

## **Hydrological modelling of the Zhalong wetland using a monthly water balance model**

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**Abstract** The Zhalong wetland has been given more attention in recent years because water resources shortages have destroyed the ecological functions of the wetland. The flooded area plays a key role in the reed marsh wetland ecosystem. A monthly water balance model was developed and tested for reproducing the historical flooded area of Zhalong wetland. The results show that the proposed model is capable of modelling the wetland hydrology, including the flooded area and outflow, with an acceptable accuracy ( $R^2 = 82.8\%$ ) considering the limited available data. The results also show that the flooded area of the wetland has the characteristics of strong variability. It reached 1310 km<sup>2</sup> in a major flood year (1998) and declined to less than 200 km<sup>2</sup> in some extreme dry years (1968, 1969, 1996 and 2001). The paper also indicates the potential of the proposed model to assist ecological and water resources planners in the sound management of wetland hydrology and water resources.

**Key words** hydrological modelling; reed marsh; water balance model; Zhalong wetland

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