

Interactive comment on “Estimation of surface soil moisture and roughness from multi-angular ASAR imagery in the Watershed Allied Telemetry Experimental Research (WATER)” by S. G. Wang et al.

Anonymous Referee #1

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Wang et al. present a paper on the estimation of soil moisture from multi-angular ASAR imagery. This is quite an interesting paper, well structured and well written with quite a technical account.

The authors provide a very elaborate technical literature review and the methods are very well described. I think this paper constitutes a very nice and technically sound contribution to the soil moisture literature and deserves publication in HESS.

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I have only a few minor comments and some of them are rather esthetical:

- In abstract, please write out AIEM
- 3366, l.10: replace 'connects' with 'relates'
- 3366, l.12: replace 'form' with 'scheme'
- 3367, l.8: turn sentence into plural (radar systems)
- 3368, l.26: put '... surface roughness is an essential input...'
- 3370, l.8: replace When with After, put were instead of are
- 3372, l.22: put '... such as ASAR makes this possible.'
- 3372, l.26: put 'During the first step'
- 3373, l.1: put 'During the second step'
- 3375, l.10: please put actual incidence angle values here (18.4 and 43.9)
- 3375, l.14: what do the authors mean by 'topography is flat'? How flat? Would it be possible to comment here on the implications of more heterogeneous topography on soil moisture retrieval? This is obviously important for a more world-wide application...
- 3376, l.5: replace 'these two' with 'both'
- 3376, l.5: comment: would HH polarisation not result in an attenuation of vegetation effects? Maybe the authors could comment here on what could be expected with a HV or VH polarisation for example
- 3376, l.10: remove 'better'
- 3376, l.13: put 'denotes' instead of 'means'
- 3376, l.14-15: write '... a coefficient of determination equal to...'
- 3377, l.10: remove 'was'

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- 3377, l.11: put 'before' instead of 'ago'
- 3377, l.12: put 'considerably high' instead of 'very strong'
- 3377, l.21: put '... manifesting that the soil moisture is slightly underestimated.'
- 3377, l.24: put 'shown' instead of 'indicated'
- 3377, l.25: put '... due to the fact that'
- 3378, l.11: insert 'these are' between 'but not'
- 3378, l.11: write 'A sampling... did take place at site E.'
- 3378, l.13: put 'from the literature'
- 3378, l.18: remove 'both'
- 3378, l.26: put 'verified' instead of 'testified'
- 3379, l.20: put '... , it could still result in some uncertainties.'
- 3380, l.6: put 'seeking'
- 3380, l.8: put 'The investigation presented in this paper'
- 3380, l.14: put 'reliable' instead of 'feasible'
- 3380, l.18: remove the second 'the'
- 3380, l.18-19: do the authors mean 'the presence of remaining vegetation effects', given that they corrected for these?
- 3380, l.24: put 'instead' instead of 'in place'
- 3381, l.1: put 'area' instead of 'aspect'

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 3365, 2010.