

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**

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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<sub>2</sub> wt%). The calc-alkaline volcanic rocks include plagioclase (An<sub>27-60</sub>), clinopyroxene (Wo<sub>40-44</sub>En<sub>41-50</sub>Fs<sub>8-17</sub>), orthopyroxene (Wo<sub>1-4</sub>En<sub>64-76</sub>Fs<sub>20-35</sub>), amphibole (Mg<sup>#</sup> = 0.63-0.77), Fe-Ti oxide, quartz, apatite, and scarce biotite whereas the mildly alkaline rocks contain plagioclase (An<sub>41-74</sub>), olivine (Fo<sub>64-89</sub>), clinopyroxene (Wo<sub>41-48</sub>En<sub>39-50</sub>Fs<sub>7-16</sub>), orthopyroxene (Wo<sub>2-4</sub>En<sub>65-74</sub>Fs<sub>23-33</sub>), amphibole (Mg<sup>#</sup> = 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 °C for the calc-alkaline and 1055-1300 °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)**

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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