

Geo-environmental change on Post-fire alpine slopes of Mount Shirouma-dake, northern Japanese Alps

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This is the continuous study to clarify the geo-environmental changes on the post-fire alpine slopes of Mount Shirouma-dake in the Northern Japanese Alps. The fire occurred at May 9, 2009 on the alpine slopes of Mount Shirouma-dake, and the fire spread to the *Pinus pumila* communities and grasslands. Although the grass had a little damage by the fire, the *Pinus pumila* received nearly impact of the fire. In the *Pinus pumila* communities where the leaf burnt, forest floor is exposed and become easy to be affected by atmospheric condition such as rain, wind, snow, and etc.

First, we illustrated a map of micro-landforms, based on geomorphological fieldworks. We observed these micro-landforms repeatedly for three years after the fire. As the results of the observation, it is clear that remarkable changes of these micro-landforms have not occurred but some litter on the ground surface under the *Pinus pumila* communities are flushed out to surroundings. The *Pinus pumila* communities established on the slopes consists of angular and sub-angular gravel with openwork texture, which are covered by thin soil layer. Therefore, it is necessary to pay attention to soil erosion following the outflow of the litter.

In addition, we observe the ground temperature and soil moisture, under the fired *Pinus pumila* communities and the no fired *Pinus pumila* communities, to find influence of the fire. The ground temperature sensors were installed into at 1 cm, 10 cm, and 40 cm depth. The soil moisture sensors were installed into at 1 cm and 10 cm depth. The 1 cm depth of the soil on the post-fire slopes, the number of diurnal freeze-thaw cycles are increase, and the period of seasonal frost at 40 cm depth is extended for one month.

Keywords: Fire, Alpine zone, *Pinus pumila*, Slope erosion, Ground temperature variation, Shirouma-dake