

EUROPEAN GEO PARKS NETWORK

European Geoparks Magazine ● Issue 14

Geoparks sustainable tourism destinations



THE EUROPEAN GEOPARKS NETWORK

www.europeangeoparks.org

2017

21-26 March 2017: 39th European Geoparks Meeting

Burren and Cliffs of Moher UGG, Ireland,

www.burrengeopark.ie/egn-meeting

12-22 June 2017: International Intensive Course on Geoparks UNESCO Global Geoparks and Geotourism Activities

Lesvos island UGG, Greece www.petrifiedforest.gr/geoparks2017

24th May – 11th June 2017: European Geoparks Network Week

in all European Geoparks, Europe www.europeangeoparks.org

12th – 22nd June 2017: International Intensive Course on Geoparks. UNESCO Global Geoparks and Geotourism Development

Lesvos Island UNESCO Global Geopark, Greece

www.petrifiedforest.gr/geoparks2017

5th – 6th September 2017: 40th European Geoparks Network Meeting

7th – 9th September 2017: 14th European Geoparks Conference

Azores UNESCO Global Geopark, Portugal
http://www.egnazores2017.com/

16th – 17th September 2017: UGG Council Meeting

18th APGN September 2017: APGN AC and CC Meetings

19th – 22th September 2017: 5th Asian Pacific Geoparks Network Symposium

Zhijindong Cave UNESCO Global Geopark, China

2018

March 2018: 41st European Geoparks Network Meeting

Karavanke/Karawanken UNESCO Global Geopark, Slovenia & Austria

10th – 20th June 2018: International Intensive Course on Geoparks UNESCO Global Geoparks and Geoheritage management

Lesvos Island UNESCO Global Geopark, Greece

8th – 9th September 2018: UGG Council Meeting

10th – 11th September 2018: 42nd European Geoparks Network Meeting

12th – 15th September 2018: 8th International Conference on UNESCO Global Geoparks – 2nd Ordinary GGN General Assembly

Adamello Brenta UNESCO Global Geopark, Italy

2019

March 2019: 43rd European Geoparks CC Meeting

Swabian Albs UGG, Germany

September 2019:

15th European Geoparks Conference

44th European Geoparks CC Meeting

Sierra Norte de Sevilla UGG, Spain

2020

March 2020: 45th European Geoparks CC Meeting

Papuk UGG, Croatia

September 2020: 46th European Geoparks CC Meeting

Hateg Country Dinosaur UGG, Romania



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The activities and achievements of the European Geoparks Network (EGN) during 2016 include the very successful 7th International Conference on UNESCO Global Geoparks, 27th – 30th September, hosted by the English Riviera UNESCO Global Geopark. The Magazine also includes the welcome by the Azores UNESCO Global Geopark to the 14th European Geoparks Conference, to be held in the Azores Archipelago, Portugal, in September 2017.

In this issue, 50 articles explain how European Geoparks contribute to conservation, education and promoting sustainable development through geotourism. They highlight how sharing information and working with communities, businesses and educational establishments safeguards sustainable development in geoparks, at times with the aid of European funding. The importance of ensuring access to geoparks by improving and/or developing geotrails and cycle routes is emphasized in contributions by Bergstrasse Odenwald, Kula and Odsherred Geoparks. Apuan Alps Geopark links its wildlife and environment with four exciting trails. The North West Highlands Geopark benefits from being situated on the North Coast 500 Highland coastal route. The Chelmos Vouraikos Geopark celebrates 120 years of tourism on the Diaktoto- Kalavryta rack railway. Geotourism includes outdoor sporting activities in Maestrazgo, Sitia and Vikos Aaos Geoparks. Beigua Geopark now adds digital communication to its geotourism provision. Massif des Bauges Geopark has created exciting new panels allowing viewers to read the landscape of Lake Annecy. The Troodos Geopark describes its comprehensive programme for increasing the Geopark's visibility. Shelter for hikers in Vulkaneifel Geopark is provided by the renovation of a historic water pump house. Sierra Norte Geopark describes its exciting new visitor centre which includes an exhibit of a fossil tree. Bohemian Paradise Geopark, by extending its territory, has increased its geotourism provision.

The appreciation and celebration of a geopark's heritage is emphasized in contributions by Chablais, Harz Braunschweig Westfalen, and Terras de Cavaleiros Geoparks. Pollino Geopark celebrates the distinctive culture of Civita Village. The importance of local products and their contribution to a territory's visibility and economy is highlighted in articles by Arouca, Naturtejo and Sessia val Grande Geoparks.

All geoparks engage in formal and informal educational projects. Adamello Brenta Geopark ensures the future of its tourism provision by

working with schools. Copper Coast Geopark's biodiversity project, Hondsrug Geopark's ice age laboratories, Lanzarote Geopark's volcanic open air museum, Lesvos Geopark's fieldtrip for Chinese university students and Reykjanes Geopark's learning centres are examples of exemplary contributions to education. Issues concerning global climate change are highlighted in Katla Geopark's educational geosite, the records of climate change in Sobrarbe Geopark's ice caves and TERRA.vita Geopark's contribution on geothermal energy.

European Geoparks as recipients of prestigious awards is celebrated in contributions by the Burren and Sardinia Geoparks. Bakony Balaton Geopark on the other hand, recognizes its communities' contributions to conserving geoheritage in its Geosite of the Year programme.

The importance of European funding for collaborative projects is described in the contributions by Idrija and Marble Arch Caves Geoparks. Luberon and Hateg Geoparks are engaged in cultural exchanges involving Hateg Geopark's young ambassadors. Collaborative projects and geoparks require effective administration. Issues concerning geopark management are addressed in contributions by the Cilento and Swabian Alb Geoparks.

The articles in this Magazine also introduce new and/or innovative activities. Eisenwurzen Geopark's disaster tourism appeals to the general public's fascination with catastrophes. Muskau Arch Geopark connects military land use with geoconservation. The conceptual art installation in the North Pennines Geopark celebrating its waterfalls, barns and night sky creates a new type of geotrail. The cross border photographic marathon in Novohrad-Nógrád Geopark makes effective use of a shared activity. Psiloritis Geopark introduces its "Friends of Psiloritis" reward programme. Ore of the Alps Geopark delves into the mysteries of ground water movement. Subbeticas Geopark's massive chocolate ammonte! What a fantastic way to celebrate 10 years of being a European Geopark.

Our grounds for celebration are, however, reduced by the expulsion of Maestrazgo Geopark from the Network of UNESCO Global Geoparks. Hopefully this affront to the hard work, hopes and aspirations of its inhabitants and communities will be rectified.

Tony Ramsay
Member of the Editorial Board

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7th International Conference on UNESCO Global Geoparks 2016



Earth heritage sites protection and management as a tool for sustainable development through creative and active engagement of the local communities was the focus of the 7th International Conference on UNESCO Global Geoparks, held in English Riviera UNESCO Global Geopark, UK on September 26-30, 2016.

The conference was the first opportunity to bring representatives of these unique sites together since they officially became UNESCO designated sites in 2015; it was attended by over 700 delegates from 63 countries.

Through presentations and panel discussions Geopark representatives, researchers and academicians, they discussed the links between geological heritage management, geotourism and outdoor activities, geo-education, natural hazards and disaster risk reduction, among other topics.

The representatives also reaffirmed the UNESCO Global Geoparks' commitment to sustainable development through integrated education, outreach, research, culture, community engagement

UNESCO Global Geoparks engaging communities in Earth heritage management and sustainable development

and capacity building in a declaration at the close of the conference.

Parallel to the 7th International Conference on UNESCO Global Geoparks, Geopark representatives had the opportunity to participate in a series of important internal meetings of the Global Geoparks Network. More specifically the 1st GGN Ordinary General Assembly, the GGN Executive Board Meeting, the GGN Advisory Committee Meeting, the APGN and EGN Advisory Commit-





tee Meetings and the APGN and EGN Coordination Committee Meetings, took place in Torbay, all with great success.

The GGN Ordinary General Assembly was characterized by the broad and active participation of the GGN members and adopted the GGN Internal Regulations and the GGN Code of Ethics which are essential documents for the operation of the GGN. During the 1st GGN Ordinary General Assembly was elected the new Executive Board of the GGN as well as the Chair and Vice chair of the GGN Advisory Committee.

The first GGN Best Practice Awards awarded to three Global Geoparks Lanzarote (Spain), Fangshan (China) and Dali Cangshan (China) during the Gala dinner of the Conference. At the same event the first GGN Honorary Member Mrs Chen Xiaoning, China was welcomed.

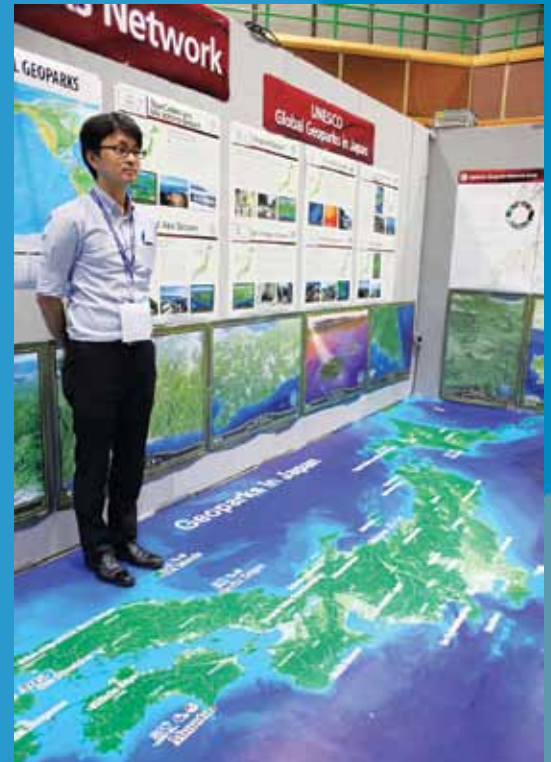
The Global Geoparks Network was founded in 2004 to foster collaboration among territories with common values, linking the celebration of geological heritage with the promotion of sustainable local development. These values are aligned with UNESCO's mandate, and finally the UNESCO Global Geoparks have found their natural home, as stated in the **English Riviera Declaration** that was adopted during the conference.

The Declaration encourages the members of the Global Geoparks Network to continue working together to share and promote best practices, to fully realize the UNESCO Global Geoparks' potential to contribute to disaster risk reduction and preparedness, and to help aspiring Geoparks in their efforts to join the network.

Conference guests were welcomed by a 'GeoOpera' that celebrates UNESCO Global Geoparks' ability to bring people together from all continents and backgrounds. The Bournemouth Symphony Orchestra and talented young/local people worked together to create this opera, telling the 4.5 billion-year story of planet Earth.

Over the first two days, sessions covered topics closely linked to the conservation of Earth's heritage, sustainable development, science education and community engagement. Learning from each other and sharing best practices is one of the essential components of the Global Geoparks Network.

This was further encouraged by the 'GeoFair', an exhibition including UNESCO Global Geoparks from around the world and





other companies and organizations showcasing their initiatives.

On the third day it was time to go out, to the field and explore Torbay's geology. Situated within the stunning hills of South Devon and a beautiful coastline, the English Riviera UNESCO Global Geopark offers some unique geological features.

Considering the complex challenges that Humankind is facing, the conference recognized the unique role of

UNESCO Global Geoparks tackling these challenges. Not only does providing opportunities to enjoy natural environments create environmental awareness, it also promotes better health, more sustainable and healthy consumption patterns, and a higher wellbeing.

At the closing ceremony was announced that the 8th International Conference on UNESCO Global Geoparks will be held in Adamello-Brenta UNESCO Global Geopark in Trentino, Italy from 8-15 September 2018.



GLOBAL GEOPARKS NETWORK

International Association on Geoparks

CELEBRATING EARTH HERITAGE – SUSTAINING LOCAL COMMUNITIES

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Azores UNESCO Global Geopark welcomes The 14th European Geoparks Conference – 2017



Azores: in the Top 100 Sustainable Tourist Destinations for 2016.

Walking around on active volcanoes.



The Azores UNESCO Global Geopark includes majestic volcanoes and great people.

The Azores UNESCO Global Geopark welcomes the 14th European Geoparks Conference, to be held in the Azores Archipelago, Portugal, in September 2017.

The conference theme “**Geoparks: pathways of sustainable tourism for development**” is aligned with the declaration of the 70th General Assembly of United Nations for 2017, the *International Year of Sustainable Tourism for Development*.

Therefore, the conference framework, organizers, staff and sponsors strongly encourage participants to endeavor and implement environmentally sustainable policies including efficient measures for water use and maintaining water quality, waste reduction and recycling initiatives, among others, as an adequate approach to implement truly sustainable tourism strategies. These efforts should be strengthened in territories such as The Azores, insular, small, distant and dispersed, with a significant natural (biotic and abiotic) and cultural heritage.

The Azores Archipelago, in the North Atlantic Ocean, has a rich and considerable geodiversity and an important geological heritage. These are revealed in the network of 121 geosites of significant scientific, educational and touristic value dispersed across the nine islands and the surrounding seafloor.

Volcanoes, calderas, lakes, lava fields, fumaroles, thermal waters, volcanic caves, “fajãs”, fault scarps and marine fossil deposits, among many others, can be seen within the Azores UNESCO Global Geopark.

Committed through the development of sustainable tourism to improve the quality of life in the territory and making it a better place for future generations, the Azores Geopark offers unique natural and cultural experiences, supported by an international reputation for authenticity, responsi-

bility, and the exemplary management of tourism as one of the world’s Top 100 Sustainable Destinations for 2016.

Thus we invite you all to visit the Azores UNESCO Global Geopark, to participate in the EGN Azores 2017 Conference, meet the Azorean people and volcanoes, and **enjoy an eruption...of Flavors, Aromas and Experiences!**

Event:

14th European Geoparks Conference

Conference Theme:

Geoparks: Pathways of Sustainable Tourism for Development

Organization:

AZORES UNESCO GLOBAL GEOPARK

Place:

Ponta Delgada city, S. Miguel Island, Azores Archipelago, Portugal

Dates:

EGN AC Meeting: 5th September, 2017

EGN CC Meeting: 6th September, 2017

Conference: 7th – 9th September, 2017

Post-Conference Field Trips (Optional):

10th – 12th September, 2017

For more information:

www.egnazores2017.com

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Cultural cooperation between two UNESCO Global Geoparks and a French local association

Luberon (France) and Hateg Country Dinosaurs (Romania) UNESCO Global Geoparks



Members of the Romanian delegation in the Chapelle St-Ferréol during the art exhibition.

The occurrence of several meetings between representatives of the Chapelle St-Ferréol Association (Viens, France), Hațeg Country Dinosaurs and Luberon UNESCO Global Geoparks, resulted in a cultural exchange during August 2016 with exhibitions, music and an opportunity to discover the territory of the Luberon Geopark.

The Chapelle St-Ferréol Association, managed by Viviane Dargery and local residents, hosted an amazing exhibition by Daniela Frumuseanu, an artist and art teacher at the National Art University in Bucharest in association with the Hațeg Country Dinosaurs Geopark. She works textiles with energy and refinement, and is involved in extensive research on materials and colours. She makes panels, symbolic books with tissue paper.

She came to the Luberon Geopark with an artist and art student, Andreea Zahn, who presented a photo exhibition in the Luberon Geopark Visitor Centre, in Apt, entitled "Foundation Rocks" revealing the links between rocks and local buildings in Hațeg Country Geopark. Another exhibition presented in the same location: "Colours of Time" was organized by Petra Lînaru and Roberta Maria Gașpar from Hateg Geopark, volunteers who were nominated as Geopark Cultural Ambassadors within the framework of a local project. Paintings were produced using ochre from the Luberon Geopark.

This fruitful local initiative was completed by a musical evening: piano, guitar and songs of France and Romania with Dana Florian, from Hațeg Country Dinosaurs Geopark and French musicians.

This exchange provided an opportunity for the Romanian delegation, including Alexandru Andrășanu, coordinator, Mihaela Cîrstea and Marius Florian, to discover the Luberon region. Also to experience the Land Festival in Saint-Saturnin-lès-Apt, with demonstration of activities linked to former rural life, and a Saturday morning in a park dedicated to Nature and Colours.

During the visit, Andreea Zahn was provided with assistance to photograph Luberon landscapes and monuments for use in an exhibition in Romania in 2017.

In the future, the Chapelle St-Ferreol Association (Viens, France), in partnership with the Luberon Geopark, would like to repeat this experience with other Geoparks with the aim to promote contemporary art. Cooperation between the Luberon and Hațeg Country Dinosaurs UNESCO Global Geoparks will be continued in 2017!

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Idrija UNESCO GLOBAL Geopark, Slovenia Successfully connects Geoparks within EU Projects



Summer and autumn 2016 have been successful seasons for Idrija UNESCO Global Geopark involving the successful application for funding for the EU projects RurAll and ESTEAM, and the acceptance of the tender for the EU funded Danube GeoTour project to begin in 2017. Idrija UNESCO Global Geopark therefore participates, and makes a significant contribution to the life of the EGN.

The RurAll project, co-financed by the *Europe for Citizens Programme* of the European Union, connects two former mercury mining towns, Idrija and Abbadia San Salvatore (Tuscany, Italy). The main aim of the project is to connect rural inhabitants and to increase cooperation between their municipalities, to share best practices in preserving their heritage and in creating opportunities to develop sustainable tourism in rural areas. In October a three-day excursion for our partners was organized. The programme also included a round table discussion on the challenges involved in developing rural areas, and a cultural event involving a performance by *Kanomeljske punce*, a female folk singers' group. Idrija UNESCO Global Geopark partners presented their contribution in the centre of Abbadia San Salvatore on the last day. Participants in the workshop also designed joint tourist programmes that will be mutually promoted following the completion of the project. The excursion has offered participants an insight into tourism development in an environment similar to Idrija Geopark and provided an opportunity to establish new contacts and connections.

The ESTEAM project, co-financed by the Erasmus+ Programme of the European Union, involves the leading partner Idrija UNESCO Global Geopark (Idrija Heritage Centre), Magma Geopark and Naturtejo Geopark, one primary school from each of the three geoparks – Črni Vrh primary school (Slovenia), Samfundets Skole (Norway) and Jose Silvestre Ribiero (Portugal) – as well as the University of Ljubljana (Slovenia) and Locatify (Iceland) a company creating branded apps. The project started in Septem-



Presentation by Geopark partners in Abbadia San Salvatore.

ber, will last three years and aims to improve the quality of teaching Science using innovative methods by combining interactive learning with outdoor activities. Based on national curricula and teachers' and students' needs, the project will provide programmes to teach Science. These will result in a mobile app used for teaching Science in primary schools.

The Danube GeoTour project, part of the *Interreg Danube Transnational Programme*, which is currently awaiting official confirmation will begin in January 2017. It involves cooperation between several European geoparks, including Idrija Geopark (lead partner) Bakony-Balaton, Papuk, Styrian Eisenwurzen, Karavanke/Karawanken, Bohemian Paradise UNESCO Global Geoparks and the aspiring Djerdap Geopark. Other project partners include the

Institute of the Republic of Slovenia for Nature Conservation, Bakony & Balaton Regional Tourism Company, University of Bucharest, University of Presov and associated strategic partners, Rokua UNESCO Global Geopark, Naturtejo UNESCO Global Geopark and the GGN. The project will face challenges on sustainable use of the exceptional wealth of natural resources and heritage that avoids negative environmental impacts. The main outcome will be the joint Danube GeoTour designed to strengthen cooperation between the geoparks and provide a product to raise awareness and increase tourist visits. The common strategy for sustainable management of pressures from tourism will form the basis for innovative geoproducts, to develop new approaches for the interpretation of heritage, to increase engagement with the local residents, increase geopark management capability and decrease the quality gap between the Danube region and other EU Geoparks.

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Round table discussion concerning the challenges in developing sustainable tourism in rural areas.



Participants at the ESTEAM Kick Off Meeting, getting to know karst features – entering the underground cave Hrvatova jama on the Črni Vrh plateau.



Marble Arch Caves
Global Geopark

Marble Arch Caves UNESCO Global Geopark, Ireland Coming together for Drifting Apart: sharing the geological heritage of the North Atlantic

Cavan Burren
Park - a focal
point for
developments
within the
Drifting Apart
Project. UNESCO
Global Geopark.



A total of seven partners from the periphery of the North Atlantic region have come together to unearth and strengthen the understanding of their interconnected geological heritage in an EU-funded project appropriately named 'Drifting Apart'. Led by the Causeway Coast and Glens Heritage Trust (CCGHT) in Northern Ireland, the project, funded through the European Regional Development Fund's Northern Periphery and Artic Programme will run from 2015 to 2018 with the ultimate aim of promoting innovative products and services for sustainable social and economic prosperity, and hopes to build a strong network of geoheritage destinations. Marble Arch Caves UNESCO Global Geopark (MACUGG) are a partner in this project together with other existing Global Geoparks including Magma UNESCO Global Geopark, Stonehammer UNESCO Global Geopark, Geopark Shetland and Reykjanes UNESCO Global Geopark; aspiring Global Geoparks such as Cabox Aspiring Geopark and Trofjell Geopark Project in addition to a range of further partners from Scotland, Iceland, Canada and Russia.

There are a number of key areas that the project will focus on:

1. Drifting Apart storyline and learning opportunities

The geological 'story' of the entire project area will be highlighted to increase the awareness and understanding of each regions unique geological heritage and help to explain how these areas were once physically connected. The storyline will be used to develop a transnational geoheritage trail, including interpretation in all of the partner areas.



Cuilcagh Dyke
in Cuilcagh
Mountain Park
- a focal point
for development
in the Drifting
Apart Project.

2. Virtual learning

Whilst an aim of the project is to encourage visitors to each of the partner areas, in reality this will only be possible for a limited number of people. Therefore, a virtual learning element has been included within the project so that the geological heritage of the area can be shared and enjoyed from anywhere in the world.

3. Geopark model and knowledge transfer

The partners include UNESCO Global Geoparks of varying levels of experience as well as aspiring UNESCO Global Geoparks at different stages of development as geoparks. Through the project, each partner will be able to learn and share experiences and develop potential models for the future growth of geoparks.

4. Geo-tourism and geo-education

All UNESCO Global Geoparks function on the basis of a 'bottom-up' approach so one of the most important aspects of the project will be to increase the awareness and understanding of both the individual partner areas in addition to their place in the entire Drifting Apart story. This will be achieved through the development of common education products and training for communities and tourism providers.

MACUGG has been working with the CCGHT and other partners to develop key elements of the project. To date these have included compiling the Drifting Apart storyline and interpretation guidelines, developing and implementing plans for enhanced geological interpretation at 13 sites in the Geopark area, conducting data collection at four sites for the creation of virtual models and developing educational resources and a training programme for business and community groups in the Geopark.

For more information on the project see <http://driftingapart.ccght.org/> or @DriftingApartEU

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Drifting Apart
Steering Group
Meeting,
December 2015
in Reykjanes
UNESCO Global
Geopark.

In The Karavanke/Karawanken UNESCO Global Geopark, Slovenia / Austria

New development projects



The Karavanke/Karawanken UNESCO Global Geopark is a transnational UNESCO Global Geopark (Austria and Slovenia), located between two Alpine mountains that exceed 2,000 metres in height: the Peca/Petzen and the Košuta/Koschuta. It is characterized by the rich geological variety of the Alps and Dinarides. The Karavanke/Karawanken UNESCO Global Geopark includes 14 municipalities and extends over an area of 1,067 km² with a population of 53,000 residents. It was established within the framework of the project GEOPARK (»Establishment of a cross-border Geopark between Peca/Petzen and Košuta/Koschuta«), in line with the structure of the Operational Programme Slovenia-Austria 2007-2013. The project was co-financed by the European Regional Development Fund (ERDF). In March 2013 the Karavanke/Karawanken Geopark became the 54th member of the European Geopark Network.

In the current programme period 2014-2020, the Karavanke/Karawanken UNESCO Global Geopark succeeded in obtaining funding for the new cross-border cooperation project, i. e. **EUfutuR: Future Europe – Identity, Internationalization and Institutionalization – the Karavanke/Karawanken Geopark**. The project was initiated on the 1st of July 2016 and will end on the 30th of June 2019. EUfutuR is implemented within the Cooperation Programme Interreg V-A Slovenia-Austria. It is co-financed by the European Union, through the European Regional Development Fund, and Land Kärnten (Carinthia State). The lead partner of the project is ARGE (Joint venture) Geopark Karawanken, and the project partners include RDA Koroška - the Regional Development Agency for Koroška, The Institute of the Republic of Slovenia for Nature Conservation (ZRSVN) - Regional Unit Maribor and Association „Društvo Kulturni dom Pliberk/Bleiburg“.

The main objectives of the EUfutuR project are:

IDENTITY - Strengthening the bilateral cooperation between inhabitants and their active involvement in the Karavanke/Karawanken Geopark activities (*with various public events, linked to the Geopark themes, promotion in the*



Press conference with the presentation of the EUfutuR project „The Karavanke/Karawanken Geopark – an unique, crossborder model of success is growing further“. The press conference was attended by Ms. Alenka Smrekolj – Slovenian Minister responsible for Development, Strategic Projects and Cohesion, and Dr. Peter Kaiser, Carinthian State Governor

(photo by: Uroš Grabner).



New playground in Lavamünd, established in the frame of LEADER project Geoparkforscherkids

(photo by: Mag. Gerald Hartmann).

form of annual Geopark Festivals, art and sport competitions, language courses, open days and study tours in the Karavanke/Karawanken Geopark).

INTERNATIONALIZATION - Improvement of the visibility and international significance of the Karavanke/Karawanken Geopark through the UNESCO Geopark Network activities (*using opportunities within the UNESCO Geopark Network and the „Alpe-Adria Geoparks“ platform concept*).

INSTITUTIONALIZATION - Adjustment of the Karavanke/Karawanken Geopark management structure for more effective crossborder regional development in the form of the European Grouping of Territorial Cooperation (EGTC).

In addition to the EUfutuR project ARGE Geopark Karawanken currently implements the LEADER project GEOPARKFORSCHERKIDS („Geopark researcher kids“). Within the Programme LEADER 2014-2020 Geoparkforscherkids was developed as a project to increase the attraction of natural and cultural areas of the Geopark for children and adolescents. These young people will learn about the Geopark through fun and effort and spend their leisure time at selected sites. Additionally the establish-

ment of a Geopark Camp at two different campsites should support outdoor activities throughout the year.

Mag. Gerald Hartmann, Mag. Antonia Weissenbacher, Dr. Darja Komar, Danijela Modrej

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Lesvos Island UNESCO Global Geopark, Greece

A field Course for students of the China University of Geosciences Beijing



Prof. J. Zhang shows undergraduate students of the School of Earth Sciences of the China University of Geosciences one of the information panels in the Lesvos Island UNESCO Global Geopark.

In 2016, the School of Earth Sciences of the China University of Geosciences initiated a field course on Lesvos island UNESCO Global Geopark in collaboration with the Department of Geography of the University of the Aegean to enable Chinese students to extend their skills in new fields in the Earth sciences and improve their knowledge of global geo-tectonic processes.

The China University of Geosciences, Beijing and the University of the Aegean, Greece launched a broad collaboration in research and education in Earth sciences and especially in Geoparks. Within the framework of a memorandum of understanding signed in Lesvos in July 2015, the Universities also initiated research projects in geoconservation and a common course on the management of UNESCO Global Geoparks.

Prof. J. Zhang and undergraduate students of the School of Earth Sciences of the China University of Geosciences (CUGB) completed the field course on Lesvos in collaboration with Prof. N. Zouros and students of the Department of Geography of the Aegean University. The main aims of the field course are the study of the geological history and evolution of the Aegean Basin, the volcanic activity and active tectonic and seismicity of the area as well as the protection and rational management of geological monuments and the establishment and functioning of a UNESCO Global Geopark.



The students observe a standing tree stump in the protected area of the Lesvos Petrified Forest.



The boat crossing to the Nissioi Islet Petrified Forest Marine Park.

Collaboration and networking in research and education with partners is one of the key requirements for recognition as a UNESCO Global Geopark. Thus universities and research centres discover new fields for common activities.

The field course started in the protected area of the Lesvos Petrified Forest, which is a world class natural monument, providing evidence of its geological evolution during the last 25 million years. The Natural History Museum of the Lesvos Petrified Forest, located in Sigri at the western most edge of Lesvos Island, provided an impressive exhibition of the paleontological excavation research finds

as well as an overview of the geological evolution of the Aegean. The open air parks of the Petrified Forest provided the students with an opportunity to study the results of past changes in climate and to admire unique standing 7 metres high fossil trees and more than 50 different tree species!

The students also visited the Nissioi Islet Petrified Forest Marine Park which includes fascinating concentrations of petrified trees found along the seashore and on the seabed. They visited the main fossil localities including the impressive fossil cove on the west coast as well as new excavation sites with giant Sequoia trees up to 17 metres in length. Besides the dozens of impressive fossil sites with upright and drowned trees, they also observed the flora and fauna of the island with its 62 species of birds, mammals and invertebrates in the midst of intriguing volcanic, tectonic and coastal landforms. The students were especially interested in the conservation and protection of the marine and coastal fossil sites as well as the holistic management of the natural resources of the Marine Park.

The field course also included a field study of the geological history and evolution of Lesvos, the Miocene volcanoes of Lesvos Island as well as the active faults and earthquake hazards in the region.



One of the giant Sequoia trees up to 17 metres in length.

De Hondsrug UNESCO Global Geopark, Netherlands

Digging in the geological past

'Ice age labs' as educational tools for primary schools



De Hondsrug UNESCO Global Geopark tells the story of a unique landscape in the northeast of the Netherlands. About how huge ice sheets and meltwater moulded the land and formed it into ridges and stream valleys. How the first inhabitants in the area chose the ridges or megaflores for their dwellings and left an impressive archaeological legacy, and how the development of a cultural landscape in recent centuries, was determined by the geological conditions resulting from the ice ages. Although the geological processes that were influential in the genesis of the Hondsrug area are impressive, they are hard to imagine. Especially because in the Netherlands, as a relatively flat country in a soft sediment environment, the geological traces are hardly visible and generally hidden directly beneath our feet.

In order to foster the imagination of our youngest ambassadors, De Hondsrug UNESCO Global Geopark developed the so-called ice age laboratories for primary schools at one of the Geopark's expedition centre's. Here, during a 4-hour session, the children assume the role of geologists and literally dig into the geological past. Using professional hand augers, they are able to reveal layers of sediment that have been deposited during three different ice ages. In other words: a history of 500,000 years, hidden just one metre below your feet and made tangible within a few minutes.

But that is just the beginning of their geological exploration. The children take samples of the different sediments that they recover, which they analyse by using microscopes, soil charts, Munsell color booklets and other professional equipment. At the end of the lesson, all samples are collected and used to make a replica of the layered soil in a glass jar, which can be taken back to the school and can be given a place in the children's classroom.

Children digging into the past using a hand auger.



In 2015, a number of pilot projects were delivered and from this year onwards, the ice age laboratories will be offered on a larger scale. The 'Scientific Node of the Northern Netherlands' is the organization that functions as a mediator, connecting primary schools to all kinds of scientific organizations offering explorative educational programmes in various disciplines. We hope that by launching these ice age laboratories, the youngest inhabitants of our Geopark not only become aware of the unique geological area they live in, but also become familiar with the work and methods of geologists. Not solely by listening and studying, but by exploring, analysing and simply digging.

Boulder clay (Saale Ice Age) on top of subglacial sand (Elster Ice Age).

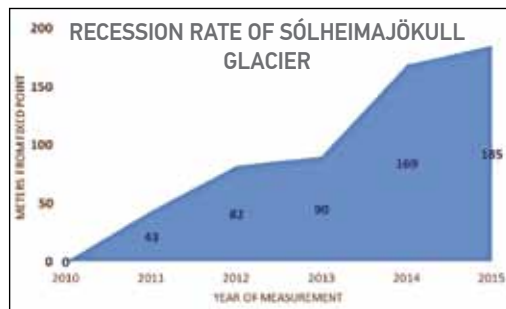
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Taking samples for further analysis.



Katla UNESCO Global Geopark, Iceland

An Educational site showing Evidence of Global Warming



Students from Hvolsskóli prepare to measure the water depth in the lagoon in front of Sólheimajökull Glacier.

Global warming is impacting on the Arctic and subarctic areas, and is associated with the clearly visible accelerated melting of glaciers. At the popular and easily accessible geosite of Sólheimajökull Glacier, the local Primary School Hvolsskóli and Faculty of Earth Sciences of the University of Iceland have teamed up with Katla Geopark to share the results of their annual monitoring projects concerning the rate of glacial melting. While the university students monitor the surface ablation of the outlet glacier, the primary school students measure its rate of retreat and the depth of the glacial lagoon forming in front of it.

These projects are an important attribute of the ongoing establishment of GeoSchools in Katla UNESCO Global Geopark where local schools work together to share their results and specialize in on-site learning. The students will receive guidance on better practices in outdoor education and on further utilizing their fantastic natural resources for educa-

Students in the glaciology course at University of Iceland install an ablation wire in the surface of Sólheimajökull Glacier with a steam drill. The wire ablates out of the ice during the summer providing information about the rate of ice melt. GPS instruments are used to measure the location of the site and track the velocity of the glacier.



tion. The knowledge, methods and work of the GeoSchools will be shared with other UNESCO schools in the country and hopefully in other countries.

Already a European Erasmus+ geoeducation project between four geoparks has been completed where numerous onsite education exercises have been published and will be available for use by the GeoSchools. In another international project, Drifting Apart, funded by the Northern Periphery and Arctic Programme, an in depth storyline explains the North Atlantic rift and how geoparks on either side of the rift are connected through time and geology, while Katla Geopark is situated on the active rift itself. These projects of international collaboration add great value to the GeoSchools project. Meanwhile, at geosite Sólheimajökull, Katla Geopark will create further onsite information panels updated with the latest monitoring results provided by the schools together with panels for public safety developed in cooperation with the regional police department and governmental agency for public safety. To emphasize the value of the site, French President François Hollande, together with Icelandic President Ólafur Ragnar Grímsson, visited the Sólheimajökull glacier on 16 October 2015 to see first-hand the effects of climate change, in preparation for the Paris Climate Conference (COP21).

The surveys of the Sólheimajökull glacier revealed a surface ablation rate of 10 metres in recent years (7 metres during the summer and 3 metres during the winter months). The glacier's annual average annual rate of retreat was 37 metres for the past 5 years or 185 meters in total from 2010 to 2015.

Katla UNESCO Global Geopark
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Reykjanes UNESCO Global Geopark, Iceland

Educational experience



Bridge between Continents: A symbolic footbridge, spans a wide tension crack that opened up due to the divergent movements of the North American and Eurasian plates. The average rate of rifting amounts to about 2 cm/year but occurs intermittently.



Reykjanes Geopark is situated in Reykjanes Peninsula in the southwestern most point of Iceland, also the location of Keflavik International Airport. The Reykjanes Peninsula is a continuation of the Mid-Atlantic Ridge, which rises from the sea at the very tip of the peninsula and crosses Iceland diagonally from the south-west to the north-east.

The Geopark is the perfect place for an educational experience. The peninsula is used as an outdoor classroom for geological education and the visitor centres provide good facilities for further research.

Reykjanes Geopark Visitor Centre

The Geoparks Visitor Centre is located in the Duushús, Art and Cultural Centre built in 1877. Its role is to inform and educate guests about the Geopark area, its uniqueness, geology, nature, history, tourism provision and recreation. The exhibition describes graphically the formation of the Reykjanes Peninsula. Visitors can learn about geology and nature in a simple and accessible way. The Visitor Centre is a useful facility for visitors and the local inhabitants. It will also be suitable for use by educational institutions and school groups.

Keilir - Atlantic Centre of Excellence

Keilir is an educational institution founded in 2007. It is one of the Geopark founders and works closely with the Geopark. Located in the Geopark, it offers a variety of different educational opportuni-

ties, e.g. a one-year Adventure Sport Certificate programme and a BSc degree in Engineering Technology focusing on Green Energy Technology.

Sudurnes Science and Learning Centre

Sudurnes Science and Learning Centre is a research centre with emphasis on natural science and related subjects. Southwest Iceland Nature Research Institute and The University of Iceland's Research Centre in Sudurnes are components of the institute. The Centre offers research facilities in marine biology, ornithology and includes an ecotoxicology university laboratory. The research facilities include unique, clean seawater and possibilities, not found elsewhere, to conduct research in ecotoxicology, behavioural ecology and fisheries.

GeoCamp Iceland

GeoCamp Iceland is an educational project dedicated to increasing knowledge and understanding in the natural sciences through practical and active learning. The company has organized study tours for international groups since 2006. It coordinates and receives international study groups of secondary school and college students, as well as teacher groups focusing primarily on geology, natural sciences and renewable energy.

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A GeoCamp Iceland study Tour with members of USA National Council for Geography Education in July 2015.



Students studying at the Sudurnes Science and Learning Centre with research facilities for marine biology and an ecotoxicology university laboratory.



Hateg Country Dinosaurs UNESCO Global Geopark, Romania

The Geopark Ambassadors Project



The Hateg Country Dinosaurs UNESCO Global Geopark Ambassadors and volunteers.

Geoparks Ambassadors is a unique and innovative project aiming to train and select the best young volunteers to become partners of the Geopark's administration and official representatives of their territory for national and international missions. They are now one of the Hateg Country Dinosaurs Geopark's voices and an image within local communities and abroad.

Hateg Global Geopark is the result of a grass-root effort which began in 2000 and was initiated and coordinated by the University of Bucharest, now a major partner in the Geopark's management. From the beginning, research analysis indicated the need for a strong partnership with local schools. During the last few years new educational tools and structures were developed: educational packages, the EDU-Geopark Network, Explorers Clubs in 12 local school, and Volunteers for Geopark. The Volunteers for Geopark programme, established three years ago, aimed to involve young people as Geopark partners to fulfill their needs for the social recognition of their skills and creativity and to support their personal and professional development. More than 200 local student were enrolled as volunteers in different Geopark projects. According to Romanian legislation they signed a contract, succeeded in training stages and were involved

The team of Hateg Country Dinosaurs UNESCO Global Geopark Ambassadors

in several projects, some of these projects were initiated by the volunteers themselves. Based on an evaluation process, volunteers received in 2015 an international Voluntpass issued by the University of Bucharest. During 2016, a new programme was initiated aiming to train the best volunteers to be able to represent their communities in national and international projects and to contribute to increasing the level of understanding, appreciation, conservation and promotion of Hateg Country Dinosaurs Geopark – now a UNESCO Site. From May to September after five training sessions on subjects ranging from leadership, public speaking, heritage interpretation, the history of the EGN and GGN and leading field excursions, 18 young volunteers passed the evaluation and validation process and have become Geopark Ambassadors.

Their first mission was to represent the Geopark during the Dinosaurs Festival, Volcanoes Day, the 8th Conference of the Association of African Women in Geosciences and other local events and activities. Two volunteers, with good artistic skills were selected as Cultural Ambassadors in an exchange project with Luberon Geopark. The first international mission by the Hateg Geopark Ambassadors was in Bakony-Balaton Global Geopark where they were received in an official and professional manner by our colleagues during a three days exchange visit. The best way to describe this exchange is to quote Barnabás Korbely, the Geopark's coordinator " We were happy to meet and host the Hateg Geopark Ambassadors in our Geopark. All of them were so kind, open-minded, curious and enthusiastic! Personally, for myself, meeting this group was a marvellous experience". Further missions are planned and in the meantime the Ambassadors have started to contact young people from other Global Geoparks to share their experience and enthusiasm for youth exchanges and cooperation projects.

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The ambassadors visit Bakony-Balaton Global Geopark.



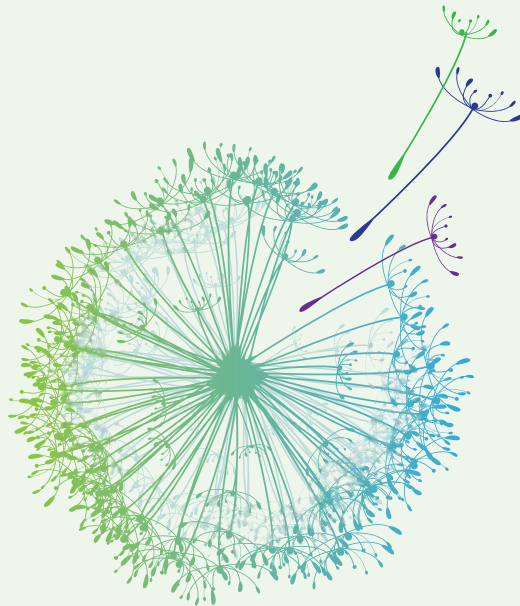
European Geoparks Network celebrates the International Year for Sustainable Tourism promoting Geoparks as sustainable destinations!

The United Nations (UN) has declared 2017 as the International Year of Sustainable Tourism for Development. The resolution, recognizes the importance of international tourism, and particularly of the designation of an international year of sustainable tourism for development, in fostering better understanding among peoples everywhere, in leading to a greater awareness of the rich heritage of various civilizations and in bringing about a better appreciation of the inherent values of different cultures, thereby contributing to the strengthening of peace in the world. The International Year (IY 2017) aims to raise awareness on the contribution of sustainable tourism to development among decision-makers and the public, while mobilizing all stakeholders to work together in making tourism a catalyst for positive change.

The European Geoparks Network became silver partner of the International Year of Sustainable Tourism for Development, 2017 (IY2017) following the decision taken during its 38th EGN Coordination Meeting in the English Riviera UNESCO Global Geopark in September 2016.

Aim is to promote the European UNESCO Global Geoparks as sustainable tourism destinations to the International Tourism market, to promote Geoparks and build new Links with the tourism market, raise the profile and visibility of the UNESCO Global Geoparks among the main players in tourism industry, to promote Geoparks collectively through this UNITED NATIONS' initiative operated by the World Tourism Organization.

A series of events are going to be organized by all 69 European UNESCO Global Geoparks in order to gain the biggest visibility through the IY2017, to promote sustainable tourism as a tool for development, to encourage its full integration in national, regional and global development agendas, to highlight its catalytic function for economic and sustainable development and to increase awareness among all stakeholders – including tourists – of the impact of travel and tourism on society and the environment, and how responsible travel can contribute to sustainable development.



2017
INTERNATIONAL YEAR
OF SUSTAINABLE TOURISM
FOR DEVELOPMENT

The International Year shall explore and highlight tourism's role in the following five key areas:

1. Inclusive and sustainable economic growth
2. Social inclusiveness, employment and poverty reduction
3. Resource efficiency, environmental protection and climate change
4. Cultural values, diversity and heritage
5. Mutual understanding, peace and security

The Dandelion in the IY2017 logo represents Planet Earth where people—as seeds—travel in a sustainable, clean and responsible way. By travelling, these seeds connect to others through knowledge and culture, and thus build a better future. These are the principles that have inspired the IY2017, and hence, what we want to achieve through our mutual co-operation.

Launch of the International Year of Sustainable Tourism for Development 2017 and GGN activities in FITUR Madrid

1. An important meeting with the Minister of Tourism of the Regional Government of Andalucía Mr Francisco Javier Fernández Hernández in FITUR and discussion on the UNESCO Global Geopark's potential as innovative sustainable tourism destinations.

2. Working meeting with the Councilor of Economy and Infrastructure of Extremadura José Luis Navarro, the Councilor of the Environment and Agriculture Begoña García, the President of the Villuercas Ibores Jara UNESCO Global Geopark Charo Cordero, the General Director of Tourism of Extremadura Francisco Martín Simón and the representatives of the Spanish UNESCO Global Geoparks at the Stand of Extremadura in FITUR in Madrid to discuss Geoparks contribution in local development and their promotion as sustainable tourism destinations.



Launch of the International Year of Sustainable Tourism in FITUR

On Wednesday 18th January 2017, the Launch of the International year of Sustainable Tourism for Development 2017 took place in the Conference center of FITUR in Madrid.

Many officials, head of states, prime ministers and ministers of Tourism joined the General Director of WTO Mr. **Taleb Rifai**, Mr **F. Bandarin** UNESCO ADG for Culture, Mrs **Elzbieta Bienkowska** European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs., to address the launching event of International year of Sustainable Tourism for Development 2017 in Madrid (see attached programme).

The GGN President participated in the event together with more than 600 participants representatives from the WTO member states, international organizations, civil society organizations, private sector and international media.

The GGN appeared at the event as **GOLD Sponsor** after the decision of the GGN ExB to donate further 5000 € to support the IYST 2017. It was mentioned in the Programme of the Event, in the Press Releases, in the Panels at the stage as well as those covering the walls of the Conference Center together with other prestigious sponsors.

The GGN participation main goal was to underline that the UNESCO Global Geoparks provide an international framework for cooperation and broad stakeholder engagement on shared and sustainable

outcomes related to tourism – tying sustainability together with community pride and benefit, economic development and new employment as well as geological, natural and cultural heritage conservation.

“Every day, more than three million tourists cross international borders. Every year, almost 1.2 billion people travel abroad. Tourism has become a pillar of economies, a passport to prosperity, and a transformative force for improving millions of lives. The world can and must harness the power of tourism as we strive to carry out the 2030 Agenda for Sustainable Development” said United Nations Secretary-General, **Antonio Guterres**, in his message on the occasion of the International Year launching event.

Taleb Rifai, Secretary-General of the UNWTO, underscored international tourism’s potential for positive change, prosperity and wellbeing for all. “As our sector continues to grow, so does its responsibility to propel us into a future of sustainability, equity, inclusion and peace” he said. The General Director of WTO Mr. Rifai thanked all sponsors for making possible the celebration.

UNESCO’s Assistant Director-General for Culture, **Francesco Bandarin**, in his address mentioned UNESCO Global Geoparks as the latest UNESCO Site designation together with World Heritage Sites and Man and Biosphere Reserves as areas involved in sustainable tourism activities.



3. The Councilor of Economy and Infrastructure of Extremadura José Luis Navarro, the President of the Villuercas Ibores Jara UNESCO Global Geopark Charo Cordero, Ángel García Cortés, President of the Comité Nacional Español Geoparques Mundiales UNESCO, Asier Hilario Coordinator of the Spanish UNESCO Global Geopark Forum and Javier Lopez Caballero geoscientist of the Villuercas Ibores Jara UNESCO Global Geopark at the presentation of the Book “GEOPARKS The most innovative destinations of sustainable tourism” in FITUR.





UNESCO World Heritage sites (1052), Biosphere Reserves (669), Global Geoparks (119) and Creative Cities (116) represent incredible opportunities for tourism to be a positive force for sustainable development, conservation and environmental protection.

The event also marked the launch of the International Year campaign 'Travel.Enjoy.Respect', aimed at promoting sustainable tourism among travelers in partnership with CNN and RTVE.

THE GEOPARKS PRESENTATION IN FITUR

On Thursday 19th January 2017, the Spanish UNESCO Global Geoparks Event took place at the Stand of Extremadura in FITUR which was full of a broad audience including Spanish Regional Authorities, the Spanish UNESCO Global Geopark representatives, Tourism companies and Regional media.

The Councilor of Economy and Infrastructure of Extremadura José Luis Navarro hosted the Event. Were present the Councilor of the Environment of Extremadura and Ms Charo Cordero the President of the Villuercas Ibores Jara UNESCO Global Geopark who was responsible for the event organization.



MEZANTA
??

4. Working meeting with Ms Ana Mendes Godinho, Secretary of Tourism of Portugal, the ambassador of Portugal in Spain, and the President of the Tourism of Portugal with the Presidents of Naturtejo UNESCO Global Geopark Armindo Jacinto and the President of Arouca UNESCO Global Geopark Margarida Belém. As the Secretary of Tourism of Portugal underlined Geoparks can change the social reality in rural areas through sustainable tourism.



The Minister of Tourism of the Regional Government of Andalucía Mr Francisco Javier Fernández Hernández attended the event. The representatives of the Spanish UNESCO Global Geoparks and the Naturtejo UNESCO Global Geopark from Portugal were also present.

Ángel García Cortés, President of the Comité Nacional Español Geoparques Mundiales UNESCO, made an introduction and presented the programme and the lectures at the event.

In the first part the GGN President Prof. N. Zouros gave a presentation on the Global Geoparks and the recent UNESCO recognition. The GGN presentation entitled "Global Geoparks Network - a world partnership of sustainable tourism destinations" gain much attention and interest from the participants.

In the second part Dr. Asier Hilario Orus, the Coordinator of the Spanish UNESCO Global Geoparks Forum and Mr. Javier Lopez Caballero geoscientist of the Villuercas Ibores Jara UNESCO Global Geopark made a joint presentation of the new Booklet **Geoparks: The most innovative destinations of sustainable tourism** presenting 11 Spanish UNESCO Global Geoparks.

5. Meeting with the Spanish Geopark Representatives and the Regional Government of Extremadura at the Extremadura stand in FITUR.

PARALLEL MEETINGS

Important working meetings took place in FITUR with top officials of Spain and Portugal:

GEOPARKS STAND IN FITUR

The Geoparks stand in FITUR was at the entrance of Pavilion 4. It was organized by **Naturtejo** UNESCO Global Geopark from Portugal in collaboration with three Spanish UNESCO Global Geoparks, Villuercas Ibores Jara, Basque Coast and Sobrarbe.

Many activities took place at the Geoparks stand related with the presentation of Geo-products from the participating Geoparks.

International Intensive Course on Geoparks 2017
UNESCO Global Geoparks and Geotourism Development
Lesvos Island Greece
12 - 22 June 2017

UNIVERSITY OF THE AEGEAN DEPARTMENT OF GEOGRAPHY
NATURAL HISTORY MUSEUM OF THE IONIAN ISLANDS
Geoparks



Adamello Brenta UNESCO Global Geopark, Italy

Sustainable tourism

Geoparks role in social and economic strategies



Meditation along the “Five Lakes” footpath, promoting sustainable tourism, is a goal for the Adamello Brenta Geopark.

(Photo by Michele Zeni).

Nowadays we should be ready to consider the protection of biodiversity and conservation of the landscape as a valuable economic opportunity. Geoparks and Nature Parks are therefore really important organizations for the social and economic development of their territories. They shouldn't only focus on Nature protection, but should also view biodiversity as an outstanding asset in their territory.

However, Geoparks and Nature Parks need to be careful when promoting business development and business activities to avoid contravention of the Charter of the Global Geoparks Network.

During his visit to Trento, our Environment Minister L. Galletti explained that in promoting economic growth the the Parks need to ensure that protected areas should not be exploited or damaged. In this respect, by combining conservation and sustainable economic development we are supporting the views expressed by UNESCO since 2004 concerning the aims of Geoparks.

Since its inception Adamello Brenta Nature Park has focused on disseminating good practices in protecting the environment, as well as in stimulating sustainable tourism and economic development. International projects like the Adamello Brenta Geopark and the European Charter for

Experiencing nature and a way of living in a sustainable way.

(Photo by Alessia Scalfi).



Sustainable Tourism of the Europarc Federation have made an invaluable contribution to these activities.

A Geopark needs to guarantee the quality of its tourism provision and environmental protection in order to benefit the lives of its residents and to manage nature and the impact of tourism.

These outcomes are the prerequisites of the European Charter for Sustainable Tourism, which based its sustainable development strategy on the participation of the local inhabitants and stakeholders.

One of the most important projects involving the local tourist operators is the quality brand “Qualità Parco”. Nowadays this brand belongs to 40 tourism providers who, through their activities, promote and practice the sustainable use of their territory. The Adamello Brenta Geopark wants to stimulate this project by cooperating and working with tourism providers to increase their visibility, promote their activities, develop personalized products and provide training courses.

Following Stages I and II of the European Charter for Sustainable Tourism (Parks and Hotels certification), Adamello Brenta Geopark will initiate Stage III. The aim is to accredit the environmental understanding of the tour operators. In this way, a holiday inside the Geopark and the protected area could be certified.

In the same innovative way, the Adamello Brenta Geopark is working with schools providing, annually, environmental education for more than 9000 students. The main purpose is to inform new generations to know and appreciate the value and the beauty of their territory and to manage the territory through socially and economically sustainable strategies in the future.

The Geopark therefore demonstrates its role in managing the territory by encouraging the adoption of new methods for tourism and as a laboratory for promoting best practices and testing new ideas.

Joseph Masè and Chiara Grassi
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Elisa Cattani – elisa.cattani@pnab.it

Cyclists along the “Brenta Dolomites Bike Trail”, a project promoting the enjoyment of the landscape in a sustainable way.

(Photo by Ronnie Kialulhen)



Apuan Alps UNESCO Global Geopark, Italy

Wildlife monitoring and the promotion of nature tourism



The animal population in the Apuan Alps Geopark is characterized by its high biodiversity, especially among the invertebrates. The presence of several endemic and/or sub-endemic invertebrate species is a product of a complex evolutionary pattern linked to changes in climate and palaeogeography. In addition the occurrence of ravines with vertical cliffs and extensive high altitude grasslands creates habitats for rare species of birds. Here the only nesting Tuscan populations of the Alpine Chough (*Pyrrhocorax graculus*) and Red-Billed Chough (*Pyrrhocorax pyrrhocorax*), occur isolated from populations recorded from the Alps and the central Apennines. The presence of the golden eagle (*Aquila chrysaetos*) is also very important. Currently five breeding pairs, together with young or sub-adult individuals, are recorded.

Since 2002 the Park Rangers have monitored the population size, density and demographic characteristics of wild ungulate species [red deer (*Cervus elaphus*), fallow deer (*Dama dama*), roe deer (*Capreolus capreolus*), mouflon (*Ovis aries*) and wild boar (*Sus scrofa*)]. This is based on observations and counts along trails and specific censuses. A natural increase and the gradual spread of these species in the Geopark was detected, together with the return of their main predator, the wolf (*Canis lupus*), which was extinct in the Apuan Alps during the early twentieth century. A specific survey detected for the first time the presence of pups in a pack of wolves in 2014 and the occurrence of two breeding packs



A Pack of wolves filmed with a concealed video camera.

in 2015. Also several separate occurrences of wolves have been photographed and filmed in recent years using a concealed video camera.

Wildlife and the environment in general are undoubtedly valuable assets and need to be supported in order to promote the development of sustainable tourism. With this aim, since 2003 about 850 volunteers, housed in accommodation approved by the Geopark, have been involved in ungulate censuses. To further promote active and green tourism, four trails were equipped with panels describing the flora, fauna, geology and geomorphology of the Apuan Alps. They were designated as "Trails of the Mouflon" because these wild ungulates characterize and are frequently observed along these trails. With a total length of approx 15 km, trail bases are located in villages and include some mountain huts. The trails wind upwards from valley level through different vegetation belts ascending to summit meadows and rocky peaks. Visitors are able to view wildlife and plants, in addition to some of the most important geosites of the Apuan Alps Geopark.

Volunteers along one of the "Trails of the Mouflon" investigate an information panel.



Fabio Viviani and Antonio Bartelletti
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Wild ungulates (mouflons) on Mount Corchia.



Pinguça Liqueurs: From tradition to innovation



A view of the distillery named after Eduardo de Noronha Dias.

The still and alembic.

The tasting room in the Eduardo de Noronha Dias distillery.



Pinguça is a Portuguese brand of handmade alcoholic drinks headquartered in Alvarenga parish (Arouca municipality). It was founded in 2013, by a young couple of architects, Filipa Casaca and Pedro Noronha Dias. During the same year, this brand became an associate of the AGA (Arouca Geopark Association), in order to contribute to the development and enhancement of the Arouca Geopark territory.

The Filipa Casaca's family is from Entre-os-Rios (Penafiel municipality) where **Avó Micas**

inherited the century old recipe and tradition of producing homemade brandy based beverages from her grandmother. Pedro Noronha Dias, however, is from Miudal (Alvarenga), where his grandfather had a traditional winery, the «Grocery & Wines». This family history contributed to the success of the brand in winning the first prize in the competition “National Rural Creative Prize”, for creating a product based on the traditional methods used by Micas's grandmother.

The company, created in 2013, initiated the construction of a distillery next to the old wine cellar of Pedro's grandfather. In his honour the distillery is named for Eduardo de Noronha Dias. The modern, functional building is impressive by combining wood and stone in its exterior and is in stark contrast with the surrounding landscape. Its interior is ready to receive visitors for tasting this liquor in a large space dominated by a long wooden table. Within the distillery, the impressive prominent alembic (cap of the still) made of copper and brass, conveys the liquid for bottling and storage in a separate area..

The first drink launched on the market was the cinnamon liquor of Micas's grandmother. Other liqueurs were quickly developed including: the delicious red fruit liquor, a refreshing passion fruit liquor and an exotic chocolate liquor. The brand image is simple, but sophisticated, helping to distinguish Pinguça in the market place and creating an expectation that never dissapoints those who let themselves try by these great spirits.

The Pinguça is one of those rare comprehensive brands that, at a glance, is destined to become a classic.

Pedro Noronha Dias

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AGA - Associação Geoparque Arouca

Bakony–Balaton UNESCO Global Geopark, Hungary

Alsóörs – a place of connections

The Geosite of the Year



Pangea volunteers renewing the trail.
(Photo by Barnabás Korbély).

The label 'Geosite of the Year' was first given to a geosite by the Geopark organisation, the Balaton-felvidéki National Park Directorate in 2013. Since then the award has been presented annually to a new geosite and the associated local community. The award acknowledges the active role of these communities in protecting and promoting their local geological heritage by renewing an old nature trail or for example clearing a rock exposure of vegetation. In this way the geosite becomes more easily accessible and visible for residents and geotourists, and the community develops a stronger connection to its geoheritage. These activities are carried out by civil organizations and the local government, in cooperation with Balaton Uplands National Park Directorate, the leading organisation of the Geopark.

Alsóörs, a charming beach village on the Northern shore of Lake Balaton, has 1600 inhabitants. The village is surrounded by gentle slopes with vineyards and orchards. A fantastic view of the lake and sandy lidos await visitors. With the active support of the local government and experts of the Geopark's leading organization, young and enthusiastic volunteers of the Pangea Association, a Geopark Partner, renewed the Red Stone Geological Trail in 2015–2016. Thanks to this successful cooperation, the local community received

Red sandstone sculptures are created every year in a stonecutting camp.
(Photo by Barnabás Korbély).



the award of 'Geosite of the Year in Bakony–Balaton Geopark' in 2016. Several geo-programmes – guided geo-tours, a geo-activity day and a geopark contest – celebrated the award and promoted the geosite. Festivals, fairs, online platforms and a hiking map have proved to be indispensable tools for the Geopark to promote the results achieved by this cooperation.

The trail interprets many aspects of the sandstone.

The renovated trail is located in a disused stone quarry. Besides describing a typical rock type of the Geopark, the approximately 260 million years old Permian red sandstone, panels connect the living and non-living natural heritage of the site, the history of local stone quarrying and processing, the architectural heritage of the village and – in the spirit of networking – other sandstone sites in UNESCO Global Geoparks.

The label 'Geosite of the Year' has been an effective tool to promote the geosites, the communities living nearby and the positive effects of cooperation, thus presenting a good example to other communities in the Geopark. The events for the promotion of the site as the 'Geosite of the Year' organized by the Geopark and assisted by the members of the local community have strengthened the cooperation of these stakeholders.

Basque Coast Unesco Global Geopark, Spain

Whaling watchtower



Archaeological excavation and a lively documentary about Basque whalers



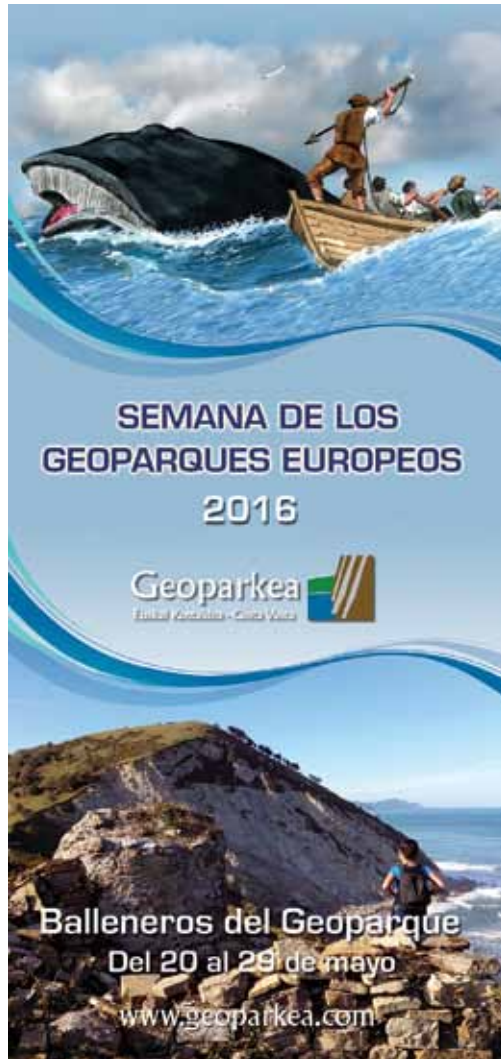
Interpretation panel and remains of a watchtower.

The importance of coastal whaling in the Basque Coast Geopark has vanished in the mists of time. Whaling watchtowers were vantage points from which the arrival of these cetaceans into our waters was signalled, generally using fire. Sadly, practically all have disappeared, although the ruins of some, such as the watchtower in Deba, remain.

Work began towards the end of 2015 to excavate and restore the remains of the Mendata whaling watchtower, located in the Deba-Zumaia protected biotope and very close to the Talaia long-distance flysch trail, which is used by thousands of walkers throughout the entire year.

Together with the ruins of the watchtower, an interpretative board has been installed provid-

A field trip with the group of archaeologists in charge of the excavation.



The Geoparks Week leaflet for 2016.

ing information about the role of these vantage points, with the aim of raising awareness of the importance of whaling for the Basque people. An interesting documentary has also been created called *Euskal Balezaleen Triskantza*, which tells the story of the slaying of Basque whalers in Iceland four centuries ago. The documentary was premiered in June in the three municipalities which make up the Geopark - Mutriku, Deba and Zumaia - as part of the European Geoparks Week programme.

Through this work, the Basque Coast Geopark reinforces its support for the recovery and maintenance of its rich cultural heritage and its traditions, whilst raising awareness of the natural environment.

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Documentary: https://youtu.be/yu_Lra42SSI
 Watchtower recreation <https://www.youtube.com/watch?v=yDCioBKEh48>

Beigua UNESCO Global Geopark, Italy

Beigua app: digital innovation to promote tourism



Digital communication is the modern language of tourism, a new way to convey information to a wider public, enabling a dialogue with tourists by creating a two-way communication. People want to have a significant role in the promotion of Beigua UNESCO Global Geopark through feedback, reviews and posts on blog and social networks, so that user-generated contents become an independent and objective judgment on the assets of the territory. Interaction is the key-word and Geoparks need to enhance and update their communication skills to reach a new audience, especially younger generations.

A new tool to support tourism has been added in the Geopark's digital communication strategy. With the native app for Android and iOS operative systems, smartphones or tablets will take you into the heart of Beigua UNESCO Global Geopark to discover, to taste and to enjoy its outstanding beauty and values all the year round.

This interactive guide provides information about thematic trails and facilities to organize a trip in the Geopark with maps, points of interest and tips about highlights not to miss such as geosites, forests and cultural heritage sites. An intuitive interface guides users through hiking routes, snowshoe trails and nature paths, pin-pointing visitor centres and information points, museums and sites for outdoor sports.

Two different methods for use have been prepared: an off-line mode and an on-line mode.

In the off-line mode, without any internet connection, the user has the opportunity to consult essential information regarding different items and aspects about Beigua Geopark. The app is a boundless showcase presenting geodiversity, biodiversity and the historical and cultural heritage of the Beigua's territory.

On-line features expand the contents thanks to the interactivity with other tools developed



Using the iBeigua app on the field

within the Geopark's communication plan: the website provides a huge amount of detailed information as well as free to download GPX coordinates, the social networks (Facebook, Twitter, Instagram and YouTube channels) with up-to-date news and live coverage of events, webcams for a real-time view of Beigua's unique landscapes.

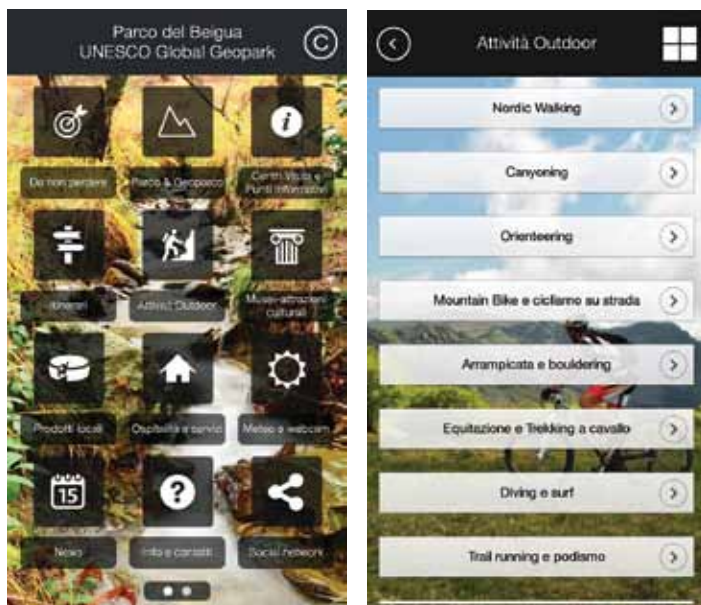
Moreover, interconnection with Google maps helps visitors retrieve coordinates and addresses of specific locations or to access driving and walking directions to reach several destinations or points of interest. MyBeigua is a special section within the APP to collect users' favourite information, things to do, places to visit or pictures and a personal travel diaries.

The iBeigua app is an important technological tool for supporting tourism in the Geopark's territory. It provides a very efficient means for enhancing the values of the territory, including its geodiversity, biodiversity, historical and cultural heritage and also provides tourists with an innovative platform for accessing information concerning the Geopark's different offers and events. In the near future, the app contents will be up-dated with more information about trails, new maps and altimetry and an English version will be released.

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Maurizio Burlando direttore@parcobeigua.it

Examples of the iBeigua app graphics



Active and sporty Implementation of a 1000 km trail network for mountainbikers



The start of a mountain biking event.

Experiencing the landscape, enriched with information about the territory, is a pillar of the Geopark's visitor service. Besides information centres and thematic trails, which are appreciated predominantly by hikers, the Geopark has added additional facilities for a target group, which is becoming increasingly important – the mountain bikers.

Based on the initiative of local bikers and bike clubs, the project was initiated in 2011.

The implementation of each trail – including 38 circuits with a total length of more than 1000 km – was accomplished by extended meetings with all stakeholders, landowners, leaseholders of hunting grounds and relevant departments (e.g. forestry, regional development).

The circuit courses are well balanced with different lengths and difficulties and marked according to the unified outdoor marking system of the Geopark. So-called “connecting trails” enable the mountain bikers to design the length of their

personal bicycle tour. Honorary trail guides, who are in charge of the local trails, are responsible for monitoring and - if required - for renewing missing marking signs.

As special service for the bikers, the Geopark has developed a website (www.mtb-geo-naturpark.de), including comprehensive information about the trails, such as a map, length, altitude and difficulties. Additional references to historic & cultural sites and restaurants invite the user to experience landscape and make culinary discoveries. Actual information about special trail conditions, such as the hunting season or wood harvest activities, are highlighted in the “news” section. The website guestbook provides an opportunity to share experiences on the trails and also to make contacts with the trail guides. In addition, a mountain biking guide, which includes 38 single trails and information about accommodation, as well as maps and service, is available. The mountain biking project is considered as a very successful model for a well-balanced visitor service including all relevant target groups, which use the landscape for recreation and sporting activities. Germany-wide it is regarded as a showcase and pilot project for mountain biking in low mountain ranges.

One of the key issues for this success is the involvement from the first planning stage of all relevant stakeholders resulting in the acceptance for a sport which is becoming increasingly popular. For more information please contact Dirk Dewald.

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Jutta Weber j.weber@geo-naturpark.de

Cyclists on a mountainbiking trail in the Geopark.

Cyclists access information about the mountainbiking circular route in the Begstrasse Odenwald UNESCO Global Geopark.



The Bohemian Paradise UNESCO Global Geopark, Czech republic Enhanced!



The Bohemian Paradise Global Geopark is located in the northern part of the Czech Republic. It is one of the leading tourist attractions in the Czech Republic, having attracted millions of visitors from the whole world since its opening in 2005. Based on new geological and geophysical research, the Geopark was extended and enriched by the inclusion of new territory and the Geopark now has an area of 750 km².

The Bohemian Paradise Global Geopark excels in its long geological history and number of various types of interesting sites. The area recently added includes the Jicin Volcanic Field. The town of Jicin, formerly outside the southern boundary of the territory, now serves as a natural and important gateway to the Geopark.

The first records of the town of Jicin date back to 1293. The historical town centre contains a rare complex of well-preserved historical monuments of great significance. Its history is inseparably connected with the famous European politician Albrecht of Valdstejn. Nowadays, Jicin provides an abundance of tourist attractions - early Baroque buildings, galleries, museums, sports activities, and festivals.

The Jicin Volcanic Field considerably enhances the geological portfolio of the Bohemian Paradise Geopark. It has been newly defined, on the basis of its genesis and morphology, as a natural complex of Tertiary volcanic bodies. Some of these were already included in the Geopark (Trosky, Kumburk, Zebin among others). The newly added southern part of the Jicin Volcanic Field contains many interesting sites, e.g. Velis (the remains of a solitary tuff cone), Sv. Anna (a Strombolian conduit), Dubolka and Houser (the remains of cinder cones), and Cerovka (a network of dykes). All these volcanic relics are highly significant for the interpretation of the geological evolution of the Geopark.

The newly added area also includes an association of Cretaceous rocks and interesting palaeontological localities. The faunal association contains bivalves, larger benthic foraminifers and rare ammonites. Some sites, where these



sediments are penetrated by basaltic dykes, are textbook examples of contact metamorphism (e.g. Cerovka Hill).

Dubolka, the surface exposure of the remains of a cinder cone.

Human activities dating from the Palaeolithic are reflected in the use and settlement of the landscape, and also in the architecture. Jicin is a unique natural centre of a complex Baroque landscape. It is surrounded by abundant prehistoric, medieval and especially Baroque monuments, e.g. Ostruzno, Velis, Sv. Anna, Nadslav, and the town centre.

The whole newly added territory allows visitors to discover geological phenomena and processes that have affected the southern part of the Bohemian Paradise Global Geopark during a period of ninety million years. It is of great educational value and a considerable attraction for tourists. The inclusion of the new territory enhances the geological interpretation and visibility of the Bohemian Paradise UNESCO Global Geopark.

The centre of Jicin town.



Vaclav Mencl sapropel@post.cz

Velis, Church of St. Wenceslaus, 1752



Burren and Cliffs of Moher UNESCO Global Geopark, Ireland

National Geographic World Legacy Award

The Burren and Cliffs of Moher UNESCO Global Geopark National Geographic World Legacy Awards Winner.



The Burren and Cliffs of Moher UNESCO Global Geopark in Ireland has recently won the Destination Leadership award of The National Geographic in their prestigious international awards programme, the World Legacy Awards. This is a significant award from a world renowned publication with a global circulation of over 6 million.

The Geopark is managed by the state local authority, Clare County Council and receives significant support from the Geological Survey of Ireland and Fáilte Ireland. It won the Destination Leadership category of The National Geographic World Legacy Awards for its EU-funded tourism for conservation project; GeoparkLIFE.

The Destination Leadership Award is a category for destinations demonstrating environmental

best practices, protection of cultural and natural heritage, benefits to local people and educating tourists on the principles of sustainable tourism. The recognition received from such a prestigious and well-respected organisation is a wonderful endorsement of the work with all our partners over a number of years.

The awards were announced at the ITB conference in Berlin in March 2016. ITB Berlin is the leading tourism trade convention in Europe.

The GeoparkLIFE programme is an EU funded programme. LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU. For the 2014-2020 funding period, LIFE will contribute approximately €3.4 billion to the protection of the environment and climate change.

GeoparkLIFE is a tourism for conservation programme established by the Burren and Cliffs of Moher Geopark to seek a collaborative balance between the tourism interests and the conservation needs of the Geopark region. To fund the project's work programme the Geopark applied for and was awarded EU LIFE funding of €1.1 million. Matching grant aid is being provided by the projects stakeholders who are from the tourism and conservation fields; Clare County Council, Geological Survey of Ireland, Fáilte Ireland, National Parks & Wildlife Service, National Monuments Service, Office of Public Works, Heritage Council, National University of Ireland Galway and University College Dublin.

The project will be completed by December 2017. Awards such as these are important for providing recognition to local groups such as the Burren Food Trail and the Burren Ecotourism Network at a local and international level and highlighting sustainability programmes. They also serve to highlight the significance of UNESCO Global Geoparks as world leaders in this area.

Dr. Eamon Doyle edoyle@clarecoco.ie



Some members of the Burren Food Trail.

Costas Christ (centre with brown cap) from National Geographic and members of the Burren Ecotourism Network.



Chablais UNESCO Global Geopark, France

A 3D Printer Reconstructs the Geopark's Architectural Heritage for the National Science Festival



A hands-on exploration of traditional building techniques.



For the first time the Chablais area, organised by the Chablais UNESCO Global Geopark, has participated in the French National Science Festival. Located to the east of France, the territory has a long border with Switzerland. Owing to its isolation from the main urban centres, it is rare that national events reach the Chablais.

The Geopark chose to take part in this festival, which is publicised nationally and regionally through a detailed events brochure. It established an innovative programme that revolved around the building stones of the territory.

To prepare for the main event, a public lecture in two-parts was organized in the main Geopark town of Thonon. The first presentation addressed the heritage of the local castles, the second the architecture of the 20th century.

The main event occurred in the Abbey d'Aulps, a Geopark partner. Free all day entry had been organised for the site. Different activities were programmed throughout the day with families, teenagers and older couples taking part. Visits and workshops were led by

A 3D printer reconstructs the abbey building.



Geopark trained Abbey staff to discover the construction techniques during the Middle Ages and their use of building materials. A local association known as the FabLac reconstructed the ancient Abbey building with their 3D printer. The printer was busy all day and produced nine mini-abbeys that were awarded as prizes to lucky prize-draw winners. To complete the attractions, the Geopark established workshops and stands. Activities included a mini quiz for identifying the rocks of the Chablais; a plaster making workshop using local gypsum; a mould making workshop using local clay and the Geopark plaster; an "Add to the mosaic of Geopark Stones" stand and a volcano workshop. The links to local industrial heritage, as well as the geology hidden under the ski slopes were explained to the varied audience.

With more than 250 participants it was a great event, one that will be repeated in 2017!

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2 avenue des Allobroges, Thonon, 74201 cedex, France

The Geopark Chablais stand - a quizz to investigate the local building stones.



Chelmos Vouraikos UNESCO Global Geopark, Greece

Diakopto-Kalavryta Railway, 120 Years of Beauty and History

Passengers
congregate for
a journey to
celebrate 120
years of the
Rack Railway
Train.



The gorge of Vouraikos River is one of the Geosites of the Chelmos - Vouraikos Global Geopark. The exceptionally beautiful trail along the Vouraikos Gorge makes the journey unique. The lithological composition of the Vouraikos Gorge rocks, along with the continuing action of water, forming waterfalls, caves with stalactites and stalagmites, creates a striking landscape for visitors. The natural beauty of the canyon can even be admired by walking next to the toothed lines, following the international E4 path. In a journey, where nature and history are intertwined, the rack railway train chugs along a dramatic 0.75-meter narrow ledge that overlooks the waterfalls that rush below. The jagged tracks switch to and from beneath canopies of plane trees that gently brush by as the two carriages move through the towering cliffs, on their way towards the narrowest point of the journey, squeezing through a tunnel known as the "Doors".

For the last 120 years, the 22.5km journey has been inextricably linked to the 20km-long Vouraikos River in the Chelmos-Vouraikos Geopark. Its anniversary is celebrated from May 7 to June 5 within the framework of the European Geoparks Week. A number of events are organized in the territory of the Geopark, to celebrate the 120 years of the Diakopto-Kalavryta rack railway.

These events include a one-day conference with the title "Odontotos Rack Railway- Management Body of Chelmos-Vouraikos: parallel lines, on the "Internation

al Biodiversity Day"; a concert by the "Passepartout Band" with a collection of songs about trains, from yesterday and today; the daily journalistic itinerary for the "International Museum Day" including the Rack Railway from Diakopto to Kalavryta; an event for the promotion of local products and gastronomy, in cooperation with the "Achaia Development Agency S.A.". Educational and information activities for passengers on the Odontotos Rack Railway routes from the Environmental Education Centre of Kleitoria-Akrata and educational events for the Environment, the National Park and Geopark of Chelmos-Vouraikos and Odontotos Rack Railway, were also significant components of the celebration of 120 years of the Diakopto-Kalavryta rack railway.

For the Management Body of Chelmos-Vouraikos, participating in events, conducting environmental awareness projects and supporting similar activities in the future, are a priority. Also, the advancement of the aims of the Management Body which involve continuous cooperation with the municipalities, tourism providers, institutions and associations, entrepreneurs and local producers, ensures protection, through sustainable management and showcases as well as promoting our region.

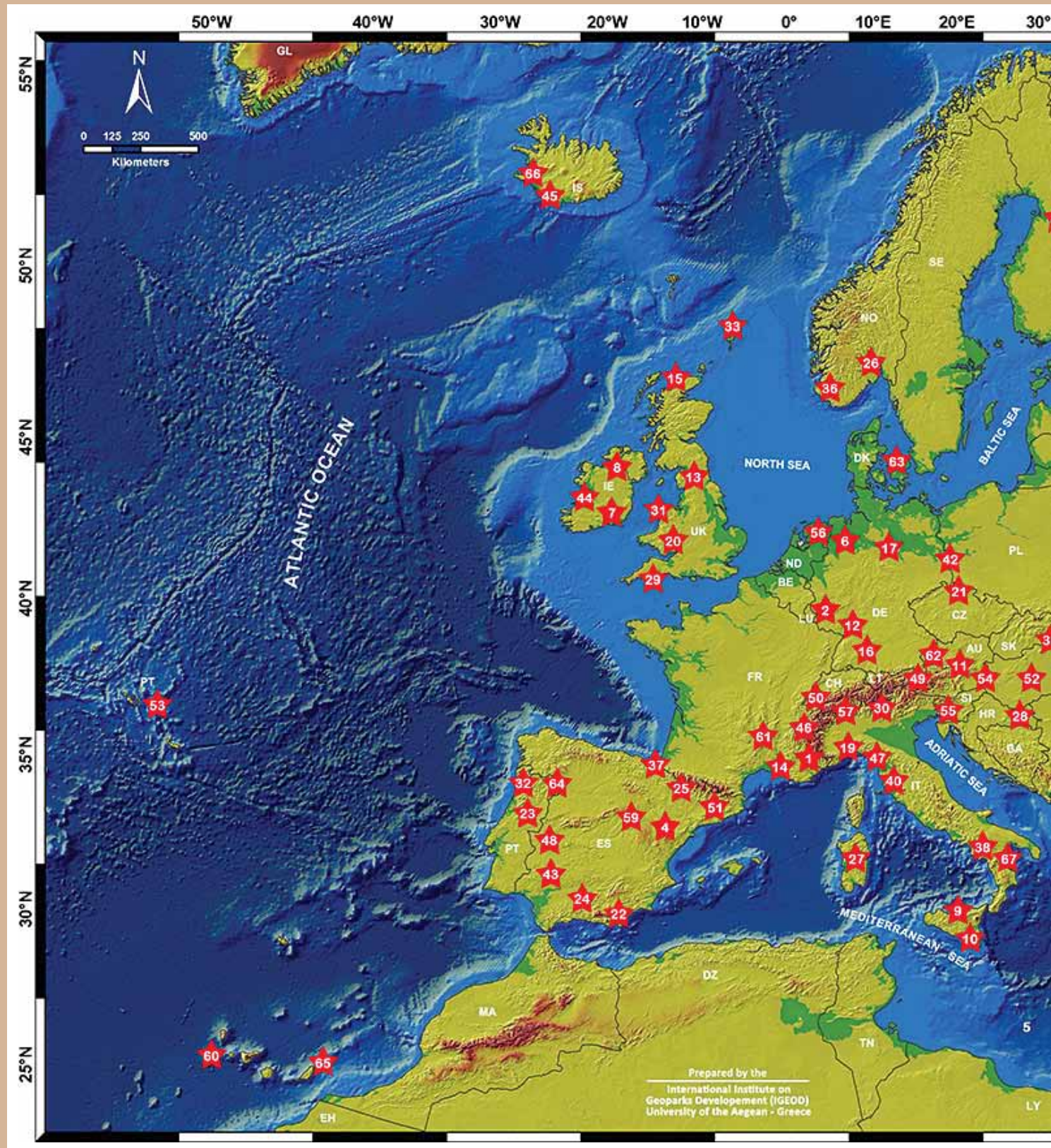
Eleni Koumoutsou, Coordinator-Environmental MSc
Nikos Topouzidis, Geologist

Attendance at
an event which
included a
speech by the
president of
the Chelmos-
Vouraikos Global
Geopark.



An
environmental
educational
event for
young
students in
the Vouraikos
Gorge
Geotope.

The European Geoparks Network



The Network consists of 69 Geoparks in 23 European countries
www.europeangeoparks.org

network today



countries (September 2015)

1. Haute-Provence Geopark	FRANCE
2. Vulkaneifel Geopark	GERMANY
3. Lesvos Geopark	GREECE
4. Parque Cultural del Maestrazgo	SPAIN
5. Psiloritis Natural Park	GREECE
6. Natur- und Geopark TERRA.vita	GERMANY
7. Copper Coast Geopark	IRELAND
8. Marble Arch Caves Geopark	IRELAND
9. Madonie Geopark	ITALY
10. Rocca di Cerere Geopark	ITALY
11. Natur-und Geopark Steirische Eisenwurzten	AUSTRIA
12. Bergstrasse-Odenwald Geopark	GERMANY
13. North Pennines AONB Geopark	UK
14. Luberon, Parc Naturel Regional	FRANCE
15. North West Highlands Geopark	Scotland, UK
16. Swabian Albs Geopark	GERMANY
17. Geopark Harz, Braunschweiger Land, Ostfalen	GERMANY
18. Hateg Country Dinosaurs Geopark	ROMANIA
19. Parco Del Beigua	ITALY
20. Fforest Fawr Geopark	UK
21. Bohemian Paradise	CZECH REPUBLIC
22. Cabo de Gata – Nijar Natural Park	ANDALUCIA, SPAIN
23. Naturtejo Geopark	PORTUGAL
24. Subbeticas Geopark	ANDALUCIA, SPAIN
25. Sobrarbe Geopark	ARAGON, SPAIN
26. Gea Norvegica Geopark	NORWAY
27. Geological Mining Park of Sardinia	ITALY
28. Papuk Geopark	CROATIA
29. English Riviera Geopark	UK
30. Parco Naturale Adamello Brenta	ITALY
31. GeoMôn GeoPark	WALES – UK
32. Arouca Geopark	PORTUGAL
33. Geopark Shetland	SCOTLAND – UK
34. Chelmos – Vouraikos Geopark	GREECE
35. Novohrad – Nograd Geopark	HUNGARY – SLOVAKIA
36. Magma Geopark	NORWAY
37. Basque Coast Geopark	SPAIN
38. Parco Nazionale del Cilento e Vallo di Diano	ITALY
39. Rokua Geopark	FINLAND
40. Tuscan Mining Park	ITALY
41. Vikos – Aaos Geopark	GREECE
42. Muskau Arch Geopark	GERMANY/POLAND
43. Sierra Norte de Sevilla Natural Park	SPAIN
44. Burren and Cliffs of Moher	IRELAND
45. Katla Geopark	ICELAND
46. Massif des Bauges Geopark	FRANCE
47. Apuan Alps	ITALY
48. Villuercas-Ibores-Jara	SPAIN
49. Carnic Alps Geopark	AUSTRIA
50. Chablais Geopark	FRANCE
51. Central Catalunya Geopark	SPAIN
52. Bakony-Balaton Geopark	HUNGARY
53. Azores Geopark	PORTUGAL
54. Karavanke/Karawanken	SLOVENIA & AUSTRIA
55. Idrija Geopark	SLOVENIA
56. Hondsrug Geopark	NETHERLANDS
57. Sesia - Val Grande Geopark	ITALY
58. Kula Geopark	TURKEY
59. Molina and Alto Tajo Geopark	SPAIN
60. El Hierro Geopark	SPAIN
61. Monts d'Ardèche	FRANCE
62. Erz der Alpen	AUSTRIA
63. Odsherred Geopark	DENMARK
64. Terras de Cavaleiros Geopark	PORTUGAL
65. Lanzarote and Chinijo Islands Geopark	SPAIN
66. Reykjanes Geopark	ICELAND
67. Geopark of Pollino	ITALY
68. Sitia Geopark	GREECE
69. Troodos Geopark	CYPRUS

Cilento, Vallo di Diano UNESCO Global Geopark, Italy

Holistic management in a multiple UNESCO Designation Landscape

World Heritage, MAB, Global Geopark, Mediterranean Diet



The Cilento and Vallo Di Diano UNESCO Global Geopark is characterized by an exceptional geodiversity and the biodiversity of its natural habitats which are often sustained by man. The Geopark's unique cultural heritage includes rock shelters inhabited during Palaeolithic times, the exceptional, well-preserved, settlements of Paestum and Velia, the medieval urbanization of the landscape and present day contemporary phenomena. The history of the complex and dynamic interaction between the natural environment and culture adds value to the Geopark and as such needs to be protected. As a result of this complex heritage, a perfect synthesis between culture, nature and well-being, the territory of the Geopark is recognized by UNESCO as a World Heritage Site, a Man and the Biosphere Reserve, a UNESCO Global Geopark, and an Emblematic Community of the Mediterranean Diet.

Cilento and Vallo di Diano Geopark implemented the best practices for the sustainable development of a multi-designation territory, through: coordinated projects, e.g. the Took Project, with municipalities; by coordinating stakeholders in the Three Caves – Three Rivers project; Life+ FAGUS; MU-VI as a Lab_Museum Network; Customian Farmer involving multifunctional agriculture and Geopark TakeCarers providing self-motivation for young people. Our solution is based on a unique institution for governance and the involvement of the local communities and government, following the subsidiarity principle. All combine to preserve the agricultural heritage for MeDiet, cultural and geo-biological heritage and to maintain the sustainable touristic fulfilment

of our landscape. The main challenges are the negative attitudes in the communities and the avoidance of landscape abandonment by the younger generations. The Venus Hair Waterfall Geosite Project, described in an earlier edition of the EGN Magazine, has, by establishing cooperation between the local



Venus Hairs Water Fall Oasis, the best example of geodiversity, biodiversity, cultural heritage and the involvement of local young people in developing sustainable tourism.



Cala Cave, the closest, very important, archaeo-geosite with improved access for students, researchers and tourists.



MUVip Exhibition Session – the Virtual Museum of the Palaeolithic. Visitors can see virtually the most interesting geo-archaeological sites involving coastal caves in Camerota and then they can decide which site they would actually want to visit.

government, university education, local professionals and the Park's management, created a successful prototype for providing new opportunities for engaging young people in the management of this geosite. The young professionals need to have a good knowledge of the specific geosite based on academic research and connections with the local tradition, culture and economy, and of the Geopark's geodiversity and trails. This type of management increased tourist numbers by 5,000 people in four years. The valorization and promotion of the Palaeolithic Cala Cave geosite (one of the international geo-archaeological sites involving the remains of the transition from the *Homo sapiens neanderthalensis* to *Homo sapiens sapiens*) in cooperation with the local municipality is an example of another successful project. At this site, visitors can embark on a journey into the past through the remains in the cave (museum in the cave) and a virtual museum. This type of management development increased tourism, especially from school pupils, by 13,000 people in four years.

This is the territory of the National Park of Cilento, Vallo di Diano and Alburni, a precious natural asset, managed for millennia through the wisdom of our ancestors. An asset involving culture, biodiversity and "geodiversity", air and land, rivers and seas, woods and forests and the cultivation of local products for healthy food. Such an asset is currently enhanced, promoted, preserved and managed through a holistic and integrated approach by pilot projects in order to progressively extend to the entire territory.

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Copper Coast UNESCO Global Geopark, Ireland

Biodiversity Project



Members of Knockmahon National School.

The Copper Coast Geopark Biodiversity Project was a collaborative project which sought to highlight the biodiversity contained within the Copper Coast Geopark. It involved the Tidy Town Groups, and Schools in the Copper Coast Geopark in association with the Irish Wildlife Trust to raise awareness of the significance and benefits of biodiversity, and the importance of protecting our bees. The community groups involved in the project were: the Copper Coast Scout Group in Annewstown, the Boatstrand Sea Safety Centre, Knockmahon and Seafield National Schools in Bunmahon, Fenor National School, Kill National School, Our Lady of Mercy and St. James National Schools in Stradbally, Ballyduff National School and Glór na Mara National School. The project was led by the Copper Coast Geopark team, consisting of Alan Walshe, Waterford representative for the Irish Wildlife Trust, Lauren Browne, a local ecologist, and Catherine Kavanagh, Visitor Centre Manager, Copper Coast Geopark. The wild flower seeds for the project were kindly sponsored by Glanbia. The project involved three phases. In the first phase, the Tidy Town committees from each of the villages selected a site for the project. They marked out and prepared the sites by clearing the grass. The team then visited each of the community groups and schools to explain the project to the children.

The second phase of the project included a visit to each of the community groups and their sites in February 2016. Each site was divided into two halves. One half was left to grow wild, and the second was planted with wild flower seeds. A Community Day was held in Boatstrand on Saturday 27th February for all those involved in the project, and was open to the public to come along and learn about the importance of biodiversity in our lives and on how to increase bio-

diversity in your own garden.

In the third phase of the project, a final audit took place. The results of these audits have been collated, analysed and a report compiled, and the results of the project shared with all schools, communities and project stakeholders. The results of the project were stunning and showed that by simply sowing wild flowers, and introducing as much colour as possible into a site, we can provide a healthy habitat for bees.

On completion of the project, each of the participating groups was presented with a Certificate of Participation and a Biodiversity Pack containing an 'Identification Guide to Ireland's Bumble Bees' along with a copy of the 'All-Ireland Junior Pollinator Plan', courtesy of the National Biodiversity Data Centre, and a copy of C J Wildlife's- 'Attract More Wildlife to Your Garden'.

The project at every stage was met with incredible enthusiasm and interest from the children and their teachers and group leaders. Alan Walshe explained the concept of biodiversity and how our plants, animals, insects, birds and microorganisms live and work together, and how we can best contribute to protect this eco-system which is our source of water, food, medicine, and other natural resources such as wood, fuel and metals that we need to live.

Alan Walshe, the project leader says "Nature conservation starts with education on the importance of pollinators and how we need to protect them for our survival". The biodiversity project was a way for the Copper Coast Geopark to lead the way in the area in protecting and highlighting natural biodiversity.

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Preparing the site in Seafield National School.



The result of planting wild flower seeds in the Seafield National School site.

Natur - and UNESCO Global Geopark Steirische, Austria

Eisenwurzen Geological Disaster tourism



Participants on a fieldtrip during Geoparks Week 2016.

Hardly anybody can avoid looking with fascination at the sight of rockslides, especially when they affect inhabited communities. It is this symbiosis of curiosity and horror which stimulates present-day disaster tourism. But what about accumulations of rocks around the community of Wildalpen in the Nature- and Geopark Eisenwurzen which recently have been recognized by earth scientists as a rock slide? According to radiocarbon dates of tree fragments and a dendrochronological investigation it occurred on a day in August, some 5900 years ago. There was still some curiosity among participants on a field trip during Geopark Week 2016 who were curious to know more about this rock slide of enormous dimensions. About 500 million cubic metres of limestone broke free from a mountain slope where the detachment area can still be recognized. The rocks were almost totally fragmented during their descent on an almost vertical slope. Larger fragments remained in place

Fourteen billion cubic metres of rocks were detached from the mountain range.

and contribute to the formation of small lakes and a bog within a magnificent forest landscape. The rockslide is easily ascendable by trails and forest roads. As in an avalanche, fine-grained material was washed into the valley below and from there into the near-by Salza River where it spread 9 kilometres upstream and 12 kilometres downstream. This is by far the largest expanse of rockslide debris known from the Northern Alps. In this major destination for kayaking and rafting these deposits may be observed along the riversides but also from the road along the valley.

The rock slide was not the only event which caused large amounts of rock to move. The rocks, which are intersected by numerous fractures were unstable and another 900 million cubic metres were released and remained on the former slide plane as blocks, some of them hundreds of metres in size.

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A lake in the rockslide area.



Geopark Harz-Braunschweiger Land-Ostfalen, Germany

500 years of Reformation

Following the footsteps of Martin Luther



A Nature-experience point along the Lutherweg.

(Photo Dr. Klaus George)

On the 31st of October 2017 exactly 500 years will have past since Martin Luther published his 95 Theses. Nowadays the city of Eisleben, Luther's place of birth and death, is, together with the city of Mansfeld, part of the UNESCO Global Geopark Harz · Braunschweiger Land · Ostfalen. There, on the eastern edge of the Harz, Martin Luther went to school. In Mansfeld his father owned several smelting works and the wealth of the Earldom of Mansfeld originated from the exploitation of copper shale.

In 2015 the Regionalverband Harz (RVH), one of two supporting associations of the UNESCO-Geopark, initiated the creation of special information points along the "Lutherweg". These points provide resting places, interesting information about Luther himself, about life in his time and the changes which have occurred in the natural environment over the years. The "Lutherweg" is a hiking and pilgrimage trail leading through five different Federal States of Germany and links important sites during the Reformation. From Eisleben in Saxony-Anhalt to Nordhausen in Thuringia, it leads through the UNESCO-Geopark.

Martin Luther kept in close touch with his home and the Earls of Mansfeld throughout his life. Today's Saxony-Anhalt, one of the 16 Federal States of Germany, became the core area of the Reformation. The implementation of religious services in the German language made it possible for common people to actually understand "the word of god" for the first time. This included the biblical order of "Dominium terrae", reign over the earth from the history of creation in the Book of Genesis. Large predators like bear, wolf and lynx were exterminated systematically in the Harz region and



View towards Landmark No. 10 of the Geopark: the Auerberg Mountain.

(Photo Dr. Klaus George)



View towards Landmark No. 17 of the UNESCO-Geopark: Mansfeld Castle.

(Photo Dr. Klaus George)

the woods were cleared in order to obtain pit props for the mines and charcoal for smelting the ore. The people prayed for their daily bread and so they used everything that nature had to offer. Archaeological studies of the waste pit from Luther's home revealed that even song birds were used for food. This is the theme of the first nature-experience point. Another information point, with its floor paved with the cinder blocks from copper smelting, informs visitors about the production and transportation of charcoal for the smelting works.

Five hundred years after Luther published his 95 Theses, the woods have regenerated. In the society a change in the way of thinking has started. Over time, more and more people began to understand the concept of nature protection. Nowadays the churches, both Catholic and Protestant, regard the preservation of creation as an important goal. Thus the nature-experience points along the Lutherweg provide a perfect connection between the aims of the UNESCO-Geopark and the heritage of Luther.

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Kula UNESCO Global Geopark, Turkey

Kula volcanoes: Now easy to access & safe



Volcanoes and volcanism has been of major human interest since the birth of our civilisation as demonstrated by the 15 thousand years old prehistoric cave paintings depicting eruptions within the territory now designated as the Kula UNESCO Global Geopark. Volcanoes have deeply influenced our culture and in myths are often associated with the underworld. The great Greek philosopher Strabo, visited the Kula volcanic area over 2000 years ago. He proposed that the coal-black lava must have been created by fire that originated from inside the Earth and named the area “Katakekaumene” (Fire-born). In modern times, volcanoes and volcanic landscapes became major tourist attractions in the form of adventure tourism. Geoparks, with well organised accessibility and interpretation have changed the nature of volcanic geotourism from an activity restricted only for adventure seekers to a pursuit that is available to a wider public. The miniature volcanoes of the Kula European and UNESCO Global Geopark are an ideal destination for volcanic geotourism. Here, a balance is maintained between the unspoiled nature of

the landscape and the ease of accessibility. Sandal Divlit miniature volcanic cone is an excellent geosite with a crater sitting within a basaltic lava flow plain. In order to open this outstanding geosite for geoeducation and geotourism activities the “Explore the Kula Geopark” project, financed by the Zafer Development Agency, has constructed a wooden walking trail with bilingual direction signs and information panels providing easy access to the crest of the steep cone. A circular geotrail has been developed around the rim of the crater. Additional necessary visitor infrastructures like car parking, wooden shelters and toilets have been installed in a minimalistic style at the foot of the cone. Kula Geopark is organizing guided tours for the Sandal Divlit Cone which is now becoming the flagship or the iconic geosite of the Kula UNESCO Global Geopark with the slogan of “Learning is Adventure”.

Sandal Divlit Cone and crater.

The wooden walkway forms the geotrail on the rim of the Sandal Divlit volcano.

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A geoeducational event on the rim of the Sandal Divlit volcano.



Lanzarote and Chinijo Islands UNESCO Global Geopark, Spain

A Volcanic Open Air Museum



Participants enjoy a fieldtrip in the Geopark.

Lanzarote and Chinijo Islands Geopark is a volcanic oceanic area located in the easternmost region of the autonomous Canary Islands. It covers a surface of approximately 2500 km², including Lanzarote, the small islands of La Graciosa, Montaña Clara, Roque del Este, Roque del Oeste and Alegranza together with submarine areas. It includes 7 municipalities with a population of 143,200 inhabitants, and a population density of 169 people/km².

The combination of its geographical location, climate features and volcanic activity transformed this area into an open air museum, with an extraordinarily well-preserved geodiversity of scientific, educational and touristic interest.

The Geopark became a member of the EGN in April 2015, and it is managed by the Council of the island, Cabildo of Lanzarote, which provides economic and scientific support. Its mission is to showcase, highlight and protect the geological heritage, and promote sustainable development and tourism focused on geology.

Geologically, the area is almost entirely formed by permeable volcanic rocks and well-preserved erosional and sedimentary structures. Eruptive activity initiated during the Miocene,

Schoolchildren learn about the island's geological history.



Visitors share a view of the volcanic strata in the Geopark.

approximately 22 million years ago, continued into the 18th century. The last recorded phase of volcanic activity occurred in the western part of the islands in 1730-1736. During a period of almost six years, more than 30 volcanic cones were formed and at least 23% of the islands was covered by pyroclastic ejecta and lava flows.

Almost 70 geosites, primarily of volcanic and morphological interest, have been identified in this area, and many of these are of world-renowned scientific importance. These include complex volcanic structures, monogenetic volcanoes, lava tubes, pyroclastic flows, large volcanic stone fields, eolian sands, surtseyan volcanic structures, fossils, lapilli fields and many other features.

This extraordinary heritage, together with a wide network of trails, fosters geotourism, which is one of the essential targets of the Geopark which fosters the promotion of both sustainable local economic development and education. For this reason many educational programmes for students and adults are also provided in order to increase awareness of the geological and natural heritage.

The outstanding volcanic landscape has deeply permeated the culture and life of its inhabitants and it is strongly reflected by the land use and agricultural techniques. One of the most striking examples are the vineyards of "La Geria" Valley, where vines are planted in hollows throughout volcanic ash fields.

Besides its geological heritage, the Geopark is also important for its terrestrial and marine biodiversity. Indeed, the area contains relevant Natura 2000 sites (11 SACs and 7 SPAs), aside from 13 Protected Areas, including Timanfaya National Park, and a Biosphere Reserve. Furthermore, it includes important cultural sites, such as castles, churches, aboriginal sites and the seven Centres of Art, Culture and Tourism of Lanzarote, created by Cesar Manrique, a great artist from Lanzarote, in order to protect and highlight natural and cultural heritage, now representing the foremost source on income for the island.

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Maestrazgo UNESCO Global Geopark, Spain

Sport & Active Leisure in Maestrazgo UGG



Canyoning in “La Granja” (Villarluengo) Canyon eroded into Upper Cretaceous limestones

(Photo: Geoventur).



The dry riverbed of the Villarosario Canyon (Aliaga) offers a journey through geological time.

(Photo: Geoventur).



Maestrazgo Geopark contains endless places to enjoy yourself in exceptional geological landscapes. Contrasting topographies and colours, possibilities to interpret the landscape and the cultural and gastronomic opportunities encourage people with a wide range of interest to explore the variety of attractions. Moreover, we should not ignore the Geopark’s opportunities enabling tourists to participate in sport and healthy activities in harmony with the natural environment. The most popular physical activities include hiking, cycling (on-road or BTT routes), speleology, canyoning, gorge walking, climbing and bungee jumping.

Among the network of trails and paths across the Geopark we can recommend the GR-8 route which is divided into stages and is part of the European Long Distance Trail E-7. As hiking and trekking are growing leisure activities for the population, many long distance trails have been subdivided into shorter more manageable walks and excursions. The Short Paths (PR) follow traditional trails with informative panels displayed by the Maestrazgo Viewpoints Network. These



The wide network of trails are used for sport competitions.

(Photo by PCM).

bilingual panels (Spanish and English) provide information connecting the geodiversity with the area’s biology and cultural and heritage.

The adventure tourism activities in Maestrazgo Geopark are offered by companies which provide safe outdoor leisure activities. Tourists can experience extreme canyoning for advanced levels at “La Granja” (Villarluengo), a spectacular canyon with rappels up to 15 metres high and vertical plunges into the water where adrenaline and excitement are combined with limestone deposited during the Upper Cretaceous. In addition, at Villarosario Canyon (Aliaga) visitors experience impressive 25 metre high vertical walls, the evolution of the landscape and the effects of the geological processes.

In summary, the rich variety of activities little by little attract the interest of an increasing number of geotourists who are motivated enough to experience for themselves the amazing possibilities in Maestrazgo Geopark’s geological landscape.

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Massif des Bauges UNESCO Global Geopark, France

Reading the landscape of Lake Annecy



A simple geological interpretation of the Massif des Bauges Geopark behind the Lake Annecy

Annecey's lake is one of the most remarkable geosites of the Massif des Bauges Geopark. The lake and its banks, a relic of the territory's recent glacial history and the surrounding topography, often provides breath-taking views for visitors. This site attracts numerous visitors to this northern part of the Geopark, to be as fascinated by the lake margins as Cezanne might have been. The dynamic of the Geopark progressively encourages local stakeholders to have a better understanding of the area and, through lectures, gain an appreciation of its richness and its complexity. In collaboration with the the Écomusée du Lac d'Annecy, initially dedicated to costumes and life in the 19th century, the Geopark is enriched by the inclusion of information panels interpreting the landscape and a three dimensional geological model. This model reveals the relationship between historical human activity, and the distribution of natural resources (iron, lignite, clays for tiles and bricks, limestones for lime manufacturing) which is determined directly by its geological structure. The surface of the model shows the extent of human occupation during the 19th century and also relates the agricultural potential of the area with the subsurface structure. On both sides of the model the sections were specially chosen to produce simplified geological cross-sections, which reveal the main structural features of the Bauges Massif. These cross-sections reveal the geometry of the Urgonian Cretaceous Limestone sequence which influences the distribution of meadows and pastures across the massif.

Synthetic 3D diagram, representing the geological structure of the area surrounding Lake Annecy.



Geological model of the Lake Annecy area installed on the terrace of the Écomusée du Lac d'Annecy

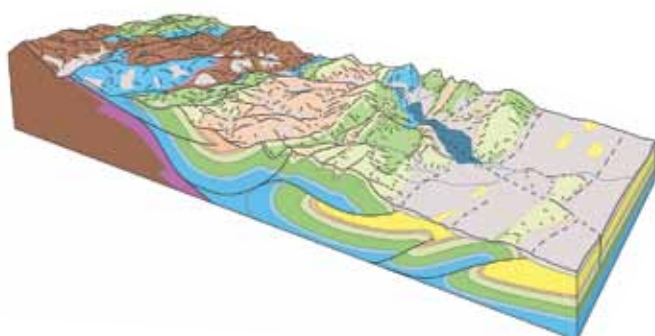
(Photo by Sevrier)



The installation of these two panels provided an occasion to organise an opening session involving some of the creators of the panels together with tourism providers, with the aim of developing their geological knowledge and enriching their communication with the general public. It was an occasion to discover the geoh heritage of the area and an opportunity to raise the curiosity of residents and visitors in the Geopark. This equipment is one piece of the puzzle of the Geopark's dynamic contribution together with a series of publications, movie clips, geosite information panels showing trails, to enable tourists to appreciate a geosite and to encourage them to visit other parts of the Geopark.

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Muskau Arch UNESCO Global Geopark, Germany/Poland

Geoparks face challenging problems related to land use



UNESCO Global Geoparks as well as the members of the Regional Geopark Network represent a landscape status quo; a combination of aspects of the diverse use of land based on a unique geological heritage. Some of these geoparks have to deal not only with the varied aspects of nature protection or economic development, but also with other, rather less extensive forms of land use such as military use.

At first glance the connection between geoparks and military use seems to be irrelevant or even exciting. However, on closer examination, interesting synergies arise. The UNESCO Global Geopark Muskau Arch and the Czech National Geopark Ralsko can refer to very fruitful collaborations. Both are closely connected by diverse projects, and both are united by former or current military use.

The area of the UNESCO Global Geopark Muskau Arch overlaps with a part of the active military training area "Oberlausitz", the fourth largest of its kind in Germany. On a regular basis, military manoeuvres and training exercises are held within the Muskau Heath, a sandy plateau which is characterized by a large number of interesting geomorphological and geological formations. Specific features include dunes and moors. The Muskau Heath is one of the largest inland dune areas in Germany and the largest territory with sickle-shaped dunes (barchans). The dunes, which originated about 12,000 years ago during the Weichselian Late Glacial Period, are covered with pine forests and Calluna heaths and partially by nutrient-poor grassland, heath moors in various stages of development and sandy plains. A second site, the former military training area for bombing practice the "Zschornoer Heide" (Zschorno forest) in the Brandenburg area, is also characterized by large sandy areas. Both military sites are totally depopulated. The Zschorno forest is currently owned by the German Federal Environmental Foundation.

Through partial military use, the dunes, moors and sand plains are not only preserved in their original state, they also provide habitats free from artificial fertilisers supporting a rich diversity of rare birds, insects and plants. As a result of the restriction of access, new habitats were extended and have provided optimal living conditions for wolves during the last 20 years. The federal forestry administration ensure that the landscapes are fully maintained. In the Zschorno forest, visitors and guests can book guided tours with



certified Geopark guides or through the Geopark's federal forest partner. The active military area "Nochten" is only open for guests on an open day. In this way, the symbiosis between military use and the Geopark makes a valuable contribution that should not be underestimated: optimal preservation and undisturbed development is ensured!

The north-Czech Geopark Ralsko, is developed on the territory of a depopulated former military area. The UNESCO Global Geopark Muskau Arch and National Geopark Ralsko began to cooperate in 2015. Nowadays the Geopark Ralsko is a green island characterized by dry areas on sandstone, sandstone rock formations and natural river courses. The low levels of human activity have conserved the geodiversity and mining history. The Geopark Ralsko staff has successfully begun to develop the area's potential and intend to include interactive maps, educating geo guides and creating new geo-trails.

It is clear, that land use for military purposes can benefit the environment and protect geosites. Engagement with the natural environment provides a sound basis for all parties involved and especially for conserving the geological diversity.

A sand plain habitat associated with inland dunes.

(Photo by V. Ludwig).

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A sand dune at a protected site showing a succession of colonizing plants.



An example of a natural landscape in Geopark Ralsko.

(Photo by D. Rubas)

Naturtejo UNESCO Global Geopark, Portugal

Development Geoproducts as successful approaches to strengthen the identity



Jewellery inspired by the local paleontological record. Art of Paulo Dias.

The cake designer Raquel Ramos from the company Geocakes.



When UNESCO Naturtejo Global Geopark became a member of the Global Geoparks Network in 2006 and a pioneer of the geopark concept in Portugal, it has, by valuing its geological heritage, increased the visibility of the territory. Entrepreneurs and local companies have shown an increasing interest in combining their products and services with the ideals of the geopark concept and linking these to the Naturtejo Geopark brand. Geoproducts are innovative, new or reinvented traditional products and services deeply connected to the geodiversity and landscapes of this territory. They provide new opportunities for businesses, a source of income for local economies and can be responsible for creating new jobs. The products can also contribute to the promotion of the Geopark brand both locally and internationally, thus strengthening the marketing strategy of the Geopark, and a nice way for tourists to “take the Geopark home”.

Local geoproducts reflect the biophysical conditions and traditional techniques of preparation, such as the aged beef (Geo do Prado), the GeoWine (Súbito), or the GeoLiqueur (Acha Doce). The liqueurs, S. Miguel d’Acha (Ore, Gold, and Earth Depths liqueurs), are produced using ancient techniques mostly from native plants which grow in places associated with the ore mining and the magmatic origin of the rocks of the Acha Doce region. In the remote village of Segura, the company Aromas do Valado, a distillery using aromatic and medicinal plants, is involved in planting and processing native plants from Naturtejo Geopark, producing essential oils, personal care products and BIO cosmetics. Some geoproducts are very didactical, such as Geocakes, a cake design company, whose cake based on the trace fossil *Cruziana* produced by trilobites, in addition to being tasty, reveals the feeding behaviours of trilobites. Amo-te Produto Local (I Love Local Products) is a gourmet basket combining lo-

cal products from different producers from the whole territory (olives, jam, olive oil,...). The geoproduct has its own exclusive packaging design and the company also organizes tourist visits to farms. Petiscos & Granitos, situated among the granite boulders of Monsanto Inselberg, was the first Geo-Restaurant open to the public. Also at Monsanto, the first Geo-Hotel in Portugal, is a gateway for the interpretation of the unique heritage of this geo-monument. Casa do Forno Geo-Resort is a rural guesthouse in the small village of Salvaterra do Extremo that provides Geomenues and off-road geotours guided by a skilled geologist. Incentivos Outdoor organizes boat trips to the heart of Portas de Ródão Natural Monument and organized visits are provided to the Portas de Almourão Geomonument and the restaurant of the same name. Finally, Nature Fields Company developed the brand “Geo do Prado” for distributing veal meat with certification of its origin from Naturtejo Geopark, and also processes locally produced BIO aged meat BIO.

Artisans are reinventing products using ancient artistic know-how, but with new visions and ideas and special interpretations of Naturtejo Geopark. The goldsmith Paulo Dias has created a handmade line of jewellery “Trilobite... Precious – for millions of years”. Together with local schools and the Technical University of Castelo Branco, the Naturtejo Geopark team are developing new ideas for potential geoproducts that can be the inspiration for new businesses in the future.

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Examples of Súbito Geowine.



A.O.N.B. UNESCO Global Geopark, UK Art Installation brings Waterfalls to the Land in the North Pennines

Moving images of Low Force, projected on the walls of a distinctive white-painted Teesdale barn.



Over two weekends in October, three famous waterfalls on the River Tees, in the North Pennines Area of Outstanding Natural Beauty (AONB) and UNESCO Global Geopark (UK), could be experienced in a whole new way. Projections of dramatic slow-motion images of the tumbling waterfalls were wrapped around three of the distinctive white-painted barns of Teesdale, creating a spectacular nighttime trail to follow from the AONB/Geopark team's visitor centre at Bowlees.

Each of the three barns featured a different waterfall, on a 1.5km route following the descent of the river Tees from the falls of Cauldron Snout, over the dramatic High Force, to Low Force. The installation is the work of visual artist Steve Messam, supported by curator Lucy Jenkins. Steve's previous work in the landscape includes a spectacular (and fully functioning) bridge made entirely from paper over a river in northwest England.

Nearly 2000 people visited the installation, which had great reviews from the public. The visitors themselves made for a spectacular sight, their torch-lit procession leading through the fields to the barns. They were guided on their way by a team of volunteer marshals who helped make the event possible, helping visitors to see their way across the rough ground in the dark.

Artist, Steve Messam, said, "This has been a great opportunity to explore the geology and land-

Landscapes for life  NORTH PENNINES
One of the AONB family



The illuminated barns formed a magical sight in the landscape.



Three illuminated barns stand out against the starry sky.

scape character of the North Pennines and produce something that really takes advantage of the scale of landscape. This is a piece on a scale that you simply couldn't do in any city and walking through it in the dark is a key part of the experience I wanted people to have."

Curator, Lucy Jenkins, was the force behind the scenes helping to bring the work to life. Lucy added that, "Waterfall was a wonderful way to engage different types of audiences with visual arts. It was a truly participatory experience where the visitors themselves became part of the artwork."

Alongside the installation, the AONB/Geopark team has been hosting geological workshops for 10 local schools, helping children understand the geological story behind the evolution of North Pennine waterfalls.

Director of the North Pennines AONB and UNESCO Global Geopark, Chris Woodley-Stewart, said, "Waterfall has been great for the area and it was a magical sight. Some outdoor art can sit uncomfortably in the landscape and strike a discordant note, but Steve's work always complements its setting and invites you to think about the natural environment in new ways."

Waterfall was commissioned by Durham County Council and supported by Northumbrian Water. You can see video footage of the installation at [???????](#)

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The Novohrad-Nógrád UNESCO Global Geopark, Hungary-Slovakia

The Cross-Border Photo Marathon



Photographers in action during the Cross-Border Photo Marathon in the Novohrad-Nógrád Geopark.

The third Medves Photo Marathon was held on June 3 - 5, 2016 on the Medves Plateau of the Novohrad-Nógrád UNESCO Global Geopark. The picturesque Medves Plateau, the largest basalt lava plateau in Central Europe, extends from the Hungarian to the Slovak territory of the trans-border Geopark.

This event provided amateur photographers from all over Europe with an opportunity to meet and capture the natural and cultural assets of this borderless and photographer-friendly Geopark.

The main organisers, Péter Komka and Szilárd Drexler were highly professional; more than 400 participants, with the aid of 80 volunteers, attended the different programmes.

The photographers, participating in several specific and guided programmes, could request assistance from professionals, and could rent equipment to take better photographs in order to have a chance in the final photo competition with the categories landscape, people and living nature.

The programmes by themselves were adventurous and very exciting. For night photos, ruins of the fortress and castles, Somoska, Salgó and Fil'akovo, standing on volcanic peaks were illuminated, and experts delivered field lectures about astrophotography under the night sky.

At dawn -- from 3 am -- tours to different destinations started, to catch the sunrise. During the day field workshops on traditional photographic techniques, light-room support, outdoor model photography, photographing birds from hides, aerial photography and filming techniques and others were held and participants were given the opportunity to practice what they had learned.

For those people accompanying the photographers, whose interests were not in photography, displays on the folklore of the Palóc (an ethnic group inhabiting the Geopark), basket weaving, medieval cuisine and medieval clothes were provided and accompanied the favourite activity - horse riding. The weekend Geopark Family Day combined with the programmes of the Photo Marathon.

In the afternoons, history came alive and photographers could photograph medieval heavy infantry



The Milky Way above the illuminated Salgó Castle.



The Somoska (Slovakia) and Salgó (Hungary) castles.

soldiers in the castle of Salgó without any serious consequences. At the Fil'akovo castle one could taste the medieval cuisine, everybody survived. Sunset photography was paralleled by activities involving catching insects and bats. The staff of the Bükk National Park Directorate provided their expertise and surveillance during these activities, including identifying animal species.

A not surprising side effect of this memorable event was that it also proved to be a very successful grassroots marketing tool. On previous occasions the output has been viewed by hundreds of thousands of people using different social media. In addition, the participants became advocates of the Geopark, shared their photos on their own websites and blogs, the exhibitions of the best photos were circulated in the region's schools and public cultural institutions on both sides of the Geopark.

The photos in this article were taken by Szilárd Drexler with a Canon 5d MarkIII camera.

North West Highlands UNESCO Global Geopark, Scotland, UK

North Coast 500, a success story for the Scottish Highlands!



An impressive section of the NC500 route.



Just 15 months after its launch, the “North Coast 500” has been ranked as one of the best road trips in the world, has generated an estimated brand reach of one billion people and achieved ‘*Destination Specialist of the Year*’ at the Luxury Travel Guide Awards 2017.

Beginning and ending in Inverness, the route spans the whole Northern tip of the Scottish mainland, including the 100 mile length of the North West Highlands Geopark (NWH Geopark). The concept was created in 2015 by HRH Prince Charles’ North Highland Initiative to develop sustainable economic growth by increasing visitor spend, numbers and duration of stay; goals closely aligned with those of UNESCO Global Geoparks. As part of its sustainable economic development plan, the NWH Geopark commissioned a report in 2015 of the area contained within the Geopark boundary and discovered that visitor numbers had remained static at about 170,000 between 2012 and 2014. However, since the NC500’s meteoric rise to fame, visitor numbers have risen dramatically, leading many businesses providing accommodation, shops and services to attribute a positive measurable economic change directly to the success of the NC500.

Clive Ward who runs the Classroom Café, the NWH Geopark’s Visitor Centre said: “You can see the difference NC500 has made, by July 2016 visitor numbers were already up by 100% compared with

A map showing the NC500 route.



The figure shows the details of Mark Beaumont’s achievement and diet in completing the NC500 route in under 38 hours.

the whole 2015 season. In 2015, we had 4650 visitors, but in 2016 30-50 people per day were using the café.”

In fact the 2014 NWH Geopark business plan estimated that visitor numbers to the Rock stop would rise from 6000 in 2016 to around 1200 by 2019, but by June 2016 this figure had already been achieved.

Accommodation provider Dave McBain from Lochinver added “We have noticed that many people who cycled around the NC500 last year (i.e. completing it like Mark Beaumont in 1-4 days!), are now returning to complete the route at a more leisurely pace, staying for a few nights rather than just one. The big number for us though is the off-season bookings it shows a clear growth”.

A survey carried out in 2016 of over 2,500 people who had completed the route demonstrated that 87% of users were ‘Very Satisfied’ with the experience; 92% stated that they would recommend the NC500 to others. When asked if they would do the NC500 again, 70% said they ‘Definitely Will’ and 23% said they ‘Probably Will’ do it again.

This is incredibly encouraging news for businesses in the NWH Geopark as it indicates that the increase in visitor numbers may be long term. We are therefore exploring ways to work with the NC500 to make best use of the new UNESCO designation in the North West Highlands.

For more information visit www.nwhgeopark.com and www.northcoast500.com

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Odsherred UNESCO Global Geopark, Denmark

Lammefjord - a flagship site



Rows of carrots in the project area on Lammefjord and a view of the surrounding landscape. Photo by Claus Starup

The stories from Lammefjord, told by the farmers who have lived on the old inlet for four generations since its reclamation in 1873, form the basis of this project. Today, a total of 55 km² of Lammefjord has been reclaimed for agricultural use and is famous for the high quality of its vegetables. Lammefjord is also known as “the vegetable garden of Denmark”.

The project resulted from the Geopark’s strategy for 2015-2018 in which the Geopark Foundation Board decided to develop some core areas, or flagship sites, and make it possible for local citizens, schools and tourists and other visitors to appreciate the landscape of Geopark Odsherred. At the same time a group of farmers from Lammefjord had for some time wished to create a visitors’ field to be used as a showroom for a wide audience where they could gather all the vegetables from one location.

On a new 10 km bicycle route along the North Channel and through signage and audio narratives the visitors are taken on a tour around the flat landscape of Lammefjord which lies a few meters below sea level. On the tour the story of the formation of the landscape and its geology, the coastlines, the many oyster beds from the Stone and other features provide a unique experience.

To support the dissemination of the knowledge of the geomorphology and landscape development of Lammefjord since the disappearance of the large glaciers from Weichsel, the last glacial period about 10,000 years ago The National Geological Survey of Denmark and Greenland (GEUS) are undertaking geological surveys which can contribute to the understanding of the natural history.

Many of the farmers have provided information and stories to the project. When interviewing the farmers, there can be no doubt, that they have a great common understanding, identity and pride of being a farmer on Lammefjord. The land reclama-



Local farmers pointing out special places on Lammefjord. Photo by Jakob Walloe Hansen.



GEUS undertaking geological surveys on Lammefjord. Photo by Nina Lemkow

tion during the 1870’s is a part of the newer cultural history in Odsherred and it is their ancestors who made it possible to grow vegetables on the floor of the old tidal inlet.

The local produce, and not least the vegetables from Lammefjord, are thus helping to create new developments in the region and in August 2016 the Nordic Center for Local Produce opened providing new educational opportunities in Odsherred.

The flagship project on Lammefjord has a total budget at € 220,000 and will be completed in 2017.

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Ore of the Alps UNESCO Global Geopark, Austria

LIECHTENSTEINKLAMM

Deep Gorge and Mystic Springs



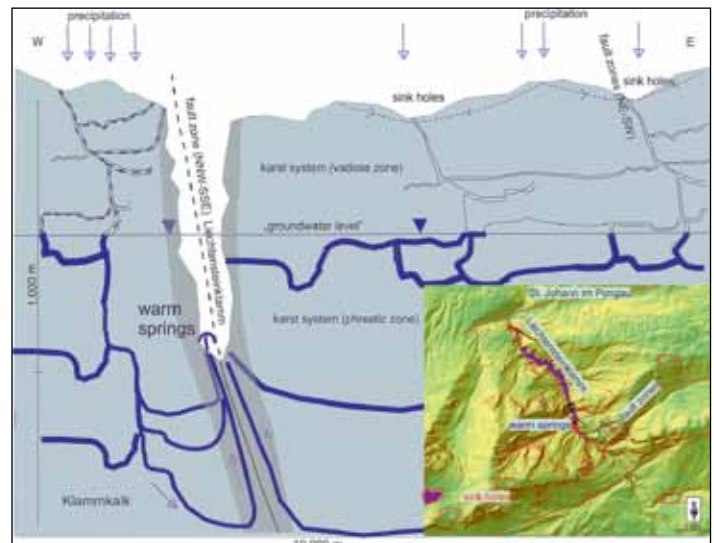
The steep sided narrow walls of the Liechtensteinklamm

(Photo. M. Häupl).



Locations of warm springs in the Liechtensteinklamm

(Photo. D. Strick).



The conceptual hydrogeological model of the warm water system emerging in the Liechtensteinklamm proposed by Sylke Hilberg.

The Liechtensteinklamm (Liechtenstein Gorge), situated 5 km south of St. Johann i. Pongau, is one of the most impressive Geosites (No. 120) in the UNESCO Global Geopark "Ore of the Alps". The Großarl creek has eroded an approximately 3000 metres long gorge bounded by 300 m high steep and massive walls. The narrowest distance between the walls is only two metres! This unique natural sight was opened to the public for the first time in 1875. The donations for the construction of the gorge trail were provided by the Prince of Liechtenstein. The gorge can be visited today on a spectacular 1000 m trail with boardwalks and bridges and is one of the most popular natural attractions in the Salzburg area, with more than 150,000 visitors per year.

The Liechtensteinklamm was formed by the Großarl creek, which eroded the karstified limestones of the so called "Klammkalkzone" in the northern frame of the Penninic Tauern Window. Historic reports beginning in the late 17th century describe springs, emerging at the bottom of the gorge, with an abnormally high temperature of nearly 15 °C and a positive influence on human health. Over three centuries numerous attempts to tap the springs for commercial use failed because of the exposed location of the springs, the steep slopes of the gorge and the associated danger of rock falls, avalanches and floods. A hydrogeological connection between thermal springs in Bad Gastein (ca. 25 km SW) was assumed for nearly 300 years but never proved.

Existing data about the springs (from historical reports and recent research) formed the basis for hydrogeological investigations conducted during 2015. The results showed that the location of the springs

is associated with WSW-ENE striking fault systems which intersect the N-S-striking Liechtensteinklamm. A comparison of the water quality of the springs with those of the Bad Gastein springs and other thermal springs in the Salzach valley reveals similarities and differences in water chemistry and thus provides no clear evidence for or against a hydrogeological connection. The mean residence time of the water in the ground water body was determined from the concentration of the radioactive hydrogen isotope Tritium. The study revealed that the spring water requires approximately 12 years from the time of percolation to discharge. The recharge area lies at a topographic level of 1,500 m asl and is restricted to sinkholes. The mean water temperature is evidence for a circulation depth of at least 200 m below the streambed of the Liechtensteinklamm. There is obviously no direct hydraulic connectivity to other known thermal springs or wells in the region. The conceptual hydrogeological model in this account illustrates the proposed subterranean flow paths of the warm and "healthy" water in the Liechtensteinklamm from sink to source.

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CIVITA, a model of sustainable tourism from a little village



A view of Civita Village.

Civita is a small village situated on the steep rocky slopes of the Raganello Valley in Pollino Geopark, and represents one of Southern Italy's Arbëreshë communities. The Italian-Albanian ethnic minority, known as the Arbëreshë, has inhabited the region since the second half of the 15th century when Albanian refugees fled from the invading Ottomans and made their home in the kingdom of Naples. King Fernando was a friend of Giorgio Castriota, also known as Skanderbeg, Great Prince of Albania, who was defeated by the Ottomans.

For Centuries the Arbëreshë communities have preserved their language, customs, traditions and religion, and they still maintain the liturgy of the Albanian Catholic Church which uses the Byzantine liturgical rite. It is fascinating to join the rituals related to marriages, to Carnival and above all to Easter, especially during the Holy Week with its traditional dance, the *Valjet*, performed in distinctive costumes.

For decades Civita's architecture has been characterized by a singular and curious feature, namely its chimney pots, personalized and individually decorated by master masons resulting in the ephitet "the village of chimney pots" (*paese dei comignoli*).

Nowadays the village, with around 1000 in-

habitants, benefits from a new economic impulse thanks to the development of tourism.

In addition to its intangible heritage and distinctive culture, traditions, rituals, songs, dances and unique cuisine, Civita also provides its residents and visitors with a remarkable landscape. The Raganello River, at the foot of the village flows through a deep canyon with spectacular and fascinating geological features.

In front of the Civita village it is possible to admire the 800 metres high rock face, the "Timpa del Demanio", on which at one time only the goats and shepherds were able to clamber through its steep crevices. Nowadays climbers can enjoy the view and ascend the cliff by following the rules and limitations imposed by the Geopark to protect species of birds that nest on the cliffs.

Just below the village the "Ponte del Diavolo" (Devil's Bridge) joins the two banks of the river. It has been destroyed and rebuilt over the centuries due to earthquakes on the fault located in the Raganello River valley.

Through investing in sustainable tourism the village received awards from the ANCI (National Association of Italian Municipalities), as one of the most beautiful villages in Italy, and the Italian Touring Club Orange Flag, a very important label for tourism destinations.

Tourism provision is based on the idea of "paese-albergo", (a form of dispersed hotel accommodation in the village houses. Thanks to its 22 Bed & Breakfast and farm holidays Civita can welcome more than 100 persons per night. It provides its visitors with quality restaurants, guided tour services for hiking, canyoning, birdwatching and visits to the Arbëreshë Ethnic Museum. All services are associated with the "Borghi del Pollino Consortium". In 2016 the village attracted over 15,000 visitors and the numbers are forecast to increase in the coming years.

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The Valjet, a traditional dance performed in distinctive costumes by members of the Arbëreshë community.

Dr. Muto (University of Calabria) explains the geology of Raganello Valley during the 8th Italian Workshop of UNESCO Global Geoparks.



Psiloritis UNESCO Global Geopark, Greece

The establishment of a reward programme in titled “Friends of Psiloritis”



The “Friends of Psiloritis” reward programme was developed by the Psiloritis UGG and is based on the use of a personal card within a network of collaborating enterprises. It was developed under the LEADER+ project titled “Geoproducts”, coordinated by AKOMM Psiloritis S.A. and managed by the network of collaborating enterprises “The Land of Psiloritis S.A.”.

This programme complements the activities of Psiloritis UNESCO Global Geopark, namely to attract more visitors to the area and support the local economy. It promotes the establishment of collaborative groups and networks within as well as outside the Geopark’s territory in order to promote local products and services, to further exploit and add to their environmental and cultural value. Within this framework visitors are motivated to use the most innovative marketing tools that could not be achieved by individual enterprises.

The participating enterprises include accommodation providers, taverns and shops selling local products. They are further distinguished as “providers” and “supporters”. The reward programme of Psiloritis UGG offers the capability for member card holders to collect credits for their shopping activities at the connected enterprises (the “providers” and the “supporters”) and redeem those credits at the enterprises designated as “providers”. The “providers” are the companies located within the boundaries of Psiloritis UGG where the card holders can collect new credits or redeem existing credits by receiving discount prices. Companies designated as “supporters” are located outside Psiloritis UGG, mainly in big cities, where the card holders can collect credits to be redeemed in the “providers” enterprises. The programme was initiated in September 2016 and to date, 19 enterprises participate in the of Psiloritis UGG reward programme as “providers” and 3 as “supporters”.

The process to receive a member card is very simple and can be achieved directly through the webpage www.psiloritisfriends.gr or through geopark’s and AKOMM’s sites. It contains all necessary information and terms of use. By registering the customers receive by e-mail the printable card and can start collecting credits immediately. The general rule for collecting/redeeming percentages is that for each 10 € spent one credit is added to the card. The credits should be redeemed within a period of 24 months. The cards are also scaled



The sign for “providers”.



The sign for “supporters”



An example of a provider enterprise.



Promotion of the “root” and “branches” cards.

according to credits. By registering the customer receives the “root card” which can be upgraded after collecting 100 credits to a “branches card” that offers more benefits to the owner.

Special software was developed to implement the programme and manage transactions. Promotion products and tools included printed material and television broadcasts spots.

It’s worth mentioning that the Psiloritis UGG reward programme relies on the collaboration between local companies that are dedicated to developing and offering qualitative products and services. It is also dependent on the visitors and customers who recognize the efforts of local companies, respect the local environment, culture and inhabitants and want to support local economy and the participatory initiatives of Psiloritis UGG and its enterprises.

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A poster promoting the “Friends of Psiloritis” reward programme.



The European Destinations of Excellence



Cyclists visiting the mining complex of Montevecchio.

With the agreement of the administrators of its territory, the Geominerario Park of Sardinia has for several years been engaged in large and small scale conservation activities leading to the enhancement of its environmental heritage for the benefit of the local inhabitants. The outcome of these activities and the incentive for recognition of these efforts came together five years ago, with the candidacy of the Geopark for the EDEN Prize.

The EDEN initiative was promoted in 2006 by the European Commission. EDEN, the acronym for *European Destinations of Excellence*, is a project promoting sustainable tourism development models and Europe's hidden environmental and cultural treasures. The project is based on national competitions that take place every year developed around an annual theme. In 2011 the nominated theme was *Tourism and regeneration of physical sites* in order to reward organizations which regenerated a physical site of local heritage and converted it into a tourism attraction. The Geominerario Park of Sardinia achieved official recognition in Brussels in 2011 for its enhancement of three different sites. The mining complex of Montevecchio was the overall winner of the project, and the sites of Porto Flavia (Iglesias) and the Coal Mining Museum of Serbariu (Carbonia) tied for the fourth place. The awarded municipalities and sites are allowed to use a label that characterizes them as 'European Destination of Excellence'.



The Carbonia-Serbariu Coal Museum.

These sites belong today to the recently developed EDEN NETWORK of about 140 EDEN sites. This network complements the work of the GGN and EGN and adds another little piece to the construction of an integrated planning initiative for sustainable development. The Network enhances the visibility of emerging, non-traditional European destinations, creates a platform for sharing good practices across Europe and promotes networking. This includes contributing to the EDEN National Tourist Offices (UTN) marketing packages, promotion in the media and in the social media or in tourism fairs. It also involves organizing workshops, familiarization trips for tourists and the promotion in web-based channels and mobile devices of important mass media representatives. Since 2011 the network has continuously progressed its activities. The results are positive and grow consistently. In just over the last three years, the management system in Montevecchio has nearly quintupled the number of visitors per year, with an average increase of more than 30% annually. Visitors are rewarded with a varied package including history, industrial archaeology, environmental education, local products, cultural traditions and oral history presentations delivered by the former miners. Sector studies on the Eden Project confirm that some territories, defined as minor tourist destinations, excluded from the mass tourism circuits, are not marginal areas with a qualitatively weak or absent tourist offer. They are destinations of excellence, based on a marginality that assumes a positive connotation. In fact, the link between local development and marginality is even locally interpreted as an expression of opportunities.

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Sesia Val Grande UNESCO Global Geopark, Italy

The SOIL MATTER

the strong relationship between geology and wine



The Verbania Lake viewed from Villa Giulia, the location of the last wine and geology conference, Sept. 2016.



Global Geoparks are not only about geology. The purpose of a geopark is to explore and develop the link between geological heritage and all the other aspects of the area's natural and cultural heritage. Over the past years Sesia Val Grande UNESCO Global Geopark has worked hard to study, develop and celebrate the extraordinary relationship between geology and wine.

The Alto Piemonte wine region, despite its limited size, has a wide geodiversity, which is reflected directly in the great variety of wines and denominations. Within a few kilometers the rhyolitic lavas of the Supervolcano are replaced by Pliocene marine sand or Pleistocene alluvial deposits. Recent moraines or Triassic carbonates enrich the soil diversity, generating a truly unique *terroir*.

In the last six years Sesia Val Grande UGG has organized many public conferences, wine tasting events and field trips to explain the strong relationship between rock, soil, climate, human heritage and finally wine. Thanks to this experience an attractive popular conference format has been developed to avoid too technical, and sometimes boring, information to communicate the geological heritage, tell amazing stories and capture the interest of the wider public.

The four main distinctive wine *terroirs* are now presented under the following evocative descriptions: the wine a son of fire, the wine arising from the sea, the wine born in the water and the wine shaped by the ice, linked respectively to the main geological features the Sesia supervolcano, Pliocene marine deposit, alluvial

terraces and the glacial morphology and moraines.

Another critical issue is to organize a really appealing event. For this reason the choice of location is of paramount importance. In the past we hosted the event in the cloister of a roman church, 17th century villas, historical cellars and museums. Moreover, to conclude in a more friendly way, the post conference discussion is held during a tasting event. Participants have the chance to taste directly the differences between the wines together with local food, engage with the conveners and the vintners, and experience other activities during the event.

As a UNESCO Global Geopark we cannot limit our activities to effective communication, we have to add important information about the links with the social heritage, ongoing research activities and scientific discoveries. For this reason we open our event with a scientific presentation, to disseminate the most challenging content when participants are best able to concentrate. For example, starting from 2015, thanks to active collaboration with Italian Universities, we launched a new research project to "geologically" characterized wines.

The final goal of this kind of event is to demonstrate that the geological heritage is clearly detectable in a wine glass and to make the local people and tourists aware of our unique *terroir* and finally sustain local wine producers.

Edoardo Dellarole

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Sheep, the source of the cheese paired with the wine during tasting events.



The Gattinara grapes grows on rhyolitic lavas of the Sesia Supervolcano.

Sierra Norte Sevilla UNESCO Global Geopark, Spain

New exhibition at the Visitors Centre Cortijo El Berrocal



The excavation of the fossil tree in 2009.

The exhibit of the fossil tree in the Visitor Centre Cortijo El Berrocal.

The Sierra Norte de Sevilla Geopark (Spain) has completed the renovation of the permanent exhibition at the Visitor Centre Cortijo El Berrocal. This Visitor Centre is located inside the public forest Las Navas y El Berrocal, in the municipality of Almadén de la Plata, in the western region of the Geopark.

In 2011 the Geopark organized the excavation and preservation of the large fossil of an Upper Carboniferous-Lower Permian tree trunk, found in 2005 in

the volcanic-sedimentary deposits of the *Viar Basin*, near the municipality of *Almadén de la Plata*. The fossil, a conifer assigned to the genus *Araucaria*, is more than 16 metres in length and weighs approximately 12 tons. The remarkable state of preservation, from the root to the crown, and its size, make this one of Spain's most significant fossils.

The *Viar Basin*, located in the South-West area of the *Sierra Norte de Sevilla Geopark*, is the most southerly of the post orogenic basins in Europe which range from Carboniferous to Triassic in age. It is filled by a heterogeneous sedimentary wedge of continental origin, consisting of conglomerates, sandstones and mudstones. Minor intercalations of limestone and thin coal seams occur within the pyroclastic rhyodacitic rocks and basaltic lava flows. Locally, these rocks contain abundant plant fossils of Upper Carboniferous (Autunian) age, including the silicified trunks of trees.

Due to the surface topography it was necessary to create access for machinery and to improve the surface of the main track to prevent vibration and damage to the fossil during its transport from the excavation site to the Visitor Centre in *Imadén de la Plata* (about 14 kilometres). Excavations made around the trunk to expose the whole fossil were followed by decisions concerned with where to cut the trunk into pieces of manageable size for transport and the conservation treatment and protection of the fossil with gauze.

The exhibition in the Visitor Centre is intended to combine specialist studies and promote this unique fossil as a geo-touristic resource, available to the general public. Exhibiting this fossil contributes to promoting the geological values of the *Sierra Norte de Sevilla Geopark*.

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The combination of the fossil and photograph provide an impression of the appearance of the in-life appearance of the tree.



Sierras Subbéticas UNESCO Global Geopark, Spain

A Fossil for charity: Probably the biggest chocolate ammonite in the world



In September 2016, The Natural Park Sierras Subbéticas (Cordova, Spain) reached 10 years of membership of the European and Global Geoparks Networks. To commemorate this significant date, and to celebrate its new status as a UNESCO Global Geopark, the management body planned to organize something impressive and attractive for people and the media, and to involve as many Geopark institutions, entrepreneurs and stakeholders as possible.

The main celebration of the tenth anniversary was the Subbéticas Geopark Weekend, an event that involved more than 30 associations, enterprises and institutions, and included more than 30 different activities (a Crafts & Ecological-Local Products Fair, activities for children, nature and aquatic sports, music, live painting, and others) The Geopark's party was held in Rute, a village renowned for its Christmas sweets, anisettes and giant chocolate and sugar sculptures. Taking into account the importance of ammonites in the Sierras Subbéticas territory, and the facilities for working with chocolate in Rute, the Solitary Fossil Project was born. It resulted in the main attraction of the Geopark's anniversary, representing at the same time a benefit for a good cause. For this purpose, a giant 80kg massive chocolate ammonite, 90cm in diameter, was made. As no well-preserved ammonite of this size has been found in Sierras Subbéticas, a clay mould was constructed, and later transformed into a chocolate ammonite by a local artist-entrepreneur. The fossil was exhibited in the centre of the village, and broken apart at the end of its journey. The pieces of chocolate, together with a sip of anisette, were sold for the benefit of the association "Cuenta Conmigo" (Stand by Me), dedicated to the people from Rute with learning difficulties.

The chocolate fossil served as the cake for the ten candles blown out on the Geopark's birthday by the authorities. More than 5000 people visited the Subbética's Geopark Weekend and could admire the



chocolate ammonite or its remains.

In Sierras Subbéticas UNESCO Global Geopark, the territory is characterized by numerous outcrops revealing the nature of the ancient Tethys Sea floor. The *rosso ammonitico* facies from Sierras Subbéticas are included in the inventory of the international GEOSITES Programme in Spain. There is a long tradition of ammonite research in this area. The abundant scientific literature includes the fossiliferous sites of Sierras Subbéticas associated with a significant number of newly defined ammonite taxa. The Puerto Escaño profile is global reference horizon for the study of the Jurassic Cretaceous boundary.

Ammonites are the emblem of the Sierras Subbéticas UNESCO Global Geopark. They serve as an inspiration for the creation of local crafts and products that enrich Geotourism in this region.

The giant solitary chocolate ammonite

The clay mould used to make a cast for the chocolate ammonite.

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Preparing to blow out the candles on the "birthday cake".



Sobrarbe-Pirineos UNESCO Global Geopark, Spain

Ice caves. Geoheritage threatened by the global warming



The Tres Serols or Monte Perdido Massif (3355 m)

(Photo. Ánchel Belmonte)

Sobrarbe-Pirineos UNESCO Global Geopark hosts the highest calcareous mountain range in Western Europe: the Tres Serols or Monte Perdido massif. This outstanding area is not only a UNESCO Global Geopark, it is also Biosphere Reserve and a World Heritage Site. It also lies within the heart of the Ordesa and Monte Perdido National Park.

The massif hosts a complex network of caves. Some contain large amounts of subsurface ice and are therefore known as ice caves. The ice originates from wind-blown snow and from dripping water that freezes when the air temperature in the cave is below zero. These unusual ice deposits within the high mountain caves are among the most important geosites in Sobrarbe-Pirineos Geopark.

Sometimes, plant remains trapped inside the ice deposits allow geologists to determine the chronology of formation of the ice. From radiocarbon analyses of these vegetal remains, geologists know that most of the oldest ice is derived from the Little Ice Age (a cold climate phase that occurred between the 14th and the

19th centuries). However, in some caves the ice is even older, and derives from the middle Holocene (about 5000 years before present!).

Chronological data concerning the formation of the ice deposits can be used to determine the climate history of the region. By understanding the present connection between the cave conditions and the outside climate, the relationship between some of the ice properties and past climates can be established. Oxygen isotope analyses of the ice or pollen contained in the ice provide useful proxies to decode information about past climates. This is the current work that researchers of the Pyrenean Institute of Ecology and Zaragoza University are developing. The project is funded by a research grant from the National Park and of the Sobrarbe-Pirineos UNESCO Global Geopark.

This research project is both timely and urgent. Due to global warming, the mass balance between the accumulation and ablation rates of this subsurface ice is alarmingly negative. The researchers also measure the rate of annual ice loss and the data obtained leave no space for optimism. How long will the ice deposits survive? This question has no easy answer. It depends on the pattern of changes in climate in future years. If nothing changes, maybe in only fifteen years, this outstanding record of the climate during the past 5000 years will disappear. We hope, at least, to have been able to decipher these beautiful climate archives before they are lost through global warming.

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An ice cave in Sobrarbe-Pirineos UNESCO Global Geopark.

(Photo. Miguel Bartolomé)



Swabian Alb UNESCO Global Geopark, Germany

New geopoints



The Geopoint logo

The Geopark Swabian Alb has, in addition to its permanently staffed headquarters, 26 information centres which contribute to the decentralized structure of the Geopark. The staff in these centres promote the Geopark, its products and its activities. The information centres are

most important for the functioning of our large Geopark and increase the provision for sharing Geopark topics. The centres themselves have various partners in all the Geopark's thematic activities including geology, nature, culture and archaeology. They are linked with museums, caves and educational facilities, and the staff are able to convey geological information as part of their daily work.

A new Geopoint: Nusplingen plate limestone

Outside the centres there are more than 2000 geological attractions. Most of these are geotopes located mainly in the open landscape without the necessity to become Info centres. However, the Geopark has developed a new category called „Geopoint Geopark Swabian Alb“. The geopoint logo is included in the design of the Info Centre logo including the name of the attraction and a QR-code. The first 13 geopoints were established during the summer of 2016. Geopoints bring the geological attractions under the umbrella of the Geopark. Links to the respective highlights are available, in German and English, on the Geopark's homepage via the QR-code on the Geopoint-sign. The Geopoints now being developed, are part of the Geopark's visitor guidance concept. The plan is to install a few hundred geopoints and to link them with the Info centres of the UNESCO Global Geopark Swabian Alb.



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Drilling for Geothermal Energy in TERRA.vita Geopark.

In 2017 TERRA.vita Geopark and the County of Osnabrück, Department for Climate Protection will initiate a project to encourage planners to use near-surface geothermal energy from depths between 2 and 100 meters in newly constructed buildings.

Forty seven percent of the county's area is located in the Geopark. One goal of the Climate Protection Department is the 100 % substitution of energy production based on coal, oil and gas by renewable energy sources by 2050. This includes the production of electricity as well as the provision of heating for households.

While generating electricity based on using wind- and solar energy is already well developed, generating heat is a more difficult issue. Most households in the TERRA.vita area are heated either by gas or by oil. To replace these existing heating systems with geothermal heating is relatively complicated and expensive, as large heating surfaces such as underfloor-heating are necessary to use near-surface geothermal energy.

In the case of newly constructed buildings, it is far easier to integrate geothermal systems. In this case another advantage of this technology is significant. During the summer these systems can also be used for cooling – given the fact that they are correctly designed for this purpose. During the summer the near surface ground temperature is a constant 10° – 12° centigrade. In winter this is upgraded to 40° degrees for heating purposes by using a heat pump. While cooling

the rooms in summer, heat is transported back to the downhole heat exchanger, at the same time regenerating stored ground heat for the winter period.

For this reason, in spring 2017 TERRA.vita together with the climate initiative of the county will start a campaign directed at architects, planners, housing cooperatives and communities, to implement the distribution of geothermal heat use in the area.

The first step in this campaign is a training course that will be offered in May 2017, dealing with technological subjects as well as authorization issues and the possibilities for obtaining funding through grants. The second course will be designed as an advanced seminar to consolidate and complete the participants' knowledge.

The goal of the seminars is to have the experts trained and motivated to adopt geothermal heating as a realistic option for every new building that is being planned in the area. Further activities such as a special event for the industrial use of geothermal energy and the design of an alternative estate-development plan are in a planning phase.

The role of the Geopark in this context is to provide an appropriate framework for the activities and to outline the connection between the geoscientific basis and the technological opportunities of geothermal energy.

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Terras de Cabaleros UNESCO Global Geopark, Portugal

“Murçós Mines – The stories of its people”

Mr. Agostinho an ex-miner views the remains of the Mining Complex of Murçós during the production of the documentary.



“In the village of Murçós, the stones speak. They tell the story of a quiet village, where the sound of hammers and machines overshadowed the calm of the mountains, rivers, animals and people. Here, history is made of stories that have long waited to be told!”

Nowadays there are just over 100 inhabitants who live in this small countryside village in the interior of North Portugal. Only those who are more resilient stay in the increasingly deserted and lost land that hopes to live on in the older people’s memories.”

This is the story told in the documentary “Murçós Mines - The stories of its people” that was the first presented to the public on August 13, 2016 in Murçós village.

This documentary was produced by the Terras de Cavaleiros UNESCO Global Geopark in partnership with the University of Trás-os-Montes and Alto Douro, in order to preserve the memories and experiences of the former miners of Murçós mine, an intangible heritage of immeasurable value. “What were the conditions like? How did they live? What did they feel? What has

changed? These are the testimonies preserved in the documentary, a legacy for future generations, which tells how the current inhabitants remember the past.

The Murçós mine is one of the 42 geosites of the Terras de Cavaleiros UNESCO Global Geopark. The mine, which employed more than 500 miners, was a source of wealth and happiness. During World War I the the arms industry expanded considerably, and the alloys of tungsten with their high-density and resistance to high temperatures, were very important for manufacturing weapons. As a result, some inhabitants of Murçós responded to the demand for ore. With the onset of World War II, the price of tungsten rose significantly, and most of the village population were involved in the search for ore.

“Murçós Mines - The stories of its people” is a documentary that intends to show this mining activity - told in the first person - to all those who visit or are interested in our territory. The documentary also includes the educational and tourist programmes of the Terras de Cavaleiros UNESCO Global Geopark.

View the documentary on:
<http://www.geoparkterrasdecavaleiros.com/pt-pt/content/documentario>

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Invitation sent to the community to participate in the presentation of the documentary.

Some of the former miners interviewed together with the members of the technical team responsible for the development of this project.



Troodos UNESCO Global Geopark, Cyprus

The visibility project

Geographical location of the Troodos Geopark. The map shows all the roads leading to the geopark.



The Troodos Geopark covers an area of 1,147 km². It is situated in the heart of the island of Cyprus, which is located in the eastern Mediterranean Sea. The Geopark area is mountainous and ranges in altitude from 300 m to 1,952 m. Chionistra summit is its highest peak. Four main roads lead to the Geopark from the largest cities but the Geopark is also accessible from many other scenic routes from all urban centres

The Cyprus Geological Survey Department (GSD), following the advice of the evaluators during the evaluation mission in July 2015, decided to begin a campaign in order to improve the visibility of the Geopark. This campaign was initiated in November 2015 and will continue until the end of 2016.

The main aim of the campaign is to place four different types of guiding and information panels along the highways and the majority of the main and secondary roads leading to the Geopark area, as well as one information panel for the geotopes at the most frequently visited sites in the Geopark.

In more detail, this concerns the construction and placement of the following panels :

- An information panel with bilingual text and a map illustrating the Geopark boundary, the main roads and the gateways to the territory. Panels with this design will be placed along main and secondary roads leading to the Geopark at locations where roads intersect with the Geopark boundary.
- A panel with the Geopark's logo, a bilingual text and

an arrow pointing to the Geopark area. Panels with this design will be placed along the highways and at the beginning of main and secondary roads leading to the Geopark area.

- A panel with a bilingual text and an arrow pointing the way to the Geopark's Visitor Centre.

The aim of these signs is to guide the visitors to and around the Geopark area.

Furthermore, informational panels for the geotopes of the Geopark with the logos of the UNESCO Global Geoparks, European Geoparks Network and Troodos Geopark, a map and bilingual text have been constructed and placed in the villages of Agros, Kakopetria, Platres, Omodos and Troodos Square and at the Kykkos and Agios Ioannis Lampadistis monasteries. The latter is a UNESCO World Heritage Site. The map of this sign also shows the location of nature trails and geotrails together with sites of geological and cultural interest.

At the end of the campaign, a total number of 45 panels of all types will be placed, significantly improving the visibility of the Troodos Geopark, not only for visitors but also to the local population.

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Geoscientist of the Troodos Geopark

(a) Informational panel providing directions and road signs of the Troodos Geopark;

(b) Information panel along the Lefkosia - Kakopetria main road.



Information panel illustrating the locations of Troodos Geopark geotopes in the Troodos Square.

Vikos Aeos UNESCO Global Geopark, Greece

Nature and outdoor activities



Hiking at Dragon Lake.

Photo by Haritikis

Mountain climbing and hiking in the **Vikos Aeos UNESCO Global Geopark** are unique experiences. The region is characterized by rich, dense forests. Bushes of holm oak, cedar, ash and scrub oak dominate the low altitudes and at slightly higher altitudes, where most of the villages are built, oak forests dominate. Higher still, we encounter black pine, fir, beech, mountain juniper and Balkan pine. At the highest altitudes, where the rocky soil permits, sub-alpine grasslands grow. Steep mountain slopes and gorges characterize the western part of the region, while small lakes, the largest being Dragonlakes, add rare beauty to the wild landscape.

Old paths, stone arched bridges and stone steps will lead you to places of incomparable beauty in the famous Vikos and Aeos gorges. There are many sign-posted paths connecting the villages and many others leading up to the high peaks of mt "Timfi" (2497m), mt "Smolikas" (2637m), mt "Trapezitsa" (2022m) and several other mts. The many forest roads are suitable for mountain biking, and there are also two runways for paragliding enthusiasts. The steep slopes of "Gamila", "Astraka" and "Tsouka Rossa" peaks, with routes that have a high level of difficulty, are ideal for rock climbing.

"Vikaki" and many other small gorges are also suitable for canyoning, while the rivers Aeos and Voidomatis are ideal for rafting and kayaking. There are several river routes of various level of difficulty, up to 27 km long. The most preferable route in Aeos River is very demanding, with high grades of difficulty (V & VI) all along the way, whereas in Voidomatis River the classic route follows a scenic passage down the river and takes 1-2 hours



Rafting in the Aeos River.

Photo by Giogos Pouloupoulos.

with only II grades of difficulty. Three mountain refuges located in high altitudes and several hostels and restaurants inside the 50 villages of the Geopark provide food and accommodation for the numerous visitors from all over the world.

Birdwatchers and naturalists will also find the rich wild fauna of the Vikos Aeos Geopark very interesting. Balkan chamois, brown bears, wolves, otters, wildcats, stone martens, roe deer and possibly the lynx have been recorded in the Geopark. The area's most interesting bird species include the golden eagle, Egyptian vulture, peregrine falcon, black woodpecker, willow tit, and white throated dipper. Zagori is also home to rare amphibians and reptiles including the alpine newt, salamander and the tortoise.

About 2,000 plant species grow in the Vikos Aeos Geopark, and many of these are rare or endemic, such as *Centaurea tymphaea*, *Bornmuellera tymphaea*, *Onosma epirotica*, *Saxifraga biflora subsp. epirotica*, *Galium sacrorum*, *Hieracium dasycraspedum* and *Ramonda serbica*.

Finally the Vikos Aeos Geopark Information Centres together with those of the Northern Pindos National Park located in strategical points, provide useful information for the visitors.

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The Vradeto Steps.

Photo by Haritikis



Creating a Shelter for Hikers by Renovating a historic water pump house



Official inauguration of the renovated historic water pump house, which now functions as a rest area for hikers.



Replacing the roof of the historic pump house.



Nature- and Geopark Vulkaneifel honours the municipality of Brockscheid as an official partner

The water pump house in the village of Brockscheid was built in the 1930's and is a relict from the early days of the municipal water supply. Over the years, it had become dilapidated, but due to the efforts of the municipality of Brockscheid and the Nature- and Geopark Vulkaneifel it could be restored and now functions as a shelter and rest area for hikers. The building is accessible along the 14.8 km hiking trail which connects the villages Üdersdorf, Tettscheid und Brockscheid.

The renovation of the historic water pump house included replacing the roof and windows. In addition, the building was re-decorated and earthworks in the immediate surroundings were repaired.

The building surrounds the near-surface spring of the Pfaffenborn which is located in a geological fault zone. Water was filtered through a thin layer of sand before extraction from the Devonian basement rocks. The production of near-surface drinking water from such springs was

typical for the region until the 1960's. The water which was collected in catchment basins drained uncontrollably into a nearby stream. The area around the water pump house was therefore highly waterlogged during the winter months. In order to improve this situation, a pond was created to trap the surplus water and lead it into the nearby stream under controlled conditions.

In September 2016, the restored water pump house was inaugurated during an official ceremony. The ceremony was attended by representatives and citizens of the municipality of Brockscheid and numerous other guests from nearby villages. Werner Klöckner and Dr. Andreas Schüller from Nature- and Geopark Vulkaneifel recognized the commitment of the municipality of Brockscheid by accepting Brockscheid as an official partner of Nature- and UNESCO Global Geopark Vulkaneifel.

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Live the experience of the landscape ...

Discover the Sitia UNESCO Global Geopark



Caves are of the most spectacular features of Sitia UNESCO Global Geopark.



Raised terraces define the height of ancient coastlines above the current sea level at Kato Zakros Old.



Children learn climbing techniques and enjoy an outdoor experience in the Geopark.

The Sitia UNESCO Global Geopark is located in eastern Crete. It includes the wider region of Sitia and the coastal areas extending from North to South. The boundaries of the Geopark have been clearly defined and include an area of 517 Km². The Geopark is characterized by a wide variety of abiotic and biotic elements and it has, for many years, been recognized as a unique geo-touristic destination in Crete.

There are 20 geo-trails along which visitors can wander and get to know closely the unique geology, palaeontology and the biodiversity of the region, its rich history, culture and everyday life of people living in the Geopark. Those geo-trails also include road trips, biking and hiking trips. They are fully supported by modern technologies using Geographic Information Systems (GIS) and by a network of information panels providing signage, location and directions along the length of the trails. The Sitia UNESCO Global Geopark, is an ideal place for outdoor activities. Exploration in one of the many caves and associated underground rivers provides a unique experience. Windsurfing in Kouremenos, one of the most popular beaches in the world for this sport, brings hundreds of visitors every year from around the world. Rock climbing, at the entrance of the "Canyon of the Dead" from Kato Zakros or on the vertical limestone cliffs of many other canyons, is popular. Canyoning in one of the many gorges in Sitia UNESCO Global Geopark includes smooth riverbeds that do not require special expertise and equipment, as well as canyons with wa-

terfalls and vertical cliffs which attract experts in this activity.

Within the Geopark, visitors can find two information centres: the Natural History Museum of Zakros and the Centre of Speleological Research in Karidi. These centres provide training programmes about the environment and geo-diversity of the Geopark, while the centre in Karidi offers the possibility of hosting research missions. There are educational programmes supported by printed material, interactive games and equipment for experimentation. Visitors can also find all the necessary information for their tours in the ecotourism guide book and the geotouristic map of Sitia's Geopark. In the Natural History Museum of Zakros there is an exhibition of 12 thematic posters, interactive displays with micro-dioramas and rock samples, video projectors and a video room, where a documentary about the Geopark is presented. The information centres provide all the necessary information and materials produced for the use of visitors to the Sitia UNESCO Global Geopark, including maps, the geo-trails, the geo-sites and all other useful information for the territory.

Sitia UNESCO Global Geopark.

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Welcome

The Azores archipelago, in the North Atlantic Ocean, has a rich and vast geodiversity and an important geological heritage, supported on a network of 121 geosites dispersed by the nine islands and the surrounding seafloor, with relevant scientific, educational and tourist value.



Volcanoes, calderas, lakes, lava fields, fumaroles, thermal waters, volcanic caves, "fajãs", fault scarps and marine fossil deposits, among many others, can be seen on the Azores UNESCO Global Geopark.

Committed with the sustainable tourism to improve the quality of life in the territory and making it a better place for future generations, the Azores Geopark offers unique natural and cultural experiences, hold up on an international reputation for authenticity, responsibility, and exemplary management of tourism as one of the world's 2016 Sustainable Destinations Top 100.

Thus we invite you all to visit Azores, participate on the EGN Azores 2017 conference and to meet the Azorean people and volcanoes, and enjoy an eruption...of Flavors, Aromas and Experiences!

THEME

GEOPARKS: PATHWAYS OF SUSTAINABLE TOURISM FOR DEVELOPMENT

ORGANIZATION

AZORES UNESCO GLOBAL GEOPARK

PLACE

Ponta Delgada city, S. Miguel Island, Azores Archipelago, Portugal

DATES

EGN AC Meeting: 5th September, 2017

EGN CC Meeting: 6th September, 2017

Conference: 7th - 9th September, 2017

POST-CONFERENCE FIELD TRIPS (OPTIONAL):

PCFT 1 - S. Miguel & S. Maria islands: the geologic birthing of Azores: 10th - 12th September, 2017

PCFT 2 - Terceira & Graciosa islands: a whole world of lava and heritage: 10th - 12th September, 2017

PCFT 3 - Faial, S. Jorge & Pico islands: from majestic volcanoes to great people: 10th - 13th September, 2017

PCFT 4 - Flores & Corvo islands: islands of fire and water: 10th - 12th September, 2017

For more information:

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EUROPEAN GEOPARKS

14TH/CONFERENCE

7TH - 9TH SEPTEMBER 2017
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