

Interactive comment on “Hydromorphological attributes for all Australian river reaches derived from Landsat dynamic inundation remote sensing” by Jiawei Hou et al.

Anonymous Referee #1

Received and published: 29 March 2019

GENERAL COMMENTS:

This manuscript describes an innovative approach to characterizing variations in river width at the scale of an entire continent using time series of remotely sensed data. The paper is generally well written and organized, with some nice figures. Connecting Landsat time series to a vector GIS database for the Australian stream network is a useful approach that could be applied in other locations. The analysis of width as related to flow frequency is also, to my knowledge, a novel contribution, and I like the idea of summarizing this relationship in terms of the probability distribution parameter gamma. The authors candidly acknowledge the limitations of their data and methods

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as well. Overall, I believe this paper is good, solid work, with just a few relatively minor specific issues and technical corrections to consider before it can be published.

SPECIFIC COMMENTS:

Figure 1d: The vector stream network is much more generalized than the actual stream course in the image, so is this problematic? How are vector layers linked to the inundation frequency raster?

Pg. 5, line 10: How does WofS get 25 m pixels when Landsat has 30 m pixels?

Pg. 5, Line 25: Does this imply some bias in the frequency data, as the rivers are more likely to be imaged under clear sky conditions when flows are likely to be relatively low?

Pg. 6, line 7: A figure illustrating different distributions for different values of the gamma parameter would be helpful.

Table 3 and figures 3 and 6 should be presented as percentages rather than absolute lengths.

Pg. 7, line 29: A map showing the width variations in your data set vs. those in GRWL would be informative and could be added as a new figure.

Pg. 8, line 5: How were "standard differences" calculated?

Pg. 10, line 19: You should refer to the recent work by Jones in Remote Sensing on the Dynamic Surface Water Extent (DSWE) product derived from landsat time series.

TECHNICAL CORRECTIONS:

Please see edits in the attached PDF.

Please also note the supplement to this comment:

<https://www.earth-syst-sci-data-discuss.net/essd-2019-26/essd-2019-26-RC1-supplement.pdf>

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-26>, 2019.

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