



Ice and wet snow storms - vanishing or underestimated hazard in a global warming climate - the case from Bulgaria

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Freezing precipitations and wet snowfalls are among the most severe weather events in winter. They influence seriously the air and ground traffic, disturb and even interrupt the distribution of electricity by snapping power lines or standstill the production from wind farms. Despite the southerly location of Bulgaria both types of storms have been common phenomena here for a long time. In the period 1958-1999 their total number was about 28 as 13 of them caused severe damages on the electric distribution network. After 1999 the number of such events has decreased as well as their severity, which seemed to be in accordance with the general tendency of warmer winters in recent years. However, last four winters these phenomena reminded of their self in a remarkable way. In each of these winters there were more severe cases than the seasonal average. In the winter of 2011 four wet snowstorms caused serious damages and in the last winter another three storms of both kinds led to declaring of state of emergency in many regions.

In order to reveal the actual tendencies in the regime of these kinds of precipitation two periods have been investigated – 1958-1999 and 2000-2015. Freezing precipitations are routinely registered in the weather stations but not the wet snow events. For this reason the criterion of Makkonen (1981) for determination of wet snowfall has been applied. The following characteristics have been estimated and compared: seasonal number of cases, frequency and period of appearance, duration of the events and their intensity, the most often affected regions and the winter monthly temperatures.

First results indicate that warmer winters reduce the number of cases and the duration of the freezing precipitations but may increase the wet snow events and their intensity.

The study includes also a thorough investigation of the last three storms.