



hydrological and hydrodynamic modeling on la plata river basin using mgb-iph

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In this paper, we present an improving of Large Scale Hydrological Model (MGB-IPH). The improving consists in implementing a new hydrodynamic model (Inertial) and considering of flooded areas. The Inertial model, which is a simplification of Saint-Venant equations, replaced the Muskingum-Cunge flow routing model. The Inertial equation allows represent the flow in low slope rivers, the backwater, and the tide effects. We tested the model on La Plata River Basin (3,100,000 km²) which is a complex hydrological system located on South America. The aim of this paper is assess the MGB-IPH with the Inertial model and identify regions where is required new modification on model to represent others hydrological process. Furthermore, we developed an algorithm to extract of the Digital Elevation Model the required information about unit catchment, river length and river slope, flooded areas and cross section information. For this, we used available global data, as DEM of Shuttle Radar Topography Mission and HYDROSHEDS flow direction map. We used climate data available on Climate Research Unit and satellite precipitation (MERGE). The results show that this new version of MGB-IPH can reproduce the flow on La Plata river Basin.