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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Hydrologic sensitivity of flood runoff and inundation: 2011 Thailand floods in the Chao Phraya River basin" *by* T. Sayama et al.

Anonymous Referee #1

Received and published: 24 December 2014

The paper is well written and the topic well argued. I suggested minor revisions as follows.

<General comments>

1) Section 3.2

I couldn't understand whether the authors' inundation simulation was acceptable to quantify the sensitivity of inundation volumes. Please revise this section considering the following comments;

- The authors didn't describe well about errors in satellite observation and from the different data sources, UNOSAT and GISTDA. Please clearly describe these errors

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and their impact on your validation.

- Please describe why the authors could validate the model performance using only from 2005 to 2011.

- In last paragraph, the authors concluded average mean error and root mean square error were 1.1 and 1.2 m on floodplains. Please describe these values were acceptable to quantify the sensitivity of inundation volumes.

2) P7041L15-27

In Table 3, ANE and FET showed large different model performances between wider inundation cases and smaller inundation cases. Please explain clearly where these differences come from. Furthermore, please add explanation of impact of these different model performances on ΔF, $d\Delta F$, dF, and the authors' conclusions.

<Specific comments>

3) P7031L6

"Fig.1" is maybe "Fig.2"?

4) P7032L9

"Fig.2" is maybe "Fig.1"?

5) P7033L9-15

Because discharge capacity in the Chao Phraya River decreases from Nakhon Sawan to Ayutthaya written in P7032L14-15, and it is considerable as the different characteristic of Chao Phraya River from general rivers, please add clear explanation about applicability of equations (2) and (3) for the Chao Phraya River.

6) P7036L11

"metrices" is maybe "matrices"?

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7) Figure 5b

Because these results were calibrated under the condition of no dam reservoirs, the characteristics of ET in dry and wet seasons were considered different. Why the ET in this figure showed liner relationship in spite of dry and wet seasons?

8) Figure 7

Please match descriptions in legend with them in body.

9) P7039L9

There isn't maybe Table 4.

10) P8039L17

Please explain clearly why the authors choose "two months" for expansion of period after its inundation peak to better understanding of runoff volume.

11) P8039L18-19

"Fig.8a and b" is maybe "Fig.8a and c"?

12) P8039L18-19

In P7035L8, ΔF was described as the peak flood inundation for each year. I understood ΔF showed almost zero in Fig.8c and d; however, I wonder why the authors needed to describe ΔF in Fig.8c and d despite their independent to better understanding of runoff volume.

13) References

Cherry et al., (2014; DOI: 10.1002/2013WR014845) was newly published as inundation simulation in the Chao Phraya River Basin. Please consider as one of references, if this paper is suitable for your paper.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 7027, 2014.