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(Proceedings ModelCARE2011 held at Leipzig, Germany, in September 2011) (IAHS Publ. 355, 2012), 338-344.

Development of the hourly hydrological model for mountainous basins using the storage function method and the Diskin-Nazimov infiltration model

KAZUMASA FUJIMURA[1], KIYOHARA SHIRAHA[2], SHINJIRO KANAE[2] & MASAHIRO MURAKAMI[3]

1 Department of Interdisciplinary Science and Engineering, Meisei University, 2-1-1 Hodokubo, Hino, Tokyo 191-8506, Japan
fujimura@ar.meisei-u.ac.jp

2 Department of Mechanical and Environmental Informatics, Graduate School of Information Science and Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo 152-8550, Japan

3 School of Environmental Science and Engineering, Kochi University of Technology, 185 Miyanokuchi, Tosayamada-cho, Kami-gun, Kochi 782-8502, Japan

Abstract This study aims to improve the daily hydrological model to an hourly hydrological model by combining the storage function method, the Diskin-Nazimov infiltration model and the groundwater recharge and runoff calculation procedure. The hourly hydrological model in this study was evaluated by estimating the runoff in the Sameura Dam basin (472 km^2), located in the mountains of Shikoku in western Japan, using 16 years series of hydrological rainfall data. The results indicated satisfactory to good model performance in terms of obtaining an accurate monthly mean hydrograph as well as daily and hourly mean hydrographs.

Key words hourly hydrological modelling; 50 m-resolution DEM; Diskin-Nazimov infiltration model; groundwater and surface runoff