

## Integration of Coupled Hydro-ecological Modeling in Poyang Lake Watershed Based on Digital Watershed Platform

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### Abstract

In order to study complex environmental and ecological problems of Poyang Lake it is necessary to integrate or modify various existing models including hydrological, biological, social economic and other models with GIS techniques. This paper firstly discusses the construction of digital watershed platform for Poyang Lake, which is an integrated GIS environment for spatial data pre-processing and post-processing as well as an important foundation of hydro-ecological simulation, and then presents the integrated framework of coupled hydro-ecological modeling for Poyang Lake watershed (CHEMPLW) and its main functional components. CHEMPLW includes three parts: basic geodatabase, watershed data processing tools, and hydro-ecological models, while hydro-ecological models consist of four subsystems which are socio-human subsystem, land use/cover subsystem, watershed environment subsystem and river-lake/biological subsystem. Finally the integration method using ArcObject and Visual Basic is given.

### Keywords

digital watershed platform; poyang lake; hydro-ecological coupled models

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