

The best geotouristic objects of the Silesian Unit, Outer Flysch Carpathians in the vicinity of Krakow, Poland

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The Outer Carpathians are built up of a stack of nappes and they are thrust over the southern part of the North European Platform. The Silesian Nappe occupies central part of the Outer Carpathians and it is built of sedimentary facies represented continues succession of Late Jurassic to Early Miocene times. In sedimentary profile are written successively stages of development of Silesian Unit on the background of evolutionary stadia of the geodynamic development of the Northern Carpathians from syn-, post-rift to synorogenic phase. The best outcrops (legible, good-preserved and accessible for the group of tourists) to examine the Silesian rocks are presented and included into the trail. The sites highlight stratigraphy and sedimentology of Silesian Unit, from Jurassic to Neogene, elements of structural geology, petroleum systems (source rocks, reservoir rocks, seals), geotouristic important objects and history of human activities in the Carpathians, especially of mining and oil industries. The proposed trail traverses the Silesian Nappe in Polish sector of West Carpathians between Kraków, Cieszyn and Ciężkowice area.

The management of a sustainable touristic activity at the Lacu-Roșu Touristic Resort – within the “Bicaz Gorge - Hășmașul Mare” National Park

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The “Bicaz Gorge – Hășmașul Mare” Natural Park belongs to the Central Group of the Eastern Carpathians, it is located in the Hășmașul Mare Mountains. Due to its natural characteristics, geological, biological, zoological, components, these 2128 ha, in 1980, then in 1995, were denounced as Natural Reservation by the County Council. In 2000, under the 5th law, 3rd paragraph, of National Territorial Planning and Administration, the 6575 ha, of the “Bicaz Gorge – Hășmașul Mare” region was declared a Natural Park along with the Lacu Rosu Lake Tourism Resort. In the management of the “Bicaz Gorge – Hășmașul Mare” Natural Park we should consider three points of criteria: the management of the inland, the management of border areas (buffer areas), the management of the surrounding settlements, around the national park.

Geomechanical Database – description of rocks properties with GIS application

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Geomechanical Database developed by Department of Geomechanics at University of Warsaw until recently, collected nearly 200 000 parametric data for Poland’s rock properties as well as respective non-parametric informations (descriptions, graphics) have been collected. The data concern rocks of different age and lithology from various regions of

Poland such as Holy Cross Mountains, Sudetes Mountains, Cracow - Czestochowa Upland, Carpathians, etc. The geological regions are subordinated to physical and geographical sub-provinces according to the Kondracki division system. The main purpose of Database is systematization and integration of geomechanical rock properties, and their quick search option for large multi-subject data sets. Each component of the Database is identifiable geospatially by means of the material (“rock object”) source location in the geographical coordinate system. With that, all data collected in the Database meet the GIS system requirements and allow co-operating with other information sets within the system.

Based on the unified research procedure adopted by the Department of Geomechanics UW, test results the BDG contains more than 50 000 strength and strain parameters; nearly 100 000 parameters of ultrasonic tests; and more than 40 000 parameters of physical features. Besides in database the data from special tests are collected such as surface roughness for rock fractures; long-term rock deterioration susceptibility under influence of weather or chemical factors. The base deals with data of rocks used currently as raw materials as well as not used recently for industrial purposes for various reasons, for instance due to the location within national parks.

The BDG operates basing on two systems cooperating with each other: The General Database system collecting data on the server, and The System of Applications for viewing the collected data, acquiring new data and for generating reports responding to queries.

The System of Applications consists of three modules: Main Module (MM), Search Module (SM) and Report Module (RM). The Main Module is intended for viewing the entire data base content and for entering new data. The Search Module provides with information selection required by the user. The Report Module presents reports in tables or graphics according to the available options.

The MM structure consists of seven hierarchic information levels in the following sequence: rock origin region, data of the object, rock type, geomechanical parameter, type of examination, data for sample group and data for single rock sample.

Created by Department of Geomechanics the Geomechanical Database operates based on the SQL programming language, which guarantees the system architecture compatibility with different up-to-date data bases. The applied information technologies provide with a full exchangeability of geomechanical data with other GIS systems, where UML, GML, GeoSciML, or XMMML language was applied.

The BDG ‘foundation stone’ was the need for a quick search solution for data contained in large multi-subject data sets. Such solution was necessary for publishing the catalogues for Polish rock properties in the regional division. That is why the adopted internal database structure allows presenting selected information in tables or diagrams as well as quickly selecting information for scientific researches thanks to the in-built search module.

The Database layout allows presenting the data either against the background of well-known geomechanical classification systems, or in needed sets of results. The Database is open and being permanently extended. Parts of the Database are available on the <http://www.geo.uw.edu.pl/geomechanika>

Photogeological interpretation – an efficient tool for tectonic analysis. Study case – the Oas-Gutai Mts. (NW Romania)

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Besides the detailed photogeological and volcanological maps, the geological photointerpretation on the Oas and Gutai Mountains (OGM) led to the detailed deciphering of the fractural elements which affected the area following the lower Miocene obduction of the Pienidic Units from the Central-East Carpathians. The photogeological interpretation reveals the *nappe* units disposal of the Pienides system (Botiza, the Wildflysh and some other already mentioned units in the area like Magura, Babesti-Tiacovo, Kricevo, with different spatial and structural disposal from author to author). The slides structure composed by imbricate entities