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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Calibration approaches of cosmic-ray neutron sensing for soil moisture measurement in cropped fields" *by* C. A. Rivera Villarreyes et al.

E. Zehe (Editor)

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Dear Mr. Rivera Villarreye,

I carefully studied the reviewer comments as well as your manuscript. The three reviewers consistently point out serious deficiencies of the manuscript with respect to structure/clearness of the presentation and to technical soundness of the underlying methods. I pretty much agree with their recommendation that the present work needs very major revisions to reach a standard that is acceptable for HESS. I regret to tell you that the present manuscript is far away from such a standard.

The revised manuscript should in particular:

- Present a clear story line with research questions/hypotheses including a reproducible explanation of the different calibration approaches and employed methods (their pro' s and con's);

- Address scale issues/ the incompatibility of the support volumes of point measurements and the Cosmic Neutron Probe and explain how that has been bridged in your approach; any calibration approach needs to be verified in a split sampling;

- Discuss the meaning of a large scale average soil moisture in the light of heterogeneity/ possible trends of soil hydraulic properties within the integration volume and related trends/variability of soil moisture; What does an areal average tell us in this case?

-Provide exhaustive data in particular also on crop phenology and their development within the time period of investigation as well as on other influencing variables

I regret that I cannot tell you anything more positive. I hope you can take the reviewer comments as constructive challenge to improve the manuscript to standard that is considerable for publication in HESS.

Best regards,

Erwin Zehe, handling editor

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