

A WEB-BASED SYSTEM FOR COLLECTING AND ANALYSING OF GEOLOGICAL OUTCROPS

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The evolution of computer technology has created possibility to build digital catalog of geological outcrops cards – the geological data bank. In the recent times, the milestone event in the computer cartography was the release of Google Maps service (2005) and more accurately – geoservices, called web map services. These services were based on software (both commercial and open source) called map servers (Nowacki & Opach, 2009). One of these map servers is “Geoportal” – <http://geoportal.gov.pl>, acting as a broker service, that provides the digital cartographic data and spatial services for the users. Another interesting spatial service – Central Geological Database was made by Polish Geological Institute – <http://baza.pgi.gov.pl/>.

The appropriate collection and processing of data, collected as a result of geological research is a non-trivial task due to their volume and the multiplicity of formats in which they are delivered. Therefore geological databases are most miscellaneous and comprehensive, which means that they are a valuable source of information during performing of the analysis. Furthermore, data in themselves have no value, only systematization and appropriate interpretation by the user can make these data useful. To achieve this goal, spatial databases are being used, because in addition to the information received as a result of the analysis, they also have a spatial reference. This data structure forms the base layer of Geographic Information Systems (GIS) and is present in applications for analyzing and visualization of the processing of geological data results. One of this application is the Internet-based system “GeoOutcrops”, which enable collecting and analyzing data collected in the geological outcrops.

GeoOutcrops is a universal database system of geological outcrops. It was created in Department of Geoinformatics and Applied Computer Science in Faculty of Geology,

Geophysics and Environmental Protection, AGH University of Science and Technology. The GeoOutcrops database is processed, refreshed and expanded with new technical solutions version, of the geological service “GeoKarpaty 2”. Similarly to the GeoKarpaty2, the GeoOutcrops service is designed to store data of the Polish Flysch Carpathians. It can also be adapted to store data of entire Carpathians. In contrast to previous version, GeoOutcrops is a open source system, with better user interface usability and user friendly template.

GeoOutcrops is a three-tier system model, which consists of: data tier, business tier and presentation tier. The data tier represents MySQL database with spatial extension – MySQL Spatial. The business tier of system, which contains the entire functional structure of the service, has been programmed using PHP language with Kohan’s Framework 3.0 and PDO library. Interaction with the user supports JavaScript with the JQuery library. The presentation tier, including the user interface, is made with XHTML and CSS languages. The web site has been developed in accordance with the current standards, both in terms of structure, the user interface and aesthetics. The whole thing is the result of a thorough analysis of requirements and capabilities, aimed at creating a geoservice dedicated to users associated with the geological sciences. Moreover, the system also includes the implementation of Google Maps API and allows specifying the location of the various outcrops on the map.

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