



Evolution of intra-oases small glaciers and snow patches in Antarctica

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Antarctic oases as one of the types of periglacier landscapes were objects of investigation and hosts of Antarctic scientific stations since the first IGY. The evolution of the environment of the oases is the result of interplay between the global climate change and the evolution of glaciation. The fastest response on environmental conditions happens at the intra-oases's small glaciers and snow patches. The response can be observed through monitoring of the changes in their boundaries, volume and thickness. These variations, taking place at the time scale of few years, greatly affect wetness and albedo of the territories, hydrological regime, lithogenesis, vegetation and fauna, i.e. lead to evolution of landscapes in all their aspects. Therefore, study of the dynamics of the small glaciers and the snow patches in Antarctic oases can provide valuable information on tendencies in local geosystems' development and small-scale climatic variability. In relation to Antarctic oases, the anthropogenic factor also contributes into environmental change. Monitoring of it's effect is normally made by sampling soils and waters in points of field work, i.e. only shows level and distribution of contamination. In our understanding, relation of these data to the wetness, albedo and hydrological balance around the scientific stations through detailed study of the small glaciers and snow patches dynamics will allow much more accurate estimation of permissible anthropogenic load and will help in prognosis of the landscapes' change for design and exploitation of new infrastructure on the territories of the Antarctic oases. In presented study the territories of investigations are around Russian Antarctic stations Novolazarevskaya, Progress and Oasis. The analysis of the results of aerial photography and satellite images combined with field observations in these areas shows the main features of the dynamics of dimensions of the snow patches and small glaciers and provides recommendations on directions of future investigations during the International Polar Year.