

VARIABILITY OF SNOWINESS AND AVALANCHE ACTIVITY IN ZAILIYSKIY ALATAU, KAZAKHSTAN

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ABSTRACT: The Zailiyskiy Alatau range is located in the Central Asia. It is the most northern range of the Tien Shan Mountains. Interannual variability of a snow cover and avalanche activity characteristics for the period 1970 – 2000 is examined.

According to the meteorological station located at height of 2500 m a.s.l. the winter precipitation (from November till March) varied from 100 up to 300 mm with average value of 175 mm and STD 52 mm. A slight positive trend (0.5mm/year) is marked. The maximum snow height varied from 50 up to 140 cm with average value 87 cm and STD 23 cm. A trend is 0.77 cm/years. The maximum snow water equivalent varied from 145 up to 384 mm with average value of 241 mm and STD 63 mm. A trend is 0.56 mm/year. The snowiest years were 1981, 85, 87, 88, 90. The low snowy years were 1971, 74, 83, 95, 96. Duration of a snow cover with height more than 30 cm varies in an interval 120 – 200 days, average value 159 days and STD 21 day. There is no trend of this characteristic.

A number of avalanches during a winter, total volume of avalanches and volume of the maximum avalanche were used for the description of avalanche activity variability. All these parameters of avalanche activity varied in very wide limits. The number of avalanches was from 2 up to 93 for a winter. The total volume of avalanches varied from less 1 up to more 2000 thousand m³ with average value 308 and STD 490 thousand m³. The volume of the maximum avalanche varied from 0.2 up to 350. The average value was 75, STD – 94 thousand m³. Dependence of avalanche activity on winter snowiness was marked. For 30 years it was marked 6 winters with high avalanche activity: 1975, 76, 80, 85, 86, and 87. From them only 2 (1985 and 1987) were with the high snowiness. Five winters had the low avalanche activity: 1971, 73, 74, 82, and 95. Three of them (1971, 1974 and 1995) had the low snowiness.

For last 30 years increase of average annual and winter temperatures of air on the average on 1°C was marked. But a decrease of snowiness and avalanche activity was not observed. It is necessary for taking into account at recreation development of the mountain region.

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