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[\[PDF \(2316K\)\]](#) [\[References\]](#) [\[Supplementary Materials\]](#)**Estimation of the Impact of Global Warming on Snow Depth in Japan by the Pseudo-Global-Warming Method**[Masayuki Hara](#)¹⁾, [Takao Yoshikane](#)¹⁾, [Hiroaki Kawase](#)¹⁾ and [Fujio Kimura](#)¹⁾²⁾

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Abstract:

A series of numerical experiments were conducted in order to investigate the impact of global warming on snow amount in Japan during early winter. After confirming the accuracy of hindcast simulations for a High-Snow-Cover (HSC) year and a Low-Snow-Cover (LSC) year, dynamical downscaling experiments were conducted in order to make future projections using the Pseudo-Global-Warming method. The precipitation, snow depth, and surface air temperature of the hindcast simulations show good agreement with the AMeDAS station data. At the end of December, the decreasing ratios of snow water are more significant in areas with an altitude of less than 1,500 m. The increase in the air temperature is one of the major factors influencing the decrease in snow water since the present mean air temperature in most of these areas is near 0°C even in winter. On the other hand, the change in the mean areal precipitation due to global warming is less than 15% in both years.

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