micropaleontological content they confirm the warm climatic conditions prevailing during that time. A particular location that contains vertebrate fauna of equivalent age (including primates) is the Axios Valley in northern Greece.

Nonstationary stress-strain perturbations migrated from mid-ocean ridges and the astenosphere viscosity

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The plot of temporal variation in the seismic activity level of the 40°–80°N segment of the Mid-Atlantic Ridge over the period from 1917 through 1987 is rather similar in shape with an analogous plot for Fennoscandia and, as is shown in the present work, for the eastern part of the North American platform (NAP). However, the characteristic features of the Mid-Atlantic Ridge plot are repeated with an ~3-yr delay in Fennoscandia and with a 4–8-yr delay in the NAP. This positive phase shift is consistent with the hypothesis on significant dynamic control of a mid-ocean ridge (MOR) over seismic activity in adjacent platforms. This control is realized via the MOR push force. Variations in this force induced by the nonstationary process of dike intrusion in the axial zone of the ridge bring about migration of perturbations in the stationary stress–strain state of the lithosphere away from the MOR and induce seismic activity variations in platform regions adjacent to the MOR. The positive time shift in plots of platform seismic activity relative to the corresponding MOR plot is explained in terms of the delay in the arrival of the stress wave at the platform; due to energy dissipation in the asthenosphere, the amplitude of the wave significantly attenuates during its propagation from the MOR. Using the Elsasser model and the observed time shift, an estimate of $\eta = 10^{17}$ Pa s accurate to within ±30% is obtained for the asthenosphere viscosity in the case under consideration. Such values of the viscosity are sufficient to bring about the triggering effect of stress–strain state perturbations on platform seismicity. An increase in the obtained value of η by a few times would lead to overly large travel times of the stress wave, so that seismic activity would remain unaffected by such a wave at distances of the order of 2000 km. The examined numerical model is indirectly supported by the variation amplitude of seismic activity: as compared with Fennoscandia, this amplitude is lower in the central and eastern NAP, located farther from the Mid-Atlantic Ridge. On the other hand, the stationary seismicity level on the NAP is higher than in Fennoscandia, which can explain the difference between stationary values of shear stress intensities τ in the regions considered. The smaller stationary values of τ in Fennoscandia are due to the higher curvature of the Mid-Atlantic Ridge encompassing this region. The results of this work not only confirm the idea previously proposed by the authors according to whom the MOR push force affects the stationary level of seismic activity in adjacent platform regions but also provide new insights into the mechanism of this effect in a nonstationary state.

The exposed base of a collapsing wedge – the Nestos Shear Zone (Rhodope Metamorphic Province, Greece)

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The Nestos Shear Zone (NSZ) in the Rhodope Metamorphic Province is a major high-strain zone between two metamorphic terranes. Microdiamond-bearing ultrahigh-pressure

(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,