

Biogeochemistry on glaciers and icesheets ? Microbial process of glacier darkening and material cycles

TAKEUCHI, Nozomu^{1*}

¹Chiba University

Glaciers and icesheets have been reported to shrink worldwide, probably caused by recent global warming. They are inhabited by diverse organisms, which adapted to the cold environment. Snow and ice algae grow photosynthetically on their surface and sustain heterotrophic microbes. Organic matter including their bodies and products can reduce surface albedo and accelerate melting of glaciers. Thus, shrinkage of glaciers and icesheets is not only due to climate change, but also possibly due to change of glacier ecosystems. Therefore, it is important to assess quantitatively biogeochemical process of carbon and nitrogen cycles on glaciers. In this talk, I would like to review our present knowledge on glacial ecosystems including Asian and polar glaciers and discuss possible reasons of recent darkening of the Greenland icesheet.

Keywords: glacier, Greenland, albedo, algae, microbe, carbon cycle