the equivalent in South Euboea of the Styra unit and is overthrusted over a continental platform carbonate unit (Almyropotamos unit).

In Argolide, we observe the same situation: an ophiolite unit, overthrusted over limestones and flysch with a mylonitic contact, with insertions of klippes of a continental slope unit (Pindos). Localy, the limestones are karstificated before the overthrust.

As a conclusion of these observations we can state that we should respect the principle of actualism (James Hutton, Charles Lyell). Now, in present world, the geographic zones are large, extended: so was also in the past. The distinction of a (paleo) geographical zone must be based on the trend through geological times, not on local variations of sedimentation. Today, we observe a breaking up of geological units, due to more successive tectonic phases, not to a primary differentiation. Like this, already in Middle Cretaceous or even earlier, Tethys's floor (ophiolites with effusive emplacement) was deformed and at least folded, and emerged. This emersion possibly characterizes also certain parts of African shelf. Immediately afterwards, ophiolites overthrust on the African shelf in an enormous movement, which drifted, fragmented and disintegrated the continental slope (Pindos unit, Eretria unit). This movement is accompanied also by proportional movement of the European-Asian mass. It is deformed in the scale of planet. It is obvious that this major movement was immediately followed by a phase of strongly, isoclinal folding, trending from SSW to NNE. The most obvious today (because latest) deformation during Late Eocene and Oligocene is the one which caused the actually observed main structural lines of the Hellenides.

Gold-base metal deposits in Greece: Genetic types and economic perspectives

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Greece's geology favours a potent and dynamic use of mineral resources, which became a major incentive of the country's mining business, and economic and social growth. Among the Non-Energy Metallic Minerals commodities, base and precious metals, in particular zinc, lead, copper, gold, and silver are becoming an increasingly important and rapidly growing target of the mining industry. In NE Greece, where most of the potential resources and feasible deposits are hosted, gold-base metal mineralizations occur in a wide range of genetic types comprising magmatic, hypothermal/mesothermal, epithermal, and supergene mineralization types. The magmatic porphyry copper type deposits and mineralizations show economic gold grades (e.g. Skouries, Fisoka, and Pontokerasia), the hypothermal/ mesothermal manto-type base metal sulphides form high-grade gold ores (e.g. Olympias, Mavres Petres, Piavitsa, Thermes, Pangeon, Farasino) and the epithermal gold systems lead to potential high-sulphidation mineralizations (e.g. Konos, Perama, Kirki, Pefka). Proven reserves amount to porphyry gold and copper of 3.9 Moz and 0.8 Mt, respectively, manto-type gold of 3.6 Moz, lead + zinc of 1.6 Mt and silver of 66 Moz, as well as more than 2.0 Moz epithermal gold. The genetic link between porphyry coppers and large base metal manto style sulphide deposits can be incorporated into regional exploration strategies in a complex metamorphic terrain of schists, gneisses and marbles, whereas the epithermal type deposits were emplaced within a broad volcanic belt, which developed first in Bulgaria and then moved south through northern Greece to the region of Thrace. The epithermal gold mineralization occurs in hydrothermal breccia zones, related to volcanic rocks of andesitic, dacitic or shoshonitic composition as well as hosted by sedimentary rocks. All previous types of sulphide minerals (particularly those hosted by Rhodope and Serbo-Macedonian marbles) were overimposed by post-Pliocene co-active supergene oxidation and karstification

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_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)

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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