ProGEO NEWS

No.1 2001

One of the remarkable stalagmites in the entrance part of the cave (Photo by J. Hajna).

Vilenica – one of the oldest show caves

Slovenia is a country of classic karst. After the regional name Kras this term was accepted in all the international languages. In Slovenia there are 7500 karst caves registered, protected by legal acts. Vilenica, the cave in the south-west Slovenia near the Slovene-Italian border at Trieste has a slightly special place among them. In 1748 already the cave was described by order of Emperor Franz I, the description remained in manuscript. This cave is probably the oldest show cave in the world and by the time Postojnska jama was opened for tourists this was the most visited karst cave in Classical Karst. The entrance fees were introduced in 1633 already. It is said that in 1660 the cave was visited by Emperor Leopold.

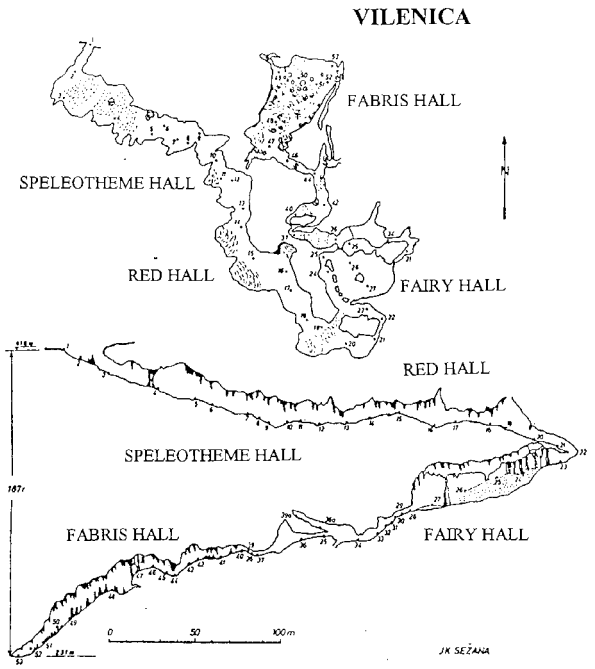
At the beginning of the 18th century the cave was so famous that count Petac (Petazzi) subscribed it to church. The reason is not quite clear, maybe for tourism purposes, maybe because of search for water, as Karst is always short of water. In 1821 the painter Peter Fendi obtained a gold medal for his oil painting of Vilenica. This work of art is believed to be the oldest artistic presentation of a karst cave.

Even today Vilenica is noted for its cultural activity. Every year since 1986 the Society of Slovene writers awards the best literary work at the international meeting «Vilenica». A lot of renowned writers has received this reward.

In the second half of the 18th century surgeon and natural scientist Baltazar Hacquet writes that Vilenica is the finest cave in the world. In fact there were numerous beautiful speleothems which were later partially transferred into other caves and partially became dark due to smoke of visitor lamps.

Vilenica is about 800 m long cave with denivelation of about 180 m. The cave is well decorated with a series of nice speleothems. The cave is noted for large halls and rich flowstone decoration. There are many nice draperies. A gigantic stalagmite, more than 30 m high having 10 m in diameter in its lower part, probably the largest speleothem in Slovenia, is an outstanding feature in this cave.

The cave consists of three morphologically characteristic parts, all of them transformed by breakdowns. The first part is very large and strongly controlled by breakdown; a foot-path leads through it. The central part is smaller and the third part, consisting of the Fabrisov Rov gives an impression of a large, inclined fissure. The cave is entered by steps to reach the so-called Ballroom. Onward is the Speleothem Promenade with many speleothem columns. The Red Hall consists of coloured speleothems. Many speleothems are also found in the Great Mountain. In the Porch is a flowstone Chapel. In 1823 an artificial tunnel was made from the Chapel to the Fairy Hall, which is, according to speleothems, the finest part of Vilenica. Among them is an outstanding stalagmite, 18 m high. According to old beliefs, fairies lived in the bottom of the cave giving the name to it (vila (fairy) – Vilenica). The final part of the cave, named Fabrisov Rov, is accessible to cavers only. In this part there are red stalactites covered by white helictites.



Map of Vilencia in horizontal and vertical position (after Gams, 1984)

The main body of the cave has developed inside a fissure zone. Irrespective of how the primary passages inside this zone were directed, ceiling collapses are mostly controlled by faults. It is interesting that the orientation of the show part is almost entirely perpendicular to recent underground conduits. The divergence may be explained by the great age of the cave and it is quite possible that the underground water flows that shaped it, were oriented differently than today. A hypothesis exists that the accessible cave makes just one part of former bigger cave system. Anyway due to intensive passage collapse the information about the original conditions are in many places completely blurred.

The karst cave Vilenica has mostly a historical value. Today it is well displayed and electrified being one of the most visited caves in Slovenia.

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Knez Martin & Rajko Pavlovec

GALAPAGOS GEOSITES

The Galapagos archipelago, 1000 km off the west coast of Ecuador is famed throughout the world for its unique environment, volcano features, animals and plants.

In 1959 the 93% of the total land area of the archipelago (13 major and 6 minor islands, a total of 7.800 sq km) was declared a National Park by the Ecuadorian government. In 1978 UNESCO inserted the islands in the WHL, underlining the universal value for mankind.

Like many other oceanic islands, such as Hawaii, Iceland, Azores, Reunion, etc, the Galapagos are thought to be the product of a mantel plume, along a typical mid-ocean ridge. The Galapagos archipelago has an age of 2-3 m.y. and is located beneath the Nazca Plate, which is moving east-southeast (Feighner & Richards 1995). In fact the more recent and well conserved volcanic features are on Fernandina, the youngest island of Galapagos, on the west side of the archipelago. Espagnola, on the east side, is considered the oldest and more eroded island (White et alii 1993).

After a long period of prevailing interest for Galapagos animals and plants, geology has recently been given more emphasis. During my study-visit in May-June 2000 I observed a good geological knolewdge among the Ecuadorian guides and moreover many volcano-geological sites are visited and are explained along the principal trails in the various islands. But the Galapagos National Park and the CDRS (Charles Darwin Research Station) in Puerto Ayora, which acts as a scientific advisory for the National Park, till now have not an environmental geologist for conservation in their staff. Geosites conservation in Galapagos islands do require attention: eruptions, earthquakes, high rock fracture index and strong erosion are the main risks.

Darwin Lake. Photo: Raniero Massoli-Novelli

The 200 m high volcanic Pinnacle Rock of the Bartholomè island
Photo: Raniero Massoli-Novelli

Among the many geosites existing in the Galapagos islands, some important ones are here listed, going from west toward east. They are mostly related to volcanic activities and are sites of interest during visits.

Punta Espinosa, Fernandina Island.
Aa and pahoehoe lava flows are common features in all the Galapagos but here the outcrops are really spectacular.

Urbina Bay, Isabela Island.
Here the coast was elevated from sea level during the eruption of Alcedo volcano in 1952. The shoreline was raised suddenly 4.5 m and now visitors can walk over what was the sea floor 50 years ago.

Cerro Azul Lake, Isabela Island.
Galapagos are rich of active and sleeping volcanoes; there are seven only in Isabela. Cerro Azul, the southest, is important for his giant caldera lake and for having a scoria islet inside.

Sierra Negra Caldera, Isabela Island.
This volcano is located on the southern part of Isabela, between Cerro Azul and Alcedo volcano; it has the second largest caldera in the world after Ngorongoro in Tanzania.

Pinnacle Rock, Bartholomè Island.
This small island is located east of James (Santiago) island. The 200 m high volcanic rock is a spectacular and famous view from the highest point of the island.

Santa Rosa Lava Tunnels, Santa Cruz Island.
Near Santa Rosa two giant lava tunnels, laid one upon the other, both high about 10 m and long about 500 m, are located. Lava tubes and lava tunnels are common features along the flanks of the Galapagos volcanoes, but these tunnels seem exceptional.

Twin Craters, Santa Cruz Island.
Not far from Santa Rosa there are two giant craters. The diameter is about 500 m for the largest and 400 m for the other one; the walls are almost vertical and quite probably they were formed as a result of the collapse of the bottom of old craters.

Punta Suarez, Espanola Island.
Punta Suarez is one of the most popular and attractive sites of the Galapagos. The exceptional panorama was created by a giant fault N-S along the steep west coast; this is the wild site where the rare Galapagos albatrosses nest.

The Blowhole, Espanola Island.
The Blowhole is located near the waves and is a spectacular fissure in the black basalt lava where sea-water spurts high in the air like a geysir.

Kicker Rock, San Cristobal Island.
Rising about 200 m straight from the ocean, Kicker Rock is a magnificent geosite. Composed of tuffs and divided from the main island by a fault, it has towering vertical walls that forms a narrow channel through which small vessels can navigate.

Further Readings

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Raniero Massoli-Novelli

Geodiversity

Geodiversity is a term increasingly used in nature management. It is highly useful both when integrating geology with biodiversity into a holistic perspective, and to emphasis geoconservation as an important part of everyday nature management. The Royal Society for Nature Conservation in UK has now started a new publication aimed at decision-makers with little or no knowledge of Earth science, bringing to their attention the latest news within the field of geodiversity and geoconservation.

The editor is Mick Stanley. The publication is recommended both as a source of knowledge about UK activities and initiatives, but also as inspiration and a source of ideas for all working within this field. It is obvious that UK is an important country for the integration of geodiversity into nature conservation, also shown by the strategy presented on the next pages.

The editor


Geodiversity Update

Issue 1 January 2001

Land of hope and glory

Welcome to the 21st century!

Geodiversity strategy

Introduction
An understanding and appreciation of the Earth's finite resources and geodiversity is essential to achieving the sustainable development of the world we live on.

> "Geodiversity is the variety of geological environments, phenomena and active processes that make landscapes, rocks, minerals, fossils, soils and other superficial deposits which provide the framework for life on Earth. Geodiversity is the link between people, landscapes and their culture through the interaction with biodiversity, soils, minerals, rocks, fossils, active processes and the built environment."

Exploitation of the Earth's resources (minerals, rocks, aggregates, coal, oil and gas) and the maintenance of naturally active systems and processes are fundamental to the achievement of more sustainable development. Balancing the conservation of these finite resources with sustainable exploitation, waste management and climate change is a major challenge to decision makers, society in general and Earth scientists in particular.

The need for a coherent strategic approach to Earth science conservation **'geoconservation'**, has prompted this wider, holistic vision to provide the framework for geoconservation, within the conservation movement, and the sustainable management of the Earth's resources and geodiversity.
The strategy continues the work stemming from the RSNC Royal Charter and brings the original aim *"to promote geological and physiographical features"* into the 21st century.

Vision:
'Working to promote, develop and integrate the Earth's resources, geodiversity and their sustainable management into everyday life, through all aspects of conservation and education, in the British Isles and beyond.'

This vision places education at the heart of the programme, and one of the main delivery mechanisms will be an expanded Rockwatch programme to ensure more active involvement from young people and families.

To realise the vision six aims, the purpose, are incorporated, which in turn produce a Geodiversity Action Plan to achieve the aims; they are:-

1. To conserve the Earth's resources and geodiversity of the British Isles through raising awareness, understanding and sustainable management.
2. To maintain, enhance and promote the geodiversity of the British Isles.
3. To improve the awareness and enjoyment of geodiversity by involving individuals, communities and organisations through promotion, education and increased access.
4. To inform, advise and lobby others on policies and practices in order to achieve sustainable use of the Earth's resources.
5. To encourage co-operation within the Earth science community, promoting unity and partnership.
6. To encourage improved understanding of the fundamental reliance of biodiversity on geodiversity.

Method:
The vision and aims will be achieved by developing, promoting and sustaining relations with bodies that have interests in geoconservation (Earth heritage conservation). It will also be necessary to raise public awareness and to achieve this there must be linkages with lifestyle, culture and landscape.

To achieve this vision, it will therefore be necessary to:-

a) Develop partnerships with statutory, non-statutory and private organisations to promote geodiversity, the Earth's resources and their sustainable management.
b) Maintain an Earth science office with well motivated, committed and enthusiastic staff to manage the projects outlined in the Geodiversity Action Plan.
c) Create new posts to promote geodiversity throughout the British Isles and beyond.
d) Provide support to other organisations as a centre for information, advice and funding.
e) Develop, promote and sustain effective working relations with local, regional, national and international bodies with direct and indirect interest in geoconservation .

f) Seek funding, other resources and development opportunities to ensure effective and efficient promotion of geodiversity in the British Isles and beyond.

Geodiversity Action Plan

This is arranged in four main themes:-

1. Public awareness of Geodiversity,
2. Public Access to Geodiversity,
3. Sustaining Geodiversity,
4. Geodiversity Education and Training.

These themes cover the six aims of the strategy, broadly public awareness and access themes are Aims 1, 2 and 3 with sustaining geodiversity and education and training in Aims 4, 5 and 6, which fit within this overarching Earth science strategy. Each project is costed with start dates, which are indicative and the budget breakdown is on page 14.

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1 Public awareness of Geodiversity

Project 1.1
Creation of a partnership organisation, Earth Trust, for those who care about the unique rock and landscape heritage of the British Isles and its importance to everyday life. Ideas for Earth Trust are in appendix 1.

Project 1.2
Promotion of Geodiversity through a project or projects to highlight the geology and geomorphology i.e. landscape, of Britain through railway carriage or coach windows. To be achieved with sponsorship with Railway companies and production of leaflets describing the landscape.

Project 1.3
Produce information leaflets on the geology and landscape of the National Long Distance footpaths such as the Pennine Way.

Project 1.4
Create a new long distance footpath based on the extensive Chalk wolds and hills of England starting at Flamborough Head. To be known as The Chalk Way, it will be an environmental educational trail linking archeology, geology, history, natural history and the built environment.

Project 1.5
Produce information leaflets for the general public to understand the simple geology, fossils and landforms of the various Heritage coasts such as The Yorkshire Dinosaur Coast.

Project 1.6
Series of web-books, printed books on the Geology of Towns, Understanding Landscape (natural areas descriptions) etc. similar to the series produced by Scottish Natural Heritage in partnership with BGS.

2 Public Access to Geodiversity

Project 2.1
Create new exciting but safe geo-reserves for the public to explore for fossils, rocks and minerals. Quarries with good fossil or mineral collecting would have experts on hand to explain the Species found and any new to science or specimens would be given to the local museum.
The sites would also be used to train Earth scientists and be used by schools, colleges and the public for life-long learning.

Project 2.2
To create a Geodiversity Action Fund to allow for the purchase of new geo-reserves, for improved access to sites, for site clearance, education and interpretation.

Project 2.3
Study Centres set up in active quarries, where schools and the public can learn about their local geology, landscape and why that quarry is necessary. These centres could be linked to new geo-reserves for the safe access to fossils, rocks and minerals. This is also a public relations mechanism so badly lacking in the Minerals industry and a real community benefit.

Project 2.4
After school clubs, which could be based in Quarry study centres and schools, linking Rockwatch with Geodiversity and working together with the Earth Science Teachers Association, National Stone Centre and other education organisations.

Project 2.5
Promotion of RIGS, Rockwatch and the new sites created in Programme 2, through the Natural History Museum, Museum of Scotland, National Museum of Wales, Ulster Museum other museums, libraries, shopping centres, prestigious buildings and extensively via the media including newspapers, journals, television, radio and the web sites.

Project 2.6
To promote and encourage art in town and country using local Earth resources and maintaining local distinctiveness.

Project 2.8
Create post of Geodiversity Development Officer to manage projects on Public access and Sustaining Geodiversity

3 Sustaining Geodiversity

Project 3.1
Promotion of campaigns to ensure conservation of the key Habitats in the United Kingdom Biodiversity Action Plan which are geological in nature, such as Limestone Pavements.

Project 3.2
Promote the use of Site Management plans for RIGS sites, which together with SSSI's, NNR's and National Parks (the Prime Geodiversity areas) will form the basis of the Geodiversity network for the British Isles. This project would be in partnership with UKRIGS and the Conservation agencies and would produce guidelines for site interpretation, best practice for site management plans and training workshops.

Project 3.3
Create online database of best practice work in sustainable management, and policies including access manuals and similar material

Project 3.4
Seminar programme to inform the decision makers about geodiversity and sustainability. This project would be in partnership with the Conservation Agencies.

Project 3.5
Production of local authority and industry packs on what is and how to improve the sustainable management of geodiversity through Geodiversity Action Plans (GAPs) and encourage promotion in Regional Planning Guidance and Policy Planning Guidance.

Project 3.6
Completion of RIGS Handbook and production of the UKRIGS Development Strategy.

4 Geodiversity Education and Training

Project 4.1
Education awareness study to ascertain the best way to target educational establishments to promote Geodiversity.

Project 4.2
Produce Education packs for Key Stages I - 4 with ESTA, Geologists' Association and National Stone Centre to promote Geodiversity.

Project 4.3
Organise series of seminars to encourage joint working of the various Earth science bodies to avoid duplication of effort, improve communication and maximise resources.

Project 4.4
Encourage the Earth science community to join Wildlife Trusts so that there is Earth science expertise in each organisation.

Project 4.5
Provide training for Wildlife Trusts, Conservation Agencies staff and members to understand Geodiversity and Geoconservation.

Project 4.6
Create a post of Geodiversity Promotion Officer to ensure improved communications and to produce a unified calendar of events, happenings, projects to avoid duplication and to promote Geodiversity and Geodiversity information in 'Geodiversity Update'. The post holder will manage projects on Public awareness and Education and Training.

Project 4.7
Improving Geodiversity information provision through co-operation and partnership with the Conservation agencies and BGS to ensure consistent and accessible data. Production of an accessible database with links to biodiversity, archeology and the built environment to create an holistic one-stop resource.

Project 4.8
Produce " Geodiversity Update", quarterly publication 8 page full colour, to promote Geodiversity and sustainability to decision makers, shapers, Earth scientists and other target audiences. News items, funding, local and regional Geodiversity developments, main article, book news, main events, photographs and general interest. Free distribution to about 5000 initially with evaluation.

Appendix 1 Earth Trust.

There is a great need for an inclusive membership organisation for the general public to help to deliver the Earth science strategy as no present body or organisation has the remit, or is sufficiently well organised or motivated, to present a coherent and inclusive view of Earth science and its importance to everyday life. The interested amateur and the professional are already well catered for by existing societies and associations, but not the public who clearly do need to be informed of the importance of the finite nature of Earth resources and Geodiversity.

Earth Trust will seek members from the public who may later, when their interest is heightened, wish to join a particular geological organisation. Clearly *Earth Trust* should be a partnership organisation joining with others to interest the public.

We feel that RSNC should build on the success of Rockwatch to create an inclusive membership organisation and take the Earth science potential into the 21st century.

We have discussed a possible name for the organisation and have picked *'Earth Trust'* as one, which encompasses all the aims of the strategy. The suggested strap line for the trust is:

EarthTrust *'geodiversity means the Earth to us'*

This would be a membership organisation for those who care for the unique rock and landscape heritage of the British Isles. Working with conservation bodies it would be a voluntary educational trust set up to promote awareness of geodiversity through providing access and information to the Earth's resources of the British Isles and the wider environment.

Families could visit safe quarries to search for and find fossils, rocks and minerals (the fossil, mineral and rock heritage); understand the landscape that they love and cherish; learn what makes your local area special; find out what climate change will bring in the near future; listen to experts talking about the search for oil and gas, and many more topical and interesting issues relating to the Earth and its resources.

"You will be able to hear where and when special events, exhibitions, town trails and lectures are happening through 'EarthNet'- your electronic access to the Earth's resources."

"See exciting and wonderful images on 'EarthNet' and book your geotourist holiday to see those places and features."

"You and your children will be able to make a large contribution to maintaining geodiversity by helping your local 'EarthTrust' group manage sites for educational use, or visit sites just to admire the view."

"Become a part of the national grid for learning and help future generations understand the environment in which we all live."

"Become a member of 'EarthTrust' today via 'earthtrust@rsnc.co.uk' or telephone for a membership form."

Members would join as individuals from an early age or as part of a family membership and have access to all partnership member organisations, whose own members could pay a reduced rate and join *Earth Trust.*

Members could join the local *'EarthTrust'* group and help to look after sites with the local RIGS group, monitor sites and the local geodiversity, have hands-on experiences by clearing faces, involving local communities (schools, colleges and universities and other groups such as the scouts, brownies, WI's etc) and many more things we have not even thought of!

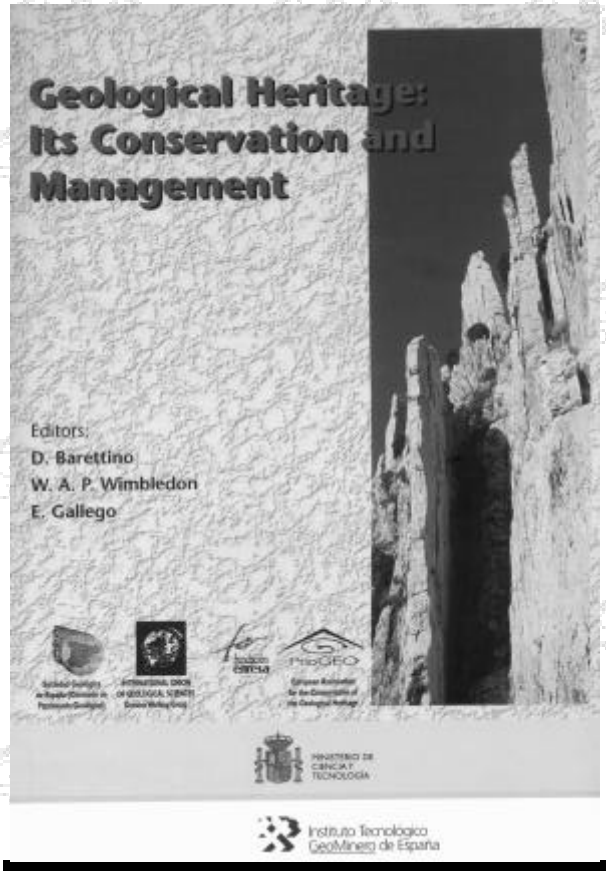
Annual membership would be set at a realistic level of £30 for a family or individual at £5 junior, £15 senior and £10 adult concession. This would include the quarterly *'Geodiversity Update'* and a *'What's on'* or something similar.

Mick Stanley

New publication

The last volume rounding off the III International Symposium ProGEO on the Conservation of the Geological Heritage is now published.

It containes the following papers: Legislation and international agreements: the integration of the geological heritage in nature conservation policies (P.R. Dingwall), Planning and management for geoconservation (G.P. Gonggrijp), Inventory and cataloging of Spains geological heritage, An historic review and proposals for the future (Garcia-Cortes, A. Et al.), Geosites – An IUGS initiative: Science supported by conservation (Wimbledon et al.), Geological heritage, an essential part of the integral management of world heritage in protected sites (Carreras, J. & Druguet, E.), No conservation without education (Theodossiou -Drandaki, I.), European "geotourism" - Geological interpretation and geoconservation promotion for tourists (Hose, T.A.), Geological heritage and geo-tourism (Martini, G.) , Italian national actions for nature preservation and geological sites (D´Andrea, M. & Zarlenga, F.), Experiences of geoconservations in la Rioja (Spain) (Perez-Lorente) F.), Protecting the palaeontological heritage in Spain: Public awareness and legislation, and the role of the Spanish Palaentological Society (Melendez, G. & Soria-Llop, C.) together with concluding remarks and the text for the symposium decleration-



The volume is edited by Barettino, D., Wimbledon, W.A.P. And gallego, E. And published by Instituto Technologico GeoNinero de Espana.

ISBN: 84-7840-417-1

JEMRKO

We are pleased to inform that a local group of the Association for Protection of Geological Heritage in Turkey has been recently born by encouragement of W.Wimbledon and T.Todorov.

Its official and short names are Jeolojik Mirasin Koruma Dernegi and JEMIRKO respectively. Now, we have big hopes for the future. Please share your experiences with us.

On the behalf of temporary executives of JEMIRKO

Nizamettin Kazanci

Web sites

The Geosites Documentation Centre's web site :

http://www.arch.unige.it/sla/geotopi/index.htm

Geoparks web page :

http://www.unesco.org/science/earthsciences/geoparks/geoparks.htm

ProGEO Subscription

Treasurer´s report

Eventually the new treasurer function has been settled and the collection of membership subscriptions for 2001 is in progress. As from February 1st 2001 the official bank is **Föreningssparbanken**, possibly a merged **Swedebank** later this year.

Invoicing has been made to remind present as well as former registered members, and to contact persons, which we hope will join ProGEO. In connection to this a registration form has been distributed particularly for member approval of registration in the newly launched ProGEO Member database. ProGEO officials can use this database in order to get the most updated mailing information or telephone - facsimile connections.

It is yet too early to report on the outcome of the 2001 subscription rate, but the member situation will soon be clear. We are very pleased for the response to the invoicing procedure and registration approval that has been received from a great part of the contacted persons, and we would appreciate if all addressees responded to the invoice whether or not there is an interest in ProGEO membership. We also have pleasure to welcome some new members to the Association.

According to ProGEO agreement, the Association accepts reduced annual fee for members in Eastern Europe. So far only a few National Representatives have contacted us about such a possibility. We urge all NR to survey the acceptable level of payment in their country and inform us about the results. We then have a correct basis for coming year(s) when invoicing institutional and individual fees.

The subscription fee can be sent individually to the treasurer, but in many cases the best solution will be to coordinate national payments in order to reduce the transfer costs for each member. Please contact your national ProGEO group or national representative for more information about these possibilities. This way of payment was referred to as collective payment, which should not be mixed up with the two membership categories, Individual and Institutional.

The rather prolonged process in finding the optimal banking contact with lowest possible Swedish banking costs must be balanced by optimal conditions also from the sender's point of view. Consequently we ask the NR to contact us about this issue.
We can not accept a 50% cut in fees by banking costs. The sooner you contact us, the more efficient we can individually optimise the way of payment.

There is also the possibility to pay in advance for coming years.

Payments should hereafter be labelled:

Swiftcode SWEDSESS,
(Clearing No:) 8381-6
(Account No:) 973 296 517-4

Invoices for 2002 and onwards will be distributed in November each year to be paid before the end of January the following year. When payment is registered, membership cards will confirm your status.

We can foresee some practical problems in introducing these new procedures, and for that we apologise in advance. We do hope all this can be introduced as smoothly as possible, we are working on it.

Registration of the ProGEO logotype is in progress, and the service has been pre-paid. Information about registration will be distributed separately.

Gunnel Ransed, Treasurer
Lars Karis, Financial Committee

ProGEO The European Association for the Conservation of Geological Heritage

INVOICE FOR PAYMENT OF ANNUAL SUBSCRIPTION 2001

INDIVIDUAL MEMBER

Name

Address

E-mail

Other information

2001 Membership fee, DM 50

Payment should this year be received no later than to

Swiftcode: SWEDSESS (clearing) no 8381-6 (bank account) 973 296 517-4

For future invoices for payment of membership subscription I would prefer to be contacted through:

e-mail
postal mail
telefax (telefax number)

I hereby accept that above listed data will be registered in a database kept by the treasurer and that this database shall only be for the purpose of contacts within the Association.

(date) (signature)

Please return this form to the treasurer by postal mail or telefax as soon as possible.
Information about change of address or other changes concerning the membership should be sent to the treasurer at the following address:

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Deadline for contributions to next issue of ProGEO NEWS: 01.06.01

ProGEO: European Association for the Conservation of the Geological Heritage**. Bank-account:** Föreningssparbanken - Swiftcode SWEDSESS – (clearingno:) 8381-6 – (account no:) 973 296 517-4. **Membership subscription:** personal: 50 DM/yr., institutional: 300DM/yr. **President:** Dr. T. Todorov, Geological Institute og Bulgarian Academy of Sciences, George Borchov St. 24, Sofia 1113, Bulgaria. **Executive Secretary:** W.A.P. Wimbledon, Postgraduate Research Institute for Sedimentology University of Reading, Whiteknights, READING RG6 6AB, United Kingdom.
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ProGEO NEWS

A PRIORITAIRE PAR AVION

NINA•NIKU
STIFTELSEN FOR NATURFORSKNING OG KULTURMINNEFORSKNING