



Atmospheric circulation influence on the interannual variability of snow pack in the Centre Asian Moutains during 1959-2008

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Large areas in the Chinese Tianshans and Altays are covered by snow between December and April. A significant positive trend in these two mountains snow pack was detected during the past half century. This paper analyses the interannual variation of snow accumulation in these mountains in relation to the variability of atmospheric circulation. Two spatial scales, from weather types over the centre Asian to hemispheric atmospheric patterns were considered. The results show strong relationships between the annual occurrence of several weather types and winter snow accumulation. Changes in the frequency of several weather types are explained by the evolution of large scale hemispheric circulation patterns, especially the North Atlantic Oscillation (NAO) and the Western Wind Index (WWI). Thus, the positive trend observed in the NAO index and WWI leads to an increase in the occurrence of types that favour snow accumulation and a decrease in unfavourable conditions for snow pack during the last half of the 20th century.