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Radiocarbon dating of Lake Baikal sediments: A comparison between pollen and TOC ages.

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Radiocarbon dating of sediment cores retrieved from Lake Baikal in the frame of the CONTINENT project (High Resolution CONTINENTal Palaeoclimate Record from Lake Baikal; http://continent.gfz-potsdam.de), was performed on grains of pollen and spores (Piotrowska et al., 2004). The AMS results have been used together with palaeomagnetic data (Demory et al., 2005) for the construction of age-depth models covering the latest Glacial and Holocene which were used for dating the environmental changes at the 3 studied sites (Vydrino Shoulder from the S Basin; Posolsky Bank at distal part of the Selenga Delta; and the Continent Ridge from the N Basin of Lake Baikal, Charlet et al., 2005).

Recently we dated with the AMS method the total organic carbon (TOC) from the same sampling levels, which previously were dated based on pollen/spores concentrates. For a majority of samples from the Vidrino Shoulder and Continent Ridge sites the radiocarbon ages of TOC are older than the pollen ages. The maximum age offset may reach as much as 1750 yrsBP but mean differences are 775 years and 500 years for Vydrino Shoulder and Continent Ridge Sites, respectively. The results evidence unambiguously that at both sites a significant amount of older carbon is admixed to TOC. At maximum as much as ca. 25% of carbon of infinite age could be contributed to the sediments.

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