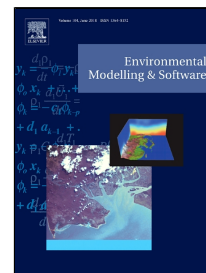


Accepted Manuscript

A Cloud-Based Flood Warning System for Forecasting Impacts to Transportation Infrastructure Systems

Mohamed M. Morsy, Jonathan L. Goodall, Gina L. O'Neil, Jeffrey M. Sadler, Daniel Voce, Gamal Hassan, Chris Huxley



PII: S1364-8152(17)30796-X

DOI: 10.1016/j.envsoft.2018.05.007

Reference: ENSO 4216

To appear in: *Environmental Modelling and Software*

Received Date: 19 July 2017

Accepted Date: 21 May 2018

Please cite this article as: Mohamed M. Morsy, Jonathan L. Goodall, Gina L. O'Neil, Jeffrey M. Sadler, Daniel Voce, Gamal Hassan, Chris Huxley, A Cloud-Based Flood Warning System for Forecasting Impacts to Transportation Infrastructure Systems, *Environmental Modelling and Software* (2018), doi: 10.1016/j.envsoft.2018.05.007

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A Cloud-Based Flood Warning System for Forecasting Impacts to Transportation Infrastructure Systems

Mohamed M. Morsy^{a,b}, Jonathan L. Goodall^{a*}, Gina L. O'Neil^a, Jeffrey M. Sadler^a, Daniel Voce^a,
Gamal Hassan^c, Chris Huxley^d

^a Department of Civil and Environmental Engineering, University of Virginia, 351 McCormick
Road, PO Box 400742, Charlottesville, VA, 22908, USA

^b Irrigation and Hydraulics Department, Faculty of Engineering, Cairo University, P.O. Box 12211,
Giza 12613, Egypt

^c Hassan Water Resources, PLC, 2255 Parkers Hill Drive, Maidens, VA, 23102, USA

^d BMT WBM Pty Ltd, Level 8, 200 Creek Street, Brisbane, Queensland, 4000, Australia

Highlights:

- Design of a cloud-based flood warning decision support system
- Prototype of a cloud-based end-to-end system using Amazon Web Services (AWS)
- Produces near real-time results while strategically consuming resources
- Automates access to forecasted rainfall, 2D model run, and output visualization
- Uses GPUs to speedup 2D model run time by up to 80x compared to using a CPU

Download English Version:

<https://daneshyari.com/en/article/6961952>

Download Persian Version:

<https://daneshyari.com/article/6961952>

[Daneshyari.com](https://daneshyari.com)