



Spatial and structural changes of Tien Shan glaciers since Little Ice Age

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The retreat of the terminus of glaciers and loss of glacier's area have been estimated using aerial photographs (from 1956 to 1987) and satellite images (from 2001 to 2004) in the Tien Shan mountains (Kyrgyz Republic). On the average the glaciers in these areas have retreated by 900-600 m since the LIA maximum. Thus in the second part of XXth century, glaciers area has changed by about 25-30% comparing with 5-8% between 1880 and 1970s.

Five shallow ice cores have been recovered from the summit of the Gregoriev Ice Cap in Tien Shan, between 1990 and 2003. The detailed stratigraphic records for the top sections of the 1990 and 2001 cores indicate that 3.8 m of snow/firn accumulated in the 11 years. The mean annual net accumulation derived from this comparison is 0.35 m in ice equivalent (i.e.) (260 mm w.e.). The net accumulation from 1963 to 1990 was 0.42 m i.e. (320 mm w.e.). Moreover decrease of firn pack depth from 9 to 6 m has been observed at 4450 m site between 1962 and 2003. Over the same period infiltration ice concentration has been increased as a result of more intensive melt water percolation.