

## 基于广义ET的水资源与水环境综合规划研究II：模型

### Comprehensive water resources and environment planning based on generalized evaporation transpiration water consumption control II. Model

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英文关键词：[generalized ET](#) [water consumption control](#) [comprehensive planning](#) [simulation model](#) [dual water cycle](#) [combining simulation](#)

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中文摘要：

在所提出的广义ET区域水资源综合规划的理念和研究框架基础上, 本文构建了基于广义ET的区域水资源与水环境综合模拟模型, 该模型由分布式水文SWAT模型、人工水平衡AWB模型及分布式地下水MODFLOW模型耦合而成, 实现了地表水和地下水、天然水循环和人工水循环、水量和水质联合模拟。该模型可作为区域水资源与水环境综合规划的工具。以天津市为例, 从地表水径流、地表水水质、地下水以及模型模拟ET结果等方面对模型进行了校验, 校验结果表明模型可进行不同节水、水资源配置、点源和非点源水污染控制、水生态修复规划方案的情景模拟, 为区域水资源与水环境规划提供支撑。

英文摘要：

On the basis of the basic concept and frame work of comprehensive water resources planning based on generalized ET water consumption control, suggested by the authors, a model for regional water resources and environment was established. The model couples the distributed hydrological model (SWAT) with the artificial water balance model (AWB) and distributed groundwater model (MODFLOW) to realize the combining simulation of surface water and groundwater, natural water cycle and artificial water cycle, water amount and water quality. The model is applied to the planning of Tianjin City and to exam the effectiveness of the propose model from the aspects of surface runoff, quality of surface water and groundwater and ET simulation. The results show that this model can effectively used to simulate the situation of various planning scheme with different water saving measures, water resources deployment modes, control approaches of point source and non point source water pollution as well as the restoration of eco environment. It is a useful tool for omprehensive planning of regional water resources and water environment.

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