All the gold mines in Romania are now closed. Attempts are made to recover the nanogold from the waste dump material by different methods, e.g. by using suitable plants (an ongoing research project by the authors).

A future gold resource could be also the gold presumably associated with BIF-like iron deposits, such as Palazu Mare in Dobrogea, a Krivoi Rog type deposit covered by a relatively thick, partly karstified, carbonate sequence.

The gold production of Romania is best known from the period before the World War II; it varied from 4 t to 8 t of gold. Afterwards the gold production became secret and no public data were available until 1990. A figure of about 1-2 t/year is estimated for the last years. The gold fineness greatly varied from deposit to deposit. Older data give 500 ‰ for the gold from Roşia Montană and about 975 ‰ for the gold from alluvial deposits at Pianu (North Sebeş Mts.).

Upper Cretaceous marine sites of the Haţeg Country Dinosaur Geopark

Vărzaru C., Melinte-Dobrinescu M.C. and Briceag A.

Department of Marine Geology and Sedimentology, National Institute of Marine Geology and Geo-ecology, 23-25 Dimitrie Onciul Street, RO-024053, Bucharest, Romania, camelia.cazacu@geoecomar.ro; melinte@geoecomar.ro; andrei.briceag@geoecomar.ro

The Haţeg Country Dinosaur Geopark is located in the central part of Romania, being famous for its continental macrofaunas in general, and for its Upper Cretaceous (Maastrictian) dinosaur fossils in special. However, in this geopark there are also significant sites of Upper Cretaceous deposits that contain abundant and various marine fossils. Among them, there are two palaeontologically-important sites, namely the Snail Hill from Ohaba-Ponor and the Rudists from the Strei Valley, both of them being located in the SE part of Haţeg Country Dinosaur Geopark. The Snail Hill exposes a sequence spanning the Early Cenomanian-Early Turonian interval. This age was assigned based on the identified calcareous nannoplankton assemblages, containing, among other taxa, *Quadrum gartneri*, *Q. intermedium*, *Eprolithus floralis*, *Lithastrinus septenarius* and *Helenea chiastia*. The oldest Cenomanian deposits are sandstones and calcarenites with numerous taxa of *Actaeonella*, mostly belonging to *A. lamarki*, *A. conica* and *A. goldfussi* species. Other rudist taxa of the Cenomanian deposits exposed in the Snail Hill from Ohaba-Ponor are *Durania connectens* LUPU 1966, *Eoradiolites* sp., *Eoradiolites triangularis* ORBIGNY 1842, *Fossulites* sp., *Medeella* sp., *Neocaprina gigantea* GEMMELLARO 1865, *Praeradiolites fleuriaui* ORBIGNY 1842, *Sauvagesia praesharpei* TOUCAS 1909, *Sauvagesia* sp., *Sphaerucaprina* sp., *Sphaerulites astrei* LUPU 1966, *Sphaerulites foliaceus* LAMARCK 1815. In the marlstones that overly the *Actaeonella* coquina, specimens of the ammonite *Mantelliceras mantelli* (indicative for the upper part of the Early Cenomanian), as well as other macrofaunal taxa, such as *Nerinea parva*, *Pecten acuminatus*, *Exogyra columba*, *E. conica*, *Modiola polygona*, *Lopha carinata* and *Puzosia sp.* are present. Mollusc genera, such as *Aporrhais*, *Protocardium* and *Panopea*, could be also found. Upwards, the marlstones and claystones of the Snail Hill from the Ohaba-Ponor contains the ammonite species *Acanthoceras rhotomagense*, *Acanthoceras jukes-brownei* and *Eucalycoceras pentagonum* indicating a Middle-Late Cenomanian age, together with abundant other macrofaunas, especially molluscs. Another marine Upper Cretaceous palaeontologically-important site is represented by the Rudists exposure from Strei. There, a sequence of marine Upper Cretaceous sedimentation, consisting of *Actaeonella*- and *Hippurites*-bearing conglomerates and sandstones of the Strei Formation, is exposed. These are the youngest Cretaceous marine sediments of the SE part of the Haţeg Country. The rudist fauna, comprising mostly *Hippurites lapeirousei* (GOLDFUSS), *Hippurites nabresinensis* FUTTERER and *Hippurites* cf. c*olliciatus* WOODWARD, dates these deposits as Santonian–Campanian, but the sandstones contain Campanian nannofloras. Therefore, probably the age of the exposed sequence is Campanian. Both above-described sites add a significant palaeontological value to the geological heritage of the Haţeg Country

Dinosaur Geopark. These sites are important geological patrimonial resources that are able to generate tourist, cultural and scientific activities.

Geochemical characteristics of natural waters contaminated by hexavalent chromium, in Eastern Sterea Hellas, Greece

Vasilatos Ch., Megremi I. and Economou-Eliopoulos M.

Department of Economic Geology & Geochemistry, Faculty of Geology & Geoenvironment, University of AthensPanepistimiopolis, 15784 Athens, Greece, hvasilat@geol.uoa.gr, megremi@geol.uoa.gr, econom@geol.uoa.gr

The chemistry of the groundwater in Eastern Sterea Hellas (central Euboea and Asopos valley), central Greece, has revealed high concentrations of hexavalent chromium in groundwater systems exceeding, sometimes, the Greek and the EU drinking water maximum acceptable level for total chromium. The environmental impact of hexavalent chromium is a controversial issue critical to the protection of groundwater resources. By using the GFAAS for total chromium, diphenylcarbazide-Cr(VI) complex colorimetric method for hexavalent chromium, and flame-AAS and ICP-MS for other toxic elements, their concentrations were investigated in several groundwater samples. According to the results of this analytical work, the geochemical differences of those waters and the origin of the hexavalent chromium are discussed. The contamination of water by hexavalent chromium in central Euboea is mainly linked to natural processes, but there are cases that it is associated with anthropogenic activities. In Asopos valley the hexavalent chromium pollution is associated with the industrial wastes.

Morphogenetic types of ore bodies, ore textures and crystallization mechanisms in the hydrothermal madan deposits, central Rhodopes

Vassileva R.D., Atanassova R. and Bonev I.K.

Geological Institute, Bulgarian Academy of Sciences, Acad. G. Bonchev str. 24, Sofia 1113, Bulgaria, rosivas@geology.bas.bg

In the Madan Pb-Zn deposits three morphogenetic types of ore bodies are recognized: (i) steep simple veins; (ii) complex disseminated stockworks and (iii) gently sloping marble-hosted skarn-ore bodies. Their formation is structurally controlled by the fault systems, and lithological variety of the host Rhodope metamorphic complex. The replacement ore bodies reveal complex morphology according to the number, thickness and position of the host marble layers, shifts along the fault structures and local physicochemical parameters. Among the well presented morphological types – bed-like, mushroom-like, columnar or irregular, single or multilayered replacement bodies occur. The varied sulphide textures are formed by crystallization in open space or metasomatic growth in solid state. Infill ore textures like cutting veinlets, layered textures, druses, crustifications and breccias are indicative for crystallization in open space. Typical for the vein and stockwork mineralization, they are observed as well in the dissolution cavities formed by “hydrothermal karst” in the replacement ore bodies. In the latter, characteristic are the textural varieties inherited by the primary skarns in the processes of alteration and overprinting. Radiate and spherulitic, concentric, conical, massive, porous, rhythmic-banded textures typically occur. Ore impregnations and nests, pseudomorphs and interstitial formations complete the textural diversity. Certain zonal distribution in the mineral and textural characteristics is determined. The main mechanisms of ore deposition include boiling, intensive fluid/rock interaction, retrograde alteration of skarns, performed generally by convection and diffusion.