(UHP) rocks occur in the NSZ which was therefore interpreted as a suture zone where subduction and exhumation of these rocks and terrain accretion occurred during the Mesozoic. Our petrological study of samples from the lower part of the NSZ, together with monazite dating of a microdiamond-bearing schist, structural observations, already published results from the upper part, and other published timing constraints, results in a fundamentally different picture: The NSZ is the base of an Eocene-age thrust wedge which included not only the structurally higher parts of the Rhodope Metamorphic Province but also the entire Internal Hellenides. The UHP rocks, for the peak pressure of which we derive an age of ca. 200 Ma by monazite dating, are unrelated to the tectonic processes in the NSZ and probably represent slivers of a higher tectonic unit captured by thrusting along the NSZ. Pressure decrease in the footwall samples and regional extension and basin formation in the hanging wall during the activity of the NSZ show that the overlying thrust wedge was collapsing in late Eocene times.

Amber on the Romanian market

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Since 1989 there was a little call for amber on the Romanian market in comparison with our days. Ironically, the Romanian amber was almost absent, despite that an unique Amber Museum was opened in 1980 at Colţi (Buzău County), in the Eastern Carpathians. After the year 1990 the European amber market is dominated by Russia, Poland and Germany. Samples examinated in this report were pieces of amber-like material from Romania, sold as Romanite, and from Russia, Lithuania, Germany and Poland, sold as Baltic amber or Succinite. All this amber-like material is used in ornamental, gemological and curative purposes.They can be found on the Romanian market. For the present study, Fourier transform infrared spectroscopy (FTIR), X-ray diffractometry (XRD) and optical microscopy are methods of choice in amber-investigations. By now, our measurements demonstrate that all material is amber, ambroid or copal. The infrared transmittance spectra were recorded with a JASCO FT-IR 4100 spectrometer using KBr pellet method, with the main specifications: Peltier detector thermostatted DLATGS as standard, Ge coated KBr beam splitter, spectral resolution 0.9 cm^{-1}, spectral range 7,800 to 350 cm^{-1}, Jasco software. For certifying the results we used another Bruker Tensor 27 FT-IR spectrometer, using both ATR accessory with a diamond crystal and KBr pellet method. The main technical specifications are: DTGS detector, KBr beam splitter, spectral range 7,500 to 370 cm^{-1}, resolution ±1cm^{-1}, ±2 cm^{-1}, OPUS software. The FTIR spectra show the bands corresponding to the alkyl stretchings between 3000 and 2800 cm^{-1}, with a characteristic pattern with a maximum intensity near 2923-2924 cm^{-1} for the methyl and methylene groups, and two bands of similar intensities at 2866 cm^{-1} for the methyl group and 2847-2848 cm^{-1} for the methylene groups.The bands due to the carboxilic acid groups have been observed near 1706-1707 cm^{-1}. The transmittance range is higher in the case of romanite, meaning that it has more carboxylic groups than succinite, probably because of a stronger oxidized process. Four bands appear near 1734-1735 in all the spectra, due to ester groups. A strong band at 1155-1157 cm^{-1} is always observed and is attributed to the C-O simple bond stretching of esters. In the 'Baltic shoulder' region situated from 1250 to 1150 cm^{-1}, the shoulder is very distinct in the case of Lithuanian and Polish amber varieties and doesn't appear at Romanite. Other bands can be to the alkyl groups: 1448 and 1444 cm^{-1} for CH_2 and CH_3 bending, 1374 and 1373 cm^{-1} for CH_3 bending. There are also spectra with bands at 1642cm^{-1} attributed to the out-of-plane CH ethylenic bendings. The presence of a clear, intense band near 887 cm^{-1} because of the exocyclic methylene is an argument for a copal spectrum. No aromatic bands are observed, indicating that aromatic structures are absent.

X-ray powder diffraction analyses was performed on a Bruker D8 Advance automated diffractometer equipped with a graphite-diffracted beam monochromator (Cu$K\alpha$ radiation,

λ=1.54056 Å), at an operating voltage of 40 kV and a beam current of 40 mA. Baltic ambers exhibit the same XRD pattern comprising of a broad peak centered at $2\theta=15^0$. They are in the amorphous state. The records seem to indicate for Romanite and Lithuanian amber some internal crystallization tendency, confirmed also by microscopically studies. These have been marked up using a PANPHOT microscope transmitted light. On the Romanite thin sections a weak anisotropy with grey-yellowish to light-blue colors was observed, although in literature is mentioned that amber does not present crystallization tendencies. Baltic amber studied with this occasion revealed no anisotropy.

Preliminary results on xenoliths in basaltic andesite subvolcanic body in the vicinity of Kroumovgrad, eastern Rhodopes, Bulgaria

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The studied basaltic andesite subvolcanic body belongs to the Paleogene post-collisional volcanism of the Eastern Rhodopes Momchilgrad-Arda volcanic region. It intrudes acid and intermediate pyroclastic, epiclastic rocks as well as concomitant sedimentary rocks. The subvolcanic rocks are with dense porphyritic texture and glassy (hyalinic) ground mass. Phenocrysts are represented by clinopyroxene, orthopyroxene and plagioclase. The rocks are medium-K to high-K, Q-normative and with Mg# = 65-72. Their geochemical peculiarities are similar to those from subduction related magmas, with negative anomalies for Ta, Nb, Ti, P in primordial mantle normalized spidergrams, but are probably influenced by lower crust material. Three different types of deep xenoliths of granulites, plagioclasites and cumulate clinopyroxenites are established. Granulites are metabasites with MgO = 7.15 wt. %. Basic granulites (pyriclasites) are composed by clinopyroxene and plagioclase where titanomagnetite is an accessory phase. Plagioclasites are composed exclusively of oligoclase with a small amount of chlorite. And finally clinopyroxenites are monomineral but with a transitional peripheral zone, where plagioclase (anortite) appears as a reaction product. Pressure estimations for granulites and clinopyroxenites are 8-14 kbars corresponding approximately to the crust – mantle boundary. Both xenolith types show petrographic evidences for rock transformations and initial melting. They were probably the result of an interaction with the ascending–basaltic to basaltic andesite mantle-derived and lower crust modified magma.

Volcanic glass textures, shape characteristics and compositions from phreatomagmatic rock units of the western Hungarian monogenetic volcanic fields and their implication to magma fragmentation

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Mio-Pliocene (~8 – 2.3 My) monogenetic volcanic fields in western Hungary (Bakony-Balaton Highland and Little Hungarian Plain Volcanic Fields) consist of eroded maar, tuff ring and scoria cones. Erosion advanced in many cases, and today the crater and volcanic conduit filling pyroclastic assemblages are preserved. The majority of the volcanoes had at least in their initial eruptive phase phreatomagmatic eruptions that produced pyroclastic beds deposited mainly from base surges and subordinate pyrolcastic falls. These phreatomagmatic rock units are rich in well-preserved volcanic glass shards. Electron microprobe studies on fresh volcanic glass reviled that they are primarily tephritic in composition. Textural analysis of the shape parameters of the glass shards were carried out with an aim to determine the magma fragmentation style was responsible for their formation. The shape analysis indicated that the majority of the magma was fragmented in a brittle fashion. Not only the fine ash