web services that can be offered based on their needs. This option will be made available using advanced content-specific and user-oriented web services in the system.

By developing web services for sharing spatial data between public organizations and authorities (including EC and EU research and policy making institutions), as well as commercial stakeholders, the project will enable the creation of value-added services (such as demand-supply modelling) for the sustainable geo-energy and mineral supply of Europe.

Sources of base, precious and rare metals during the Tethyan Phanerozoic Evolution of the Caucasus and Pontides

Gugushvili V., Popkhadze N., Beridze T. and Khutsishvili S.

Ministry of Education and Science, Geological legal Entity of Public Law Al. Djanelidze Institute of Geology. 1/9 M. Alexidze str. Tbilisi 0193, Georgia, gugushvili34@yahoo.com, nino_popkhadze@yahoo.com, tamara_beridze@yahoo.com and sofio_sofi@yahoo.com

Base, rare and precious metal deposits are widespread in the Caucasus and Pontides regions. They are the result of the Phanerozoic evolution of the Tethys Ocean, of various geodynamic settings, including oceanic, intra-arc, back-arc and island arcs. The various types of mineralization are discussed in terms of the participation scale of sialic, basaltic crusts and mantle sources. In oceanic settings, cupriferous Cyprus-type deposits occur, where the source of Cu is the mantle. In intra-arc settings, Beshi type Cu-Zn deposits were formed; the source of Zn is interpreted to be basaltic crust. As for the island arc and back-arc settings, Cu-Pb-Zn porphyry, stockwork, VMS and vein deposits are common. The source of Pb is interpreted to be the sialic crust. The rare metals (Hg, W, Sb) are related to post-collisional settings, where sialic crust is important. Mo is also related mainly to post-collisional settings, and it subordinately participates in the island arc settings. Precious metal mineralization (Au and Ag) predominantly developed in island arc and post-collisional settings. Therefore, in the process of mantle depletion and crust formation precious metals (Au and Ag) mainly accumulated in the sialic crust.

Geochemistry and petrogenetic features of the Early Cambrian volcanism inTelbesmi Formation, Mardin-Derik, SE Turkey

Gürsu S.[1], Göncüoğlu M.C.[2] and Köksal S.[3]

[1]*General Directorate of Mineral Research and Exploration, Department of Geological Research, Ankara, Turkey, semihgursu@yahoo.com*
[2]*Middle East Technical University, Geological Engineering Department, Ankara, Turkey*
[3] *Middle East Technical University, Central Laboratories, Ankara, Turkey*

The Late Neoproterozoic/Early Palaeozoic successions in Southeast Anatolian Autochthon Belt, representing the northern edge of Arabian Plate in SE Turkey, occur in Derik (Mardin), Tut-Penbegli (Adıyaman), Samur Dag (Hakkari) and Amanos (Hatay) areas. In the Mardin-Derik area the Early Paleozoic rock-units are composed from bottom to top of Telbesmi, Sadan, Koruk, Sosink and Bedinan formations, respectively. The Telbesmi Formation is made up of slightly metamorphosed fluvial sandstone/ mudstones alternating mainly with andesitic and rarely spilitic lava flows and pyroclastic rocks. The base of the formation includes andesitic/spilitic lavas, tuffs and aglomerates with rarely rhyolitic lavas, interlayered with mudstones. The upper part of the formation includes very thin-layered cherty recrystallized limestones and red, violet meta-sandstones/meta-siltstone alternations. The ichno-fossils (?*Teichnus* isp., *Treptichnus rectangularis*, *Cocchlichnu*s isp.) near the transition to the Sadan formation indicates to the Early Cambrian. Upwards, the formation is transitional to Early Cambrian siliciclastic rock of Sadan Formation. The discontinuous conglomeratic band near the transitional between the Telbesmi and Sadan Formations is a channel-fill and does not correspond to an unconformity, as previously suggested. The succession is conformably overlain by Middle Cambrian Koruk Formation, and Upper

Cambrian Sosink Formation. Trilobite bearing Late Ordovician Bedinan Formation unconformably overlies older units.

The Derik volcanics are geochemically grouped as basalts, andesites and rhyolites and display a continuous evolutionary trend from transitional to calc-alkaline affinity, which are related to magmatic differentiation. N-MORB normalized multi-element and REE diagrams reveal that Derik volcanics show clear negative anomalies for Nb, Ti and Eu with enrichment in Th, La, Ce and LREE and have similarities with arc-related Late Neoproteroic lower crustal rocks of the Arabian Plate. The negative Nb and Ti anomalies imply the involvement of a subduction-modified mantle source, whereas the Eu anomaly clearly indicates the fractional crystallization of feldspar minerals. Derik volcanics have LREE >85 time chondrite (85-120), whereas HREE is <25 times chondrite (20-24) times, probably generated outside of the garnet stability field. The $(La/Yb)_N$, $(La/Sm)_N$ and $(Gd/Yb)_N$ ratios vary from 3.29-3.92, 1.91-2.96, 0.85-1.51 for basalts, 3.88-6.53, 2.59-4.14, 1.00-1.53 for andesites and 5.68-5.92, 3.03-4.17, 1.00-1.07 for rhyolites, respectively. The negative Eu anomaly $(Eu/Eu)_N$ in basalts (0.54-0.84), in andesites (0.51-0.72) and in rhyolites (0.57-0.59) probably reflects the result of crystallization of the feldspar minerals from the melts at the source following the partial melting. The LREE/HREE, Nb/Zr and Nb/Y ratios of the studied rocks imply that Derik Volcanics may be differentiated from mafic lower crustal Arabian source. Petrogenetic modelling of Derik volcanics indicate that the initial stages of partial melting of the Arabian LC-source about 8-12 % produced a rhyolitic melts and followed by the partial melting of LC of about 9-18 % and 16-21 % to generate andesitic and basaltic melts.

The volcanics have isotopically lower $^{87}Sr/^{86}Sr$ and $^{143}Nd/^{144}Nd$ values than MORB and can be correlated well with the Early Proterozoic mafic granulites (lower crustal) of Tanzania. Four point whole-rock Rb-Sr isochron data of the volcanics reveal 533+/-25 Ma with an initial $^{87}Sr/^{86}Sr$ value of 0.7057.

Based on the geology, geochemistry and petrogenesis, Derik volcanics may be related to an extension and subsequent rifting in the northern edge of Gondwanan Arabia, which resulted in opening of a new oceanic branch to the north of the Gondwana.

The cadastral survey of Earth scientific values in the protected Hegyes-kő Hill situated in Demjén and questions of its buffer zone in concept of the “Thermal valley” Tourist Development Plan (North Hungary)

Gyori A. and Dobos A.

Department of Environmental Sciences, Eszterházy Károly College, 3300 Eger, Hungary, gyagika1@gmail.com, dobosa@ektf.hu

The Hegyes-kő Hill (220 m) is situated in North Hungary, in the Heves County, 7 kilometres far away from Eger, in the northeastern part of Demjén. This territory lies next to the “Thermal valley” (wellness) tourist development area. The territory is a part of the Egri-Bükkalja Foothill Microregion. This area was declared as a Local Nature Conservation Area (as the cultural heritage) by the local government in 1979, because of the hivestones and different anthropogenic niches, which were carved into the rock surface. Lots of geological and geomorphological values can be found in this territory, but these values did not mentioned before. The “Thermal valley” touristic wellness development began in 2007 and new apartments, park places, swimming pools and swimming caves under the surface were built up. The buffer zone and the Earth scientific and cultural values of the study area can be endangered by this building and development activities.

Our research aim is to survey geological and geomorphological fundamentals of the Hegyes-kő Hill, to do the cadastral survey of geological and geomorphological unique values and to reveal anthropogenic factors endangered the buffer zone of the protected area. At the first stage of our investigation we gathered the geological, geomorphological and topographical maps and bibliography of the study area. We have done the research work on the field, where we have surveyed the unique geological and geomorphological values of the Hegyes-kő Hill, we have filled in the form of the Cadastre data sheet of unique landscape