

Long-term trends of the annual maximum snow depth and number of days with snow cover in Niigata Prefecture

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Trends and variability in the annual maximum snow depth and number of days with snow cover were analyzed for the Niigata Prefecture from 1941/42 winter to 2012/13 winter. Both the t-test and the Mann-Kendall non-parametric test were utilized as a means to detect trends. Statistical significance of the trend in this study was evaluated at the 5% level of significance. Analysis was conducted on daily snow depth data from 17 weather stations.

The results showed that the annual maximum snow depth is on a decreasing trend in the plain area with an altitude of 30 m or less, while the trend was not significant in the mountainous area. The decreasing rates range from 2.9 to 12.8 cm per 10 years. On the other hand, it became clear that the number of days with snow cover have a decreasing trend in almost all the stations analyzed in this study. This result was believed to be due primarily to the significant increase in air temperature in March.

Keywords: annual maximum snow depth, number of days with snow cover, long-term trend, Niigata Prefecture