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[Abstract Title]

Multi-index regression analysis of flood disaster losses in Hebei

[Abstract]

In the current historical rainfall database, rainfall area is lacking, so it is necessary to perform spatial interpolation and calculate the historical rainfall area retrospectively. This study uses the Hebei Rainfall Database, combined with the 2009-2015 flood disaster database, to calculate the total rainfall of each station in Hebei Province within three days of the disaster. The Kriging interpolation method was used to obtain the accumulated rainfall raster data of the whole province of Hebei within three days of the historical disaster. Finally, the rainfall area with accumulated rainfall more than 30mm is obtained. In this study, more than 120 medium and large-scale flood disasters and hail disasters, 391 counties of rainfall area were calculated. According to the results of the disaster zoning in Hebei Province, this study divides Hebei Province into 4 regions, and then conducts regression analysis of Hebei flood disaster area and direct economic loss. The indexes of regression analysis applied in this study include: rainfall area, latitude, longitude, elevation, rain intensity, and maximum rainfall peak flow. In this study, multiple regression is used to construct a functional relationship between the heavy rain disaster loss and disaster intensity index to quickly assess the future heavy rain disaster loss.



[Keywords]

flood; rainfall area; affected area; direct economic loss