



## **Late Holocene Central Asia environmental change as evidenced in high-resolution continental archives - mountain lakes and tree-rings**

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Cores of bottom sediments from Teletskoe Lake (Mountain Altai) and Telmen Lake (North Mongolia) were investigated by method of scanning X-ray fluorescent analysis with synchrotron radiation with the spatial resolution of 0.1 mm [1, 2]. It corresponds to the time resolution 0.2-0.3 year (sedimentation rates are equal 0.51 mm/year for Teletskoe Lake and 0.64 mm/year for Telmen Lake [3, 4]). Geochemical proxy of terrigenous, organogenous and aerosol components of sediments well correlated with regional meteorological data. Quantitative reconstruction of climatic parameters were constructed using the transfer functions such as: sediment composition=function (temperature, precipitation). Functions have been calibrated at the historic interval of the cores over the last 80-120 years.

Dendro samples were collected in adjacent lakes areas. The joint processing of the results helped us to clarify the time-series of geochemical proxies, adjustments based on dendro climate signals.

Annual temperature and precipitation change for the Altai region (0 - 3000 years ago) and Northern Mongolia region (0 - 2000 years ago) have been reconstructed. A Fourier analysis showed the same frequency of climate change for both regions. Have been identified as the main periods (frequency): 2000, 1000, 660, 500, 400, 330, 270, 200, 155, 125, 105, 80, 45, 30 and 10 years.

Based on the discovered periodicities forecast the environment change for the period 2010-2050 was calculated. According to our estimates at this time is expected sharp fall of annual regional temperature.

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