

Geosites – Geoparks of Greece: Conservation of Geological Heritage and Sustainable Development

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Geosites can be considered as the “book of the Earth”, enclosing the geological history of each region, and therefore their preservation and promotion is crucial. However, during their study a question that arises is “based on which elements can a site be characterized as a *geotope* (Stürm 1994, Wiedenbein 1994)”, comprising a key element of the “geological heritage”? It is noteworthy that the characterization, evaluation and interpretation of geotopes is a dynamic concept, and, apart from their conservation and management, educational and informative issues have to be taken into account. Similarly, for geoparks the proposed definitions encompass not only the geological and geomorphological elements found in nature, but also the plan for protecting and conserving them in a sustainable way.



Figure 1. Characteristic geosites from Greece.

Greece, located in the convergence space of two tectonic plates, is characterized by an active tectonic regime and a complex geological structure, exhibiting a variety of geological formations, landforms, geological processes (past or emerging), that are of particular scientific or educational interest, while many of those have high cultural and tourist value (Fig. 1).

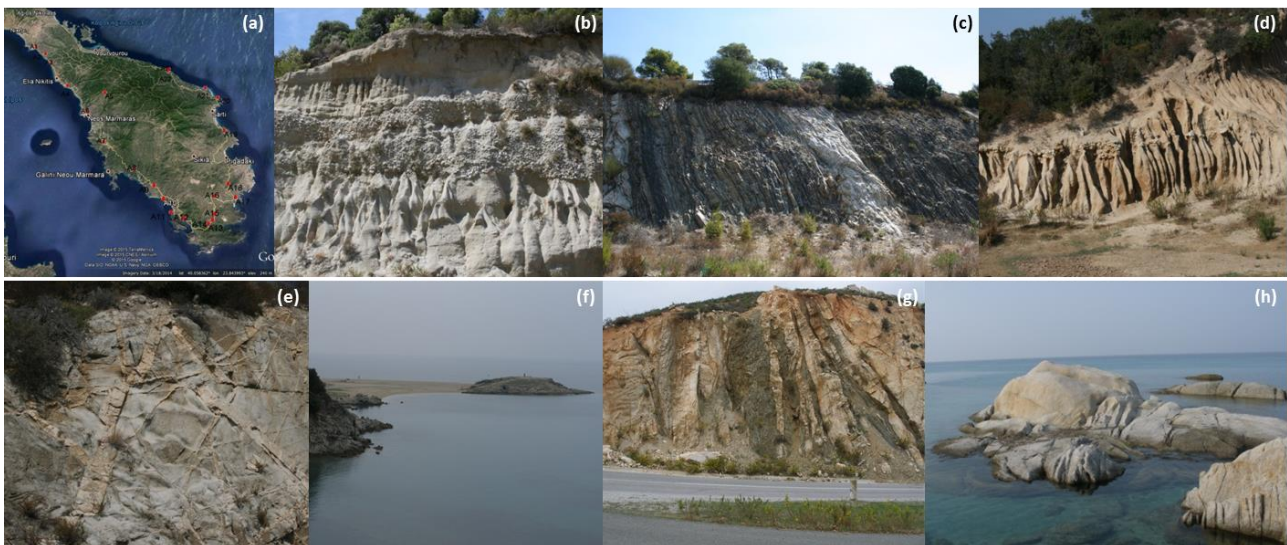


Figure 2. A designated geotrail (a) in Sithonia peninsula (N. Greece) and characteristic geosites: Neogene sediments with characteristic erosional forms (b, d), tectonic contact of the Sithonia granitoid and rocks of the Circum-Rhodope belt (c, g), tectonism and pegmatite/quartz dykes, tombolo geomorphology (f) and coastal features (h) (Zananiri 2016).

Thus, the need for detailed recording of those sites is imminent in order to preserve their scientific, educational and environmental value; moreover, towards promotion of the Hellenic geological heritage, areas which fulfill the necessary conditions and potential must be highlighted and specific tasks may be designed: geotrail mapping, thematic networks of geosites, geo-tourism promotion, and establishment of geoparks.

A first attempt to record the “monuments of nature” was made in 1982 by the Institute of Geology and Mineral Exploration (now Hellenic Survey of Geology & Mineral Exploration-HSGME). The recording and promotion of the Hellenic geosites continued more systematically from 1995 until today, with the elaboration of several projects (2nd CSF, 3rd CSF, NSRF 2007-2013), carried out by the Department of Geology and Geological Mapping (Drandaki 2009, Theodosiou 2010, Moraiti 2016 and references therein). In this context more than 1400 sites have been recorded in the Greek territory, many of which have been classified as of "National Importance" and form the basis of the relevant national registry compiled by the Working Group of the Ministry of Environment and Energy. Moreover, geotrails have been thoroughly mapped in 9 areas (e.g. see Fig. 2), while several more are planned.

The HSGME database – updated and complemented by additional data in the frame of the ongoing “GEOINFRA” project (NSRF 2014-2020) – will function as a source of information for every use: public/private sector, local authorities, and the broader public, at a national and international level, towards the development, planning and conservation of nature, environmental education and tourism. Prominent geotopes and designated geotrails will be available for browsing through an online interface (Fig. 3) and smartphone applications, comprising a useful supplement for the promotion of geotourism.

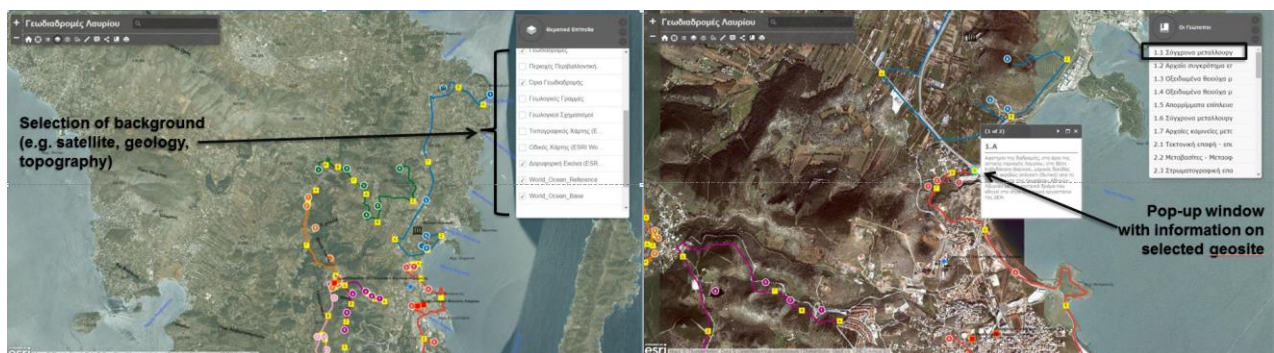


Figure 3. Browsing the geotrails of Lavrion through an online interface (Moraiti & Staridas 2015)

Finally, the development and management of proposals for geoparks in selected areas, could be implemented by the local councils or other relevant entities, ensuring preservation of the geological heritage and provide socioeconomic benefits to local communities.

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