Geophysical Research Abstracts,
Vol. 11, EGU2009-7188, 2009
EGU General Assembly 2009

Mapping snow avalanche risk using GIS technique and 3D modeling in Ceahlau Mountain

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This study consisted in a precise mapping project (GPS field campaign and on-screen digitization of the topographic maps at 1:5.000 scale) of the Ceahlau mountain area in Romanian Carpathians in order to address the snow avalanche risk management, surveying and monitoring. Thus we considered the slope, aspect, altitude, landforms and roughness derived from a high resolute numerical terrain model (31 km^2 at 1: 5.000 scale resulted in a spatial resolution of 3 m by the help of Topo to Raster tool). These parameters were classified according to a model applied into Tatra Mountains and used over Ceahlau Massive. The results were adapted and interpreted considering to the European Avalanche Hazard Scale. This work was made in the context of the elaboration of Risk Map and is directly concerning both the security of tourism activities but also the management of the Natural Park Ceahlau. The extension of this method to similar mountain areas is ongoing.