



An integrated model for the assessment of global water resources

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An integrated global water resources model was developed consisting of six modules: land surface hydrology, river routing, crop growth, reservoir operation, environmental flow requirement estimation, and anthropogenic water withdrawal. It simulates both natural and anthropogenic water flow globally (excluding Antarctica) on a daily basis at a spatial resolution of 1 degree by 1 degree (longitude and latitude). The simulation period is 10 years, from 1986 to 1995. The integrated model closes both energy and water balances on land surfaces. Global water resources were assessed on a subannual basis using a newly devised index that locates water-stressed regions that were undetected in earlier studies. These regions, which are indicated by a gap in the subannual distribution of water resources and water use, include the Sahel, the Asian monsoon region, and southern Africa. The integrated model is applicable to assess various global environmental projections such as climate change.

Two manuscripts were submitted to HESSD and they are under revision as of January 2008.

<http://www.hydrol-earth-syst-sci-discuss.net/4/3535/2007/hessd-4-3535-2007.html>
<http://www.hydrol-earth-syst-sci-discuss.net/4/3583/2007/hessd-4-3583-2007.html>