Geophysical Research Abstracts,
Vol. 11, EGU2009-4147-1, 2009
EGU General Assembly 2009

Biostratigraphic and Geochronological Evidences of Floods in the Holocene: the South-East of the Taimyr Peninsula, Russia

V. Ukraintseva (1) and I. Pospelov (2)

(1) State Natural Reserve "Taimyrsky", Russia, (vukr@mail.ru), (2) State Natural Reserve "Taimyrsky", Russia, (taimyr@orc.ru)

Having conducted the research in the basins of the rivers Kotuy and Medvezhiya (71°09' North, 102°43' East) we identified for the first time the phenomenon of palaeofloods in the south-eastern part of the Taimyr Peninsula. The studied district can be equally referred to both the utmost East of the Putoran Plateau, and the utmost West of the Anabar Plateau: their geological structures meet in this very place. The vegetation of the investigated district belongs to the northern taiga type. The lower forest belt (to 200 m below the sea level) is formed by Gmelin larch Larix gmelinii (Rupr.) Rupr. Beginning with the sub-boreal period of the Holocene, namely since 3900 $\pm$ 60 years BP, high waters and floods occurred in this region constantly. The evidences thereof are as follows: (1) absence of plants' pollen and spore in the whole 10-meter formation of sediments in the 2nd terrace above the flood-plain of the Medvezhiya River; (2) absence of plants' pollen and spore in the surface samples taken in a larch forest with upland soil near the investigated geological cross-section; (3) lithology and biostratigraphy of the investigated geological cross-section; (4) contemporary hydrological situation in the Kotuy-Medvezhiya river system. The eight radiocarbon dates, obtained from the 10-meter sequence of the investigated deposits, are evident of the fact that the second terrace above the flood-plain of the Medvezhiya River was formed in the Holocene during the last four thousand years (table). Beginning in the second half of the sub-boreal period of the Holocene, namely 3900 $\pm$ 60 years ago, high waters and floods occurred in this region constantly. Judging by the contemporary hydrological situation of the rivers, the level of the water rise during the high waters and floods reached about 4 meters, and possibly more, in the ancient Kotuy River and about 1.5 meters in the ancient Medvezhiya River. High waters and floods in Taimyr rivers is an ordinary phenomenon. One can observe snow melt floods at the Khatanga River every year, when the level water at it rises by more than 5 meters. In 1968 the water rise in the Novaya River was 9.4 meters. The data, obtained for the first time, for the manifestation of palaeofloods in the basins of the Kotuy-Medvezhiya rivers, and the information on the contemporary climatic situation in the studied district allows making a conclusion that high waters and floods of similar level will also be occurring here in the coming 10 to 50 years within the framework of climatic fluctuations in this region. It would be advisable for municipal and regional authorities to take these data into account during the planning of territorial economic complexes located in the areas exposed to high waters and floods.