

Interactive comment on “Error characterisation of global active and passive microwave soil moisture data sets” by W. A. Dorigo et al.

Anonymous Referee #2

Received and published: 15 November 2010

This is a well-written paper presenting a study of soil moisture error estimates using a triple-collocation technique. It connects well to a previous study by Scipal et al (2008b) and can be seen as an extension of that work to a more recent radiometer/scatterometer generation.

Specific comments:

- P5623.L9-12 onwards: To accommodate readers with no previous knowledge about the triple collocation method, it would be good to include a sentence about how exactly the method works already in the abstract.
- P5625.L26: Try to mention already here what kind of reference datasets these are

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(not in-situ, etc.).

- Sections 2.1-2.2: Please mention the difference in local overpass times between the two sensors, it might be of interest for the validity of the study.
- P5630.L16: Please rephrase "short observation period" so it is clear the recentness is meant, as opposed to duration of each overpass.
- P5630.L16: Please rephrase the "solve for the calibration" so it is clear the coefficients of the equations are meant. Applies also to "both variables" on P5630.L27.
- P5631.L18: For the uninitiated, it is entirely clear what "expressed in the climatology" means.
- P5633.L13-21: I must agree with the previous reviewer, the same vegetation-related processes are observed in the case of active microwave remote sensing (volume scattering), so the vegetation in itself cannot entirely account for the inferior/different performance of AMSR-E in these regions when compared to ASCAT.
- P5634.L1: Please try to express "observation frequency" differently, it could confuse readers: in my case the flow of reading was interrupted because I connected to observation timeliness rather than the frequency of the electromagnetic wave.
- P5635.L16-19: The match between Figures (3c) and (3d) is quite difficult to see (e.g. in the Australian southwest or South Africa). Could there be other reasons for the distribution of the error differences?

Technical corrections:

[Note: Corrections already proposed by the previous referee are not included.]

- P5626.L17: Wording: "...available via the EUMETSAT..."
- P5627.L6: Spelling: "Equator"
- P5628.L8-9: Wording: If you hint to an abbreviation by capitalising some of the letters,

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please state which.

- P5630.L6-7: Wording: "...and thus at many locations..."

- P5634.L12-13: Wording: "...measured brightness temperatures no longer contain detectable soil moisture signal."

- Several places: Wording: Please be consistent with the usage of British/American English ("polarization" is American, "characterisation", "parametrisation", etc. is British).

- Caption of Figure 3: Please rephrase points (a) and (b), as it is not clear both error maps refer to AMSR-E. At the moment it seems they display ERA-Interim and GLDAS errors, respectively. Also, the colour bar of plot (c) is not really suitable for displaying positive and negative anomalies.

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