Anthropogenic activities as deduced from siliceous microfossils attached on grinding stones / *Risberg J.*
17. Diatom stratigraphy in two isolation sequences on Hallandsåsen, southern Sweden / *Risberg J.*
18. Climate dynamics in the polar-front zone: Detecting atmospheric circulation changes using lacustrine stable isotope archives/ *Rosqvist G.*
19. Sorted sediment deposits in a complex limestone cave; chronology and depositional processes in relation to cave formation and ice-age dynamics / *Rubensdotter L., Sundqvist H.*
20. A paleoclimatic study in northern Tanzania. / *Ryner M., Holmgren K.*
21. Environmental factors affecting speleothem growth, recorded in Swedish speleothems / *Sundqvist H., Holmgren K.*
22. Correlation and dating of marine, terrestrial and ice-core records from the Late Quaternary in the North Atlantic region through the common occurrences of tephra / *Wastegård S.*
23. The role of climate-environmental change in relation to socio-economic factors in the rise and fall of Engaruka fossil land use system, Tanzania / *Westerberg L.-O., Holmgren K.*
24. Compilation of North European climate archives / *Wohlfarth B., Hohl V.*
25. A 2000-year climate reconstruction for Sweden / *Wohlfarth B.*
26. Terrestrial and limnic response to rapid climate variability between 20 000 and 60 000 years before present / *Wohlfarth B.*
27. Environmental variability 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 ecologic 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.

An internationally recognised activity of the Department is the United Nations International Training Course on Remote Sensing Education for Educators organised in co-operation with the Government of Sweden. The Department has also 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.



Coastal geomorphology of stacks and arch, Iceland. Photo by Tim Johnsen.

Ongoing projects

1. Studies of environmental change during the last century: The case of Awassa watershed, southern Ethiopia / *Christiansson C., Dessie G.*
2. More Water, Less Grass? Assessment of resource degradation and stakeholders perceptions of environmental change in Ombuga grasslands, northern Namibia / *Christiansson C., Klintenberg P.*
3. Watershed management in Southeast Asia: With particular reference to case studies in Cambodia (Lower Se San River), China (Luishahe River), Laos (Nam Ou River) and Vietnam (Upper Se San River) / *Christiansson C., Fablén A.*
4. Basic survey and inventory of vegetation and nature types in Natura 2000 and protected areas, development of interpretation manual for air photos / *Helle S., Ihse M.*
5. Drivers and causes to change in the agricultural landscape found in the LiM-survey / *Ihse M.*
6. Development of method and basis for management plans in Tyresta National Park and nature reserves, based on analyse of the digital data base to the vegetation map / *Ihse M.*
7. Lunden som begrepp och betydelse i kulturlandskapet / *Ihse M.*
8. Optical modelling in the Baltic Sea - algorithm development and adaptation of a coupled sea-atmosphere model for MERIS / *Kratzer S.*
9. Technical Assistance for the validation of MERIS products using the SU/SMHI CIMEL station located in Norrköping (Sweden) / *Kratzer S.*
10. Evaluation of "United Nations International Training Course on Remote Sensing of Educators / *Lundén B.*
11. Fusion of indicators of environmental quality objectives / *Nordberg M.-L.*
12. BIOHAB (Biodiversity and Habitats)/ *Skånes H.*
13. Landscape memory as means to deal with human impact on biotope resilience and potential biodiversity/ *Skånes H.*

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2.4. Land and water resources

Research themes and areas

We investigate natural and anthropogenic changes in space and time of land, soil and water resources, and contribute thereby to the knowledge of environmental dynamics and development, and societal possibilities and risks associated with various uses of land and water. We also study the effects of different strategies for handling environmental, health and natural disaster risks, and relate research results to environmental monitoring and legislation, and to management of land, soil and water resources for sustainable development. Study areas include Sweden, the Baltic Sea drainage basin and the rest of Fennoscandia, other parts of Europe, central and Southeast Asia, and eastern and southern Africa.

The research addresses: (i) land and water resources in different physical, biogeochemical, ecological and cultural environments; (ii) the processes that determine the characteristics, dynamics and quality variations of soil and water in space and time; (iii) the interactions between freshwater, soils, land use, climate, coastal and marine waters, glaciers and ice caps, ecosystems, and associated socio-economic and engineered systems for meeting various human needs.

We focus primarily on historic and strategic future time scales for integrated socio-economic and environmental development. We use, develop and couple tools such as hydrological flow and solute/pollutant transport models, geographical information systems, remote sensing, observations and measurements in the field and interview surveys. We aim for both basic process quantification and applications to land use, soil and water related environmental, engineering and socio-economic problems and their possible solutions.



Tundra river in Arctic Russia. Photo by Peter Kuhry.

Ongoing projects

1. GIS-based hydrologic and solute transport modelling in catchments/ *Destouni G., Jarsjö J., Hannerz F., Shibuo Y.*
2. Modelling coupled hydrological transport and reactions in integrated subsurface and surface water systems of catchments/ *Destouni G., Darracq A.*
3. Bridging research and knowledge gaps for the effective use and management of groundwater resources in the Aral Sea region / *Destouni G., Jarsjö J., Shibuo Y.*
4. Geographic impacts of global environmental change; Impacts and adaptation of agro-ecological systems in Africa / *Hannerz F.*
5. Wetland runoff and its importance for spring-flood predictions / *Seibert J.*
6. The hydrological foundation of water quality predictions - Can improved validation make spatially distributed models meaningful? / *Seibert J.*

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3. Publications

Reviewed articles

1. Adrielsson L. and **Alexanderson H.** 2005: Interactions between the Greenland Ice Sheet and the Liverpool Land coastal ice cap during the last two glaciation cycles, *Journal of Quaternary Science*, 20(3), 269-283.
2. Baresel C. and **Destouni G.** 2005: Novel quantification of coupled natural and cross-sectoral water and nutrient/pollutant flows for environmental management, *Environmental Science & Technology*, 39(16), 6182–6190, doi: 10.1021/es050522k.
3. Bergman J., Hammarlund D., Hannon G., Barnekow L. and **Wohlfarth B.** 2005: Deglacial vegetation succession and Holocene tree-limit dynamics in the Scandes Mountains, west-central Sweden: stratigraphic data compared to megafossil evidence, *Review of Paleobotany and Palynology*, 134, 129-151.
4. **Borgmark A.** 2005: Holocene climate variability and periodicities in south-central Sweden, as interpreted from peat humification data, *The Holocene*, 15, 387-395.
5. Castellano E., Becagli S., **Hansson M.**, Hutterli M., Petit J. R., Rampino M. R., Severi M., Steffensen J. P., Traversi R. and Udisti R. 2005: Holocene volcanic history as recorded in the sulfate stratigraphy of the EPICA-EDC96 ice core (Dome C, Antarctica), *Journal of Geophysical Research*, 110, doi:10.1029/2004JD005259.
6. **Darracq A.**, Greffe F., **Hannerz F.**, **Destouni G.** and Cvetkovic V. 2005: Nutrient transport scenarios in a changing Stockholm and Mälaren valley region, *Water Science and Technology*, 51(3-4), 31-38.
7. **Darracq A.** and **Destouni G.** 2005: In-stream nitrogen attenuation: model-aggregation effects and implications for coastal nitrogen impacts, *Environmental Science and Technology*, doi: 10.1021/es049740o.
8. **Destouni G.** and Gren I. M. 2005: Response to ‘Discussion of the paper “Cost effective policies for alternative distributions of stochastic water pollution” by Gren, Destouni and Tempone’ by Kampas and Adamidis, *Journal of Environmental Management*, 74 (4), 389-392, doi:10.1016/j.jenvman.2004.09.006.
9. **de Woul M.** and **Hock R.** 2005: Static mass balance sensitivity of Arctic glaciers and ice caps using a degree-day approach, *Annals of Glaciology*, 42.
10. Domaas S. T. and **Ihse M.** 2005: A simple GIS-method for transformation and evaluation of accuracy of historical cadastral maps onto a modern coordinate system. In Austad, I., Ådland, E. & Andersen, R. (red.), Vestlandsgården og småskala landbruket. Trusler, verdier og utfordringer, Bergen Museums.
11. Etienne J. L., Hambrey M. J., Glasser N. F. and **Jansson K. N.** 2005: West Wales. In: Lewis, C.A. (ed.). The glaciations of Wales and adjoining regions, Longman, London. 2nd edn.
12. Fountain A. G., Schlichting R., **Jansson P.** and Jacobel R. W. 2005: Observations of englacial flow passages – a fracture dominated system, *Annals of Glaciology*, 40, 25–30.
13. Fountain A. G., Jacobel R. W., Schlichting R. and **Jansson P.** 2005: Fractures as the main pathways of water flow in temperate glaciers, *Nature*, 433 (7026), 618–621.
14. Glasser N. F. and **Jansson K. N.** 2005: Fast-flowing outlet glaciers of the Last Glacial Maximum Patagonian Icefield, *Quaternary Research*, 63, 206-211.
15. Glasser N. F., **Jansson K. N.**, Harrison S. and Rivera A. 2005: Geomorphological evidence for variations of the North Patagonian Icefield during the Holocene, *Geomorphology*, 71, 263-277.
16. **Goodfellow B. W.** and Stephenson W. J. 2005: Beach morphodynamics in a strong wind bay: a low-energy environment?, *Marine Geology*, 214, 101-116.

17. **Hannerz F., Destouni G.,** Cvetkovic V., Frostell B. and Hultman B. 2005: A flowchart for integrated river basin planning with the Water Framework Directive, *European Water Management Online*, 2005(4).
18. Hannon G. E., Bradshaw R. H. W., Bradshaw E. G., Snowball I. and **Wastegård. S.** 2005: Climate change and human settlement as drivers of late-Holocene vegetational change in the Faroe Islands, *The Holocene*, 15, 639-647.
19. Harrison S., Glasser N. F. and **Jansson K. N.** 2005: Mapping glacial landforms using ASTER imagery: Case study from Patagonia, *Society of Cartographers Newsletter*, April, 5-12.
20. **Hock R.** and Holmgren B. 2005: A distributed energy balance model for complex topography and its application to Storglaciären, Sweden, *Journal of Glaciology*, 51(172), 25-36.
21. **Hock R.** and **Jansson P.** 2005: Modelling glacier hydrology. In: Anderson, M. G. and J. McDonnell (Eds.). Encyclopedia of Hydrological Sciences, John Wiley & Sons, Ltd, Chichester, Vol.4, 2647-2655.
22. **Hock R.** 2005. Glacier melt: A review on processes and their modeling, *Progress in Physical Geography*, 29(3), 362-391.
23. **Hock R., Jansson P.** and Braun L. 2005: Modelling the response of mountain glacier discharge to climate warming. In: Huber, U. M., M. A. Reasoner and H. Bugmann (Eds.): Global Change and Mountain Regions - A State of Knowledge Overview, Springer, Dordrecht, 243-252.
24. **Holmlund P., Jansson P.** and **Pettersson R.,** 2005: A re-analysis of the 58 year mass balance record of Storglaciären, Sweden, *Annals of Glaciology*, 42.
25. **Holmlund P.,** Onac B. P., **Hansson M.,** Holmgren K., Mörrth M., Nyman M., Per oiu, A. 2005: Assessing the paleoclimate potential of cave glaciers: The example of the Scarisoara Ice Cave (Romania), *Geografiska Annaler*, 87A, 193-201.
26. **Holzkämper S.,** Spötl C. and Mangini A. 2005: High-precision constraints on timing of Alpine warm periods during the middle to late Pleistocene using speleothem growth periods, *Earth and Planetary Science Letters*, 236 (3-4), 751-764.
27. **Hättestrand C.** and Johansen N. 2005: Supraglacial moraines in Scharffenbergbotnen, Heimefrontfjella, Dronning Maud Land, Antarctica – significance for reconstructing former blue-ice areas, *Antarctic Science*, 17, 225-236.
28. **Jansson K. N.** 2005: Map of the glacial geomorphology of north-central Québec-Labrador, Canada, *Journal of Maps*, 2005, 46-56.
29. **Jansson K. N.** and Glasser N. F. 2005: Palaeoglaciology of the Welsh sector of the British-Irish Ice Sheet, *Journal of Geological Society, London*, 162, 25-38.
30. **Jansson K. N.** and Glasser N. F. 2005: Using Landsat 7 ETM+ imagery and Digital Terrain Models for mapping glacial lineaments on former ice sheet beds, *International Journal of Remote Sensing*, 26, 3931-3941.
31. **Jansson P.** and Linderholm H. 2005: Scandinavian climate in mass balance and dendroclimatological data, *Annals of Glaciology*, 42.
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4. Education

4.1. Undergraduate programme

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 a sound theoretical competence.

The Department carries out undergraduate education in geography, earth sciences, integrated biology-earth science, and in environmental sciences. Every year around 1500 students attend our undergraduate education programmes.

Geography

The *Geography programme* includes courses up to 100 credits, i.e. 2.5 years in total (one Swedish credit is roughly the equivalent of one week of full-time study or 1.5 ECTS):

- 1-20 credits: Geography, basic course, 20 credits
- 21-40 credits: Geography, intermediate course, 20 credits
- 41-60 credits: Geography, advanced course, 20 credits
- 61-80 credits: Geography, specialised course I, 20 credits
- 81-100 credits: Geography, specialised course II, 20 credits
- Included in the advanced and/or specialised courses is a Bachelor or Master thesis of 10-20 credits.

The Department of Physical Geography and Quaternary Geology and the Department of Human Geography collaborate within the geography education. Every year 400-600 students attend the Geography programme. 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 the Stockholm Institute of Education. Seen over a period of ten years, the influx of students has increased. One reason for this increase is probably the elevated interest in, and need for knowledge, in the field of geography. Another reason is the return of geography as an independent subject at senior high-school level.

Earth Science

Courses in the *Earth Science* are carried out in collaboration with the Department of Geology and Geochemistry. The courses can be taken within the *Earth Science Study Programme* or as stand-alone courses outside the study programme. The Earth Science Study Programme encompasses 160 credits but final degrees are either 120 credits (Bachelor) or 160 credits (Master). Within the study programme, the first 80 credits consist of compulsory courses where students learn the basics of the Earth's evolution, geology, geomorphology, soils, hydrology, meteorology, climatology, remote sensing and Geographical Information Systems (GIS). For the remaining 40 or 80 credits of the programme, the students can specialise within the earth science spectrum. The Department of Physical Geography and Quaternary Geology offers advanced courses in historical geomorphology, glaciology and glacial geomorphology, climatology and palaeoclimatology, palaeoecology, Scandinavian Quaternary geology, risk assessment in geosciences, hydrology, soil science, GIS for earth scientists, cartography and map production, remote sensing, geographic analysis and visualisation in GIS, ecological geography, and natural resources, environment, and land use in the tropics. The programme provides the prospective geoscientist with an overall breadth to be used in working with, for example, nature and environmental control, geoscientific examinations, planning, and research.

Biology-Earth Science

The *Biology-Earth Science Study Programme* encompasses 160 credits but final degrees are either 120 credits (Bachelor) or 160 credits (Master). The programme is carried out in collaboration with the Department of Biology Education. The programme starts with a basic education of 110 credits consisting of about 45 credits of earth sciences, 55 credits of biology and 10 credits of environmental management and conservation. The distinctive feature of the programme is the integration between earth science and biology. Earth sciences include geology, Quaternary geology, climatology, geomorphology, cartography, aerial photograph interpretation and GIS, hydrology, and environmental and nature control. After the basic education the student has the option to do a 10 credits degree project towards a 120 credits Bachelor degree. If the students wish to opt for a 160 credits degree, they can either take the Environment and Health Protection course of 40 credits or other advanced courses, finishing their studies with a 20 credits Master project.

Environmental Sciences

The Master programme in *Environment and Health Protection* accepts students with 120 credits in Biology, Chemistry, Earth Sciences or Biology-Earth Sciences. The programme consists of four courses of 10 credits each, Environment Studies and Health Protection, Environment Technology, Law and Planning, and a degree project in Environment and Health Protection.

The Department of Physical Geography and Quaternary Geology offers an *Environmental Science Programme* of up to 95 credits. The programme accepts students with a background in Geography, Earth Science, Biology, and many other subjects. The following courses are included:

- Environmental Studies (basic course), 10 credits.
- International Environmental Issues (intermediate course), 10 credits.
- Environmental management and nature conservation in Swedish landscapes (intermediate course), 10 credits.
- Energy and environment (intermediate course), 10 credits.
- Environmental management systems (intermediate course), 5 credits.
- Swedish environmental quality objectives (intermediate course), 10 credits.
- Environmental Technology (intermediate course), 5 credits
- Case studies in environmental impact assessments (advanced course), 10 credits.
- Soil remediation in theory and in practice (advanced course), 10 credits.
- Environmental management in agriculture and forestry (advanced course), 10 credits.
- Environmental management in planning (advanced course), 10 credits.

Other courses

”The Science communication course” of 20 credits is a specialised 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.

The summer course ”Glaciers and high mountain environments, advanced course, 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.

4.2. Postgraduate programme

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 “Geography with emphasis on Physical Geography” or in “Quaternary Geology”. Postgraduate students are expected to participate in an annual “symposium” within the Department where they present their progress (research and education) and plans for the coming year(s). The success of our postgraduate programme is reflected in the amount and quality of Doctoral theses produced (see section 4 in this report for a list of recent theses). Below, we will tabulate currently enrolled students and their projects within each examination subject.

Geography with emphasis on Physical Geography:

Maria Bergström

The use of natural resources in a Swedish parish- comparison between historical periods from Neolithicum to recent time

Hernán De Angelis

Paleo-ice stream dynamics and evolution in the north-western Laurentide Ice Sheet

Gessese Dessie

Environmental Change during the Last Century: the Case of Awassa Watershed, Southern Ethiopia

Mattias de Woul

Modelling of glacier mass balance - Sensitivity and response to predicted future climate changes

Karin Ebert

Cenozoic landscape development in northern Fennoscandia. Geomorphologic interpretation within a GIS-framework

Bo Eknert

Changing biotopes in the agricultural landscape and the effects of the bird fauna

Anders Fahlén

Watershed management in Southeast Asia: Case studies from Cambodia, China, Laos and Vietnam

Bradley Goodfellow

Relict surfaces of Northern Fennoscandia: process, rates, and formative conditions

Fredrik Hannerz

Dynamic GIS based modelling of catchment solute transport, an information perspective approach

Jakob Heyman

Peleoglaciology of the eastern Tibetan plateau

Ulf Jonsell

Sulphate in the climate system over glacial cycles

Christina Jonsson

Stable isotopes in lake sediments from Lappland

Patrick Klintenberg

Analysing environmental change in arid and semi-arid Namibia using environmental indicators

Katarina Lundblad

Geochemical studies of stalagmites and coral skeletons in Tanzania

Elin Norström

Reconstruction of past climate variability in South Africa through studies of trees and pollen

Valentina Radić

Modelling future sea level rise from the retreat of glaciers

Lena Rubensdotter

The effect of different geomorphological processes on lake sedimentation, and their implications for Holocene palaeoclimatic reconstructions

Maria Ryner

Climate and environmental change in northern Tanzania

Britta Sannel

Temporal and Spatial Dynamics of Subarctic Peat Plateau / Thermokarst Lake Complexes

Hanna Sundqvist

Environmental factors affecting speleothem growth, recorded from Swedish speleothems

Helena Öberg

Environmental variability in northern Tanzania during the last 1000 years

Quaternary Geology:

Linda Ampel

Limnic responses to Heinrich events and DO-cycles at Les Echets, France

Sofia Andersson

Dating and correlation of mid Holocene climate events in Scandinavia

Amélie Darracq

Coupled modelling of reactive solute transport and geochemical reactions in subsurface and surface water systems

Martina Hättestrand

Vegetation and climate in N Sweden during Weichselian Interstadials, as compared with early Holocene and recent pollen floras

Timothy Johnsen

Dynamics and chronology of ice sheet deglaciation in the central Fennoscandian mountain range

Torbjörn Karlin

Deep ice core analysis of processes in the climate system

Yoshihiro Shibuo

GIS-based hydrological modelling -coupling groundwater-surface water

Daniel Veres

Terrestrial response to Dansgaard-Oeschger cycles and Heinrich events during OIS 2 and 3

List of examinations for 2005

Name	Date	Degree
Anders Borgmark	20 Sep 2005	PhD, Quaternary Geology
Jens Heimdahl	18 Nov 2005	PhD, Quaternary Geology
Yoshihiro Shibuo	03 May 2005	PhLic, Quaternary Geology
Elin Norström	02 Jun 2005	PhLic, Physical Geography
Mattias de Woul	15 Dec 2005	PhLic, Physical Geography

5. Dissertations

The Department of Physical Geography, Stockholm University,
Dissertation Series (2000)

MALIN M. STENBERG, 2000. Spatial variability and temporal changes in snow chemistry, Dronning Maud Land, Antarctica. Dissertation No. 15. Fakultetsopponent: Prof. Jon-Ove Hagen

OLA AHLQVIST, 2000. Context sensitive transformation of geographic information. Dissertation No. 16. Fakultetsopponent: Prof. Peter Fisher

The Department of Physical Geography and Quaternary Geology, Stockholm University
Thesis in Geography with emphasis on Physical Geography (2001-2004)

SARA A. O. COUSINS, 2001. Plant species diversity patterns in a Swedish rural landscape: Effects of the past and consequences for the future. Dissertation No. 17. Fakultetsopponent: Dr. Roy Haines-Young

CECILIA RICHARDSON-NÄSLUND, 2001. Spatial distribution of snow in Antarctica and other glacier studies using ground-penetrating radar. Dissertation No. 18. Fakultetsopponent: Prof. Robert W. Jacobel

THOMAS SCHNEIDER, 2001. Hydrological processes in firn on Storglaciären, Sweden. Dissertation No. 19. Fakultetsopponent: Prof. Andrew Fountain

HANS W. LINDERHOLM, 2001. Temporal and spatial couplings between tree-ring variability and climate in Scandinavia. Dissertation No. 20. Fakultetsopponent: Dr. Astrid Ogilvie

MARIANNE I. LAGERKLINT, 2001. Marine multi-proxy records of late Quaternary climate change from the Atlantic Ocean. Dissertation No. 21. Fakultetsopponent: Dr. Lloyd H. Burckle

RICHARD Y. M. KANGALawe, 2001. Changing land-use patterns in the Irangi hills, central Tanzania. A study of soil degradation and adaptive farming strategies. Dissertation No. 22. Fakultetsopponent: Prof. William Adams

ANDERS CLARHÄLL, 2002. Glacial Erosion Zonation - Perspectives on Topography, Landforms, Processes and Time. Dissertation No. 23. Fakultetsopponent: Dr. Chris Clark

KRISTER N. JANSSON, 2002. Glacial geomorphology of north-central Labrador-Ungava, Canada. Dissertation No. 24. Fakultetsopponent: Dr. Andrée Bolduc

BJÖRN E. GUNNARSON, 2002. Holocene climate and environmental fluctuations from subfossil pines in central Sweden. Dissertation No. 25. Fakultetsopponent: Prof. Mike G. L. Baillie

KATARINA. LÖFVENHAFT, 2002. Spatial and temporal perspectives on biodiversity for physical planning – Examples from urban Stockholm, Sweden. Dissertation No. 26. Fakultetsopponent: Prof. Jan Bengtsson

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. Fakultetsopponent: Doc. Timo Helle

- PER KLINGBJER, 2004: Glaciers and climate in northern Sweden during the 19th and 20th century. Dissertation No. 28. Fakultetsopponent: Dr. Georg Kaser
- OLA FREDIN, 2004. Mountain centred ice fields in northern Scandinavia Dissertation No. 29. Fakultetsopponent: Prof. Jon Landvik
- 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. Fakultetsopponent: Dr. Adrian Hall
- RICKARD PETTERSSON, 2004. Dynamics of the cold surface layer of polythermal Storglaciären, Sweden. Dissertation No. 31. Fakultetsopponent: Prof. Helgi Björnsson

The Department of Physical Geography and Quaternary Geology, Stockholm University
Thesis in Quaternary Geology, published in Quaternaria, ser A. (2001)

- KRISTIAN SCHONING, 2001. Marine conditions in middle Sweden during the late Weichselian and early Holocene as inferred from foraminifera, Ostracoda and stable isotopes. Dissertation No. 8.
- LAIMDOTA KALNINA, 2001. Middle and Late Pleistocene environmental changes recorded in the Latvian part of the Baltic Sea basin. Dissertation No. 9.
- ANNA HEDENSTRÖM, 2001. Early Holocene shore displacement in eastern Svealand, Sweden, based on diatom stratigraphy, radiocarbon chronology and geochemical parameters. Dissertation No. 10.
- TITT HANG, 2001. Proglacial sedimentary environment, varve chronology and late Weichselian development of the Lake Peipsi, eastern Estonia. Dissertation No. 11.

The Department of Physical Geography and Quaternary Geology, Stockholm University
Thesis in Quaternary Geology (2002-2004)

- GREGER LINDEBERG, 2002. The Swedish varved clays revisited: Spectral- and image analysis of different types of varve series from the Baltic Basin. Dissertation No. 1. Fakultetsopponent: Prof. Björn Malmgren
- 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. Fakultetsopponent: Prof. Françoise Gasse
- ANGELICA FEURDEAN, 2004: Palaeoenvironment in north-western Romania during the last 15,000 years. Dissertation No. 3. Fakultetsopponent: Prof. Katherine J. Willis
- ANDERS BORGMARK, 2005: The colour of climate: changes in peat decomposition as a proxy for climate change. Dissertation No. 4. Fakultetsopponent: 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. Fakultetsopponent: Dr. Jane Sidall

6. Conferences and seminars

January

Christiansson,
Holmgren &
Norström:
Hock:

Structures of Vulnerability, SU and Sida, Stockholm
*Int. Arctic Science Committee, Working group on Arctic glaciology (IASC/
MAGICS) workshop, Pontresina, Switzerland*

February

Destouni:
Kratzer:

Geochimica Acta – Geochemistry Seminars, Utrecht University, the Netherlands
*Erasmus Mundus Joint Masters Degree in Water and Coastal Management,
University of Algarve, Faro, Portugal*

Lundén:

*Regional Workshop on Evaluating the Impact of 1990-2004 Series of the
UN/Sweden International Training Course on Remote Sensing of Educators,
São José dos Campos, Brazil*

Nordberg:

Swedish National Space Board, Remote Sensing Seminar, Stockholm

March

Christiansson:
Holzkämper:
Seibert:
Ihse:

Water and the Millennium Goals, Swedish Water House and SNF, Stockholm
PAGES/DEKLIM conference, Mainz, Germany
Ensemble modelling of land-use changes, modelling workshop in Giessen, Germany
*Seminarium om Lansbygdsutvecklingen, LBU-utredningen Jordbruksverket,
Jönköping*

Ihse:

*International Landscape Ecological Association (IALE) European Conference,
Faro, Portugal*

Miller:

*European Science Foundation (ESF) scientific programme- Plenary meeting in
Glasgow, Scotland*

Wastegård:

Weichselian glacial history of Scandinavia, workshop, Stockholm

April

Ampel, Darracq,
Destouni, Seibert,
Stroeven, Shibuo,
Veres &

Wohlfarth:

European Geosciences Union assembly, Vienna, Austria

Hansson:

EPICA SSC Vienna, Austria

Hock:

International Association of Hydrological Sciences (IAHS), Foz do Iguaçu, Brasil
Vegetationskartor och IRF-flygbilder -framtidens produkt eller gammal skäpmat?-

Ihse:

Kartdagar, Jönköping

Lidmar-Bergström:

Goldschmidt lecture, Geological Survey of Norway, Trondheim

Veres &

Wastegård:

*ESF LESC Exploratory workshop: Building a tephrochronological framework
for Europe, Swansea, UK*

May

Ampel &
Risberg:
Destouni:

Nordic Diatomists Meeting in Koguva, Muhu island, Estonia
The 15th Annual Goldschmidt Conference: A voyage of discovery, Moscom, Idaho, USA

Holmgren &
Öberg:

HOLIVAR/ESF Workshop on Climate-Human society's interactions during the Holocene, Annaboda

Ihse:

Flora och fauna-konferensen, - En ny rödlista - och en föränderlig tid, SLU, Ultuna

Ihse:

Natur- och kulturmiljövård i ett landskapsperspektiv, Naturvårdsverkets naturvårdskonferens 2005, Örebro

Kratzer:

3rd international workshop on Remote sensing and bio-optical modelling of the Baltic Sea, Gdansk

Kratzer:

Workshop on atmospheric correction for retrieval of water constituents, NIVA, Oslo

Sannel:

Inaugural Nordic Geographers Meeting, Lund

June

Christiansson:

Sverige och millenniemålsarbetet, Stockholm International Water Institute, Stockholm

Darracq:

LOICZ I, Egmond aan Zee, the Netherlands

Hansson &

Jonsell:

EPICA (European Project for Ice Coring in Antarctica) chemistry consortium meeting, Florence, Italy

Holzkämper:

3rd Holivar training course: Quantitative climate reconstruction and data-model comparisons, Toulouse, France

Risberg:

Workshop on Relative sea level changes - from subsiding to uplifting coasts, Gdansk, Poland

Skånes:

BioHab workshop, Poprad/High Tatra, Slovakia

July

Alexanderson:

11th International conference on luminescence and electron spin resonance dating, Cologne, Germany

Wohlfarth:

Workshop on Bpeat, Mexico

August

Ampel &

Veres:

PAGES Second Open Science Meeting, Beijing, China

Christiansson,

Darracq &

Destouni:

15th Stockholm Water Symposium, Stockholm, Sweden

Hansson,

Wastegård &

Wohlfarth:

Carlsberg Dating Conference, Copenhagen, Denmark

Ihse:

IX INTECOL Congress, (International Ecological) Symposium on Applying ecological theories to multiple spatio-temporal scales and to different landscapes in Europe, Montreal, Canada

Jansson P.: *Int. Association of Meteorology and Atmospheric Science (IAMAS) General Assembly 2005, Beijing, China*
 Wastegård: *SCOTAV International field workshop on tephrochronology and volcanism, Dawson City, Canada*

September

Alexanderson & Hättestrand: *Field Symposium on Quaternary Geology and Landforming Processes, Kola Peninsula, NW Russia*
 Ampel: *Resolution meeting, Les Eyzies, France*
 Brown: *Global change in mountain regions, Perth, Scotland*
 Hansson, Jonsell & Karlin: *ESF Research Conference on Polar Regions and Quaternary Climate, Acquafredda di Maratea, Italy*
 Hansson, Jonsell & Karlin: *EPICA science meeting Acquafredda di Maratea, Italy*
 Holzkämper: *final GLIMPSE Conference, Potsdam, Germany*
 Ihse: *Geologidagarna 2005; naturresurser eller naturvård?, Stockholm*
 Kratzer: *MERIS-A(A)TSR workshop, ESRIN, Italy*
 Rosqvist: *Past climate change in Antarctica, Scotia workshop, Tarfala Research Station, Sweden*
 Sannel: *Quaternary geology and landforming processes, International Field Symposium, Kola Peninsula, NW Russia*
 Veres: *INQUA-SEQS, Subcommission on European Quaternary Stratigraphy, The Quaternary record of Switzerland, Bern*
 Veres, Wastegård & Wohlfarth: *EUROCORES workshop, RESOLUTION, Les Eyzies, France*
 Wohlfarth: *ESF conferences*

October

Hansson: *IPICS II, Bryssels, Belgium*
 Ihse: *WWF's Ekoparksseminarium, Stockholm*
 Ihse: *CTM, Stockholms Universitet, Stockholm*
 Ihse: *Trondheim Seminarium om Bruk av fjernmålsteknikker til overvåking av biologisk mangfold, Trondheim, Norway*
 Karlén: *Global change in Mountain Regions, Perth, Scotland*
 Jarsjö: *Joint NATO CLG and EU-INTAS conference on Physical and Chemical fluxes in the dying Aral Sea, Russian Academy of Sciences, Moscow, Russia*
 Müller: *European Science Foundation (ESF) scientific programme - Workshop Team 3 – Landscape archaeology, Menorca, Spain*

November

Andersson &

Sundqvist:

Miller:

MUSCAD, Norrköping

European Science Foundation (ESF) scientific programme - Steering Committee meeting, Menorca, Spain

Sannel:

ESF Workshop on Below-ground carbon pools in permafrost regions, Stockholm

Seibert:

Technical Liaison Group (TLG) meeting for joint IHP-LAHS PUB (Prediction in Ungauged Basins) activities, Corvallis, Oregon

De Angelis,

Hock &

Radic:

International Glaciological Society (IGS) Nordic branch meeting, Copenhagen, Denmark

December

Christiansson:

EU Water facility and EU Water Initiative, SIWI, Stockholm

Destouni:

Hydrological gaps in environmental science and management, Applied Geoscience Centre Seminars, University of Tübingen, Germany

7. Financial support

GRANT ORGANIZATIONS	
C-Core	<i>Centre for Cold Ocean Research Engineering</i>
ELFORSK	<i>Svenska elföretagens forsknings- o utvecklings - ELFORSK - AB</i>
ESA	<i>European Space Agency</i>
EU	<i>European Union</i>
ESF	<i>European Science Foundation</i>
FORMAS	<i>The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Forskningsrådet för miljö, areella näringar och samhällsbyggande)</i>
KTH	<i>The Royal Institute of Technology (Kungliga Tekniska Högskolan)</i>
KVA	<i>The Royal Swedish Academy of Sciences (Kungliga Vetenskapsakademien)</i>
METRIA	<i>part of Swedish Land Survey (Lantmäteriverket)</i>
NEFP	<i>Nordiska Energiforskningsprogrammet</i>
NV	<i>Swedish Environmental Protection Agency (Naturvårdsverket)</i>
RAÄ	<i>Cultural Heritage Manegment (Riksantikvarieämbetet)</i>
RS	<i>Swedish National Space Board (Rymdstyrelsen)</i>
SIDA	<i>Swedish International Development Cooperation Agency (Styrelsen för internationellt utvecklingssamarbete)</i>
SGU	<i>Geological Survey of Sweden (Sveriges geologiska undersökning)</i>
SKB	<i>Swedish Nuclear Fuel and Waste Management (svensk kärnbränslehantering AB)</i>
VR	<i>The Swedish Research Council (Vetenskapsrådet)</i>

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2005
Alexanderson	KVA	Att datera istida händelser: luminiscensdatering av glaciala o eoliska sediment	33 000
Borgmark	SKB	Klimatpåverkan av myrar i östra Uppland enligt projektbeskrivning. best.nr 13339, (dnr463-3-05 Dok18)	113 000
Borgström	SGU	Geoturistkarta Fulufjället	60 000
Brown	RS	Delt i konferens Global Change in Mountain Regions, Perth, Scotland, 2005-10-02--06. RS 238/05 (dnr463-18-05 Dok50)	12 800
Brown/Hock	C- CORE/ESA	Polar View- Global Monitoring for Environment and Security	540 000
Christiansson/ Klintenberg	SIDA	More Water, Less Grass? Assessment of resource degradation and stakeholders' perceptions of environmental change in Ombuga grasslands, northern Namibia (Garanterat t.o.m. 2006, SWE-2004-343)	600 000
Destouni	FORMAS	Modellering av reaktiv transport i naturliga, heterogena grund-, mark- och ytvatten: La SAR-PHREEQC-metoden. The LaSAR-PHREEQC approach to modeling multi- component reactive solute transport in subsurface and surface water flows (Garanterat t.o.m. 2006)	729 000
Destouni	SIDA	Bridging research and knowledge gaps for the effective use and management of groundwater resources in the Aral Sea region. (Garanterat t.o.m. 2005, SWE-2003-261)	400 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2005
Destouni	VR	GIS-baserad modellering av ämnestransport i avrinningsområden - GIS-based modelling of catchment- scale solute transport (Garanterat t.o.m. 2006, 621-2003- 2997)	351 000
Destouni	KTH	Projekt WATCH (Water Resources in Catchments)	150 000
Grudd	Triassic Techn.	X-ray fluorescence analysis (dnr 463-3-05 Dok14)	23 000
Hall	Wallenbergs Stiftelse	Postdoktoral stip inom Stiftelsens program inom miljö o hållbar utveckling	278 887
Hansson	FORMAS	Biogeokemiska processer med återkopplingar på klimatet - atmosfärens sammansättning över 1 miljon år genom iskärnestudier - Biogeochemical Processes and Climate Mechanisms - atmospheric composition over 1 million years through ice core studies (Garanterat t.o.m. 2007)	689 000
Hansson	EU	EPICA-MIS Enhanced Paleoreconstruction and Integrated Climate Analysis through marine and ice core studies. (Contract No 003868)	630 000
Hock	VR	Framtida klimatförändringars påverkan på glaciärers avsmältning och avrinning, 621-2001-2503	630 032
Hock	VR	Projektbidrag enligt ovan.	130 000
Hock	FORMAS	Modelering av framtida havsnivåförändringar orsakade av minskade glaciärer - Modelling of future sea level rise from the retreat of glaciers, dnr2003-0387	473 000
Hock	NEFP	Climate Energy, subproject Hydropower, Snow and Ice (CE) No.10-02	70 000
Holmgren/Westerberg	VR	Klimatvariationer i tid och rum - mönster, styrmekanis-mer och samhällseffekter - Regional and temporal climate variability - petterns, forcing and human responses	405 000
Holmgren/Norström	SIDA	Reconstruction of past climate variability in Southern Africa through analysis of trees and pollen (Garanterat t.o.m. 2006, SWE-2002-252)	600 000
Holmgren	ESF	Holivar-Workshop	275 650
Holmgren	Granh Stif	Gästföreläsare vid symposium 2005-05-20	15 000
Holmlund	NEFP	Climate Energy, subproject Hydropower, Snow and Ice (CE) No.10-02	70 000
Hättestrand	VR	Muonionalusta-jämmeteoriternas terrestriska historia - Terrestrial history of the Muonionalusta iron meteorites, dnr 621-2004-5287 (dnr463-9 -05)	180 000
Ihse	NV	Drivkrafter o orsaker till de förändringar i landskapet som registrerats i LIM-karteringen	300 000
Ihse	NV	Basinventering av Natura 2000 och skyddade omåden, dnr235-3676-05Ns, (dnr463-3-05 Dok15)	200 000
Ihse	NV	Tillägg (dnr235-3676-05Ns) Basinventering av Tullgarn	35 600

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2005
Ihse	Tyresta- skogen	Bearbetning av digital databas till vegetationskartan över Tyresta Nationalpark (dnr463-3-05, Dok20)	23 000
Jansson K	VR	En 3-dimensionell rekonstruktion av den kvartära reliefutvecklingen i nordvästra Fennoscandia baserad på integrerade terrestra och marina data - A 3-dimensional GIS reconstruction of the Quaternary relief evolution in northwestern Fennoscandia based on integrated terrestrial geomorphology and off-shore seismic data. (Garanterat t.o.m. 2008, dnr621-2003-3221)	918 000
Jarsjö	SKB	GIS-baserad hydrologisk modellering med PCRaster-POLFLOW - best.nr. 11656	203 000
Kleman	VR	Paleo-isströmmars rum-tidsfördelning	338 000
Kratzer	RS	Optical modelling in the Baltic Sea - algorithm development and adaptation of a coupled sea-atmosphere model for MERIS, RS dnr94/04.	735 750
Kratzer	RS	Delt i Workshop "Remote sensing and bio-optical modelling of the Baltic Sea", Gdansk, 18-19 maj 2005, RS 66/05, (dnr463-18-05 Dok29)	6 900
Kratzer	RS	Delt i "Workshop on atmospheric correction for retrieval of water constituents, NIVA Oslo, 050531--0601", RS 202/05 (463-18-05 Dok51)	5 000
Kratzer	RS	Delt i MERIS o ATSR workshop, Esrin, Frascati, Italien 2005-09-26--30, (RS 240/05) (463-18-05 Dok 49)	8 200
Kratzer	ESA	ESTEC 19379/05/NL/FF - Technical assistance for the validation of MERIS products using the SU/SMHI CIMEL station located in Norrköping (Sweden)	93 000
Lidmar-Bergström	VR	Nedärvida landformer, vittringstäckan och upphöjning/erosion av kratoner (resistensområden) - Paleorelief, saprolites, and uplift/denudation of cratons. (dnr621-2003-3325)	270 000
Näslund/Jansson	SKB	Inlandsisars bottenförhållanden och hydrologi - Basal conditions and hydrology of continental ice sheets - best.nr.12617. (Garanterat t.o.m. 2006, 7166/2)	1 680 000
Näslund	SKB	Avtappning av resultat av: Inlandsisars bottenför-hållanden och hydrologi - Basal conditions and hydrology of continental ice sheets - best.nr.12667.	39 2000
Regnell	Smålands- museet	Makrofossilanalys Ryssby kyrka, Kalmar	
Regnell	Kalmar Läns Museum	Biskopshagen i Växjö	27 500
Regnell	Upplands- museet	Makrofossilanalys - Kv SnickarenSU/UM, Enköping proj.nr. 8117, dnr 463-03-05 Dok 1	28 500
Regnell	Upplands- museet	Makrofossilanalys - Forsa S/UM, Uppland, proj.nr.8118, (dnr463-03-05 Dok2)	28 500
Regnell	Upplands- museet	Makrofossilanalys - Örtedalen SU/UM, Uppsala, proj.nr. 8120, (dnr463-05-03 Dok3)	12 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2005
Regnell	Upplands- museet	Makrofossilanalys - Tibble/UM proj.nr. 8123, Uppland, (dnr463-03-05 Dok4)	25 500
Regnell	Upplands- museet	Makrofossilanalys - Stenhagen 3 proj.nr. 8127, (dnr463-03- 05 Dok5)	28 500
Regnell	Upplands- museet	Makrofossilanalys - Stenhagen 4 proj.nr. 8135, (dnr463-03- 05 Dok6)	18 000
Regnell	Upplands- museet	Makrofossilanalys - Danmarks-Kumla/UM proj.nr. 8139, (dnr463-03-05 Dok7)	9 000
Regnell	Länsmuseet Gävle	Makrofossilanalys - Hälsingtuna RAÄ 126, proj.nr. 510134	4 500
Regnell	Länsmuseet Gävle	Makrofossilanalys - Grannäs, Alfta sn,Hälsingland	
Regnell	Institut f Historie, Odense	Växtmakrofossilanalyser av jordprover från Årsta gård, RAÄ 39, Österhanginge sn, Södermanland	
Richardson-Näslund	FORMAS	Determination of Antarctic snow accumulation. (21.4/2003- 1442)	709 000
Risberg	SKB	Analys av marinekologisk sedimentkärna - best.nr.12519, (dnr463-3-05 Dok10)	248 000
Risberg	Arkeologi konsult	Riksväg 73 - Slutundersökning, beteckn 2005/2037/02 (dnr463-3-05 Dok16)	299 670
Risberg	RAÄ	Bedömning av sediment, samt diatomeeanalys, Knutstorp, RAÄ 107, Hidinge sn, Närke, proj.nr. 1810125 (dnr463-3-05 Dok17)	80 000
Risberg	RAÄ	Kvartärgeologisk analys o bedömning inom ramen för en arkeologisk undersökning av den mellanneolitiska boplatsen RAÄ 68 i Ösno socken, Södermanland, kallad Sittesta, RAÄ422-1874-2005, Lst431-05-23573 (dnr463-3-05 Dok19)	265 000
Seibert	ELFORSK	Proj HUVA - Myrmarkskarealens betydelse för vårflods- prognoser, Elforsk proj nr 1707	388 920
Stroeven/Zhou	SIDA/VR	Glacial chronology and erosion patterns in the Central Tibetan Plateau..., (Garanterat t.o.m. 2007, 348-2004-5684)	500 000
Wastegård	VR	Tefrokronologisk datering och korrelation av senkvartära klimatarkiv runt Nordatlanten - Correlation and dating of marine, terrestrial and ice-core records from the Late Quaternary in the North Atlantic region through the common occurrences of tephra horizons. (Garanterat t.o.m. 2006, dnr2003-3529)	607 500
Westerberg	VR/SIDA	The role of climate-environmental change, in relation to socio-economic factors, in the rise and fall of Engaruka fossil land use system, Tanzania (Garanterat t.o.m. 2007, SWE-2004-390)	600 000
Wohlfarth/Moberg	SKB	A 2000-year climate reconstruction for Sweden best nr 12388 (Garanterat t.o.m.apr 2006)	785 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2005
Wohlfarth	VR	Effekter av plötsliga klimatförändringar i terrestra och limniska system: en case-study från den klimatiskt dynamiska perioden 20 000 - 60 000 år före nutid - Terrestrial and limnic response to rapid climate variability between 20 000 and 60 000 years before present. (Garanterat t.o.m. 2006, dnr621-2003-3607)	567 000
Wohlfarth	VR	ESF Eurocores Euroclimate Programme Proposal: Rapid climatic and environmental shifts during oxygen isotope stages (OIS) 2 and 3 - linking high-revolution terrestrial, ice core and marine archives (Resolution) (Garanterat t.o.m. 2008, dnr629-2004-7960)	790 000
Summa beviljade forskn ansl o medel för uppdragsverks 05 (+ sent ink 04)			18 388 909
Destouni	SU		500 000
Destouni	SU	United Nations Remote Sensing Course 2004.	300 000
Christensen/Laurila/ Martikainen/Callaghan/ Kuhry/Krinner/Bleuten	ESF	United Nations Remote Sensing – uppföljning	175 000
Total	Approved research grants		19 363 909

8. Staff (late autumn 2005)

Department Chairperson/Head : professor Karin Holmgren

Vice Chairperson: professor Arjen Stroeven

PROFESSORS

Christiansson, Carl	professor of Physical Geography,
Destouni, Georgia	professor of Hydrology, Hydrogeology and Water Resources
Holmgren, Karin	professor of Physical Geography
Holmlund, Per	professor of Glaciology
Ihse, Margareta	professor of Ecological Geography
Jansson, Peter	professor of Physical Geography
Kleman, Johan	professor of Remote Sensing
Kuhry, Peter	professor of Physical Geography
Lundén, Bengt	professor of Remote Sensing
Stroeven, Arjen	professor of Physical Geography
Wohlfarth, Barbara	professor of Quaternary Geology

ACADEMIC STAFF

Associate Professors (PhD, Docenter)

Arnberg, Wolter	senior lecturer
Hansson, Margareta	senior lecturer, director of undergraduate studies
Hock, Regine	research associate
Hättestrand, Clas	senior lecturer
Näslund, Jens-Ove	senior lecturer
Risberg, Jan	senior lecturer
Robertsson, Ann-Marie	senior lecturer
Rosqvist, Gunhild	senior lecturer
Wastegård, Stefan	senior lecturer

PhD

Alexanderson, Helena	research associate
Bergman, Jonas	researcher
Borgmark, Anders	researcher
Borgström, Ingmar	senior lecturer
Brown, Ian	research associate
Clarhäll, Anders	senior lecturer
Gouirand, Isabelle	researcher
Hall, Ola	researcher
Helmens Femke, Karin	researcher
Holzkämper, Steffen	researcher
Jansson, Krister	senior lecturer, also research associate
Jarsjö, Jerker	researcher
Kratzer, Susanne	researcher
Kristiansson, Jan	senior lecturer
Nordberg, Maj-Liz	senior lecturer
Rickardson-Näslund, Cecilia	research associate

Schlyter, Peter	senior lecturer, director of undergraduate studies
Seibert, Jan	research associate
Skånes, Helle	senior lecturer, also research associate
Vikhamar Schuler Thomas	researcher
Westerberg, Lars-Ove	senior lecturer
Wickman, Tonie	senior lecturer

PhLic, MSc, BSc

Bråvander, Lars Gunnar	MSc, senior lecturer
Delteus, Åke	BSc, lecturer
Eknert, Bo	BSc, lecturer, director of undergraduate studies
Fridfeldt, Anders	BSc, lecturer, headdirector of undergraduate studies
Karlsson, Sven	PhLic, researcher
Nordström, Anders	PhLic, senior lecturer
Perhans, Karl-Erik	BSc, lecturer
Yrgård, Anders	PhLic, lecturer

Postgraduate students (PhLic, MSc, BSc)

Ampel, Linda
 Andersson, Sofia
 Darracq, Amélie
 De Angelis Hernán
 de Woul, Mattias
 Ebert, Karin
 Dessie, Gessesse
 Goodfellow, Bradley
 Hannerz, Fredrik
 Heimdahl, Jens
 Heyman, Jakob
 Hättestrand, Martina
 Johnsen, Timothy
 Jonsell, Ulf
 Jonsson, Christina
 Karlin, Torbjörn
 Klintonberg, Patrik
 Lundblad, Katarina
 Norström, Elin
 Radić, Valentina
 Rubensdotter, Lena
 Ryner, Maria
 Sannel, Britta
 Shibuo, Yoshihiro
 Sundqvist, Hanna
 Veres, Daniel
 Öberg, Helena

Teaching and Research Assistants (MSc, BSc)

Grabs, Thomas
 Hansson, Erik

Hugelius, Carl-Gustaf
Johansson, Olov
Persson, Klas
Tillman Kaislahti, Päivi

ADMINISTRATIVE STAFF

Berggren, Berit	senior administrative officer
Ekengren Reeder Ingrid	higher administrative officer
Envall, Berit	financial administrative officer
Damberg, Maria	MSc, study advisor
Geltner, Petra	BSc, personnel supervisor
Henkow, Månika	higher administrative officer
Henriksson, Carina	university-certified administrator, senior administrative officer
Hultblad, Gertrud	university-certified administrator, senior administrative officer
Kruckenbergs, Anita	PhD, senior administrative officer
Schuber, Pernilla	MSc, study advisor

TECHNICAL STAFF

Alm, Göran	PhLic, systems engineer
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