

DATA MINING AND EXPERT'S KNOWLEDGE IN PREDICTION MODELS FOR PROBABILISTIC LANDSLIDE HAZARD ZONATION

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The probabilistic prediction models for future landslide hazard are all constructed from the conceptual idea of expressing the landslide hazard in terms of the joint conditional probabilities based on a set of multi-layers of spatial data related to landslides. Such quantitative models were traditionally built from the results of the statistical analysis of the past landslides and the data from the input multi-layers. The expert's knowledge on the input data with respect to the occurrences of the landslides could not be played any roles in the models.

We are proposing a new approach where expert's knowledge can be incorporated into the probabilistic prediction models. In addition we are also presenting two validation techniques using space-robust and time-robust characteristics of the landslides. Several case studies from British Columbia in Canada, Deba Valley in Spain, Fanhões-Trancão in Portugal, Fabriano in Italy and Puno in Peru were used to illustrate the proposed methodologies.

SDI is a Spatial Data Integration software package that allows different analytical strategies of data mining and of expert's interaction.