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基于3D GIS的城市灾害应急系统初步研究——以师大

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Title: Three dimensional GIS-based preliminary study on urban disaster emergency system: taking Beijing Normal University area at Beitaipingzhuang as an example

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关键词: 灾害; 应急系统; 地理信息系统; 三维可视化

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摘要: 随着近几十年GIS、空间数据库、三维可视化等技术的发展,3D GIS技术已经被广泛应用到城市规划、城市设计、公共安全以及城市工程等各个方面。同时,3D GIS为防灾减灾以及应急响应和管理,特别是城市区域内的应急处置提供了一个可靠的工具。通过3D GIS提供的实时环境和分析工具,可以实现灾害事件重现、推演和灾害管理分析,为减灾和应急处置提供有效的策略支持。主要分析了城市灾害应急系统的结构,研究了基于网络结构的城市逻辑结构及分析方法,以北京师范大学北太平庄校区为例,通过对城市内部复杂结构的抽象,提取城市应急管理中最重要因素和信息,利用3D GIS技术建立城市三维环境和城市网络逻辑模型,模拟了城市应急处置过程。同时,通过对以社区为单元的城市应急系统的建设考察了该系统在整个城市应急管理系统中应用的可行性。

Abstract: A long with development of GIS, spatial database, visualization tools and virtual reality applications in recent decades, the 3D GIS technology has been widely used in urban planning, urban design, public security and civil engineering and architecture projects.Andit also provides a useful tool for disaster reduction and emergency response, especially for the emergency management in urban areas.GIS based 3D real-time simulation system is helpful not only to management and analysis of disaster spatial data, but also to providing reliable tool for disaster reduction and emergency management.In this paper, we also outline the structure and data model of a 3D GIS-based disaster analysis and response system.And taking Beitaiping zhuang campus of Beijing Normal University as a case study, the urban emergency management process was simulated.The result shows that the 3D GIS-based emergency response system can provide reliable tool for the disaster reduction

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