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基于3S的洞庭湖区蓄洪垸分洪调度模型

鲁光银, 朱自强, 邓吉秋, 鲍光淑

(中南大学资源环境与建筑工程学院, 湖南长沙 410083)

摘要: 在洞庭湖的洪水调度过程中, 蓄洪垸的分蓄洪调度是洪水调度的关键和难点, 而一旦决定使用蓄洪垸分洪时, 及时将救灾物质运送到险工险段, 或将人员物资疏散到安全地带, 是防洪决策必须考虑的一个重要问题. 作者利用遥感数据源, 在详细分析洞庭湖区域的水位-面积、水位-容积的关系基础上, 建立了洞庭湖区域蓄洪调节关系方程, 采用运筹学中的多目标交互式决策方法, 实现最优分蓄洪方案的建模, 并研究了该模型方程的求解方法. 然后利用ArcView 3.2中的网络分析模块和其提供的二次开发工具AVENUE, 进行了安全撤退和物资调配的路径网络模拟研究. 该模型的建立, 可以减少防汛过程中许多人为因素的影响, 从而提高了决策的科学性和准确性.

关键字: 遥感; ArcView 3.2; 运筹学; 分蓄洪调度; 路径分析; 洞庭湖

The model of the flood diversion in Dongting Lake based on 3S

LUGuang-yin,ZHUZi-qiang,DENG Ji-qiu,BAO Guang-shu

(College of Resources, Environment and Civil Engineering, Central South University, Changsha 410083, China)

Abstract: During the process of flood dispatching, dividing into the flood storage project is the key and difficulty of flood diversion in Dongting Lake. Once this method is decided to be used, quickly displacing the essential goods to the disaster area and retreating the people to the safe area, is the indispensable question of the decision-making, which is also one of the task of the information system. Based on the research about the relationship of the large-area, large-cubage, the flood measure equation of the Dongting Lake is established by the data of RS in this paper. And through the Step Method of operational research, the flood diversion model is built and its solution method is discussed. By the Network Model of the ArcView 3.2 and Avenue-the tool for its second programming language, the best retreat route is analyzed too. Because of the model, the artificial influence is reduced, then the decision is more scientific and exact.

Key words: remote sensing; ArcView 3.2; operational research; flood diversion; route analyst; Dongting Lake

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地 址：湖南省长沙市中南大学 邮编： 410083

电 话： 0731-88879765 传真： 0731-88877727

电子邮箱： zngdx@mail.csu.edu.cn 湘ICP备09001153号