

Watershed Scale Flood Simulation in Upper Citarum Watershed, West Java-Indonesia using RRI Model

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Abstract

Citarum River is one of the important river in West Java, Indonesia. During the rainy season, flood happens almost every year in Upper Citarum Watershed, hence, it is necessary to establish the countermeasure in order to prevent and mitigate flood damages. Since the lack of hydrological data for the modelling is common problem in this area, it is difficult to prepare the countermeasures. Therefore, we used Rainfall-Runoff-Inundation (RRI) Model developed by Sayama et al. (2010) as the hydrological and inundation modelling for evaluating the inundation case happened in Upper Citarum Watershed, West Java, Indonesia and the satellite based information such as rainfall (GSMaP), landuse and so on instead of the limited hydrological data. In addition, 3 arc-second HydroSHEDS Digital Elevation Model (DEM) is used. To verify the model, the observed data of Nanjung water stage gauging station and the daily observation data are used. Simulated inundation areas are compared with the flood extent figure from Upper Citarum Basin Flood Management Project (UCBFM).

Keywords : RRI, Citarum, GSMaP, HydroSHEDS

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