32- 208 and Ba/La 16-46) and relatively radiogenic Sr, Pb isotope compositions (0.70404-0.70559 and 18.62 - 19.17 for $^{206}Pb/^{204}Pb$ 15.58 – 15.68 for $^{207}Pb/^{204}Pb$ and 38.65 – 39.00 for $^{208}Pb/^{204}Pb$), indicating that they were derived from a heterogeneous lithospheric mantle that had been metasomatised by subduction related agents such as fluids and/or melts during a previous geodynamic event. On the other hand, high LILE and LRE contents of the rocks point out fluid dominated metasomatism rather than melt metasomatism.

Eocene volcanic rocks are supposed to be formed as a result of post-collisional lithospheric extension that followed the Late Cretaceous thickening of the Central Anatolian Crystalline continental crust, related to the closure of the Neotethyan Izmir-Ankara branch of Neotethys. Geochemistry and geotectonic setting point out that lithospheric delamination was the most likely mechanism to generate these calcalkaline to mildly alkaline volcanic rocks in the CACC.

Contribution to the mineralogy of wollastonite from the contact aureole near Xanthi and Kimmeria (N. Greece)

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The studied area belongs to the Rhodope Massif and is located approximately 1km north of town of Xanthi, where a plutonic body of mainly granodioritic composition and Oligocene age intrudes into marble. It is generally medium-grained, composed mainly of plagioclase, orthoclase, quartz, biotite and hornblende.

Three samples of the skarn formation were collected; two from the aureole near Xanthi (samples WXT1 and WXT2) and one from the aureole near Kimmeria (sample WXB1).Thin sections of the samples were prepared in order to determine their mineralogical and textural characteristics. Furthermore, X-ray powder diffraction (XRPD) study was performed using a Philips PW1710 diffractometer with Ni-filtered CuK_a radiation. Representative quantity of the samples was treated chemically. In this way the organic matter, fine carbonates and iron oxides (COI) were removed. The abundance and semi-quantitative estimates of the mineral phases present was determined from the untreated samples, whereas the form of the wollastonite present along with its unit cell properties were established from the treated ones (31 lines each). Finally, chemical analyses of the wollastonite were carried out using a JEOL JSM-840A Scanning Electron Microscope (SEM) equipped with attached Energy Dispersive Spectrometer.

All the samples are in general of massive fabric, forming fibrous aggregates with no distinct spatial orientation. Samples WXT1 and WXT2 are coarser grained compared to WXB1. The samples from Xanthi reveal elongated crystals of wollastonite with fractures parallel to the secondary cleavage (001), mainly filled with fine micritic calcite. The sample from Kimmeria reveals finer and elongated crystals of wollastonite, as a sample being also richer in calcite in aggregate form.

The samples are mostly composed of wollastonite (73-80%), along with considerable amounts of calcite (3-13%). Andradite is found in considerable amounts (up to 18%) only in the samples from Xanthi, while quartz is present only in Kimmeria samples. Clinopyroxene is not always found, as well as feldspars. The COI amount is greater in Kimmeria samples, showing an increasing tendency with the calcite content present in the samples.

From the unit cell data obtained from the chemically treated samples it is shown that all the samples are of triclinic structure, being in general very close to the wollastonite nominal structure. These from Xanthi show generally a slightly lower (a) angle. The wollastonite from Kimmeria demonstrates a more complex chemical content, which does not affect its crystal structure. The mean chemical formula of wollastonite in sample WXT1 is $(Ca_{5.895}Mn_{0.100}Fe_{0.017})Si_{5.994}O_{18}$, in sample WXT2 is $(Ca_{5.846}Mn_{0.152})Si_{6.001}O_{18}$ and in WXB1 is $(Ca_{5.833}Mn_{0.120}Mg_{0.045})Si_{6.001}O_{18}$. The wollastonite from Kimmeria incorporates Mg^{2+} in its structure, whereas wollastonite from Xanthi Fe^{2+}. Both demonstrate substitution of Mn^{2+} for Ca^{2+}.

The absence of vesuvianite and plagioclase, along with the presence of clinopyroxene, garnet, minor calcite and traces of quartz, indicates $0.05<X_{CO2}<0.2$ and temperature range of approximately 650-700°C at 3 Kbar (corresponding to 10-20 km depth). This also implies a volumetric H_2O wollastonite ratio of greater than 7:1. The skarn formation was not the same around the granodiorite, with reaction $CaCO_3+SiO_2 \leftrightarrow CaSiO_3+CO_2$ reaching almost completion to its western margin, rather than its northern one, possibly due to insufficient amount of time and the type of marble permeability. The magmatic fluids interacting with the marble wall rock were gradually depleted in silica content and subsequently enriched in Al, Fe and Mg, forming andradite garnet and clinopyroxene.

Permanent GPS array in Bulgaria with impact on the geodynamics in East Mediterranean

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The presentation outlines results from four years of processing data from permanent GPS stations in Bulgaria and the Balkans. Data from eight stations from the HemusNET network, joint Greek and Bulgaria project, along with another 21 GPS permanent sites on the territory of Bulgaria and another 11 located in the Balkan Peninsula are included in the routine processing. Twelve EPN stations for defining the terrestrial and kinematic frames are included in the solution. The processing is making by the state-of-art GAMIT/GLOBK GNSS software developed in the Massachusetts Institute of Technology. Time series of the coordinates and horizontal velocities of the permanent stations are obtained by processing and analyzing more than three years of data. The obtained horizontal velocities of the stations and the strain rate are in good agreement with the tectonic model of the Eastern Mediterranean and are contribution to the kinematics in the East Mediterranean region.

Separate Eocene-Early Oligocene and Miocene stages of extension and core complex formation in the Western Rhodopes (Bulgaria)

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The basement of the Rhodope Metamorphic Province comprises four groups of tectonic units forming the Lower, Middle, Upper and the Uppermost Allochthons which were emplaced onto each other during a protracted orogenic history from Late Jurassic to Eocene. The Lower Allochthon includes the Pangaion-Pirin Complex, and the Arda, Kardamos/Kesebir, and Byala Reka/Kechros units. The units consist of Variscan basement and, partly, a metasedimentary cover dominated by marble. The overlying Middle Allochthon comprises slivers of both oceanic and continental crust and, in addition, orthogneisses derived from Late Jurassic to Early Cretaceous arc granitoids. It includes, among others, the Kerdilion unit in the Serbo-Macedonian Massif and the Sidironero-Mesta, Starcevo, and Asenica units in the Western and Central Rhodopes. The Middle Allochthon was thrusted towards southwest over the Lower Allochthon during the Palaeogene along the Nestos Shear Zone. The Upper Allochthon crops out most extensively in the Eastern Rhodopes (Kimi Complex) and in the Serbo-Macedonian Massif (Vertiskos/Ograzhden unit). These units represent Variscan continental crust which was affected by HP and partly UHP metamorphism in the Jurassic to Early Cretaceous. The Uppermost Allochthon (not exposed in the Western and Central Rhodopes) consists of low-grade metamorphic (greenschist facies, locally blueschist facies) sedimentary and volcanic rocks, partly of oceanic affinity. It includes the Circum-