

## Features of snowfall and snow cover at Shinjo, Yamagata in the early winter of 2005/2006

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Many snow disasters occurred in 2005/2006 winter, including 120 fatalities, 1776 injured, and 13 whole destructions and 20 partial destructions of houses by February 6. The number of fatalities at present is the fourth record of the recent 50 years, following 1962/1963, 1980/1981 and 1983/1984 winters. Accidents relating to removal of snow on a roof and snow block sliding from a roof take a large part of the snow disasters, which characterizes the snow disasters of this winter. The number of fatalities increased rapidly from the end of December to the middle of January.

The combination of natural and social conditions governs the snow disaster occurrence. In this report, characteristic features of snowfall and snow cover are investigated as natural conditions, using the measurements at Shinjo, Yamagata in the early half of 2005/2006 winter.

The precipitation in December ranks second during the past 28 years. The solid precipitation, estimated from the daily mean air temperature with the threshold of 0C, ranks first because it was extremely cold in December. The snow depth on January 5 ranks first and the accumulated depth of newly fallen snow up to the same day ranks second during the past 22 winters. The water equivalent of snow on January 5 ranks first during the past 21 winters, which was much larger than the values on the same day in other winters. Based on these measurements and the stratigraphic observation of snow cover, the features of snow cover are summarized as follows: Lower air temperature and more precipitation compared to normal winters lead to the decrease of snow amount by melting and to the large values of snow depth and water equivalent of snow. As the snow fell almost every day, the metamorphism from fresh snow to settled snow and densification progressed, which resulted in high density of snow cover.

The features of snowfall and snow cover at other snowy areas should be investigated. If they are similar to the above mentioned features at Shinjo, the snow on a roof is difficult to slide due to adfreezing and becomes heavy, and large impact force may be caused when such roof snow with high density slides down from a roof. The accumulation of a large volume of snow below eaves, which slides down from a roof, may bury a person. These are possible causes of the snow disasters associated with roof snow frequently occurred in this winter.