warmth serve to accelerate the depletion of alkali and alkaline earth elements (Ca, Mg, Na, K) at the expense of refractory elements such as aluminum (Al). These relationships within soils have been used to derive transfer functions for estimating paleoclimatic variables from paleosols of comparable parent material composition and degree of development. This study extends these techniques to paleosols formed during the Late Pliocene–Early Pleistocene in the Carpathian basin. The chemical index of alteration without potassium (CIA = $100\times mAl_2O_3/(mAl_2O_3+ mCaO+Na_2O)$ in mol) increases with mean annual precipitation in modern soils. Paleotemperature of paleosols can be derived from alkali content ($C = (mK_2O+mNa_2O)/mAl_2O_3$, in mol) which decreases in modern soils with mean annual temperature. The equation for mean annual temperature is: MAT (°C) = 46.94C + 3.99 (R^2 = 0.72, standard error ±182 mm); for mean annual precipitation is: MAP (mm) = 14.265(CIA-K)-37.632 (R^2 = 0.96, standard error ±0.6°C). The older type (Beremend Member, age ~3.5–2.0 Ma) of the TRCF is red kaolinitic clay containing typically disordered kaolinite, mixed-layer smectite/kaolinite, smectite and little gibbsite. It was formed in the local subaerial weathering crust in warm, humid, subtropical or monsoon climate (MAT: 13–15°C; MAP: 1200–1400 mm). The younger member (age ~2.0–1.0 Ma) of the TRCF contains red (or "reddish") clay beds. It contains relatively fresh material (illite, chlorite), the weathering products are predominantly smectite and goethite formed under warm and drier climate in environmental conditions of savannah and steppe or forest steppe (MAT: 10–13°C; MAP: 1100–1300 mm). The basal red clay layers of the Paks Loess Fm. and KRCF (age ~1.0–0.5 Ma) contain similar material as the underlying red clays belonging to the younger member of the TRCF. The slightly but significantly lesser degree of weathering (more illite and chlorite, less smectite) indicates cooling of the climate (MAT: 8–10°C; MAP: 900–1000 mm). It appears from the sedimentological data that the main part of the red clay is of wind-blown origins, other is weathering crust of the underlying material. The Neogene red clay accumulated under persistent weak winds and a rather steady warm–arid climate. This material later was modified by post-depositional weathering under warm–humid climate.

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Time and space distribution of the Neogene intrusive magmatism from Oaş-Gutâi Mts., Eastern Carpathians, Romania

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The Oaş-Gutâi Mts. (OG) belongs to the Eastern Carpathians Neogene-Quaternary volcanic chain. Two types of calc-alkaline volcanism took place during the Middle-Miocene (15.4-7.0 Ma): a felsic explosive extensional type and an intermediate arc type of extrusive and intrusive origin, respectively. Gold-silver and base metal epithermal ore deposits are associated with the intermediate type of volcanism.

Subvolcanic and shallow–level intravolcanic intrusive rocks of irregular shapes and various sizes (from tens of metres up to 6 km long) developed on more of 3000 m vertical extent (based on drill core data). They suggest morphologies of dykes, sills and apophysis of microlaccolites crosscutting the Paleogene flysch-type basement, the Neogene sedimentary deposits, as well as the volcanic suite; hundreds of intrusions outcrop mostly in the south-eastern part of Gutâi Mts. Despite the relationships of the intrusions with different volcanic complexes, they can be hardly attributed to some individual volcanic structures. Among the various compositions and textures of rock types (from gabbros to microgranodiorites), the andesites and the porphyritic microdiorites, quartz diorites and quartz monzodiorites are the most abundant. Hornfelses and sometimes skarns formed at the contact of the intrusions with the sedimentary deposits.

The spatial distribution of the intrusions in the Gutâi Mts. suggests a possible connection with the major transcrustal fault/ tectonic system Bogdan Vodă-Dragoş Vodă, developed in the southern part of the volcanic area, as well as with some tectonic alignments showing the same orientation as most of the hydrothermal veins. The inception of the intrusive phases can be related to the change of the regional tectonic regime from transpressional to transtensional at 12 Ma, as it was recently invoked in the case of the "Subvolcanic Zone" of the Eastern Carpathians. It ended at 9.2 Ma, except for the late mafic/basaltic phase from Gutâi Mts. (8.1-7.0 Ma) ceasing the magmatism. In Oaş Mts. the intrusions were emplaced exclusively in Pannonian (10.8-9.6 Ma), while in Gutâi Mts. the intrusive magmatism started in Sarmatian (11.9-11.4 Ma) postdating the Sarmatian volcanism (13.4-12.1 Ma). Along with the emplacement of the Pannonian volcanics, intrusive rocks with different K-Ar ages (11.7-9.2 Ma) were also emplaced, being attributed to different volcanic phases. The main intrusive magmatism occurred contemporaneously with the paroxysm of the OG volcanism. The time intervals of the intrusion emplacement in OG and Poiana Botizei and Ţibles from the "Subvolcanic Zone", respectively are similar except for the mafic intrusive phase from OG.

Important veins are hosted by the intrusions from OG. Comparing the age intervals of the mineralisations with those of the intrusions, seems that the radiometric data achieved on adularia and illite from the epithermal ore deposits are consistent with those of the intrusions identified allover the metallogenetic fields: e.g. the Ilba-Nistru base metal metallogenetic field from the south-western part of Gutai Mts. shows 11.9-11.4 Ma interval of K-Ar ages for the intrusive rocks, 11.6-10.7 Ma interval for the K-Ar ages of adularia and illite and 10.6 Ma Ar-Ar age for adularia, exclusively. Except for the basaltic intrusive complex, the intrusions from OG are older than the epithermal mineralisations from all the ore deposits.

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Tectonostratigraphic terranes in the Circum-Pannonian region (pre-Neogene basement of the Pannonian Basin and its Alpine-Carpathian-Dinaridic frame): a school example of exotic terranes

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Tectonostratigraphic terrane maps of the Circum-Pannonian region showing paleoenvironments from the Devonian to Jurassic were published by the Hungarian Geological Institute in 2004 on the occasion of the Geological Word Congress held in Florence. The explanatory book of these maps in form of a monography is going to be published by the Geological Institute of the Slovak Academy of Science on the occasion of the present congress of the Carpatho-Balkan Geological Association. We shortly present the essential principles of the maps and related monography chapters, and implications for the terranology of the area concerned.

Obducted remnants and suture zone(s) of the NW part of the Mesozoic Neotethys Ocean can be found in the internal zones of the Hellenides–Dinarides and then as small, dispersed blocks in the Circum-Pannonian region more to the North. The European (Carpatho-Balkanide) margin of this ocean was formed upon the Variscan Moldanubian Zone and Mediterranean Crystalline Zone, respectively. On the other hand, its Adriatic margin was formed upon the eastern part of the Variscan Carnic–Dinaridic microplate. Its rifting began in the early part of the Middle Triassic, whereas in the Hellenides already in the late Early Triassic. Moreover, the Main Vardar Zone is supposed to have existed already in the Paleozoic, thus representing an inherited Paleotethyan domain. This pattern of deformed continental margin zones and remnants of one/or two oceanic zone(s) inbetween them is preserved until the southern margin of the Pannonian Basin, until the Bosnian–Serbian sector.