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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Detection of inundation areas due to the 2015 Kanto and Tohoku torrential rain in Japan based on multi-temporal ALOS-2 imagery" *by* Wen Liu and Fumio Yamazaki

Anonymous Referee #1

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The authors present a study that uses remote sensing techniques to detect inundated areas in Joso city, Japan after torrential rainfall in 2015. The manuscript is well written, interesting and scientifically sound. The study builds up on a previous study of the authors that uses the same satellite imagery, but seems to deploy a different detection method (Yamazaki and Liu 2016). The authors mention their previous study briefly in the manuscript, but it is not clear how this study differs from the previous one. Differences in method and results as well as the added-value of the new work would need to be clearly outlined in the manuscript.

Introduction: I strongly suggest adding a more in-depth review of the state-of-the-art on

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Discussion paper

inundation mapping from SAR images and how your study differs from other existing ones. More emphasize should also be given in presenting other studies that focussed on the same disaster and study area (if any). Based on this and a review of work that has been done related to inundation mapping from SAR images, it would be important to outline clearly the objectives of this study, the added-value that it can bring to improve existing inundation detection methods and the scientific understanding of the flood disaster.

Discussion: The manuscript would strongly benefit from a separate discussion section that clearly outlines the limitations and benefits of the applied method, and compares the results with findings of other studies (in particular your previous study).

Page 1, line 16: ". . .good level of agreement." Suggest replacing it with a more quantitative statement that mentions the actual accuracy metrics that you have computed.

Page 2, lines 11-19: Suggest moving this paragraph to Chapter 2 (Study area).

Page 4, line 16: "washed way" should be "washed away".

Page 5, line 2: "an SAR image" should be "a SAR image".

Page 5, lines 2-9: Suggest moving this paragraph to Chapter 1 (Introduction) as part of the state-of-the-art.

Page 7, line 21: Could not find "Figure 3(b)". Please check the figure references.

Page 8, line 5: I suggest adding here also a quantitative comparison with the results of your previous study. This would be needed to justify the mentioned improvements (Page 2, line 22).

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