

Application of Water Affairs Video edge computing Technology in Flood and Drought Disaster Monitoring

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Objectives

Video monitoring of rivers, dams and other management objects is an important part of water conservancy informatization. In recent years, more and more video monitoring stations have been built, covering the important points of flood and drought disaster prevention. Further real-time intelligent analysis of videos, mining the intrinsic value of videos are of great significance for promoting the modernization of flood and drought disaster prevention.

Methods

Considering the poor network and limited power supply of flood and drought disaster video monitoring station, combined with new technologies such as edge computing and artificial intelligence, the hardware products of the water affairs video edge computing platform are designed and developed. This device is equipped with artificial intelligence algorithm to realize video image acquisition and intelligent analysis at the front-end, and realize water level monitoring without the help of artificial water gauge. The video and pictures of superimposed analysis results can be transmitted back through the 4G network, and the monitoring data can be transmitted back through the Beidou satellite short messages. The identification results are intuitive and verifiable, which can provide strong support for flood and drought disaster prevention decision-making.

Results

This study selected several different types of sites as application pilots, and realized the intelligent upgrade of flood and drought disaster video monitoring sites by deploying the water affairs video edge computing platform. The water level was obtained through video intelligent analysis at the front-end, and the accuracy and availability of the water level analysis data was checked through comparison and analysis, which could be used as a supplementary means for water level monitoring.

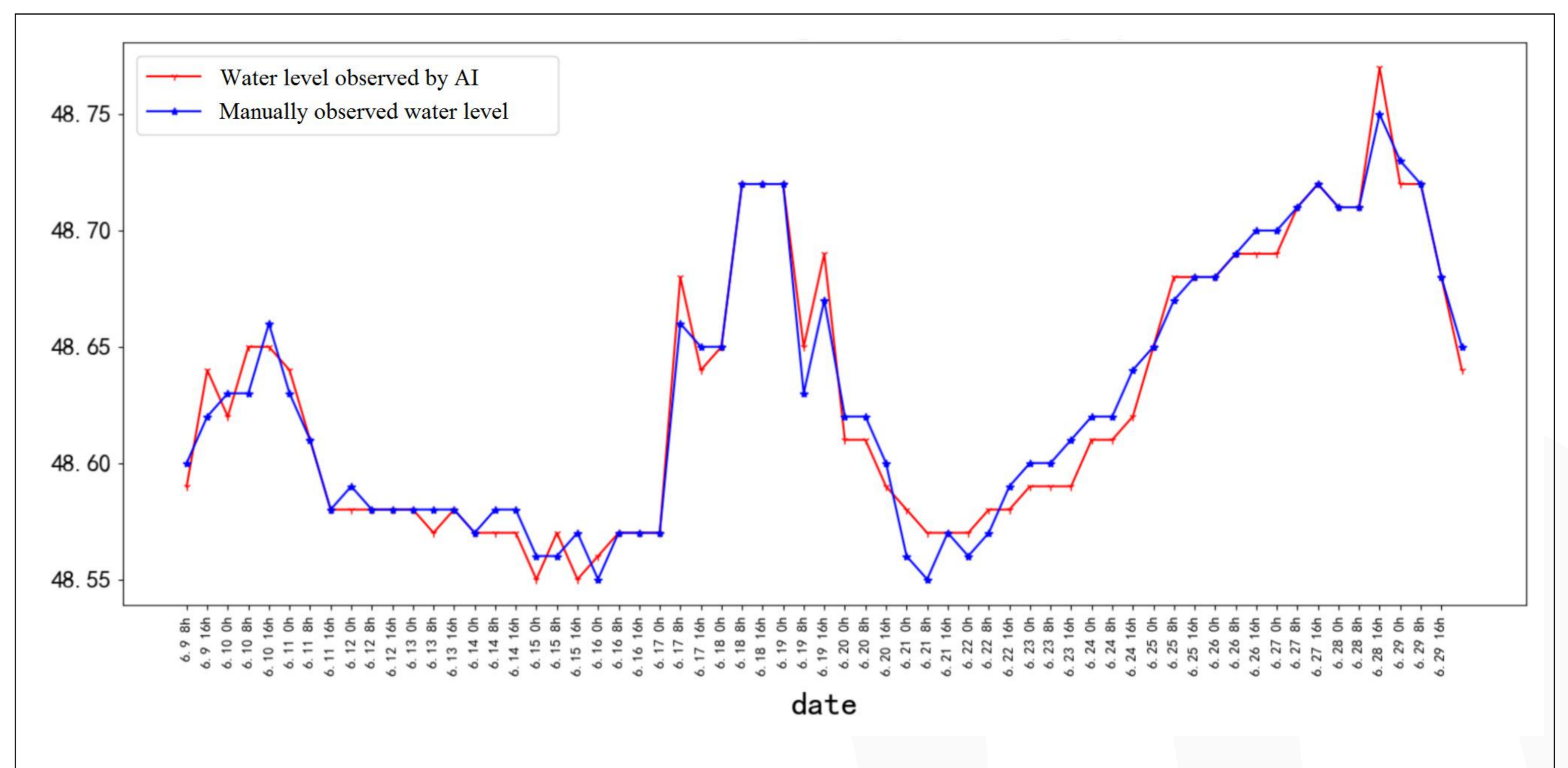


Figure 1 Comparison of water level measurement results between manual and AI observations

Conclusions

With further research and development, the water affairs video edge computing platform can carry more kinds of intelligent recognition algorithms in the future, which can be applied to a variety of flood and drought disaster monitoring scenarios such as flow monitoring and waterlogging monitoring, therefore it has great value of application and popularize.

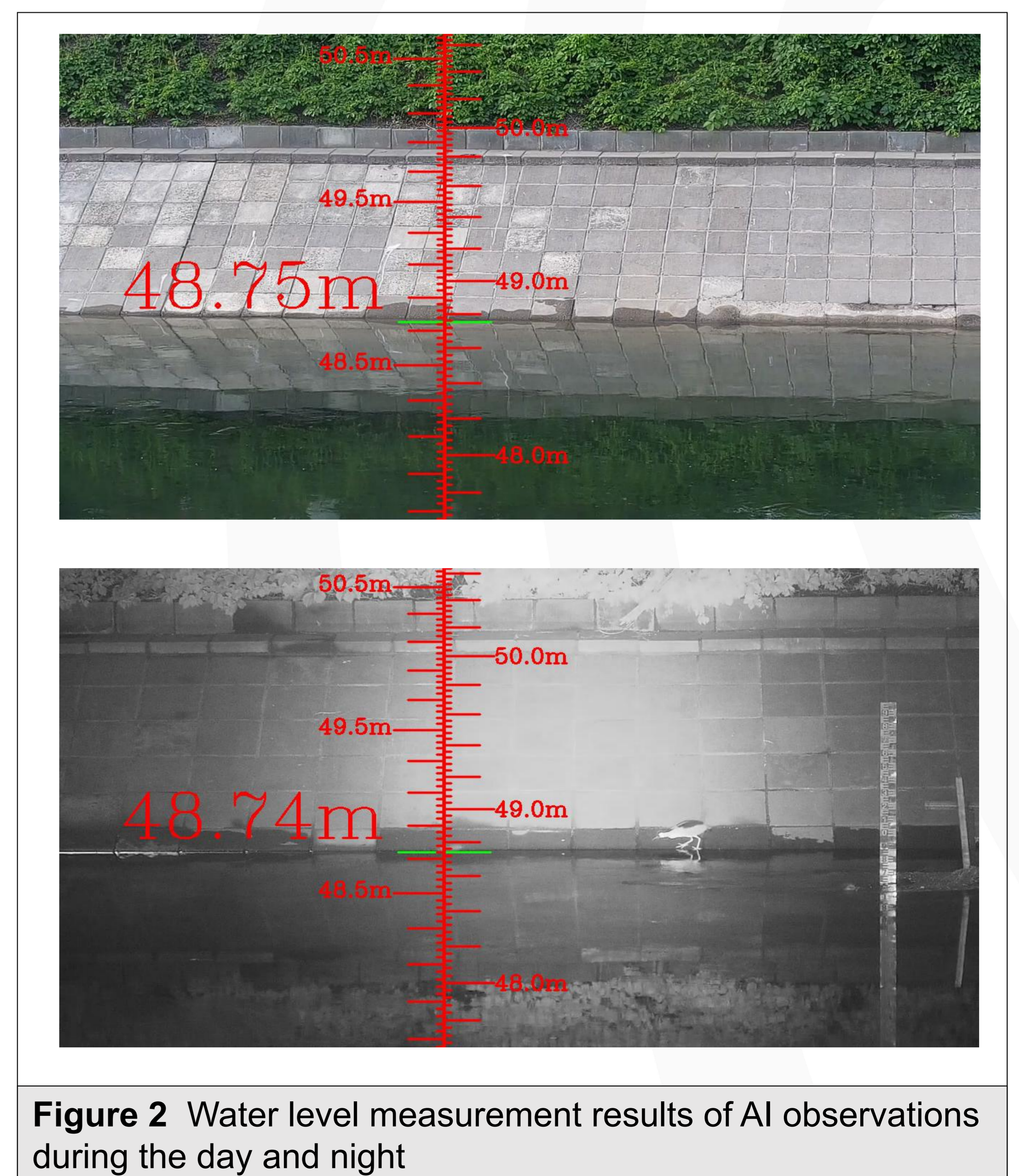


Figure 2 Water level measurement results of AI observations during the day and night