

Oslo valuable fossil site

Biological maintenance

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The Oslo Region is a geological structure that varies in width from 40 to 70 km and extends approximately 115 km both north and south of Oslo. The region is fault controlled (the Oslo Graben) and covers an area of roughly 10,000 km². It is bordered by Precambrian rocks to the east and west and by the Caledonian nappes to the north. The Oslo Region also extends out into the sea to the south (the Skagerrak Graben). The Lower Palaeozoic succession in the Oslo Region is approximately 2.500 m thick and contains alternating shales, silt- and sandstone, and carbonates often rich in fossils (Worsley and Nakrem, 2008). The area has attracted international scientific research for almost 200 years, and a good documentation of the geological history of the area is established.

In the 1970's, geology was included in nationwide inventories of nature conservation values in Norway. As a part of this work, an inventory report was made by scientists, affiliated with the University of Oslo linked to research in the Paleozoic sedimentary rock succession of the Oslo Region. Several geosites were identified and were protected in a conservation plan for fossils in this area. The plan comprises 65 geosites, protected as natural monuments and nature reserves. 35 of the geosites were assessed in 2012-2013 regarding their state of preservation and their management needs (Erikstad et al., 2014; 2017).

Slemmestad

In 2009, enthusiasts from Slemmestad Sports Association (Slemmestad Idrettsforening) carried out a cleanup on a large area along their new artificial turf field. The removal of bushes and thickets, soil, and weeds uncovered enormous quantities of Ordovician cephalopods of the type *Proterovaginoceras* (often simply referred to as cone-shaped orthoceratites). The enthusiasts contacted geologists, and in the autumn of 2010, a series of inspections were conducted, but no research material was collected since a plan for conservation and



The limestone surface a year after it was cleared (2011). Photo: Ragnar Husum (Slemmestad)

management had to be considered. The limestone layers exposed here belong to the uppermost section of the Huk Formation of Darriwilian age (Middle Ordovician). The exposed layer in Slemmestad, which is about 70 meters long and 25-30 meters wide, consists of the uppermost section of the Huk Formation, the Svartodden member, also referred to as "orthoceratite limestone". This member is approximately 2.5 meters thick here. Unlike other places in the Oslo field, the direct contact with the overlying unit, the Helskjer Member belonging to the Elnes Formation, is also exposed. The fossil fauna is overwhelmingly dominated by the orthoceratite *Proterovaginoceras incognitum*. Additionally, a few spirally coiled nautiloids, likely belonging to the genus *Estonioceras*, appear. This genus, incidentally, represents one of the earliest known spirally coiled nautiloids. Some large trilobite tails are present among the cephalopods, and it is evident that trilobite fragments make up a large part of the supporting mass of the limestone. Brachiopods and echinoderms have also been observed.

The limestone is clearly bioturbated (burrowed through) by organisms that lived on the seabed while the sediment was being deposited. Partially buried cephalopod shells have been eroded/dissolved in the upper (exposed) part.

Slemmestad, located in the heart of the Oslo Rift, has been a treasure trove for rock and fossil enthusiasts for over a century. The area is rich in geological history, with various rocks and minerals. While the exciting geology is mostly found outdoors, the Trilobox (part of the Geology Centre) offers a glimpse, especially of the areas fantastic trilobites.



Fossils on the limestone surface, a spiral cephalopod specimen of *Estonioceras* (left) and a circular cross section of the living chamber of *Proterovaginoceras incognitum*.

The Geology Centre in Slemmestad, established in 1994 with help from the Natural History Museum, started in the local library, which also housed a cement museum. The primary role of libraries is knowledge dissemination, and for the librarians in Slemmestad, focusing on geology has been a natural choice. For many years, we have welcomed school classes for lessons followed by tours in the area. The various universities in Norway visit regularly with their students. Without the extensive academic backing from the professors at the Natural History Museum, we couldn't share knowledge as effectively as we do.

In 2018, The Geology Centre moved to a new temporary location, Trilobox, but remains part of the municipal library. Trilobox's renewed exhibition focuses on local geology, especially cephalopods and trilobites. We've developed new educational methods and created films with support from the Natural History Museum and Sparebankstiftelsen DNB. The Trilobox is divided into three parts: an exhibition and teaching room, a fossil preparation workshop, and an outdoor area with geological models. Our outdoor geology is always accessible, with several protected sites and areas for fossil hunting.

We've developed "Fossildalen", featuring a limestone wall full of cephalopod fossils and a rock pile for trilobite and graptolite

hunting. The Geology Centre has a long tradition of organizing activities for "Geologiens dag" (Geology Day). In 2012, "Fossildagene" ("Fossil days") was born. It's three days packed with geology-related activities and a full program. "Fossildagene" is a great way to bring together enthusiastic amateurs and professionals. Every year there is a fossil hunt and a market with various stalls where you can chat about rocks and find some great deals. The rest of the programme varies, including building dinosaurs, fossil and mineral tours, meteorite hunts, film premieres, opening new sites, exhibitions, lectures, and workshops where kids can cast plaster trilobites, paint trilobite and dinosaur figures, or even try their hand at fossil preparation.

The web page (in Norwegian) with videos from the site explains more about the activities handled by the Geology Centre: <https://geologisenteret.no/geologisenteret/turer/det-store-blekksprutfeltet/>

A need for maintenance

Whereas the fossiliferous surface was pristine in 2010 after the clean-up, it has in subsequent years become more and more overgrown by plants – from flowering plants and grasses to small bushes and trees (especially pine and birch). Already in 2011 an attempt was made to remove soil from cracks in the limestone. It turned out that it would require too much resources and the work was abandoned. The dip of the limestone unit is around 30° and it becomes slippery when wet due to growth of microbials. Hence it is dangerous to clean the area manually by humans.

A new attempt was made in October 2024, with the introduction of goats. Goats graze everything, including bushes and trees. They strip off the bark on smaller trees, and they remove all kinds of smaller plants. A challenge is to keep the goats in the designated area. The Slemmestad sports arena is not fenced in, and the goats could then escape and disappear.



Students removing soil from limestone cracks (2011)



Goats start grazing, mid November 2024

A Norwegian goat farmer, Olav Aandstad, using infrastructure from the company “Nofence”, was contacted since they had been in operation in other areas in Slemmestad. From their web page:

“Nofence began in a small Norwegian town named Batnfjordsøra, many years ago when our Founder, Oscar Hovde, set about making his idea of virtual fencing for livestock a reality. As the concept grew, so did the interest. The man with a plan soon became people with a purpose: getting livestock out on pasture, like nature intended. And with the help of our customers whose input, innovation, and patience continue to be an integral part of our product development, Oscar’s idea blossomed. Today, we are a team of international professionals with a set of shared goals: to support livestock farmers, improve animal welfare, and restore the fertility of our soil.”

The goats are controlled by GPS surveillance and the company can monitor every individual goat’s position. The technology consists of a solar-powered GPS collar and a virtual boundary. The collar communicates with an easy-to-use app and web portal via the mobile network. The four goats in Slemmestad have now grazed the area for two and a half weeks and the results are very good. The thickest trees are still in place, but the bark has been stripped off, and the trees will die. Next Spring we will cut down remaining trees and clean off the thorn trees (rose bushes) that goats might not graze. Ideally also the soil in limestone cracks should be removed (high pressure water flushed).

REFERENCES:

Erikstad, L., Nakrem, H.A. & Markussen, J.A. 2014. Management plan for protected geosites in the counties Oslo and Akershus, Norway. ProGEO News no. 1-2014, 1-4.

Erikstad, L., Nakrem, H.A. & Markussen, J.A. 2018. Protected geosites in an urban area of Norway - Inventories, values and management. *Geoheritage* (Springer) v10(2), 219-229. First Online: 02 March 2017, <https://doi.org/10.1007/s12371-017-0223-6>

Nofence – <https://www.nofence.no/en-gb/>

Worsley, D. & Nakrem, H. A. 2008. The Lower Palaeozoic – Cambrian, Ordovician and Silurian – the sea teems with life; 542-416 Ma. In: Ramberg, I., Bryhni, I., Nøttvedt, A. & Rangnes, K. (red.) *The Making of a Land. Geology of Norway*. Norsk Geologisk Forening, Trondheim. ISBN 978-82-92-39442-7. 148-177.

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South Australia gypsum deposits Dhilba Guuranda-Innes National Park

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Recent gypsum crystallization (CaSO₄·2H₂O) appears within various land environments including coastal salinas, continental playas, and sabkhas. Worldwide distribution of these environments coincide with semi-arid and arid regions like those in Chile, Bolivia, Mexico, Egypt, and Australia. Gypsum coastal salinas are specific geological records that can provide knowledge about the geological history of a given region. Salina with progressive crystallization of evaporite minerals constitute unique ecosystems. Gypsum’s economic value is significant according to the application including plaster of gypsum, agricultural fertilizers, and drywalls. Research on calcium sulphate deposition can help identify new deposits, which is of economic importance, and southern Australia has already clearly demonstrated this during the exploitation. Lake Inneston and Lake Marion, coastal salinas in the Yorke Peninsula are examples of former gypsum quarrying in the past century. Together with the Deep Lake, it constitutes an excellent example of recent evaporite coastal salinas. The three lakes are situated in the Dhilba Guuranda-Innes National Park, located at the southern tip of the Yorke Peninsula. The park’s location west of Adelaide, just over 3 hours by car, and numerous attractions make this place popular among tourists and geoheritage followers

The English name of the park comes from the owner of a gypsum mining company, who was also a landowner and a local developer, William Robert Innes. The park was proclaimed in 1970 and its scope has been expanded many times, most recently lands were added in 2020. The full name was granted 4 years ago on the fiftieth anniversary of its foundation in honour of its traditional owners, the Narungga people, a group of Aboriginal Australians. Dhilba Guuranda means the southern regions of Narungga.



In addition, it is worth mentioning that this park is a tourist attraction and is a famous location for camping, surfing, and fishing. Moreover, there is wonderful nature here, not only inanimate, but also animals, such as kangaroos, emus, dolphins, whales.

Among its attractions the exceptionally is Cape Spencer with picturesque scenery of cliffs composed of a resistant basement of Precambrian gneiss and hilly landscape of the carbonate, Quaternary dunes covered by low vegetation. Importantly, the park area was once a gypsum mining site, including the famous geological route around Lake Inneston, former quarry, now being flooded. While walking along the lake shore, we step on crushed selenite crystals, visible also as 10 and 15 cm thick selenite beds representing evaporite deposits once mined in the quarry occupying the lake bottom. The most important source of economically significant gypsum deposits, from the beginning of operations in 1905 was gypsum deposits of Lake Marion, which were mined for about 80 years. In the eastern part of Marion Lake, there are remnants of the selenite crystals beds over 30 cm thick that are exposed above the water surface. Also, carbonate stromatolites have been documented around gypsum at Marion Lake, which are interesting due to their similarity to analogous forms found in 3.5 billion-year-old rocks in Western Australia, representing traces of the Archean microbial life.



Domal deformation of the palisade crystals

Dhilba Guuranda-Innes National Park is a unique place for sedimentologists due to the active deposition of evaporites in the lakes. Order of crystallisation of evaporite minerals depends on the amount of rainfall falling mainly in winter (June-August), which has a significant impact on the chemical composition of the reservoirs, which are very shallow here (from a few centimetres to maximum 3 m). The depth of lakes decreases in summer (December-February) due to evaporation, which increases salinity. In this way, in lakes we can observe the crystallization of aragonite during high water levels and gypsum during low water levels. It often happens that the water dries up almost completely. In the case of the Lake Deep, water remains in the centre even in summer, which is why we observe constant deposition of gypsum in the form of large selenite domes every year. In turn, at the bottom of the artificially deepened Lake Inneston, 3 m deep, since 1930 (end of exploitation) we have observed density stratified water column with large gypsum domes growing below the halocline.



Palisade crystals

REFERENCES:

- Field Geology Club of South Australia, 1976. A field guide to the Geology of Yorke Peninsula. Publication no. 1. Australia
- McBriar, E.M., Giles, C.W. (Eds.) 1984. Geological monuments in South Australia. Part 5. South Australia Division of the Geological Society of Australia Incorporated, pp. 1-130.
- Warren, J.K., 1982. The hydrological setting, occurrence and significance of gypsum in late Quaternary salt lakes in South Australia. *Sedimentology* 29: 609-637.
- Warren, J.K., 1982. The hydrological significance of holocene tepees, stromatolites, and boxwork limestones in coastal salinas in South Australia. *Journal of Sedimentary Petrology* 52: 1171-1201.
- Warren, J.K., 2016. *Evaporites. A Geological Compendium*. 2nd ed. Springer International Publishing Switzerland, pp: 1-1813.

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Monte Vettore (Italy)

Discovering the geology and geodiversity

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On the occasion of the third International Geodiversity Day, ISPRA (Italian Institute for Environmental Protection and Research) and Monti Sibillini National Park organised a guided excursion to discover the geology and geodiversity of Monte Vettore (Central Italy), one of the IUGS geological heritage sites.

ISPRA geologists and park guides explained to the participants the geological processes and features that have led to the development of an area of exceptional natural and landscape value, but also to extremely calamitous events, such as the earthquakes that struck central Italy in 2016. The concepts of geological heritage, geodiversity and geosites were also explained to the public during the day.

The meeting point was the Valico di Castelluccio, on the SP 477, from where it is possible to admire the whole panorama of the Piana di Castelluccio and Monte Vettore. Here, the concept of geodiversity and the relationship between geodiversity and biodiversity (with examples from the Sibillini Park) were discussed. The geological evolution of the Castelluccio basin was also illustrated using three-dimensional models.

The day continued with a hike along the path from Forca di Presta to Sella del Vettoretto, from where it was possible to get a fairly close view of the Cordone del Vettore fault, which generated a surface rupture of about two metres during the 30 October 2016 earthquake. During this stop, the subject of the Monte Vettore - Monte Bove fault system, reactivated during the 2016 earthquake sequence, was addressed. The ISPRA National Inventory of Geosites was also presented.

In the final part of the day, after a lunch break in the village of Castelluccio di Norcia, which was badly affected by the 2016 earthquake, we went to the Colli Alti e Bassi site, where there is another outcrop of the surface fault. At this site, the participants were able to 'touch' the fault. Here the project for the conservation and enhancement of the geosites in the Monte Vettore area was presented, a project resulting from the collaboration between ISPRA and the Sibillini National Park, which aims to conserve the geological and geomorphological evidence of the 2016 events.



Outcrop of surface faulting after 30 October 2016 earthquake at Colli Alti e Bassi site (Norcia, Central Italy)

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37th International Geological Congress, Busan

ProGEO supported and financed two sessions at the the 37th International Geological Congress in Busan, South Korea, in August 2024. Both included the ProGEO logo and website on the introductory slides and on the keynote presentations. The first was a full-day session in the main programme on the theme, 'Geoconservation and Geoheritage: geodiversity underpinning natural systems'. This session was convened by Kevin Page (Camborne School of Mines University) and John Gordon (University of St Andrews) with co-convenors, José Brilha (University of Minho), Maria da Glória Motta Garcia (University of São Paulo) and Manu Monge-Ganuzas (Basque Government).

The role of geodiversity as a key element in the configuration and the maintenance of ecosystems has gained increasing prominence since the International Union for Conservation of Nature (IUCN) encompassed this concept as part of natural diversity. This progress was recognised in Resolution 074 in 2020, 'Geoheritage and Protected Areas' (<https://portals.iucn.org/library/node/49213>), which calls upon support of national efforts to collect, compile and publish data on geoheritage and geodiversity in and outside protected areas, improve geological interpretation and encourage a concerted effort to conduct ecosystem Red List assessments of geologically interesting ecosystems. It encourages all members to foster knowledge about geodiversity and geoheritage and to integrate nature conservation principles and methods into their management to ensure the effective protection of this component of the natural heritage. To achieve further progress, increased awareness and efforts by the geological communities are needed. To this end, the ProGEO session invited contributions on geoconservation and geoheritage in and outside protected areas, such as the development and dissemination of existing methods including evaluation and application of geodiversity in territorial planning and ecosystem services; methodological studies regarding both in situ and ex situ geoheritage including inventories, evaluation, management, conservation, and protection of geological sites; and methodological research and results on the use of geotourism for local development, including geoparks.

In the first session, a total of 14 oral presentations and 10 poster presentations were made. Topics covered included guidance for developing a geoconservation strategy for a territory, Key Geoheritage Areas, integrating geodiversity and sustainability, links between geodiversity and biodiversity, geohazards, and conservation of geoheritage interests in a mining area. They spanned geographical locations from the Basque Country to Korea, Latin America, the Caribbean, Saudi Arabia and Taiwan, Slovenia and Poland, demonstrating the increasing relevance, scope and global span of geoconservation activities. The abstracts can be accessed at <https://www.igc2024korea.org/calenders/16/programs/131>, and the Abstract Book for the whole conference is available at https://cdn2.micehub.com/home/2023/igc/Files/IGC%202024%20Abstract_1014.pdf.

The second session was a full-day short course on 'Geoheritage and geoconservation as applied geosciences: principles, methods, and challenges'. This was convened by John Gordon with presentations from José Brilha, Maria da Glória Motta Garcia, John Gordon, Manuel Monge-Ganuzas, Kevin Page and Kyung Sik Woo. The course aimed to present and discuss the main concepts and methodologies related to geodiversity, geoheritage, and geoconservation, with particular emphasis on the management of UNESCO designated sites (World Heritage Sites, Biosphere Reserves, Global Geoparks), IUGS Geological Heritage Sites and nationally and regionally designated protected areas. With reference to numerous examples from across the globe, the presentations addressed what constitutes geoheritage, including how it is identified, why it should be conserved and used wisely, and how geoheritage relates to broader nature conservation, land-use planning, educational and sustainable development programmes, and, of course, why geoheritage is important for geoscientists.



The oral session included a presentation by ProGEO Vice President, Manu Monge-Ganuzas, on developing a geoconservation strategy based on experience in the Basque Country (Spain). Photo: Maria da Glória Motta Garcia

The course was aimed both at participants with no previous knowledge or experience of geoheritage or geoconservation, as well as those wishing to consolidate their understanding of the concepts and principles underpinning its selection and management. The 25 attendees included participants from South America, Africa, SE Asia, New Zealand and the USA. Topics covered were broadly based around the IUCN 'Best Practice Guidelines for Geoconservation in Protected and Conserved Areas' (<https://portals.iucn.org/library/node/49132>) and included: key concepts, definitions and principles; establishing and conserving protected areas, including practical site conservation; wider values of geodiversity and geoheritage, including geosystem/ecosystem services and links with the UN Sustainable Development Goals; best practice in interpretation, education and communication. The session concluded with a case study of 'Geoheritage conservation in Korea'. Copies of the course presentations and a variety of background publications are available on a Google folder: https://drive.google.com/drive/folders/17LWmVyWv2k5QFfm11hjutRSgWaf7BubW?usp=share_link.

Participants at both the oral session and the short course were encouraged to join ProGEO!

ProGEO Symposium XIIth International

by: **Antoneta Seghedi**

The International Association for the Conservation of Geological Heritage – ProGEO, the National Institute of Marine Geology and Geocology – GeoEcoMar, the University of Bucharest and the Cimmerian Dobrogea Geopark are pleased to invite you to participate in the XIIth International ProGEO Symposium that will be held in Tulcea and Cimmerian Dobrogea Geopark, from 30th of September to 2nd of October 2025.



General Information

The Symposium will be held in the City of Tulcea, the administrative centre of Tulcea County and port of the Lower Danube. It is the main gateway to the Danube Delta and one of the gates to the Cimmerian Dobrogea Geopark. Tulcea is built on seven hills on the right bank of the Danube, revealing a picturesque view to travellers from the ships sliding on the river.

One of the main attractions of the city, offering panoramic views on the Danube Delta and the Tulcea Hills, is the Monument of Independence erected on top of a hill. Next to it there are the ruins of Aegysus ancient citadel and the Museum of History and Archaeology.

The official opening of the symposium will be held in the Mihail Kogălniceanu Conference Room of the Tulcea County Council. The scientific sessions will take place in two conference rooms of Hotel Delta, situated on the Danube embankment. We negotiated special fees for the Symposium participants and strongly advised you to book rooms at Hotel Delta (which has two wings, 3 and 4 star) by contacting the hotel directly. In order to qualify for the discounted fees, it is necessary to specify the participation in the ProGEO Symposium. Tulcea also has a number of larger and smaller hotels, situated quite close to the centre. More details on accommodation will be available soon on the symposium website, www.progeo2025.com.

Visitors can travel to Tulcea either via Henri Coandă International Airport in Bucharest, or via Mihail Kogălniceanu International Airport in Constanța. More information on transport links to Tulcea from both airports will be given on the symposium website and in the following circulars.

The Cimmerian Dobrogea Geopark

Our Geopark area is an eroded plateau with a protracted geological history that began in the Late Neoproterozoic. The Geopark territory includes two main geotectonic units, the Moesian Platform to the South, and the Cimmerian Orogen of North Dobrogea to the North, separated by a major crustal fault. Both these units are unconformably overlain by Late Cretaceous shallow marine clastics, connected to the formation of the West Black Sea Basin. In the Geopark area, the Ediacaran basement of the Moesian Platform consists largely of turbidites, with well preserved sedimentary and sometimes biogenic structures. By contrast, the Cimmerian belt shows a very complex geology and structure, with Variscan roots exposed in the cores of Triassic anticlines.

The landscape of Dobrogea is very picturesque, with low altitude hills, isolated or forming elongated ridges. Many of them are covered in steppe vegetation, but there are also large areas topped by forests. The biodiversity is extremely rich, with habitats and species included in a network of 10 Natura 2000 sites, and 29 nature reserves, one of them a national park. The Geopark territory is mainly rural, and despite the increasing number of modern constructions, traditional houses, stone fences and old fountains are still preserved in some villages.



Landscape in North Dobrogea with Triassic and Cretaceous hills separated by agricultural fields.

Older monasteries are hidden

in the woods, while a large number of churches of various religious cults are historical monuments. Archaeological sites are found everywhere, proof of human habitation in the area since the Paleolithic. The most important of these sites are fortresses and fortifications of the Moesian Limes, the fortified border of the Roman Empire.

Although bivalves, brachiopods, echinoderms, foraminifera and ostracods are commonly found in fossil sites, the ammonites, occurring in Mesozoic deposits from Triassic to Late Cretaceous, are the iconic fossils in the Geopark area. Their geological significance is known since the XIXth century, when the extremely rich Triassic ammonoid fauna from Aghighiol was studied, resulting in two monographs published at the beginning of the XXth century by Ernst Kittl and Ion Simionescu. More recent studies of Triassic ammonoid specimens from Deșli Caira Hill revealed that this is one of the most representative sections in the world to define the base of the Anisian stage (Grădinaru et al., 2007). A critical analysis of the four key sections considered for the Olenekian-Anisian boundary has shown that the Deșli Caira section has the best and most complete chronostratigraphic record of the uppermost Olenekian-Aegean, hence it is the best candidate for the definition of the Global Boundary Stratotype Section and Point (GSSP) of the Olenekian-Anisian boundary (Balini et al., 2024).

Despite the scientific importance of the geological heritage of the Geopark area, this is at great risk, as stone extraction was a traditional occupation in Dobrogea for centuries. The demand for stone, much needed for infrastructure, is now higher than ever. Local people and even authorities are unaware that the rocks in their backyards might be valuable for science, and it happened that even protected paleontological sites were quarried or vandalized, while abandoned quarries were reopened in the Măcin Mountains National Park. The increasing number of abandoned quarries used as garbage dumps is alarming, as most geological information they are holding is lost. The Cimmerian Dobrogea Geopark team is determined to preserve and valorise the geological heritage, along with its rich cultural heritage. An initiative supported by five institutions in 2022, the Geopark is steadily gaining support and new partnerships. Our team of volunteers is working with various partners toward finding funds for geoconservation, educational projects, new infrastructure for interpretation, as well as for promoting our heritage through geotourism, art and culture.

Scientific Programme and Conference Themes

The scientific programme consists of three days of oral presentations and poster sessions, including also a half-day field trip to visit Agighiol geological reserve and cultural objectives.

We encourage abstract submissions on various topics of the broad themes of geoheritage management, geoheritage and mining heritage, geoheritage and cultural heritage, movable geoheritage, geoconservation and Geoparks, including methodologies, site management, interpretation, education, good practices.

The Symposium will feature several invited lectures. One of them will be given by Prof. Iuliana Lazăr of the University of Bucharest, on the topic of the Deșli Caira geosite, a key section for the definition of the Global Boundary Stratotype Section and Point (GSSP) of the base of the Anisian stage. Iuliana is working with a team of international researchers to continue the work of professor Eugen Grădinaru on the Romanian proposal for this GSSP.

ProGEO Meeting

The General Assembly of ProGEO will take place on Thursday 2nd October, 2025.

Field Trips

In addition to the Agighiol Geological Reserve field trip during the Symposium, which is included in the registration for all delegates, we are proposing two optional field trips.

The pre-symposium field trip is a day trip on Monday 29th September to the Danube Delta Biosphere Reserve. The trip is led by Dr. Silviu Rădan, senior researcher at GeoEcoMar, with decades of experience in sedimentological and geocological studies in the Danube Delta. Participants will travel by boat, touring many of the lakes, canals and backwaters between Mila 23, Letea Forest and sand dunes and Sulina harbor. After a traditional lunch in the Letea fishing village, participants will visit Sulina, to admire the palace of the European Commission of the Danube and the lighthouse. Delegates will return by boat to Tulcea on the Sulina Branch of the Danube Delta. Attendees will have the opportunity to discuss the processes of the Danube Delta formation, its current ecological state and the impact of tourism on biodiversity, sedimentation and erosion.

The 3-day post-symposium field trip will explore the main geological and cultural heritage sites of the Cimmerian Dobrogea Geopark. The trip will be led by Dr. Antoneta Seghedi, senior researcher at GeoEcoMar and coordinator of the Geopark initiative, along with several co-leaders from other institutions. Each day the coach will leave Tulcea to explore different aspects of the Geoparks exceptional geological and cultural heritage. Attendees will have the opportunity to visit a number of the nature reserves and geosites within the area, and see historic and modern quarries. The first two days will be dedicated to sites in the Paleozoic and Mesozoic formations, with focus on Variscan and Cimmerian deformation and structures and Paleozoic and Mesozoic lithologies and fossils. In the last day we will examine Ediacaran turbidites in the Moesian Platform, in geosites showing the oldest life forms and trace fossils in Romania, and spectacular sedimentary structures. Field trip stops will also facilitate discussion on exploring geoheritage using local buildings and archeological sites, through education programmes, and by visiting the oldest vineyard of Dobrogea, at Sarica Niculițel, on Mid Triassic Niculițel basalts.

More details and prices will be announced soon.



Trace fossils in Ediacaran turbidites at Casimcea



Triassic ammonite and Orthoceras at Agighiol

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More Details

More information on the meeting, registration, field trips, and abstract submission will be available shortly on the Symposium website at www.progeo2025.com.

The Geopark team and ProGEO have been working hard to make this meeting as good as possible and give you an unforgettable experience. With the support of ProGEO we are pleased to announce that a travel grant scheme will be available, particularly for early career researchers and participants from low-income countries. Further information on this will be published on the website shortly.

REFERENCES:

Balini, M., Lăcătuș, M., Grădinaru, E. & Lazăr, I. 2004. Aegean ammonoids from the Anisian (Middle Triassic) GSSP candidate section Deșli Caira (Northern Dobrogea, Romania). *Rivista Italiana di Paleontologia e Stratigrafia (Research in Paleontology and Stratigraphy)* 130, 3, 711-759.

Grădinaru, E., Orchard, M.J., Nicora, A., Gallet, Y., Besse, J., Krystyn, L., Sobolev, E.S., Atudorei, N.-V., Ivanov, D. 2007. The Global Boundary Stratotype Section and Point (GSSP) for the base of the Anisian Stage: Deșli Caira Hill, North Dobrogea, Romania. *Albertiana*, 36, 54-71.

Date	Event type:	City and country	Event title	Will ProGEO logo be used:	Main organizers	Website link	Remarks
OCTOBER 2024							
6 th - 13 th	Annual outreach event	Italy	12th Edition of the "Settimana del Pianeta Terra"	No	Associazione Settimana Pianeta Terra	https://www.settimanaterra.org/	Several events all around Italy
6 th	Field trip	Italy	International Day of Geodiversity, Excursion to discover the geology and geodiversity of Monte Vettore	No	ISPRA - Italian Institute for Environmental	https://www.isprambiente.gov.it/en/news/world-geodiversity-day?set_language=en	Field trip
8 th	Workshop	ProGEO Latin and the Caribbean (LAC) Regional Group	International Day of Geodiversity, "IUGS Geological Sites in LAC", Sites in The First 100 Geological Sites volume - October 8, 2024, 11 am (GMT-3)	Yes - main organiser	ProGEO in cooperation with Brazilian Association of Geological and Mining Heritage Defense (AGeoBR)	https://www.youtube.com/live/2rGWJlU5KnZg	Accessible via YouTube channel of the AGeoBR
NOVEMBER 2024							
8 th	Meeting	Chile	National Meeting on Geological Heritage (ENAPG)	Yes - patronage	"Geoheritage and Geoeducation Disciplinary Group" of the Andrés Bello University (GPGE UNAB)		
29 th	Webinar	Hungary	1st Online ProGEO Seminar on Geodiversity and Geoheritage organised by the Hungarian ProGEO Group	Yes - organiser	Hungarian Geological Society. ProGEO Section for the Protection of Geoscientific Heritage, Budapest.	Facebook: progeo_hungary http://foldtan.hu/hu/progeo	Freely accessible



Next issue of ProGEO NEWS (deadline)

March 13th, 2025

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). Photographs, maps and figures should be sent as separated files (preferentially not included in the word file).

If longer texts are needed, please contact the editor.

ProGEO: international association for the conservation of geological heritage.

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