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重大危险源大规模人群疏散决策模型研究(PDF)

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Title: Study on decision model for large-scale evacuation from major hazards

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关键词: [重大危险源](#); [人群疏散](#); [应急救援](#); [遗传算法](#)

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摘要: 为在重大危险源应急救援中给决策人员提供最优的人群疏散方案,提高抢险救灾能力,将疏散过程分为两个阶段——先将灾民疏散至临时疏散救援点,再根据灾民受伤的严重程度有选择地将其疏散至定点医院进行救治.综合考虑灾害对人群疏散造成的影响,将道路危险系数等参数加入目标函数中,将灾区按灾害程度赋予不同的优先疏散系数并将之反映在时间满意度上,以总疏散时间最小为目标函数,建立疏散模型,并应用遗传算法进行求解.最后,通过MATLAB进行仿真计算.研究表明:模型和算法给出的疏散策略是有效的.

Abstract: In order to provide optimal evacuation plan for emergency decision-maker of major hazards,so as to improve the rescue capability,the evacuation process was divided into two stages.the First is evacuating people to temporary evacuation Locationg,and second is transporting the badly injured people to hospitals according to their injury situation.By taking the hazards inferences to evacuation into account and adding road danger coefficient to the object function,the evacuation model was established.the model object to minimize the total evacuation time by setting the stricken region with different evacuation priority Coefficiants.The coefficiantsis set according to the disaster level which is reflected on the time satisfaction constraint.In addition,a genetic algorithm to solve the model was provided.Finally,the MATLAB simulation result shows that the model and algorithm is effective.

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