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Discussions

Interactive comment on "Brief communication: Hurricane Dorian: automated near-real-time mapping of the "unprecedented" flooding on the Bahamas using SAR" *by* Diego Cerrai et al.

Anonymous Referee #1

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General comments

In this brief communication the authors present the results of a Sentinel-1-based automated near-real time flood mapping approach applied for detecting inundations caused in the frame of Hurricane Dorian on the Bahamas. Even if the inundations on the Bahamas were huge and very impressing the most important limitations of the work are in my view 1) the sole application of an already reported approach to a small subset of existing data sets which had been acquired over the Bahamas during this event, 2) the missing validation of the flood mapping results and 3) the lack of consideration of the work of other authors which achieved significant progress in SAR-based flood mapping

within the last years.

Specific comments - Abstract: In my view the focus of this contribution is not clear. The method for detecting flooding based on SAR data is already published by the authors and, as this is a brief communication, there is of course only shortly reported on the details of the methodology. Therefore, the focus of this publication should be on the huge flood event on the Bahamas. However, only Sentinel-1 data on two dates in early September has be analysed. By integrating other Earth Observation data sets acquired during this event (e.g. in the frame of the International Charter Space and Major Disasters) and also additional Sentinel-1 data acquired in September 2019 (e.g. on September 14) the evolution of this flood event could be better described (the RAPID approach could be of course a component to complete the description of this event).

- Line 38: Please replace Alos-2 by ALOS-2/PALSAR-2

- Line 43: There exist several automatic approaches/complete processing chains for detecting flood extent from different kind of radar satellite data (e.g. from TerraSAR-X, Sentinel-1, CosmoSkyMed). Multiple references have been published related to this topic within the last years by different organisations. Some of these references should be cited in this publication.

- Line 54: It would be better to cite directly the references related to automated flood delineation and not to refer only to previous work of the authors (Shen et al. 2019b)

- Line 65: It should be at least mentioned which Sentinel-1 data type (GRD or SLC) and polarization is used for extracting the flooding

- Result section: It would be important to perform an accuracy assessment of the flood masks

- Figure 2 and 3: it would be important to describe which data source was used to separate between normal water conditions and flooding. It would be helpful to visualize layers of normal water extent in the figures.

- Line 113: Without any information about the performance of RAPID and without any reference to other approaches in flood mapping reported in the literature I would suggest to remove the sentence: "We believe its ability to map such a large area of inundation so quickly makes RAPID the fastest fully automated method for assessing flood extension. . ."

- Line 115: These international collaborations or mechanisms exist and the authors should refer to them (e.g. International Charter "Space and Major Disasters", Sentinel Asia, Copernicus Emergency Management Service - Mapping).