

## **Record of two Alpine high-P metamorphic events in the Titaros ophiolite complex of the Pelagonian zone (Greece)**

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We present new petrological data of the Titaros ophiolite complex and discuss their significance for the Alpine geodynamic evolution in the Pelagonian realm. There are two Alpine high-P metamorphic stages. The first stage, at pressures between 0.8-1.4 GPa and minimum temperatures 570-610 °C occurred in late Jurassic/early Cretaceous and is associated with the obduction of the ophiolite complexes onto the Pelagonian crust. At this stage the Titaros ophiolite was subducted together with crustal rocks of the Pelagonian zone as a result of tectonic erosion of the ophiolite margin. The second stage occurred in the Eocene at much lower temperatures (about 400 °C and minimum pressure ~0.7 GPa). It is interpreted to reflect the final closure of the Vardar-Axios ocean and collision/underthrusting of the Apulia microcontinent under Europe.

## **Alpine polyphase metamorphism in metapelites from Sidironero Complex (Rhodope Domain, NE Greece)**

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Metamorphic mineral ages from garnet-kyanite gneisses in the area north of Xanthi documented a Jurassic and an Eocene metamorphic event in the Sidironero complex of the Rhodope domain. The two metamorphic events are well imprinted in the mineral assemblages, mineral compositions and textural relationships of metapelites within the Nestos Shear Zone in the Sidironero complex. The Jurassic event at HP-UHP metamorphic conditions is characterized by the mineral assemblage garnet-kyanite-Ti-rich phengite at the peak pressure. The Eocene metamorphic event at moderate HP conditions and minimum pressure > 0.9 GPa is characterized by the mineral assemblages St-Grt-Ms-Ky-Bt with garnet growth at the expense of kyanite or staurolite, and Grt-St-Ky-Bt with peak P-T conditions within the St+Bt+Ky stability field.

## **Numerical analysis of shallow landsliding – an option to substantiate mass movement hazard assessment (case study in Beskid Niski, Polish Flysch Carpathians)**

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Mass movements have adverse effect on environmental assets but they are also devastating to elements at risk associated with landuse and man-made structures or even lead to casualties. For the purpose of loss reduction current Polish legislative regulations require local and regional authorities to establish registers and maps denoting areas prone to mass