Novel early flood warning in the Huaihe River basin in east-central China using the TIGGE database

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Flooding is a wide spread and devastating natural disaster worldwide. Floods that took place in the last decade in China were ranked the worst amongst recorded floods worldwide in terms of the number of human fatalities and economic losses (Munich Re-Insurance). Rapid economic development and population expansion into low lying flood plains has worsened the situation. The last decade has seen an increase in flood preparedness across all levels of society in China. Current conventional flood prediction systems in China are neither suited to the perceptible climate variability nor the rapid pace of urbanization sweeping the country. Flood prediction systems from short-term (a few hours) to medium-term (a few days) need to be revisited and adapted to changing socio-economic and hydro-climatic realities. The latest technology requires implementation of multiple numerical weather prediction systems. The availability of a number of global ensemble weather prediction systems through the 'THORPEX Interactive Grand Global Ensemble' (TIGGE) offers a good opportunity for an effective state-of-the-art early fore-casting system. A prototype of a Novel Flood Early Warning System (NEWS) using the TIGGE database is tested in the Huai River basin located in east-central China. It is the first early flood warning system in China that uses the massive TIGGE database cascaded with river catchment models, the Xinanjiang model and a 1-D hydraulic model, to predict river discharge and flood inundation. Results from selected flood events will be presented.