attempts to use it as a jewellery raw material. Obsidian namely in combination with silver, nickel alloys and gold can be effectively used as a modern jewellery material.

Dating of the landslide activity in the Czech part of the Outer Western Carpathians and its palaeoenviromental significance

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The Outer Western Carpathians characterised by flysch structure are prone to the development of various types of slope deformations. Landslides are typical and abundant phenomena of this mountain relief. The study brings new information on the predisposing factors for landslide evolution in the studied area and it focuses on the time constrains of these slope deformations during the Holocene. The interrelationship between slope deformations and fault-induced weathering as a preparatory factor for the development of sliding has been analysed in several case studies from the Western Carpathians in the Czech Republic. The study area comprises flysch nappes with alternating sandstone and shale of different permeability. These lithological structures are affected by systems of faults. Recurring slope instability is found as associated with zones of deep weathering in tectonically weakened areas. Climatic variability of landslide activity during the Holocene can be identified by means of radiocarbon dating and pollen analysis. The age of landslide evolution is analysed by radiocarbon dating of sediments preserved in selected places of the deposition: near-scarp depressions, inter-colluvial depressions, landslide dammed-lakes, and organic material buried under the landslide body. Using this sampling strategy we were able to establish landslide chronology in the studied area. By means of pollen data sets we can analyse palaeoenvironmental conditions of the studied areas and bring new light into the predisposing and triggering factors. Areas affected by recurring landslides suggest both gradual and cyclic landslide frequency. We determined the following landslide phases within the studied area: Older Dryas – Allleröd, Boreal, AT1, AT2/AT3, AT4/SB1, SB2/SB3, and SA1/SA2. The first very important phase is identified with the turn of the Last Glacial (Kotelnice landslide, 11813±383 ^{14}C BP). This phase is connected with crucial environmental changes at the end of the last glacial period. Cyclic landslide frequency was confirmed in the case of complex landslide areas (e.g. Velká Čantoryje landslide). A highly fragmented zone of overthrust sandstone-dominated nappe, which lies on a weathered claystone-dominated sequence, contains numerous multiple rotational slides. Basal peat bog deposits situated in the vicinity of the main scarp depressions of these landslides show minimal ages of 3540±80 ^{14}C BP to 3680±350 ^{14}C BP (late Subboreal) and a further reactivation in approximately 2400±70 ^{14}C BP to 2890±90 ^{14}C BP (Subatlantic). Recent (rather minor) mass movements have occurred only sporadically throughout the last 100 years (e.g. during an event in July 1997). Another example is connected with the evolution of a catastrophic rockslide of Mt Ropice. The first event occurred at 1450±100 ^{14}C BP (Subatlantic age of a basal sediment layer of a former landslide-dammed lake). Another smaller flow-slide (identified on the basis of a change in sedimentation within the impoundment) probably postdated 310±60 ^{14}C BP. Special attention was paid to the research of the palaeoenvironmental significance of landslide dammed-lakes. Radiocarbon dating together with palynological and sedimentological analyses detected repeated changes in depositional conditions connected with the palaeoenvironmental changes during the Holocene. Results of the radiocarbon dating of the basal parts of lake sediments show that landslides causing the valley damming originated throughout the whole Holocene with significant increase in the landslide activity in the Subatlantic chronozone. Linear lake sedimentation rates and minimum average catchments denudation for selected contributing catchments in different time spans were calculated in order to understand the relief development dynamics throughout the Holocene. Minimum mean mechanical denudation of landslide-dammed catchments varies between 2.5-13.4 mm.ky-1.

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The reconstruction of the Late Miocene flora and climate from the Sofia Basin (South-West Bulgaria) based on palynological data

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In this study, we reconstruct the Late Miocene palaeoenvironmental conditions for the Sofia basin (South-West Bulgaria) based on palynological data. The investigated samples originate from freshwater sediments of core C-14 and outcrop PG-1. The age of sediments was determinated as Pontian to Dacian on the basis of molluscs, mammals and diatoms. For the vegetational reconstructions we analyzed 145 pollen samples aiming to identify plant communities and their temporal and spatial distribution. Dominant plants in the zonal vegetation were floristic elements growing under warm-temperate climatic conditions (species of the genera *Quercus*, *Ulmus*, *Zelkova*, *Fagus*, *Carpinus*, *Betula*, *Castanea*). Significant role in the composition and structure of the fossil vegetation also played swamp forests (Taxodiaceae, *Alnus* and *Glyptostrobus*), herbaceous palaeocoenoces (Chenopodiaceae, Poaceae, Asteraceae and Apiaceae) and aquatic vegetation (*Typha*, *Sparganium*, *Potamogeton* and Nympheaceae). We applied the Coexistence Approach method to obtain quantitative palaeoclimatic data. Four climate variables are considered for climate reconstructions, namely: mean annual temperature (MAT), temperature of the coldest month (CMT), temperature of the warmest month (WMT) and mean annual precipitation (MAP). Quantitative climate data derived from fossil floras indicate warm temperate climatic conditions, with mean annual temperature of 12.9-17.2°C, temperature of the coldest month 1.7-6.6°C, temperature of the warmest month 23-27.8°C and annual precipitation between 828 and 1308 mm. The climate parameters have been compared with those from the paleoclimatic investigations of other Neogene basins in South Bulgaria which show similar results. Thus all the data contribute to better understanding of climate evolution in the Southeast Europe during the late Miocene.

Tertiary lignoflora in Carpathian Curvature

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A new collection of Oligocene fossil woods coming from the Great Curvature of Carpathians, Romania, define a very new area for petrified woods occurrence which deserves a special interest because its age and its novelty. Beside this, it's a region where amber appears within formation of the same age and a relation between is to be searched since a clear connection of amber and amber-generator tree never has been found. Previously in this area only some Oligocene petrified woods found and identified as species of *Sequoioxylon gypsaceum* (GOEPP.) GREGUSS, *Laurinoxylon murgoci* PETRESCU and *Icacinoxylon* sp. were cited. Also by the analysis of pollen grains preserved in amber, beside conifers, oaks and elms have been identified within that forest (*Cupuliferoidaepollenites liblarensis*, *Ulmipollenites undulosus*) indicating a Mixed Mesophytic Forest – otherwise a typical Oligocene Carpathian vegetation. The new collection of petrified woods found in a large area within Carpathians' Curvature have been studied and identified as morphotaxa belonging to Conifers or Angiosperms and recent field trips in that area let us to hope more than this.