



Evaluation of LDAPS Snow information by MERRA-2 and ASOS over the South Korea

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In the past decade, heavy snow has recorded the third-highest disaster damage in Korea after typhoons and heavy rain. In addition, snowfall is one of the important factors in the water cycle, and it directly affects hydrological factors such as evapotranspiration and soil moisture. Due to the topographical features of Korea, snowfall occurs heterogeneously, so it has limitations to use only in-situ data for snow monitoring. Although grid data such as remote sensing and model simulated data has been suggested as an alternative to this, it is also difficult to use only grid data due to the characteristics of snow that influence spectral behavior depending on grain size, age, etc. In this study, snow depth data was evaluated using model simulated data and ground observation data over the South Korea. For data, Local Data Assimilation and Prediction System [LDAPS] (provided with 3 hours of temporal resolution and 1.5 km of spatial resolution), Modern-Era Retrospective analysis for Research and Applications, version 2 [MERRA-2] (provided with 1 hour of temporal resolution and $0.5^\circ \times 0.623^\circ$ of spatial resolution) and Automated Synoptic Observing System [ASOS] (provided with 1 hour of temporal resolution) were used. The applicability of each data was evaluated with topographic data, and long-term trend of snow depth was analyzed. This study can help to predict snow information, with the combination of various reanalysis data and model simulated forecast dataset.

Keywords: Snow Depth, LDAPS, MERRA-2, ASOS

Acknowledgment

This research was supported by the BK21 FOUR (Fostering Outstanding Universities for Research) funded by the Ministry of Education (MOE, Korea) and National Research Foundation of Korea (NRF-2021R1A6A3A01087645).

