Nordic International Geological Congress in 2008

Earth Sciences and Sustainable Environment

Oslo 5-14 August 2008

Interim bidding document prepared by the Nordic countries for the IGC steering committee

GEOLOGORUM CONVENTUS 20 08 OSLO MENTE ET MALLEO

Florence, October 3-5th 2002

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Executive summary

The 33rd International Geological Congress is invited to Oslo 5 – 14 August 2008. In the spirit of the traditional Nordic interstate co-operation, Oslo will be an efficient gateway to the Nordic countries in all their aspects.

The Nordic countries covers more than a quarter of the Globe north of 60° N, spans the climates of the high Arctic and the European lowlands, and includes parts of two continents and two oceans. Geologically, the region ranges from Isua to Surtsey, i.e from the oldest to the youngest rocks on Earth, including Pre-cambrian shields, Palaeozoic orogens, Mesozoic rift systems, Tertiary sea-floor spreading, and Quaternary to recent glaciations and hot spot volcanism.

This is the geological setting of a long history of exploitation of natural resources, including mining for metal ores, minerals and coal, exploration and production of oil and gas, and the extraction of hydroelectric and geothermal energy.

The 33rd IGC welcomes participants to the "lands of ice and fire". (top, Svalbard, bottom, Iceland)

This will be reflected in the congress program and field trips. With a proud tradition of well-known scientists and famous Arctic explorers, the Nordic countries are still a stronghold for the Earth sciences. Today, Nordic Earth sciences are moving into new multidisciplinary fields of research combining geosciences with other branches of science, e.g. medicine, biology, physics, meteorology and ecology. These new fields of research will be the basis for plenary sessions and special and topical symposia giving the congress an avant-garde scientific profile.

The scientific program of the congress will be presented as a combination of plenary sessions and three kinds of symposia: general, special and topical. Field trips will be arranged as comprehensive pre- and post-congress excursions, as well as short syn-congress excursions to nearby localities. A set of workshops and short courses will be arranged pre- and post-congress. A Geohost programme will permit the attendance of young scientists. The social programme will allow both spouses and other accompanying persons to visit Oslo and the Nordic countries. As a venue, Oslo offers spacious, modern and easily accessible congress facilities and accommodation from youth Hostels to First Class Hotels.

Introduction

The 33rd IGC in Oslo (2008) will constitute an ideal link from the 21st IGC in Copenhagen (1960) returning to the Nordic countries after nearly a half century, and 280 million years since the initial rifting of the Oslo Graben. The 33rd IGC will coincide with the 150 years celebration of the foundation of the Geological Survey of Norway and Sweden.

The congress in Copenhagen in 1960, nearly 50 years ago, were the first time several countries had joined efforts in holding a geological congress. This congress also gave the incentive for formalising the creation of the International Union of Geological Sciences and initiated the close co-operation between these two organisations thereafter. Oslo hosted the winter Olympic games in 1952 and again in Lillehammer in 1994. The city of Oslo as indicated by the invitation letter enclosed from the mayor is well prepared to host the 33rd IGC in 2008 on behalf of the Nordic countries.

Nordic Natural Science Legacy

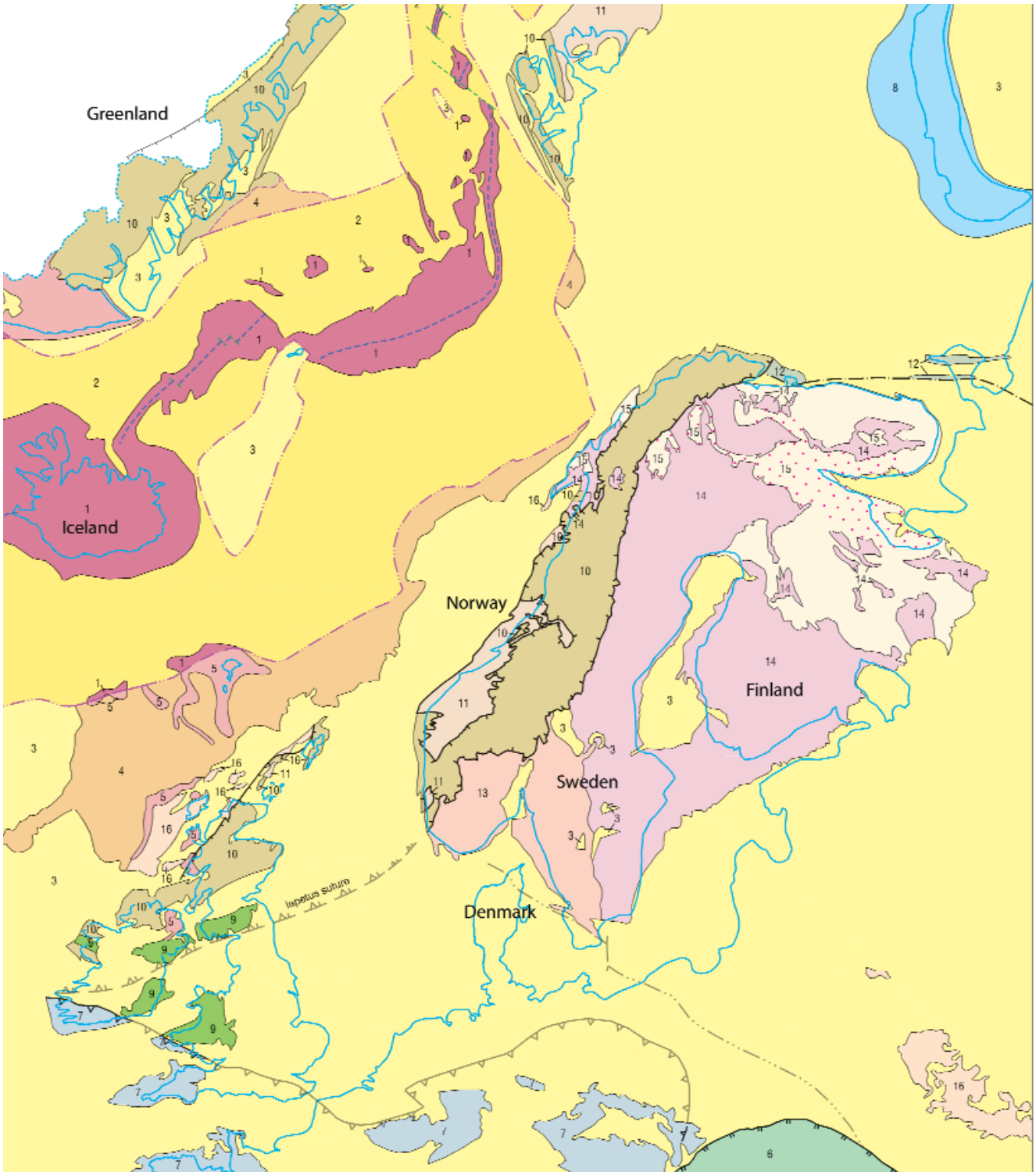

Fritjof Nansen

The Congress will be inspired by the pioneering achievements of Nordic explorers from the Viking area through modern times.
In the early days the exploration was a matter of navigation and discovering new land around the North Atlantic and in the Arctic. Among the most celebrated are the Icelandic Eirik the Red who first discovered Greenland, and his son, Leiv Eiriksson, who first discovered America.
In more recent centuries systematic scientific observations of nature and data acquisition became an increasingly important part of the many daring expeditions into the Arctic. In this respect one may mention Nordic explorers like Vitus Jonassen Bering, Adolf Erik Nordenskiöld, Fridtjof Nansen, and Vilhjalmur Stefansson. But there are many more, both of their contemporaries and their successors, that might have been equally mentioned. Common to many of the expeditions and the explorers themselves, were the impressing multi-disciplinary skills and aims of their scientific research, ranging from geology, zoology, marine biology and oceanography to archaeology, anthropology and history.
Fridtjof Nansen's Fram Expedition through the Arctic Ocean from 1893 to 1896 is an excellent example of this tradition, besides being among the greatest exploration adventure of all time. And with Oslo being the venue for the 33rd IGC, a special excursion to the Fram Museum, with emphasis upon Arctic geoscience, will be arranged during the congress.

Nordic Earth Sciences Today

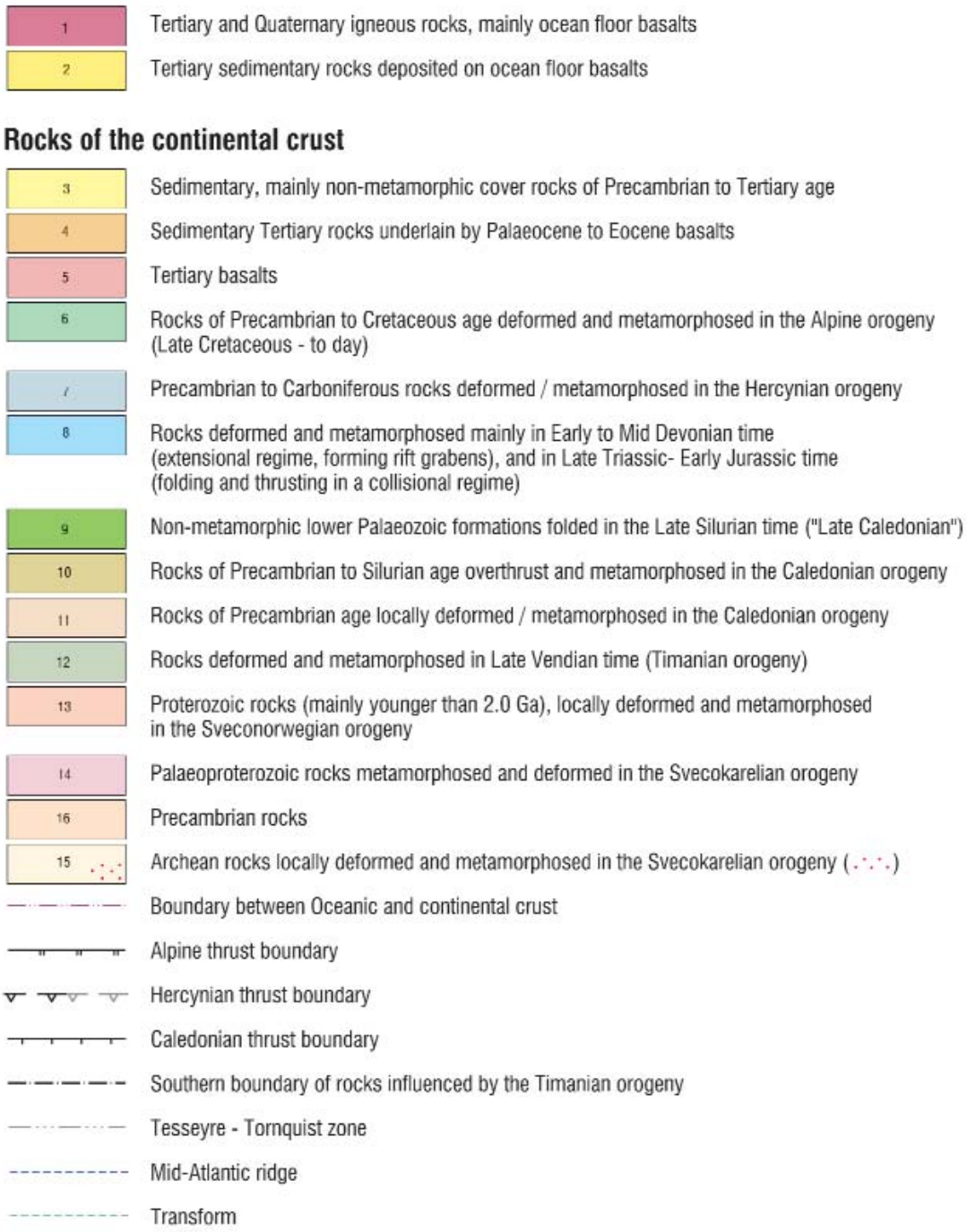
The 20th Century was in many ways the time when natural science disintegrated into specialist's disciplines. Today, there seems to be a growing awareness that science at present again advances through multidisciplinary research. Integration of marine research, geology and geophysics in the Norwegian/Greenlan Sea by academia in the 1970ies was crucial for the further study and understanding of how a continental margin initiates and evolves.
The same trend is clearly seen in the applied science in the industry, e.g. the offshore petroleum industry. Academia is now moving ahead into fields of research integrating the classical earth sciences with biology and medicine. At the same time, there is a growing awareness that the Arctic environment offers special opportunities for the new fields of research.
The recent establishment of the new

Centres of Excellence for scientific research in Norway shows that even policy makers now have recognised the necessity of a holistic approach in the natural sciences. The four Centres of Excellence for earth sciences are intentionally based on multidisciplinary integration, having defined fields of research combining geology with geophysics, mathematics, physics, geotechnology, microbiology, chemistry, oceanography and meteorology. This renewed trend for multidisciplinary research will be the themes for special congress symposia, e.g. medical geoscience, the



Geological Map of the Nordic countries and adjacent offshore areas

Rocks of the oceanic crust



Arctic and global climate, geology and marine biology, and geological hazards.

The Nordic countries in general have a higher number of earth scientists per capita than in USA and European Union, with Iceland in the unbeatable lead with 1 per 1000. Furthermore, the Earth sciences in general have a prominent position in the overall publication profile in the Nordic countries, and the published research is internationally recognized as being of high quality.

This reflects the economic dependency on their natural resources and the long history of exploring and exploiting these resources. In this respect, the classical fields of earth science still have a stronghold in the Nordic countries, and will be the subject of congress symposia and field trips.

The Geology of the Nordic Realm

The five Nordic countries reach from Greenland and the Svalbard archipelago in the high Arctic to southern Denmark of the Central European Plains. The region includes parts of two continents, the Eurasian and the North American, and the intermediate ocean, the Norwegian-Greenland Sea of the Northern Atlantic.

In plate tectonic terms, the region is shared between two lithospheric plates separated by the Mid-Atlantic Spreading Ridge. One of the countries, Iceland, straddles the actual plate boundary and is the only known example of a surface exposure of a modern ocean ridge system, and therefore represents a unique study area for all phenomena associated with ocean spreading and active volcanism.

In crustal terms, the Nordic Region spans from the oldest to the youngest rocks of the World, i.e. from the Archean continental crust in parts of the Baltic and Canadian Shields to the recent oceanic crust in parts of Iceland. The 3800 Ma Isua supracrustal sequence of the Isukasia area of southwest Greenland is the most extensive occurrence of early Archean supra-crustal rocks known on earth and constitutes the oldest part of the Precambrian basement. The Shield areas in general reveal an outstanding record of early Earth plate tectonic activity by the abundant occurrences of Archean and Proterozoic mobile belts and orogens containing greenstone belts, ophiolites, and island arc sequences.

Similar remnants of an ancient ocean, the Iapetus Ocean, are also very well displayed in the Silurian Caledonian Orogen that overprints the Eocambrian ancient shelf and the underlying Precambrian Shield. The Caledonian Orogen was later split along its axis through a 300 Ma long period of rifting that left behind some of the world's largest extensional detachment structures and finally leading to the Tertiary to present oceanic crust formation by sea floor spreading between Fennoscandia and Greenland. Thus, the geology of the Nordic countries, from the Archean to the present, brilliantly demonstrates the never-ending plate tectonic cycles of continental break-up, sea floor spreading, and continental collision, relentlessly building and forming new continental crust. This complex continental crust today presents itself as the host rocks of the banded iron formations, oxides, and sulfides constituting the classical metal ore deposits of the Nordic region.

The ancient shelf sequences of the vast continental margins around the Iapetus Ocean comprise, *inter alia*, the classical locality of the first Eocambrian tillites ever to be described. By chance, the present mainland and continental shelves of Denmark, Fennoscandia and Greenland comprise the modern versions of moraines and other glacial deposits, among them the classical localities of Professor Esmark's pioneer work on the glaciations of Scandinavia in 1824.

The present continental shelves of the Nordic countries are part of one of the most important hydrocarbon provinces of the world. The post Caledonian rocks similar to those of the hydrocarbon habitat of the continental shelf may be viewed onshore in Denmark, East Greenland and in the archipelago of Svalbard in the high Arctic. Although the main source rocks for the petroleum deposits are of Late Jurassic age, the formerly widespread Cambrian black "Alun" shales of the ancient shelf of the Iapetus is still a viable source rock in the Baltic Sea. Excellent exposures of these Alun shales and an almost complete stratigraphic section from the Lower Cambrian to the Upper Silurian are found in the City of Oslo itself. These early Palaeozoic rocks are well preserved within the famous Oslo Rift, and locally show excellent examples of contact metamorphism related to Permian intrusive activity.

The congress

Invitation

A formal invitation was submitted by the Norwegian National Committee for IUGS to the Secretary General of the 31st IGC in Rio on July 28, 2002 (see details in the enclosure section).

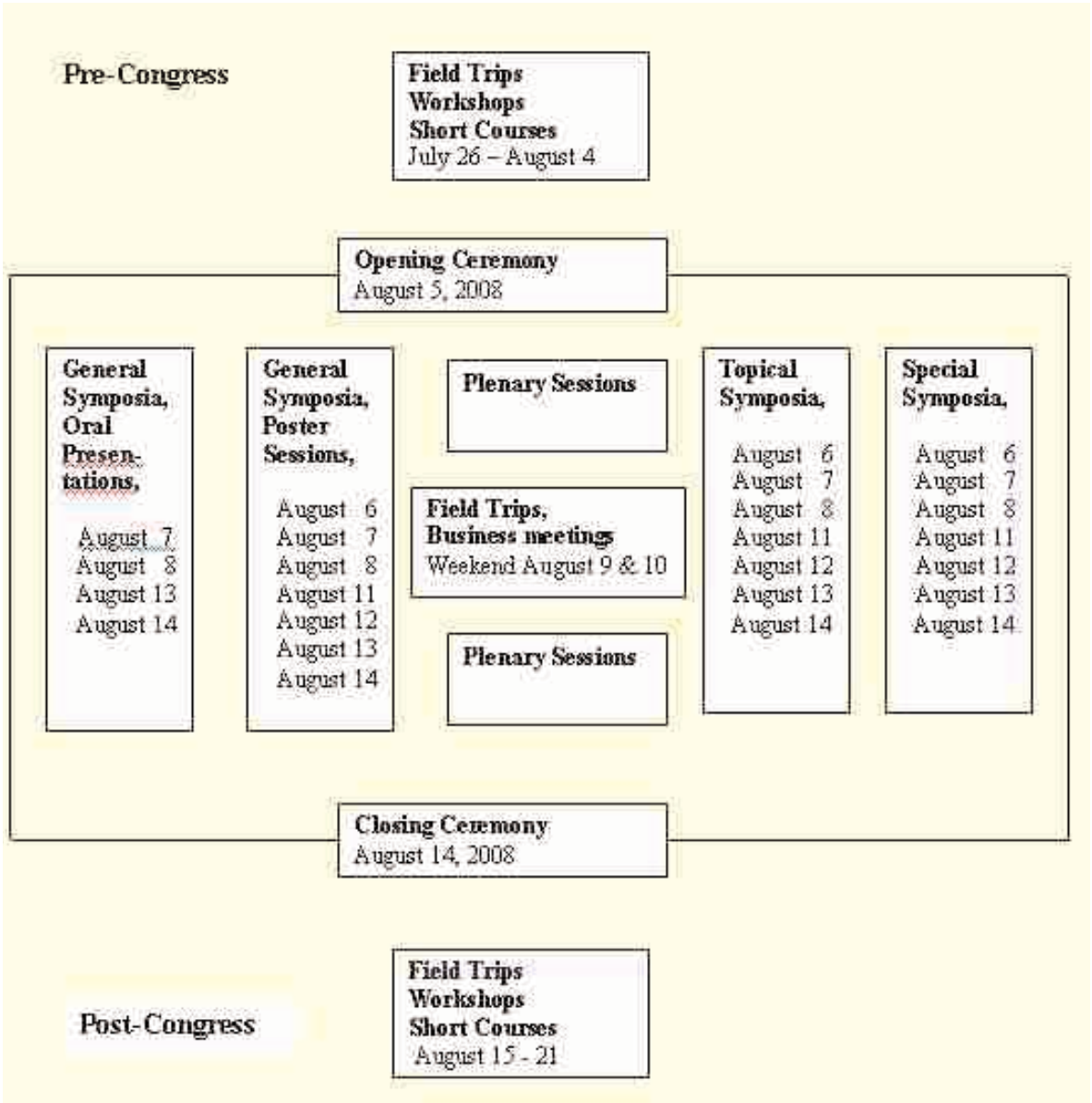
Organisation and Timing of the Congress

At a meeting of the Norwegian National Committee for IUGS in November 2001, the decision was made to appoint a Nordic Bidding Committee for the 33 rd IGC in Oslo 2008 with Professor Ivar B. Ramberg as Chairman of the Committee, as executive members:

- Director General of the Geological Survey of Norway Arne Bjørlykke
- President of the Norwegian Geological Society Harald Brekke
- Chairman of the IUGS National Committee Professor Richard Sinding-Larsen

in addition to the following Nordic members:

- Associate Professor Karin Eriksson, Sweden



- Associate Professor Henning Haack, Denmark
- Director of the Institute of Natural History Sveinn P. Jakobsson
- Iceland, Professor Reijo Salminen, Finland and Professor Tore O. Vorren, Norway.

A committee for finance and authority contacts has been set up and contacts are being made for sponsors support for the bidding process.

The month of August has been selected as the best period of the year to organise the 33rd IGC. Firstly, because August is a university vacation period making it possible to obtain better rates from hotels and permits the use of student residences for cheap accommodation. Secondly, the climate in Oslo is at its best in August and surprisingly mild for its latitude. These summer temperatures are perfect for exploring the parks and hiking paths or relaxing on the beaches of the fjord. Thirdly, August also represents the warmest month in the arctic areas with minimal amounts of snow and ice perfectly suited for geological field trips.

Congress Structure and Scientific Program

The scientific program of the congress will be presented as a combination of plenary sessions and three kinds of symposia: general, special and topical. Field trips will be arranged as comprehensive pre- and post-congress excursions, as well as short syn-congress excursions to nearby localities. A set of workshops and short courses will be arranged pre- and post-congress.

Symposia

Some special and General Symposia are described below. The list and the titles of the Symposia below are provisional. Other Special or General Symposia will be included. The General symposia will in addition to the themes listed be open to topics proposed by the IUGS Commissions and other scientific bodies.
The congress website will if our bid is successful in 2004 shortly after include the complete list of Symposia, proposed up to that date, and the name of suggested convenors. The provisional home page of the 33rd IGC is already established (*http://www.ngu.no/IGC2008*).

General Symposia

Precambrian basement and Shield areas
Caledonian mountain building processes,
Mountain collapse and basin evolution,
Crust –mantle interactions
Volcanism and seafloor spreading,
Archean-Proterozoic Transition:
Differences and Similarities in Crustal Evolution
Development of Postglacial Surface Deposits
Offshore resources and marine geology,
Arctic and Polar Regions,

Special Symposia

Models for subsurface fluid flow and sediment/rock interactions,
Geohazards and engineering geology
Environmental tectonics
Geological resources for the 21 Century
Industrial minerals and Ore geology
Resources and Environment
Sedimentary basins
Exploration in Glaciated Terrain
Neotectonics, surface processes and continental topography
Regional Geochemical Mapping and Global Baselines
Deglaciation Chronology in the Northern Hemisphere
Geological processes in planetary science

Classical earth science in climate and geo-hazards research
Physical processes in geology

Topical Symposia

Environmental evolution in the last 100 000 years
Polar geology in an environmental context
Climatic changes from Arctic records
Geotope-Biotope interactions
Geology and marine biology
Urban Geochemistry Nuclear Waste Disposal - a Challenge to Geology Soil Science and Geology - Where do They Meet Medical Geology.

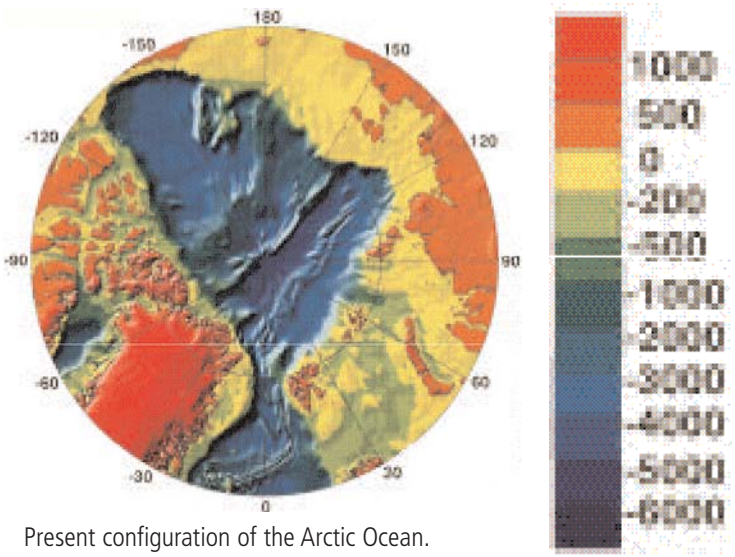
Examples of Symposia Themes

The following themes represent a selection of research topics which will be highlighted during the congress. Emerging and established centres of excellence in the Nordic countries will be encouraged to use the 33rd IGC to present their results.

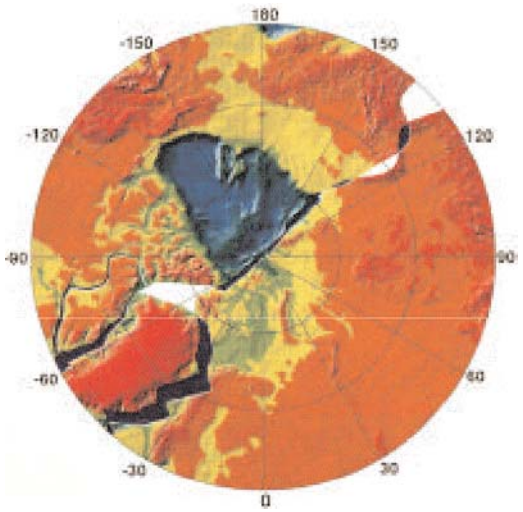
Arctic Environment, Resources and Global Climate

The natural history of the ocean basins has only been well-understood in the decades after the 21st IGC in Copenhagen in 1960. At that time new results from ocean drilling were being put together with the then-new science of marine geophysics and the geologic study of ophiolites which resulted in a completely new framework for the understanding of how the ocean floor is formed. The concept of sea floor spreading provided a plausible mechanism to explain how continental drift was possible. This scientific framework, plate tectonics, became and remains today the guiding paradigm for the understanding of most aspects of the evolution of the earth's crust and mantle.

The Arctic Basin has as shown in the figure above evolved through time. Subsidence, uplift, and sea floor spreading have expanded the basin since the mid-Mesozoic and regulated oceanic circulation patterns. Geological and geophysical studies of the Arctic Basin during the four last decades



Present configuration of the Arctic Ocean. Topography is shown in meters.



Reconstruction of the configuration 118 million years ago.

has greatly improved our understanding of its tectonic evolution, which is crucial to understanding much of the arctic history.

As a complement to the tectonic evolution the sedimentary record in the Arctic Ocean holds the story of past climates. Understanding that story will give us perspective on changes occurring now in the Arctic and in the global climate system. This will be emphasised through a special symposium led by the new centre of excellence in climatic change established in Bergen.

Evidence of glacial erosion and iceberg scouring is found on the shelves and on shallow mid-ocean plateau's and ridges. These glacigenic bedforms provide crucial information on Pleistocene glaciations in the Arctic and related paleoclimatic changes. The arctic continental shelves also sequester methane hydrates. There is evidence that massive slides have occurred along the shelf breaks. It is likely that these slides released methane gas to the atmosphere, where it would affect the longwave radiation balance.

Understanding the tectonic history of the Arctic Basin will place paleoclimate studies in context, constraining the timing of the various fluid fluxes that are an essential control on ocean circulation in the northern hemisphere.

Understanding the sedimentological evolution of the Arctic basins will lead to a better assessment of their hydrocarbon potential. In view of the increasing importance of natural gas which, outside the Middle East, is predominantly found in the Arctic basins, a better geological understanding of these areas will be vital for resource management at a global scale.

Physics of Geological Processes

This emerging field of science will greatly expand during the next five years. The Nordic venue in 2008 will therefore be a suitable forum for the presentation of our understanding of the physics of geological processes. The 33rd IGC will emphasise cross disciplinary projects representing the intersection of geology and the physics of complex irreversible processes such as deformation, transport, growth-dissolution, and tectonics. These processes will be exposed at the congress using new methods recently developed in physics to bridge the gap between field oriented studies and experiments, computer modelling and theory. The example below illustrates how rocks are memory banks able to conserve the results of past processes.

Patterns to processes: Cross-bedding in 380 million years old desert sand from East Greenland, reflecting the dynamics of windblown granular media, the fluid flow that cause the colour variation, and the movements of the continents.

How Earth Sustains Life – Integrating Ecology, Biology and Geoscience

Linking Ecological Biology and Geoscience in the Arctic:
Basic environmental science will increasingly depend on collaborations between biologists and geoscientists. The 33rd IGC will provide an opportunity to enhance and sustain research across the interface of ecological biology and geological earth sciences with special emphasis upon the arctic.

Aurora borealis in the arctic.

The disciplinary basis of environmental science is in the process of reformulation. It is increasingly clear that answers to many of the most vexing questions about how humans are influenced by our natural environment depend on processes and phenomena that span biological and geological sciences. Biotic diversity and complexity depend intimately on processes in the physicochemical environment. Conversely, fundamental physicochemical phenomena such as weathering, climate, and the development of soil fertility rely closely on geological and biological processes. This means that complex problems such as climate change, acid rain, eutrophication, and biodiversity loss are inherently interdisciplinary — that is, shaped by multiple feed backs between biological and geochemical processes. Our understanding of basic environmental science has therefore arrived at a new intellectual frontier: a natural convergence of the historically distinct disciplines of biology and physical science.

This disciplinary convergence will over the next several decades transform our understanding of basic processes that control the stability and sustainability of natural environmental systems. The arctic environment is specially suited to study these interfaces and the Nordic countries represents an ideal venue for promoting such studies. The ensuing findings will have extraordinary implications for our abilities to predict and manage how humans impact the health of ecosystems across local, regional, and global scales. Such knowledge is a critical component of a safe, sustainable, and prosperous future and the 33rd IGC will be a timely venue to discuss these issues.

Links between biology and geoscience are not new; historical examples include seminal ideas by Svante Arrhenius on carbon dioxide and global climate , Vladimir Vernandsky on global biogeochemical cycles. What is new, however, is that both biology and geoscience have now developed to a point where convergence is broadly available, and where the potential for interdisciplinary synergism is unprecedented and critical for resolving key environmental problems. Recent progress of concepts, methods (e.g., genomics, molecular biology, and isotopes), observational tools (e.g., satellites), databases (e.g., geology, soils, vegetation, and land-use change), and computational abilities have virtually revolutionised scientific readiness and opportunities at this interface.

The term “biogeosciences” refers broadly to research that links biological, geophysical, and geochemical approaches to understand the earth system. These approaches include biogeochemistry (fluxes of matter and energy), biophysics (interactions of climatic, earth-system, and physiological processes), as well as geomedicine and

hydrology (interactions of geology, living species, landforms, and water). Biogeosciences is a new discipline, based on technologies and concepts that enable the study of earth-system processes and mechanisms across a continuum of spatial and temporal scales — from microbes to global environments, and from physiological responses to the geologic record. Just as the development of molecular techniques has powered an explosion of basic biological knowledge, the development of new satellite sensors, computer models, and global informatics resources are fuelling a parallel explosion for understanding how earth system processes scale from local to global and how they interact with living species. Building on basic knowledge about underlying mechanisms, biogeosciences thus examines basic aspects of the function of the earth system.

Despite these opportunities, however, there exist barriers to developing and sustaining integrated research and training across the biology-geoscience interface. We will at the 33rd IGC convene a special colloquia to discuss opportunities for, and obstacles to, developing sustained, broadly inclusive, and effective research collaborations among ecological biologists and geoscientists. This colloquium will address the emerging field of "biogeosciences", identify barriers to further growth, and examined opportunities for developing initiatives to address intellectually broad questions that are central to understanding the interplay between living species and the earth system.

The 33rd IGC has identified two core areas for special symposia that presently are of particular importance to progress on both basic and applied issues:

Medical Geosciences

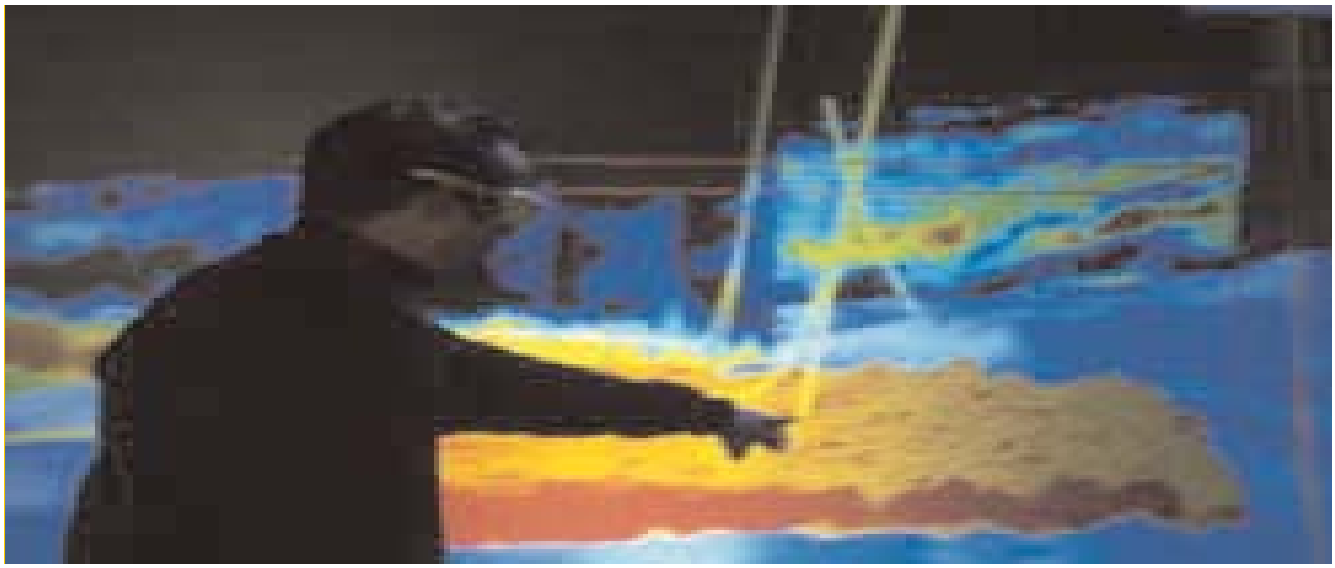
Geomedicine in the perspective of co-development of biota, soils, atmosphere, and climate in relation to the geological substratum. This area focuses on how to improve our understanding of the tremendous structural and functional diversity that characterises land- and ocean-based ecosystems. How do functional differences across ecosystems emerge from the multitude of interactions between biological, geochemical, and physical processes? Knowledge of mechanisms that control geographic variations is central to the development of dynamic and unified models. For example, dramatic geographic variations in medical conditions of humans are fundamentally important, and the underlying mechanisms depend on poorly understood feed backs between life metabolism relative to, soils, climate, and geological substrates.

Earth Processes in Space and Time

Integration of critical earth system processes across broad spatial and temporal scales. It is urgent that we understand how key processes are coupled across spatial and temporal scales within the earth system. While local-scale and short-term processes dominate the proximate turnover of carbon and other nutrients in local environments, many essential ecosystem-level properties develop over much larger spatial extents and over periods of decades, millennia, or longer. For example, while emissions of the greenhouse gas methane is controlled at scales of microbes within anaerobic environments, the effects of methane on climate become apparent at global scales, and the dynamic coupling of methane and climate emerges only within millennial-scale atmospheric records such as those from the Greenland ice cores.

Onshore and Offshore Virtual Reality

One of the missions of the 33 IGC is to demonstrate a 3D Virtual Reality geology model of the Svalbard archipelago. The geology of Svalbard is recognised as one of



The North Sea will be presented as an international laboratory using Caves / Visionaria. The impact of Virtual Reality technology on Earth science concepts will be highlighted.

the best terrain's in the world to learn about depositional settings that contain some of the worlds largest reservoirs of oil and gas.

Increasingly, oil and gas companies are turning to integration through GIS systems. The 33rd IGC will take this concept a step further by integrating GIS data in a 3D Virtual Reality (VR) environment.

Educational Opportunities

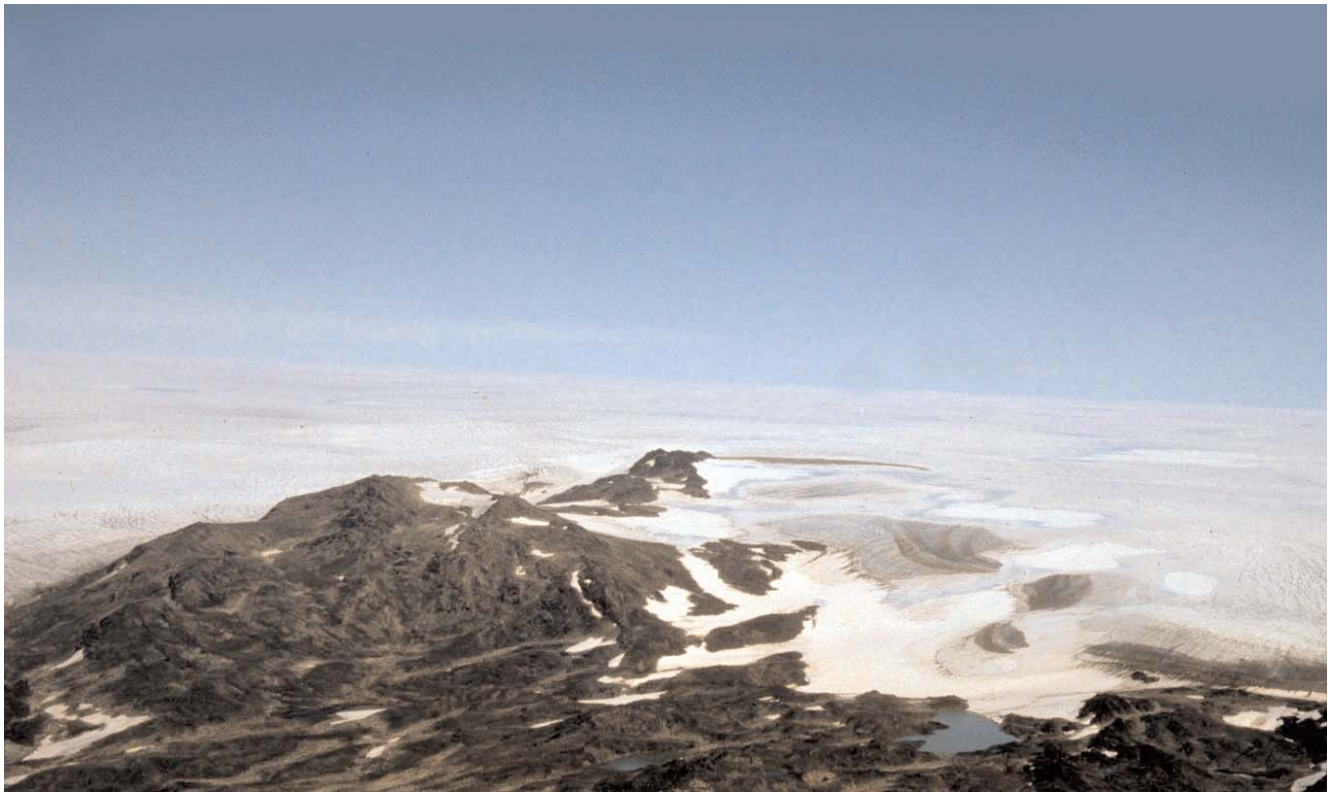
By its nature, the organisation of the 33rd IGC requires an interdisciplinary perspective that is perhaps unmatched, and that will be embraced by leading academic institutions across the Nordic countries. This represents both a challenge and an opportunity from an educational standpoint. The challenge is to use the 33rd IGC to provide a strong foundation in science to undergraduate and graduate students, in combination with a broad perspective across a range of sciences. The opportunity is to bring new students into science at both undergraduate and graduate levels as is already seen in the growth of environmental science programs around the world. These issues of education are central to training the next generation of leaders in the earth sciences and to educating students in critical environmental issues. The Nordic research councils and other funding agencies have the opportunity to influence and lead the development of novel interdisciplinary earth science and environmental science curricula at academic institutions.

Field trips

A selection of field trip highlights are presented below succeeded by a list of additional excursion themes identified so far. The work on the field trips is in progress and will go on until the date for the final announcement of the congress program.

Map of the Nordic region showing the location of proposed excursions.

Excursion 1: Isua, West Greenland – the oldest rocks on Planet Earth



Isua is located on the edge of the Greenland Ice Sheet on the west coast of Greenland

The excursion will focus on the lithostratigraphy and interpretation of the World's oldest known rocks.
- The excursion will include:
- The banded iron formation
- The Amitsoq Gneisses
- The oldest known pillow lavas
- The 3800 Ma marine carbonaceous metasediments and the recent theories on their origin.

3.8 Gy old ocean sediments

Thin section prepared from 3.8 Gy old ocean sediments from Isua. Black dos are graphite composed of isotopically light Carbon – proposed remains from algae in a very early ocean.

Excursion2: Ice-core drilling site, Greenland Ice Sheet

A one day visit to the 2008 drilling site where ice cores are recovered for glaciological, climatic and environmental studies. Planned as an add-on to other excursions.

Preliminary drilling site on the Greenland Ice Sheet

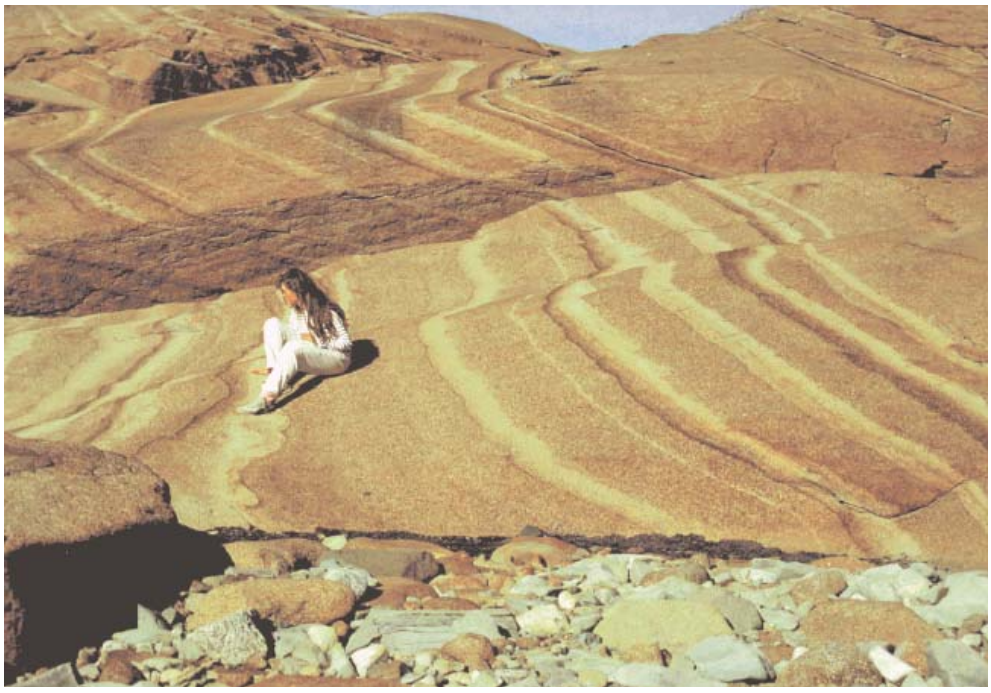
Fresh ice core. DY3, Southern Greenland 1981.

Excursion 3: The Skaergaard Layered Intrusion, East Greenland

The Skaergaard intrusion, a world-class geological locality, is a beautifully layered Tertiary gabbroic body, splendidly exposed on the east coast of Greenland just north of the Arctic Circle. It is roughly oval-shaped in plan, measuring 10 km north to south and 7.5 km east to west. The terrain is alpine, rising to 1300 m, although it is dissected by a narrow sound, and much can be seen close to tidewater.

The climate is maritime arctic, which means that extreme temperatures are not to be expected and rainy days may occur at the time of the excursion, although brilliantly sunny days are also common. The intrusion scarcely needs description as it forms part of most undergraduate courses in igneous petrology and has one of the largest literatures of any single geological locality.

The excursion will permit the study of:
- extreme compositional differentiation and spectacular structures
- one of the world's largest igneous provinces (recently estimated to comprise 10 x 10^6 km^3 of magma)
- a spectacular coastal dike swarm.



Rhythmic layers interspersed with average gabbro, Skaergaard Base Area

Excursion 4: Jameson Land, East Greenland - petroleum geology analogues for the Norwegian continental shelf

The excursion will focus on the stratigraphy and lithofacies of the late Triassic and Jurassic sedimentary sequence in Jameson Land.

The excursion will include:
- Profiles by foot in hillside outcrops through the Triassic and Jurassic stratigraphy
- Helicopter visit to the fault block unconformity between the Late Palaeozoic basal sedimentary deposits and the Precambrian basement of Liverpool Land
Helicopter visit to sites of Palaeocene dolerite sills in Jameson Land reservoir and source rock analogues
- On-site comparison of sequence stratigrapy and lithofacies with the Triassic and Jurassic of the Norwegian continental shelf area – similarities and differences.

Outcrop of shallow marine sandstones in the uppermost Triassic of Harrisfjeld, Jameson Land.

The Hekla volcano, South Iceland

Excursion 5: Tectonics and active rift-volcanism in South and Southwest Iceland

Iceland is in the process of an active rift-jump, and the different volcano-tectonic regimes will be investigated. The excursion will focus on tectonic fissures, active rift volcanism, subglacial volcanism, and active central volcanoes with their geothermal activity and distinctive petrology. Some of these geological and volcanological events are dated with tephrocronology.

The excursion will include the study of:
- Tectonics and volcanism of the active rift zones of Reykjanes, Thingvellir and the Eldgjá-Laki area
- Geothermal activity and its utilization at Reykjanes, Geysir and Landmannalaugar
- Pleistocene subglacial hyaloclastite ridges and table mountains in the area south of Langjökull
- The eruptive products of the central volcanoes Hekla, Eyjafjallajökull and Torfajökull
- The sandur outwash plains of Myrdalssandur and Skeidarársandur.

Excursion 6: Subglacial volcanic activity in Southwest and West Iceland, terrestrial processes as an excursion to Mars

The excursion will focus on the subglacial hyaloclastite ridges and table mountains of Iceland, which appear to have very few counterparts except perhaps on the planet Mars.

The excursion will permit the study of:
- The main lithofacies of the young ridges and table mountains as well as the palagonitization of the hyaloclastites in the Jarlhettur and Hlödufell formations
- The eroded hyaloclastite ridges and table mountains of Kálfstindar and the Laugarvatn region
- The polygenetic hyaloclastite and pillow lava ridges of Sveifluháls and Undirhlidar
- The Holocene fissure lavas in the Reykjanes Peninsula, as parallels to subglacial hyaloclastite ridges
- Holocene lava shields in the Skjaldbreidur and Kjölur areas, as counterparts to the subglacial table mountains.

Reykjanes, young volcanic craters and a row of craters. Grindavik village in the background.

Excursion 7: A diverging plate boundary. One-day excursion to the Reykjanes Peninsula in Southwest Iceland

A journey to the subaerial extension of the submarine Reykjanes Ridge. Tectonic, volcanic, geochemical and geothermal processes at a spreading center.

The geothermal area in Krisuvik, SW Iceland.

The excursion will include the study of:
- The diverging plate boundary on the Reykjanes Peninsula and Thingvellir with its active extensional rift volcanism
- High-temperature geothermal activity at various sites on the Reykjanes Peninsula
- The active South-Iceland transform fault south of Hestfjall
- The Pleistocene subglacial volcanic landforms at Sveifluháls and Hengill, as compared to the Holocene volcanic products in the Reykjanes Peninsula

Excursion 8: The Tertiary formation of Iceland-plateau basalts and central volcanoes, with Krafla as a modern analogue.

Krafla fires in 1984, North Iceland.

Excursion covering Northeast, East and Southeast Iceland, with focus on the Tertiary lava pile and the kinematic processes giving rise to it, and the sea floor in general. The interspersed sedimentary layers, the dike swarms, central volcanoes, petrology and low-T alteration are demonstrated. The active Krafla center in Northeast Iceland is taken as a modern analogue for the processes at work.

The excursion will permit the study of:
- Tectonics, volcanism and geothermal activity of the active rift zone in the Krafla and Myvatn areas
- The Plio-Pleistocene marine fossiliferous sequence in Tjörnes
- The Pleistocene subglacial hyaloclastite ridges in Mödrudalsfjallgardur
- The Tertiary volcanic lava pile with its dike swarms in Reydarfjördur and Berufjördur
- The denuded Tertiary central volcanoes of Thingmúli, Breiddalur and Álftafjördur
- The Tertiary plutonic intrusions of Eystrahorn and Vestrahorn
- The flank-zone volcanic activity in Öraefi.

Excursion 9: Weichselian interstadials and Late Weichselian deglaciation, and relative sea-level changes in Southwest Iceland

Iceland offers an exceptional opportunity to study the extremely rapid Late-Weichselian deglaciation and the resulting relative sea-level changes caused by the low viscosity of the upper mantle below Iceland. Voluminous eruptions in Early-Holocene are also related to the rapid isostatic rebound. The excursion will take us from the westernmost Reykjanes Peninsula through the Reykjavík area, around Hvalfjördur to the Borgarfjördur District focussing on Weichselian interstadial stratigraphy, deglaciation and relative sea-level changes. While crossing the interior of western Iceland the focus will be on the interaction between glaciers and volcanism. In southern Iceland the main emphasis will be on a Younger Dryas - Preboreal re-advances of the inland ice-sheet and formation of concurrent shorelines.

The excursion will allow the study of:
- The interstadial sediments of Reykjanes and Reykjavík
- Younger Dryas – Preboreal marine sediments and landforms
- Early Bölling Raised shorelines and sediments below Akrafjall and Skardsheidi
- Subglacial volcanic formations and early postglacial shield volcanoes along Kaldidalur and Uxhryggir
- Younger Dryas – Preboreal moraines and proglacial sediments in Southern Iceland

Two possible alternative additions

1. Through the central highlands to the Eyjafjördur area to study the retreat of an outlet glacier, formation of ice-dammed lakes and the formation of the Skogar/Vedde tephra.
2. To Sólheimajökull and Myrdalsjökull to study modern development of glacier marginal environments with formation of tills, moraines and outwash planes.

Excursion 10: Faeroe Islands – Late Palaeocene/Eocene continent splitting, volcanism and sedimentation

The excursion will focus on the stratigraphy, volcanology, and petrology of the volcanic sequences of the Faeroe Islands, and their relationship with the volcanic passive margin of the northernmost Atlantic.

The excursion will include:
- The lower lava series
- The upper lava series
- Inter-bedded clastic sediments and coal horizons
- Visit to local coal mine
- Uplift history, island morphology and landslides
- Comparison with ODP drilling results and seismic mapping of the Vøring Plateau volcanic margin off the Norwegian coast.

Excursion 11: The Caledonian infra-structure and evolution in Southern Norway

Late orogenic folding of Eocambrian and Silurian pre- and syn-orogenic sediments

The excursion will focus on the history and processes of the evolution of the Caledonian Orogen, including the constructional contraction phase as well as the subsequent late- to post-orogenic extensional phases.

The excursion will include:
- Evidence for extreme crustal thickening provided by the ultra-high pressure eclogites
- The World's largest demonstrated extensional detachments
- The Devonian supra-detachment sedimentary basins in Western Norway
- Pre- and syn-orognic lithostatigraphy.

A bus trip from Oslo through Southern Sweden to the University of Copenhagen and the
Cathedral in Roskilde. From Hirtshals in Northern Jutland we take the ferry to Kristandssand in Norway and return to Oslo.

The excursion will include:
- Visit to the world famous KT-boundary location at Stevns Klint and the scenic cretaceous Møns Klint.
- Further West on the island of Langeland we will look at the classical section of Ristinge cliff where a spectacular glaciotectonic setting with over 30 thrust slices including the Eemian deposits are exposed.
- In Jutland stops will include the fossil rich cliffs on the island Fur with their characteristic volcanic ash layers, Skagen spit, and the active sand dune Raabjerg Mile.

Excursion 12: The Cretaceous and Tertiary geology of Southern Sweden and Denmark

Stevns Klint. The Cretaceous/Tertiary boundary is the clear horizontal surface at one third way up the escarpment.

A bus trip from Oslo through Southern Sweden to the University of Copenhagen and the
Cathedral in Roskilde. From Hirtshals in Northern Jutland we take the ferry to Kristandssand in Norway and return to Oslo.

The excursion will include:
- Visit to the world famous KT-boundary location at Stevns Klint and the scenic cretaceous Møns Klint.
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- In Jutland stops will include the fossil rich cliffs on the island Fur with their characteristic volcanic ash layers, Skagen spit, and the active sand dune Raabjerg Mile.

Excursion 13: Early Palaeozoic faunal and lithofacies developments in Southern Scandinavia

The excursion will focus on the lithofacies and faunal record of the Middle Cambrian to Lower Silurian in classical localities from Öland through southern Sweden to Oslo.

Hellekis limestone quarry at Kinnekulle, W. Götaland, Sweden. Section showing the western carbonate platform facies influenced by the peri-platform Oslo depositional area to the west.

Excursion 14: Baltic Sea marine geology – a sea-going mini-symposium

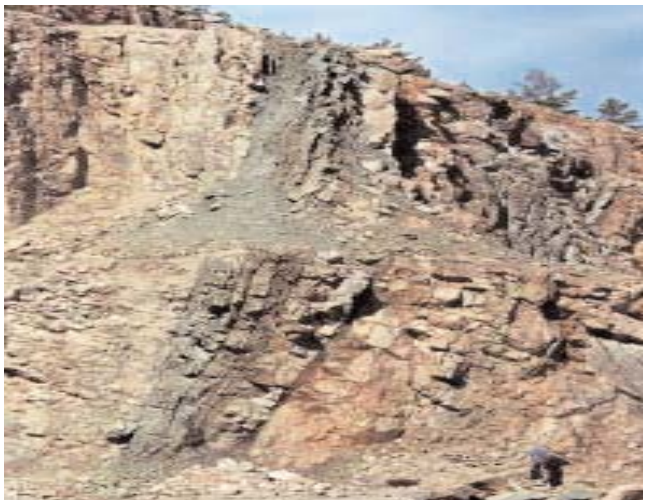
The excursion will focus on the post-glacial history of the Baltic Sea basin, environmental aspects of a semi-enclosed sea, marine geology and acoustic surveys, evolution of the Baltic Sea area through geological times.

Marine research in the Baltic Sea

The excursion will include:
- Åland Rapakivi-granite, Mariehamn
- Cambrian sandstone dikes, witness of this level being in almost present position during the accumulation of the sandstone, of which only the remnants exist (Prästö).
- Jotnian sandstones of the Åland Sea area.
- Rocks and skerries, roches moutonne'es of an island in the Archipelago Sea (Kökar)
- Outermost part of the Salpausselkä III ice-marginal formation (Jurmo)
- Gullkrona, skerries exposed from the sea by isostatic uplift of the bedrock.

Excursion 15: Impact structures in Scandinavia

The excursion will focus on terrestrial and marine impact structures with various target rocks, impact tectonism, impact melt rocks, shock metamorphism, and geophysics of impact. There are more than 20 meteorite impact structures in the Precambrian Shield of Scandinavia. Some of the impact events are ancient but some are relatively young. The field trip will focus on seven of them.



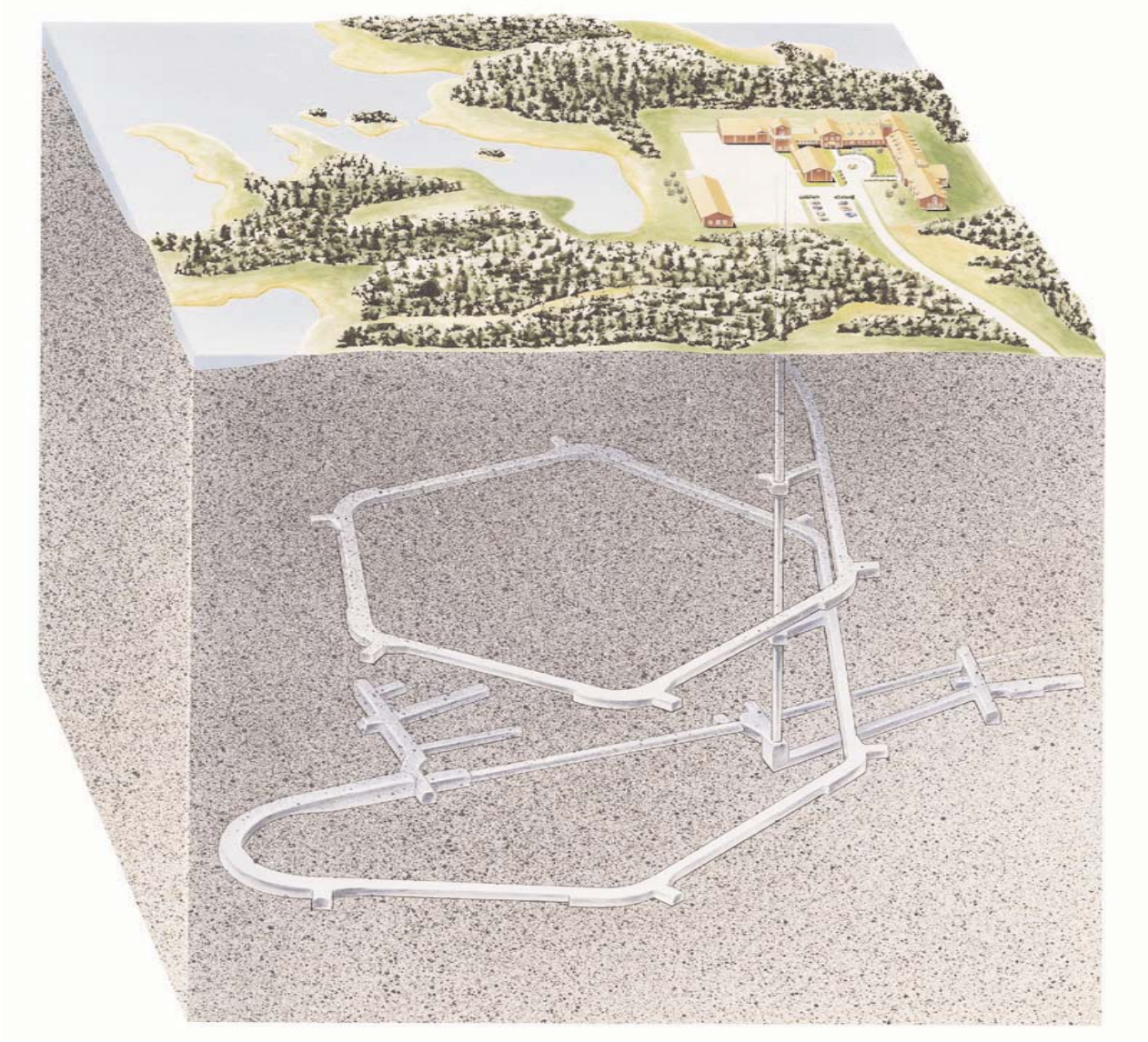
Limestones and shales in vertical position caused by Silurian meteroite impact at Siljan.

The excursion will include:
- The Gardnås Crater in central Norway
- Siljan- crater collapse, pseudotachylite formation, shatter cones
- Lockne- influence of a marine environment on crater formation, resurge deposits
- Dellen- impact melt rocks, geophysical signatures of melt rocks
- Lappajärvi: impact melt exposures, drill core exhibition, impact diamonds, overview of a young complex impact structure
- Karikkoselkä: geophysics of a simple impact structure, shatter cones, drill core exhibition
- Söderfjärden: drill core exhibition, breccia dykes, geophysical characteristics and probable a new drilling site with drill cores.

Excurison 16: Geology and radioactive waste disposal

The excursion will focus on disposal of radioactive waste, and technical aspects and geology of the candidate areas for the disposal of highly-radioactive nuclear waste.

The excursion will include:
- Visit to the underground repository for the disposal of low- and medium-radioactive waste at Forsmark (SFR)
- Geology of the candidate area for the disposal of highly-radioactive nuclear waste close to Forsmark
- Drillhole samples and data to a depth of c. 1 km in the Forsmark candidate area
- Deformation of Quaternary sediments in the Stockholm area - evidence for late- to post-glacial faulting and seismic activity?
- Visit to the temporary repository for highly-radioactive nuclear waste at Simpevarp (CLAB)
- Visit to the underground research laboratory at Äspö
- Geology of the candidate area for the disposal of highly-radioactive nuclear waste close to Simpevarp
- Drillhole samples and data to a depth of c. 1 km in the Simpevarp candidate area.



The Äspö Hard Rock Laboratory is perhaps SKB's most important research and development resource. Here, SKB can test techniques for site investigation and deposition in a realistic environment.

Excursion 17: Glacial and postglacial landforms, stratigraphy and history of Central Sweden

Glacial varved clay can be seen in the High Coast area.

The excursion will focus on Glacial and postglacial development; deposits and processes in Central Sweden. The excursion will use bus, helicopter and foothikes along the route Stockholm-Uppsala-Rättvik-Östersund-Sollefteå-Örnsköldsvik.

The excursion will include the following topics:
De Geer moraines,Varved glacial clay, Eskers, Gully system in Säter, Canyon of Styggforsen
Koppången soligenousmire complex, Interglacial and interstadial deposits, Glacifluvial and fluvial erosion, Varve chronology
Recent delta deposits, Highest glacial uplift on earth and ongoing shore processes.

Excursion 18: The Bergslagen metallogenetic zone, Sweden

The enormous mining excavation known as the Great Pit at Falun, a part of the World Heritage of the Mining Area of the Great Copper Mountain in Falun.

The excursion will focus on the following themes: 1.9 Ga volcanism, synvolcanic Zn-Pb-Cu deposits, banded iron formations and skarn iron ores, intrusive suites, granite-associated tungsten deposits in a regional structural and metamorphic setting.

The excursion will include:Visits to several types of volcanic-associated mineral deposits, including:
- active mine at Garpenberg (marble- and skarn-hosted Zn-Pb-Cu-Ag sulphide deposit with Mg-alteration)
- active mine Zinkgruvan (Zn-Pb-Ag sulphide deposit with K-alteration)
- closed mine at Falun with over 800 years of mining history (pyritic Zn-Pb-Cu-Au sulphide deposit with Mg alteration)
- characteristic Fe- and Mn-oxide deposits (e.g. Långban which is world famous as the type locality for hundreds of mineral species).

Visit to the Wigström granite-associated, 1.8 Ga W-deposit

Excursion 19: Metallogenesis in Finland and Sweden

The excursion will focus on metallogeny of and mining in Palaeoproterozoic intrusions and greenstone belts of the northern part of the Fennoscandian Shield

The excursion will include:
- 2440 Ma layered intrusion-hosted Cr deposits: the Kemi mine
- 2440 Ma layered intrusion-hosted PGE deposits: the Portimo deposits and mine(s) (the potential Suhanko mine)
- Orogenic gold depsotis in the Palaeoproterozoic Central Lapland greenstone belt: Suurikuusikko deposit (mine?), deposits along the Sirkka Line shear zone
- Iron oxide-copper-gold style of mineralisation: Kolari deposits in westernmost Finnish Lapland, Aitik in Gällivare and other Au-Cu deposits around Gällivare and Kiruna in Sweden (all Palaeoproterozoic)
- The Kirunavaara and Luossavaara mines. The Kiruna iron deposits also belonging to the Iron oxide-copper-gold category?

Pahtavaara mine, Sodankylä, Finland. Orogenic mesothermal gold deposit hosted by komatiitic volcanic rocks.

Excursion 20: Archean-Proterozoic overview in Fennoscandia

The excursion will focus on crustal scale 3D modeling, Archean and Proterozoic ophiolites, collisional structures, stabilization of thick crust.

The excursion will include:
- Archean ophiolite and Belomorian mobile belt
- Archean granite-greenstone association and Paleopro-terozoic overprinting
- Jormua ophiolite – 2.08-1.96 Ga mantle fragment
- Basement-cover relationships – structural style of foreland deformation
- Archean-Proterozoic boundary – 1.92 Ga island arc and 1.89 Ga HT-LP granulites
- Tampere 1.90 Ga island arc and Central Finland Granitoid Complex.

Excursion 21: Carbonatites and alkaline rocks of the Fennoscandian Shield

The excursion will focus on alkaline intrusions of Norway, Sweden and Finland

The excursion will include:
- Fen Complex: With a surface area of 4 km^2, the 600 Ma Fen complex contains and array of rock types, including carbonatites, ijolites, and ultramafic lamprophyres (it is the type locality of damkjernite). The latter is one of the few rock types in Fennoscandia known to contain mantle xenoliths.
- Alnö Complex: Of similar age to the Fen Complex, this area of alkaline rocks and calcite carbonatite contains central intrusions up to 5 km in diameter. Over 1200 dikes have been recorded ranging from melilitites to alnöites to carbonatites. The more kimberlitic versions of the alnöites also form diatremes north of Alnö, which are presently being prospected for diamonds.
- Siilinjärvi Carbonatite: The 2.6Ga Siilinjärvi carbonatite complex in Eastern Finland is one of the oldest carbonatites in the world. It consists of a steeply dipping lenticular body roughly 16 km long with a maximum width of 1.5 km and a surface area of 14.7 km^2. In 1979 an open pit mine for phosphorus ore was commissioned that presently has an annual production of some 750,000 t apatite and 100,000 t carbonate concentrates from 9.0 Mt ore with 550 Mt of reserves and probable reserves.

Carbonatite.

Excursion 22: Title: Postglacial overview of Finland

Postglacial esker An esker surrounded by lakes in Central Finland.

The excursion will focus on mires, marginal formations, clays, groundwater, and land uplift.

The excursion will include:
- Mires of post glacial age: different types, development, fuel peat production, balneological peat, reclaim of peat production area, target for tourism and education
- The Salpausselkä marginal formations: genesis, structure, ground water reservoirs, raw material for aggregate
- Post glacial land uplift; problems to marine traffic, saline agricultural fields
- Clay deposits of the saline and fresh water phases of the Baltic sea
- Wind blown material: dune field along the Bothnian Bay shoreline, loess on the Salpausselkä marginal formation
- Palaeosoils and places of Neolithic and younger historical settlements.

Excursion 23: Glacial and post-glacial landforms, stratigraphy and history of the fjord areas of Troms, Arctic Norway

The excursion will focus on glaciogene morphology, Quaternary stratigraphy, deglaciation history , and post-glacial climate.

The excursion will include:
- Glacially shaped landscape morphology
- Modern glacial deposits
- Raised beaches and sea-level changes.

Excursion 24: Terrestrial and marine Quaternary stratigraphy of Spitsbergen, high Arctic

Icebergs broken off of the Ice Shelf in Hornsund.

Western Svalbard exhibits an extensive record of Quaternary climatic change.

The excursion will focus on the Quaternary history of Spitsbergen in the Svalbard Archipelago in the high Arctic .. The excursion will be made by boat into the fjords of Spitsbergen with geological surveying and onshore outcrop visitsThe excursion will focus on stratigraphies from the last interglacial/glacial cycle, geomorphology and raised marine shorelines, and present day processes in the high arctic environment.

The excursion will include:
- Well exposed stratigraphies of Eemian to Weichselian marine and glacial deposits at Kapp
- Ekholm (Billefjorden), S coast of Bellsund, Prins Karls Forland, and in Linnédalen.
- Climatic reconstruction from sediment records and correlation to the marine record and palaeoceanographic changes of the North Atlantic.
- Late Pliocene/Early Pleistocene sedimentation and landscape development in the Kongsfjorden area.
- Holocene raised beach systems and sea level change. Various localities in Billefjorden, Bellsund and Kongsfjorden.
- Permafrost and karts features (Mathisondalen, Billefjorden and Linnédalen).
- Glacial and periglacial processes. Longyeardalen, Advendtdalen and Brøggerhalvøya.
- In addition to the geology: Arctic wildlife, cultural sites as old trapper station anabandoned mining settlements.

Excursion 25: The post-Caledonian depositional succession of Svalbard

The Hyrne mountain in Hornsund.

The excursion will focus on presenting the Carboniferous to Tertiary geology of Svalbard by boat and on foot in Spitsbergen.

The excursion will include:
- Middle Carboniferous clastic-evaporite halfgraben sequence with interfingering fault-scarp deposits
- Late Carboniferous marine carbonate shelf sequence with bioherms and evaporite rythms
- Mesozoic clastic succession with Triassic delta sandstones, Triassic and Jurassic black shale successions, and Cretaceous coastal barrier environments
- Jurassic major sequence boundary with phosphatic lag deposits, oolites, etc.
- Early Cretaceous dolerite sills and dykes
- Tertiary foreland basin succession
- Coal production, visit to a coal mine.

Preliminary list of additional field trips under consideration

1. The Precambrian geology of the West Troms Gneiss Complex and the Lofoten area
2. The Precambrian crustal evolution in the southwest Baltic Shield – The Middle Proterozoic to Sveconorwegian evolution
3. The greenstone belts of Finnmaark
4. The Seiland Igneous Complex
5. Layered intrusions in Norway
6. The Leka Ophiolite Complex
7. A traverse through the North-Norwegian Caledonides
8. Caledonian granite batholites in Mid-Norway
9. Highlights of the regional geology of central-western Norway
10. The geology of northernmost Europe – A geotraverse from Kirkenes to Alta
11. A geotraverse at the Polar Circle
12. A geotraverse of the Caledonides in central Scandinavia
13. Post Caledonian tectonics of the Norwegian mainland
14. The Permian Oslo Rift, volcanism and tectonic phases
15. Virtual Reality visit to the petroleum reservoirs of the North Sea
16. Lofoten eruptives
17. The hard rock geology of Svalbard
18. A section through the geology of Svalbard – The Precambrian to the Quaternary of Isfjord and the west coast of Spitsbergen
19. Late Palaeozoic to Tertiary sedimentary basins in Spitsbergen: Billefjord, Isfjord and Adventdalen.
20. The Tertiary fold belt: The west coast and outer fiords between Kongsfjord and South Cape on Spitsbergen
21. The Devonian basin in northern Spitsbergen – sedimentology, tectonic setting and Quaternary volcanism
22. The Quaternary of Arctic Eurasia
23. The Quaternary of Svalbard
24. Arctic Quaternary geology: Central fiord regions and the west coast of Spitsbergen
25. The glaciology and glacial morphology of Svalbard
26. Falling stage deltas and postglacial fjord-valley-fill stratigrphy, northern Norway
27. Raised beaches and postglacial sea-level change in Troms, northern Norway
28. The fiords of western Norway: Quaternary geology and geo-morphology
29. A traverse of the Quaternary geology of South Norway
30. Karst landforms and aquifer development in the Scandinavian Caledonides
31. Karst and sub-permafrost aquifers in Spitsbergen
32. Quarries and industry minerals
33. The Holsnøy eclogites
34. Tour of the steep railroad of Flåm

Excursion booklet

A short text as well as an indication of the itinerary on a map with pictorial highlights will be collected into a excursion booklet which will be presented to the general public at the exhibition in Florence 2004.

Geoexpo exhibition at the 32nd IGC in Florence 2004

A special initiative by the bidding committee have been dedicated to the preparation of the Nordic booth (GEONOR) for the Geoexpo Exhibition of the 32nd IGC in Florence 2004. The GEONOR booth will be designed to review the ongoing Nordic geoscience research, present interactive geoscientific maps on line and provide information and/or interaction regarding the organisation of the 33rd IGC.

A free e-mail facility will be available to everybody at the GEONOR booth.

It is our hope that in Florence the IGC Council will recommend the General Assembly to ratify the choice of Oslo as the venue for the 33rd IGC 2008, hopefully by endorsing a majority vote of the Steering Committee.

Geohost programme

The intention is to follow the policy adopted by the 32nd IGC in Florence in 2004. This policy which is summarised in the following points will ensure the active participation of young talented geoscientists with limited financial resources:

1. Partial support, in the form of no registration fees for 20% of participants (mainly young scientists).
2. Higher support, in the forum of no registration fees and no accommodation and food costs to 5% of the participants.
3. Reduced registration fee (50%) granted to Convenors and co-Convenors asking for it.

Accommodation and facilities at the Oslo Congress Centre

In Oslo 63 hotels total about 8,500 rooms from luxury hotels to youth hostels, corresponding to about 15,000 accommodations. Approximately 6,500 rooms have already been optioned for the 33rd IGC in 2008. Additional 1,000 beds are guarantied in youth hostels, university residences at prices ranging from 20-40 US$. Within the greater Oslo area an additional 50% capacity is available. All 6,500 rooms are at a distance less than 20 minutes (either walking or by car or public transportation). The city presents a range of accommodation facilities that satisfy all tastes and requirements. Information about the New Congress Centre is enclosed.

Oslo, the host city of the proposed 33rd IGC

Oslo as a city combines splendid outdoor possibilities either on the fjord or in the hills surrounding the city with diverse art museums ranging from painters like Edward Munch, the Viking ships and the boats of famous explorers like Fridtjof Nansen and Thor Heyerdahl. Oslo has all the necessary facilities: an airport with daily flights from the most important European capitals, as well as railway and ship connections to the continent Oslo, besides being the city delivering the Nobel peace price also hosts an important university and many renowned research centres (SINTEF, NORSAR, IFE, etc.). We would like to draw your attention to the following technical information regarding Oslo as a perfectly suitable place to host the 33rd International Geological Congress.

Oslo – the Viking Capital – is situated in the heart of Scandinavia, surrounded by magnificent scenery from fjords to forested hills. Already at the turn of the 10th century, a settlement was built at the end of the Oslo fjord. This makes Oslo one of the oldest cities in Scandinavia, and the only Scandinavian capital with an urban settlement dating back to the Viking Ages.

Tourist information

Oslo Promotion (Oslo Visitor's and Convention Bureau) will be able to give you information about Oslo at:
Tourist Information
Brynjulf Bulls Plass 1
NO-0250 Oslo, Norway

Telephone: +47 23 11 78 80
Fax: +47 22 83 81 50
E-mail: info@oslopro.no
Internet: www.visitoslo.com

Social functions

Despite its northern location, Norway is decidedly more solar than polar, thanks to the warming effects of the Gulf Stream flowing along its coast. At the time of the Congress, the weather should be pleasant (18-25ºC). There is daylight as late as 10 p.m. and the sun rises as early as 5 a.m. Further north, above the Arctic Circle the sun never fully sets during the summer.

People in Oslo are friendly and enjoy hosting visitors. Almost all Norwegians speak English, so communication is easy. The centre of Oslo is small and compact, and most hotels, meeting facilities, shopping areas and entertainment venues are within walking distance of the Royal Castle.

The Royal Castle in Oslo.

The city of Oslo has a number of museums and parks, such as the "Vigeland Park", the National Gallery and the "Munch Museum". The peninsula, Bygdøy, is a site of unique attractions: the museums: "Kon Tiki", "The Viking-ships", "Polar-Expeditions" and the "Norwegian Folk Museum". The area, suitable for walking and relaxation, can be reached either by a short bus ride or by boat.

Frognerseteren

With its magnificent view, 435 meters above the everyday life in the Norwegian capital, Frogneseteren is a popular resort for day-trippers. Built in the time typical "Dragon style", designed by Architect Holm Munthe the building was completed in 1892. Frognerseteren has since its opening always been a restaurant/cafe. Frognerseteren is situated near the Holmenkollen tramline and the Holmenkollen jumping hill arena.

Holmenkollen Ski Jump

The Holmenkollen Ski Jump plays an important part in the Norwegian and international skiing history, and is for many the main symbol of international ski sport. The ski jump has been the centre of Norwegian ski sport for the last 100 years. You can enjoy a panorama view of the city of Oslo from here, and also take part in summer concerts and other activities. Inside the ski jump is an impressive ski museum.

Viking Ship Museum

The Viking Ship Museum is on Bygdøy, a short distance from the centre of Oslo. It houses findings from the great ship burials at Oseberg, Gokstad and Tune, and from a chieftain grave at Borre, Vestfold county. The three ships, which are the best preserved Viking ships in existence, were found in large burial mounds in the Oslo fjord region. Beautifully crafted furnishings of wood and textiles from the Viking period are exhibited, therefore you can see some of the finest examples of art and craftsmanship made in Norway over a thousand years ago.

Henrik Ibsen

Henrik Ibsen (1828 - 1906) is considered the father of modern drama and one of the world's most famous playwrights. Amongst his most well known plays are A Doll´s House, Hedda Gabler, Peer Gynt, Brand,The Wild Duck, An Enemy of the People etc. As relevant today as 100 years ago, his plays are still staged the world over. If you wish, you may ask for information about the Henrik Ibsen Museums in and outside of Oslo.

Edward Munch

Edward Munch's (1863-1944) art is the most significant Norwegian contribution to the history of art, and he is the only Norwegian artist who has significantly influenced European art trends. This especially as a pioneer of Expressionism in Germany and the Nordic countries. In his art, he returned again and again to the memory of illness, death and grief. Many of his most famous paintings, such as The Scream, Vampire, Madonna, Death in the Sickroom,The Dance of Life, and Girls on the Bridge etc., can be viewed at the Munch Museum and National Gallery, both in Oslo.

Kon Tiki Museum

Visit the Kon-Tiki Museum and see Thor Heyerdahl's exiting world for yourself! The Museum houses a range of boats and artefacts from different expeditions. You can see the original Kon-Tiki raft (1947)with a

30 foot shark underneath, statues and a secret family cave from Easter Island, the papyrus boat Ra II (1970), and an exciting collection of archaeological finds from the Easter Islands, East Polynesia, the Galapagos and Peru.

Akershus Fortress

Akershus Fortress and Castle are national treasures, dating from the 13th century and located in the heart of Oslo. To get to the main entrance, you cross the drawbridge and find yourself in the Information Centre with access to the Norway's Resistance and Armed Forces Museums and Akershus Castle with its Church. The Fortress grounds are an ideal recreation area, just as they were in the 19th century. From the Fortress you can enjoy the beautiful view over the Oslo fjord.

Gustav Vigeland sculpture park

The famous Gustav Vigeland sculpture park is one of the artistic highlights of Norway, featuring 192 sculptures and more than 600 figures.

Oslo City Hall

Oslo City Hall is centrally located within walking distance of the Royal Palace and Parliament. On the waterfront, overlooking the fjord, the City Hall reflects Oslo´s historic role as a seafaring nation. Because of delays due to the second World War, the official opening didn´t take place before 1950. Famous Norwegian artists like Henrik Sørensen and Alf Rolfsen and many others have decorated the rooms. The building is open to the public and is well worth a visit.

Norway's coastal mountains

From the bustling towns of Bergen, Trondheim, Stavanger and Oslo to the grandeur of Norway's coastal mountains and its intimate villages visitors will find an endless array of places to visit and things to do and see in Norway. Snow lovers can enjoy summer skiing on mountain glaciers and in Spitsbergen, you may even catch a glimpse of a polar bear.

Welcome to Virtual Oslo

The Norway Experience Virtual Travel Guide of Oslo, Norway (*www.virtualoslo.com*) , include hotel guide, transport, activities, events and shopping guides. Personal Travel Guide, Interactive maps and multimedia Virtual Guided Tours through Oslo. Online Virtual Walk through the inner town. Click Walks are visual web-sites *http://oslo.clickwalk.no/indexe.html)* that lead you on a virtual walk through Oslo. They are fun and fully interactive with good images and useful information. You decide where you want to walk and what you want to see!
Further information may be obtained by consulting the following web sites:
http://www.norway.org/
http://www.oslo.clickwalk.no/
http://www.visitoslo.com
http://www.hurtigruten.com/
http://www.nsb.no/
http://www.flaamsbana.no/

Enclosures

INVITATION FOR HOSTING THE 33rd IGC IN 2008 PRESENTED AT THE 31st IGC IN RIO DE JANEIRO 2000

Norwegian National Committee for IUGS

Norwegian National Committee for the International Union of Geological Sciences

Chairman
Prof. R. Sinding-Larsen
Norwegian University of Science and Technology
7491 Trondheim
Norway

Trondheim 28th of July, 2000

The Organizing Committee of the
31st International Geological Congress
Av. Pasteur, 404, Casa Brazil 2000 – Urca
Rio de Janeioro – RJ
Brazil – Cep 22290-240

Dear Sirs/Mesdames,

33RD IGC IN 2008 LOCATED TO SCANDINAVIA, OSLO, NORWAY.

The Norwegian National Committee for IUGS is hereby pleased to invite the 33rd International Geological Congress to be held in Scandinavia in Oslo, Norway in early August, 2008.

The last International Geological Congress in Scandinavia were held in Copenhagen, Denmark in 1962 and we would therefore be delighted to welcome all geologists to revisit Scandinavia almost half a century later. The intention of the 33rd IGC is to arrange the congress jointly with our neighboring countries and have excursions all over Scandinavia as well as Iceland and the Svalbard island. An organizing committee will be conveyed with representatives from geoinstitutions in all the Scandinavian countries.

Please find enclosed some information about Oslo and the logistics of the new conference center where the congress will be held.

Yours sincerely,

R Sinding-Larsen

Richard Sinding-Larsen
Chairman, Norwegian
National Committee for IUGS

Enclosure

Support by governmental national, regional and local authorities

The Prime Minister of Norway
Mayor of Oslo, Per Ditlev Simonsen
Danish National Committee for IUGS
Finnish National Committee for IUGS
Icelandic National Committee for IUGS
Norwegian National Committee for IUGS
Swedish National Committee for IUGS
Geological Survey of Sweden
Geological Survey of Norway
Finnish Ass. of Mining and Metallurgical Engineering
Geological Society of Finland
Geological Survey of Finland
The Norwegian Geological Society
Norway Congress Centre (Brochure)

THE PRIME MINISTER

Oslo, 3 October 2002

Dear Sirs,

I am proud to promote Norway as the venue of the 33rd International Geological Congress in 2008.

Geological sciences are of great importance for the sustainable management of natural resources and for the development of societies as a whole. It is imperative that governments, scientists and other stakeholders continue to work together to meet the world's challenges in the areas of environment and development.

Earth scientists have been vital to Norway's economic development based on mineral resources, hydroelectric power, oil and gas. I am sure that the International Geological Congress will benefit from Norway's extensive energy sector, where geosciences are at the forefront.

It would be an honour to welcome a distinguished group of geological scientists to Norway in 2008.

Yours sincerely,

Kjell Magne Bondevik

The International Union of Geological Sciences
Steering Committee

City of Oslo
Mayor Per Ditlev-Simonsen

Prof. Ivar B. Ramberg
Chairman of the Bidding Committee
International Geological Congress

Dato: 29.08.2002

I have been informed that The Norwegian National Committee for the International Union of Geological Sciences (IUGS) on behalf of the Nordic Bidding Committee is bidding for the 33. International Geological Congress in 2008.

The City of Oslo is an ideal place for congresses. It offers excellent hotel accommodation of all categories, as well as professional congress facilities.

Oslo, the capital of Norway, has 500.000 inhabitants. It has a great variety of cultural attractions like theatres, opera, concert-hall and many museums. The Edvard Munch Museum is especially popular and renowned, and the Vigeland Sculpture Park is unique.

In addition to its cultural attractions, Oslo is endowed with the most beautiful surroundings. The Oslo Fjord and the hillsides frame the city and contribute to its atmosphere in a very special way.

We would appreciate to host the 33 International Geological Congress in 2008, and we assure you that the Capital of Norway would do its utmost to ensure its success.

Per Ditlev-Simonsen
Mayor of Oslo

Bystyrets sekretariat

Postadresse:
Rådhuset, 0037 Oslo

Telefon: 23 46 16 00
Telefaks: 23 46 18 46

E-post: postmottak@bys.oslo.kommune.no

NATIONALKOMITEEN FOR GEOLOGI
IUGS - DANISH NATIONAL COMMITTEE FOR GEOLOGY

C/O Det Kongelige Dansk Videnskabernes Selskab
H. C. Andersens Boulevard 35
DK - 1553 Copenhagen V
Mailing address:
Lektor Henning Haack (secr)
Geologisk Museum
Oster Voldgade 5-7,
DK-1350 Copenhagen K

24 February, 2002

To: The Nordic Preparatory Committee for the
33 International Geological Congress in Oslo 2008

Professor Ivar B. Ramberg,
Chairman of the Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

SUBJECT: OFFICIAL SUPPORT FROM THE DANISH NATIONAL COMMITTEE FOR IUGS.

On behalf of the Danish National Committee for IUGS, I am glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33 IGC in Oslo during August 2008.

The members of the National Committee representing both the Geological Survey of Denmark as well as the major academic institutions within the geosciences in Denmark assure their full commitment to support this very important event for the Arctic area in general and for the Nordic countries in particular. This is a unique opportunity for the Nordic Geological Community to show to the largest international forum the advancement made in both basic and applied Earth Science research, and how many of these results now can be tested.

Moreover we think that the 33 rd IGC in Oslo will represent a splendid opportunity for the Nordic geoscientific community to show to all the International Guests the beauty and the diversity of the geological settings that can be studied throughout the Nordic countries, including the Faroe Islands and Greenland.

The Danish National Committee for IUGS is very proud to give to the 33rd International Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008, as a modern revitalization of the glorious IGC in Copenhagen nearby half a century ago.

Yours sincerely

Bjarne Leth Nielsen
Chairman of the IUGS National Committee for Denmark.

C:\Documents and Settings\a107151\Local Settings\Temporary Internet Files\OLKF\IGC 33-Support Letter_DK.doc

Finnish National Committee for Geology
International Union of Geological Sciences

28 February, 2002

To: The Nordic Preparatory Committee for the 33 International Geological Congress in Oslo 2008

Professor Ivar B. Ramberg,
Chairman of the Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

SUBJECT: OFFICIAL SUPPORT FROM THE FINNISH NATIONAL COMMITTEE FOR GEOLOGY (MEMBER OF IUGS)

On behalf of the Finnish National Committee for Geology, we are glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33rd IGC in Oslo during August 2008.

The 33rd IGC will represent a splendid opportunity for the Nordic Geoscientific community to show to all the International Guests the beauty and the diversity of the geological settings that can be studied throughout the Nordic countries.

The Finnish National Committee for Geology (member of IUGS) is very proud to give to the 33rd International Geological Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008.

Yours sincerely,

Raimo Matikainen
Chairman of the Finnish National Committee for Geology

Henry Vallius
Secretary, Finnish National Committee for Geology

ICELANDIC INSTITUTE OF NATURAL HISTORY

The Nordic Preparatory Committee
for the 33 IGC in Oslo 2008.
c/o Professor Ivar B. Ramberg,
Chairman of the Executive Team
Ram-co, Lysaker Torg 25,
1366 Lysaker, NORGE.

March 14, 2002

Subject: Official support from the Icelandic National Commitee for the IUGS.

On behalf of the Icelandic National Committee for the IUGS, I am happy to give our scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33 IGC in Oslo during August 2008.

The members of the National Committee represent the University of Iceland, the Icelandic Institute of Natural History, the Nordic Volcanological institute, the National Energy Authority and the Icelandic Geoscience Society. We assure our full commitment to support this very important event for the Nordic countries. This is a unique opportunity for the Nordic geological communities to demonstrate to the international forum the advancement made in both basic and applied earth science research, as well as the diversity of the geological settings that can be studied in the Nordic countries.

The Icelandic National Committee for IUGS is very proud to give to the 33rd International Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008, as a modern revitalization of the successful IGC in Copenhagen in 1960.

Yours sincerely,

Sveinn Peter Jakobsson
Chairman of the IUGS National Committee for Iceland.

mmur 3 P.O. Box 5320 IS-125 Reykjavik Iceland Tel. +354 562 9822 Fax +354 562 0815 email ni@nattfs

Norwegian National Committee for the International Union of Geological Sciences

Chairman
Prof. R. Sinding-Larsen
Norwegian University of Science and Technology
N-7491 Trondheim
Norway

21 February, 2002

To: The Nordic Preparatory Committee for the
33 International Geological Congress in Oslo 2008

Professor Ivar B. Ramberg,
Chairman of the Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

SUBJECT: OFFICIAL SUPPORT FROM THE NORWEGIAN NATIONAL COMMITTEE FOR IUGS.

On behalf of the Norwegian National Committee for IUGS, I am glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33 IGC in Oslo during August 2008.

The members of the National Committee representing both the Geological Survey of Norway as well as the major academic institutions within the geosciences in Norway assure their full commitment to support this very important event for the Arctic area in general and for the Nordic countries in particular. This is a unique opportunity for the Nordic Geological Community to show to the largest international forum the advancement made in both basic and applied Earth Science research, and how many of these results now can be tested. The theme "From the Arctic environment towards a global assessment of ocean continent interactions" will provide an excellent opportunity for closer co-operation between the Norwegian institutions and the leading international counterparts in line with the agenda set forth by eminent polar explorers like Fridtjof Nansen, more than a century a go.

Moreover we think that the 33 rd IGC in Oslo will represent a splendid opportunity for the Nordic geoscientific community to show to all the International Guests the beauty and the diversity of the geological settings that can be studied throughout the Nordic countries.

The Norwegian National Committee for IUGS is very proud to give to the 33rd International Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008, as a modern revitalization of the glorious IGC in Copenhagen nearby half a century ago.

Yours sincerely

R. Sinding-Larsen
Chairman of the IUGS National Committee for Norway.

KUNGL. VETENSKAPSAKADEMIEN
THE ROYAL SWEDISH ACADEMY OF SCIENCES
Swedish National Committee for Geology

5 April, 2002 Dnr 69-118/2002

Nordic Bidding Committee for the 33 International Geological Congress in Oslo 2008
Professor Ivar B. Ramberg, Chairman of the Executive Team Ram-co
Lysaker Torg 25
N-1366 Lysaker
Norge

OFFICIAL SUPPORT FROM THE SWEDISH NATIONAL COMMITTEE OF GEOLOGY

The Swedish National Committee of Geology (SNKG) is an official expert committee of the Royal Swedish Academy of Sciences (Kungliga Vetenskapsakademien). This committee is the official Swedish representative of the International Union of Geological Sciences (IUGS), representing all Swedish Universities as well as the Geological Survey of Sweden and professional associations.

The International Geological Congress (IGC) is the largest and most important geoscientific congress, organized every four years throughout the world. This congress attracts normally more than 6000 delegates as well as numerous companies, exhibitioners etc. There are plans on organizing this important event in Oslo, Norway, in cooperation with all the Nordic countries.

The Swedish National Committee of Geology gives its full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31 st IGC in Rio to hold the 33 IGC in Oslo in August 2008. The committee assures its full commitment to morally support this very important event for the Nordic countries.

The 33rd IGC in Oslo in cooperation with all Nordic countries will represent an important opportunity for the Nordic geoscientific Community to show to all the several thousand International Guests the unique and world famous diversity of the geological settings that can be studied throughout the Nordic countries. It is also a unique opportunity for the Nordic Geological Community to show to the largest international forum in the field of geology the advancement

made in both basic and applied Earth Science research, and how many of these results now can be tested in support for the community. This will be done in all lectures, seminars, official international meetings as well as the many Internordic field trips to both novel an internationally famous Nordic localities, mining districts, companies etc.

Yours sincerely

Stefan Claesson
Chairman of the IUGS National Committee for Sweden

SGU
Sveriges Geologiska Undersökning
Geological Survey of Sweden

LETTER 1(1)

Vår datum/Our date
2002-09-13

Vår beteckning/Our reference
0-1146/2002

Ert datum/Your date
2002-08-27

The Nordic Preparatory Committee
for the 33 International Geological Congress
in Oslo 2008

Professor Ivar B. Ramberg, Chairman of the
Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

The Geological Survey of Sweden express its appreciation to the plans to hold the 33rd IGC in Oslo during August 2008.

IGC attracts a large number of geoscientists from all over the world and is thereby a very important forum for exchange of geoscientific knowledge. In this context the Nordic countries have a wide range of geological environment which certainly would be attractive for the attending delegates.

On behalf the Geological Survey of Sweden we support the initiative fully and ensure all the possible cooperation in order to make the event successfull.

Lars Ljung
Director General

Naz Ahmed Shaikh
Director

Copy: Docent Karin Eriksson, Naturforum i Garpenberg AB
Box 120
776 23 Hedemora

[illegible]
[illegible] 2002-09-13

Organisationsnr. 202100-2528

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Box 670
SE-751 28 Uppsala, Sweden
Besök / Visit: Villavägen 18, Uppsala
Tel: [illegible]
Fax: [illegible]
E-mail: sgu@sgu.se

Filial / Regional Office:
Geovetarcentrum
Guldhedsgatan 5A
SE 413 20 Göteborg, Sweden
Tel: [illegible]
Fax: [illegible]
E-mail: gbg@sgu.se

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Kiliansgatan 10
SE 223 50 Lund, Sweden
Tel: [illegible]
Fax: [illegible]
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Filial / Regional Office:
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SE-930 70 Malå, Sweden
Tel: [illegible]
Fax: [illegible]
E-mail: mala@sgu.se

Filial / Regional Office:
Box 16247
SE-103 24 Stockholm, Sweden
Besök / Visit: Drottninggatan 33
Tel: [illegible]
Fax: [illegible]
E-mail: stockholm@sgu.se

NGU
Norges geologiske undersøkelse
Geological Survey of Norway

Professor Ivar B. Ramberg,
Chairman of the Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

Your ref.:
Our ref.: 02/00569-001 ADM AB/åm
File: 2976.00

Trondheim, 3 September 2002

The Nordic Preparatory Committee for the 33 International Geological Congress in Oslo 2008

SUBJECT: OFFICIAL SUPPORT FROM THE GEOLOGICAL SURVEY OF NORWAY.

On behalf of the Geological Survey of Norway, I am glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33 IGC in Oslo during August 2008.

Hosting the 33 IGC is a unique opportunity for the Nordic Geological Community and for the Nordic Geological Surveys to show to the largest international forum the advancement made in both basic and applied Earth Science research. The theme "From the Arctic environment towards a global assessment of ocean continent interactions" will provide an excellent opportunity for closer co-operation between the Norwegian institutions and the leading international counterparts in line with the agenda set forth by eminent polar explorers like Fridtjof Nansen, more than a century a go.

The Geological Surveys played an important role in arranging the last common Nordic Congress in 1960 and NGU will assist, scientific and organizational, to ensure a successful Nordic event in 2008.

Yours sincerely

Arne Bjørlykke
Director

Address for visitors: Leiv Eirikssons vei 39, Trondheim
Mailing address: N-7491 Trondheim, Norway
Telephone: +47 73 90 40 00 Fax: +47 73 92 16 20
Company no.: NO 970 188 290
E-mail: ngu@ngu.no
Internet: http://www.ngu.no

VUORIMIESYHDISTYS —
BERGSMANNAFÖRENINGEN r.y.

16 April, 2002

To: The Nordic Bidding Committee for the 33 International Geological Congress in Oslo 2008

Professor Ivar B. Ramberg
Chairman of the Executive Team
Ram-co
Lysaker Torg 25
1366 Lysaker

SUBJECT: OFFICIAL SUPPORT FROM THE FINNISH ASSOCIATION OF MINING AND METALLURGICAL ENGINEERS, GEOLOGY SECTION

On behalf of the Finnish Association of Mining and Metallurgical Engineers (Geology Section), we are glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33rd IGC in Oslo during August 2008.

The 33rd IGC will present a great opportunity for the International Guests to study the beauty and the diversity of the geological settings throughout the Nordic countries. We are proud to give to the 33rd International Geological Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008.

Yours sincerely,

Raimo Lahtinen
Chairman, Finnish Association of Mining and Metallurgical Engineers, Geology Section

Jaana Lohva
Secretary, Finnish Association of Mining and Metallurgical Engineers, Geology Section

SUOMEN GEOLOGINEN SEURA
GEOLOGISKA SÄLLSKAPET I FINLAND
GEOLOGICAL SOCIETY OF FINLAND

12 March, 2002

To: The Nordic Preparatory Committee for the 33rd International Geological Congress in Oslo 2008

Professor Ivar B. Ramberg,
Chairman of the Executive team
Ram-co
Lysaker Torg 25
1366 Lysaker

On behalf of the Geological Society of Finland we are glad to give all our scientific and organizational support to the invitation presented by the Norwegian delegation in Rio to hold the 33rd International Geological Congress in Oslo during August 2008.

Yours sincerely,

Mikko Nironen
Chairman of the Geological Society of Finland

Pasi Eilu
Secretary of the Geological Society of Finland

Kivimiehentie 1
SF-02150 ESPOO

(+358-0-)46931
Telefax (+358-0-)462 205
Telex 123185 geolo sf

KOP-Tapiola 11250-332066
Postisiirto 6574-4

GEOLOGIAN TUTKIMUSKESKUS

GEOLOGISKA FORSKNINGSCENTRALEN
GEOLOGICAL SURVEY OF FINLAND

1/1

28.2.2002

The Nordic Preparatory Committee for the 33 International Geological Congress in Oslo 2008
Professor Ivar B. Ramberg, Chairman of the Executive Team
Ram-co, Lysaker Torg 25
1366 Lysaker
Norway

SUBJECT: OFFICIAL SUPPORT FROM THE GEOLOGICAL SURVEY OF FINLAND

On behalf of the Geological Survey of Finland, we are glad to give our full scientific and organizational support to the invitation presented by the Norwegian delegation at the 31st IGC in Rio to hold the 33rd IGC in Oslo during August 2008.

The 33rd IGC will represent a splendid opportunity for the Nordic Geoscientific community to show to all the International Guests the beauty and the diversity of the geological settings that can be studied throughout the Nordic countries.

The Geological Survey of Finland is very proud to give to the 33rd International Geological Congress all its scientific and organizational assistance in order to ensure a successful Nordic event in 2008.

GEOLOGICAL SURVEY OF FINLAND

Raimo Matikainen, Director General

Reijo Salminen, Professor

GTK

PL/PB/P.O. Box 96
FIN-02151 ESPOO, FINLAND
Tel.Nat 020 550 11, Int. +358 20 550 11
Fax Nat 020 550 12, Int. +358 20 550 12
http://www.gsf.fi

PL/PB/P.O. Box 1237
FIN-70211 KUOPIO, FINLAND
Tel.Nat 020 550 30, Int. +358 20 550 11
Fax Nat 020 550 13, Int. +358 20 550 13

PL/PB/P.O. Box 77
FIN-96101 ROVANIEMI, FINLAND
Tel.Nat 020 550 40, Int. +358 20 550 11
Fax Nat 020 550 14, Int. +358 20 550 14

Support by national earth sciences institutions

02/09/2002 15:08 67107210 EPF SIDE 02/02

UNIVERSITETET I TROMSØ

The Nordic Preparatory Committee for the 33 IGC in Oslo 2008
c/o Professor Ivar B. Ramberg,
Chairman of the Executive Committee,
Ram-co, LysakerTorg 25,
1366 Lysaker

Your ref.: Our ref.: Date: 21.08.02

Support from The University og Tromsø, Norway

On behalf of the University of Tromsø I am happy to give our support to the invitation presented by the Norwegian delegation in Rio to hold the 33rd International Geological Congress (IGC) in Oslo during August 2008.

The IGC is the largest and most important geoscientific congress organized every fourth years throughout the world. This Congress, which is planned to be co-organized with all the Nordic countries, will represent a great opportunity for the Nordic geoscientific community to show the several thousand participants the unique geological settings that can be studied throughout the Nordic countries. The University of Tromsø look forward, in particular, to discuss the diverse geoscientific challenges in the Arctic region.

The University of Tromsø assures its full commitment to morally support the 33rd IGC-Congress in Oslo and the Nordic countries in 2008.

Yours sincerely

Jarle Aarbakke
Rector

RECTOR
Administration
University of Tromsø, N-9037 Tromsø, Phone: + 47 77 64 40 00, Fax: + 47 77 64 47 60
Jarle Aarbakke, Rector, Direct call +47 77 64 49 88, E-mail: rektor@adm.uit.no

Norsk Geologisk
Forening

Trondheim, 17. sept. 2002

To
The Nordic Bidding Committee
For the 33rd International Geological Congress in Oslo 2008

The Norwegian Geological Society fully supports the initiative of the Bidding Committee to promote the city of Oslo as the host for the 33rd International Geological Congress in 2008. The Society is of the opinion that this will be an extremely important event for Norweglan geo-science and that Oslo will prove to be an excellent venue for the Congress.

Yours sincerely

Harald Brekke
President

Adr.: 7491 Trondheim, NORWAY
Bank: 7874 06 65552
Mail-adr: ngf@geologi.no
Nettside: www.geologi.no
Telefon: 73 90 44 68
Telefaks: 73 92 16 20

Norway Congress Centre (Brochure)

Norway Congress Centre

Congresses | Conferences | Exhibitions | Hotel accommodation

The competitive edge in a personal atmosphere

Plenary capacity of 6 000

The Norway Congress Centre brings its experience to bear on every event, maximising precious convention and meeting time with efficient value-added services consistently delivered to the highest standards.
As with every other aspect of the Centre, users can count on the total commitment of an experienced and professional service staff.

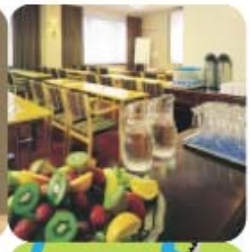
The range covers

- Congresses
- Conferences
- Banquets
- "Get-together" parties
- Trade shows
- Shows open to the general public

Services

- Exhibition contracting
- Project management
- PR/information
- Technical management
- Stand design and construction
- Professional congress organisar (PCO) services

Norway Congress Centre



Food and beverages

Top quality catering services are available when and where required – in hotel rooms, on stands, in meeting rooms, in restaurants or in the exhibition halls. Conveniently located cafeterias provide freshly brewed coffee and tea, a range of fine beverages, and delicious cakes and sandwiches.

The Centre's meeting packages and banquets include specially created menus. Tailor-made packages are also available on request.

Central location

A site close to Lillestrøm railway station provides quick and easy access to the Centre. It is favourably placed for both national and international visitors

- 12 minutes by train from Oslo's Central Station and Gardermoen airport
- 15 minutes by car from downtown Oslo
- 2 300 parking spaces plus additional capacity at the railway station
- Norway's second largest bus terminal is close to the Centre.

An exciting mix
A *perfect* experience!

Norway Congress Centre

Norway Congress Centre

Rainbow Hotel Arena

- 278 rooms to a high standard (****)
- Conference facilities for up to 900 people
- Restaurant seating for up to 900 people
- Banqueting room for up to 600 people
- À la carte restaurant
- Night club/bar
- Fitness centre with swimming pool

Including the hotel section, the Norway Congress Centre offers 20 meeting rooms of different sizes with a maximum auditorium capacity of up to 6 000 people (see the capacity details on page 7).

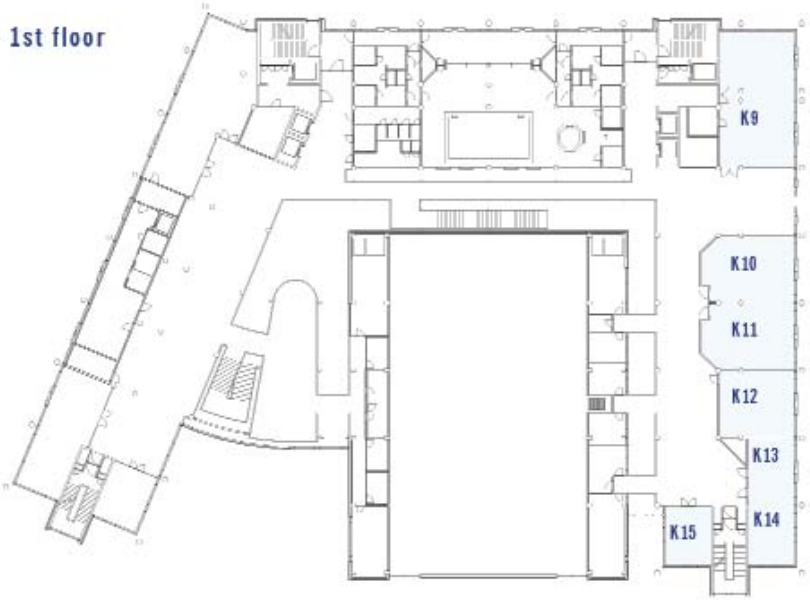
For further information about or contact with Rainbow Hotel Arena, see the last page of this brochure.

An exciting mix
Enjoy your time with us!

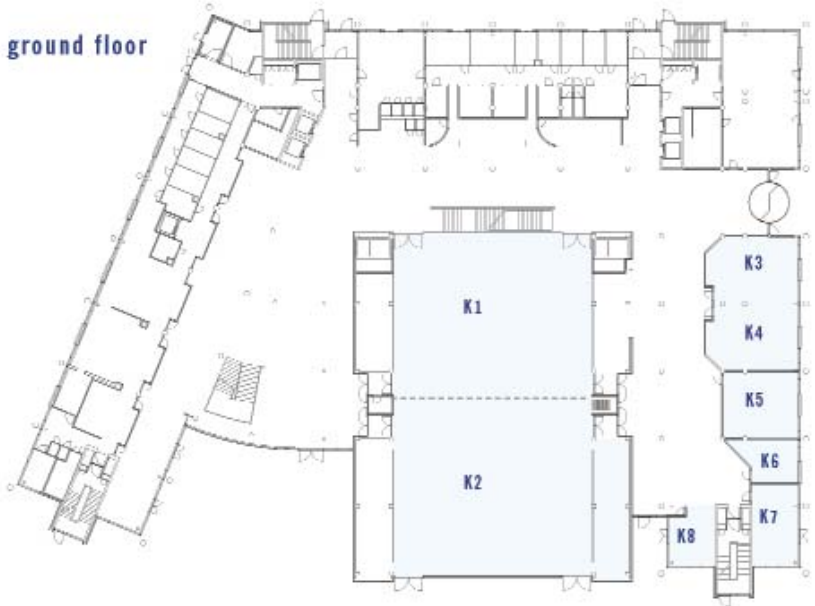
Norway Congress Centre

Congresses | Conferences | Exhibitions | Hotel accommodation

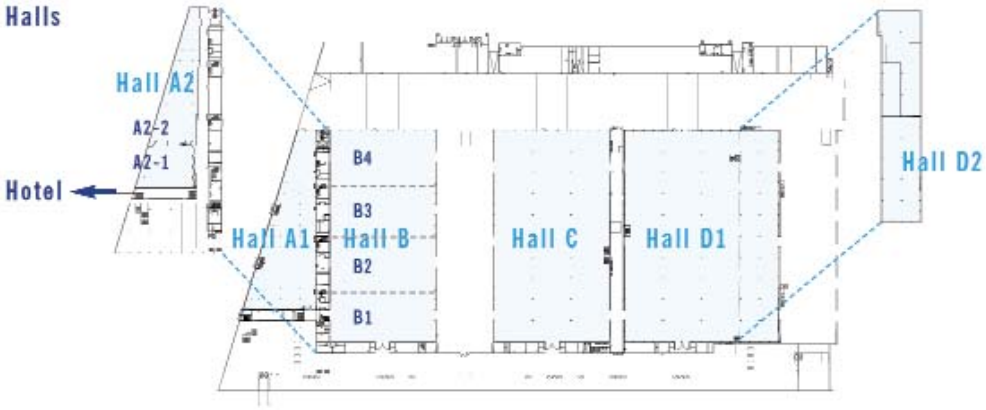
Hotel – 1st floor



Hotel – ground floor



Norway Congress Centre



Capacity details

Meeting and conference rooms

Conference room	Location	Sq.m	Cinema seating
B1	Ground floor	1 800	1 200
B2	Ground floor	1 800	1 200
B3	Ground floor	1 800	1 200
B4	Ground floor	1 800	1 200
B1+B2+B3+B4	Ground floor	7 300	6 000
A2-1	First floor	710	650
K1	Hotel, ground floor	360	380
K2	Hotel, ground floor	400	420
K1+K2	Hotel, ground floor	760	800
K3	Hotel, ground floor	65	55
K4	Hotel, ground floor	65	55
K3+K4	Hotel, ground floor	130	110
K5	Hotel, ground floor	56	45
K6	Hotel, ground floor	23	15
K7	Hotel, ground floor	43	35
K8	Hotel, ground floor	29	20
K9	Hotel, first floor	116	90
K10	Hotel, first floor	57	45
K11	Hotel, first floor	57	45
K10+K11	Hotel, first floor	114	90
K12	Hotel, first floor	56	45
K13	Hotel, first floor	23	15
K14	Hotel, first floor	43	35
K15	Hotel, first floor	31	20

Exhibitions

- Exhibition and congress halls, totalling 32 000 sq.m

Hall A1	2 620 sq.m	ground floor
Hall A2-2	1 270 sq.m	first floor
Hall B	7 300 sq.m	ground floor
Hall C	8 000 sq.m	ground floor
Hall D1	10 600 sq.m	ground floor
Hall D2	1 650 sq.m	first floor (mezzanine)

- Three hectares of outdoor exhibition space

All specifications subject to change

Norway Congress Centre