processes (e.g. Angistro, Menikio). All the main types of gold mineralization are linked to plate tectonic movements during the Tertiary. From the global metallogenetic point of view the post-Alpine Tertiary geodynamic systems in SE Europe are potential in producing high-grade ore deposits of base and precious metal sulphide minerals.

Mineral chemistry and geothermobarometry of the Kulu-Karacadağ volcanic rocks, Central Anatolia, Turkey: evidence for magma mixing

Asan K. and Kurt H.

Department of Geological Engineering, Selçuk University, Konya, 42079, Türkiye, kasan@selcuk.edutr, hkurt@selcuk.edu.tr

Early Miocene (ca. 21-18 Ma) volcanic activity in the Kulu (Konya)-Haymana (Ankara) area produced a series of lavas and pyroclastic deposits with calc-alkaline and mildly alkaline affinities. The volcanic products display a broad range of compositions from basic to acidic (48-72 SiO_2 wt%). The calc-alkaline volcanic rocks include plagioclase (An_{27-60}), clinopyroxene ($Wo_{40-44}En_{41-50}Fs_{8-17}$), orthopyroxene ($Wo_{1-4}En_{64-76}Fs_{20-35}$), amphibole ($Mg^{\#}$ = 0.63-0.77), Fe-Ti oxide, quartz, apatite, and scarce biotite whereas the mildly alkaline rocks contain plagioclase (An_{41-74}), olivine (Fo_{64-89}), clinopyroxene ($Wo_{41-48}En_{39-50}Fs_{7-16}$), orthopyroxene ($Wo_{2-4}En_{65-74}Fs_{23-33}$), amphibole ($Mg^{\#}$ = 0.59-0.69), Fe-Ti oxide, apatite, and scarce anorthoclase. The rocks generally show disequilibrium textures such as: (a) resorption, oscillatory zoning, honeycomb and sieve textures in plagioclase phenocrysts, (b) amphibole phenocrysts pseudomorphed by opaque aggregates and surrounded by clinopyroxene corona, (c) composite pyroxene phenocrysts with core of orthopyroxene (enstatite) and rim of clinopyroxene (augite), (d) quartz surrounded by acicular clinopyroxene, and (e) reverse zoning in all phenocrysts. Estimations of pre-eruptive temperature (T) are in the range of 810-1120 ^{o}C for the calc-alkaline and 1055-1300 ^{o}C for the mildly alkaline rocks. Estimations of crystallization pressure (P) range between 1.0-7.5 kbar for the calc-alkaline and 1.9-8.6 kbar for the mildly alkaline rocks, suggesting polybaric fractionation history. Textural and compositional relationships of mineral phases and P-T conditions of the rocks suggest that magma mixing played an important role in the evolution of the investigated volcanic rocks.

Radiolarian dating of the sedimentary cover of Sevan ophiolite (Armenia)

Asatryan G.[1,2], Danelian T.[3], Sahakyan L.[1], Person A.[4], Avagyan A.[1] and Sosson M.[5]

[1]*Institut of Geological Sciences, Armenian National Academy of Sciences, 24a Baghramian avenue, Yerevan, 375019, Armenia, asatryan@geology.am*
[2]*University Pierre & Marie Curie (Paris VI), CNRS-UMR 7207 Centre de Recherches sur la Paléobiodiversité et les Paléoenvironnements (CR2P), C. 104, 4 place Jussieu. 75005 Paris, France*
[3]*University Lille 1, Department of Earth Sciences, CNRS-FRE 3298 "Géosystèmes", SN5, 59655 Villeneuve d'Ascq, France*
[4]*University Pierre & Marie Curie (Paris VI), CNRS- ISTeP UMR 7193, C. 116, 4 place Jussieu, 75005 Paris, France*
[5]*University of Nice – Sophia Antipolis, OCA, CNRS-UMR Géosciences AZUR, 250 rue A. Einstein. 6560 Valbonne 2, France*

Dating radiolarites overlying ancient oceanic crust preserved in the Lesser Caucasus is of key importance to understand the geodynamic evolution of the greater area between Eurasia and the South-Armenian Block, a micro-continent detached from Gondwana during Late Palaeozoic–Early Mesozoic time. Micropalaeontological data are few and/or obtained before the development of a modern taxonomic framework for Mesozoic Radiolaria.

Two main ophiolitic zones are recognized in the Lesser Caucasus and they are linked to the evolution of Tethys: 1) the Sevan-Akera zone, situated in the East and SE of Lake Sevan, constitutes the main suture zone of Neo-Tethys ocean in the Lesser Caucasus, and 2) the Vedi

ophiolitic unit, in the SE of the capital city Yerevan, is considered as a folded klippe sequence thrusted on the South-Armenian Block. We focus here on biostratigraphic results obtained recently on the sedimentary cover of the Sevan ophiolite, considered to have been formed in a low spreading back-arc oceanic basin. Amongst the various localities studied, three yielded identifiable radiolaria. Radiolarian assemblages obtained from the Sarinar section allow to investigate the sedimentary and volcanic history recorded in an ca. 30 m-thick radiolarite sequence associated with spilitic lavas of the Sevan ophiolitic suture zone. Three distinct Radiolarian assemblages were recognized and they establish that the studied sequence is tectonically reversed. The younger assemblage can be assigned to the Unitary Association Zones (U.A.Z.) 19-22 of Baumgartner et al. (1995) and correlated with the Early Hauterivian/late Barremain to early Aptian interval, based on the co-occurrence of species *"Sethocapsa" (?) orca, Tethysetta boesii* and *Hiscocapsa uterculus*. The latter two species last occur in the lower Aptian Verbeeki subzone of O'Dogherty (1994). The intermediate assemblage is Late Jurassic in age (middle Oxfordian to early Tithonian; U.A.Z. 9-11), based essentially on the presence of *Zhamoidellum ovum*. Finally, the oldest assemblage may be correlated with the late Bajocian-early Bathonian, based on the presence of *"Tricolocapsa" sp. M sensu* Baumgartner et al. 1995. Several tuff levels are intercalated within the Upper Jurassic part of the radiolarite sequence. They are the evidence for a subaerial volcanic activity that took place in the oceanic realm of Tethys preserved in the ophiolites of Sevan-Akera zone.

In the Dali section, radiolarites overly spilitic lavas and are intercalated with tuffites. The co-occurrence of *Cinguloturris cylindra* and *Emiluvia pessagnoi multipora* allows the assemblage to be correlated with the Late Tithonian-Berriasian (U.A.Z. 12-14). This age proves that oceanic crust was being formed at the Jurassic/Cretaceous transition being accompanied by subaerial volcanic activity.

At the locality Tsegnaged, situated north of the town Sevan, two chert samples associated with lavas yielded Early Cretaceous radiolarian assemblages: the first can be assigned to U.A.Z 13-17 (latest Tithonian to late Valanginian) based on the co-occurrence of *Archaeospongoprunum patricki* and *Obesacapsula cetia*, while the other to U.A.Z. 18-22 (latest Valanginian/Hauterivian to early Aptian) based on the presence of *Aurisaturnalis carinatus perforatus*.

The Nea Santa submarine rhyolite dome of the Triassic silicic volcano-sedimentary succession, Circum-Rhodope Belt, northern Greece

Asvesta A.[1] and Dimitriadis S.[2]

[1]*Department of Geotechnology and Environmental Engineering, Technological Educational Institute (TEI) of West Macedonia, Kila, 50100 Kozani, Greece,* asvesta@teikoz.gr
[2]*School of Geology, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece,* sarantis@geo.auth.gr

A Triassic Silicic Volcano-Sedimentary (SVS) succession is part of the Circum-Rhodopes Belt in Northern Greece. It records the voluminous rhyolitic activity that occurred on a Paleozoic composite basement (united Vertiscos plus Pelagonia terranes) at the early stages of extension that ended in continental break-up, separation of the above two terranes and creation of the Almopias Ocean. The SVS succession stratigraphically overlies the alluvial fan deposits of the Permo-Triassic Examili Formation, sourced from the eroded Vertiscos terrane, and is overlain by a Neritic Carbonate Formation of Triassic age. It comprises pyroclastic rocks, lava flows and quartz-feldspar-phyric intrusions, as well as epiclastic volcanic, non-volcanic and mixed volcanic – non-volcanic sediments, all now metamorphosed in low greenschist facies.

The Nea Santa rhyolite dome is part of the SVS succession and is exposed in the Xiropotamos Creek between Nea Santa and Krithia villages. The dome is ~1000 m across and includes four facies recognizable despite their metamorphism and deformation. These are: (a) the "coherent rhyolite facies", representing the core of the dome and consisting of massive, non-vesicular quartz-feldspar porphyry, locally flow-banded; (b) the "lithophysal rhyolite