

基于分布式水文模拟的干旱评估预报模型研究

New model for drought estimation and prediction based on distributed hydrological simulation

中文关键词: [干旱评估预报模型](#) [分布式水文模型](#) [PDSI](#) [长江上游](#) [2006年重庆旱灾](#)

英文关键词: [drought estimation and prediction model](#) [distributed hydrological model](#) [Palmer drought severity index](#) [the upper Yangtze River](#) [Chongqing City](#)

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中文摘要:

本文从流域水文循环角度,以长江上游为例,利用数字高程、气象水文、土壤植被和土地利用等地理信息数据,采用分布式水文模型模拟水文过程各环节,获取各项气象水文要素,继而依据PDSI干旱模式原理,建立了干旱评估预报模型GBHM-PDSI。对2006年重庆地区严重干旱事件的模拟应用表明,该模型不仅能综合评估旱情等级,而且可以定量地描述干旱的发生、发展直至结束过程,在表现旱情的地区差异和随时间的演变过程等方面具有优势,且能够结合气象信息对旱情发展进行推演预报。

英文摘要:

The occurrence and cause of drought disaster are very complicated and have comprehensive influences on nature and society. A physically-based distributed hydrological model with 5km grid cell was established to simulate the watershed hydrological processes in the upper Yangtze River by means of DEM and other geography data. Taking meteorological data as inputs, the model simulated hydrological processes during 1961 ~ 2000, including river discharges, and spatio-temporal changes of runoff, soil moisture and evapotranspiration, which provide sufficient information for estimating the shortage of water resources and drought status. Then combining with the results of distributed hydrological simulation, a new model of drought estimation and prediction, GBHM-PDSI, was proposed through referring to Palmer Drought Severity Index. The new model was applied to simulate the whole process of a severe drought event that happened in the Chongqing City in 2006. It was found that the new drought model has obvious advantages on describing the temporal change of drought severity and the spatial variation of dryness.

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