

Interactive comment on “Investigating temporal field sampling strategies for site-specific calibration of three soil moisture – neutron intensity parameterisation methods” by J. Iwema et al.

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The authors of HESSd-12-2349-2015 provide guidance to suitable calibration methods for the Cosmic-Ray Neutron Sensor (aka, COSMOS). Varying neutron intensities unrelated to soil moisture (H-content in biomass, interstitial clay, snow, etc.) adversely affect it. The authors assess 3 calibration methods and data requirements (from in situ sensors) over a range of hydro-climatologies and land cover.

Since CRNS integrates over a varying depth range (p2351, L3) depending on moisture

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content, it doesn't appear to me that the sensors were depth-weighted by any means. How does assuming a constant depth-integration weight over the 5-, 20-, and 50-cm probe impact the variable depth integration of the CRNS? Beyond the equal horizontal weights (which may also introduce some error, p2352, l12), the depth weighting of the in-situ sensors needs more clarification. In particular, these sensors are a surrogate for actual soil sampling. The authors focus on number days very well, but don't specify how deep – since some (SR) profiles exceed 50-cm. Considering that you removed the soil organic matter and interstitial H from equation 1-2, or hydrogen content in HMF, do these data need collected (over 'x' depth) as well? Also, please add a little detail on Bogena et al. 2013 which is referenced for all the sensor depth averaging. Perhaps this is all in Bogena et al. 2013, but since mean spatial and profile water content are so important, a little more elaboration is required.

The temporal resolution and 'wetness' condition is well-defined and the manuscript is well-composed and very thorough.

Line specific comments: P2351, L20: Awkward sentence: "However, fast neutron intensity is not solely dependent on soil moisture content"

P2352, L3: what is 'it'?

P2355, L7: it's 'coarse material', not course.

P2360, L26: 'until' not 'till'

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