

Pliocene and Quaternary, the area witnessed differential vertical and some remnant horizontal movements resulting in the formation of elevated and subsided areas. In the study area, the Soła River valley separates two prominent elevated regions that were uplifted in the Pliocene and early Pleistocene. A probably younger episode of Pleistocene and Holocene uplift is marked by the presence of two, nearly E-W trending, zones of abnormally high river bed gradients: one associated with the Jabłonków Depression in the south, and another one situated north of Żywiec, in the Beskid Śląski and Beskid Mały Mts. dissected by the Soła River water-gap. Recent uplift is usually observed in frontal parts of nappes, slices and imbricated folds and probably results from buckling induced by the ongoing thrusting.

## **Phenomenon of mud volcanoes in western Romania as a geotourism object**

Madeja G. and Mrowczyk P.

*Department of General Geology, Environmental Protection and Geotourism, Faculty of Geology, Geophysics and Environmental Protection, AGH University of Science and Technology, Al. Mickiewicza 30, 30-059 Kraków, Poland, madeja@geol.agh.edu.pl, mrowczyk@geol.agh.edu.pl*

The biggest mud volcanoes in Europe are located in eastern Romania, in the center of the Carpathian Foredeep, in the anticline structure called Berca-Arbanasi extending for 20 km north-southward. The volcanoes are located there in four zones: Beciu, Paclele Mici (PMI), Paclele Mari (PMA) and Fierbatori at a distance about 20 km northwest from Buzau. In 1924 the volcanoes PMI and PMA received the status of geological reserve, and nowadays are one of the major geotourism attractions in the country. The volcanoes in both regions are either cone- or pie- shaped. In the mud samples drawn from both regions the separation of fractions was carried out. It indicates that the muddy substance is composed mainly of grain fraction of 0.5-0.18 mm and 1.0-0.5 mm. The mineral composition, determined by means of polarizing microscope on fraction 0.5-0.18 mm in both regions, indicates that prevailing, however distinct in percentage share, minerals are the following: quartz grains, claystones and mudstone fragments. This identification was confirmed by X-ray pattern, which showed the mud volcanoes transport mostly mud composed of clay minerals represented by illite-smectite. Chemical analyses performed using ICP method showed that volcano waters are composed of mud mixed with salty waters. Moreover, chemistry of these waters collected from the two separate volcanoes are different too, and the main elements are the following: B, Ba, Br, Ca, I, K, Li, Na, Mg and Sr. Results of chemical analyses confirm various sources of salty waters as well as their migration across various evaporites present below volcanoes. The research shows significant differences between these two apparently identical objects, making them even more attractive as far as geotourism values are concerned. Establishing an appropriate geotourism infrastructure would serve at least three purposes: enriching the aesthetic impressions after visiting the region, allowing tourists to get to know the differences and enhancing the educational offer of the reserves.

## **The uranium capturing by Fe/Mn glaeboles of some Quaternary paleosols of Italy**

Magaldi D.

*Department of Plant, Soil and Environmental Science, Faculty of Agriculture, University of Firenze, Piazzale delle Cascine 18, 50144 Firenze, Italy, donatello.magaldi@unifi.it*

As it is well known, uranium is now recognized as a ubiquitous element, easily recognizable also in small occurrence. Their concentration in carbonate rocks is of the same order of magnitude as the lithospheric content (2.2 ppm). Uranium can replace calcium in the lattice of calcite or be adsorbed by the principal phosphate minerals. The large uranyl ions are adsorbed easily and can form the soluble complex