

The geotourist development on the example of the area of Jasieniowa Mt. (Western Carpathians Flysch, Poland)

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The interpretation of geo(morpho)logical phenomena and processes as well as the transmission of geoscientific knowledge to the general public are the essential tasks of geotourism. The proper development of the geotourist sites is a tool for their accomplishment. This paper presents the model of geotourist development which consists of planning and creation of infrastructure (basic and supporting) and the promotion of sites. The basic infrastructure includes the interpretative materials, geotourist trails as well as technical facilities ensuring the safety and comfort of sightseeing. The elements of proposed model are shown on the example of the area of Jasieniowa Mt. (Cieszyn Foothills). The outcrops located in the selected region represent the oldest sedimentary rocks in the Polish Carpathians Flysch, which are the Vendryne Formation and the Cieszyn Limestone Formation. Within the scope of geotourist development, the geotourist trail and information panels were designed, as well as the location of the protective and supporting facilities was proposed.

Geological and geomorphological values of the Castle Hill geological and educational trail situated in Szanda (Northern Hungary)

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This article is about results of cadastre of unique geological and geomorphological values in the Castle Hill, in Hungary. The Castle Hill situated in Szanda (528,6 m) has preserved the remnant of the dyke ridge developed during the Miocene volcanism (16-14 Ma) in the Cserhát Mts., the special geological structure and landforms of the dyke and anthropogenic aspects of the mining activity. We would like to show these particular geological structures and landforms with a geological and educational trail extended new stages for tourists today. During our field works, geological and geomorphological values of the Castle Hill have been mapped and surveyed by the Cadastre data sheet of unique landscape values. We have made detailed description of different objects, we have taken photographs of them and we have mapped the route of the new, more detailed geological trail and the topographic situation and landscape values of the stages. Where it was possible, we have measured dips and strikes. Our aim was to cadastre and survey unique geological and geomorphological values of this important nature protection territory. Our investigation has explored 28 new geological outcrops and landform values and these can be built to the route of the older geological and educational trail.

Middle Triassic mud-mound limestones from Mahmudia, Tulcea Unit – North Dobrogean Orogen, Romania

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For nearly three decades, mud-mounds were thought to be essentially a Paleozoic phenomenon. Buildups composed of a mosaic of facies, like for instance the widespread

Carboniferous Waulsortians and the Belgian Devonian récifs rouges were virtually considered as mud-mound archetypes. It is only since the middle of nineties that the term mud-mound is widely applied to Mesozoic sponge mounds.

In the north-eastern part of Tulcea tectonic Unit from North Dobrogean Orogen, around the Mahmudia village are cropping out Middle Triassic limestones, described in the literature as the first occurrence of Middle Triassic mud-mound deposits in Romania. Associated with zebra and stromatactis typical mud-mound structures, there are some carbonate crusts whose origin seemed to be microbial, but are clues to assume that are similar with cemented grainstone crusts.

The aim of the study is to separate the carbonate microfacies and it will include as methods, optical microscopy, staining and UV fluorescence as keys for sedimentary structures and frequency of allochems, cathodoluminescence (CL), scanning electron microscopy (SEM) and stable isotopes (C, O) analysis for microstructures and diagenetic features and petrography of fluid inclusions for paleoenvironmental conditions. In addition to the optical methods we have also investigated the geochemical composition of selected particles or lamina directly from polished slabs using a microXRF device (Horiba XGT 7000).

Among the carbonate microfacies separated so far, we can include Tubiphytes boundstone, radiolarian and sponge spicule wackestone with stromatactis, bioclastic grainstone to packstone, dolomitised bioclastic grainstone and laminitic mudstones.

The microbial nature of the mud-mound is sustained by the abundance of Tubiphytes, which dominate some areas resulting true boundstones, and the presence of *Baccinella*, a real microbial product. Metasomatism, dolomitization and cementation which affected the primary fabrics given by early marine diagenesis are proved also by the stable isotope analyses. A deep water environment (internal shelf – 70-100 m water depth) for the mud-mound is suggested by the typical wackestone with sponge spicules and calcified radiolarians or calcisferes.

U/Pb zircon geochronology on TTG rocks from South Carpathians (Romania): Insights into the geologic history of the Getic Crystalline Basement

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In situ U/Pb zircon geochronology was carried out on some minor granitoids intrusions from the western Getic domain (Buchin and Slatina-Timis intrusions) and on the swarm of trondhjemitic dikes, sills and small granodiorite bodies from the northern Getic domain - South Carpathians. According to previous petrological studies these intrusions are related to partial melting of a thickened continental crust. Most of the dated zircon crystals are composite, with xenocrystic cores surrounded by multiple overgrowths. Age results on inherited cores of the Buchin and Slatina-Timis intrusions reveal ages from Neoproterozoic to Late Proterozoic-Cambrian that represent inheritance from old crust. As revealed by ages from zircon overgrowths characterised by oscillatory zoning, the intrusion occurred in the Upper Cambrian-early Silurian. The outer rims of the Buchin zircons record the Variscan metamorphic peak conditions suffered by the Getic basement. The U-Pb ages on inner cores from rocks of the northern Getic domain reveal Paleoproterozoic to Neoproterozoic inheritance. Prevalent ages in zircon cores and rims are in the range 539-428 Ma and seem to date a major component forming the Caledonian crustal basement of the South Carpathians. Scarce but ubiquitous ages of 320-214 Ma on rims overlap the ⁴⁰Ar/³⁹Ar ages on mylonites from the shear zone and indicate imprints of the Late Variscan dynamic retromorphism. The magmatic intrusion occurred between 110 Ma and 105 Ma in agreement with previous Ar/Ar ages (109-108 Ma).