A Big Earth Data Platform for Three Poles

**A Remote Sensing-based global 10-day resolution Surface Soil Moisture dataset (RSSSM, 2003~2020)**

1、Description

Based on 11 well-acknowledged global-scale microwave remote sensing-based surface soil moisture products, and with 9 main quality impact factors of microwave-based soil moisture retrieval incorporated, we developed the Remote Sensing-based global Surface Soil Moisture dataset (RSSSM, 2003~2020) through a complicated neural network approach. The spatial resolution of RSSSM is 0.1°, while the temporal resolution is approximately 10 days. The original dataset covered 2003~2018, but now it has been updated to 2020. RSSSM dataset is outstanding in terms of temporal continuity, and has full spatial coverage except for snow, ice and water bodies. The comparison against the global-scale in-situ soil moisture measurements indicates that RSSSM has a higher spatial and temporal accuracy than most of the frequently-used global/regional long-term surface soil moisture datasets. In addition, although RSSSM is remote sensing based, without the incorporation of any precipitation data or records, its interannual variation generally conforms with that of precipitation (e.g., the GPM IMERG precipitation data) and Standardized Precipitation Evapotranspiration Index (SPEI). Moreover, RSSSM can also reflect the impact of human activities, e.g., urbanization, cropland irrigation and afforestation on soil moisture changes to some degree. The data is in ‘Tiff’ format, and the size after compression is 2.48 GB. The relevant data describing paper has been published in the Journal ‘Earth System Science Data’ in 2021.

2、Keywords

Theme：Soil,Surface Water,Surface soil moisture,Soil moisture,Soil moisture,Terrestrial Surface Remote Sensing  
Discipline：Terrestrial Surface  
Places：Global  
Time：2003~2020, 10-day period (dekadal)

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：2540.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：80.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-60.0 | - |

5、Time frame:2002-12-31 16:00:00+00:00--2020-12-30 16:00:00+00:00

6、Reference method

References to data:

FENG Xiaoming, CHEN Yongzhe, FU Bojie. A Remote Sensing-based global 10-day resolution Surface Soil Moisture dataset (RSSSM, 2003~2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2717752021

References to articles:

Chen, Y., Feng, X., & Fu, B. (2021). An improved global remote-sensing-based surface soil moisture (RSSSM) dataset covering 2003–2018, Earth Syst. Sci. Data, 13, 1–31, https://doi.org/10.5194/essd-13-1-2021.

7、Supporting project information

8、Data resource provider

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