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Reconstruction of Late Pleistocene glaciation of Chagan-Uzun massif (SE Russian Altai) using geomorphological and physical methods.

A. Agatova, R. Nepop
Institute of Geology and Mineralogy SB RAS, Novosibirsk, Russia (agatr@mail.ru)

Reconstruction the evolution of highland Quaternary glaciations is a prerequisite for understanding their correlation with the global climate changing and modern tectonic movements. Therefore it is important to reconstruct the glaciations history of Chagan-Uzun massif – tectonic block (max. altitude 2927 m.) separated Kuray and Chuya intermontane depressions (SE Russian Altai). In contrast to the high mountain ridges in the frame of these depressions there are no modern glaciers on the top and in the valleys of Chagan-Uzun massif. Moreover this massif was not affected by Pleistocene glaciations too (Devyatkin, 1965).

The terminal moraine of Kyzylchin glacier was found out during field work. This data allows us to reconstruct the Late Pleistocene glaciation of Chagan-Uzun massif. The calculation of ice thickness was done for the outlet glacier and then the parameters of top ice basin were reconstructed. These operations were based on 1) simple models of glacier movement (Paterson, 1994) and 2) parametrization scheme (Haeberli, Hoelzle, 1997).

As a result the typical ice thickness for the outlet glacier comes approximately to 160 m. So the altitude of the maximal ice basin level comes to 2520 m. This result collaborates well with the data obtained by using traditional geomorphological methods and made it possible to reconstruct parameters of Late Pleistocene glaciation of Chagan-Uzun massif.

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