This study provides an accurate and reliable, global 36 km, 8-day synthetic SMAP SM products from 1979 to 2015. This is a valuable dataset for the evaluation of historical events. I have some questions about the dataset you achieved in your article

Thank you for the comments. We are going to reply item-by-item to each comment.

1.How to achieve data synthesis toward those different data sources?

Reply:

Considering the spatial gaps in the daily SMAP data, we adopted 8-day composited method to acquire a more complete spatial coverage by averaging the valid SM data. Thank you for the comment.

2.It seems that the analysis of data in this volume is time-consuming. Could you please provide more details about the data analysis platform that you used here? Such as software or any other online platform.
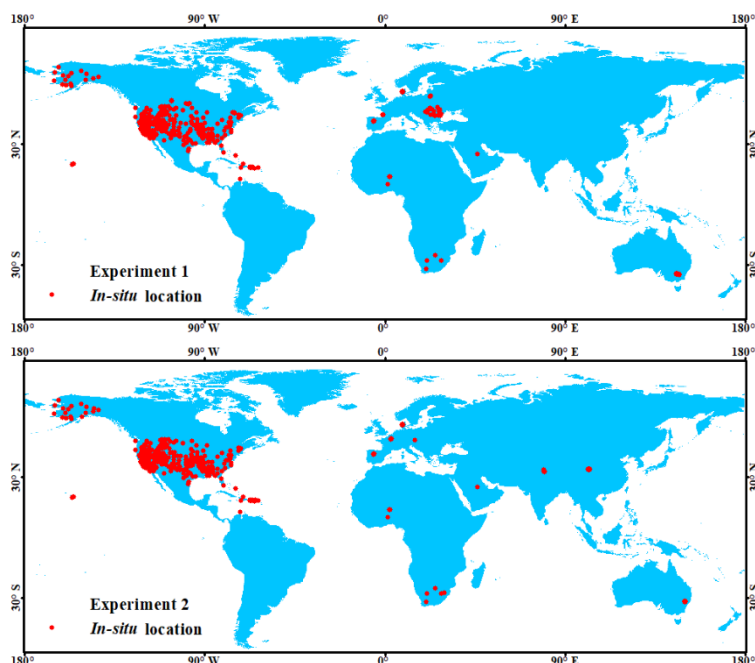
Reply:

Indeed, the time cost of this work is related high. We used Matlab to generate the RF_SMAP dataset. For the simulation of one scene data, it takes about 300 seconds. The processed operator is Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz.

In addition, there are some minor issues with the manuscript details:

1.In Figure 1, the site location is not clear.

Reply:

Thank you for the comment, we have revised the Figure 1 and enlarged the size of the sample points to clear illustrate the site location.

Figure 1. Locations of the in-situ data in Experiments 1 and 2.

2.Is the reconstruction of SM data before 2015? Why do you use sites from 2015-2016 to validate pre-2015 data in the abstract?

Reply:

Thank you for the suggestion. For the unclear description in the abstract, we are going to revise revised. In fact, the validation of reconstruction before 2015 was adopted the in-situ data before 2015 as the reference (Experiment 2). The in-situ data from 2015-2016 were used in Experiment 1. Experiment 1 aimed to demonstrate the predicted method (evaluate the performance of RF_SMAP during the period of real SMAP).

3.I think the flowchart is kind of too simple to express the details of dataset production.

Reply:

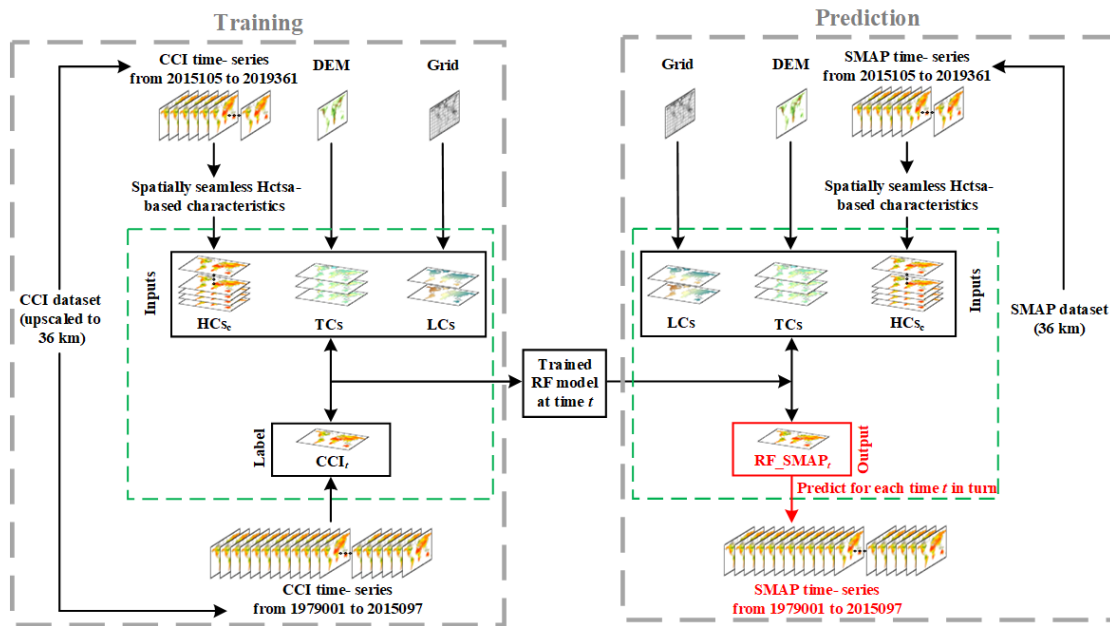*Thank you for the suggestion. We have revised this point in advance and increased the readability of Figure 3.*

Figure 3. The prediction process of the RF_SMAP dataset at a time.