Accuracy analysis of flood forecasting of a coupled hydrological and NWP (Numerical Weather Prediction) model

Hoang Minh Nguyen*, Deg-Hyo Bae**

Abstract

Flooding is one of the most serious and frequently occurred natural disaster at many regions around the world. Especially, under the climate change impact, it is more and more increasingly trend. To reduce the flood damage, flood forecast and its accuracy analysis are required. This study is conducted to analyze the accuracy of the real-time flood forecasting of a coupled meteo-hydrological model for the Han River basin, South Korea. The LDAPS (Local Data Assimilation and Prediction System) products with the spatial resolution of 1.5km and lead time of 36 hours are extracted and used as inputs for the SURR (Sejong University Rainfall-Runoff) model. Three statistical criteria consisting of CC (Corelation Coefficient), RMSE (Root Mean Square Error) and ME (Model Efficiency) are used to evaluate the performance of this couple. The results are expected that the accuracy of the flood forecasting reduces following the increase of lead time corresponding to the accuracy reduction of LDAPS rainfall. Further study is planed to improve the accuracy of the real-time flood forecasting.

Acknowledgements

This Research has been performed as a subproject o project Development of HPC-based management system against national-scale disaster and supported by the KOREA INSTITUTE of SCIENCE and TECHNOLOGY INFORMATION (KISTI).

Keywords : Flood forecasting, accuracy analysis, coupled hydrological and NWP model

^{*} Phd student, Dept. of Civil and Environmental Engineering, Sejong University · E-mail : hoangminh281287@gmail.com

^{**} Professor, Dept. of Civil and Environmental Engineering, Sejong University · E-mail : dhbae@sejong.ac.kr