

Chemical Composition on the surface in the Urumqi No.1 glacier, Tien Shan, China

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Various chemical solutes are deposited in snow and ice on glaciers. Such solutes are usually washed out of glaciers during melting season. However, concentration and composition on snow and ice during melting season are little known. The solutes are important to understand microbes living on the glacier surface since chemical conditions affect their growth. In this study, we analyzed chemical compositions of ice surface in the melting season on Urumqi glacier No.1, Tien Shan Mountains in central Asia. Results showed that calcium ion was dominated more than 60% in all of the area on the glacier. This indicates that the chemical composition on the melting glacial surface is greatly affected by dust from desert in this region. Total concentration of nitrogen solutes (ammonium) was highest in the middle part of the glacier. Measurements of chlorophyll a concentration revealed that it was also maximal in the middle of the glacier. The altitudinal variation of solutes may affect the algal community and biomass on the glacier.

Keywords: chemical composition, glacier