

## ***Interactive comment on “SM2RAIN-CCI: A new global long-term rainfall data set derived from ESA CCI soil moisture” by Luca Ciabatta et al.***

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The paper presents a very useful dataset and is overall clearly written. I have the following minor comments/suggestions: - Abstract: Capitalization of ACTIVE and PASSIVE is unnecessary? No mention of how well the other products perform. Maybe list median correlation coefficients for the other products. - Line 94: Replace "etc..." with "etc.". - Line 96: "With the aim of facing and monitoring climate change". Consider rewriting, reads a bit cumbersome. - Line 109: Beck et al., 2016 -> Beck et al., 2017 (please fix throughout the manuscript). - Line 121: Which version of MSWEP did you use? MSWEP has a 3-hourly temporal resolution (not daily as stated). - Line 139: MSWEP is a precipitation dataset (rather than a rainfall dataset). - Line 159: I think ECMWF provides data through their API (not an FTP). - Line 192: I don't understand

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what "interpolated to 00:00 UTC" means. Can you add an explanation? - Line 218: Why does the COMBINED dataset perform so poorly? Honestly curious. Consider adding a line discussing this. - Line 244: Is it reasonable to assume that because of the separate calibrations the dataset is unsuitable for trend analysis? The presence of temporal discontinuities around 2007 in tropical areas seems to confirm this. Consider highlighting this in the manuscript. - Line 261: New paragraph starting with "A cross-comparison ...". - Line 302: "due to the use of dense ...". I think a more likely reason for the good performance of ERA-Interim is the stratiform-dominated precipitation regime which tends to be well predicted by atmospheric models. - Line 328: May be a bit unnecessary to repeat the entire methodology? - Conclusions: Maybe state that the dataset should not be used for trend analyses. - Figure 1: Delete the color bar. - Figure 2: Is this figure really necessary? It doesn't really clarify anything in my opinion... - Figure 3 lower panel: What are the units? - Figure 4: List subfigure identifiers in subfigure titles (e.g., replace "Northern America" with "Northern America (A)").

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