

A high-altitude snowy mountain landscape. In the foreground, a line of about ten people, likely hikers or skiers, are walking across a vast, snow-covered slope. The background shows more snow-covered mountain peaks under a clear sky. The overall scene is a typical alpine environment.

AVALANCHE CADASTRE FOR SLOVENE ALPS AND ITS MEANING FOR AVALANCHE PREVENTION

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Overview



Slovenia is endangered by a number of natural disasters. Snow avalanches endanger only a small part of Slovenia's surface, but they are problematic because of their spatial and temporal unpredictability. Therefore an avalanche cadastre is a key regional planning instrument for definition of basic prevention measures in each mountainous area, especially its cartographical part.

Avalanche cadastre basics

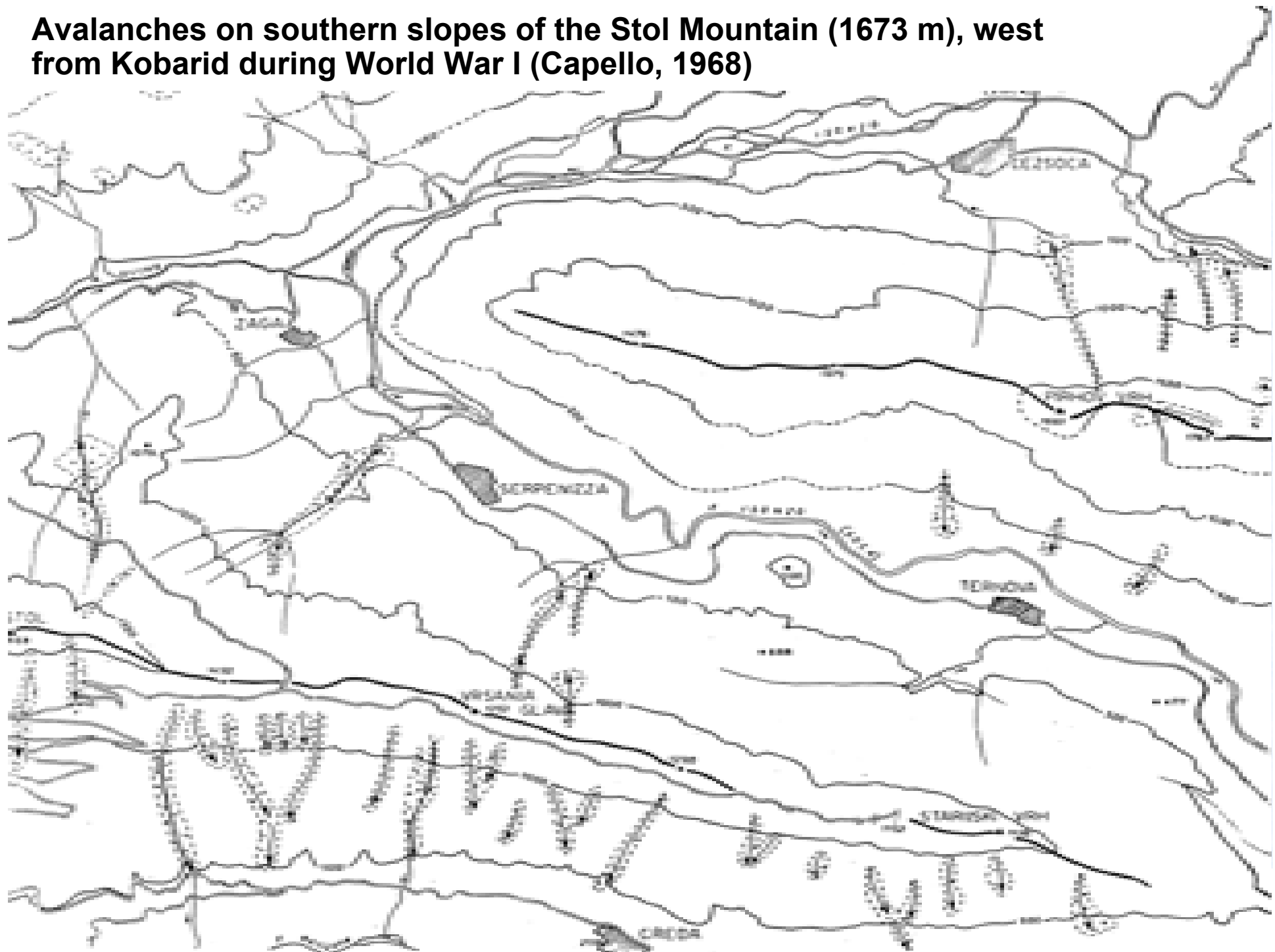


- made in 1994
- 1257 avalanches endangered 0,5 % of Slovene surface
- 33 data for each avalanche
- emphasis on NW Slovenia, most avalanche prone part of a country and on critical avalanches in other parts



Old military map from the second half of the 18th century

Avalanches on southern slopes of the Stol Mountain (1673 m), west from Kobarid during World War I (Capello, 1968)





The ruins of houses in Upper Borjana and the village Stržišče above Bača valley



Avalanche prone objects: local and main roads, power cables, ski resorts...



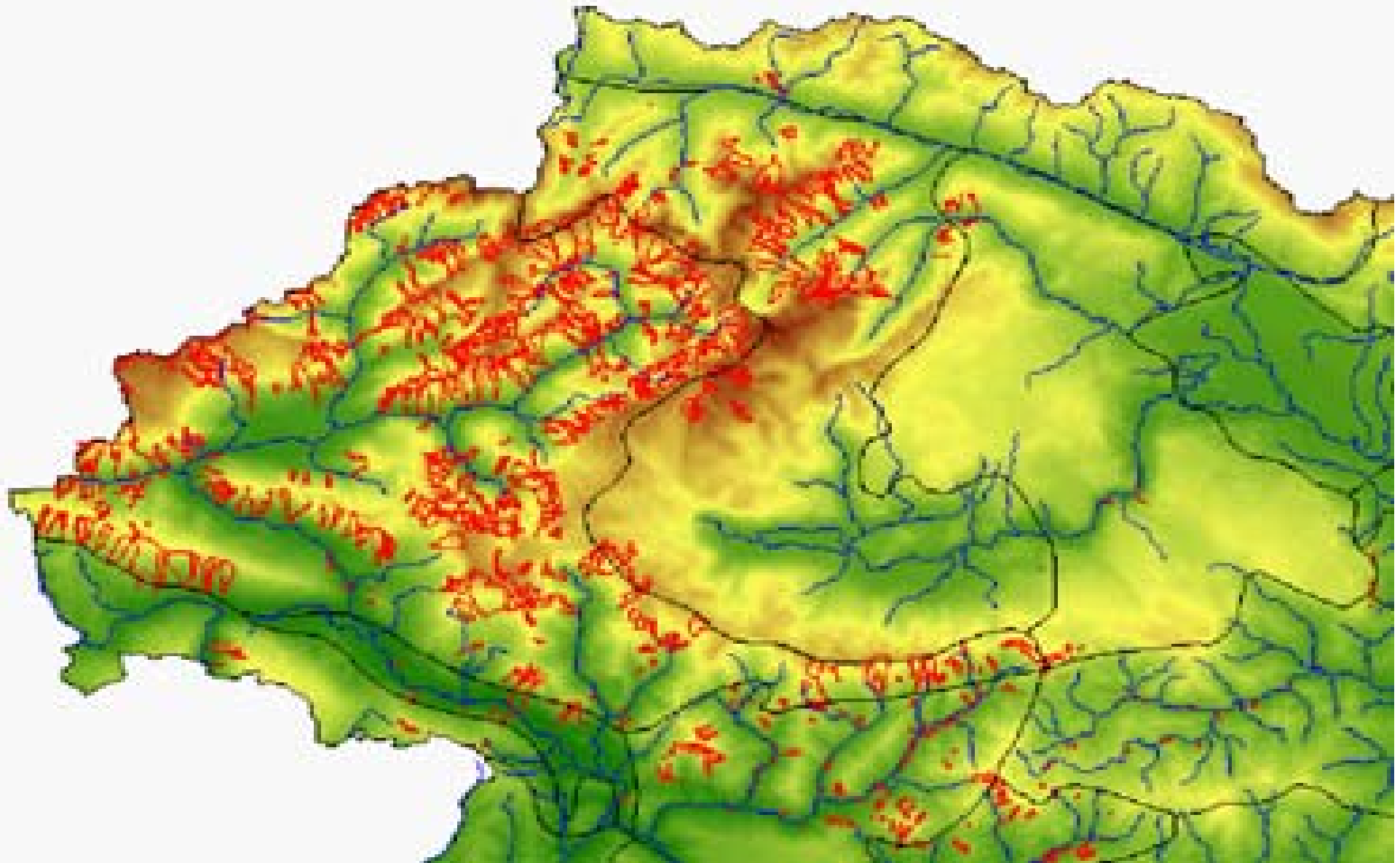
Forests - most endangered and at the same time most important for prevention (protection against snow erosion processes)



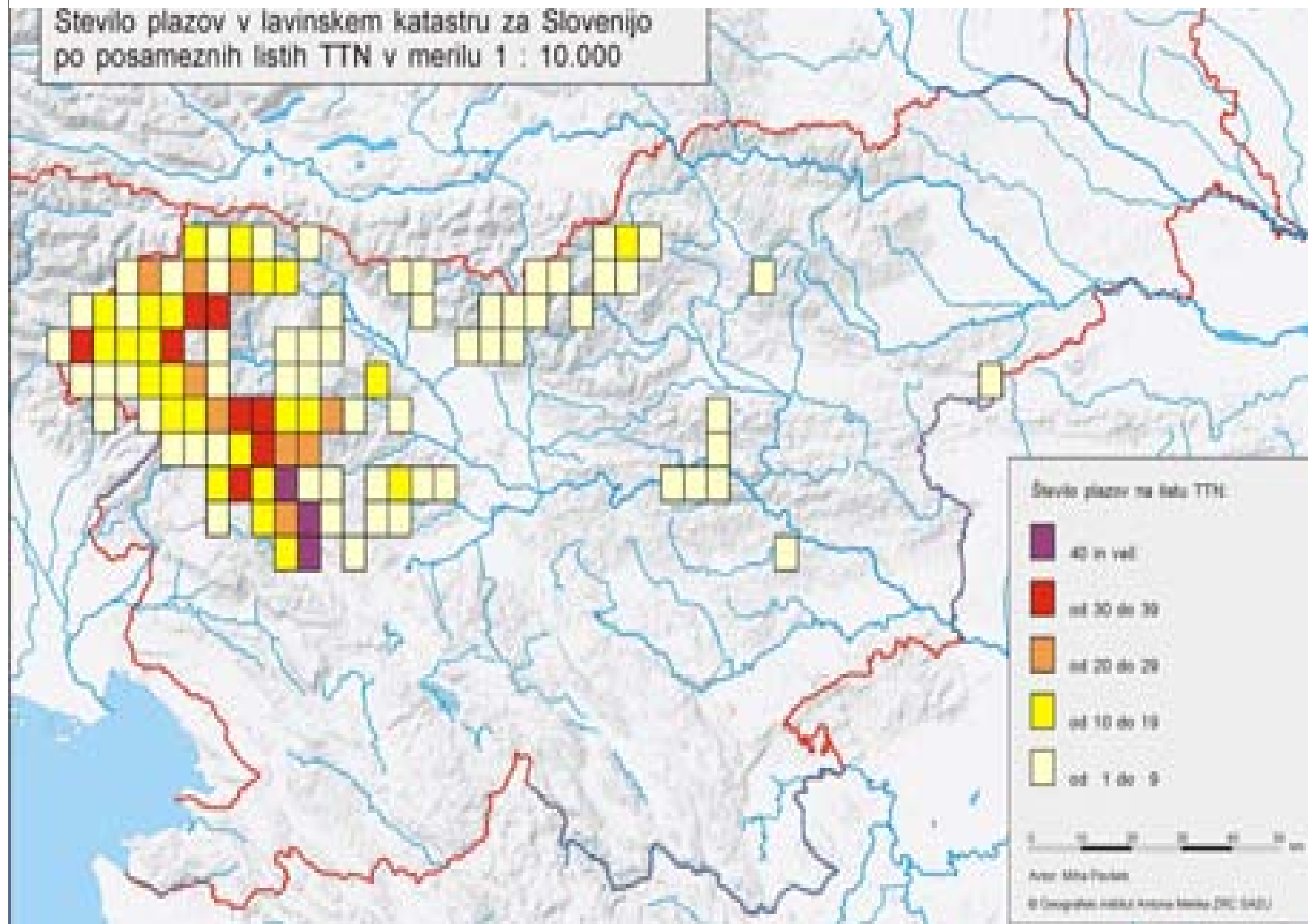
Yet we have to take into account the nature of phenomena, past and actual observations, surface characteristics as well as cartographical basis within the avalanche mapping. The risk assessment often concludes with avalanche hazard zoning maps. But we have to be very careful in its interpretation in correlation with prevention measures. We want to lay stress on some deficiency or even possible mistakes, particularly those one, connected with the topographical elements of the map, field work and interpretation.

AVLANCHES IN SLOVENIA – OVERVIEW FOR NW PART

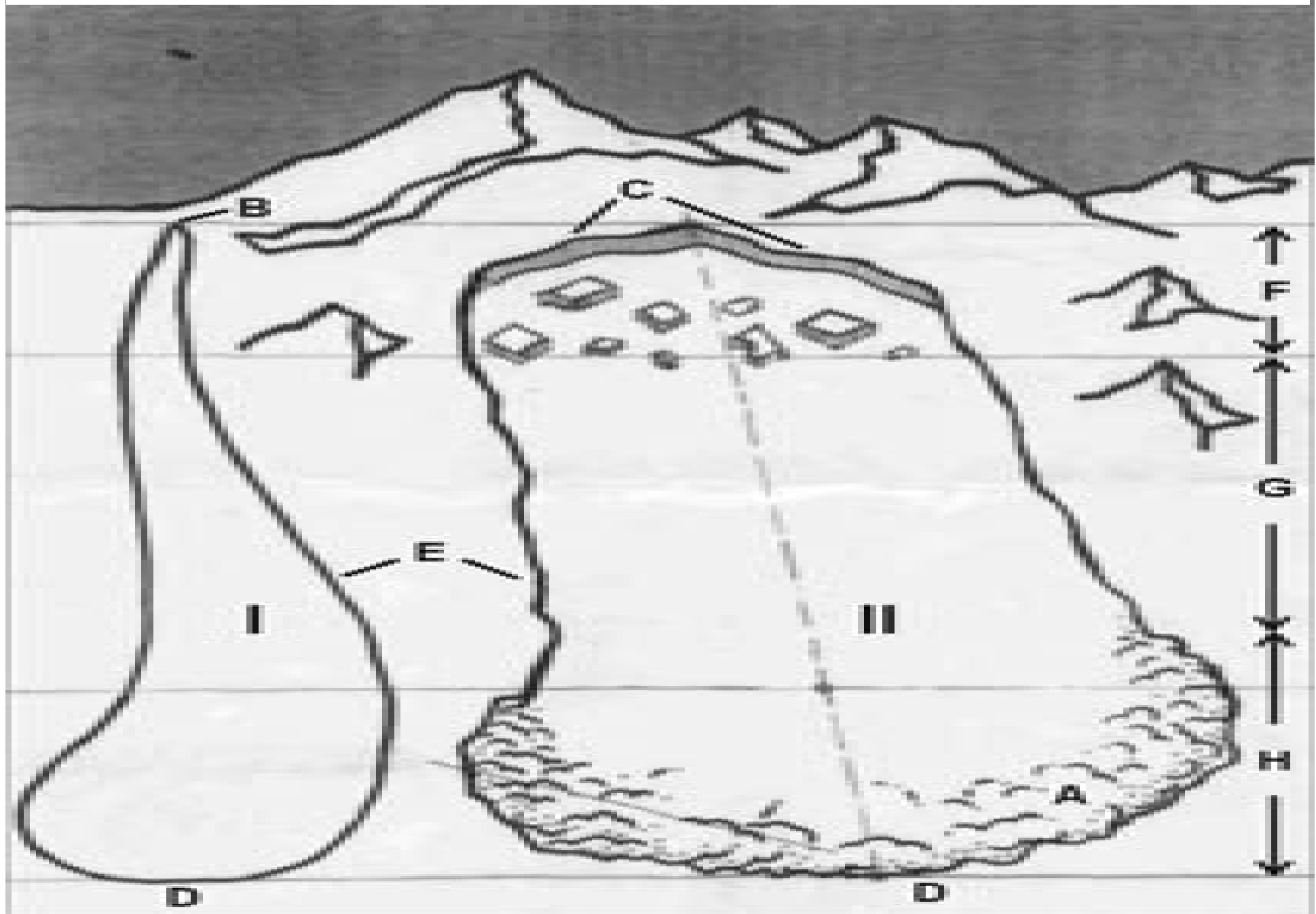
Slovenia (N=1257)
Julian Alps (N=506)



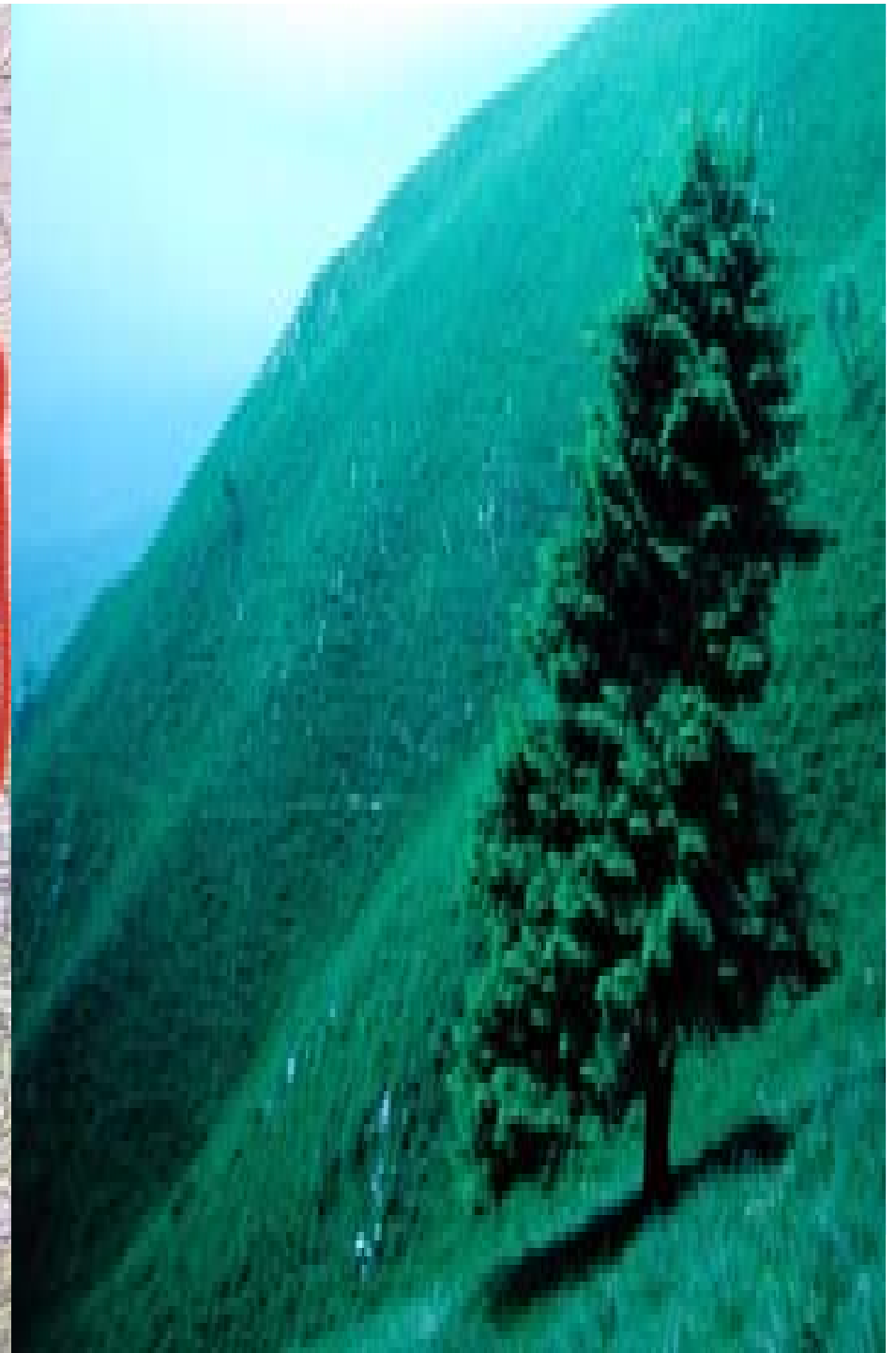
A detailed look into an avalanche cadastre



Two avalanche tracks - confined and unconfined

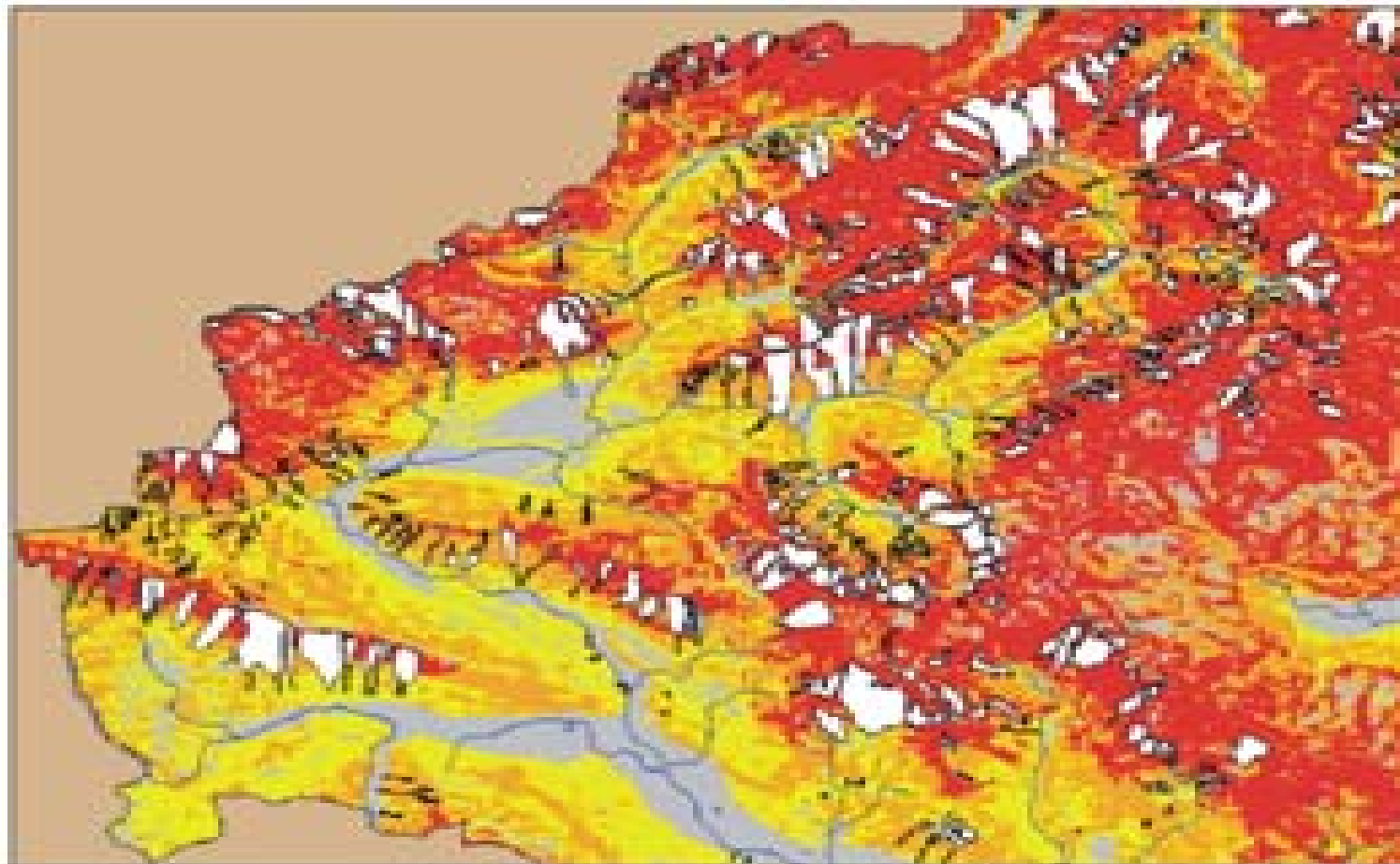


Avalanche above village Borjana





Simulation of avalanche threat in the Upper Soča valley



Threat level:



High



Moderate



Low



No threat

Author: Miha Pavšek

Source: GIS for Slovenia (GIAM)

0 5 10 15 20 25 km

An aerial photograph of a snowy mountain slope. In the upper right, there is a small, dark, irregularly shaped area that appears to be a building or a cluster of trees. The rest of the image shows a vast, white, snow-covered slope with some subtle textures and shadows.

CONCLUSIONS AND SUGGESTIONS:

- avalanche cadastre needs renovation;
- latest aerial photos must be considered as an important source;
- detailed DEM should be used as a topographical basis;
- the maintenance of avalanche cadastre must be a part of regular work of adequate service (avalanche service);
- last winter confirms, that the avalanche problems are closer to inhabitants and visitors of Slovenian avalanche endangered areas than it is general belief about that.

THANK YOU FOR YOUR KIND ATTENTION



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