

# **Rainfall induced landslide susceptibility assessment at the Chongren area (China) using frequency ratio, certainty factor and index of entropy model**

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Rainfall is a important induced factor in landslide. The main objective of the study is to apply and compare a frequency ratio, certainty factor and index of entropy model in Chongren area, China using geographic information system and remote sensing technology. First, a landslide inventory map was constructed from field surveys and interpretation of aerial photographs. Landslide factors such as elevation, slope, aspect, plan curvature, profile curvature, stream power index(SPI), sediment transport index(STI), topographic wetness index (TWI), distance to faults, distance to rivers, distance to roads, land use, NDVI, lithology, and rainfall were analyzed in landslide susceptibility modeling. Then landslide susceptibility maps were produced using frequency ratio, certainty factor and index of entropy methods. Finally, the maps were validated and compared using known landslide locations. The AUC plots showed that the training accuracy were 79.12%, 80.34% and 80.42%, for FR, CF and IOE models, and the prediction accuracy were 80.14%, 81.58% and 81.73%, respectively. The map produced by IOE model exhibited the best result for landslide susceptibility mapping in the study area. The models used in this study is important for government management and land use planning

**Key words:** rainfall, model, landslide, assessment