

Interactive comment on “The International Soil Moisture Network: a data hosting facility for global in situ soil moisture measurements” by W. A. Dorigo et al.

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With great interest I read your paper on the international soil moisture network. This is indeed not a typical research paper (as indicated by the editor) but a very important initiative that can also serve as a great example for other communities. Soil moisture is considered one of the key parameters in land atmosphere interactions and the described uniform in situ network could help us to increase our understanding in this field of research.

The paper is well written and fits well within this journal. I recommend this paper for publication in HESS after minor revisions.

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Personally I think the paper would be improved if it would have a more thorough review on available soil moisture measuring techniques and sites. For example in the past numerous scientists have used tensiometers or heat dissipation sensors to derive soil moisture. A small section on these common techniques in the second section would be appropriate. In addition I think the authors might overlooked some public available soil moisture datasets from big meteorological campaigns (e.g. Botswana experiment, BARC soil moisture dataset, HAPEX Sahel, EFEDA, FIFE) but this might be some work that needs to be done in the near future. Overall I think this paper is a great addition for HESS.

Details:

Page 1613, from a historical perspective the BARC soil moisture datasets (Wang et al., 1980) are very important because the BARC campaigns were one of the first field experiments with field soil moisture measurements and remote sensing observations. I think these experiments should be mentioned in this paper because the BARC sets were as well one of the first datasets that became publicly available and triggered many researchers to study the ability to retrieve soil moisture from space observations. Furthermore, in the eighties/nineties different meteorological field campaigns also acknowledged the importance of soil moisture and soil moisture was measured at several locations. For example a lot of the pioneer work in soil moisture is based on soil moisture datasets from Botswana (obtained from a long term meteorological campaign (Van de Griend et al., 1989). The same holds for other campaigns including HAPEX SAHEL, EFEDA and FIFE. Most soil moisture data from these campaigns are still available and I personally think that it would be great if these sets would be added too in the ISMN in the near future.

Page 1618

Frequency domain reflectometry (FDR) is very sensitive to temperature fluctuations. And need besides a gravimetric correction also a temperature corrections. In this paper

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it is not entirely clear how you deal with data quality. I would suggest to add a discussion on data quality (this is also indicated by the previous reviewer).

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Please add a section on tensiometers and heat pulse sensors. Although both sensors measure different parameters (tensiometer, measures the soil tension, and the heat pulse measures the thermal behavior of the soil) both are still often used to derive soil moisture. For example in the nineties heat dissipation soil moisture sensors were installed in the Oklahoma soil moisture Monitoring network.

Page 1621 line 18

The design.... consultation with data providers... How did you do this? Did you send a questionnaire or did you interview the users? And what were the key results. I think this is important information, especially for other research communities who want to set up a network for other observations. Please explain in a bit more in detail how you obtained information from the user community.

Page 1631 line 19 RUSWET-GRASS instead of RIUSWET

Page 1636

Soil moisture dynamics can have a large impact on the global carbon cycle (see for example the study on the carbon impact of drought over Europe Ciais et al., 2008) and our understanding on the relationship between (rootzone) soil moisture and carbon fluxes is still limited (Van der Molen et al., 2011). I would suggest to add a few words on the importance of soil moisture for studies on biogeochemical cycles

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