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Pliocene climate along a 42-52° North latitude European transect documented by pollen records

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Climate characteristics (temperature, rainfall, seasonality) of Europe were already documented by several pollen records (Suc et al., 1995; Fauquette et al., 1999; Popescu, 2006; Fauquette et al., 2007; Jiménez-Moreno et al., 2007). Two new pollen records at high chronological resolution of the whole Pliocene (5.33 – 2.6 Ma) and early Pleistocene (DSDP Site 380 in the southwestern Black Sea and Wólka Ligezowska in southern Poland, at 42 and 51° North latitude, respectively), provide detailed information in two key-regions.
DSDP Site 380 pollen diagram shows a continuous competition between thermophilous forests and Artemisia steppes, while thermophilous-mesophilous forests contrast with coniferous boreal forests then the latter with toundra-park at Wólka Ligezowska (Popescu et al., accepted). The narrow relationship between Site 380 pollen curves (especially the “thermophilous elements / steppe elements” ratio) and the oxygen isotope reference ones allows (1) to accurately characterize the cyclic evolution of climate progressively leading from warm to glacial conditions along a 10° in latitude gradient in Europe, and (2) to define phytogeographical provinces with their distinction both in mean annual temperature with respect to latitude and in seasonality (temperature, precipitations) according to their geographic location.