Paper presentations in parallel sessions

5 May	Auditorium	Room 1	Room 2	Room 3	Room 4
Session 1 11:30-13:00	V-Global	Geopolitics and naming (I)	UNESCO Global Geoparks	Geospatial thinking	Landscape
Session 2 14:00-15:30	Urban Geography - post pandemic	Geopolitics and naming (II)	Social Geography and spatial inequalities	International cooperation in Geography education	Rural Geography
6 May	Auditorium	Room 1	Room 2	Room 3	Room 4
Session 3 9:00-10:30	Geospatial technologies	Climate change	Risk reduction education	Geography education	Cultural Geography and Heritage
Session 4 12:00-13:30	GIS	Global issues	Environment	Geography education for sustainable development	GI Pedagogies

Session UNESCO Global Geoparks

Chair: Nikolaos Zouros

Authors	Paper title
Nikolaos Zouros Ilias Valiakos Konstantina Bentana Aggelos Lamprakopoulos Emmanouil Antonakis Stratis Zgournios Rafail Paliopanis	Geoconservation in the Petrified Forest Park Fossil Sites, Lesvos Island UNESCO Global Geopark
Aggelos Lamprakopoulos Rafail Palaiopanis Nikolaos Zouros	Active fault detection using surface rupture of the Skalochori, Lesvos earthquake (4.0 Mw - 15th of April 2021)
Aggelos Lamprakopoulos Nikolaos Zouros	Raising awareness on earthquake hazard in tectonic active areas. Interpreting neotectonic structures along roadcuts

Geoconservation in the Petrified Forest Park Fossil Sites, Lesvos Island UNESCO Global Geopark

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The locality of the Petrified Forest Park at "Bali Alonia" at the western peninsula of Lesvos island, Greece, was known as “Kyria Apolithomeni” since the 18th century due to the large number of fossilized tree trunks found in the area. The area was expropriated by the Greek State in 1966 in order to protect and enhance the fossilized trees. The Petrified Forest of Lesvos is protected by the Presidential Decree 443/1985 and the General Forest Legislation, by the 1/1996 Forest Police Order of the Directorate of Forests of Lesvos and is governed by Rules of Operation.

The effective protection of the Lesvos Petrified Forest is priority in the context of compliance with national and European legal commitments of Greece for the protection of the natural heritage (L.1650/1986, L.3937/2011, L.855/1978 - Barcelona Treaty). This work has been assigned to the Natural History Museum of the Lesvos Petrified Forest (Law 2260/1994). The Petrified Forest of Lesvos is a globally recognized natural monument and the main element of geological heritage international significance for the recognition of Lesvos island as a UNESCO Global Geopark.

The current project aims the conservation of the petrified trees, the enhancement of the fossil sites and the documentation of the fossilized logs at the Petrified Forest Part at “Kyria Apolithomeni”. The Park requires combined and at the same time targeted actions for both the conservation of the individual and vulnerable fossilized trees that remain in situ and for the protection and enhancement of the fossil sites.

The Petrified Forest Park at Kyria Apolithomeni (Bali Alonia) is located on the southern slope of a hill that belongs to the Ordymnos mountain. It covers a small drainage basin, of one of the branches of the hydrographic network of the river Tsichliontas, which forms one of the most extensive hydrographic networks of Western Lesvos.

Geologically the area of the park consists exclusively of Lower Miocene pyroclastic rocks and include: a. volcanic ash rich in angular pumice particles of various dimensions, b. mudflows containing lava particles and c. layers of volcanic conglomerate containing large volcanic cobblestones.

The fossil trees of the Petrified Forest Park at "Bali Alonia" after 25 years of the park operation needed urgent protection and conservation mesaures, as such scale interventions have never been implemented before. The conservation revealed the uniqueness of the Lesvos Petrified Forest and delivered as result the durability of the fossils and the improved visitors’ experience.

The geo-conservation intervention at the Petrified Forest Park at "Bali Alonia" resulted to the preservation and protection of the fossils of the historic location of the Lesvos Petrified Forest, to the improvement of safety and accessibility of all fossil sites and to the encouragement of activities contributing to the development of geotourism.

Active fault detection using surface rupture of the Skalochori, Lesvos earthquake (4.0 M_w - 15th of April 2021)

Aggelos Lamprakopoulos, Rafail Palaiopanis, Nikolaos Zouros

Lesvos Island is located on the Northeast Aegean region, in a very active tectonic regime surrounding by major faulting systems which influence the structure of the whole island.

In the Aegean region a subduction zone is taking place between the African and the Eurasian tectonic plates, in the Aegean region and the area of NE Aegean is also affected by the dextral strike-slip movement of the North Anatolian fault, which ends in the Aegean basin and creates significant tectonic structures such as the North Aegean trough and the Skyros trough etc.. Lesvos except of these is also affected by a tension of N-S which creates W-E trending normal faults.

The earthquake of Skalochori on the 15th of April 2021 was an opportunity to identify fault ruptures and macro-seismic structures, created by the earthquake, because the epicenter of the major earthquake was inland.

The research begun shortly after the quake - with preliminary site visits - so that any presumptions are not lost or altered over time or by exogenous effects. Initially, the study area was identified with the construction of a Digital Terrain Model and the use of Google Earth, considering the epicenter of the earthquake, the hydrographic network, the terrain, and the geotectonic regime of the area. A field search was then conducted. Proof related to seismic activity were identified (ruptures, landslides, rock falls, etc.) which were photographed and geotagged for each location. Once the general direction of the ruptures was documented, it was used in further research to locate a possible fault.

After several visits in the field a small fault plane was detected and identified as a plane of a strike-slip fault. After that several fault planes founded which were in the same orientation of the major tectonic plane. These fault planes were measured and photographed.

The post-process of the measured fault planes, the epicenters orientation from four (4) seismic centers, and the data of the satellite maps and the seismic moment tensor solution, of the Institute of Geodynamics sector of the National Observatory of Athens, were totally agreed.

Finally, after the identification, the fault was mapped within the seismic data and other possible fault zones, which are parallel to the main fault.

Raising awareness on earthquake hazard in tectonic active areas. Interpreting neotectonic structures along roadcuts

Aggelos Lamprakopoulos, Nikolaos Zouros

Lesvos Island is located at the Northeast Aegean Sea and is the third biggest island in Greece. Lesvos Island is determined by the geotectonic regime of the broader area of the Eastern part of the Mediterranean where a subduction zone is taking place between the African and the Eurasian tectonic plates, in the Aegean region. The area is also affected by the dextral strike slip of the North Anatolian fault, which ends in the Aegean basin and creates significant tectonic structures such as the North Aegean trough and the Skyros trough etc.

Intense volcanic activity appeared on Lesvos Island during Lower Miocene (23.5 to 16 million years ago) and the volcanic rocks are covering the 2/3 of the island's surface. The Western peninsula of Lesvos is covered mainly by pyroclastic rocks. The morphology of the western Lesvos is smooth as the pyroclastic formations can be easily eroded and thus do not preserve morphotectonic structures for a long time.

The opportunity to identify active faults in western Lesvos, to map and study them, was given by the construction of the new Kalloni – Sigri road. The extensive road cuts permit the observation and study of the tectonic structures. The fault planes, previously hidden and covered by the vegetation were recognized, mapped, and measured.

The fault planes affecting the pyroclastic formations along the extensive road cuts of the new Kalloni – Sigri road, consist significant indicators for the tectonic deformation in the area, and thus are characterized as tectonic geosites. Extensive field work was carried out for the study of the structures and the results, useful to identify the tectonic deformation in the broader area, will be presented through interpretation panels in situ. These sites can be used as educational tools aiming on raising awareness on earthquake hazard to the broader public through the education activities in the field, where these faults can be found.

The Natural History Museum of the Lesvos Petrified Forest included some of this significant strike slip faults within the "open –air Museum" which is under construction along the Kalloni-Sigri road, as excellent elements to present the geological processes that affecting the area, to the broader public. Including all the above the highlight of the education activities is the seismic table, where students can experience strong earthquakes. This activity aims to familiarize the students with the correct procedures that need to be followed during and immediately after an earthquake. The programme enables them to learn and practice these procedures in a perfectly safe environment.