



**Palaeoreconstructions of Late Pleistocene (40-10 ka) in Northern Eurasia  
based on Radiocarbon-dated Oxygen-isotope Plots**

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Before answering the question "How can the oxygen isotope records of ice wedges be used in palaeoreconstructions of Late Pleistocene?," we must address four other questions. The first, "What can be done with oxygen isotope records?," the second "What has already been done?," the third "How can be dated the oxygen isotope record?" and the fourth "How it can be interpreted in terms of palaeoclimate?"

1. Oxygen isotope records is the single indicator for direct quantitative reconstructions of palaeotemperatures.
2. W.Dansgaard, J.Gat, Y.Yurtsever, Yu.Vasil'chuk and others have received the relationships, which allowed to interpreted oxygen isotope data in precipitation, glaciers and ice wedges in terms of surface air temperatures.
3. We can date the organic matter from the host sediments of the thick syngenetic ice wedges of Northern Eurasia. We have received 120 radiocarbon dates in time interval 40-10 ka B.P. (28 sequences were analyzed and detail oxygen isotope plots have received). By this means we can dated both syngenetic ice wedges and isotope plots.
4. The atmospheric origin of the water of ice wedges is favorable to interpreted the oxygen isotope records.

Now we can answer on the main question about significance of the oxygen isotope records of ice wedges in palaeoreconstructions of Late Pleistocene. One of the important aspect of oxygen isotope records of ice wedges is the possibility of palaeoclimate data receiving for evaluation of the scale and time of Late Pleistocene glaciation, and oscillations of the ice sheet distribution. It is conventional that period of great last movement of ice sheet is between 25-15 ka B.P. Of particular value is the clear determination of extreme oscillations of heavy oxygen in ice wedges preserved from Late Pleistocene. It is demonstrated extreme low values during all period 40-10 ka. Oxygen isotope data of ice wedges is not allowed to separate the significant warm or cold time intervals, they point out on homogeneous cold air and ground temperatures for all this period. Mean delta  $^{18}\text{O}$  value decrease in 8 per mill over a distance somewhat less than 2000 km on the Western Siberia to the northern Yakutia: (from -22 to -30) was found in Late Pleistocene ice wedges and the same decrease in 8 per mill (from -18 to -26) is received on Holocene and modern ice wedges too. It is shown long time preserved type of atmospheric circulation. It is important that the influence of Scandinavia ice sheet in this period on oxygen isotope distribution was not sensitive.

Syngenetic ice wedges are the most important palaeoindicator for landscape palaeoreconstruction too. When we find non-deformed Late Pleistocene syngenetic ice wedges on the vast coastal plains of Northern Eurasia, we can argue that the ice sheet is unreal for this and the next periods in this area. It is established that areas, in which non-deformed Late Pleistocene ice wedges occur in syngenetic permafrost sediments, have not been glaciated during or after time of ice-wedge formation.