Nat. Hazards Earth Syst. Sci. Discuss.,
doi:10.5194/nhess-2016-1-RC2, 2016

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Multi-objective optimization of typhoon inundation forecast models for water-level gauging network by integration of ARMAX with a Genetic Algorithm" *by* H.-T. Ouyang

Anonymous Referee #2

Received and published: 5 July 2016

The paper is well structured and written clearly in most of its parts.

Several of my notes notes are included in the manuscript.

My opinion is that this paper deserves publication, but that there are some issues needing clarification.

The most important point to clarify is the procedure called cross-validation. The authors state that they use a single typhoon event for validation and all other events, i.e. 9, for calibration. Then they repeat the procedure by selecting another event for validation. I understand that for each of the 10 typhoons they evaluate the set of the model pa-

Printer-friendly version

Discussion paper

rameters of the polynomials A(q), B1(q), B2(q) and C(q), under the constraint that they contain at most 10 terms. Therefore they calculate a model for each typhoon and for each tide-gauge station through the multi-objective genetic algorithm technique, reaching a total of 40 models. For each of the 10 models of a given station they compute the three performance indices CE, ESP and RTS.

In order to select the best model for a given station, the authors apply the 10 models of that station to all the typhoons, and compute the average performance indices, where the average is meant over the typhoon cases. And they come up with a best model for each performance index (maximizing the average CE and minimizing the average ASP and RTS). I'm not sure if this is the procedure followed by the authors. I would like to have it illustrated more clearly in the text of the paper.

I add that it would be interesting to see the how the performance indices vary among the models (only the average values are given in the paper). This could be easily done by adding a figure.

Please also note the supplement to this comment:
http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-1/nhess-2016-1-RC2-supplement.pdf

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-1, 2016.

Printer-friendly version

Discussion paper