

FROM EDITORS

The snow avalanche is a high-energy process generally operating in high mountains. Its occurrence affects numerous elements of the natural environment and leaves permanent imprints in the landscape. One of the most specific properties of this phenomenon is its distinct / outstanding seasonal character and extraordinary complexity of the factors responsible for its occurrence. The latter particularly presents a considerable challenge to research into snow avalanches.

The imprint left by snow avalanches upon the relief or vegetation cover is of great use for studying their dynamics over a long period of time. The research on currently occurring avalanches and their impacts enables identification of the mechanism and consequences of this natural process.

Despite the fact that in our part of Europe the history of the observations of avalanches is over 100 years old, there is still a severe lack of both comprehensive research into this process and publications of a broader range. Herein, the Carpathians and the Sudetes are major mountain ranges, with numerous, although isolated massifs where avalanches pose a serious threat to people and infrastructure.

In recent decades, the transformation of the natural environment resulting from global warming and changes in land-cultivation has engendered changes in the regime of avalanches, thus reducing the frequency of their occurrence and their size. On the other hand, more and more frequent are reports about avalanches descending in medium-high mountains, which are predominant among the mountain areas of Central Europe. One of the major challenges of the research into

avalanches in our part of the world is posed by the determination of the changes in the regime of avalanches. For this reason, analyses of the history and contemporary monitoring of the dynamics of this phenomenon is of a key significance.

This volume comprises selected results of the comprehensive research of the activity and dynamics of snow avalanches and their consequences in the Tatra Mountains, the highest massif in the Carpathian Mountains. They were obtained within the framework of the National Science Centre project No. 2011/03/B/ST10/06115 "Activity of snow avalanches in the Tatra Mountains as an indicator of the climate change in the period of the past 200 years", together with the complementary articles related to the Slovak Tatra Mountains and the Southern Carpathians, and studies on the attainability of identification of the role of the factor of climate and avalanches in shaping the course of the forest line. Basing on the dendrogeomorphological research and changeability of avalanche danger in the past 100 years, the articles present the impact of the action of avalanches on the morphodynamics of the slopes, on the course of the timberline the variability of the dynamics of avalanches. They also demonstrate different methodological approaches to assessing the susceptibility of the land to the occurrence of avalanches and to assessing the consequences of their actions.

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Guest Editors

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