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Application of bi-directional stage routing model in a tidal reach

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Abstract In a tidal reach, the flood hydrograph is considered as the overlay of bi-directional propagation, respectively, of flood and tide waves. The propagation process is calculated by the stage routing method, and the stage prediction model of the tidal reach is established accordingly. This model is simple with a clear physical concept. In the case of hydrological process prediction for the tidal reach of the Yangtze River and Caoe River, a bi-directional stage routing model has obtained much better results compared to those obtained with a one-dimensional unsteady flow model.

Key words bi-directional propagation; stage routing; tidal reach