

europaean GEO PARKS



network
European Geoparks Magazine • Issue 6

- Mining heritage - a chance for regional development and employment
- Keeping cultural traditions in a geopark by local actions
- Geocaching - an educational tool in geoparks

Contributions to Magazine 6 provide insights into the range of activities within the European Geoparks Network (EGN). In keeping with the aims of its Charter, Geoparks adopt a holistic approach to their territories, using geology, landscape, archaeology, natural history and culture to develop geotourism, promote education and contribute to economic development. In order to share experiences, consolidate and develop the aims of the Network, its members meet twice yearly. Recent meetings include the 22nd EGN - Coordination Meeting in Bohemian Paradise Geopark in 2008 where Adamello - Brenta Nature Park was accepted as the 32nd member of the EGN. At the 23rd EGN - Coordination Meeting hosted by Sardinia Geominerario Park two Geoparks, GeoMon and Arouca Geopark, became the latest members of the Network. A new concept, 'thematic networks', was adopted to encourage collaboration between

Geoparks with a common geological heritage.

EGN activities in 2008 include the successful European Geoparks Week, involving over 32,000 visitors, 405 events and 300 press articles. The contribution by Naturtejo Geopark provides a flavour of activities offered during Geoparks Week. European Geoparks, a book published by the EGN, was designed to introduce the general public to the varied and fascinating nature of Geoparks.

Contributions from individual Geoparks describe activities delivered or initiated in 2008. Geopark Harz Braunschweiger Land Ostfalen outlines research projects on the Palaeocene/Eocene Thermal Maximum Event and the Triassic/Jurassic Oxygen Minimum Event. The North West Highlands Geopark describes evidence for a late Precambrian meteorite strike. English Riviera Geopark describes the success of a major funding application under the UK Government Seachange Funding Programme. Beigua Geopark celebrated the International Year of Planet Earth with an exhibition emphasizing geoconservation. Geopark Bergstrasse Odenwald communicated Earth history through art and music. A study day at Madonie introduced professional geologists, teachers and students to geotourism. Copper Coast Geopark and Geopark Schwabian Alb highlight activities in their respective Geopark Centre and Infocentre. Park Naturel Regional du Luberon and Sobrarbe Geopark describe cycling routes promoting the exploration of their Geoparks. Terra. vita Nature Park explores the use of geocaching to engage people with the landscape. Young visitors to Naturpark Steirische Eisenwurzen are given a hands-on experience in the Water Adventure Park at St. Gallen. Sardinia Geominerario Park introduces the reader to its rich industrial archaeology. Mecklenburg Ice Age Park describes networking with colleagues from the Netherlands through a workshop initiated by ProGEO.

Congratulations to Cabo de Gata - Nijar Natural Park and Sierras Subbeticas Natural Park on the award of the European Charter for Sustainable Tourism in 2008.

European Geoparks are also members of the Global Geoparks Network (GGN). In 2008, Terra. vita Geopark hosted the 3rd International UNESCO Geoparks Conference in Osnabruck. The associated Global Geoparks' Fair provided 5000 visitors with an opportunity to learn about the EGN and GGN. The conference produced the Osnabruck Conference Declaration affirming the role of Geoparks in protecting the Earth's geological heritage, using that heritage for economic development and in communicating issues like global climate change to the public. Geopark Bergstrasse Odenwald describes its successful partnership with the Global Geopark Mt. Lushan (PR China), an example of international cooperation.

The projects, initiatives and activities described in this issue demonstrate the success of the EGN. We 'live in interesting times'. A global economic crisis and the even more serious issue of global climate change present the world with challenging problems. The EGN, with its emphasis on economic development, education, communication and above all through the cooperation of its members, can contribute to the debate to find resolutions to these problems.

Tony Ramsay, Member of the Editorial Board



Geoparks

European Geoparks Network Magazine

Issue No 6 / 2009

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GEOPARKS calendar

- **23 - 25 August 2009**
Mt. Taishan Geopark PR China
2nd Asian-Pacific Geoparks Conference
3rd International Symposium on Development within Geoparks
- **14 - 18 September 2009**
Naturtejo Geopark Portugal
24th European Geoparks Meeting 2009
8th European Geoparks Conference
- **28 September - 3 October 2009**
Lesvos Petrified Forest - Greece
3rd International Intensive Course on Geoparks
- **March 2010**
Luberon Geopark France
25th European Geoparks Meeting 2010
- **9 - 15 April 2010**
Langkawi Geopark Malaysia
4th International Conference on Geoparks UNESCO
- **27 September - 2 October 2010**
Lesvos Petrified Forest Greece
26th European Geoparks Meeting 2010
9th European Geoparks Conference
- **2010**
Araripe Geopark Brazil
1st Latin American Geoparks Conference

23rd EGN Meeting in Sardinia

Geoparks built a strong network for geotourism development and sustainable local development

The European Geoparks Network Meeting, held in Iglesias at the premises, of the Geological and Mining Park of Sardinia in April, was

a great success. More than 80 representatives of the European Geoparks from 14 European countries attended the meeting, including official representatives from UNESCO and the International Union of Geological Sciences.

The opening of the meeting was addressed by the Representatives of the Regional Government of Sardinia, the Prefect and the Mayor of Iglesias.

The Park Commissioner and the Director L. Otteli empha-

sized the importance of the meeting and the global recognition of the Geological and Mining Park of Sardinia for the local development of Sardinia.

During the meeting the new Advisory Committee was elected and the EGN Coordinator and Vice Coordinator of the Network were nominated for the 2009-2011 period.

In order to achieve better cooperation and management and functioning within the EGN, the CC established



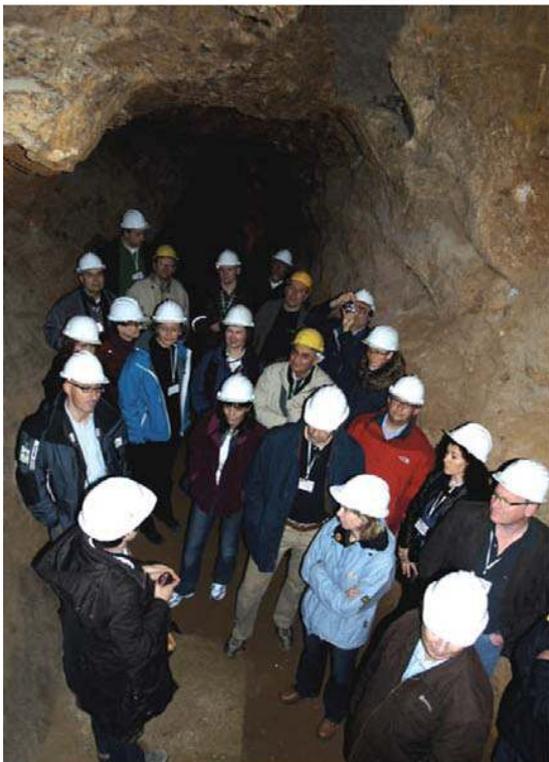
4TH INTERNATIONAL CONFERENCE ON GEOPARKS

9-15 APRIL 2010
LANGKAWI GEOPARK, MALAYSIA

<http://www.geoparks2010.com>

Organised by:





The representatives of the European Geoparks during a guided tour in an old mining gallery in Sardinia

the concept of thematic Networks based on the shared geological characteristics of its members. These networks will use their common characteristics in order to promote new ideas for cooperation among members to develop geotourism, education and cultural activities.

The CC accepted the application of two new members to join the Network, the GeoMon Geopark from Wales, UK and the Arouca Geopark from Portugal. The EGN now includes 34 members!

In parallel with the Geoparks meeting, the International Workshop "Sustainable Tourism in Protected Areas and Local Development Strategies: New Prospects for Growth" took place at the old mining power plant

in the village of Buggerru and at the mining compound of Montevecchio.

The purpose of the workshops was to provide an overview of the issues and the opportunities relating to the management of sustainable tourism development in protected areas, and at the same time, to stimulate a debate about the local growth prospects. By presenting and discussing experiences and best practices of the stakeholders involved in local development in protected areas, the workshop provided means for linking and networking policy making territorial groups, municipalities, the academic world, the enterprise world, business and local people.

Nickolas Zouros
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8th European Geoparks Conference

New Challenges with Geotourism

14th - 18th September 2009
 Naturtejo Geopark
 Idanha-a-Nova
PORTUGAL



www.geoparknaturtejo.com

European Geoparks Week 2008

Europe celebrates its geodiversity

Adamello Brenta



The European Geopark Network was established in 2000 with the ambitious and unifying aim of integrating geosites, landscape preservation, sustainable tourism and educational activities to encourage the improvement of regional economies. Since 2000, the EGN has grown to include 34

Geoparks within 13 European states. The European Geoparks Week was set up in 2005 as a common activity in order to establish closer relationships between the Geopark territories and to raise awareness both within the local communities and on a European-wide scale.

Between 2005 and 2008, a wide range of activities was delivered during a seven day period starting at the end of May. In 2008 it was decided to make the European Geoparks Week a two week event, from 25th May to 7th June.

From Scotland to Sicily and from Portugal to Romania, 32 Geoparks from all over Europe celebrated the European Geoparks Week 2008 with a festival of activities promoting and bringing the rich Earth heritage of the various European regions to the attention of the general public. All activities were designed to strengthen public awareness that geology and Earth history have profoundly influenced the cultural, agricultural, architectural and economic development of each region. The importance geology is manifested in the development of landscapes including mountains, lowlands, wetlands, volcanoes, rivers, gorges etc, which can impact on the cli-



European Geoparks Fortnight 2009

23rd May - 7th June 2009

The European Geoparks Fortnight 2009 is a European - wide festival of Geoparks whose aims are to raise public awareness of geoconservation and promotion of the geological heritage with events designed to inform the general public about geotouristic and educational activities in Geoparks.

Events are varied and include public talks, activity days for schools, guided walks, exhibitions, workshops ,etc. All activities are coordinated and promoted in the same period across the whole European Network.

EGN Fortnight provides the Network with an opportunity to demonstrate to our communities that they are part of a wider European Network whose promotion of the sustainable use of our geological heritage can bring the economic benefits to local communities.

mate, and flora and fauna of a region. With this holistic view, Geoparks are the right places to learn about the history of landscapes.

The European Geoparks Week 2008 presented 450 events all over Europe including excursions, lectures, seminars, exhibitions,

readings and festivals and was publicised in the media. More than 300 press articles were released and some Geoparks received support through radio announcements. In addition to campaigning in the press, 100.000 flyers, brochures and posters were distrib-



uted. These significant promotional efforts attracted a total of 37.200 visitors, participants and contributors to the European Geoparks Week 2008. During the two week period, all these people heard about the geological heritage, its relevance to the creation of landscapes, its impact on natural history, its influence on cultures, its economical potential and not least the natural beauty of each Geopark. EGN Week 2008 was a huge success!

Andreas.Schueler@vulkaneifel.de



3rd International Intensive Course on Geoparks Earth Heritage and Nature Conservation Geopark's Management and Action Plans

Lesvos Island Greece 29 September - 3 October 2009



Global Geoparks Network - UNESCO European Geoparks Network

Intensive Course on Geoparks 2009

Language: English
Participation: 20-30 participants
Patronage: UNESCO
Venue: University of the Aegean - Department of
Geography, Mytilene
Natural History Museum of the Lesvos Petrified Forest
Scient. direction: As. Prof. Nickolas Zouros, University of the Aegean

Programme

Tuesday 29th September: Welcome Session; Lectures
Wednesday 30th September: Field trip in Lesvos Geopark
Thursday 1st October: Lectures
Friday 2nd October: Field work in the Petrified Forest Park
Saturday 3rd October: Workshops

Registration Fee

Registration Fee: **€150** (including lessons by International staff, EUROPEAN GEO PARKS BOOK, didactic material, field trips during the course, meals during field trips, transportation from and to Mytilene airport).
Accommodation and Meals: **€280** (including 6 nights accommodation in a double room in a Hotel and 2 meals daily during the course).

INFORMATION

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The University of the Aegean - Department of Geography and the Natural History Museum - Lesvos Petrified Forest Geopark invite you to participate in the Intensive Course "Earth Heritage and Nature Conservation: Geopark's Management and Action Plans" on Lesvos Island, Greece, from September 29 to October 3, 2009.

The 3rd International Intensive Course on Geoparks is co-organized in close cooperation with the Global Geoparks Network, the European Geoparks Network and the Working Group "Geomorphosites" of the International Association of Geomorphology (IAG). The Course will take place on Lesvos, Greece at the premises of the Lesvos Petrified Forest Geopark.

The course is open to Geopark staff members with a University degree, to PhD and Masters students working on topics involving geoparks, geotourism, geosites, geomorphosites and landscapes, as well as to geoscientists with a special interest in Geoparks. Those who are interested in participating in the course are invited to send an application form accompanied by a short CV and an abstract (one page) of their presentation (Geopark action plan, PhD or Masters project thesis), which they will present during the Course.

EUROPEAN GEOPARKS

GLOBAL
GEOPARKS
NETWORK

Coffee table book published by the European Geoparks Network

For the first time the varied and fascinating geological heritage of Europe has been collected in a book, complete with color photos and texts that help the reader explore the exciting world of the European Geoparks Network. European Geoparks commemorate the International Year of Planet Earth and contribute to the efforts of the Global Geoparks Network. Designed for the general public, this 166 page hardcover picture book features 32 Geoparks from 13 European countries with informative non-scientific articles on each Geopark's activities and attractions. The history of the Geopark movement is also an interesting read, describing its relationship with UNESCO, EGN projects, the terms of evaluation and EGN membership, and contributions to alternative tourism and educational activities in rural areas of Europe.

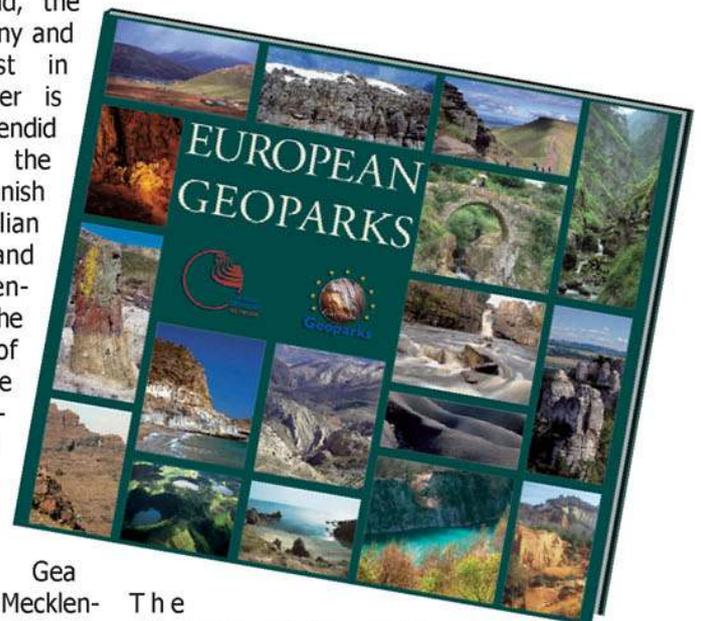
Established in 2000, the European Geoparks Network has grown to include 32 Geoparks from 13 European countries, which has in turn given rise to the founding of the UNESCO Global Geopark Network. The network was formed in response to an idea to link geological heritage with the local economies - to protect geological monuments in a way that would also simultaneously protect the local communities living nearby. This idea has grown into a powerful reality as parks around the world have enthusiastically joined the Network, cooperating with each other and contributing new ideas and practices in a way that has made this movement particularly successful. Readers will enjoy looking at

the "dancing puppets" in the Rocca di Cerere Geopark in the heart of Sicily, ichno-fossils in the Naturtejo Geopark in Portugal, impressive fossilized trees in the Lesvos Petrified Forest in Greece, the ammonite slab in the Reserve Geologique de Haute Provence, France and the famous fossils of Swabian Alb in Germany, as well as the Porridge Pot in the Irish Marble Arch Caves. The book also illustrates mining heritage sites in the Sardinian Mining Park, the North Pennines in England, the Terra. Vita in Germany and the Copper Coast in Ireland. The reader is introduced to the splendid landscapes of the Sobrarbe in the Spanish Pyrenees, the Italian Adamello-Brenta and the Austrian Eisenwurzen in the Alps, the mysterious "ocean of rocks" in the Bergstrasse Odenwald in Germany and "blockfields" in Beigua in Italy, as well as the ice age landscapes of Gea Norvegica, Norway, Mecklenburg in Germany and the Brecon Beacons in Fforest Fawr in Wales. The impressive "rock cities" in the Bohemian Paradise, the volcanic landscapes of Vulkaneifel in Germany or Cabo de Gata in Andalucia, Spain are just a few examples of the geological treasures across Europe which this book showcases.

This publication is a testament to the involvement of people across Europe who seek to safeguard its geological heritage in a responsible and holistic manner - a man-

ner now officially supported by UNESCO.

The preface by the Director General of UNESCO, **Koichiro Matsuura** and **Walter Erdelen**, Assistant Director-General for Natural Sciences, emphasizes the impact geoparks have on society as they focus on developing the important interaction between conservation of the natural environment and socio-economic development as well as raising public awareness of environmental matters.



The dynamism of this movement is captured between the covers of this new book, an exciting look into the Geoparks across Europe and an open invitation to all to visit and support them!

Published by the Natural History Museum of the Lesvos Petrified Forest on behalf of the European Geoparks Network.

Info and Orders:
www.europaengeoparks.org
www.petrifiedforest.gr

ACTIVITIES

europaengeoparks
GEOPARKS



Delegates
at the opening
of the the 3rd
International
UNESCO
Geoparks
Conference
2008

The 3rd International UNESCO Geoparks Conference 2008

TERRA.
vita

Osnabrueck, Germany

Following the first two Geoparks Conferences that took place in Beijing in 2004, and Belfast in 2006, the third Conference was hosted in Osnabrueck, the "capital" of the TERRA.vita Geopark. Osnabrueck is a mid size town located in north western Germany at the centre of a landscape, that offers a large number of views into Earth history. During the planning phase, the decision was taken, to give the event a focus. "Communication" was chosen as an overall concept. Accordingly, in addition to the emphasis on communication within the thematic sessions, the conference included a number of fringe projects, that aimed to involve a wider audience and to raise awareness among the inhabitants of Osnabrueck and the surrounding area. A series of lectures on

"fascination of planet Earth" was initiated several months prior to the conference. Four weeks before the meeting, "The Return of the Primaeval Giants", a dinosaur exhibition, was organized to communicate one of the most popular geological subjects, that is also a theme within Geoparks. Finally, the "first Global Geoparks Fair" in the centre of Osnabrueck successfully presented most of the Global Geoparks to an interested public. About 5,000 visitors were given an impression of the idea behind Geoparks and why a Geopark is always a good travel destination. Three hundred and twenty five participants from 37 countries registered for the conference. One hundred and sixty four contributions were delivered involving ten themes such as "Communicating Geological Heritage", "Young

people and Geoparks", "Quality Management" or "Tourism and Geoparks." Of course, the new and aspiring Geoparks were provided with their own forum to present themselves. The 46 lectures delivered within this forum demonstrated that the Geopark initiative is developing rapidly and still expanding.

A number of receptions made the participants feel welcome, and gave the participants a chance to introduce themselves. During the icebreaker reception in the Osnabrueck Palace, speeches were given by the mayor and representatives from the Universities. During the reception hosted by the Federal State of Lower Saxony and Osnabrueck County, ten new Geoparks were awarded membership of the Global Geoparks Network. The reception hosted by the



Hans-Gert Pottering, President of the European Parliament joins in celebrating the Geoparks Fair

German Environmental Foundation introduced this institution as the main promoter of the congress.

Last but not least, the new TERRA.vita Information Centre "TERRA.vision" was opened during the conference and the delegates were the first to see this brand new exhibition.

The declaration, agreed to by the participants at the end of the conference, emphasizes that the successful work of the Geoparks should be continued and that communication is a key to this success and should be improved in the future.

The Geoparks Fair in the historic market place of Osnabrueck

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The Osnabrueck Conference Declaration

The delegates at the 3rd International Conference on Geoparks, held from June 22 - 26 2008 during the United Nations International Year of Planet Earth and held in the city of Osnabrueck, Germany hereby affirm that:

1. Geoparks are experimental territories for the 21st century with the joint aims of preserving the rich geological heritage of our planet and using that heritage for the sustainable development of our local communities.
2. Geoparks provide excellent tools for communicating the memories of the Earth not only to local communities but to the wider public both through the provision of educational and sustainable geotourism activities.
3. The amended guidelines and operational procedures for the Global Geoparks Network, adopted at this meeting, provide an excellent framework for the further development of high quality, active Geoparks and the basis from which a strong network will continue to develop.
4. We commit to continue to work together to achieve our common goals of the protection and appreciation of the geodiversity of the planet through cooperation and networking between the members of the Global Geoparks Network and to assist aspiring Geopark projects in attaining Geopark status.
5. While continuing to work in close cooperation with the World Heritage and the Man and the Biosphere programmes, the Geopark community will continue to explore ways of further building and strengthening the profile of the Global Geoparks Network within UNESCO and across the world generally.
6. Recognising that communication is the key to our success, the global geological community should continue to work together in communicating the importance of geological issues, such as geohazards and climate change, to society and recognise that Geoparks are a valuable tool for doing this.
7. In order to achieve these aims, Geoparks need to continually work with local communities and stakeholders to ensure that geoheritage issues are fully recognised, understood and enjoyed by all.

Osnabrueck, Germany
26 June 2008

Symbol of friendship and cooperation

During a one week visit to their partner Geopark Bergstrasse-Odenwald (Germany), the delegation from Mt. Lushan (PR China), headed by director Zheng Xiang, were shown how their German colleagues manage and develop their Geopark territory. Accompanied by a delegation from the Global Geopark Zhangjiajie (PR China), they attended a Geopark workshop, which dealt with the topics management, visitor service, infrastructure, geo-education and cooperation partners of the Geopark Bergstrasse-Odenwald.



The delegation from Mt. Lushan brought a very special present - a 3.4 ton, 2.2 m high, crystalline rock - with German and Chinese sayings on both sides. "Beyond time and space strongly connected in friendship" is a promise and a commitment for both partners, who commenced their cooperation activities in 2006. The rock is accompanied by a panel with information about the Geopark Mt. Lushan as a place with a spectacular Earth heritage, culture, inspiration and poetry, and additional aspects of the partnership

Global Geoparks Mt. Lushan-PRChina and Bergstrasse-Odenwald-Germany inaugurate common rock sculpture

Both Geoparks were invited by the Hessian Ministry for Trade and Industry within the context of State and regional partnership activities. In this context, Geoparks become more and more prominent partners for the Government's economic development activities, because they build the bridge to culture and nature, which is evident in several sustainable approaches.

Two delegations from Mt. Lushan and Zhangjiajie PRChina visited the Felsenmeer, a prominent geotope and cultural site in the Geopark Bergstrasse-Odenwald



in three languages: Chinese, German and English.

"This poetic rock gives the place an authentic charisma and symbolizes a piece of home for all Chinese guests, we would like to warmly welcome here in our territory", said Matthias Wilkes, chairman of the Geopark Bergstrasse-Odenwald concerning this special gift. Zheng Xiang, director of Mt. Lushan added, that "the solidity of the rock stands for the strength, continuity and power of the partnership".

The unveiling ceremony took place during the Annual Geopark Membership Conference with more than 100 mayors, the Geopark Executive Board and members of the Hessian State Government. During the visit, both part-



The unveiling ceremony for the "friendship rock"

ners developed the next stages for cooperation, which include the development of common exhibitions in three languages, the implementation of tourism activities, as well as the integration of the International Forest Art Association into further activities.

Both Geoparks consider this partnership as fruitful, innovative and promising, and are looking forward to implement their next steps for cooperation during 2009.

Related to the main UNESCO Global Geopark tasks of "conservation, education and tourism", this Geopark partnership is considered as an impressive example of how networking can become vivid and alive across the world.

Jutta Weber
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For the first time, Zheng Xiang, director of Global Geopark Mt. Lushan gave a speech in the Annual Membership Conference of the Geopark Bergstrasse-Odenwald

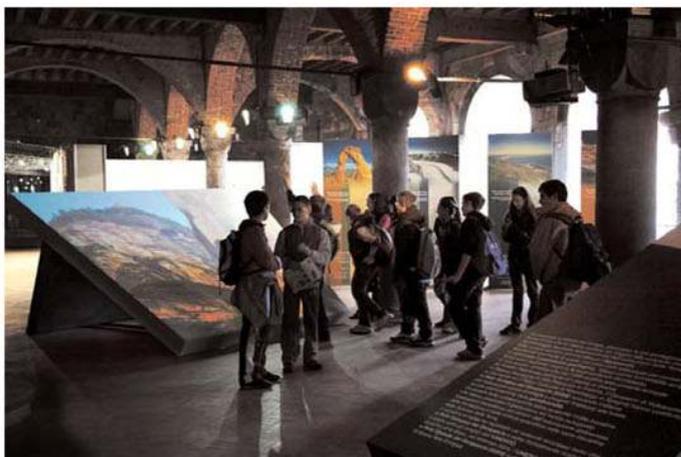


Discovering the Planet Earth through Geoparks

To celebrate the International Year of Planet Earth declared by United Nations, Beigua Geopark arranged a temporary exhibition involving virtual travel to discover geodiversity through spectacular pictures and a video of European and Global Geoparks. The exhibition emphasized the role of Geoparks as special territories for the conservation of geodiversity and the promotion of sustainable use of the geological heritage. The exhibition was presented from October 23rd to November 4th 2008 during the Science Festival in Genoa, a national event that has been organized since 2003 to promote scientific research.

The key theme for 2008 was "diversity", an essential element for life and culture.

The exhibition organized by Beigua Geopark was designed to present the scientific, educational, cultural and aesthetic value of the physical features of Planet Earth. Panels, touch-screen information and video presentations were given in an attractive and clear way to increase public awareness of the concept of geodiversity and its relationship with biodiversity. In particular, evidence was provided to show how Geoparks from all over the world pursue geoconservation and involve local people in improving the geological heritage. Visitors could enjoy watching an impressive slide-show with more than 150 pictures of



Photos: Cristiano Queirolo

Visitors enjoy the exhibition

European and Global Geoparks, a touch-screen information board about the European Geoparks Network and the Global Geoparks Network under the auspices of UNESCO, a wide screen with a special video presenting the inter-

guide suggests a route for tourists through the Beigua territory with fifteen stops to discover and appreciate the geological, geomorphological, palaeontological, mineralogical and geo-archaeological features. The inclu-

An exhibition to emphasize Geodiversity and Geoparks strategy in Beigua Geopark

national policies about Geoparks and the territory of Beigua Geopark. More than 3,000 people (about 2,000 of them were students) visited and showed great interest in the exhibition and expressed satisfaction with the information provided.

During the exhibition period new promotional materials concerning Beigua Geopark were launched. The first is a leaflet which illustrates the exhibition topics and provides more detailed information about geodiversity, geoconservation, Geoparks' policy, the geological heritage strategies in Europe, in Italy and in the Liguria Region. The second tool is a new geotouristic guide "Discovering Beigua Geopark". The field

sion of biological, historical and cultural information in the field guide contributes to the comprehensive knowledge of the Geopark. The Beigua Geopark geotouristic guide is part of a regional series of guidebooks concerning geological trails and geosites in Liguria.

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Entrance to the exhibition promoting geodiversity and the conservation of geological heritage



Art and music as intuitive communicators of Earth history and nature

The territory of the Geo-Naturepark presents the fascinating story of Earth history, its landscape and nature, which have influenced the people and their culture. Telling this multifaceted story, creating fascination and touching the people is one of our most important objectives, and requires special tools of communication and events. During the last decade, the Geo-Naturepark has developed a wide range of tools for discovering a fascination for the landscape, for experiencing its special value and understanding how strongly and directly we are a small part of this huge Earth system.

Creative acting and interdisciplinary cooperation in the Geo-Naturepark Bergstrasse-Odenwald

**Time Bomb-
Forest Art by
Ernest Deatwyler
(Canada)**

The time and space cycles of the Earth have inspired mankind down the ages. One of the languages to

communicate this inspiration is art and the other is music. In our territory, we have developed a variety of cooperation projects, which combine Earth history and nature with art and music. The biennial International Forest Art Association develops a special Forest Art Trail inviting artists from all over the world whose artistic creations serve to demonstrate the connection of human beings with nature and the forest. As a scientific cooperation partner, the Geo-Naturepark delivers information and communication, and co-organizes events (e.g. the 2nd International Forest Art Conference). Forest Art reaches the public and creates a deeper understanding of our own place on this Earth and our responsibility to care for it.

The special connection between wine, rocks and art is also used as a communication tool. In cooperation with the Bergstrasse wine growers, we have implemented a wine and rocks adventure trail, which is combined with an art trail presenting sculptures made of stone, wood and steel. In combination with a Mediterranean garden, the adventure trail, the works of art and the special rock-wine publication, communicate perfectly the interconnection between Earth history, soil, wine, man and culture.

Music with the rocks of the Geo-Naturepark - this became real during a "stone music" adventure day around the Felsenmeer, one



Photos:
Jutta Weber

**Between
Granite and
Sandstone the
birth of the
wine by
Eva-Gesine
Wegner**

of the most prominent localities of the Geo-Naturepark. Eri Tanaka, a Japanese musician and sculptor performed for the very first time music with a "stone xylophone" made of Geo-Naturepark rocks, together with a saxophonist. All activities during the adventure day were connected with the topic "stone": carving rocks, feeling rocks, eating Marmorkuchen (sponge cake marbled with chocolate) and 'Steinpilzsuppe' (soup made with the fungus *Boletus edulis*), discovering the rocks of the Felsenmeer and reading poems about rocks. It was a contemplative and exciting event for more than 2000 visitors.

Art and music are direct communication highways to the public, and their interconnection with Earth history and nature works very successfully. These creative cooperative projects fit perfectly into our communication and education tasks as members of the UNESCO Global Geoparks Network.

Jutta Weber

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**Stone Music
with Geopark
rocks by Eri
Tanaka
(France/Japan)**





Major investment in the English Riviera Geopark

The English Riviera Geopark has successfully driven forward a major funding application now totalling £5 million under the UK Government Seachange funding programme. Through the development of a strong partnership with key organizations and a great deal of hard work, by 2010 two key sites within the Geopark, namely Cockington Court a 16th Century manor house and Berry Head National Nature Reserve, will be completely transformed.



Berry Head
National
Nature
Reserve

This once in a lifetime opportunity will modernize visitor facilities, improve the way we care for the heritage of the sites, and strengthen the position of the local community creating a far stronger provision for the Geopark. Both sites will become a Gateway to the Geopark and will have both physical and cultural links to the wider Geopark, e.g. a cycle route and art trail will link the Seafront area to Cockington with the development of a further link to Occombe Demonstration Farm. At each location the Geopark will be highlighted through arts, crafts, local foods, and events as well as the geology. Currently the Cockington project plans include accommodation and studio space for visiting artists, creating facilities for culture and art exchange programmes with other European and Global Geoparks. Whilst at Berry Head the project includes work on the Napoleonic defenses and forts, funds are also allocated for a new education and visitor centre, the

conservation of grazing areas and the promotion of the Geopark. Promotion of the wider European and Global Network will be integral at both sites.

Funding has been granted through a new UK Government grant programme known as Sea Change, which focuses on helping seaside resorts use their culture and heritage to improve their economy. Other major funding partners include English Heritage, the Regional Development Agency and Torbay Council in addition to the Seachange funding which is distributed by the Commission for Architecture and the Built Environment. The success of this Seachange funding bid, by its very nature, has acted as a catalyst to raise the profile of the Geopark, both locally and nationally, and based on this the local partnerships are determined to continue to work on more projects to drive the Geopark forward. Mel Border, English Riviera Geopark Coordinator www.englishrivieraGeopark.org.uk



Research in the Geopark - a win-win-model

Harz Braunschweiger Land Ostfalen

Opencast
lignite mine
Schoningen in
the summer
of 2007

Besides public outreach (tourism) and conservation, one of the major activities of a Geopark should involve research on its respective resources in the field. Due to a lack of personnel, this can be achieved in most cases only by stimulating research through communication and cooperation with active partners within an extended network. This is certainly true for the largest Geopark in Europe, Harz-Braunschweiger Land-Ostfalen, and may be illustrated by two recent projects undertaken by the author (Forschungsinstitut Senckenberg, Frankfurt/M.; FIS).

Together with W. Riegel (University of Gottingen / FIS), the author has for a long time been engaged in a study on the brown - coal - bearing Palaeogene strata of the Helmstedt-Schoningen area. This sequence is especially important because it documents more than 10 million years of Earth history across the Palaeocene/Eocene green-

house system in an estuarine setting at the interface between land and sea. The short-lived Paleocene-Eocene Thermal Maximum (PETM) occurs close to the base of the sequence. This unique section has been studied in considerable detail and was sampled layer by layer involving a total of more than 2000 samples. Some of the recent discoveries include an extensive horizon with palm stumps and another layer with sea-grasses, both preserved in-situ. Since the complete section will be lost after mining ceases in a few years, some financial (and physical) effort is required now for preserving some of the spectacular features by hardening using resin and the use of lacquer peels. At this point, the Geopark not only helped with local and regional connections, but also offered initial funding. The Geopark, however, will benefit from the contributions by the experts in presenting their scientific results to the public through exhibitions and publications. A joint project involving the University of Frankfurt/M. and the FIS is devoted to the supposed Phanerozoic Oxygen Minimum event at the Triassic/Jurassic boundary. Since funding for coring a rock section existed, a suitable site was required where the degree of maturation of the organic materi-

al would be low enough to warrant extensive studies of the organic matter in the sediments. Such a situation was predicted within a particular area of the Geopark. The Geopark's staff therefore assisted with local expertise to locate an appropriate site. The network was especially helpful in obtaining the necessary permission to sink a borehole in the middle of a nature reserve. In September 2008, the completely cored borehole reached a final depth of more than 300m to include the T/J-boundary, and also most of the Lower Jurassic. In a later stage of the project, the Geopark will also be involved in the presentation of the results to the public within the respective region. Volker Wilde, Forschungsinstitut Senckenberg, Palaeobotanik, Germany Volker.Wilde@senckenberg.de

Part
of the
research
core in
the field



Drilling rig
for the
research
core

The young are always in a hurry and the long time period of Earth history astonishes them



Rock and man in the Madonie Geopark

At the Civic Museum in Caltavuturo, one of the 21 communes of the Madonie Geopark, an informative section for geological teaching was inaugurated on 23 October 2008, and a study day was held on "Rock and Man, geology at the service of tourist development in the territory". This involved professional geologists from the Sicilian Regional Association of Geologists as well as teachers and students from the new Technical Institute for Tourism. The institute was founded in 2008 to train young people from the local area and provide them with the expertise for working in the field of sustainable development across the whole of the Madonie Geopark.

View of Caltavuturo where rocks and history are well integrated

The event, appropriately included in the first "Culture Week -

Caltavuturo 19-26 October" which aimed to promote the social growth of the community, brought to a close a series of events started two years ago. This well attended series of events was concerned with geological, cultural and environmental education, developed from the project of the Caltavuturo Comprehensive School "Rock and Man" and was organized by teachers and geologists of the Haliotis association for over 200 pupils. Commitment and enthusiasm did the rest, as demonstrated by the written texts and manufactured articles produced and displayed, highlighting the close relationship between rocks in the territory, human activities in the past and present and pointing towards an eco-sustainable future.

The geological section of the Civic Museum, another source of information in the Madonie Geopark, contains various explanatory panels regarding the geological trails and geo-sites in the Geopark, a model reproducing the village and the rock that overhangs it, as well as a permanent exhibition of the most representative rocks. Thus, following the opening of the Museum of the

Madonie Puppet Theatre at the Civic Museum, the constitution of the "Abiturism" society and the provision of economic incentives for the creation of hospitality services, Caltavuturo continues to invest in tourism and enriches the geo-touristic provision within the Madonie Geopark.

In addition to various local initiatives that support the development and growth of the Madonie Geopark, the Coordinator of the European Geoparks Network, Nickolas Zouros, contributed his "virtual" support for the event by sending a message stating that protection and enjoyment of the geological heritage constitute opportunities for local development. Through the fascination created by connecting the geological history with projects concerned with education, for sustainability, and the committed voluntary involvement by the local administration and bodies responsible for the development of the territory we have taken under our aegis the resources and potential for our sense of identity and place founded upon rocks that reveal culture.

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A corner of the informative section for geological teaching



Photo by P. Li Puma





The Dutch delegation at Boulder Garden Schwichtenberg in the northeast of the Geopark Mecklenburg Ice Age Landscape

One of the most important benefits of networks is the exchange of experiences between partners with a common interest. This has been, from the beginning, a field of intensive cooperation between the members of the European Geoparks Network.

The results of regional cooperation together with the outcomes of transnational projects, that have been realized within the regions of the European Geoparks Network, are visible to everyone and have aroused interest from other regions both within and outside Europe.

The Geopark Mecklenburg Ice Age Landscape, which is situated in the northeast of Germany, focuses its attention on the young glacial history of the region. Several times during the last 500,000 years Mecklenburg was covered by large ice

sheets that planed the territory. As they melted, huge volumes of meltwater flowed across the region creating the channels, grooves and basins, that form the basic components of the hydrographic system to the present day. Most of the typical glacial geomorphological features can be found in the Geopark and its activity centres. Visitors follow the Ice Age Route, a well signposted cycling trail within the Geopark which was created in 2005.

Today tourist packages of varying duration are available, providing changes in accommodation along the Ice Age Route and facilities for transporting luggage between overnight stays. This is just one example of the benefits taking place within the Geopark.

When colleagues from the Netherlands requested an exchange of these special

tourist experiences, the result was to organize a workshop. The aim of the workshop, initiated by ProGEO, was to present the glacial geological heritage within a cross-border northern European context. The workshop took place in October 2008. Over a period of three days, information concerning the Geopark and its regional network were presented.

Finally the participants agreed to produce a leaflet containing general project information and, as a second step, a brochure to illustrate the potential partner regions and their contributions. The aim now is to invite other regions in northern Europe with glacial landscapes to join in this initiative.

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Geoparks win SKAL International Ecotourism Awards 2008



Skal is the largest organization of travel and tourism professionals in the world. It embraces all sectors of the travel and tourism industry in five continents and 90 countries with 20,000 members including hoteliers, travel agents, airlines, tourism, media and academics, etc. Skal International is looking for quality in tourism and regards sustainable development in tourism as the key to the industry's future success. It includes ecotourism as one area within the various components of sustainable development and responsible tourism.

To encourage the conservation of the environment and help to promote the development of responsible and sustainable tourism, Skal International initiated an awards program in 2002. In their seventh year, 53 entries from 24 countries.

Among the winners for 2008 are two of the European Geoparks! In the category of General Countryside: The **Lesvos Petrified Forest Geopark**, Greece In the category of Educational Programs - Media: Educational Programs of the **Naturtejo Geopark**, Portugal.



A very hot summer in Naturtejo Geopark

Schoolchildren learn about the landscape (Zezere River)

In Naturtejo Geopark the summer commenced with the European Earth Festival, our Geopark's Week. Two very full weeks with lots of energy devoted

to quiet days in Historical Villages, on river bank beaches or engaging in nature tourism. It is, however, also possible to have some geological days which cater for all tastes. Thematic walking trails were dedicated to fresh watermelons and the production and taste of the fruit was greatly appreciated. Visitors also, like the old smugglers, crossed the river borderland to Spain during the night.

'Geology in Summer' is an event that involves specialists and the general public in the discovery of geology. It is possible to discover new places while listening to geological stories. During vacations in wonderful sceneries, both inside and outside the Naturtejo Geopark territory, people learnt about geology from the Geopark's experts.

The 'Boom Festival' is a new kind of tribal gathering where varied groups can engage with nature in a sensitive and sustainable way. Thirty thousand people from all around the world came to Idanha-a-Nova. The House of the Geopark was visited by many people who were looking for new and fantastic experiences of nature within the 'Boom Festival'. But summer is not all about vacation. Thirteen young people from all over the world came to Penha Garcia

to work in the International Working Camp. The aim of this project was to integrate the group and the local community, to learn about the importance of geologi-



Walkers searching for the Roman gold mine in Arneiro (Nisa)

to events combining adventure and knowledge. There were educational programmes for very young students. which was a huge adventure for the guides. Other activities involved geo-kayaking in Zezere river meanders, and a geodinner for lovers of geology and food.

Naturtejo region is a very warm place, far removed and separated from the sea by mountain belts, where temperatures of 40°C are easily reached. It is important to have refreshing summer activities for relax-

Boom International Music Festival crowding Ponsul river bank beaches (Idanha-a-Nova)



A close encounter with a Trilobite (Ichnological Park of Penha Garcia)

cal heritage, to work for the Ichnological Park of Penha Garcia and to foster cultural exchange. The group enjoyed fifteen days of hard work and "energetic rest" with climbing, geo-kayaking, trekking and relaxing in the Naturtejo landscapes. Summer in Geopark Naturtejo can be a great experience combining knowledge, emotions and relaxation, something that is not possible to capture with a camera.

Joana de Castro Rodrigues & Carlos Neto de Carvalho: geral@naturtejo.com

Geo-kayaking in Zezere River (Alvaro Schist Village)



Geology, sustainable tourism and cycling in Luberon!

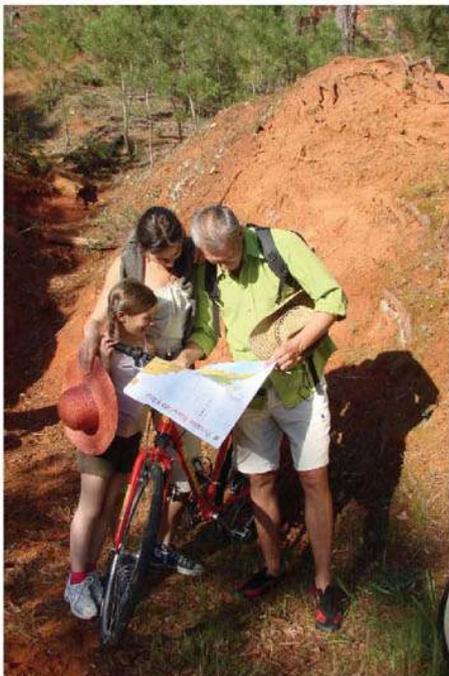
The Luberon Regional Nature Park, European Geopark and signatory of the European Charter for Sustainable Tourism in Protected Areas, implements the Charter to strengthen the development of sustainable tourism. Thus, the Park is involved in supporting the development of leisure activities and sports and in promoting public and private initiatives in order to contribute to the local policies of tourism development.

The recognition of the importance of the geology of Luberon has a place in this ambitious plan.

Training course "Connaissance du Luberon"

The Luberon Park provides a training course "Connaissance du Luberon" for tourism professionals (administrators, accommodation managers, guides etc...).

Discovering geology by cycling



Several topics were considered during 5 working days : the Park and its missions, geology and geological heritage, natural environments, architecture and housing, agriculture and tourism.

The project "bicycle" in the Luberon

A study commissioned by the Park in 2007 showed that cycling contributed 8 million Euros either directly or indirectly to the economy of the territory of the Luberon. It also identified possible areas where the Park could be involved in providing equipment, developing infrastructure and services, and in activities involving communication and promotion.

With a common aim and cooperation between the different economic partners (hotels, tourist office, etc.), developing cycling as a component of tourism. Initially 5 workshops were created to share and oversee the following projects: In a first time it comes around the creation of 5 workshops to share and edit projects:

- Route improvement (security, traffic signs etc...)
- Information and awareness for cyclists (a website dedicated to cyclists, including GIS and GPS information)
- Structuring and enhancement of tourism provision aimed at Tourism offices and training professionals
- Planning the development of new routes
- Planning the development of mountain biking



Geology by bike!

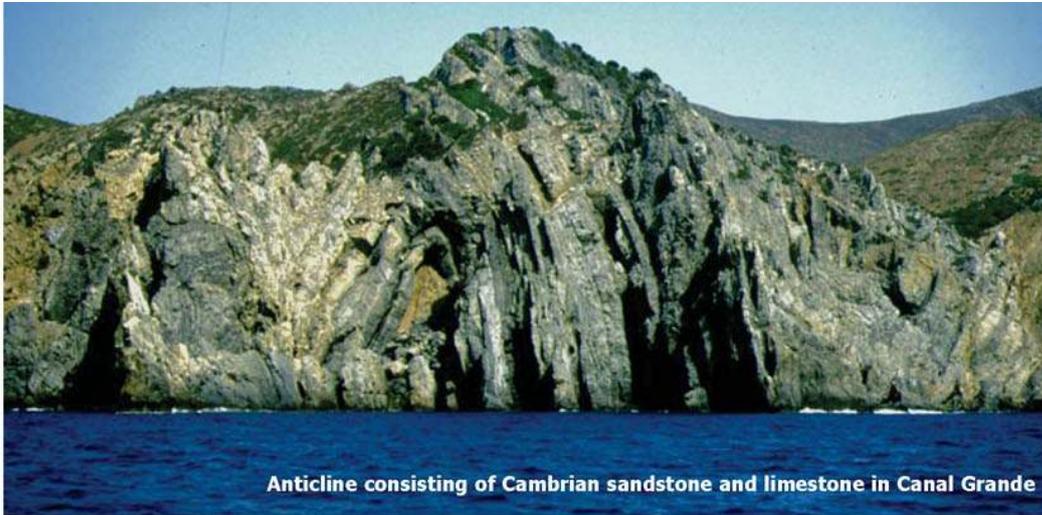
Work on the cycling project in the Luberon led naturally to the proposal for a cycling tour to discover the geological heritage around the Ocher Massif. Located in the heart of the Park, this protected site offers some of the most remarkable features within the the Luberon. The unusual range of colors of sand from dark red to yellow-gold, is a legacy of the intense industrial activity conducted in the 19th and early 20th Centuries.

A cycling tour is already established between the villages of the Ocher Massif.

Now we want to provide geological information for the many tourists discovering this protected site by bike. To achieve this, the Park works in partnership with the "Velo Loisir en Luberon" network, including tourism providers (accommodation, rentals, taxis, restaurants, cultural sites, wineries, guides and travel agents).

C. Balme & S. Legal
www.parcduluberon.com
www.veloloisiruluberon.com

Road signs on the Ocher tour



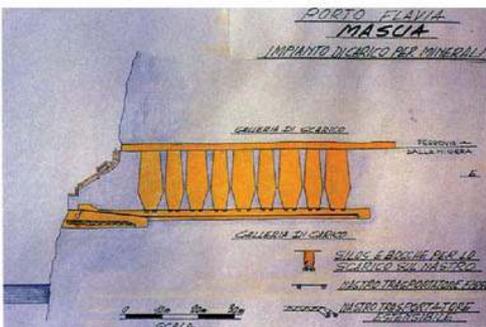
Anticline consisting of Cambrian sandstone and limestone in Canal Grande

Sulcis-Iglesienta- Guspinese Geological Mining Park Areas

The Sulcis-Iglesiente-Guspinese areas are located in the south-western part of Sardinia and extend over 2,455 square kilometre, i.e. 65% of the total Geological and Mining Park of Sardinia. These areas are therefore the most representative in terms of distribution, variety and importance of the mining activities that have been carried out over millennia. As far as mining is concerned, considering the quantity of the metalliferous deposits of lead, zinc, copper, silver, tin and iron that have been exploited since early times, these areas became one of the most important metalliferous districts in western Europe in the nineteenth century. In addition to the metalliferous mines, deposits of barite, bentonitic clay and especially coal were also of particular importance.

Porto Flavia:
Technical drawing of the storage and loading plant on the sea

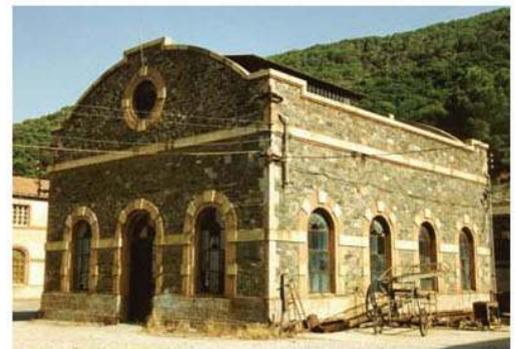
Within the island of Sardinia, the Sulcis-Iglesiente-Guspinese areas are geographically distinct.



They are characterized by an extended stretch of coast and a variety of interesting scenic landscapes and environments. Steep mountains, rising to a moderate altitude from a predominantly hilly morphology, are interrupted by the Cixerri Plain in the central area and the Basso Sulcis Plain in the south.

Early geologists defined the Sulcis-Iglesiente-Guspinese areas as an "island within an island", firstly because they represent the earliest focus on geology within the whole of Italy, and secondly, but not less importantly, because of their natural characteristics and the number of sites of cultural and scientific interest. They contain significant, rare plant species, such as the stone pine and the scarlet oak, unique for their natural habitat, important archaeological sites and a rich heritage of abandoned mines and industrial archaeology. The geology, mining history, and high levels of technology evident in important engineering projects from the past, make this landscape a significant component of our common European heritage.

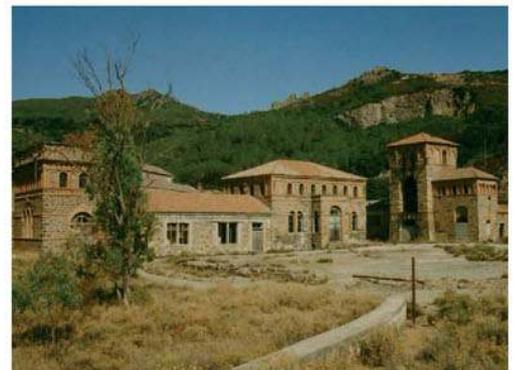
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Montevecchio lead and zinc mine: old Power Plant



Monte Onixeddu lead and Zinc mining area: old mining head offices



Montevecchio mining compound: Piccalinna mining shaft

Geologic Itineraries by Mountain Bike in the Sobrarbe Geopark

Sobrarbe is a region of contrasting and attractive landscapes. The dramatic high mountain scenery contrasts with the

Mediterranean style landscape of the southern sierras. The region covers a large area of unspoiled and attractive countryside where the population density is one of the lowest in Europe. The geographical peculiarities of the area, combined with a rich cultural and historic heritage, make Sobrarbe a centre of attraction for mountain bikers from all over the world.

The Sobrarbe landscape offers an extensive variety of geology, ranging from the Palaeozoic to the Quaternary. The geological trails represent a journey through more than 550 million years, which can be made on a bike. This provides a healthy exercise for the body and a tonic for the spirit seeking new knowledge. The objective is to follow the different "clues" spread throughout the whole territory, which will allow us to reconstruct the geological history of Sobrarbe before the existence of mankind.

Following a mountain biking (MTB) tourist marketing study, the project was developed from a local private initiative supported by the Geopark. More than 40 strategic points have been chosen which invite the cyclist to rest for a while, to get off the bike, place a foot on the ground and appreciate the beauty of the scenery.

Almost without any effort, we will begin to ask our-

selves questions about the landscape and rocks, their age, their origin, their use and their relationship with man.

The benefits arising from the project include the following:

(a) Online advertisement of services accessible on the Geopark's Web page.

(b) Sale of MTB equipment and Geopark's merchandise.

(c) Benefits derived from membership fees and participation in sports events.

(d) Thematic guided tours for groups (according to age and technical skills).

(e) Agreements with tourist businesses (accommodation, restaurants, etc.).

In order to get more information about the assets of the Geopark, the itineraries can be completed with a visit to the main facilities of the Geopark located at the Ainsa Castle: the 'Space of the Sobrarbe Geopark' (Visitors Centre, the Technical Office and the Geovision Room.)

This is a sure step in getting visitors to recognize, respect and look after the privileged landscape of Sobrarbe.

Joan Poch

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Scientific Director

Sobrarbe Geopark

www.turismosobrarbe.com

www.gpspirineo.com



Mountain biking in the Sobrarbe Geopark



Enjoying superb views while mountain biking in the Sobrarbe Geopark



A mountain bike trail through the Sobrarbe Geopark

European Charter for Sustainable Tourism for Cabo de Gata-Nijar and Sieras Subeticas Geoparks

After a great deal of effort and commitment to the development of responsible and sustainable tourism, the European Charter for Sustainable Tourism (ECST) was awarded to the Cabo de Gata-Nijar and Sierras Subeticas Geoparks in Romania in September 2008. This is tangible proof that, gradually, Geoparks are increasingly developing and raising their profiles within the framework of International Nature Conservation and Sustainability. This recognition was the stimulus for a series of conferences and meetings held in the Cabo de Gata

Geopark's conference and exhibition hall involving the media, stakeholders and the Geopark's staff.

The first of these events was the official presentation of the Charter by Junta de Andalucía's Environmental Minister, Cinta Castillo, to the media. It also provided an opportunity to inform local enterprises about phase two of the Charter, i. e. how to join the ECST. The conferences and workshops continued under the "Natural Park Label and European Charter for Sustainable Tourism". During this conference, several new enterprises were awarded with the "Marca Parque Natural" label which is granted to those businesses and stakeholders that work closely with the Natural Park.

The European Charter for Sustainable Tourism in Protected Areas seeks to recognise parks which are following the correct approach for developing and managing sustainable tourism. It is concerned with structures, objectives and actions, including their comprehensiveness and sustainability. The idea of and the need for sustainable tourism has been accepted for some years, and despite the existence of many good examples of activities in this field, the ever increasing challenges facing protected areas demonstrate the necessity

of making a real commitment through the development of a Charter. The first step was the Agenda 21 programme (United Nations Conference) at Rio de Janeiro in 1992. In 1995 EUROPARC took the initiative to set up the European Charter for Sustainable Tourism in Protected Areas, with a project funded by the EU's LIFE programme and led by the Federation des Parcs naturels regionaux de France on behalf of EUROPARC. For further information about ECST: www.europeancharter.org/ Pablo Rivas Palomo



Ecotourism Diving Enterprise receiving the award of the "Marca Parque Natural" label from Cabo de Gata's Geopark Manager, Ms. Rosa Mendoza

Rosa Mendoza, Cabo de Gata's Geopark manager and the Tourism's delegate for the Geopark area attended the event in Romania, September 2008



Cinta Castillo, Junta de Andalucía's Environmental Councillor, presenting the ECST. Fernando Alonso, Park Business people president, Antonio Jesus Nijar's Mayor and Clemente Garcia Valera Almeria's Environmental Delegate

Delegates in the meeting room





Copper Coast Geopark Centre, the Church of Ireland premises at Knockmahon

In early 2008 the Copper Coast Geopark finally secured its own permanent building by purchasing the old Church of Ireland premises at Knockmahon. The church was built in around 1820 and was of major importance to the social life of the community throughout the period of mining activity and beyond.

The church had been deconsecrated in the 1960's and for a number of years was used for storage by a local builder. Our first task was to clean up the building and its immediate surroundings and to start the process of conservation. Not totally unexpectedly, the spot repairs to the roof turned out to be a full replacement requiring the sourcing of matching slates, while at the same time draining our financial resources. However, in carrying out the work, the opportunity was taken to install the most modern insulation materials which hopefully will help reduce future heating bills.

The building is destined to become the centre for Copper Coast activities and an important focal point for our local community. It will also house the archives of the Mining Heritage Trust of Ireland, provide a 19th Century mining experience for tourists, and a centre for our growing education-

al activities, ranging from liaising with primary schools to diploma courses, the latter in conjunction with Cork University. It will also provide meeting rooms for the local communities and facilities for light refreshments.

All of this will require extending the building and, since the 'church' is surrounded in part by a graveyard, this necessitated careful exploration under the close supervision of an archaeologist, to ensure that there would be no unexpected discoveries in the area of our proposed extension. Plans are being drawn up and there is much consultation with conservation and heritage officials and many other interested parties to ensure that our new home will be sympathetic with the existing structure and surroundings while being as environmentally efficient as recent advances in material and design allow. Our fund raising commenced with a flower show and was attended by over 500 people - a terrific success thanks to the many people who offered hands-on support.

Some of the entries from our youngest members were simply fantastic, I hope you agree! The competition for the themed Geopark cake proved a great success.



The winning entry for the over 6 miniature garden competition



Example of a beetle entered by one of the children in the fruit and vegetable animal competition



Winning entry for the themed Geopark cake by Hillary Killops aged 60+

In addition to normal activities, much of our focus over the coming months will be directed to fundraising, so if you have any good ideas on how to turn a community's dream into reality, please let us know.

Mike Sweeney
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Finding the geocache

Geocaching

A new way to encourage people to learn about the landscape?

Geocaching is a high-tech treasure hunting game played throughout the world by adventure seekers equipped with GPS devices. It is just a game, but a useful one, if it is well designed. The idea is quite simple. Someone hides a box containing some small objects together with a log-book in an interesting place. The geographic coordinates are published on the internet. Others, equipped with a GPS-device, look for the "cache", and once they find it, they take something from the box, put something new inside and log their visit in the book and on the internet. Currently the simple version is called

"traditional cache". "Multicaches" are even more interesting. In this game, you are only provided with the coordinates for the starting point, and by solving some riddles, you are provided with further coordinates, leading you step by step to the cache.

One might think that this is just a very special hobby for a few experts, but searching on the website www.geocaching.com reveals that there are already more than six hundred thousand caches hidden all over the world.

The TERRA.vita Geopark is exploring ideas as to how this game can be used to encourage people take a closer look at details within

the landscape. Designing a multicache, which leads through one of the most interesting parts of the Geopark, formed the basis of a diploma project. This has now been tested by a group of adolescents and the results are being evaluated. If the outcome is positive, TERRA.vita Geopark will seek partners and hide more multicaches. These caches will of course lead to a number of Geosites within the Geopark but especially to those more hidden sites which are harder to find. Another idea is to develop a geological cache-route across the whole Geopark, connecting the most interesting windows into Earth history. However it develops, it will provide an opportunity to address a new, young target group.

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Finding your location using a GPS



Following the clues



Swabian ammonites, type-localities and volcanoes

The Infocentre Bad Boll is located in the northern foreland of the Swabian Alb. Its purpose is to communicate the geo-potential of the "Stauferkreis Goeppingen", an administrative district, which corresponds to 10 % of the Geopark's area. The Tourist-info Centre of the spa Bad Boll, the Jura-slate quarry Bad Boll, where Jura-fango is produced, and the Museum of Natural Science Goeppingen have combined with an information centre to provide a number of activities, digging for fossils etc.

digging a well. The fossils - like "Scherhorner" and "Alps-chosse" were considered to be freaks of nature - subsequently they were recognized as ammonites and belemnites.

In the 18th Century, many vertebrate and crinoid fossils from the slate quarries of Boll were displayed in cabinets as natural curiosities. Recently an Ichthyosaur was found in the slate quarry.

In 1858 the geologist Albert Oppel created the "Pliensbach Group", a member of Lower Jurassic schists which he defined with ten fossil ammonite zones. In the surroundings of Pliensbach, a little hamlet 5 km from Bad Boll, more than seventy ammonite species were recorded from the Pliensbachian Stage (between 192 to 184 million years ago). The Pliensbachian is now included as an internationally recognized stage within the geological time scale.

Evidence for Miocene volcanism is found in some geotopes near the A8 Stuttgart/Ulm highway. The Aichelberg is one of 360

Fig. 1. The schist is crushed to "Fango Powder" by a mill which is almost a museum piece at the Fango factory.

Fig. 2. Fango therapy. The kneading of the Jurassic "Fango Powder" is also used as a therapy in Bad Boll.

Fig. 3. The ammonite Amaltheus is very common in the Upper Pliensbachian

Fig. 4. The Aichelberg volcano in a former quarry with White Jurassic limestones and volcanic tuff (volcanic pyroclastical material).

Fig. 5. Fossils from Bad Boll were already described 400 years ago. Numerous golden gleaming, flattened ammonites (Dactyloceras) occur in the schist.

Swabian volcanic vents.

Since the eruption more than 20 million years ago, 200 metres of Jurassic rocks (Upper Jurassic and some of the Middle Jurassic) have been eroded. Today one can walk in the volcanic crater 200 metres below the point of eruption. The crater consists of volcanic tuff with an enormous 200 x 400 metre block of Upper Jurassic rock which slid into the crater more than 20 million years ago. The tuff and block can now be seen at three sites (former quarries) within the crater.

Pliensbach

Gde. Zell u.A.
Lkr. Göppingen

A small hamlet in the Alb-foreland is the type locality for a period in the lower Jurassic

Geo-Highlights from the surroundings of the Infocentre Bad Boll/ Goeppingen of the Geopark Swabian Alb

For the last 400 years, Bad Boll and the surrounding area were famous for extraordinary fossil finds. In 1598 the personal physician of the Duke of Württemberg, Johannes Bauhinus, described and illustrated over one hundred fossils, which were found by



The extinct volcanoes still release carbonic acid essential for the formation of mineralized waters, which are generated for example in the *Posidonia* Slate (Lower Jurassic) and various Jurassic sandstones. The mineral waters of Geopplingen and Bad Ueberkingen are important sources of bottled water. The Infocentre offers excursions to different mineral water sources, where the relationship between Earth history and regional resources is being demonstrated in an impressive way. Full-time workshops - offered by experts from the Infocentre - combine Earth history and regional gastronomy. This includes eating meat from a hot slate and tasting ciders, 'seccos' and wines produced from the fruits of managed grasslands.

The Infocentre, in cooperation with the regional tourist manager, intends to establish a network including members of nature-conservation, rambling and speleological associations and to create a brochure of annual activities in the area of the Infocentre. The programme of activities will be promoted at tourism fairs, especially in the urban centre of Stuttgart. The Stauferkreis Geopplingen belongs to the administrative unit of the "Region Stuttgart". According to the regional plan, the peripheral area of Geopplingen must also develop a tourism infrastructure. Initially designs for the creation of an "Albtrauf" or a "Filstal" landscape park will be developed. The Geopark and the Infocentre will be integrated in this work. Anton Hegele, Geopplingen
Anton Hegele <AHegele@goepplingen.de>

Meteorite Strikes North West Highlands Geopark

For as long as Geologists have been studying the rocks of this area, there has been controversy over the Stac Fada deposit which lies on the coast of the North West Highlands Geopark. Planetary Geologists from the Universities of Aberdeen and Oxford recently reexamined the Stac Fada rocks in detail. What they found has proved that, although the rocks bear a resemblance to the products of a volcanic eruption, they were in fact formed when a meteorite hit the ground and vaporized creating pressures far in excess of any other natural process on Earth. On a microscopic level the rocks contain shocked quartz grains which are only created by the extreme pressures associated with a meteoritic impact or an underground nuclear explosion. The meteorite impacted rocks and loose sediments formed about 1.2 billion years ago. These deposits now make up the present day Torridonian rocks. Shocked minerals were created from the impact and, as the meteorite was vaporized material from the crater was ejected out along the surface in a ground hugging flow, ripping up the pre-existing rocks and incorporating them into a layered ejecta deposit. Molten material was also blown up and away from the crater in the form of lapilli. These



Layered ejecta deposits associated with the Stoer Bay / Stac Fada Meteorite Strike Site. Photo courtesy of F. Saywell

are pea sized and shaped particles which form a very distinct feature of the deposit.

The ejecta deposit was then rapidly buried, which ensured its survival to the present day. However this is a rare situation; of the more than 170 known meteorite craters on Earth, only five layered ejecta deposits have been preserved. Stac Fada is one of these five. The size and position of the crater may never be known. The estimated crater size is 10km in diameter, but could have been larger. The position of the crater is debatable as some evidence points to material moving westwards and some moving eastwards. From this it is believed that the site of the crater may lie either in the Minch Basin or beneath the Moine Thrust Zone, which at the time of impact, was at the surface.

Fiona Saywell and Fiona Mackenzie
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Eisenwurzen

Great Geology in Liliput Size

You feel like Gulliver in Liliput when you walk on the 14 x 11 metre landscape model between villages, mountains, springs, streams, rivers and the sea of the Water Adventure Park of St. Gallen. In contrast to Gulliver, it is you the visitor who has command of the natural phenomena, assisted by a sophisticated system of pumps and electrical equipment in the background. By pushing a button you initiate a genuine thunderstorm. The rain water oozes into the ground and through peep-holes into the mountains you may observe the water table rising in karst areas and in unconsolidated sediments, such as gravel. Springs begin to flow,

feeding streams which join into rivers and finally flow into the sea.

In your role as a giant, you may add sand to the water which shows you the patterns of deposition along the rivers, in estuaries and in the sea. But you may also prevent or cause flooding along the rivers by operating locks and barges. And when your river management has failed you may save the villages by using small sand-bags.

It is therefore not only the extraordinary size which makes this model unique, but also the fun of creatively experiencing geological phenomena.

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Landscape model of the Water Adventure Park of St. Gallen.

Heinz A. Kollmann and Katharina Weiskopf



Megalodont bivalves in the Upper Triassic dolomites of Adamello Brenta Nature Park

The Adamello Brenta Nature Park which covers 620.5 km², is one of the largest protected areas in the Alps. It is located in the Retiche Alps, in the Trento province of NE Italy.

In the west, the protected area encompasses the Adamello-Presanella Massif, with its 55 lakes and several glaciers, among which the Mandron Glacier is the widest glacier in the Alps. The eastern area of the Park contains the Brenta Group, the western most extension of the Dolomites. The Brenta Group is about to become an UNESCO World Heritage site. Between these two completely different geological and geomorphological worlds there are several evocative Valleys: Genova Valley, described by the first English explorers of the 1800's as the "Italian Versailles" due to its water falls and Tovel Valley, which is famous for the 'Red Lake'. The Geopark is an open-air geological laboratory, where all three rock types can be observed.

In the Park almost all species of the Alpine fauna are present (only the wolf is absent) including bears, reintroduced into the Park through the 'Life Ursus Project', and the ibex, which was re-established in this territory thanks to a similar initiative. The flora of the Park comprises approximately 1500 species, occurring at different altitudes: from the sunny slopes of the southern mountains (the lowest 477m) to the highest alti-





tudes of the rocky peaks (up to 3558m).

The territory of the Park is an example of a cultural landscape shaped by man's skills throughout the centuries. Ancient shepherd's huts and other buildings, that maintain the characteristics of the traditional architecture, are testimony to the Alpine culture.

Adamello Brenta Nature Park was instituted by Provincial Law No 18/88. Eleven years later, in 1999, the Park Plan that regulates the territory's use, was adopted: local communities can exploit the natural resources but in a manner, that prevents the impoverishment of environmental resources.

The strategic goals of the Park's environmental policy are the protection of the environment and of biodiversity, scientific research, environmental education, territory enhancement, innovation and sustainable development. The Park is managed through a committee, in which the majority consists of the 39 municipalities of the area. This guarantees local communities a leading role in management decisions. The Park body comprises about 50 permanent employees, which is almost the doubled during the summer tourist season. In 2008 the Park's budget was 5.8 million Euros.

Together with its communities, the Park is trying to teach a sustainable way for utilizing the environment. Throughout the years, several projects have been activated for this purpose,

including the first European Park to be awarded the ISO 14001 certification in 2001 which specifies the requirements for an environmental management system and the initiation of environmental educational projects at all school levels. In 2005 the Park adopted the European Charter for Sustainable Tourism, and registered with EMAS (Eco-Management and Audit Scheme) in 2006. In 2008 the Park became a member of the European Geoparks Network.

Adamello Brenta Nature Park, with 20 years of experience in social, environmental and cultural development, has a strong identity as a nature park. Becoming a Geopark provides extra added value which fits perfectly with the already established protection and validation policy and provides a new stimulus to continue with the environmental sustainability policy.

From a geological perspective, the main characteristics of Adamello Brenta Geopark are the varied geodiversity resulting from the presence and nature of two big mountainous massifs. One massif consists of sedimentary rocks and the other of intrusive igneous rocks and metamorphic rocks. These massifs differ considerably in their geology and geomorphology. The sedimentary massif consists of fossiliferous dolomite with karst features. The igneous/metamorphic massif contains granodiorite, tonalite, porphyry, and schists. Tonalite,



a rock similar to granite, is named for the Tonale Pass where this rock occurs. Fifty six sites assigned to five major categories occur within this varied geology. These include glaciers, glacial and periglacial features, karst features, geological sites and ethno-anthropological sites. These geosites will be validated through the Action Plan, now in progress, where guidelines for improving the performance of the Adamello Brenta Geopark will be defined.



View of dolomite in the sedimentary massif in the Adamello Brenta Nature Park



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Rocca di Cerere Geopark

The European Geopark "Rocca di Cerere", which is situated in the middle of Sicily, was established in 2001. It is characterized by a rich, geologically diverse environment in which the "chalk-sulphur" plateau, and the sandstone peaks of the Numidic Flysch are outstanding features. Since Palaeolithic times, the inhabitants toiled in and shaped the landscape. The traces of these farmers, shepherds, miners, warriors, paupers and kings, women and men are still watched over under the maternal gaze of the goddess Demeter. The significant mineral deposits of the gypsum-sulphur plateau were laid down during the Messinian Salinity Crisis, between 5.96 and 5.33 million years ago. The crisis was created by the dessication of the Mediterranean Sea, resulting in the precipitation of salts, the most important of which was gypsum. The Erei hills are characterized by high sandstone peaks and a fantastic stepped landscape with plateaus and cuestas created by the differential ero-

sion of hard limestones and soft clay marls. Since pre-historic times miners opened galleries in search of sulphur and the region became important for the extraction of minerals. Here man began to differentiate between halite and the potassium salts. Recent archaeological research in Monte Grande and Milena show that from Minoan to Mycenaean times, the inhabitants of this part of Sicily, exported slabs of sulphur to the rest of the Mediterranean region. The Romans condemned Christians, "ad metalla", to a life of slavery and convict labour in the central part of Sicily. Several hundred slaves died there between the 1st and 5th centuries A. D. In more recent times, geological and mineralogical research resulted in the construction of deep mines within the sulphur plateau and Sicily became the first producer of sulphur minerals in the world. With the collapse of the Sicilian sulphur market and the gradual dismantling of the Sicilian Mining Company (EMS), the mining complex-

es were abandoned and nowadays the area looks as if the workers, the "carusi" of the past, had walked away just a few hours ago, leaving heaps of raw minerals, tools, pay books, cars and underground equipment lying on the ground. Only the potassium salt mines at Pasquasia and Corvillo survived into the 1980s, but closed due to the influx of salts derived from the Ukraine into the western market. The Geopark, which manages these important sites, is formed by nine towns containing four natural reserves and is the only mineralogical park in Sicily.



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Lochaber Geopark



Lochaber is famous for its spectacular scenery, which includes Britain's highest mountain, Ben Nevis. The Parallel Roads of Lochaber are also internationally famous. In fact the area has such a wealth of exceptional geological features that it was decided the whole of Lochaber should be included in a Geopark. The decision to apply for Geopark status for Lochaber was made at a public meeting in Fort William in January 2004. After much hard work it was officially recognised in April 2007 when Lochaber was

awarded European and Global Geopark status by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

Lochaber Geopark is located in the Highlands of Scotland. It stretches from Invergarry in the north to Rannoch Moor in the south and from Glen Spean in the east to the Small Isles of Canna, Eigg, Muck and Rum in the west.

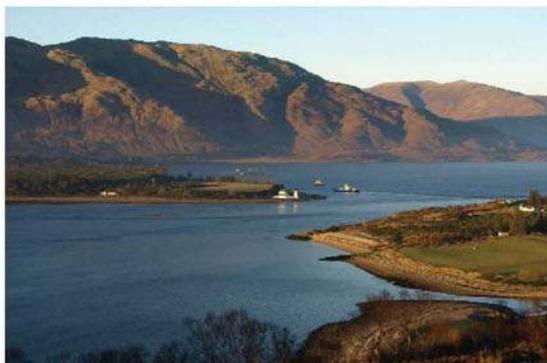
Lochaber Geopark is unique among its European counterparts because it has a geological record that includes not only the creation of a huge mountain chain by the collision of giant plates, but also the dramatic volcanic activity associated with the much later tectonic plate rifting when Greenland and Europe drifted apart.

The igneous rocks formed when the Caledonian Mountains were created include some extraordinary collapse structures called calderas. It is astonishing that the rocks now forming the summit of Ben Nevis collapsed more than 600m to form a caldera around 400 million years ago. The road through Glen Coe runs right across a similar deeply eroded ancient caldera. These calderas are the inspiration for Lochaber Geopark's logo. The much younger igneous rocks found in the western part of Lochaber began to form during the Palaeogene some 60 million years ago. The layered ultrabasic intrusion on Rum is of especial interest, but there are many other fascinating features dating from this period. The distinctive terraced landscape in Morvern and on the Isle of Eigg was formed from flood basalts. Also during this period the spectacular

igneous centre in Ardnamurchan was created which has an obvious circular structure best seen from the air.

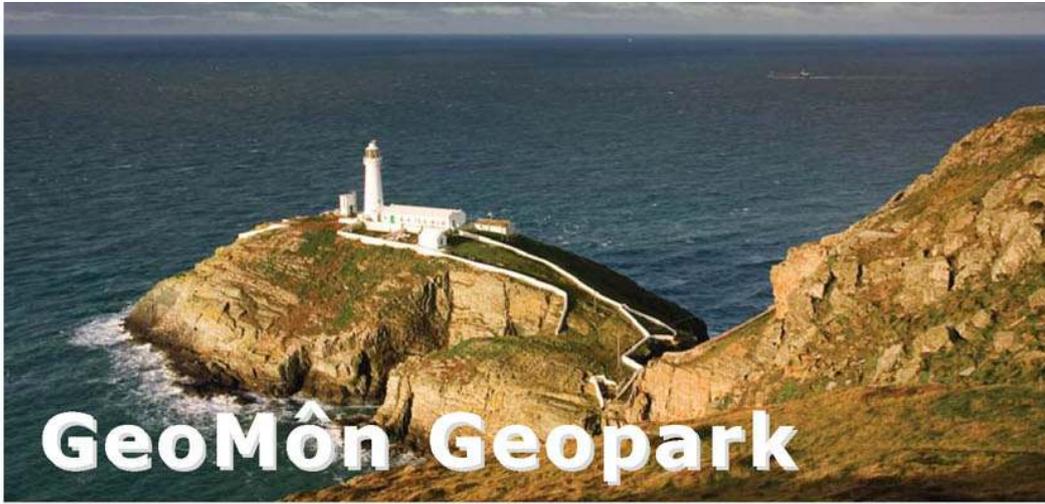
The final sculpting of the landscape took place over the last 2 million years when large glaciers built up and melted away again many times in a series of glacial and interglacial episodes. Lochaber is a classic area in which to study features formed by glacial erosion such as corries, aretes, U-shaped glens and hanging valleys. The Parallel Roads of Lochaber were formed during the most recent glacial episode which ended some 12,000 years ago. They mark the levels of ice-dammed lakes which drained away when the ice melted back.

The Geopark is a charitable community enterprise funded by Scottish Natural Heritage, The Highland Council, Highlands and Islands Enterprise, Leader and The Heritage Lottery Fund. It is supported by a number of local and national Scottish organisations and more can be learnt from www.lochabergeopark.org.uk



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GeoMon is delighted to be a member of the European Geopark network and is looking forward to working with other Geoparks in sharing ideas and projects. The Board and Members thank all those in the EGN, our partners and the people of Anglesey for working hard to attain this status.

We are often asked why Anglesey is so special for its geology. This is a complex island with hundreds of different rock types, which at first sight seem to be one big jumble or mosaic of different rocks visible all around the coast looking like a patchwork quilt. Inland, some of the rocks pierce their way through the glacial till which was left when the ice melted at the end of the last Ice Age some 16,000 years ago. The island is best known for its Precambrian and Cambrian rocks which are exposed over four fifths of its surface and contain strata from 700 to 550 million years old. These all owe their origin to a range of Plate Tectonic scenarios with rocks, some very rare, and structures which were formed at every type of Plate Tectonic margin. The most common being formed



at an island arc, within an oceanic plate, similar to the Pacific Ocean Plate Statigraphy that is currently evolving in Japan.

Of world renown are the perfectly preserved Precambrian pillow lavas erupted at a constructive plate margin when 'proto' Anglesey lay 30° South of the Equator. Since then, as Anglesey travelled northwards to its current position 54°North, it has undergone several important catastrophic events, with many of its ancient rocks descending down deep ocean trenches, some to a greater and others to a lesser extent, at destructive plate margins. These events have created the rare blue glaucophane schists for which Anglesey is famous and the little-altered, sedimentary rocks on the North Anglesey coast, which contain ancient Precambrian fossils, mainly stromatolites, which tie this formation with other Gondwanaland rocks of other distant countries. This rock first described and named here is the world type locality for the rock called Melange. It can best be seen with its exotic colours at Pilot's Cove at Llanddwyn and in Cemaes Bay. The Precambrian rocks when travelling on the Earth's crust northwards, picked up sediments en route, exhibiting beds from deserts, tropical and equatorial climates, to add to the fascination of the patchwork display on the 125-mile-long coastline with its coastal path allowing access to all.

Now that we are accepted by our European counterparts, we have many projects which await us. Firstly, the reconstruction of a mediaeval building at Llys Rhosyr as a tourist attraction, then a development at Llanbadrig, Cemaes Bay, where St Patrick was wrecked on his way to convert Ireland to Christianity using the cave he sheltered in as well as the spring and church he founded there and the establishment of a training/ visitor centre on Parys Mountain ancient copper mines. Many other projects are evolving with businesses on Anglesey that want to work with the Geopark. We will also target the Cruise Ship trade at Holyhead and take passengers by minibus to some of our special local sites.



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Arouca European Geopark

The land of the giant trilobites

The Arouca Geopark is located in northern Portugal and is the second Portuguese geopark to be an EGN/GGN member (2009). The Arouca Geopark was formally established in late 2007, under the auspices of Arouca's Municipal Chamber. The area of the geopark is around 330 sq. km and corresponds exactly to the administrative borders of the Arouca Municipality with about 25000 inhabitants. A non-profit association grouping together about 20 public and private institutions with local and regional relevance assures the management of the geopark. The Arouca Geopark Association (AGA) was created just with this purpose, under the leadership of the local municipality. A Scientific Advisory Board with experts from different Portuguese universities supports the science policy and AGA activities.

The geopark region is a mountainous area carved by narrow valleys with a mean altitude varying between 200 and 600 m. The geopark is integrated in one of the major morphostructural units of the Iberian Peninsula: the Hesperian Massif, which is the largest fragment of the Variscan basement that crops out in Europe.

Geological heritage

A systematic geoheritage inventory of the Arouca Geopark resulted in the identification of 41 geosites.. Among these geosites, two of them are of special international relevance: The first one is an outstanding fossil locality of Middle Ordovician age, where giant trilobites (up to 90 cm in size) and



Motherland of the biggest trilobites in the world

trilobite clusters (from several to thousands of specimens) occur in large slabs of shale. These slabs are recovered during roofing slate quarrying. The Valerio & Figueiredo private company encourages scientific access to its quarry and has built an on-site museum to preserve and disseminate knowledge about trilobites and the Ordovician world. The Geological Interpretation Centre of Canelas, located near the quarry and open since 2006, is one of the main tourist attractions of the Arouca Geopark.

The Castanheira Granite, is a small and very peculiar granitic outcrop that contains a remarkable abundance of biotitic nodules ranging from 1-12 cm in diameter. A popular legend attributes magical properties to these nodules in terms of female fertility, since these dark mineral lumps pop out spontaneously from a cream-coloured matrix due to differential dilatation during hot weather.

The geological heritage is complemented with a rich cultural heritage including traditional architecture and historical buildings, agriculture, a diversified gastronomy

based on local products etc. There are more than 200 archaeological sites recorded in Arouca Geopark including old mining works (Roman gold mining) and rock art engravings.

Geotourism - Education

Arouca Geopark pays special attention to educational and touristic activities. The region was already well known for its nature sport activities such as rafting, canyoning, pedestrian trails, etc. Educational programmes for different school levels are promoted by AGA. During the academic year 2008/2009, more than 4000 students were engaged in these activities at Arouca Geopark. The territory is also visited by hundreds of university students from different institutions and by geoscientists, mainly palaeontologists of worldwide importance, in order to make scientific studies on the rich palaeontological heritage.



Mysticism and outstanding geological heritage: "rocks delivering stones" are the most known and visited geosite. Some biotitic nodules were found inside a Neolithic dolmen. Nowadays, some visitors still believe in special powers related with female fertility



Educational Programs "on the move". Gondwana and Pangea tales: the local Stratigraphy acts like a book with Paleozoic histories, since Ediacarian until Late Carboniferous



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Launch of the Marble Arch Caves transborder Geopark Geopark - a catalyst for uniting communities

The counties of Fermanagh and Cavan were catapulted into the international tourism frame following the launch of the expansion of the Marble Arch Caves Global Geopark, the world's first transnational Geopark.

Over 150 people attended the special event last Friday at Ballyconnell, including Economy Minister Arlene Foster, Irish Minister for Agriculture, Fisheries and Food, Brendan Smith T.D and Prof. Nickolas Zouros, Co-ordinator of the EGN.

N. Zouros said Marble Arch Caves Global Geopark is a significant example in showing the world how peace and reconciliation can be achieved by working together for the benefit of the local community. "Through this Geopark, Fermanagh and Cavan councils have brought new life to an area once marred by conflict and today's launch is a positive result, which sends out a strong message of inspiration to the world. Border areas usually bring some kind of conflict between countries and hopefully this collaboration can inspire other places in Europe. Geoparks promote the natural beauty, heritage, geology and cultural elements of an area and I expect both councils to carry on their work of promoting and marketing this high quality and excellent Geopark," he said.

Attendees at the launch were given an interesting and informative presentation by Richard Watson, the Manager of the Marble Arch Caves Global Geopark. It included the background to the initial involvement with the EGN in 2000 which has lead to this cross-border extension. He said the geodiversity of the area has created a unique region that features characteristic rugged limestone landscapes, extensive forests and swathes of globally rare blanket bog, which has influenced the lives and farming practices of its inhabitants throughout history and described this as a platform for 'sustainable tourism'. But he said, in light of the global economic

downturn, the Geopark will face 'challenges' regarding international tourism.

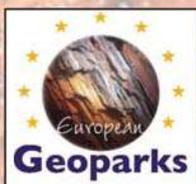
Minister Foster congratulated both councils and talked about how Geoparks 'safeguard the landscape' for future generations, "Geoparks, which draw on geological history, are an excellent way to gain international recognition, both scientifically and from a tourism perspective. Marble Arch Caves Geopark already attracts international visitors and makes an important contribution not only to the local economy but to the whole economy of Northern Ireland. This announcement of the first transnational Geopark provides an opportunity to further develop it as an environmentally and economically sustainable tourism resource," she said. Minister Smith commended both councils on a 'very interesting and innovative project' and complemented the executive and staff of both councils in bringing the expansion into Co. Cavan. Thomas O'Reilly, Chairman of Fermanagh District Council reiterated his council's continuing commitment to the Geopark and the extent to which Fermanagh District Council values its partnership with Cavan County Council, "a strong project such as the Geopark, sends out a powerful message around the world, and provides an example of a model for sustainable development," he said.

*Abstract of an article published by Catriona Loughran
The Impartial Reporter
Thursday 22nd January 2009*



R. Watcon
Manager MACG,
Minister A. Foster,
Minister B. Smith
and **N. Zouros**
EGN Coordinator
at the MACG
Launch

Over the last two years Fermanagh and Cavan councils have been working closely to expand the Marble Arch Caves Geopark into Co. Cavan, which covers an area of roughly 18,000 hectares to join an elite network of 57 Geoparks across the world - five of which are in Britain and Ireland. The expansion of the Geopark means the area can be marketed and promoted to a global audience with the potential to invigorate the local economy and to create new jobs. Both councils were commended for using the Geopark as a catalyst in 'bringing the two communities together' following decades of political unrest and conflict. Speaking at the launch Prof.



European Geoparks Network Charter Against trading in geological objects

The European Geoparks charter was officially accepted on June 5, 2000 in Lesvos, Greece and was signed by the four founder members of the European Geoparks Network.

Every territory wishing to submit candidature to become a European Geopark is obligated to accept this charter and will sign it at the moment of the official nomination.

1. A European Geopark is a territory which includes a particular geological heritage and a sustainable territorial development strategy supported by a European programme to promote development. It must have clearly defined boundaries and sufficient surface area for true territorial economic development. A European Geopark must comprise a certain number of geological sites of particular importance in terms of their scientific quality, rarity, aesthetic appeal or educational value. The majority of sites present on the territory of a European Geopark must be part of the geological heritage, but their interest may also be archaeological, ecological, historical or cultural.

2. The sites in European Geopark must be linked in a network and benefit from protection and management measures. The European Geopark must be managed by a clearly defined structure able to enforce protection, enhancement and sustainable development policies within its territory. **No loss or destruction, directly or via sale, of the geological values of a European Geopark may be tolerated. In this respect European Geoparks are managed within the framework established by the Global Geoparks Network Charter (see below).**

3. A European Geopark has an active role in the economic development of its territory through enhancement of a general image linked to the geological heritage and the development of Geotourism. A European Geopark has direct impact on the territory by influencing its inhabitants' living conditions and environment. The objective is to enable the inhabitants to re-appropriate the values of the territory's heritage and actively participate in the territory's cultural revitalization as a whole.

4. A European Geopark develops, experiments and enhances methods for preserving the geological heritage.

5. A European Geopark has also to support education on the environment, training and development of scientific research in the various disciplines of the Earth Sciences, enhancement of the natural environment and sustainable development policies.

6. A European Geopark must work within the European Geopark Network to further the network's construction and cohesion. It must work with local enterprises to promote and support the creation of new by-products linked with the geological heritage in a spirit of complementarity with the other European Geoparks Network members.



Global Geoparks Network Charter

A Geopark must respect local and national laws relating to the protection of geological heritage. In order to be seen to be impartial in its management of the geological heritage, its managing body must not participate directly in the sale of geological objects* within the Geopark (no matter from where they are) and should actively discourage unsustainable trade in geological materials as a whole, including shortsighted selling of Earth heritage, minerals and fossils. Where clearly justified as a responsible activity and as part of delivering the most effective and sustainable means of site management, it may permit sustainable collecting of geological materials for scientific and educational purposes from naturally renewable sites within the Geopark. Trade of geological materials based on such a system may be tolerated in exceptional circumstances, provided it is clearly and publicly explained, justified and monitored as the best option for the Geopark in relation to local circumstances. Such circumstances will be subject to debate and approval by the GGN / EGN on a case by case basis.

*By geological objects the charter is specifically referring to specimens of rock, minerals and fossils of a type that are commonly sold in so-called "rock-shops." It does not refer to material for normal industrial and household use which is sourced by quarrying and/or mining and which will be subject to regulation under national and/or international legislation.

The European Geoparks Network today...

The Network consists of 34 Geoparks in 13 European countries (April 2009)



1. Reserve Geologique de Haute - Provence	FRANCE	18. Mecklenburg Ice Age Park	GERMANY
2. Vulkaneifel European Geopark	GERMANY	19. Hateg Country Dinosaurs Geopark	ROMANIA
3. Petrified Forest of Lesvos	GREECE	20. Beigua Geopark	ITALY
4. Maestrazgo Cultural Park	ARAGON, SPAIN	21. Fforest Fawr Geopark	WALES, UK
5. Psiloritis Natural Park	GREECE	22. Bohemian Paradise Geopark	CZECH REPUBLIC
6. Terra.Vita Naturpark	GERMANY	23. Cabo de Gata - Nijar Natural Park	ANDALUCIA, SPAIN
7. Copper Coast Geopark	IRELAND	24. Naturtejo Geopark	PORTUGAL
8. Marble Arch Caves European Geopark	NORTHERN IRELAND & IRELAND	25. Sierras Subbeticas Natural Park	ANDALUCIA, SPAIN
9. Madonie Geopark	ITALY	26. Sobrarbe Geopark	ARAGON, SPAIN
10. Rocca di Cerere Geopark	ITALY	27. Gea Norvegica Geopark	NORWAY
11. Naturpark Steirische Eisenwurzten	AUSTRIA	28. Geological, Mining Park of Sardenia	ITALY
12. Naturpark Bergstrasse Odenwald	GERMANY	29. Papuk Geopark	CROATIA
13. North Pennines AONB	ENGLAND, UK	30. Lochaber Geopark	SCOTLAND, UK
14. Park Naturel Regional du Luberon	FRANCE	31. English Riviera Geopark	ENGLAND, UK
15. North West Highlands	SCOTLAND, UK	32. Adamello - Brenta Nature Park	ITALY
16. Geopark Swabian Albs	GERMANY	33. Geo M6n	WALES, UK
17. Geopark Harz Braunschweiger Land Ostfalen	GERMANY	34. Arouca Geopark	PORTUGAL