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-