

## **21. Preliminary results of the micro-topographical change and its effects on the active layer in boreal forest near Yakutsk, eastern Siberia**

Y. Sawada

Institute of Low Temp.Sci. Hokkaido University.

### **Abstract**

Ground surface is subject to move due to the periglacial processes under strong freeze-thaw cycles. In this study, I attempt to find how periglacial processes forms small topographies on the Taiga forest floor. I found that patterned and rounded mounds (earth hummocks) were formed on the surface of mineral soil beneath the organic layer. Cryoturbation (soil movement in the active layer) is the probable controlling factor for earth hummock formation.

The study site is located in undisturbed *Larix* forest in Neleger site near Yakutsk. At the start, I measured the micro-topographies of organic and mineral soil in a 2m by 2m square quadrat by photogrametric method. The quadrat was excavated secondly. The two of four pit walls were carefully observed and sketched.

Earth hummocks are approximately 20 height and 50cm diameter. Below the earth hummocks (approx. 30-50cm below), I found wave-like boundaries separating the dark and light sections of the mineral soil. The wave seems to coincide with the ridges and furrows of the earth hummocks, indicating the active layer movement may form the hummocks.

Organic components may sink into the lower boundary of the dark/light mineral soils, because the dark part of the soil connects the organic soils and lower depression of the boundary wave, creating “black plumes” of 20-30cm diameter. If the dark part of the mineral soils contain considerable amount of carbon, it may act as carbon storage in the Taiga ecosystems. Further results and discussion will be in the presentation.