

Interactive comment on “A Multi-sensor Data-driven methodology for all-sky Passive Microwave Inundation Retrieval” by Zeinab Takbiri et al.

Anonymous Referee #1

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This paper presents a new retrieval algorithm for estimating the fraction of water within a passive microwave pixel by using an archive of brightness temperature-MODIS water relationships developed from near-coincident imagery. The manuscript is well written and covers a topic of interest to the remote sensing/hydrology research community. I believe this manuscript is suitable for publication subject to reviewing the minor suggestions below:

I question the use of a 50% clear-sky in the VNIR data for it to be used in the algorithm. Wouldn't this influence the results (which you suggest in the discussion anyway). The Mekong region is very cloudy during the flood season. Would it be better to increase your clear-sky % to higher (which will reduce your number of observations in your

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dictionary, but it may improve the results)? Have you already tested this? I suggest including a short discussion on this in the paper.

You use the 3-day composite MWP products to reduce cloud cover. However won't this reduce the accuracy of the near-coincident relationship between the brightness temperature and MODIS water product – especially when you are also looking at the sub-daily diurnal effects? I know you also average the brightness temperature over 3 days as well, however I think it would be worthwhile discussing this possible affect in the manuscript.

Minor corrections: - Page 1, line 11 – should it be 'shortwave infrared'?

- Page 3, line 12 – change 'location' to 'locations'.

- Page 3, line 24 – I suggest changing ...'with overlapping in spatial and time...' to 'which overlap in the spatial and time ...

- Page 4, line 15 – change 'form' to 'from'.

- Page 4, line 20 – change '...fraction at resolution...' to '...fraction at spatial resolution...'

- Page 5, line 23 – change 'form' to 'from'.

- Page 6, line 11 – I suggest changing from first person (i.e. 'let us'). - Page 10, line 2 – change 'that' to 'than'.

- Page 10, line 3 – change 'reverse' to 'reversed'.

- Page 11, line 19 – change 'form' to 'from'.

Figure 2 – should it be 'downscale' rather than 'upscale' since you are reducing the spatial resolution?

Figure 4 caption – I assume the inundation intervals are 'f'. I suggest changing the caption to '...five different inundation fraction intervals (f). ...'.

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Figure 6 – typing error in the figure ‘July-Desceember’ should be ‘July-December’.

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