

Estimation of snow distribution over a large area using optical remote sensing

Yoshihiro ASAOKA^{1*}

¹ASAOKA Yoshihiro, ²KAZAMA So

This paper describes the snow-covered area detection method with optical remote sensing and estimation method of snow distribution over a large area using snow/snowmelt model. There are two types of snow detection method with optical remote sensing. First method is to analyze the visible, near infrared, intermediate-infrared, and thermal infrared data from NOAA/AVHRR. Another method is to apply the S3 index (Saito and Yamazaki, 1999) to SPOT/VEGETATION. Next, we describe the estimation method of snow distribution over a large area with snow/snowmelt model and snow cover information derived from satellite data. Firstly, a case study to optimize degree-day factor by assimilating the snow cover information with snow/snowmelt model output will be explained. Secondly, another case study to estimate accumulated snowfall by estimating accumulated snowmelt using snow disappearance season from snow cover information will be explained.

In short, the combination between satellite data and snow/snowmelt is very useful to estimate temporal and spatial snow distinction over a large area.

Keywords: Snow distribution, Optical remote sensing, Snow cover map, Snow model, Snowmelt model