



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



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## 1. Introduction

The Department of Physical Geography and the Department of Quaternary Research joined forces to create the Department of Physical Geography & Quaternary Geology on January 1, 2001. The merger was motivated because there was a clear common interest in some research profiles and because the departments had similar but complimentary educational profiles. Whereas Physical Geographers are concerned with the evolution of and processes on Earth's surface, and because of this, by nature, are strongly space, but also time oriented, Quaternary Geologists are concerned with climatic and environmental changes during the Quaternary Period, and apply a stratigraphic approach in the study of Earth's processes and deposits. The questions that we address in teaching and science strongly emphasise the need for interdisciplinary and multidisciplinary approaches. Basic research is oriented towards furthering our understanding of short- and long-term processes and interactions that lead to landscape development and environmental and climatic changes. Environmental studies are an important part of our research tradition, and, as the human pressure on natural resources has grown so has our research emphasis. Education and research at the department have expanded strongly over the past two decades. For instance, four professorships were installed over the past three years (J. Kleman, K. Lidmar-Bergström, A.P. Stroeven and B. Wohlfarth). Following this expansion of human and research resources, we currently have a growing competence of staff and students, and exciting new research avenues are being explored.

In addition to the traditional research focus in geomorphology, glaciology, polar research, terrestrial Quaternary stratigraphy, glacial geology and palaeoclimatic and palaeoenvironmental changes, the fields of remote sensing, geographic information systems and cartography, supported by the rapid development of computer techniques, have taken an advanced position in the research profile of the department. The fields of ecological geography and tropical geography are also relatively new research strongholds. The Departments of Physical Geography & Quaternary Geology and Human Geography within the Environment and Development Studies Unit (EDSU) jointly conduct the interdisciplinary research in tropical geography.

All geoscience institutions are located in a Geosciences building at the campus of Stockholm University in Frescati since the fall of 1996. We have all the facilities of a modern housing, laboratories, and equipment to conduct increasingly successful scientific studies and offer stimulating and advanced education to prospective students.

Wibjörn Karlén  
professor  
*Physical Geography*

Barbara Wohlfarth  
professor  
*Quaternary Geology*

Johan Kleman  
professor  
*Head of the Department*

## **History**

*Although geography at Stockholm University was established as a subject in its own right in 1912, 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 and, in 1985, by Wibjörn Karlén.*

*Hans W:son Ahlmann had a particular interest in Arctic research and glaciology. He led several expeditions to the Arctic and also initiated the establishment of a glaciological research station in the Swedish mountains, the Tarfala Research Station. Valter Schytt, appointed professor of glaciology between 1970 and 1985, continued the tradition of Arctic research by organising several expeditions to Svalbard and adjacent areas and to the Antarctic. Per Holmlund succeeded him in 1999.*

*Most of Gunnar Hoppe's scientific work concerned the deglaciation history of the Fennoscandian ice sheet. He pioneered the incorporation and interpretation of aerial photographs in geomorphological research, and he initiated and led a geomorphological survey mapping of the Swedish high mountains. 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.*

*As long as geology has been a subject at Stockholm University, Quaternary Geology has had a strong position. Two early professors of Geology, Gerard De Geer (1897 – 1924) and Lennart von Post (1929 – 1950) had an international reputation in Quaternary geology, De Geer mainly 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 a new direction towards applied geology. However, it was not until 1962 that Quaternary geology became an independent subject of examination and in 1963 a department of its own. At Wenner's retirement in 1980 Jan Lundqvist succeeded him to become the first full professor of Quaternary Geology at Stockholm University. Lundqvist retired in 1993 and was succeeded by Bertil Ringberg (1993-2002), and, subsequently, by Barbara Wohlfarth.*

*Quaternary geology always has had a strong emphasis on the physical properties of soils with direction towards applied geology, glacial geology, and biostratigraphy. The latter subject, later extended to comprise environmental changes in general, has developed into one of the most important parts of the Department's activity under the leadership of honorary professor Urve Miller.*

## 2. Current Research

### 2.1. Geomorphology

#### Glacial Geomorphology and Palaeoglaciology

The focus of our research is the landform record created by former ice sheets. We use regional and ice-sheet scale patterns to infer glaciological parameters, particularly basal thermal regime and flow pattern. Target areas are those that have been covered by former ice sheets in Fennoscandia and North America. Crosscutting relationships between landform systems and their correlation to stratigraphical data allow the establishment of a reconstruction of glacial evolution through time. The geographical distribution pattern and the detailed morphology of specific landforms yield important clues to the formation mechanisms, environment, and the time of formation. The recent application of cosmogenic nuclide techniques allows a further precision on the timing of specific glacial events to be determined. These studies also help constrain the long-term erosive impact of past ice sheets. Hence, key elements employed within our research strategy are the geographical approach, which is based on a comprehensive mapping in aerial and satellite photographs, the development and continuous improvement of inversion models for the reconstruction of palaeo-ice sheet behaviour from geomorphological data, and the application of cosmogenic nuclide techniques to study the long-term evolution of glacial landscapes and the total impact of glacial erosion on the current landscape.

The following important topics are addressed:

- Evolution of the Fennoscandian ice sheet through the last glacial cycle
- Landform record of the Quebec-Labrador sector of the Laurentide ice sheet
- The evolution of the Laurentide ice sheet during the last glacial cycle
- Landforms as indicators of ice sheet basal thermal patterns
- Glacial and long-term geomorphic evolution of the ice-overridden mountain ranges in Fennoscandia and Antarctica.

#### Long-term landform evolution around the North Atlantic

Research is focused on the relationship between landforms and Cainozoic uplift around the North Atlantic. It is performed in co-operation with geophysicists working with the thermal evolution of the bedrock and geologists working with the surrounding sedimentary basins. The work has hitherto mainly been performed within Fennoscandia. Much effort has been devoted to map re-exposed surface topography in the basement and to localize remnants of old weathering mantles (saprolites). The focus has lately widened to include the relation between stepped surfaces, valley incision and Cainozoic uplift within the Northern and Southern Scandes. The work has led to the identification of three domes within Fennoscandia of different heights viz. the Northern Scandes (2100 m), the Southern Scandes (2500 m) and the South Swedish Dome (400 m) and conclusions on their different uplift histories. A Neogene uplift of the Southern Scandes is also relevant to the relation between uplift, glaciation and valley development.

Another theme for the group, performed in co-operation with Göteborg and Karlstad Universities, is a study of the impact of deep weathering in relation to glacial erosion on the present relief on different palaeosurfaces. This is of importance for understanding the erosive capacity of glaciers over different types of substratum.

Present research focuses on the following subjects:

- Landforms and Cainozoic uplift around the North Atlantic
- The differentiation between glacial and fluvial erosion during the Neogene and Quaternary
- Glacial erosion in relation to inherited relief of different palaeosurfaces.



*Rockslide at Mount Vidja in the Abisko Mountains, northern Sweden. The slide is a postglacial phenomenon because it covers glaciofluvial deposits and till. We suspect that the slide occurred shortly after deglaciation- a hypothesis that will be tested using cosmogenic radionuclides. Photograph by A. Stroeven.*

#### Reviewed articles

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#### Staff affiliations

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 Gunnar Hoppe, Professor emeritus

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 Ola Fredin, PhLic

## 2.2. Glaciology

### Tarfala Research Station

The glaciological studies carried out at Tarfala are focused on Storglaciären, and the most important programme is the mass balance study, which now has been running for 54 consecutive years. Additionally, the mass balance of 6 other glaciers and the glacier front positions of 20 glaciers are studied. The mass balance measurements include surveys on an annual basis. Direct climatic information is received from 6 weather stations run by the Department as a complement to the network of climate stations operated by the Swedish Meteorological and Hydrological Institute (SMHI). In order to understand the coupling between climate-induced mass changes and geometry changes in glacier extent and thickness, ice dynamic studies are performed. Ice velocity measurements are also used to increase the understanding of how glacier movement relates to changes in the hydrological regime. An extensive hydrological programme has been run both in the Tarfala valley and on the glaciers since the early sixties. At present the research efforts are focused on firn hydrology. Over the past decade radar application has been an important part of most glaciological programmes run by the group.

### Climate Impacts Research Centre (MRI-CIRC)

In 1996 MRI was formed as a five-year research programme. It contained one programme on climate research which later was called CIRC. CIRC was originally based on a Consortium between the Royal Swedish Academy of Sciences, Swedish University of Agricultural Sciences in Umeå, Umeå University and Stockholm University. Stockholm University had responsibility for geosciences within CIRC focussing on glaciology, remote sensing, and palaeoclimate. There were 7-8 full positions until 2001. During 2002 Umeå University received the full responsibility of the programme and Stockholm University had one employee on the programme working on palaeoclimate. The formal link of Stockholm University to CIRC terminated by the end of 2002.

### Antarctic research

The programmes outlined by the SCAR Global Change programme GLOCHANT, and the European Programme for ice coring in Antarctica (EPICA) govern the Antarctic projects. The GLOCHANT programmes concern present day climate development (ITASE), the mass balance of the continental ice sheet (ISMASS) and the Quaternary development of the ice sheet (ANTIME). Our efforts in these programmes are focused on firn coring, ice velocity measurements, and on radar soundings to map ice thickness and snow stratigraphy. During the winter 1997/98 we performed EPICA pre-site surveys within the SWEDARP initiative in Dronning Maud Land. Three 100-130 m long ice cores were sampled at two sites, one on the Polar Plateau and one near the coast.

### Glacier modelling

We have three different ice numerical modelling programmes running; the modelling of valley glaciers, past Scandinavian ice sheets, and the present ice sheet in East Antarctica. These programmes are run in collaboration with ETH in Zurich, University of Maine, Geological Survey of Sweden, and the EPICA-community.



*Mårma massif with the Mårma glacier photographed from east. The glacier has a relatively continental mass balance regime and is characterised by a thick cold surface layer. The glacier is situated in a depression within a relict surface of non-glacial appearance. Photograph by A. Stroeven.*

#### Research headlines for the Glaciology group

- Glacier Mass Balance
- Ice Velocity Measurements
- Ice Temperature
- Snow and Ice Cores
- Glacial Hydrology
- Glacier and Landscape
- Remote Sensing of Snow and Ice

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Ulf Jonsell

Per Klingbjer (MRI-CIRC), PhLic

Rickard Pettersson

## 2.3. Climatology

The climate research group includes five staff members, eight postgraduate students and several undergraduate students engaged in term projects. Many projects are conducted in close co-operation with research groups inside the Department and abroad. The main goal is to improve our knowledge of past climates in order to evaluate the present climate.

### Reconstruction of past climates based on long historical instrumental records

Instrumental meteorological observations have been made at several European sites since the mid-18<sup>th</sup> century. Daily mean air temperature and sea level pressures have been reconstructed for Uppsala (1722-) and Stockholm (1756-). These two, and other daily European records, have been analysed for changes in the daily weather characteristics during more than two centuries. New homogenisation methods for meteorological series have also been developed.

### Speleothems

Several projects in Sweden and Africa deal with the reconstruction of long-term changes in climate based on multi-proxy analysis of cave deposits (speleothems). The most recent results from a South African stalagmite, spanning the past 24000 years, are expected to significantly contribute to the discussion on climate forcing factors. Wave-let analysis of the stable isotope record show variability with quasi-periodicities of around 2500-4000-, ~1000- and ~100-years length.

### Lacustrine sediments

Lake sediments contain detailed information on changes in catchment ecology, erosion processes, and hydrological balance. Lakes located in a pro-glacial environment are particularly suitable for climate studies because glaciers are among the most sensitive indicators of climate change. Projects are conducted in northern Scandinavia, South and East Africa, southern South America and in the Antarctic. We study changes in grey-scale densities, grain-size, carbon content, and stable isotopes ( $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$ ). In our study of lakes and peat bogs pollen and diatom analyses are further important techniques.

### Dendrochronology

Most tree species in temperate regions grow during the summer season and the growth depends on climate. Because the increase varies from year to year it is possible to date wood samples by comparing the pattern of growth indicated by the varying tree ring width. It is also possible to obtain some information about the climate from observation of ring widths. Present projects include a 7400 year-long dendrochronology for northern Sweden and several shorter chronologies from a variety of regions and environments. Dendroclimatological studies of subtropical trees from South Africa, using stable isotope analysis were initiated in 2002.

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*Ice-dammed lake shorelines on South Georgia, South Atlantic Ocean. Lake sediment studies from this island have proved an unsuspected early deglaciation at this southerly location, when glaciers such as the one in the background, retreated from their shelf position. Photograph by M. Bentley.*

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## 2.4. Remote Sensing/ Geographical Information Systems

The research group undertakes basic and applied research in remote sensing and GIS using a variety of techniques and platforms covering diverse geographical regions. Our main research interests are:

- The use of remote sensing in mapping the glaciogenic landforms of former ice sheets
- The application of GIS and database technologies in palaeo-ice sheet reconstruction
- Geodesy, co-ordinate systems and global positioning
- Thermography and remote sensing of geological features
- Land degradation monitoring and vegetation change detection
- Classification methods for upland environments
- GIS and database integration in the digital version of the National Atlas of Sweden
- Knowledge-based digitisation of thematic maps
- Algal bloom and cyanobacteria monitoring in the Baltic Sea
- Optical modelling of water leaving radiance
- SAR backscatter analysis over snow and ice masses
- Interferometric observations of surface deformation and glacier velocity
- Airborne radiometry, aerial photography interpretation and photogrammetry

The group undertakes core research and also provides remote sensing support for other researchers. In particular we are involved in projects within ecological geography, glaciology, geomorphology and marine monitoring. International contacts are important to our work and we have established connections to researchers and institutions in Europe, Africa and North America. In the years to come we will focus on improved integration of remote sensing techniques in research applications in a variety of additional disciplines and the propagation of research and innovation into teaching. Our umbrella theme is the analysis, interpretation and representation of earth surface phenomena, climate, and environmental change at different temporal scales.

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*The glacial history of Fennoscandia has been successfully studied by means of remotely sensed information concerning the location, direction, and crosscutting relations between landforms. Glacial lineations seen in aerial photographs and on satellite images sometimes overprint larger objects, as shown here on this hilltop close to Karesuando at the Finnish border. Photograph by A. Stroeven.*

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## 2.5. Ecological Geography

### Research focus

We concentrate on landscape ecology, its vegetation, biotopes and ecosystems - especially their spatial distribution and ecological infrastructure - and changes and dynamics in the landscape in modern and historic time. It includes human's influence and use of nature resources seen in an integrated holistic geographical approach. The geographical distribution patterns and their changes during historical and modern time give important information for understanding, managing and maintaining biodiversity at biotope and landscape level. The Convention of Biodiversity and the National Environmental Goals are guidelines for our research. Method development for landscape classification, biotope and vegetation inventory, change detection and monitoring are important. Methods are developed to collect data from aerial photographs (colour infrared, black-and-white for visual interpretation and from scanned air photos), from multi-spectral data from airplane and satellite (for digital imaging analysis), from historical maps, and from field data. The research includes development of classification systems, as well as cartographic presentations and visualisations. Targeted ecosystems are grasslands, wetlands and mountains, as well as key biotopes in boreal and hemi-boreal forests and in urban areas.

### Current research

The research is problem-oriented, aimed at establishing a scientific base for nature conservation, environmental monitoring and physical environmental planning. The results have been used at national level, regional level and local level, by the Swedish Environmental Protection Agency, County Administration for Environmental Monitoring, and Municipality and City Planning. The work implies collaboration with several authorities on local, regional and national level and has resulted in a digital biotope map and database over Stockholm City; landscape classification and monitoring in Uppsala county and in methods and classification system for nature conservation mapping in Stockholm and the St. Anna archipelago. Present research focus is on:

- Establishing criteria and indices for inventories of key biotopes for biodiversity in the forest by studies of CIR aerial photographs, and evaluate the quality by comparison by field data
- Developing indicators for detection of disturbances in mountain vegetation at different scale levels
- Development of change detection methods at different scales for monitoring of vegetation and biotope changes
- Retrospective analysis of changes and dynamics of the wetland ecosystem over the past 50 years, especially bogs in digital aerial photographs
- Improving the base for planning and management of biodiversity in urban areas by studies of the distribution pattern, ecological infrastructure, and their changes of targeted biotopes
- Mapping and analysing nature resource use and management of biological resources during historical time and the effect on biodiversity and landscape.
- Developing monitoring methods from CIR-aerial photographs as well as nomenclature for vegetation, biotopes and landscape elements of importance for biodiversity in the agricultural landscape

The various studies have resulted in a comprehensive knowledge of ecosystem and biotope spatial distributions and temporal changes of importance for biodiversity. The results have been of importance for nature conservation and environmental monitoring in Sweden.

The research group takes part in the large national research program RESE (Remote Sensing for Environment) financed by MISTRA, with involvement in two projects: "Vegetation and Biotope Monitoring" and "Sustainable Landscape".

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## 2.6. Tropical Geography

The tropical geography research group forms part of the Environment and Development Studies Unit (EDSU), run jointly by the Departments of Physical Geography & Quaternary Geology and Human Geography at Stockholm University. At present more than 20 senior researchers and PhD students associated to EDSU are engaged in projects in the tropics, particularly in Africa.

Important research themes are aspects of the physical environment and resource use. Several of the individual studies deal with processes in the landscape in a long as well as a short perspective, exemplified by climate variations and changes in vegetation, soils and landforms. Furthermore, the small-scale agriculture in the study areas, in particular its structure, development, and sustainability, is also focus of our research. Our studies also document how people adapt to specific environmental conditions and how they are affected by environmental degradation.

The various studies have resulted in a comprehensive knowledge of how the physical environment and natural resources are considered and utilised by local people, the causes behind deterioration of land and water resources and the effects seen in the landscape. In our research we apply physical as well as social science methods and, where possible, we try to integrate these into a holistic geographical approach.

The work implies intensive collaboration with researchers from different universities in several countries. Several of the studies form part of collaboration programmes between the Geography Departments at Stockholm University and the universities in Dar es Salaam, Tanzania, Gaborone, Botswana and the University of Natal, South Africa. Two African students were registered for the PhD programme in 2000.

Preliminary results from the research are being published in EDSU's working paper series. In addition, results from the studies in Tanzania have been disseminated in the form of summaries in Swahili aimed at, for example, local decision-makers and school teachers. Final results from the research have been published in monographs, book chapters and selected refereed international journals.

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## 2.7. Quaternary Geology

Research within Quaternary Geology at Stockholm University is focused upon the study of biological, chemical and physical processes and changes during the younger part of the Quaternary time period. The overall aim is to gain an understanding of the temporal and spatial variability and underlying causes of past climatic and environmental changes. We employ predominantly continental stratigraphies, such as lake sediments, peat bogs, glacial sediments and archaeological deposits. A multi-disciplinary approach, combined with high-resolution correlations to other archives, facilitates detailed palaeoenvironmental and palaeoclimatic reconstructions on local and regional scales. The variety of individual research projects within Quaternary Geology can be summarized under the following main research topics:

- Stratigraphy and chronology of Swedish Weichselian and pre-Weichselian glacial, interstadial and interglacial sequences; vegetation and climate development during the Weichselian
- Palaeoenvironmental and palaeoclimatic reconstructions during the Late Glacial and/or Holocene based on lake and/or peat stratigraphies (ongoing studies in Sweden, Romania, Russia, Svalbard, Faeroe Islands, western Canada, Sri Lanka)
- Geoarchaeological investigations (ongoing studies in Sweden and Mozambique)
- High-resolution correlation of land-ice-marine records using tephrochronology
- Long-term glacial landscape changes using cosmogenic isotope techniques

The Swedish varve chronology or Swedish Time Scale has been the subject of intensive research for many years, and most of the older varve diagram measurements are now also available in a database. Over the past years, the group has developed strong expertise in tephrochronology, which is an ideal tool to synchronise diverse palaeoclimatic archives, such as marine sediments, lacustrine sediments, and ice cores.

Quaternary Geology has national research networks with universities and research groups at Lund, Uppsala, Göteborg and Umeå, and international collaboration with universities and research groups in Denmark, Norway, Svalbard, Iceland, Finland, Russia, Romania, Estonia, Lithuania, Latvia, UK, France, Holland, Switzerland, Canada, USA, Australia, Sri Lanka and Mozambique. Based on this extensive network, we frequently accommodate guest researchers and students from abroad. We also regard it as an important mission to further higher education and research in Eastern Europe, by offering students the possibility to participate in undergraduate and graduate courses and researchers to use our facilities. Currently we are engaged in a scientific student and staff exchange program with Simon Fraser University in Canada. Participation in several European research networks, such as INTIMATE (INTEgration of Ice core, MARine and TERrestrial deposits) and LAMSCAN (Detecting rapid environmental changes by studies of annually LAMinated lake sediments in northern SCANDinavia: Linkages to the North Atlantic Ocean circulation) are just a few examples.

Research funding has been obtained, among others, from the Swedish Research Council, the Swedish Institute, The Royal Swedish Academy of Sciences, The Swedish Foundation for International Cooperation in Research and Higher Education, the Nordic Council of Ministers, and the National Science Foundation in the USA.



*Cut through the boulder delta at Masi, northern Norway. Today the delta occurs perched above the valley floor and is a witness of the depositional effects of meltwater streams at the time of deglaciation. The age of the boulder delta is being determined using cosmogenic radionuclides accumulated in surface boulders. Photograph by A. Stroeven.*

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### 3. Education

#### 3.1 Undergraduate Programme

The most important goal of the undergraduate programme at the Department of Physical Geography & Quaternary Geology is to offer a high quality education, reflecting the research profile of the Department, and to meet society's need for sound theoretical competence. The education also encompasses advanced courses in physical geography and Quaternary geology. The undergraduate education is characterised by a comprehensive view, its breadth, and a scientific approach. The Department carries out undergraduate education in Geography, Earth Sciences, Biology-Earth Sciences, and in Environmental Sciences. Every year around 1500 students attend our undergraduate education programme.

Geography education is planned in accordance with the structure of the *Geography programme* and it includes courses ranging from 5 credits to 100 credits (one credit is roughly the equivalent of one week of full-time study).

Geography 5 credits	primarily for future teachers
Geography 6-20 credits	specialised course for Geography 5 credits
Geography 20 credits	basic course in geography
Geography 21-40 credits	intermediate course in geography
Geography 41-60 credits	advanced course in geography
Geography 61-80 credits	specialised course in geography
Geography 81-100 credits	specialised course in geography

The departments of Physical Geography & Quaternary Geology and Human Geography collaborate within the geography education. Every year 400-600 students attend the Geography programme. They study geography either as stand-alone courses outside the Geography programme or as a part of their 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.

*Courses in the Earth Science programme* are carried out in collaboration with the Department of Geology and Geochemistry. The courses can be taken within the Earth Science programme or as stand-alone courses outside the programme. The Earth Science programme encompasses 160 credits but final degrees are either 120 or 160 credits. Within the Earth Science programme, the first 80 credits consist of compulsory courses where students learn the basics of Earth 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 offers advanced courses in historical geomorphology, regional geomorphology, glaciology and glacial geomorphology, periglacial environments, glacial and periglacial landscapes, climatology, palaeoclimatology, palaeoecology, Scandinavian Quaternary geology, applied Quaternary geology, hydrology, GIS for earth scientists, cartography and map production, remote sensing, geographic analysis and visualisation in GIS, ecological geography, methods in physical 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.



*Student group listening to an outdoors explanation in the forefield of Storglaciären. The Tarfala course is one of the attractive courses at the Department of Physical Geography & Quaternary Geology. The Tarfala Research Station is located in the background. Photograph by R. Hock.*

*The Biology-Earth Science programme* encompasses 160 credits but final degrees are either 120 or 160 credits. The programme is carried out in collaboration with the Department of Biology. The programme starts with a basic education of 110 credits consisting of 40 credits of earth sciences, 60 credits of biology and 10 credits of environmental 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, hydrology, and environmental and nature control. After the basic education the Department of Physical Geography & Quaternary Geology provides an advanced course in environmental conservation of 20 credits towards a 120 credits 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.

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 sections of 10 credits each, Environment Studies and Health Protection, Environment Technology, Law and Planning, and a degree project in Environment and Health Protection.

”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 Department of Physical Geography & Quaternary Geology offers an *Environmental Science programme* of 50 credits. The following courses of 10 credits each are included: 1. Environmental Conservation, basic course, encompasses different aspects of the environment such as air-, land-, and water management, environmental control, and environmental legislation. 2. International conservation, with a global emphasis on environmental conservation issues. This course provides an excursion of one week to a European country. 3. Environmental Conservation, intermediate course, with an emphasis on Sweden. 4. Energy and environment, intermediate course. 5. Environmental Conservation Project, advanced course, requires that students provide environmental knowledge to a large project covering the whole course. The objective is to define an environmental impact assessment (MKB) for a current environmental project on the basis of each student's work.

*Advanced and intermediate summer courses:*

”The Tarfala course” of 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.

”The Gräsö course” of 5 credits emphasises natural and cultural values in rural landscapes and their conservation on the island of Gräsö. The course illustrates the ecological and cultural factors that have an influence on the formation of the rural landscape.

### 3.2. 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 special 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 special emphasis on Physical Geography:

Anna Allard

*Monitoring vegetation changes in Swedish mountains by remote sensing methods*

Maria Bergström

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

Johan Bonow

*The role of etch processes, fluvial incision and glacial erosion in the formation of surfaces and valleys in the Dovre/Rondane area in southern Norway*

Gessesse Dessie

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

Bo Eknert

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

Anders Fahlén

*Resource management in mountainous ecosystems in Southeast Asia*

Ola Fredin

*Mountain centred ice sheets in Fennoscandia*

Håkan Grudd

*Tree rings and Holocene climate changes in northern Sweden*

Maria Johansson

*Snow mapping in mountainous areas by the use of remote sensing microwave techniques*

Ulf Jonsell

*Sulphate in the climate system over glacial cycles*

Christina Jonsson

*Stable isotopes in lake sediments from Lappland*

Merit Kindström

*Biodiversity and landscape ecological planning in the boreal forest in Sweden*

Per Klingbjer

*Climate response, sensitivity and climatological interpretations on subarctic glaciers in the northern Scandinavian mountains*

Patrick Klintonberg

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

Marcus Liljeberg

*Remote sensing in industrial affected coastal water*

Katarina Lundblad

*Geochemical studies of stalagmites and coral skeletons in Tanzania*

Rickard Pettersson

*Temperature distribution in polythermal glaciers and its implications on glacier system*

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*

Reuben Sebego

*An investigation on the causes of the spatial distribution of the mopane tree in eastern Botswana*

Hanna Sundqvist

*Environmental factors affecting speleothem growth, recorded from Swedish speleothems*

#### Quaternary Geology:

Anders Borgmark

*Climate variations in Sweden during the Holocene, variations in peat decomposition as a climatic archive*

Angelica Feurdean

*Palaeoenvironment and palaeoclimate in northwestern Romania during the past 15,000 years*

Jens Heimdal

*Plant macrofossils and lithostratigraphy as tools in tracing the urban archaeological, alluvial environment in two Swedish towns*

Martina Hättestrand

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

Birgitta Johansson

*Molluscs in Holocene deposits and archaeological contexts*

Gull Olli

*Biogenic silica and phosphorous accumulation in sediments as indicators of eutrophication in a bay of Lake Mälaren*

Gun Pettersson

*Fe-rich soils in southern Sweden, their formation and application for iron production during the Viking Age and Medieval time*

Rathnasirit T. Premathilake

*Late Quaternary climate change and human impact on the Horton Plains, central Sri Lanka*

List of examinations for 2000-2002

<b>Name</b>	<b>Date</b>	<b>Degree</b>
Malin Stenberg	18 May 2000	PhD, Physical Geography
Ola Ahlqvist	26 January 2001	PhD, Physical Geography
Sara Cousins	20 April 2001	PhD, Physical Geography
Cecilia Richardson- Näslund	18 May 2001	PhD, Physical Geography
Thomas Schneider	23 May 2001	PhD, Physical Geography
Laimdota Kalnina	11 September 2001	PhD, Quaternary Geology
Kristian Schoning	5 October 2001	PhD, Quaternary Geology
Hans Linderholm	5 December 2001	PhD, Physical Geography
Marianne Lagerklint	7 December 2001	PhD, Physical Geography
Tiit Hang	12 December 2001	PhD, Quaternary Geology
Richard Kangalawe	13 December 2001	PhD, Physical Geography
Anna Hedenström	18 January 2002	PhD, Quaternary Geology
Anders Clarhäll	13 February 2002	PhD, Physical Geography
Krister Jansson	15 February 2002	PhD, Physical Geography
Björn Gunnarson	30 May 2002	PhD, Physical Geography
Greger Lindeberg	20 September 2002	PhD, Quaternary Geology
Katarina Löfvenhaft	11 December 2002	PhD, Physical Geography
Anders Clarhäll	2000	PhLic, Physical Geography
Håkan Grudd	2000	PhLic, Physical Geography
Sven Karlsson	2000	PhLic, Quaternary Geology
Mats Leine	2000	PhLic, Physical Geography
Greger Lindeberg	2000	PhLic, Quaternary Geology
Katarina Löfvenhaft	2000	PhLic, Physical Geography
Gull Olli	2000	PhLic, Quaternary Geology
R.T. Premathilake	2000	PhLic, Quaternary Geology
Anna Allard	2001	PhLic, Physical Geography
Johan Bonow	2001	PhLic, Physical Geography
Anders Fahlén	2001	PhLic, Physical Geography
Ola Fredin	2001	PhLic, Physical Geography
Per Klingbjer	2001	PhLic, Physical Geography
Gun Pettersson	2001	PhLic, Quaternary Geology
Lena Rubensdotter	2001	PhLic, Physical Geography
Anders Törnqvist	2001	PhLic, Physical Geography
Anders Borgmark	2002	PhLic, Quaternary Geology

#### 4. 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 (2001-2002)

- 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. KANGALAWÉ, 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

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

KRISTIAN SCHÖNING, 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)

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.

## 5. Conferences and Seminars

### 2000

#### January

Hedenström &  
Schoning &  
Wastegård:  
Karlén:

*24th Nordic Geological Winter Meeting, Trondheim, Norway*  
*IDEAL 2<sup>nd</sup> International Symposium, club Makokola, Malawi*

#### February

Hock:

*International Arctic Science Committee, Working group on Arctic glaciology (LASC/MAGICS) workshop, Obergurgl, Austria*

Ihse:

*National Conference on Agriculture and sustainability Royal Academy of Forestry and Agriculture, Stockholm, Sweden*

#### March

Cousins:

*National Cartographic conference, Gothenburg, Sweden*

Ihse &

Löfvenhaft &

Wastenson:

*National conference on Biodiversity in the National City Park, Royal Academy of Science, Stockholm University, Sweden*

Kratzer:

*Oceanology International 2000, Brighton, U.K.*

Skånes:

*IGBP/LUCC (International Geosphere Biosphere Program / Land Use/Cover Change) workshop on Human modification of the biosphere: Key drivers of land-use/cover change processes . Royal Academy of Science, Stockholm, Sweden*

#### April

Bonow &

Lidmar-Bergström:

*Geoscience 2000, Manchester, U.K.*

Brown:

*Taiga-tundra Workshop, Abisko Naturvetenskapliga Station, Sweden*

Brown &

Wastegård:

*Iceland 2000, Modern Processes and Past Environments, University of Keele, U.K.*

Gunnarson &

Linderholm:

*International conference on dendrochronology for the third millennium, Mendoza, Argentina*

Hock &

Lidmar-Bergström &

Näslund:

*European Geophysical Society XXV General Assembly, Nice, France*

Lidmar-Bergström:

*Course in Geomorphology at Netherlands School of Sedimentary Geology*

#### May

Brävander &

Ihse &

Tullback:

*National conference on Strategy of inventories and management in coast and archipelago, Stockholm, Sweden*

Christiansson &

Kangalawe:

*MALISATA workshop on Tanzanian rural landscapes, Stockholm, Sweden*

- Ihse &  
Löfvenhaft: *International Conference on How to integrate environmental aspects into spatial planning using indicators, environmental objectives, SEA and GIS (The SAMS-project)., Swedish Environmental Protection Agency and The National Board of Housing Building and Planning, Stockholm, Sweden*
- Kratzer: *MARE Workshop on nitrogen fixation in the Baltic Sea, Kalmar University, Sweden*
- Lundén: *Sixth International Conference on Remote Sensing for Marine and Coastal Environments, Charleston, SC, U.S.A.*
- Lundqvist: *Environmental Changes in Fennoscandia During the Late Quaternary, Lund, Sweden*
- Lundqvist: *The Origin of Humankind and the Environment, Stockholm, Sweden*
- Westman: *Marine Research on Eutrophication, Workshop, Kalmar, Sweden*

## **June**

- Brown &  
Johansson, M. &  
Lundén: *20<sup>th</sup> EARSeL Symposium, Dresden, Germany*
- Ihse &  
Löfvenhaft: *Third International ISOMUL conference on Sustainable Land Use Planning, Fragmentation and Land Use Planning, Wageningen, the Netherlands*
- Jansson, K. &  
Lidmar-Bergström: *Weathering 2000, Belfast, U.K.*
- Kratzer &  
Westman: *American Society of Limnology and Oceanography (ASLO) aquatic science meeting, Copenhagen, Denmark.*
- Stroeven: *Exhumation of Circum-Atlantic Margins. Timing, Mechanisms and Implications for Hydrocarbon Exploration, London, U.K.*

## **July**

- Moberg: *Meteorology at the Millennium, Cambridge, U.K.*
- Robertsson &  
Wastegård: *NARP (Nordic Arctic Research Programme) workshop on Sensitive records of Environmental Change at the Arctic Fringe, Kevo, Finland*
- Sundqvist: *CLIMATE CHANGES - THE KARST RECORD II, Krakow, Poland*

## **August**

- Löfvenhaft: *Geoforum, Stockholm*
- Rosqvist: *8<sup>th</sup> International Palaeolimnology Symposium, Kingston, Canada*
- Miller: *16<sup>th</sup> International Diatom Symposium, Athens & Aegean Islands, Greece*

## **September**

- Ihse: *Beitets økologiske och ekonomiska förutsättningar i ett multifunktionelt landskap, Planteforsk och Kungl. Skogs- och Jordbruksakademins miljöutskotts gemensamma seminarium, Natadal, Telemark, Norway*
- Ihse &  
Skånes: *International Association for Landscape Ecology, Quantitative approaches to ecology, LALE-UK, Bangor, U.K.*
- Jansson, P.: *International Association for Hydrological Sciences, Workshop on Debris-covered Glaciers, Seattle, WA, U.S.A.*



Johansson, B.M. &  
Lundqvist &  
Miller:

*The 6<sup>th</sup> International Conference on the Mesolithic in Europe, MESO 2000, Stockholm/Nynäshamn, Sweden*

Jonsson, S.:  
Lundqvist &  
Rosqvist:  
Miller:  
Robertsson:

*The solar cycle and the terrestrial climate, Santa Cruz, Tenerife, Spain*

*ANTIME-Workshop Glaciation of the Weddell Sea basin, Abisko, Sweden*

*NorFA workshop: Bridges across the sea, Yddinge, Sweden*

*PAGES conference on Upper Pleistocene and Holocene climatic variations, Prague, Czech Republic*

## **October**

Hock &  
Jansson, P.:  
Ihse:

*International Glaciological Society (IGS) Nordic branch meeting, Tallinn, Estonia*

*National conference on Landscape and large scale changes, Royal Academy of Forestry and Agriculture, Stockholm, Sweden*

Ihse &  
Löfvenhaft:  
Rowan:

*National Workshop on Urban Ecology, Sigtuna, Sweden*

*ERS – ENVISAT symposium - Looking down to Earth in the New Millennium, Göteborg, Sweden*

Ahlqvist:

*First International Conference on Geographic Information Science, Savannah, Georgia, U.S.A.*

## **November**

Allard &  
Nordberg &  
Wastenson:  
Miller:

*Annual meeting of RESE, Remote Sensing for the Environment, Kiruna, Sweden*

*Autumn Meeting of the European Academy of Sciences and Arts Universities for the 21<sup>th</sup> Century, Brussels, Belgium*

## **December**

Ahlqvist:

*12<sup>th</sup> Annual Colloquium of the Spatial Information Research Centre, University of Otago, Dunedin, New Zealand*

## 2001

### February

Hock &

Holmlund:

*International Arctic Science Committee, Working group on Arctic glaciology (IASC/ MAGICS) workshop, Stockholm, Sweden*

Wastegård:

*ELDP North Europe regional group workshop, Vaxholm, Sweden*

Wastegård:

*NGRIP project workshop, Copenhagen, Denmark*

### March

Bonow &

Näslund:

Holmlund:

Johansson, B.M.:

Wastegård:

*European Geophysical Society XXVI General Assembly, Nice, France*

*Permafrost and Climate in Europe (PACE), Rome, Italy*

*Ökade krav - minskade resurser. Hur klarar vi det?, Stockholm University, Sweden*

*Climate and Environment in NW Russia, workshop, St. Petersburg, Russia*

### April

Ahlqvist:

Holmgren:

Stroeven:

*GIS Research UK 9th Annual Conference, GISRUK, University of Glamorgan, Wales*

*PLATINA<sup>3</sup> workshop I, Marholmen, Norrtälje, Sweden*

*Exhumation of circum-Atlantic margins: Timing, mechanisms and implications for hydrocarbon exploration, London, England*

### May

Ahlqvist:

Hedenström:

Holmlund:

Kratzer:

Lagerklint:

*GIT 2001 Forum för Geografisk IT, Stockholmsmässan, Stockholm*

*Nordic meeting of diatomists, 2001, Själön, Finland*

*Antarctic Challenges, Symposium till Otto Nordenskjölds ära, Göteborg, Sweden*

*Workshop on particles in aquatic ecosystems, Sigtuna, Sweden*

*9th Annual Agassiz Symposium, May 4-5, University of Maine, Orono, U.S.A.*

### June

Ahlqvist:

Brown:

Holmlund:

Clarhäll &

Holmlund &

Jansson, K. &

Lundqvist &

Stroeven:

Ihse:

Wastegård:

Westman:

*8th Scandinavian Research Conference on Geographical Information Science, Ås, Norway*

*International Glaciological Society Annual Symposium, Maryland, U.S.A.*

*Research for Mountain Area Development, KVA, Abisko, Sweden*

*Mechanisms, Patterns and Timing of Ice Sheet Inception, Idre, Sweden*

*Development of European Landscapes, Stockholm, Sweden and Tartu, Estonia*

*LAMSCAN meeting (NARP), Faeroe Islands*

*Nordic Diatomists Meeting, Åbo archipelago, Finland*

## July

Jansson, P.: *International Association for Scientific Hydrology (IAHS) Sixth Assembly, Maastricht, The Netherlands*

## August

Hansson: *International Glaciological Society symposium on Ice cores and Climate, Kangerlussuaq, Greenland*

Holmgren &  
Linderholm &  
Wastegård:

*Past Climate Variability through Europe and Africa. PAGES International Conference, Aix en Provence, France*

Kratzer: *MAVT intercalibration workshop for MERIS cal/val at Plymouth Marine Laboratory, U.K.*

## September

Bonow &  
Lidmar-Bergström &  
Näslund:  
Gunnarson &  
Linderholm:

*Uplift and erosion- driving processes and resulting landforms, Siena, Italy*

*Tree-rings and people, International conference on the future of dendrochronology, Davos, Switzerland*

Holmlund: *Workshop om framtagande av klimatkurva för övre Norrland (SMHI-SU), Tarfala, Sweden*

Kratzer: *Bio-optical modelling and remote sensing of the Baltic Sea, Stockholm University, Sweden*

## October

Ahlqvist: *Forskardagarna 2001, 19-20 October, Stockholms Universitet*  
Bonow: *Svenska Forskningsgruppen i Geomorfologi, Öknehult, Östergötland*  
Jansson, K.: *Palaeo-ice streams, Aarhus, Denmark*  
Johansson, B.M. &  
Miller: *NorFA Workshop Planning of Interdisciplinary Collaboration in Current Projects, Pärnu, Estonia*  
Stroeven: *Changes in climate and environment at high latitudes, Tromsø, Norway*  
Stroeven: *Geomorphological research in the Abisko region, Abisko, Sweden*

## November

Hedenström: *Baltic Sea Science Congress 2001. Past, Present and Future. A Joint Venture. Stockholm University, Sweden*

Kratzer &  
Lundqvist &  
Miller &  
Robertsson &  
Schoning &  
Wastegård &  
Westman:  
Miller:

*Baltic Sea Science Congress, Stockholm, Sweden*

*European Academy of Sciences and Arts, Autumn Plenum and Conference, Budapest, Hungary*

Skånes: *RESE Annual meeting in Umeå, Sweden*

## 2002

### January

Hock &

Holmlund:

*International Arctic Science Committee, Working group on Arctic glaciology (IASC/ MAGICs) workshop, Obergurgl, Austria*

Ihse:

*2nd Freiburger Geobotanischen Kolloquium, Freiburg, Germany*

Kratzer:

*HELCOM, Stockholm University, Sweden*

### February

Brown:

*Global Boreal Forest Mapping Project Northern European Science Node workshop, Stockholm, Sweden*

Kratzer:

*MAVT (MERIS validation and calibration team) meeting at the European Space Agency, Leiden, The Netherlands*

### March

Hansson &

Holmlund &

Jansson, K. &

Linderholm &

Lundqvist &

Miller &

Rosqvist &

Sundqvist &

Wastegård:

*2<sup>nd</sup> National Swedish IGBP-PAGES meeting, Stockholm, Sweden*

Holmlund:

*Klimatseminarium, Stockholm University, Sweden*

Ihse:

*Kan biodiversiteten i Nationalstadsparken bevaras? National seminar, Royal Academy of Science, Stockholm, Sweden*

Johansson, B.M.:

*Vem köper biologiska mångfald? Kungl. Skogs- och Lantbruksakademien, Stockholm, Sweden*

### April

Hock:

*European Geophysical Union (EGU), Nice, France*

Holmgren:

*HOLIVAR-workshop, Lammi Biological Station, Finland*

Holmlund &

Ihse:

*Internationella vetenskapsfestivalen, Göteborg, Sweden*

Ihse:

*National Flora and Fauna conference, Swedish Agricultural University, Ultuna, Sweden*

Jansson, P.:

*Midwest Glaciologists Meeting, Northfield, Minnesota, U.S.A.*

Ihse:

*Uppsala Universitets Ekologiska forskningsstations symposium om Bondeekonomi och ekologi, Skogsby, Öland, Sweden*

Ihse:

*Kartdagarna, Jönköping, Sweden*

Johansson, B.M.:

*Stockholms universitet – ett attraktivt universitet! Hur behåller vi attraktionskraften?, Campuskonferens, Stockholm, Sweden*

### May

Ihse:

*Kulturlandskap . karakterisering och skötsel, – Nordens Ark, Hunnebostrand, Stockholm*

Miller:

*Universitas Tartuensis 370 years - Tartu University 200 year. Jubilee Conference, Tartu, Estonia*

## **June**

- Brown: *EARSeL Annual Symposium, Prague, Czech Republic*  
Ihse: *Svenska LALE 's årsmöte, Tyresta, Sweden*  
Ihse: *The interplay between science and politics - Stockholm thirty years on – progress achieved and challenge ahead in international environmental cooperation, Stockholm, Sweden*

## **July**

- Holmlund: *XXVII Scientific Committee for Antarctic Research, Shanghai, Kina*

## **August**

- Bergström: *20th session of the Permanent European Conference for the Study of Rural Landscape (PECSRL), Tartu, Estonia*  
Holmlund: *Workshop om svensk klimatforskning, Tarfala, Sweden*  
Linderholm: *6th International Conference on Dendrochronology, Quebec, Canada*  
Miller: *J. Granö and E. Kant 100 years. Conference on physical and cultural landscape, Tartu, Estonia*  
Wastegård: *LAMSCAN workshop (NARP), Hveragerði, Iceland*

## **September**

- Ahlqvist: *GIScience 2002, Proceedings Second International Conference on Geographic Information Science, Boulder, U.S.A.*  
Holmgren: *Workshop on Palaeoclimates of South Africa, South Africa*  
Holmlund: *EPICA/ITASE Workshop, Potsdam, Germany*  
Ihse: *Det biologiska kulturarvet- landskapets minne. Vitterhetsakademien, Stockholm, Sweden*  
Stroeven: *Annual meeting of the Geological Society of America (GSA), Denver, U.S.A.*

## **October**

- Hansson: *IGBP-GAIM-TRACES Fire Workshop "Fire as an Earth System Process", Isle-sur-la-Sorgue, France*  
Holmgren: *PLATINA workshop II, Arusha, Tanzania*  
Johansson, B.M. & Miller & Westman: *Environment and settling along the Baltic Sea coasts through time, Pärnu, Estonia*

## **November**

- Ihse: *International workshop of Landscape Ecology and Management of Atlantic open mountain landscapes, Guarda Serra da Estrela National Park, Portugal*  
Linderholm: *Climate Variations in Sweden During the Past 2000 Years, Stockholm University, Sweden*

## **December**

- Hock: *Fall meeting of the American Geophysical Union (AGU), San Francisco, U.S.A.*

## 6. Financial Support

GRANT ORGANISATIONS	
BFR	<i>Byggeforskningsrådet</i>
CGI	<i>Centre for Geoinformatics, Royal Institute of Technology, Stockholm, Sweden</i>
EU	<i>European Union</i>
FOA	<i>Swedish National Defence Research Institute (Försvarets forskningsanstalt)</i>
FORMAS	<i>The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Forskningsrådet för miljö, areella näringar och samhällsbyggande)</i>
FRN	<i>Swedish Council for Planning and Coordination of Research (Forskningsrådsnämnden)</i>
KVA	<i>The Royal Swedish Academy of Sciences (Kungliga Vetenskapsakademien)</i>
NFR	<i>Swedish Natural Science Research Council (Naturvetenskapliga forskningsrådet)</i>
NV	<i>Swedish Environmental Protection Agency (Naturvårdsverket)</i>
MISTRA	<i>Foundation for Strategic Environmental Research (Stiftelsen för miljöstrategisk forskning)</i>
MRI	<i>Environment and Space Research Institute (Miljö &amp; Rymdforskningsinstitutet)</i>
NorFA	<i>The Nordic Academy for Advanced Study (Nordisk Forskerutdanningsakademi)</i>
RAÄ	<i>Cultural Heritage Management (Riksantikvarieämbetet)</i>
RS	<i>Swedish National Space Board (Rymdstyrelsen)</i>
SGU	<i>The Geological Survey of Sweden (Sveriges geologiska undersökning)</i>
SIDA	<i>Swedish International Development Cooperation Agency (Styrelsen för internationellt utvecklingssamarbete)</i>
SKB	<i>Swedish Nuclear Fuel and Waste Management (svensk kärnbränslehantering AB)</i>
SLL	<i>Stockholm County Council (Stockholms Landstings Miljövårdsfond)</i>
SLU	<i>Swedish University for Agricultural Sciences (Sveriges Lantbruksuniversitet)</i>
SMHI	<i>Swedish Meteorological and Hydrological Institute (Sveriges Meteorologiska och Hydrologiska Institut)</i>
STINT	<i>The Swedish Foundation for International Cooperation in Research and Higher Education (Stiftelsen för internationalisering av högre utbildning och forskning)</i>
UDSM	<i>University of Dar es Salaam</i>
VR	<i>The Swedish Research Council (Vetenskapsrådet)</i>

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2000
Arnberg	SIDA	Ph D Program in geography for Messrs Nkobi Moleele and Ruben Sebege 97-99.	130 000
Arnberg	BFR	CGI.	1 500 000
Arnberg	FOA	Forskning inom databashantering	200 000
Arnberg	NV	Tryckt rapport 2000-03-17 samt digitalt material i Pagemaker-filer.	65 000
Ban	RS	Evaluation of Airborne and Spaceborne Multi-sensor Synthetic Aperture Radar for Land Cover Mapping in Sweden.	370 000
Christiansson	SIDA	Man-Land Interrelations in Semi-Arid Tanzania.	400 000
Dahlberg	SIDA	Ecosystem and social dynamics for sustainable utilisation. (Garanterat tom 2002)	500 000
Eknert	SLL	Monitor-Naturinventering fas 2	132 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2000
Holmgren/ Karlén	NFR	Regional and temporal patterns in climate. (Garanterat för 2001)	370 899
Holmgren	NFR	Forskarass-tj i naturgeografi för tiden 970801-010731. (Garanterat för 2001)	312 000
Holmgren	Granolms Stiftelse	Expedition Tanzania	248 000
Holmlund	SGU	Den geologiska betydelsen av Weichsel-nedisningens inledningsfas i Norrbotten.	260 000
Holmlund	NFR	Glaciological studies in East Antarctica. (Garanterat f 2001--2002)	494 496
Holmlund	MRI	Löner.	2 769 908
Holmlund	NFR	Tarfala forskningsstation.	210 000
Hättestrand	NFR	Forskarass-tj inom omr "Den tidiga glaciationshistorien i norra Fennoskandien" för tiden 2000-01-01--2003-12-31. (Garanterat för 2001-2003)	569 894
Ihse	Lst Uppsala län	Miljöövervakning i jordbrukslandskapet, C-län.	100 000
Ihse	Lst Uppsala län	Miljöövervakning i jordbrukslandskapet, C-län.	135 000
Ihse	NV	Standardnomenklatur för kartering av vegetation, biotoper och landskapselement från infraröda flygbilder.	335 000
Ihse	NV	Utvecklingsarb fas II - Flygbildstolkning av två kvadratkilometerrutor.	49 000
Jansson, P.	NFR	Modelling and model verification of the glacier system: A case study on Storglaciären, Sweden. (Garanterat för 2000-2001)	123 596
Karlén	Granolms Stiftelse	Rekonstruktion av holocena klimatets variationer i Sverige och andra delar av världen.	30 000
Karlén	KVA	Stipend	20 000
Kleman	NFR	Dr-tjänst - Glaciala landformer och nedisningsdynamik i Nordamerika för tiden 1997-03-01--2001-02-28. (Garanterat tom 2001-02-28)	385 152
Kleman	Stiftelsen Ymer	Studie av isens utbredning i Sibirien o dess shelf.	15 000
Kleman	NFR	Ice sheet evolution and climate interactions through the last glacial cycle. (Garanterat tom 2002)	408 000
Klingbjer	KVA	KVA-Stipend	10 000
Kratzer	RS	Delt i workshop on the Operation of the WETLabs ac-9, 2000-02-17--18, Oregon, USA.	14 500

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2000
Kratzer	RS	Delt i American Society of Limnology and Oceanography Conference in Copenhagen, 2000-06-05--09.	6 300
Natgeo/ Land	Svenska Institutet	Baltic Aerosol Characterisation i samarb m Polen.	19 500
Land	RS	Delt i 6th Intern Conf on Remote Sensing for Marine and Coastal Environments in Charleston, SC, USA, 000501--03.	22 200
Lidmar-Bergström/ <i>Olmo/ Olsson</i>	NFR	Palaeorelief, saprolites and uplift/denudation of cratons.	185 504
Lundén	RS	Towards the development of snowmelt runoff monitoring using radar imagery in synergy with optical satellite data and field data.	185 400
Natgeo/ Lundén	SIDA	United Nations Remote Sensing Course 2000.	2 742 681
Natgeo/ Ihse	Stora Skog	Dr-tjänst - Fjärranalysmetoder för studier av fragmenterade. (Garanterat t o m 2001)	353 275
Näslund	RS	Interferometric Synthetic Aperture Radar for Antarctic ice sheet flow dynamics and sea-level contribution.	123 600
Rosqvist/ Karlén/ <i>Shemesb</i>	NFR	Quantifying climate change from lake sediments. (Garanterat för 2001)	123 596
Rowan	RS	Delt i EUSAR 2000, the 3rd European Conference on Synthetic Aperture Radar, Munich, 2000-0523--25.	6 000
Rud/ <i>Håkansson</i>	RS	A combination of satellite sensors for algal bloom monitoring in the Baltic Sea.	216 300
Wastenson/ Nordberg/ Alm/ Löfvenhaft	RS	Hyper-spectral airborne scanner data for mapping valuable biotopes in urban areas.	123 600
Wastenson/ Ihse	Satellus/ (MISTRA)	RESE (I) - Vegetation and biotope monitoring	1 350 000
Wastenson/ Håkansson	Satellus/ (MISTRA)	RESE (5) - Methods for detection of changes in aquatic eco-systems and monitoring of algae blooms.	1 420 000
Wastenson/ Arnberg	Satellus/ (MISTRA)	RESE (3) - Sustainable landscapes.	535 000
Wastenson	CGI	Doktorandtjänst inom kunskapsbaserad digitalisering.	311 400
Wastenson	EU	OAERRE - Oceanographic Applications to Eutrophication in Regions of Restricted Exchange (EVK3-CT-1999-00002)	465 287
Wastenson	Wallenberg	Fjärranalysutrustning.	2 174 000
Westerberg	KVA	Anslag fr stift M Althins stipendiefond.	24 000
<i>Weyand</i>	Svenska Institutet	Guest Scholarship	10 650
<i>Delsumma</i>			<i>20 555 738</i>



RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2000
Holmlund	EU	ENV4-CT97-0490 The Response of Artic Ice Masses to Climate.	280 000
Holmlund	EU	ENV4-CT97-0492 Permafrost and climate in Europe.	270 201
Karlén	EU	ENV4-CT95-0127 Dendroclimatological variability ...	90 000
Wastenson/ Rud	Natural Environment Research Council, U.K.	Clean Seas - European marginal seas - A study of pollution monitoring from space. (EU-proj)	100 000
Wastenson	Univ of Dundee, U.K.	Algal bloom detection monitoring and prediction.(EU-proj)	50 659
Wastenson	NFR	Geoforum 2000.	200 000
Hansen	FRN	De fyra elementen - belysta ur ett naturvetenskapligt och humanistiskt perspektiv.	65 000
<b>Total</b>		<b>Approved research grants 2000</b>	<b>21 611 598</b>

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2001
Arnberg	BFR	CGI.	500 000
Arnberg	FOA	Forskn inom omr vetenskaplig databashantering	200 000
Brown	RS	Delt i The international Glaciological Society 4th International Symposium on Remote Sensing in Glaciology, Maryland, USA, 010604--08.	25 700
Dahlberg	SIDA	Ecosystem and social dynamics for sustainable utilisation. (Garanterat tom 2002)	450 000
Hansson	NFR	Anställning som forskarassistent inom området "atmosfärssammansättning" för tiden 1997-07-01--2001-02-28.	93 722
Hansson	NFR	Ice core studies within EPICA of glacial-interglacial variations in climate and atmospheric composition.	838 512
Hansson	Univ Köpenhamn	Geofysik AFD	45 700
Hansson	NFR	Ice core studies within EPICA of glacial-interglacial variations in climate and atmospheric composition. (Extension of Junior research position) (Garanterat tom 2004)	124 095
Hansson	EU	EVK2-CT-2000-00077 - EPICA III	250 000
Holmgren/ Karlén	NFR	Regional and temporal patterns in climate.	369 791
Holmgren	NFR	Forskarass-tjänst i naturgeografi för tiden 970801-010731.	185 500
Holmlund	NFR	Glaciological studies in East Antarctica. (Garanterat f 2002)	493 019
Holmlund	Umeå univ	Löner. (MRI)	700 391

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2001
Holmlund	Wallenberg	Utbyggnad av Tarfala forskningsstation.	1 304 400
Håkansson	RS	Cal/Val activities for satellite data, algorithm development and bio-optical modelling of case-2 waters. (Forts dnr 144/99)	294 400
Hättestrand	NFR	Forskarass-tj inom omr "Den tidiga glaciationshistorien i norra Fennoskandien" för tiden 2000-01-01--2003-12-31. (Garanterat för 2002-2003)	623 731
Ihse	Lst Uppsala län	Miljöövervakning i jordbrukslandskapet, C-län.	135 000
Ihse	NV	Utvecklingsarb fas II - Flygbildstolkning av två kvadratkilometerutor.	120 000
Ihse	NV	Digital IRF-bildtolkning av LIM:s referensområde Bjällbo, Odensvi och Virestad (Avtal 2220124)	679 667
Ihse	NV	Visuell IRF-bildtolkning av LIM:s referensområde Börsil, Eldsberga, Källstorp/Ö Klagstorp, Stenåsa o Örkelljunga (Avtal2220125)	567 233
Ihse	FORMAS	IALE 010630--0607	70 000
Ihse	FORMAS	Förändringar på vegetation o markslitage/erosion orsakade av renbete i Härjedalen	50 000
Ihse	Granholms Stiftelse	IALE 2001	4 800
Jansson, P.	NFR	Modelling and model verification of the glacier system: A case study on Storglaciären, Sweden.	123 228
Karlén	NFR	Holocene changes in the climate. (Garanterat tom 2003)	46 644
Karlsson, S.	H Ax:son Johnsons stiftelse	Paleoekologiska undersökningar - norr om Mälaren	60 000
Kleman	NFR	Dr-tjänst - Glaciala landformer och nedisningsdynamik i Nordamerika för tiden 1997-03-01--2001-02-28. (Garanterat tom 2001-02-28)	64 000
Kleman	NFR	Ice sheet evolution and climate interactions through the last glacial cycle. (Garanterat tom 2002)	369 900
Kratzer	RS	Delt i Intercalibration workshop for sea-truthing MERIS 010813--17, Plymouth Marine laboratory (PML), UK	30 000
Lidmar-Bergström/ Näslund/ Olmo	NFR	Palaeorelief, saprolites and uplift/denudation of cratons. (Garanterat tom 2003)	184 408
Linderholm	SMHI	Integrerad analys av klimatobservationer i Sverige	78 000
Lundén	RS	Towards the development of operational snowmelt monitoring using satellite data.	204 800
Moberg	KVA	Time-scale-dependent reconstruction of temperature variations over the last two millennia	100 000
Natgeo/ Lundén	SIDA	United Nations Remote Sensing Course 2001.	2 960 996

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2001
Natgeo/ Ihse	Stora Skog	Dr-tjänst - Fjärranalysmetoder för studier av fragmenterade. (Garanterat t o m 2001)	177 366
Näslund	RS	Interferometric Synthetic Aperture Radar for Glacier Flow Dynamics and Global Change.	160 000
Ringberg	Granholms Stiftelse	Moränsymposium.	25 000
Risberg	Kust till Kust	Uppsala univ Fytolit o stärkelsekorn.	60 000
Risberg	SKB	Äspö - R-rapport	160 000
Robertsson	Glanshammars socken	Pollenundersökning i Hassleområdet.	56 000
Rosqvist/ Karlén/ Sbemesb Rud	NFR RS	Quantifying climate change from lake sediments.  A combination of satellite sensors for algal bloom monitoring in the Baltic Sea.	61 722 256 000
Stroeven/ Harbor	NFR	Mountain Valley Evolution: Geomorphology, GIS and Cosmogenic Isotope Dating.	246 564
Stroeven	NFR	Inbjudan av talare till en intern workshop o inceptions: Mechanisms, Patterns and Timing of Sheet Inception, Idre, 17-21 juni 2001.	40 000
Wastegård	NFR	Anställning som forskarassistent inom området "tefrokronologi, vegetationsdynamik och klimatförändringar" för tiden 1999-01-01--2002-12-31.	540 965
Wastegård	NFR	Tephrochronology and climate variation around the north Atlantic during the Late Weichselian and the Holocene. (Garanterat för 2002-2003)	123 662
Wastenson/ Ihse	(MISTRA) LMV	RESE (1) - Vegetation and biotope monitoring.	1 350 000
Wastenson/ Håkansson	(MISTRA) LMV	RESE (5) - Methods for detection of changes in aquatic eco-systems and monitoring of algae blooms.	1 084 000
Wastenson/ Arnberg	(MISTRA) LMV	RESE (3) - Sustainable landscapes.	459 000
Wastenson	VR	Geoforum 2001.	150 000
Westerberg	SIDA	Biodiversity and people.	75 000
<i>Delsumma</i>			17 372 916
Wastenson/ Rud	Natural Environment Research Council, U.K.	Clean Seas - European marginal seas - A study of pollution monitoring from space. (EU-proj)	289 350
Kleman	Mat-Nat	Startbidrag och strategisk satsning	550 000
<b>Total</b>		<b>Approved research grants 2001</b>	<b>18 212 266</b>

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2002
Arnberg	SIDA	Ph D Program in geography for Messrs Nkobi Moleele and Ruben Sebego 97-99.	130 000
Brown/ <i>Roman</i>	RS	Interferometric quantification of decadal climate change on Nordic glaciers.	236 990
Brown	RS	Delt i 22nd EARSeL Symposium, Prag, 2002--06-03--07.	13 900
Christiansson	UDSM	Man-Land Interrelations in Semi-Arid Tanzania. (Garanterat 2001--2003)	452 820
Hansson	NFR	Ice core studies within EPICA of glacial-interglacial variations in climate and atmospheric composition. (Extension of Junior research position) (Garanterat t.o.m. 2004)	496 816
Hansson	VR	Djupiskärneanalyser av klimatvariationer över istidscykler. (Garanterat 2003-2004)	540 800
Hansson	EU	EVK2-CT-2000-00077 - EPICA III.	250 000
Hansson	VR	Naturvetenskaplig-teknikvetenskaplig forskning (Bidrag f svenskt deltagande i EPICA)	195 000
Hansson	VR	Övrig forskning (Bidrag f svenskt deltagande i EPICA)	195 000
Hock	VR	Framtida klimatförändringars påverkan på glaciärers avsmältning och avrinning. (Garanterat 2003-2005)	769 600
Hock	VR	Projektbidrag enligt ovan.	130 000
Hock	Gustafssons Stiftelsen	Utrustning.	51 000
Hock	KVA	Medel fr A Hambergs testamentsfond 2002.	23 000
Holmgren	VR	Klimatets variationer i tid och rum. (Garanterat 2003-2004)	650 000
Holmlund	NFR	Glaciological studies in East Antarctica. (Garanterat 2002)	431 731
Håkansson	RS	Calibration and validation activities for optical satellite data in the Baltic.	520 000
Hättstrand	VR	Forskarass-tj inom omr "Den tidiga glaciationshistorien i norra Fennoskandien" för tiden 2000-01-01--2003-12-31. (Garanterat t.o.m. 2003)	597 000
Hättstrand	VR	Senkvartär nedisningshistoria i norra Fennoskandia och Kolahalvön. (Garanterat 2003-2004)	182 000
Ihse	EU	Uppdrag som expert och rådgivare till EU.	35 000
Ihse	NV	Utvecklingsarb fas II - Flygbildstolkning av två kvadratkilometerutor.	86 500
Ihse	NV	Vegetationskartering av Tyresta nationalpark och naturreservat (forts)	149 900
Ihse	NV	Forts IRF-bildtolkning av LIM:s referensområde Bjällbo, Börsil, Odensvi Virestad o Örkelljunga. (Avtal 222 0229)	580 000
Ihse	RS	ENVISAT AO-PROJEKT: Synergi of ENVISAT ASAR & MERIS Data for Landscape Classification.	135 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2002
Ihse	SLU	SLU:s EU-proj AEMBAC QLRT-1999-31666.	22 166
Jansson, P.	VR	Variationer i kalla ytskiktets tjocklek och dess effekt på polytermala glaciärers dynamik. (Garanterat 2003-2004)	390 000
Karlén	NFR	Holocene changes in the climate. (Garanterat tom 2003)	46 644
Karlsson, S.	RAÄ	Pollenanalytiskt arbete.	215 787
Kleman	NFR	Ice sheet evolution and climate interactions through the last glacial cycle. (Garanterat tom 2002)	369 900
Lidmar-Bergström/ Näslund/ <i>Olmo</i>	NFR	Palaeorelief, saprolites and uplift/denudation of cratons. (Garanterat tom 2003)	184 408
Lundén	RS	ENVISAT AO-PROJEKT: Snowpack monitoring and backscatter modelling using SAR, ASAR and ground penetrating radar data synergy.	50 000
Löfvenhaft	NV	Nationell naturtypsstandard.	15 000
Miller	Uppsala universitet	The Archaeology of Southern Sri Lanka (225000 SEK f 2001, 112000 SEK f 2002)	337 000
Moberg	KVA	Time-scale-dependent reconstruction of temperature variations over the last two millennia	110 000
Nordberg	Metria Miljöanalys	RESE-proj - Fjällslitage i Jämtlands län.	250 000
Näslund	SGU	Etablering av databas innehållande isrörelsedata från inlandsismodell - ett nytt verktyg för studier av glacialgeologi.	116 000
Näslund/ Jansson, P.	SKB	Inlandsisars bottenförhållanden och hydrologi (Garanterat 2003-2006)	425 000
Risberg	SKB	Sedimentbildn o strandförskjutn i Uppland. Tilläggsbeställn (2417)	60 000
Risberg	SKB	Sedimentbildn o strandförskjutn i Uppland. Tilläggsbeställn (2417)	100 000
Risberg	SKB	Äspö - R-rapport.	40 000
Risberg	RAÄ	Prospektering, stickprovsanalyser samt bedömning av lämplig material inför uåpprättande av regionalt pollen/diatomé-diagram fr omr kring nya vägsträckningen Sollentuna-Täby, s Uppland.	63 726
Risberg	RAÄ	Strandförskjutningsstudier -	294 100
Robertsson	RAÄ	Mjärdevi 14:2, 1520346 - Dokumentation av makroprover och siktanalys.	53 000
Robertsson	NorFA	Kursstip - Quaternary stratigraphy, dating methods and palaeoecology	51 000
Rosqvist	KVA	Holocene climate change inferred from oxygen isotope records from lake sediments	20 000

RESEARCH GRANT RECEIVER	FUNDING AUTHORITY	PROJECT	AMOUNT FOR 2002
Stroeven	VR	En simulering av den Skandinaviska inlandsisen under en nedisningscykel med hjälp av kosmogena radionuklider och en numerisk inlandsismodell. (Garanterat 2003-2004)	455 000
Wastegård	VR	Anställning som forskarassistent inom området "tefrokronologi, vegetationsdynamik och klimatförändringar" för tiden 1999-01-01--2002-12-31.	567 000
Wastegård	NFR	Tephrochronology and climate variation around the north Atlantic during the Late Weichselian and the Holocene. (Garanterat 2002-2003)	123 662
Wastenson/ Ihse	(MISTRA) LMV	RESE (1) - Vegetation and biotope monitoring.	1 150 000
Wastenson/ Håkansson	(MISTRA) LMV	RESE (5) - Methods for detection of changes in aquatic eco-systems and monitoring of algae blooms.	412 000
Wastenson/ Arnberg	(MISTRA) LMV	RESE (3) - Sustainable landscapes.	432 000
Wastenson	EU	OAERRE - Oceanographic Applications to Eutrophication in Regions of Restricted Exchange. (EVK3-CT-1999-00002)	313 367
Westerberg	SIDA	Biodiversity and people.	75 000
Wohlfarth	VR	Datering o paleoklimatisk analys av kortvariga klimatförändringar under de sista 2000 åren. (Fr.o.m. 020104 o garanterat t.o.m. 2003)	214 500
Wohlfarth	STINT	Samarbete m John Clague, Earth Sciences, Simon Fraser Univ, Canada. (Rest 2003 = 333 333 kr)	166 667
Wohlfarth	KVA	Paleoclimate and paleoenvironment in western Romania 20,000-10,000 years BP.	25 000
Natgeo/ Lundén	SIDA	United Nations Remote Sensing Course 2002.	3 151 964
Wohlfarth	Mat-Nat	Startbidrag - prof i kvartärgeologi.	650 000
INK	SU/Enh f intern frågor o näringslivsk	Uppstart av alumniproj (forts Geoforum).	70 000
GU	LHS		3 600 000
Westman	Lärandets galleria	Utveckling av grundkurser i geovetenskap	90 000
Westman/ Särkinen	Lärandets galleria	Utveckling av geografisk IT med inriktning mot distansutbildn i GIS o GIS-tillämpningar inom marksanering	75 000
<b>Total</b>		<b>Approved research grants 2002</b>	<b>21 636 948</b>
<b>Total</b>		<b>Approved research grants 2000-2002</b>	<b>61 460 812</b>

## 7. Staff (31 December 2002)

Department Chairperson/Head: Professor Johan Kleman  
Vice Chairperson: Associate professor Ann-Marie Robertsson

### **PROFESSORS**

Christiansson, Carl	professor of Physical Geography, particularly Tropical Soil Conservation
Holmlund, Per	professor of Glaciology
Håkansson, Bertil	adjunct professor
Ihse, Margareta	professor of Ecological Geography
Karlén, Wibjörn	professor of Physical Geography, director of postgraduate studies
Kleman, Johan	professor of Remote Sensing
Lidmar-Bergström, Karna	professor of Physical Geography
Stroeven, Arjen Peter	professor of Physical Geography
Wohlfarth, Barbara	professor of Quaternary Geology

### **ACADEMIC STAFF**

#### Associate Professors (PhD, Docenter)

Arnberg, Wolter	senior lecturer
Hansson, Margareta	senior lecturer
Holmgren, Karin	senior lecturer
Hättestrand, Clas	senior lecturer
Jansson, Peter	senior lecturer
Jonsson, Stig	senior lecturer
Lundén, Bengt	senior lecturer, also professor at Oslo University
Risberg, Jan	senior lecturer
Robertsson, Ann-Marie	senior lecturer
Wastegård, Stefan	research associate

#### PhD

Borgström, Ingmar	senior lecturer, director of undergraduate studies
Brown, Ian	researcher
Brunnberg, Lars-Erik	senior lecturer
Davies, Siwan	researcher
Gunnarson, Björn	senior lecturer
Hock, Regine	research associate
Jansson, Krister	senior lecturer
Kratzer, Susanne	researcher
Kristiansson, Jan	senior lecturer
Linderholm, Hans	researcher
Nordberg, Maj-Liz	senior lecturer
Näslund, Jens-Ove	senior lecturer
Richardson-Näslund, Cecilia	senior lecturer
Rosqvist, Gunhild	senior lecturer
Schlyter, Peter	senior lecturer

Schneider, Thomas	senior lecturer
Skånes, Helle	researcher
Ulfstedt, Ann-Cathrine	senior lecturer
Westerberg, Lars-Ove	senior lecturer
Westman, Per	researcher

PhLic, MSc, BSc

Bråvander, Lars-Gunnar	MSc, senior lecturer
Delteus, Åke	BSc, lecturer
Eknert, Bo	BSc, lecturer
Fridfeldt, Anders	BSc, lecturer
Nordström, Anders	PhLic, senior lecturer
Perhans, Karl-Erik	BSc, lecturer
Sannel, Britta	BSc, lecturer
Yrgård, Anders	PhLic, lecturer

Postgraduate students (PhLic, MSc, BSc)

Allard, Anna  
Bergström, Maria  
Bonow, Johan  
Borgmark, Anders  
Fredin, Ola  
Heimdal, Jens  
Hättstrand, Martina  
Jonsell, Ulf  
Jonsson, Christina  
Kindström, Merit  
Klingbjer, Per  
Klintenberg, Patrik  
Liljeberg, Markus  
Lundblad, Katarina  
Pettersson, Gun  
Pettersson, Rickard  
Rubensdotter, Lena  
Ryner, Maria  
Sundqvist, Hanna

Teaching assistants

Hansson, Erik  
Hörnby, Kerstin  
Johansson, Eva-Marie  
Lundin, Paula  
Mattisson, Emma  
Perhans, Karin  
Reuterswärd, Karin  
Sahlin, Eva  
Öberg, Helena



### **ADMINISTRATIVE STAFF**

Berggren, Berit	higher administrative officer
Envall, Berit	financial executive
Hammar, Camilla	personnel executive
Henkow, Månika	higher administrative officer
Henriksson, Carina	university-certified administrator, senior administrative officer
Hultblad, Gertrud	senior administrative officer
Jatéus, Elisabeth	higher administrative officer
Persdotter, Eva	higher administrative officer
Wahlgren-Brännström, Lis	head of administration and technical service
Åkerblom, Lena	higher administrative officer

### **TECHNICAL STAFF**

Alm, Göran	PhLic, systems engineer
Arnström, Inger	draftsman
Banduwardana, Dammika	systems technician
Beskow, Andreas	systems technician
Brotén, Bengt	technician
Cabrera, Yanduy	caretaker
de Woul, Mattias	research assistant
Ebert, Karin	research assistant
Everstson, Joakim	research assistant
Granell, Håkan	supervisor of office services
Huss, Erik	research assistant
Jacobson, Rolf	IT-manager
Jansson, Torrun	research assistant
Karlsson, Ann	laboratory assistant
Karlsson, Sven	PhLic, research assistant
Nyman, Mart	research assistant
Omar, Athman	research assistant
Romero, Ivan	research engineer
Runborg, Siv	BSc, research assistant
Sahlin, Charlotte	research assistant
Schuber, Pernilla	study advisor
Svanered, Ola	systems engineer
Tullback, Jesper	caretaker
Walter, Ola T.	supervisor of security
Willis, Karin	research assistant

### **PROFESSORS EMERITI**

Hoppe, Gunnar	DSc
Lundqvist, Jan	
Miller, Urve	
Ringberg, Bertil	
Wastenson, Leif	
Østrem, Gunnar	DSc

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