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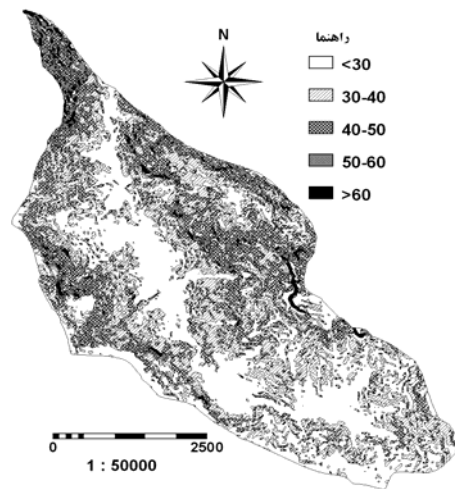
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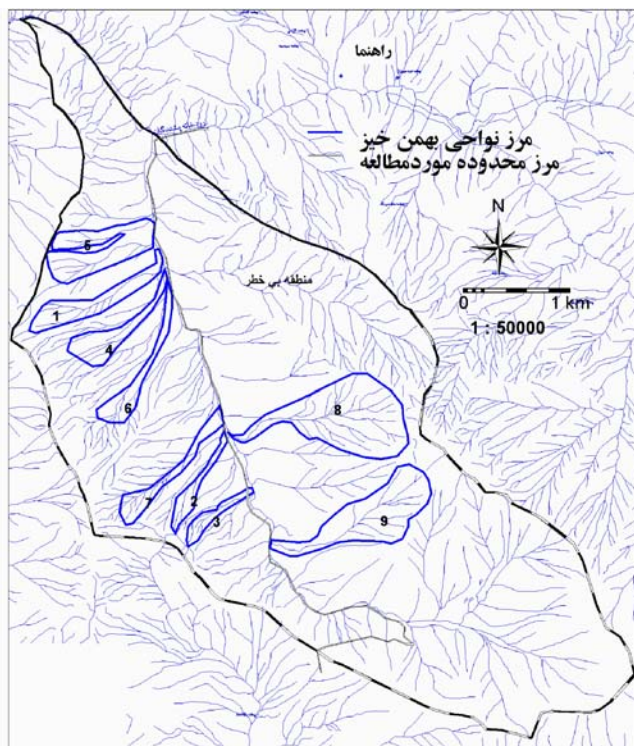
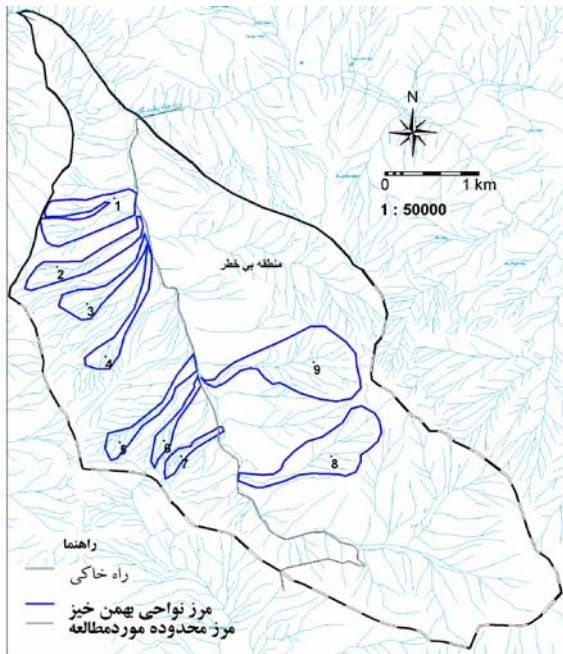
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An Investigation on avalanche zoning in Se Pestan valley watershed (Fereidunshahr, Isfahan province) using GIS techniques

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Abstract

In this study avalanche release conditions of Se Pestan watershed (2677.2 hectares) in Fereidunshahr town, Isfahan Province, was investigated. Vast field inspections were conducted and information on the history and characteristics of avalanches were gathered from locals. Studies on geomorphology, plant cover, and geology of the region were also performed. By means of the GIS (Geographical Information System), maps on hypsometry, slopes' gradients and aspect, the convexity or concavity of slopes, geomorphology, geology, land use and vegetation cover were prepared. In order to determine high priority avalanche zones, related score tables were prepared in terms of on vulnerability to the avalanche and its probability. These tables are prepared based on 6 indicators, including topography, climate, surface soil condition and vegetation, lithology and geomorphology, snow properties and damage dimensions. These indicators have been divided into sub-indicators and scores have been attributed to avalanche zones with respect to the causes of avalanche and their role and the results have been recorded in order to allow a comparison. Tables of avalanche passes are also provided in 5 hazard classes. Combining these data and aerial photos, the map of avalanche zone for nine zones was produced with reasonable correspondence between the map and field measurement. There are four passes with very high risk and two passes with relatively high risk in this region. The correspondence between field measurements and the information provided by the map show the reasonable precision of the method. At last, in order to facilitate the use of this research by government departments, the map of avalanche hazard priority produced based on the method described above is provided. This research helps identifying and determining avalanche zones where recorded data and figures are not available.

Key words: avalanche, avalanche zoning map, Se Pestan valley watershed, prioritization