ProGEO NEWS

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the european association for the conservation of the geological heritage

Albania Geotrip

from 15 to 17 September 2017

by:
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ProGEO-Albania every year organizes geotrips to the most interesting landscapes, geosites, and geoparks. The three days Geotrip 2017 was organised with the following itinerary.

Tirana-Llogara tectonic plates and Geopark-Ionian Rivera-Saranda-Butrinti ancient archeological site, Ksamili Islands, Blue Eyes Spring, Gjirokastra museum city and old castle, Tepelena, and back to Tirana.

The first visit was to Llogara Pass, an outcrop of the contact of tectonic plates where it is in grown Llogara pine forest. Getting up from Dukati village to Llogara Pass involved crossing the Logara Geopark and Llogara-Dukati regional seismtectonic fault.

It is a single outcrop of the subduction of African Plate (Adria Microplate) underneath Orogen (Euroasian Plate). Dolomite rocks of Ionian tectonic zone east rise up to 2000m, while to the west, there are outcrops fine bedded, algal limestone of shallow water platform full of rudists and gastropods forming, some times, "storm deposit" beds. Just into the Llogara Pass (1027m above the sea level) there is a large and excellent outcrop the of the Sazan-Karaborun zone (Adria Microplate).

Figure 1 : Contact between African Plate (Adria Microplate) and Euroasian Plate.

Llogara Geopark is one of the most beautiful and important geoparks in Albania and the Llogara Pine Forest (1040 Hectares), is a National Park of ecological-zoological importance. Llogara Geopark is the most important geotouristic spot of Vlora region with geoscientific, ecological, environmental and tourist importance. The forest grows at levels from 400m up to 1300m, situated above the Adriatic and Ionian seas, consists of different coniferous plants.

The trip continued along the beautiful Ionian Rivera. Short stops for observation were done in the Himara Mountain Amphiteater north of the blue sea and in the Palermo penninsula with the castle of Ali Pasha Tepelena, and also at Borshi-Buneci beaches.

Borshi and Buneci white colour sand beaches (due to carbonate-siliceous pebbles and sands), together with cold water springs, vegetation, and geosites around, constitute a seaside geo-eco-system of the most interesting and beautiful in our country, and are considered as a pearl of Albania.

On the second day, firstly the group visited Butrinti archaeological site (UNESCO World Heritage - from 800 BC until the arrival of the Romans Butrint was under the governance of the Greeks, becoming a Roman colony in 44 BC). The group visited: Three Corners Fortress, Kalivo, Amphitheater, Tower Gate, Lion Gate, Nympheum, Temple above the Theater, Asclepius Sanctuary, Roman Baths, Mosaic Holls.

Figure 2 : Blue Eyes Artesian Spring.

After Butrinti a short rest was taken in the Ksamili Islands, one of the best rest spot in Ionian Seaside.

The most interesting part of this day was the visit to "Blue Eyes Spring" geosite. Here in the tectonic contact between Jurassic limestone of Mali Gjere anticline with evaporate rocks, there are 18 cold-water springs (13o C). The biggest spring - Blue Eyes Spring - has a flow of about 6m3/s. It is in the form of an artesian spring, through a vertical cave of 45m deep. The springs surroundings are covered by old forest trees.

The trip continued up to the Muzina Pass, to observe the Mali i Gjere (Wide Mountain) stratigraphical section of Mesozoic carbonate rocks and the outcrops of ''Terra Rossa", red, soft, lake formation. Getting down from Muzina Pass to the eastern slope, to visit the very fine-bedded limestone of Cretaceous, Paleocene and Eocene, with some under water slumping. The second day finished in the Museum-City of Gjirokastra - UNESCO World Heritage Centre.

The Gjirokastra stone city was visited on the third day. The Large Fortress and high houses as castles are built by stone, and covered by stone tiles. The walls and minarets of religious buildings are of stone. The gates of houses and yards are of engraved stone, protected by metallic nets of artistic forms. Steps of houses and roads are by white stone, often reworked masterfully. The roads are paved by black cobblestone of flysch and sandstone combined with white limestone mosaics. The architecture of houses, gates, angles, windows, with predomination of arc forms, with engraved stones and ornaments is evident. To see the view of this ancient stone city the visitor should climb up to the Fortress or walk up to Keculla Hill, and watch the Stone City, Drinos Valley, and Lunxheria Mountains.

Figure 3 : Gjirokastra stone city.

After the Gjirokastra city the group returned to Tirana. During this journey, participants watched geological formations and geosites in Tepelena, Memaliaj and Mallakastra regions. In Memaliaj the Molasse section (coal and fossil beds) were observed.

Natural marvels

tourist trail of nature in the Bochnia Salt Mine

by:
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In the area of Bochnia city the salt has been extracted by brine evaporation since the Neolithic Period. In the gap section of the Babica river valley, where the river cuts the northern flank of the Bochnia fold (Miocene sediments) the salinity of the river greatly increases.

Figure 1 : Gallery partly filled with brine.

During the 12th and 13th centuries the brine prospection was intensified in this area and one of well diggings resulted in an unexpected success – reaching of a salt deposit. In 1251 the developed well became the first shaft of the salt mine in Bochnia. The Bochnia Salt Mine is a prominent geosite that will be visited during the pre-conference excursion of the IX International ProGEO Symposium, June 2018.

The tectonically depressed Carpathian foreland (Carpathian Foredeep) was occupied (in the middle Miocene) by a sea that was a fragment of the Paratethys. Owing to conditions at the time evaporite sediments started to accumulate on its "floor". Among these sediments was the Badenian salt series with the Bochnia salt deposit. Volcanic activity relating to the Carpathian orogenesis is marked with tuff horizons within the salt deposit. In the Bochnia salt mine three tuff horizons have been identified. The tuff layers are spectacular: they are represented by a grey to rusty-brown (after weathering) 2-4 cm thick layer that occurs within claystones.

The tectonically induced changes in palaeogeography, contemporary to the volcanic activity, are marked by breaks in the salt accumulation as well as intercalations of terrestrial sediments. These sediments are represented by bedded claystones and siltstones with anhydrite intercalations. Also, wood (currently lignite) fragments were transported from a land into the marine basin. Apart from wood fragments, cones, various fruits and seeds and even grass stalks can be found within salt bodies. In the salt series coral skeletons and mollusc shells have been found and in the marly clays of the Skawina Beds underlying the salt series there are numerous marine foraminifera.

During the many centuries of the existence of the mine various secondary salt forms have developed. These have been caused by water and then brine circulation through the old mine galleries and shafts as well as high humidity of the mine air. Where there are brine seepage in galleries secondary salt dripstones, flowstones and incrustations have been developing.

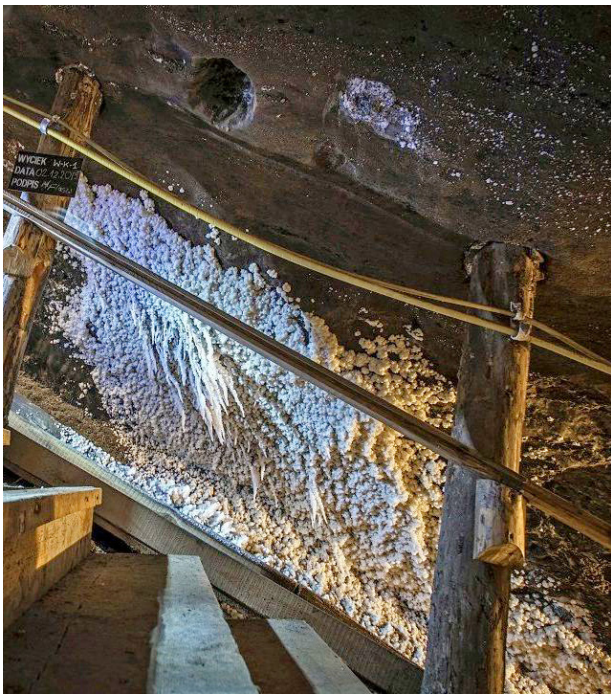

Figure 2 : Halite flowstones and stalactites growing oblique to the wall surface.

The stalactites oblique to the horizontal (roof) or vertical (wall) surfaces that grow against the airflow are a very interesting and impressive example of such secondary salt forms. They grow due to the aggradation of salt micro-crystals from sodium chloride aerosols in the air. The other very specific forms of salt crystallization are aggregations of fibrous salt crystals called hairs of Saint Kinga (a princess who was a legendary founder of the mine). The aggregates of large cubic salt crystals growing in brine pools due to the slow precipitation and crystallization of sodium chloride are the most typical and characteristic secondary salt forms.

The uniqueness of the mine is demonstrated by mirabilite (hydrous sodium sulfate), called Glauber's salt, a very rare mineral that occurs (as a natural formation) only in a few places in the world. The name "mirabilite" is formed of the two Latin words "sal mirabile" – marvel salt, which expresses the surprise of the German chemist, J.R. Glauber, who obtained it as a product of the reaction of sodium chloride and sulfuric acid. A mirabilite has specific salt-bitter or salt-sour taste. In the Bochnia Salt Mine it forms incrustations and flower-like formations. This mineral is stable only in specific mine conditions, where the temperature is relatively constant and low (16°C) and humidity is high. In the surface environment, in dry and warm air it dehydrates and changes into another mineral - thenardite, meaning it must be preserved in sealed vessel and kept in a cold place.

Although anhydrite (calcium sulphate) is very common mineral in the Miocene salt formation, the structures formed by this mineral are very characteristic. The anhydrite in the Bochnia Salt Mine is white, bluish-white or light blue. The most spectacular structure is represented by very densely folded thin layers of this mineral.

The unique environment of the Bochnia Salt Mine is also a reason for the occurrence of fluorescent halite. In 2014 a perfectly crystallised cubic halite crystals were found which emit orange or pink-red light when irradiated with UV rays (wavelength below 320 nm). Such phenomenon is extremely rare and in the Bochnia Salt Mine it was observed only in two sites. A recent study from the University of Science and Technology AGH (Krakow) indicated that the fluorescence of halite from the Bochnia Salt Mine is caused by the occurrence of small admixture of manganese and lead in the crystal structure. Manganese and lead molecules inhibit the UV radiation energy and stimulate the crystal structure to the emission of its own colour light. The recent observations proved that fluorescence occurs only in the secondary halite crystals that have developed in the brine pools or as flowstones in the gallery walls that have not been mined. The primary salt deposit, which was mined for several centuries, is devoid of the manganese and lead admixture and, thus, does not display the fluorescence.

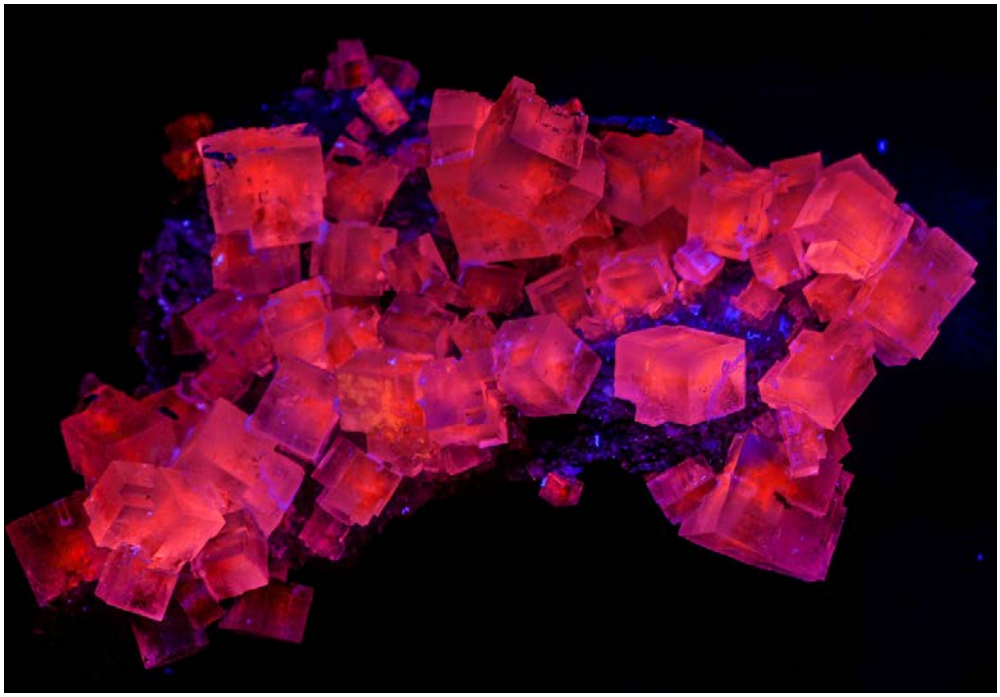

Figure 3 : Fluorescence of halite crystals in the Bochnia Salt Mine.

All these natural phenomena are presented along the new tourist trail recently prepared in the original galleries of the Bochnia Salt Mine. The walk along the trail enables the study of the geological history of the salt deposit. Tourists get acquainted with all rocks and minerals forming the salt series: so called northern salts, central salts and southern salts, gypsum and anhydrite as well as tuff horizon (volcanic sediment).

Furthermore, we can observe the human impact on the unique environment of the salt mine as well as secondary formations developed due to the human indirect activity (e.g. halite flowstones, dripstones, incrustations, various types of macro-crystals). Also the problem of halite fluorescence is demonstrated and interpreted during the underground trip. The excursion makes possible to realize the role of many processes, since the salt accumulation on the floor of the Miocene basin, through the mining and other direct human activity to the secondary halite crystallization and other recent phenomena, which create the current natural beauty of the Bochnia Salt Mine.

Figure 4 : Ważyn Chamber – one of the largest chambers of the mine adapted for the public usage.

Danish geosites

series of books describing sites of national geological interests

by:
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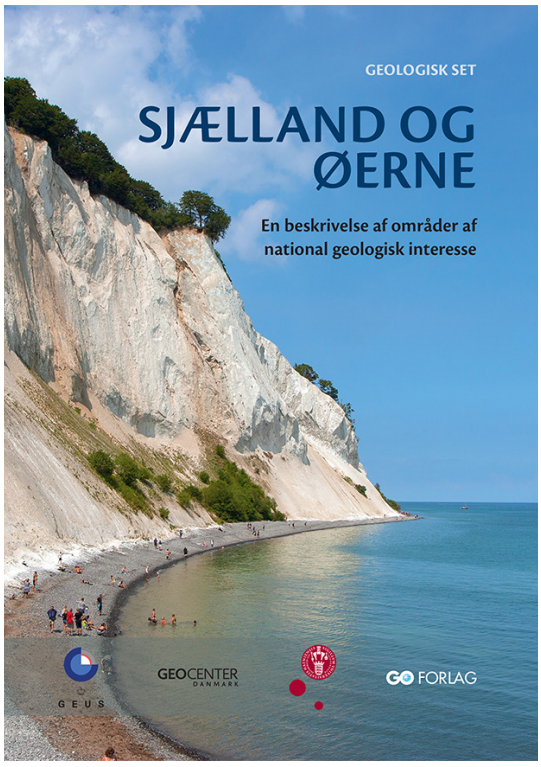
In the beginning of the 1980s, the Danish Nature Agency developed a nationwide map of sites of national geological interest. The sites were selected by a group of geologists and geographers from the universities, industry and the Geological Survey of Denmark (now GEUS) in collaboration with geologists employed in the then county municipalities. The purpose of the map was to get an overview of sites of national geological value, in order to take into account and prioritize the geological values of planning.

Most of the sites belong to a few major groups. The first group represents geological profiles that illustrate the materials and processes that have formed the landscape and strata through time. These profiles are located in erosional coastal cliffs and in quarries. Landscape forms are another group. The contours of the landscape reveal the nature of the processes responsible for their formation. Some localities represents large areas. The 'active' localities demonstrate the forces of the nature and the focus is on the dynamic processes of today and the mode of formation of coastal landscapes in the present and past.



There are about 200 designed sites of national geological interests in Denmark. To make the sites more familiar and easier to find, they have all been described in the book series 'Geologisk set' (Geologically seen), which consists of: Geologisk Set – Det Nordlige Jylland (Northern Jutland, 1992), - Det mellemste Jylland (Middle Jutland, 1994), - Det sydlige Jylland (Southern Jutland, 2004), - Bornholm (1996), - Fyn og øerne (Funen and the Islands, 2002), and now Sjælland og Øerne (Zealand and the islands, July 2017).

42 of the designed sites are located in Sjælland, Lolland, Falster and Møn. These sites represent the results of geological processes responsible for the formation of Denmark through millions of years. This description of the localities contributes to general knowledge of the geology of Denmark and enables geological processes and materials to be experienced, studied and understood. This book is intended to serve, as a guide to the geology of Sjælland, Lolland, Falster and Møn. Amongst the sites described in this book is the famous UNESCO World Heritage Site Stevns Klint.

All six books are written in Danish but they all include a rather detailed English summary. The books can be ordered from www.goforlag.dk

Earth Sciences for Society

First International Congress on Geosciences

by:
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The First International Congress on Geosciences entitled "Earth Sciences for Society" will be held at the Faculty of Sciences, University Chouaïb Doukkali, El Jadida (Morocco) from the 20 to the 24 March 2018

Second circulat is avaiable at:

http://www.progeo.ngo/assets/2_circular_congress_morocco_2018.pdf

EGU General Assembly 2018

Geodiversity and geoheritage: pending and emerging issues and challenges

by:
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The success of the joint sessions on geodiversity and geoheritage from 2013 and particularly during the 2017 EGU demonstrates the importance of heritage issues to the geoscience community. It also highlights the capacity of geoheritage to link other disciplines in the natural and social sciences. In the light of more than 30 years of international work on the topic, this EGU 2018 session aims to highlight the issues and challenges still pending or emerging.

Presentations are invited on the following issues (without strict limitation to these topics), that concern also transversaly the geosites (including geomorphosites):

- Concepts and methods for geodiversity and geoheritage: looking for standards?
- Geosystem services: an unrecognized part of ecosystem services.
- Geodiversity and geoheritage facing global change and natural risk.
- Heritage stones and geomaterials for smart and resilient cities.

All the detailed information related to this session and the abstract submission can be found in these links:

https://meetingorganizer.copernicus.org/EGU2018/session/27414

https://egu2018.eu/abstract_management/how_to_submit_an_abstract.html

Geoheritage: the foundation for sustainable geotourism

by:
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The conference entitled "Conference: Geoheritage: the foundation for sustainable geotourism " will be held at Sasso di Castalda, Potenza (Italy) from the 26 to the 27 April 2018.

The conference includes sessions on: study of the geoheritage, geoheritage and landscape, territorial planning and geoheritage, techniques for geological heritage enhancement, sustainable geotourism

Deadline for abstracts: January 31, 2018.

More information available at:

http://oldwww.unibas.it/patrimoniogeologico/ING/index.html

http://www.progeo.ngo/downloads/Potenza_2018.pdf

The IXth International ProGEO Symposium

by:
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IX Symposium ProGEO Poland 2018

Geoheritage and Geoconservation: Modern Approaches and Applications Towards the 2030 Agenda

Chęciny, Poland
25-28th June 2018

http://www.conference-eceg.pl/en

2018

15th February	The deadline for early registration and conference cost payment with reduced rates
15th March	The deadline for abstract submission
30th April	The deadline of final acceptance of abstracts. The deadline for regular payment of conference cost
15th May	The deadline for cancellation with a full refund of conference cost
15th June	The deadline for cancellation with 80% refund of the conference cost
~15th June	3rd circular with program timetable

Registration and submitting of abstracts are open.

EGU Training School

Geoheritage management conservation, promotion and monitoring

by:
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The training school is addressed to early career scientists (35 years old or younger) and undergraduate or postgraduate students (who obtained her/his highest degree qualification within the last two years) involved with any topic related to geoheritage and aiming to know more about these subjects. EGU is sponsoring partially or totally the travel and accommodation expenses to facilitate the attendance of key young researchers. EGU grants application is open until 28th February 2018.

The main objective of the training school is to present and discuss the geoheritage management topic, namely the conservation, promotion and monitoring of geosites and geodiversity sites. The understanding of these management actions and the learning from successful examples are essential tools in any geoconservation strategy and in the establishment of priorities in site management.

It comprises 4 full days of lectures and discussion at the University of Minho and 1 day of fieldwork in a Portuguese UNESCO Global Geopark. The lecturers are internationally recognized experts on geoheritage and management.

Deadline: 28th Feb. 2018 for EGU grants.

Visit the training course website at: http://www.dct.uminho.pt/geoheritage2018/

The EGU Training School on "Geoheritage management: conservation, promotion and monitoring" will be held at the University of Minho, Braga (Portugal), from the 24 to the 28 September 2018.

Geoheritage assessment, protection, and management

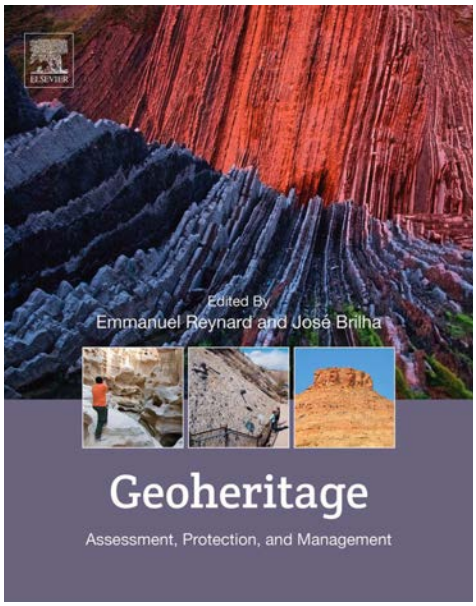
new book

by:
ProGEO [progeo@progeo.ngo]

Geoheritage Assessment, Protection, and Management. The first reference book presenting state-of-the-art research on geoheritage and geoconservation around the World.

Edited by Emmanuel Reynard and Jose Brilha. From the publisher's description: "For the last 20 years there has been a growing interest in the geosciences for topics related to geoheritage: geoconservation, geotourism and geoparks. Geoheritage: Assessment, Protection, and Management is the first and only reference book to cover these main topics as well as the relationship of geoheritage to other subjects such as landscapes, conservation, and tourism. The book also includes methodologies for assessment, mapping, and visualisation, along with case studies and colour images of some of the most important global geosites." We will come back with a review of the book as soon as possible.

More informatiom at: https://www.elsevier.com/books/geoheritage/reynard/978-0-12-809531-7



Deadline next issue of ProGEO NEWS

February 20th, 2017

Please send contributions to ProGEO NEWS. Members are interested in things that happen all over the world, your experiences, activities, science, geosites, geoconservation and geotourism efforts!

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Please send your contributions (unformatted word file). 500 – 2000 words with photographs, maps and figures clearly marked as ProGEO NEWS.
If longer texts are needed, please contact the editor.

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