

Interactive comment on “Estimating Annual Water Storage Variations Using Microwave-based Soil Moisture Retrievals” by Wade T. Crow et al.

Anonymous Referee #1

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This work approaches a very challenging issue: how far we are from a satellite-based estimation of every term of the terrestrial water balance? Probably this is the underlying idea of the authors, but for some reason the focus of the paper, as reflected by the title, is switched to the possibility of estimating water storage from microwave-based surface water content. Maybe the intention is still there, and this paper represents just a first piece of results. However, it would be useful to clarify the original idea behind the concepts presented here; alternatively, it should be emphasized the relevance of thermal data in context of this study. In a similar way, the calendar year aggregation deemed as questionable by the authors themselves (pag.16, Discussion) appears as an “exit-strategy” following a monthly-scale analysis that provided unsatisfactory results. It would have been reasonable to support the period of temporal aggregation with some considerations about the hydrological yearly cycle in each basin. At the

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end, the overall impression is that the authors tried in every possible way to extract a similarity between Grace and AMSR-E datasets, and they finally got it. To this extent, the paper is valuable, and it is able to bring new knowledge, even if the fee paid to the empiricism is probably too high.

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