XVIII World Water Congress
International Water Resources Association (IWRA)

Practice and technical application of flood forecasting facility platform for multi-source spatial information in China

Dr. Yiwen zhang, Information Center,Ministry of Water Resources,China
Dr. Gengyao Tan, Information Center,Ministry of Water Resources,China

Objectives

China is one of the countries in the world with frequent and serious flood and drought disasters. Starting in the 1980s,China has carried out large-scale construction of water conservancy projects and continuous harnessing of major rivers,continued to invest in and accelerate the construction of flood control and drought relief projects, while strengthened non-engineering measures. To address reduce the risk of floods and drought in advance, protect the safety of people's lives it is necessary to built a complete and powerful hydrological monitoring and forecasting system.

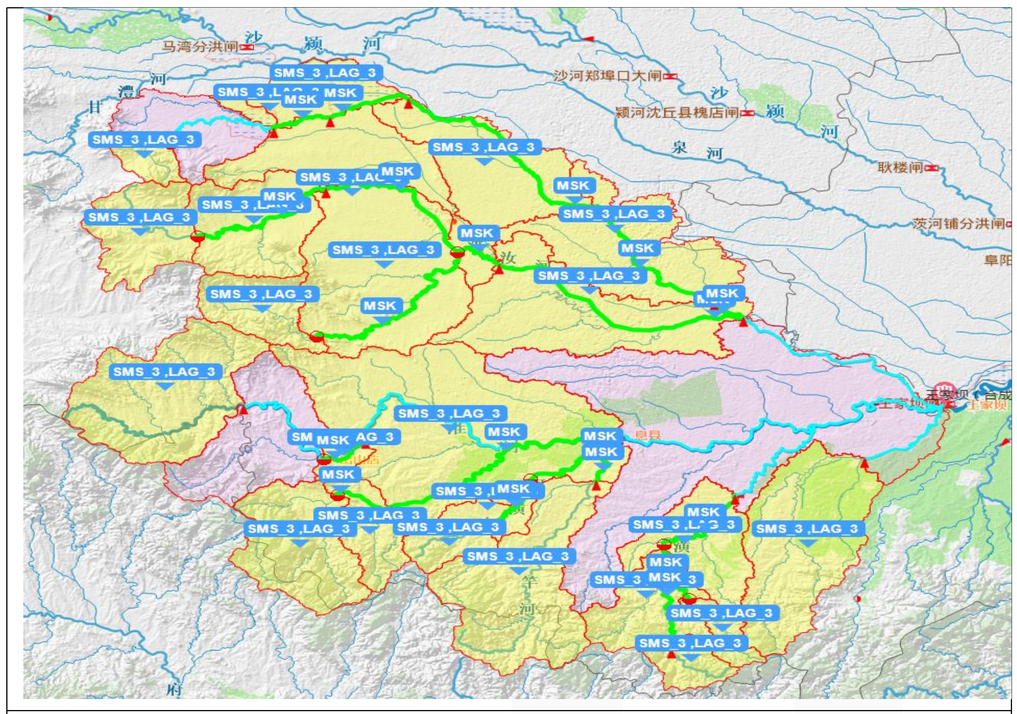

Fig.1 TheTopological diagram of Huai River Basin

Methods

The flood forecasting facility platform for multi-source spatial information adopt multi_x0002_source spatial information fusion, cloud computing, big data and other technologies to build a water flood forecasting system integrating multi-source spatial information fusion platform, flood forecasting operation platform, and forecasting calculation storage equipment. The platform is designed according to a three-layer architecture, which is respectively a computing storage facility platform, a multi-source information fusion platform and a flood forecasting platform.The computing storage facility platform is the hardware support of the entire platform. The multi-source information fusion platform is based on the big data platform framework, collecting basic information, precipitation information, water regime information and other three categories of information to form a standard and complete data

Results

The flood forecasting platform including 25 lumped hydrological models, 6 distributed hydrological models, 2 hydrodynamic models and 5 parameter calibration methods, by advanced distributed framework structure adopt to provide one-stop, high-performance and service-oriented forecast process and forecast products. In order to improve the efficiency. according to the characteristics of structure and logic?the flood forecast model was divided into many independent parts to implement multi-threading parallel computing.

Conclusions

This paper introduces application of The flood forecasting facility platform in flood forecasting of Wangjiaba Basin. The results show that the platform can effectively shorten the time of flood forecasting process and parameter optimization, Compared with the single model, the flood forecasting facility platform has higher accuracy. And produces significant benefits for decision-maker for national flood and drought control purposes. Finally, this paper probes into existing issues and challenges in flood prediction and forecasting nowadays, and puts forward several key tasks as a mark for future development direction and sectors tobe strengthened.

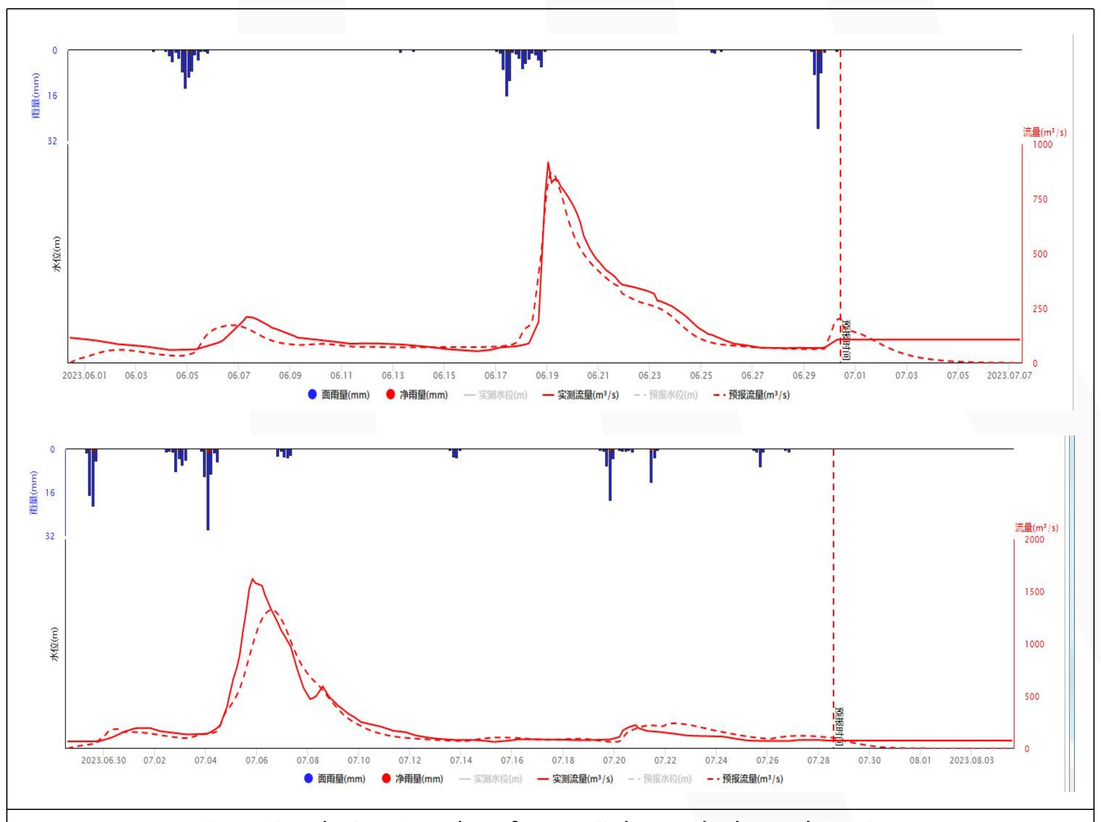

Fig.2 Simulation Results of Wangjiaba Hydrological Station