the fact that calcareous nannoplankton is not preserved, the overlying nummulitic limestones of the Sittenberg Formation are correlative with the NP12. The terrestrial palynoflora is taphonomically dominated by wind-pollinated triporates. Megathermal elements occur with some exceptions only in low counts but numerous families. Of particular interest are the frequently encountered monocots such as Araceae, more than 14 taxa of Arecaceae, and Restionaceae. Generally rare in numbers occur pollen of eudicot taxa that can be assigned to the Alangiaceae, Anacardiaceae, Avicenniaceae, Calycanthaceae, Chloranthaceae, former Euphorbiaceae, Hamamelidaceae, Malvaceae Mastixiaceae, Olacaceae, Sapotaceae, Simaroubaceae, Styracaceae, Theaceae, Thymelaceae. The high percentages of mesothermal taxa evidence the establishment of a seasonally influenced more “tropical” flora at Krappfeld during the EECO. In comparison with the short-lived hyperthermal microflora of St. Pankraz with only few megathermal elements (Palaeocene-Eocene Thermal Maximum, the at least two Mya long EECO phase with its very warm and generally humid phase was responsible that a more diverse megathermal vegetation was able to migrate from Asia and Africa into the European Tethys region.

The PETM sedimentary section at St. Pankraz (Salzburg, Austria), a short hyperthermal and the presence of a few true megathermal elements.

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The newly discovered outcrop at St. Pankraz (25 km north of Salzburg) is part of the South-Helvetic thrust unit. The palaeogeographic position and palaeolatitude is estimated to be approximately 40° northern latitude. Fourteen samples have been analysed for calcareous nannoplankton, dinoflagellates and terrestrial pollen and spores from this new section, whereas the calcareous nannoflora represent mainly reworked Campanian forms, the dinoflagellate composition is strongly dominated by the Upper Palaeocene Apectodinium, particularly numerous A. augustum, a typical indicator for the P/E boundary strata worldwide. It is assumed, that the hyperthermal at the Palaeocene/Eocene-boundary (PETM) lasted approximately 170.000 years. Other, rarely occurring terrestrial plant communities from f.e. northwestern Europe, North America and Australasia are not characterized by particularly high amounts of true megathermal elements when compared with the younger EECO (Early Eocene Climate Optimum). The terrestrial palynomorphs of the new St Pankraz section corroborate these results. Here the assemblages are characterized by the quantity of various Normapolles taxa and triporates (Post-Normapolles s.l.), and the near absence of gymnosperms and the accessorial occurrence of taxa generally below 1% of warm climate-indicating pollen and spores. They are generally representing warmth-loving taxa from more mesothermal conditions (warm-temperate to “subtropical”), such as, Aquifoliaceae, Fagaceae, Hamamelidaceae, Rutaceae, Vitaceae, Restoniaceae and various Schizaeales, whereas true megathermal (“tropical”) taxa are represented by few families: Arecaceae, Anacardiaceae, Icacinacea, bombacoid, sterculioid and tilioid Malvaceae, Myristiceae, Picrodendraceae and Sapotaceae. Some of the Anacardiaceae, Schizeales, Icacinaceae and Sapotaceae were already present in the Tethys area during Palaeocene time, indicating an already relatively warm and moist climate regime for the European Tethys realm. The atmospheric warming in the St. Pankraz area during the PETM was apparently too short to cause a turnover in land vegetation and for the establishment of a true megathermal flora.

The determination of mineral phases in rock thin sections by means of Object Based Image Analysis

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Knowing the material of archaeological objects is of utmost importance in archaeology. One of the best and cheapest ways of identifying mineral phases is by optical microscopy. On the other hand this can be a time-consuming process especially if dealing with a high number of objects and therefore thin sections.
This contribution shows how OBIA (Object Based Image Analysis) works and presents the possibilities by which it