

## 基于塑性破坏的武开河应力判别式研究

Stress criterion for mechanical ice-cover breakup based on elastic-plastic theory

中文关键词: [冰水力学](#) [武开河](#) [弹塑性理论](#) [极限应力](#)

英文关键词: [ice hydromechanics](#) [mechanical ice-cover breakup](#) [elastic-plastic theory](#) [limit stress](#)

基金项目:

作者	单位
<a href="#">王军</a>	<a href="#">合肥工业大学土木与水利工程学院, 安徽合肥230009</a>
<a href="#">施发义</a>	<a href="#">合肥工业大学土木与水利工程学院, 安徽合肥230009</a>
<a href="#">陈胖胖</a>	<a href="#">合肥工业大学土木与水利工程学院, 安徽合肥230009</a>

摘要点击次数: 305

全文下载次数: 139

中文摘要:

寒区河流在春季往往会由于水力因素的剧烈变化而引发冰盖溃决, 国内俗称为“武开河”。这一现象会导致冰坝形成, 进而形成凌洪灾害。基于弹塑性力学分析, 得到了考虑塑性变形的开河极限应力计算公式, 与仅考虑弹性变形的极限应力公式相比, 前者计算结果约为后者的1.39倍。通过黄河河曲段实例应用分析表明, 开河前夕, 将冰盖视为弹塑性材料, 比视为完全弹性材料能够更好地消除判别结果误差, 可为武开河判别提供理论参考。

英文摘要:

Mechanical ice-cover breakups often happen when the hydrodynamic conditions change rapidly in cold region rivers during the spring season, which is commonly known as “Wu Kai He” in Chinese. The breakup of ice-cover would result in the formation of ice dam and even the flood disasters. Based on the elastic-plastic theory, the formula for calculating the limit stress has been established. Analytical results show that the limit stress calculated by assuming ice-cover as the elastic-plastic body is approximately 1.39 times than the computing result if taking ice-cover as an absolute elastic body. By using the observation data of Hequ Section at the Yellow River, the results error was effectively eliminated when assuming ice-cover as the elastic-plastic body, which provides a mechanical criterion based on the theory evidence.

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

您是第2558129位访问者

主办单位: 中国水利学会 出版单位: 《水利学报》编辑部

单位地址: 北京海淀区复兴路甲一号 中国水利水电科学研究院A座1156室 邮编: 100038 电话: 010-68786238; 6262; 6221; 6919 传真: 010-68786649 E-mail: slxb@iwhr.com

本系统由北京勤云科技发展有限公司设计