

Interactive comment on “Comparing soil moisture anomalies from multiple independent sources over different regions across the globe” by Carmelo Cammalleri et al.

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We appreciate the detailed analysis provided by the anonymous reviewer, and we would like to provide some brief reply in order to detail the edits that will be made to the manuscript in order to accommodate the main concerns.

1) The motivation of the study will be better explained in the revised version of the manuscript. In summary, most of the past TCA studies were focused on soil moisture data rather than anomalies, and they often focus on modelled/microwave datasets only. Hence, the data analyzed here are unique in terms of both variable investigated and datasets adopted. Also, the operational focus of this study (implementation in GDO)

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requires an analysis of the datasets that can be actually used in the monitoring system.

2) Similarly to the reply to reviewer #1, the use of both standardized anomalies and monthly data should minimize the discrepancies among the datasets. This point will be further clarified and discussed in the revised manuscript.

3) Actual error variance (i.e., in terms of volumetric water content) cannot be reported in this study, since standardized variables (normalized z-scores) are investigated. The use of standardized quantities is justified by the needs of drought monitoring, as it will be further clarified in the new text.

4) We investigated possible relationships between error patterns and climatic/vegetation distribution, but we have found only few weak connections. We will discuss this further in the revised version of the text.

5) The ultimate goal of this study is to provide information on spatial patterns of likely errors of each product that can be used to obtain a reliable ensemble product for an operational global drought monitoring system. Indeed, the outputs of the presented analysis are used in the operation of GDO, but the ensemble product itself is not discussed here. We will clarify that the ensemble product is not the final goal of the reported study, but that the goal of the research is to spatially characterize the errors to be used in the operational system.

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