



Application of the HAND method to a real flooding case

Hani Ali (1), Quentin Henaff (1), Andrew Smith (2), Christopher Sampson (2), Marco Brettschneider (1), Simon Blaquiere (1), Paul Bates (2,3)

(1) AXA Global Re, Paris, France (hani.ali@axa.com), (2) FATHOM Flood Risk Intelligence, Cardiff, UK, (3) School of Geographical Sciences, University of Bristol, Bristol, UK

In this study, we present a comparison between a flood model based on the Height Above the Nearest Drainage (HAND) Method and the LISFLOOD model. The recent flood event of June 2016 at the south of Paris region was used as a case study to compare the two methods. Validation data for this event was made available by the Copernicus Emergency Management System, providing remotely sensed estimates of maximum flood extent for the event using imagery from the AIRBUS SPOT6 and SPOT7 satellites. Event simulations using both the HAND method and the 2D-LISFLOOD hydraulic model were undertaken, with both realizations being driven by available gauge data.

Output from these simulations were then compared against the remotely sensed flood extents from Copernicus. Estimated flood losses from each method are also presented. This study aims to identify the influence of the hydraulic model component for this event and indicate whether, for this event, the HAND method provides a suitable alternative to computationally expensive hydrodynamic simulations.

References:

- Nobre et al. (2011). Height Above the Nearest Drainage – a hydrologically relevant new terrain model. *Journal of Hydrology*. Volume 404. pp 13–29.
- Bates, P. D. and De Roo, A. P. J. (2000). A simple raster-based model for flood inundation simulation. *Journal of Hydrology*, 236(1–2): 54–77.