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Room: A

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Presentation title:

A METHOD OF ESTIMATING WINTER CLIMATE PARAMETERS USING FUTURE PROJECTIONS FROM THE GLOBAL CLIMATE MODEL

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Summary:

Recent years have seen a downward trend in the amount of snowfall in cold snowy regions of Japan due to warm winters, while areas known for light snowfall have experienced heavier snowfall than before. Analysis of snowy patterns over the last about 30 years using past data measured at 141 weather observatory stations indicated that accumulated seasonal snowfall showed a decreasing tendency in most cold snowy regions. In contrast, the seasonal maximum snow depth and the frequency of 24-hour periods with snowfall exceeding 40 cm showed increasing tendencies in eastern Hokkaido, the most northern island of Japan, and mountainous areas of northern mainland where there were light snowfall areas. Data on the seasonal maximum snow depth and the frequency of heavy snowfall events can be used as basic information for considering snow hazard control such as the design of facilities for protection from snow disaster and the allocation of snow removal machinery. In considering long-range plans of snow hazard control, it is necessary to predict future trends in the seasonal maximum snow depth and other snowy parameters. Against this background, the Global Climate Model (GCM) was used in this study and a future distribution map showing seasonal maximum snow depths and accumulated seasonal snowfall in cold snowy regions of Japan was created to clarify trends in current and future changes. The results revealed that mean values for the seasonal maximum snow depth and seasonal snowfall will decrease from current levels in most cold snowy regions, suggesting the potential for the reduction of future costs associated with snow hazard control. However, these predictions are based on mean values for the mid-to-late 21st century, and do not represent year-on-year snowfall variations. For this reason, annual fluctuations in maximum snow depth and other snowy parameters will be further analyzed to consider future influences on snow hazard control.

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