

## ***Interactive comment on “A fine-resolution soil moisture dataset for China in 2002–2018” by Xiangjin Meng et al.***

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In this paper, authors presented a new method for producing long-term surface soil moisture data in China, and the data is well-validated. However, I am a bit confused about the interannual trend of soil moisture in this study. According to this dataset, surface soil moisture declined in most parts of China during 2002~2018, especially in eastern China (Figure 6 and Figure 7). However, we noticed that GPM IMERG precipitation increased in China, especially in eastern China (please see the figure we attached below) where your data however, indicated a sharp decline in surface soil moisture. Considering the strong positive impact of precipitation on surface soil moisture, this conflict seems quite strange. In addition, we also noticed a recently published global long-term microwave-based surface soil moisture dataset called RSSM

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(<https://doi.org/10.5194/essd-13-1-2021>). That dataset seems to suggest an increase in surface soil moisture in China over the same period, while the eastern China showed an obvious increasing trend, which generally agrees with the spatial pattern of the trend of precipitation. So, I may doubt which dataset is more reliable in terms of the interannual trend. Theoretically, the 'linear regression matching technique' applied in your study can harmonize the absolute values, or the spatial patterns of different soil moisture products, but may be less capable of calibrating and harmonizing the interannual variations of different products retrieved from different sensors. The interannual trends of different microwave soil moisture products may differ a lot, probably because the disturbances of major influence factors (e.g., vegetation, open water) on different soil moisture retrievals are quite different, in fact.

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-292>, 2020.

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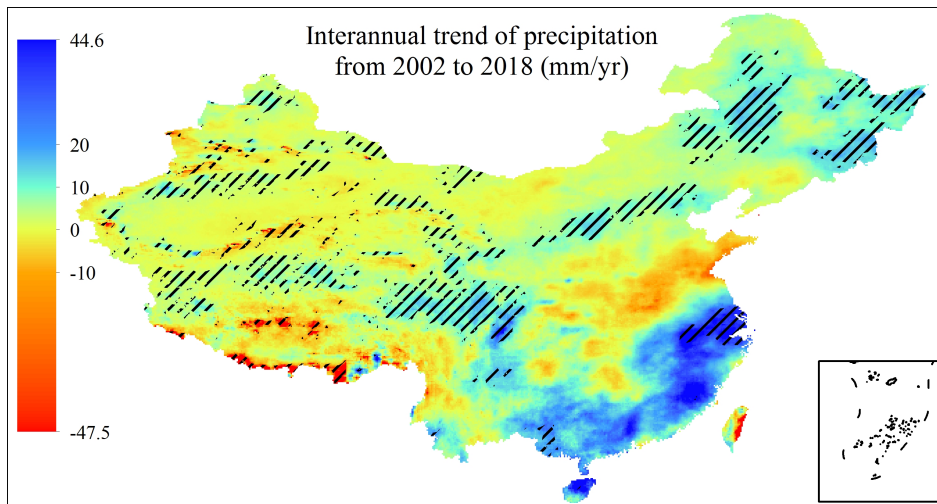


Fig. 1.