

Earth Syst. Sci. Data Discuss., author comment AC4
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Reply on RC1

Qingliang Li et al.

Author comment on "A 1□km daily soil moisture dataset over China using in situ measurement and machine learning" by Qingliang Li et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-177-AC4>, 2022

About the following comment, we have an updated respond.

Comment#2: Most of the source datasets cover the period before year 2010. Is there any special reason why the new soil moisture only covers the period 2010-2020? Is it possible to extend the present time period to year 2000-2020?

Responds□

Thanks for your kind comments and helpful suggestions. Although most of the applied covariates cover the period before year 2010, we do not access to the *in-situ* measurements before 2010, currently. The in-situ measurements before 2010 may be available from China Meteorological Administration (not open to us) and the number of stations is less than 800. If we produce the SM data set without any in-situ data (or only a few hundred stations), the quality of the data may be poorer as it will be extrapolation in time. However, we agree that it is proper (assuming the relationship between SM and covariates remains the same in the last two decades) to extend the present time period to 2000-2020. We did not extent it before 2000 taking a conservative attitude. But it is possible to extend it as long as in-situ SM is available in the future. The extended data is still available at <http://dx.doi.org/10.11888/Terre.tpdc.272415>. We have added the following contents in section 2.4:

In addition to the period of 2010-2020 when in situ SM data are available, we also produced the gridded SM for the period of 2000-2009 when in situ SM data are unavailable, assuming that the relationship between SM and covariates remains the same in the last two decades. It is proper to deem that the data quality during 2000-2009 is poorer than that of 2010-2020.

We also list a future work in the conclusion as follows:

It is also possible to update and extent the time coverage of this data set before 2010 as long as in situ SM data becomes available.

