

[1]段光耀,赵文吉,宫辉力.基于遥感数据的区域洪涝风险评估改进模型[J].自然灾害学报,2012,04:57-61.

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基于遥感数据的区域洪涝风险评估改进模型(PDF)

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Title: Improved model of regional flood disaster risk assessment based on remote sensing data

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关键词: [洪涝灾害风险评估](#); [遥感数据](#); [历史灾情数据](#); [松花江流域](#); [地图代数](#)

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摘要: 灾害风险评估是最简单有效的防灾减灾措施之一。以松花江流域为研究区域,提出了一种基于遥感实时监测数据和历史洪涝灾害数据的洪涝风险评估改进模型。选取中国气象科学数据共享服务网的降雨数据、NASA的SRTM90mDEM地形数据、河网数据以及对2007年全国统计年鉴进行空间化所得的人口和GDP数据作为因子,应用层次分析法计算了各因子的权重,基于洪涝灾害形成机制计算了初始的松花江洪涝风险指数。在此基础上,获取历史洪涝灾情频次数据和HJ-1实时遥感影像提取的水体淹没范围数据,利用地图代数法来对初始的风险指数进行改进。考虑历史洪涝风险的规律性和风险评测时的具体水体范围信息,使得所得结果能够反映松花江流域洪涝灾害的综合风险,具有一定的现实性,为防灾减灾提供了依据。

Abstract: Disaster risk assessment is one of the simplest and most effective measures of disaster prevention and reduction. This paper proposed a method to improve the traditional model of regional flood risk assessment based on real-time remote sensing monitoring data and historical flood disaster data. The studied area is Songhua River Basin. Rainfall data taken from China Meteorological Data Sharing Service System, 90m digital elevation model (DEM) data from America National Aeronautics and Space Administration (NASA) and population density and the gross domestic products (GDP) data from the national statistical almanac of 2007

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were selected as influence factors in this research. Weightings of the influence factors were computed using analytic hierarchy process (AHP) and a primary flood risk index was calculated based on the flooding disaster formation Mechanism. Then, the primary risk index was improved using the approach of map algebra based on the historical flood frequency data and the real-time flooding area generated from Huanjing Satellites (HJ-1) remote sensing data. The regularity of historical flood disaster and the real-time flooding area had been taken into account so that the results could reflect the comprehensive flood risk of Songhua River Basin, have practical potential, and present a reference for flood disaster prevention and reduction.

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