

Membership of the EGN, entitles a Geopark to use the logo of the EGN in its promotional material and is entitled to call itself a European Geopark. According to the Madonie Declaration, it is also entitled to use the appropriate logo of the Global Network of Geoparks. These logos must only be used on products produced directly by the Geopark management.

In order to achieve high quality standards in Geoparks, the EGN decided to establish an evaluation procedure for all new applications. Evaluation missions are undertaken by two Geopark experts who are sent to the applicant territory to evaluate the application and to discuss the application with the relevant national and local authorities as well as stakeholders and local communities.

Vulnerable geosite protection and management in Geoparks – a case study of tafone in Lesvos petrified forest Geopark

Zouros N.¹ and Gumus E.²

¹*European Geoparks Network Coordinator, Member of UNESCO Geoparks Bureau, University of the Aegean Department of Geography, Mytilene GR-81100 Greece, nzour@aegean.gr*

²*University of the Aegean, Department of Geography, Mytilene GR-81100 Greece, egumus@geo.aegean.gr*

Geoparks consists of a number of adjacent geosites which have different attributes in terms of value (scientific, educational, aesthetics) and vulnerability. In the Lesvos Petrified Forest Geopark area, beyond the fossilized plants which constitute a natural monument of international value, there are many other sites of interest in terms of geology, geomorphology, ecology and local traditions. Coastal geosites of the Lesvos Petrified Forest are of significant geomorphological, aesthetic, educational and touristic value including cliffs, collapsed boulders, tafoni structures and cavernous weathering forms. Tafoni are widespread on the Miocene volcanic formations on Sigri coast. Miocene volcanics are hosting the silicified plants of the Petrified Forest; a protected natural monument of international value and beauty. Due to their importance and fragility the Natural History Museum of the Lesvos Petrified Forest adopted special measures for the protection and conservation of the tafoni structures of the territory. The research activity in the costal area of western Lesvos island led to the inventory of tafoni. As a consequence of the research some endangered tafoni were brought to the museum for protection, conservation and exhibition. This tafoni exhibition introduces the museum visitors to the processes forming the external surface of our planet.

Quaternary tectonics of the Western Carpathians in Poland: Evidence from deformed fluvial terraces

Zuchiewicz W.

Faculty of Geology, Geophysics and Environmental Protection, AGH University of Science and Technology, Al. Mickiewicza 30, 30-059 Kraków, Poland, witoldzuchiewicz@geol.agh.edu.pl

Neotectonics of the Carpathians used to be studied extensively, particular attention being paid to the effects of large-scale domal uplifts and open folding above marginal zones of thrust and imbricated map-scale folds, and rarely to the characteristics of young faulting. Neotectonic faults tend to be associated with the margins of the Orava-Nowy Targ Basin, superposed on the boundary between the Inner and Outer Western Carpathians, as well as with some regions within the Outer Carpathians. The size of Quaternary tilting of the Tatra Mts. on the sub-Tatric fault were estimated at 100 to 300 m, and recent vertical crustal movements of this area detected by repeated precise levelling are in the range of 0.4-1.0 mm/a in rate. Minor vertical block movements of oscillatory character (0.5-1 mm/yr) were detected along faults cutting the Pieniny Klippen Belt owing to repeated geodetic measurements performed on the Pieniny geodynamic test area. In the western part of the Western Outer Carpathians, middle and late Pleistocene reactivation of early Neogene thrust surfaces was suggested. Differentiated mobility of reactivated as normal Miocene faults (oriented N-S to

NNW-SSE and NNE-SSW) in the medial portion of the Dunajec River drainage basin appears to be indicated by the results of long-profile analyses of deformed straths, usually of early and middle Pleistocene age. Quaternary uplift of the marginal part of the Beskid Niski (Lower Beskidy) Mts. (W-E to WNW-ESE) in the mid-eastern part of the Outer Western Carpathians of Poland was estimated at 100-150 m, including no more than 40 m of uplift after the Elsterian stage. In the Pliocene and Quaternary the Polish Carpathians witnessed differential vertical and some remnant horizontal movements, resulting in the formation of elevated and subsided areas. Morphological examples of Quaternary tectonic activity include, i. a., disturbed longitudinal profiles of strath terraces. Valleys of the Outer Carpathians bear 5 to 9 terrace steps of Quaternary age. Most of Pleistocene terraces are strath or complex-response terraces; the Weichselian and Holocene steps are usually cut-and-fill landforms, except those located in the neotectonically elevated structures, characterised by the presence of young straths. Longitudinal profiles of individual strath terraces frequently show divergence, convergence, upwarping, downwarping, or tilting that can be indicative of young tectonic control. Moreover, the size and rate of dissection of straths of comparable age are different in different morphotectonic units; a feature pointing to variable pattern of Quaternary uplift. Rates of river downcutting result mainly from climatic changes throughout the glacial-interglacial cycles, but their spatial differentiation appears to be influenced by tectonic factors as well. Examples based on detailed examination of deformed straths and fluvial covers in selected segments of the Soła, Skawa, Dunajec, Wisłoka, Jasiołka and Wisłok rivers in the Polish Outer Carpathians appear to indicate Quaternary reactivation of both normal and thrust faults in the bedrock. The latter are mostly confined to the eastern portion of the Outer Carpathians.

Search for Mesolithic Landscapes in Lithuanian territorial waters

Žulkus V.

Institute of Baltic Region History and Archaeology, Klaipeda University, H. Manto 84, 92294 Klaipeda, Lithuania, vldas.zulkus@ku.lt

Over last decade members of Underwater Research Centre (URC) from The Institute of Baltic Region History and Archaeology (IBRHA) of Klaipeda University in several locations on the seabed of Lithuanian territorial waters discovered relicts of prehistoric coastlines and traces of submerged forests.

Ancient coastline is marked by stones of washed moraine on the seabed and relicts of coastal cliffs in the depth of 8-22 metres. These are washed separate moraine ridges and their groups, staying higher about 4 metres from actual bottom.

Particular attention of geologists and archaeologists is focused on findings of relict forests on the seabed. Submerged stumps are traced in three sites; two of them are in the neighbourhood of Klaipeda and the third one is south of it. They are separated by 5 km and 22 km (from north to south).

Most advance to the south is site RF-I (Relict forest-I), which is close to Juodkrante, on a sandy bottom in the depth of 26-29 metres. Three stumps with roots in moraine clay loam with about 15 cm of sandy layer had been discovered there. Stumps are rising to the height of 0,5 – 1,5 metres and they remain to be good condition (from 0,4 m to almost 1 m in diameter). The stumps were traced in a range of 6-8 m from each other. Close to them is a terrace with moraine issues of about 1 m in height. By means of ¹⁴C method two stumps were dated. Calibrated date of one of the stumps is 8090 BC. That of the other one is 8948±155 BC. These are relicts of pines (Pinus). These pines belong to pre-boreal period, when level of the Baltic (Joldia) sea dropped to more than 30 metres.

On a stony bottom of the other site (RF-II), in the depth of 14,5 m, a wooden stump, rising 30 cm above the seabed, was traced. There is a sandy layer of 5 cm and clay loam slush around it. Two huge branches are deep in the clay loam. This sample is dated by 5831±120 BC and the date is calibrated.

RF-III appears to be on a sandy bottom, in the dept of 11 metres. Yet one single stump of a relict tree, 33-35 cm in diameter, is discovered there. It is rising up to 50 cm above sand.