diameter, containing inclusions of amphibole, plagioclase, epidote, quartz, titanite and abundant rutile. Many porphyroblasts have overcrowded by undistinguishable small inclusions core, often surrounded by inclusion-free rim. In finegrained samples garnets rarely include amphibole or quartz. It is almandine-rich (Alm 41-58, Grs 23-34, Pyr 18-30, Sps 1-3 mol%) with weak prograde zonation and almost lacking retrograde alternation to the rim. Porphyroblastic garnet is commonly surrounded by corona-like symplectites of sodic plagioclase (An_{27-30}) and pargasitic amphibole, indicating retrograde metamorphic reactions at expense of garnet and omphacitic clinopyroxene. Amphibole inclusions in garnet have higher Al and Ti content and are mainly tschermakites. In some samples pseudomorph replacement of amphibole by K-feldspar, chlorite and andesitic plagioclase close to garnet porphyroblasts suggests further decompression reactions at active fluid regime. Pale green diopsidic clinopyroxene (Na_2O = 0.7-2 wt%) in the matrix associates with oligoclase and is partly resorbed and enveloped by amphibole. In samples where abundant leucocratic material is present and close to almost completely resorbed garnet it includes unoriented small idiomorphic amphiboles. Incomplete replacement of rutile by ilmenite and titanite in matrix reflects the decompression path. The assemblage without the presence of Opx should reflect metamorphism in the HP granulite facies.

P-T estimates using Fe-Mg exchange equilibrium between garnet and clinopyroxene or amphibole and Al-in-amphibole and Grt-Hbl-Pl barometers indicate that the amphibolites reached at least pressures of 12-14 kbars and temperatures of 700-750°C for garnet inclusions and 750-800°C for the matrix assemblage. These new P-T data are consistent with previously reported for the garnet-kyanite gneisses from the Chepelare mélange.

Preliminary major and trace elements geochemistry plotted on discrimination diagrams suggests MORB affinity for the studied garnet amphibolites. Enrichment in Zr, Y, Nb, Ta, TiO_2, LREE and more pronounced Eu anomaly of two samples from the southernmost outcrops do not precludes the possibility of incorporation in Chepelare mélange of metabasics with different protoliths or stronger interaction with the host migmatic gneisses of granite composition. The later is supported also by high variability in LREE patterns. Additional geochemical studies are planned to reveal the possible connection with retrogressed eclogites from the ductile shear zone to the north, which according to the previous publications also show MORB-type geochemistry.

Petrological observations and P-T data support the metamorphism at least in HP granulite facies for the rock of variegated complex. We do not refer these new estimations as peak metamorphic conditions, as the HP/UHP metamorphic records could be completely erased by observed late high-temperature metamorphic overprint involving hydration reactions during the exhumation.

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Late Eocene synmetamorphic thrusting and syn-orogenic extension across the metamorphic pile of the Bulgarian Central Rhodope

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In the last few years, a consensus has emerged according to which the Rhodope Metamorphic Complex (RMC) has started undergoing post-orogenic extension in the early Late Eocene or before. Hence, no significant compressional structure younger than the Middle Eocene should be observed in it. In the Bulgarian Central Rhodope, the lower part of the metamorphic pile is mostly made of migmatitic orthogneisses from which several zircon and monazite U-Pb ages around 36-37 Ma have been reported. This may suggest that the structures formed during migmatization and subsequent cooling of this part of the

metamorphic pile result from post-orogenic extension, which indeed is the interpretation now dominating in the literature.

Our analysis in the area of Chepelare documents the following. The metamorphic rocks are exposed as a ~5 km-thick north-dipping monocline defined by foliations and lithological contours. In the largest part of this pile, structures consistently document top-to-SW shearing developed during and subsequent to anatexis. The middle part of the section shows a more variegated rock assemblage that coincides with a ~1 km-thick zone of intense strain here termed the 'Chepelare Shear Zone' (CSZ). The CSZ has previously been interpreted as a synmetamorphic thrust of presumed Mesozoic age. From a strongly sheared synfolial pegmatite sampled within the CSZ, we obtained a monazite U-Pb age of 36.3 ± 0.4 Ma (weighted mean age upon 16 analyses) and a muscovite $^{39}Ar/^{40}Ar$ single-grain plateau age of 34.9 ± 0.2 Ma. These results are consistent with published ages for the broader area and indicate that the CSZ was active during the time interval from 36 to 35 Ma (at least). Higher levels of the monocline, above the CSZ, show a domain of less severe strain and lacking pronounced stretching lineations, then a domain of higher strain that includes ~1-3 m-thick shear zones with low dips toward the north. The shear zones bear N-S-trending stretching lineations and display top-to-N shear criteria. Some of them are underlined by a synkinematic pegmatitic or granitic vein running along their axis. The top of the monocline is defined by a north-dipping fault zone (with ultramylonitic marbles and thick cataclasites) that also displays top-to-N shear criteria. This well known low-dipping fault zone, initially described as a thrust, has later been reinterpreted as an extensional detachment. Together with the domain of top-to-N ductile shearing in its footwall, we refer to this fault zone as the 'Mihalkovo-Drianovo Shear Zone' (MDSZ). Within the MDSZ, from one shear zone bearing a syn-kinematic pegmatitic vein, we obtained a monazite U-Pb age of 38.0 ± 0.1 Ma (weighted mean age upon 58 analyses) and two muscovite $^{39}Ar/^{40}Ar$ single-grain plateau ages of 34.2 ± 1.2 Ma (large flake) and 32.3 ± 1.2 Ma (recrystallized flake). From another shear zone, we obtained two muscovite $^{39}Ar/^{40}Ar$ single-grain plateau ages of 34.4 ± 0.2 Ma (granitic vein) and 34.4 ± 0.4 Ma (host gneiss). These results indicate that the MDSZ was active during the time interval from 38 to 34 Ma (at least).

As a consequence, the MDSZ and the CSZ were synchronously active, at least during the period from 36 to 35 Ma. Because the two shear zones have opposite kinematics but fairly identical dips (the difference is 10° at most), this synchronism implies that one of them was initially a thrust and the other was normal-sense, whatever the amount of tilting the metamorphic pile may have undergone subsequently. Of the two solutions left, the one where the underlying CSZ was a thrust and the overlying MDSZ was normal-sense is, by far, the most likely. Consequently, our study documents synmetamorphic thrusting in the Bulgarian Central Rhodope during the Late Eocene. This is consistent with the picture arising from the Nestos Shear Zone, in Greece, and confirms that the onset of post-orogenic extension in the RMC occurred in post-Eocene times. In addition, syn-orogenic extension, so far suspected, is now well established and appears to have developed within the RMC while it was the hot core of the Alpine orogen.

Overview of the UV activities in Belgium since the end of the eighties

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An overview of the UV activities in Belgium is presented including the balloon borne, Space borne and ground based measurements (at 5 stations) of the global and direct Solar irradiance. Main results in terms of biologically active UV are discussed in relationship with the main factors of influence as Ozone, Clouds and Aerosols. Positive UV effective doses trend (+0.6 % /Year) is discussed in correlation with the ozone negative trend (-0.2 % /year) and more favorable meteorological conditions. Finally, some information is on the future activities namely, the UV indices predictions in real conditions.