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Modelling precipitation-streamflow processes in large karst basin

A. Rimmer (1), Yigal Salingar (2)

(1) Israel Oceanographic & Limnological Research Ltd. The Yigal Allon Kinneret Limnological Laboratory, P.O. Box 447 Migdal 14950 Israel. (E_mail: alon@ocean.org.il ; fax: +972-4-6724627), (2) STAV-GIS Ltd., 20179, Teradyon, Misgav, Israel, e-mail: yigal@stav-gis.com

A system approach, daily precipitation-streamflow model was developed for both the base and the surface flow components, of large-scale karst basins. A long-term stream flow data was separated to base and surface flow using the “recursive digital filter” method, which provides time series for model calibration. The model includes attributes to large scale preferential flow that recharge the groundwater and solve the problem of uncorrelated base- and surface flow in karst environment. The model was applied simultaneously to the three major tributaries of the Upper Catchment of the Jordan River, which originate in the karstic region of the Hermon Mountain (North of Israel). Model predictions were compared to daily time series of measured stream flow, and demonstrated excellent agreement of both the surface and base flow components of each stream.

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