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Discussions
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Interactive comment on "Using lagged dependence to identify (de)coupled surface andsubsurface soil moisture values" *by* Coleen D. U. Carranza et al.

Anonymous Referee #2

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General comments: This study examines the coupling between near-surface and subsurface soil moisture at four sites in the Netherlands. Specifically the authors develop a methodology for determining when the two layers are decoupled, thereby providing an important analysis for surface soil moisture assimilation into models. The manuscript is very well written and the figures are well crafted. The use of a distributed lag nonlinear model for quantifying decoupled soil moisture ranges is novel and, as the authors point out, does not suffer from many of the assumptions and limitations of previously implemented methods. I recommend the manuscript for publication given appropriate consideration of the following concern.

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Discussion paper

Specific comments: The primary concern I have with the manuscript is the conclusion that the decoupled range is not limited to dry conditions. Evidence of this is provided at one of four sites (SM13), at which the authors confirm the presence of burrowing animals. Given the potential data quality issues at site SM13 and the fact that decoupling at the the other three sites was confined to the dry end of the soil moisture range, I believe the strong statements regarding soil moisture decoupling outside of dry conditions (i.e., section 5.1, line 9; section 5.2, lines 26-27) are not adequately supported by the results. Therefore I recommend the authors either soften this conclusion by adequately describing the uncertainty and lack of consistent supporting evidence, or assess why SM13 shows decoupling outside of dry conditions when the other three sites do not.

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