

[1]周方明,张明媛,袁永博.灾害环境下生命线系统的级联失效研究[J].自然灾害学报,2013,01:214-218.

ZHOU Fangming,ZHANG Mingyuan,YUAN Yongbo.Cascading failure of lifeline systems under disaster environment [J].,2013,01:214-218.

点击复制

## 灾害环境下生命线系统的级联失效研究(PDF)

《自然灾害学报》[ISSN:/CN:23-1324/X] 期数:2013年01期 页码:214-218 栏目:出版  
日期:2013-07-18

Title: Cascading failure of lifeline systems under disaster environment

作者: 周方明; 张明媛; 袁永博  
大连理工大学 建设工程学部,辽宁 大连 116024

Author(s): ZHOU Fangming; ZHANG Mingyuan; YUAN Yongbo  
Faculty of Infrastructure Engineering,Dalian University of Technology,Dalian 116024, China

关键词: 生命线系统; 级联失效; 动态模拟; 灰色关联分析; 节点失效关联度

Keywords: lifeline system; cascading failure; dynamic simulation; gray relation analysis (GRA); relational grade of nodal failure

分类号: X4

DOI: -

文献标识码: -

摘要: 以供水管网为例,使用在供水管网水力延时模拟软件EPANET 2.0基础上二次开发的程序对管网遭受的灾害环境进行动态模拟,选取节点不同时刻的水压作为考察供水管网节点资源供给量受影响程度的指标,提出了节点失效关联度的概念,应用灰色关联分析方法,计算并比较了网络中其它节点与受损节点间的节点失效关联度,分析了资源的分配与传输和网络拓扑结构两个方面对供水管网级联失效过程的影响特征,初步探讨了灾害环境下生命线系统的级联失效过程。

Abstract: To analyze the cascading failure process of lifeline systems under disaster environment, this paper took water supply network as an example and simulated its disaster environment by a program which was developed based on EPANET 2.0. Nodal water pressures at different times were chosen to analyze the disaster's effects on the nodal resource supply of water supply network, and a concept of relational grade of nodal failure was proposed. Based on gray relation analysis, the relational grade between the damaged nodes and other nodes was calculated and compared,

导航/NAVIGATE

本期目录/Table of Contents

下一篇/Next Article

上一篇/Previous Article

工具/TOOLS

引用本文的文章/References

下载 PDF/Download PDF(749KB)

立即打印本文/Print Now

推荐给朋友/Recommend

统计/STATISTICS

摘要浏览/Viewed 166

全文下载/Downloads 129

评论/Comments

PDF XML

and then the cascading failure process of water supply network