

## **Geospatial Modeling of Dry Snow Avalanches Distribution Using Geographic Information Systems and Remote Sensing: A Case Study of the Šar Mountains (Balkan Peninsula)**

**Authors :** Uroš Durlević, Ivan Novković, Nina Čegar, Stefanija Stojković

**Abstract :** Snow avalanches represent one of the most dangerous natural phenomena in mountain regions worldwide. Material and human casualties caused by snow avalanches can be very significant. In this study, using geographic information systems and remote sensing, the natural conditions of the Šar Mountains were analyzed for geospatial modeling of dry slab avalanches. For this purpose, the Fuzzy Analytic Hierarchy Process (FAHP) multi-criteria analysis method was used, within which fifteen environmental criteria were analyzed and evaluated. Based on the existing analyzes and results, it was determined that a significant area of the Šar Mountains is very highly susceptible to the occurrence of dry slab avalanches. The obtained data can be of significant use to local governments, emergency services, and other institutions that deal with natural disasters at the local level. To our best knowledge, this is one of the first research in the Republic of Serbia that uses the FAHP method for geospatial modeling of dry slab avalanches.

**Keywords :** GIS, FAHP, Šar Mountains, snow avalanches, environmental protection

**Conference Title :** ICGG 2023 : International Conference on Geointelligence and Geoinformation

**Conference Location :** Budapest, Hungary

**Conference Dates :** August 17-18, 2023