

Vegetation changes at the glacier foreland in the high Arctic

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Since 1994, we have studied to quantitatively estimate the vegetation change in a deglaciated area in Ny-Alesund (79°57'N, 11°21' E), Svalbard. In order to clarify the ecological change of tundra plants at the foreland of glaciers, retreating because of warming climate, a comparison between ecological features in Svalbard (Ny-Alesund), with maritime climates and in Ellesmere (Oobloyah valley, 80°51' N, 82°50' W, Canadian Arctic, with those of continental climates is significant for evaluating response to climate change in the high Arctic. The most important achievement will be to gather high quality data by long-term observation in the Arctic in order to predict global and Arctic environmental changes. Further, it is important to continue the observation over more than ten years in order to understand the implications of changes and to assess the environmental affect. Toward the International Polar Year (IPY 2007-8), with the background mentioned above, we proposed the research project, TUNDRACYCLE which will begin full-scale in 2007 to 2008, using monitoring stations placed as a circum-Arctic observatory network. In the period, we will study the changes of vegetation and soil along the glacier foreland and environmental changes as seen by aerial photography over a long term.

In this session, we would like to discuss the settlement and colonization of plants at the nearest areas of both glaciers retreating at Ny-Alesund, Svalbard and Oobloyah valley, Ellesmere I. The settlement and colonization of plants will useful to consider the monitoring system of environmental changes in the high Arctic.