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Construction simulation approach of roller-compacted concrete dam based on real-time monitoring

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Key words: Roller-compacted concrete (RCC) dam; Construction simulation; Real-time monitoring; Bayesian update; Fuzzy mean generating function

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Construction simulation framwork

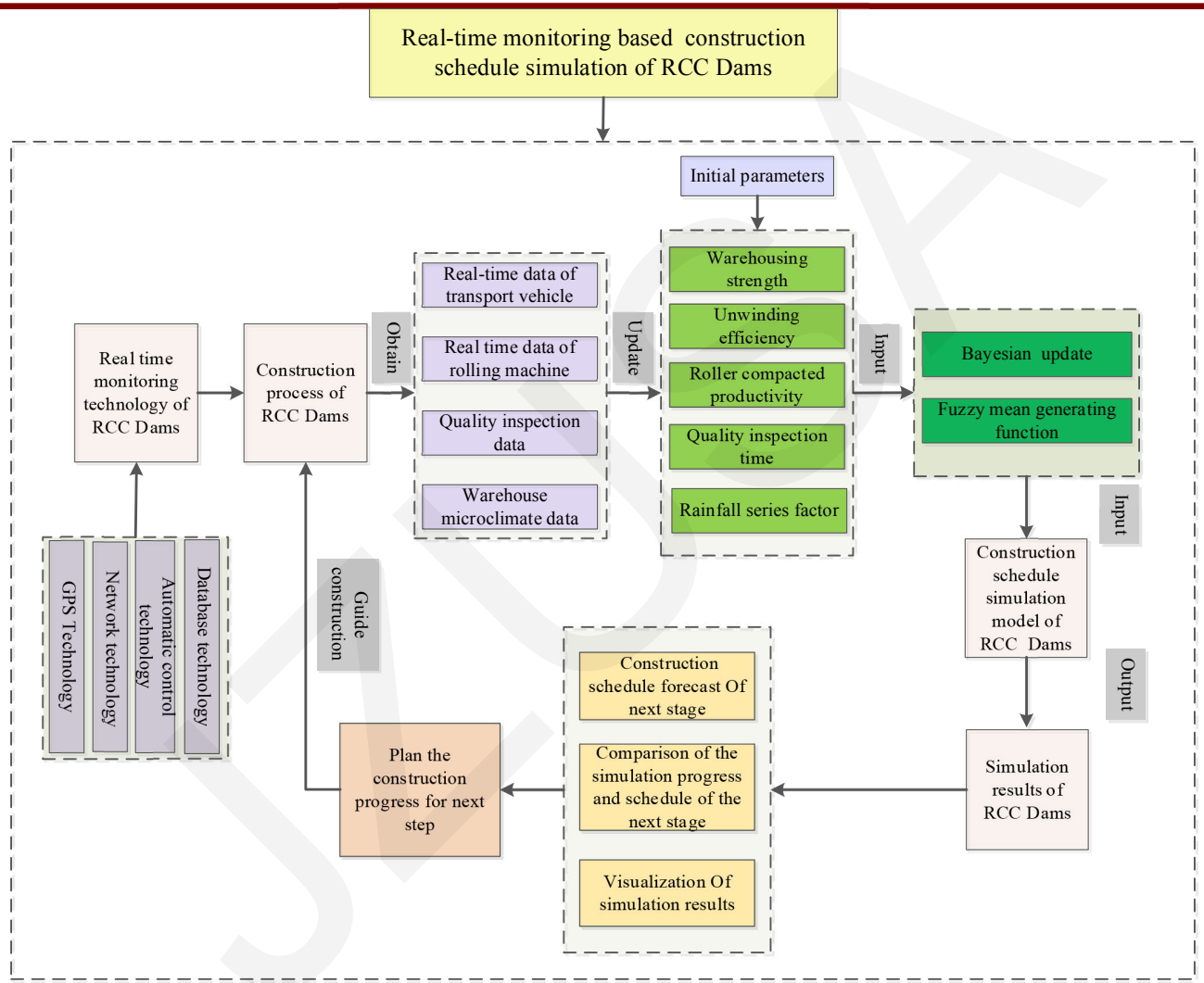


Fig. 1. Framework for an roller-compacted concrete (RCC) dam construction simulation based on real-time monitoring

Data collection method

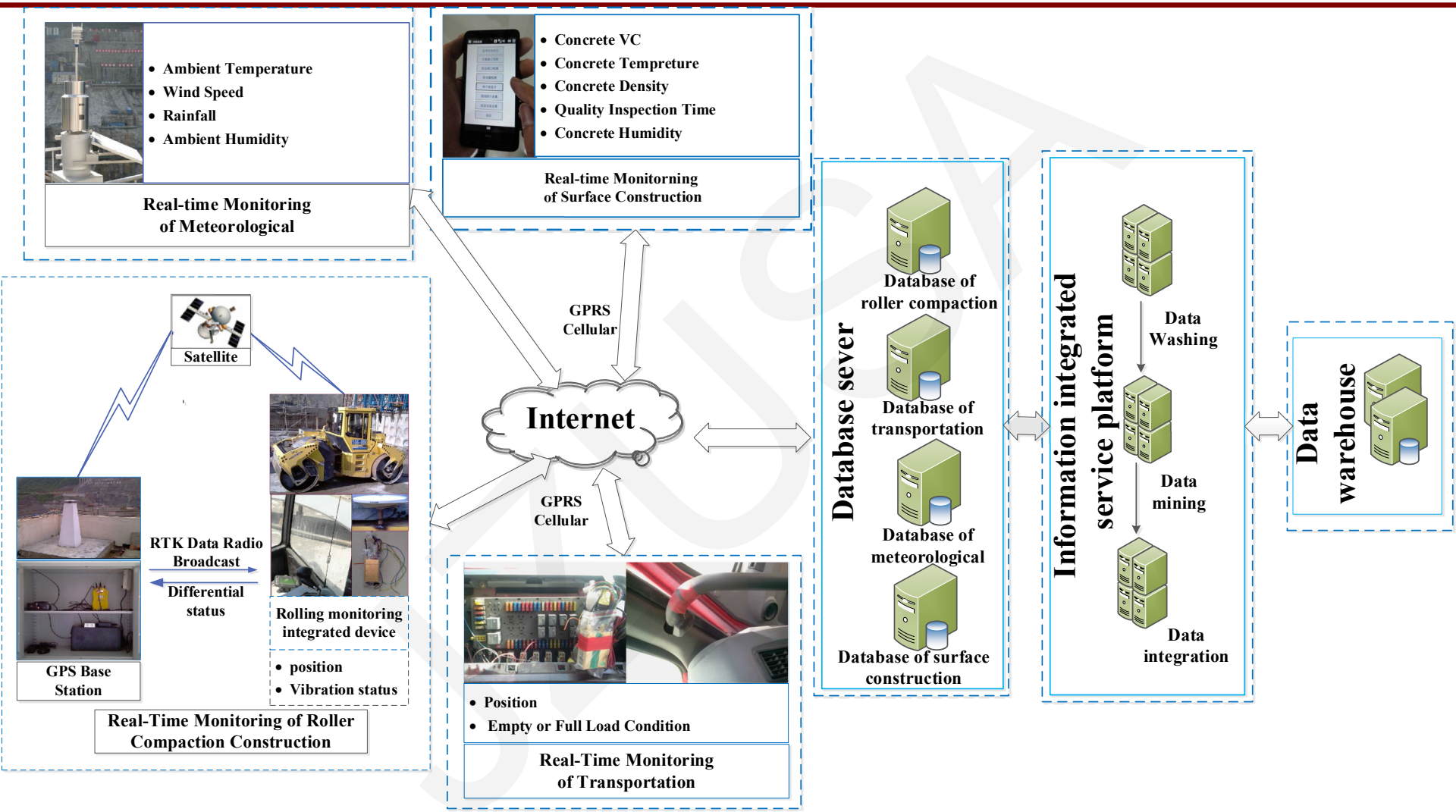


Fig. 2. Framework of real-time data acquisition and processing for an RCC dam construction

Simulation results

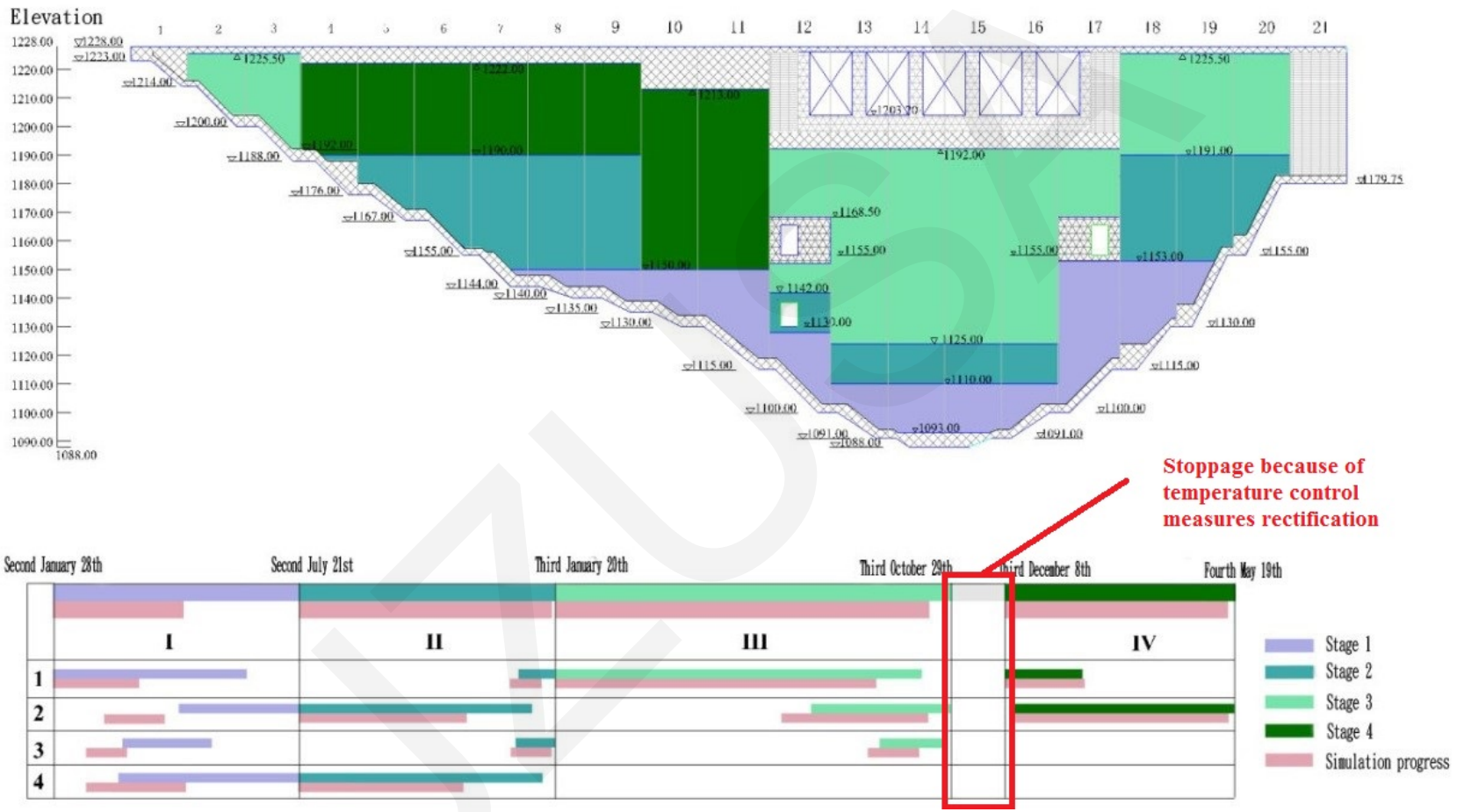


Fig. 3 Comparison between simulation results and actual results

Conclusions

1. Real-time monitoring technology has been used to obtain the actual construction data in real time and to provide a solid database for the construction simulation.

2. The data dynamic analysis technique was used to analyze the mass data collected by the real-time monitoring technology, and the simulation parameters were obtained.

3. With the use of Bayesian updating technology, the construction simulation parameters were updated in real time to ensure that the simulation parameters have a better fit with the actual situation.

4. Based on the meteorological data, the fuzzy mean generating function method was used to predict the weather, and the time series of the corresponding data was produced as a construction simulation parameter.