



## **Change in snow avalanche and debris flow hazards in the region of Krasnaya Polyana as the result of anthropogenic activity**

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The first evaluations of the snow avalanches and debris flow danger in the region of Krasnaya Polyana (Winter Olympic Games 2014 site) were made by the staff of LSADF in 1960s. In those times the danger was estimated as medium and low. Active development of the region started in 2000, when the ski (mountain climatic health) resort Alpika Service was constructed at the north slope of Aibga mountain range. Then the Alpine resorts Rosa Khutor and Gornaya Karusel [Mountain Carousel] were put into operation on the same slope. OAO Gazprom was also developing its own ski resort at the neighbouring Psekhako ridge. As the result of deforestation the quantity of small snow avalanches increased on the Aibga slopes. Skiers were caught several times by avalanches initiated by them in the reported avalanche events. The construction of ski runs, motorways, roads, as well as building of other related infrastructure has resulted in considerable change in relief. The sediment capping was dumped into stream canals, which resulted in the formation of debris flows, threatening the infrastructure of the ski resorts. The relief change related to the on going Olympic constructions is especially pronounced, when newly formed landfilling on some slopes becomes the material for landslides and debris flows and beds for avalanches. Thus, the degree of snow avalanche and debris flows danger increased considerably in the recent years, requiring originally unplanned mitigation measures.