A Big Earth Data Platform for Three Poles

**SMC dataset: Soil Moisture in China dataset (2002-2018)**

1、Description

The SMC dataset contains land soil moisture data for Chinese land spanning from 2002 to 2018, the unit is m3/m3, in monthly temporal and 0.05° spatial resolution. More specifically, it is produced by from three passive microwave remote sensing products: the Japan Aerospace Exploration Agency (JAXA)’s Microwave Scanning Radiometer - Earth Observing System (AMSR-E) and the Advanced Microwave Scanning Radiometer 2 (AMSR2) Level 3 soil moisture data, and SMOS product that was developed by the Institut National de la Recherche Agronomique) (INRA) and Centre d’Etudes Spatiales de la BIOsphère (CESBIO) soil moisture data. To overcome the deficiencies of passive microwave soil moisture products with low resolution, we construct a spatially weighted decomposition (SWD) using TVDI that calculated by Moderate Resolution Imaging Spectroradiometer (MODIS) data, including the land surface temperature (LST) MYD11C3 data and the normalized difference vegetation index (NDVI) MYD13C2 data. Overall, the downscaled soil moisture (SM) products were consistent with the in-situ measurements (R>0.78) and exhibited a low root mean square error (ubRMSE < 0.05 m3/m3), which indicates good accuracy throughout the time series. The dataset can be widely used to significantly improve hydrologic and drought monitoring and can serve as an important input for ecological and other geophysical models.

2、Keywords

Theme：Soil,Galactic System,Soil moisture
Discipline：Terrestrial Surface,Solar-Terrestrial Physics and Astronomy
Places：China
Time：2002-2018

3、Data details

1.Scale：None

2.Projection：

3.Filesize：850.99MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：53.55 | - |
| west：73.45 | - | east：135.15 |
| - | south：18.1 | - |

5、Time frame:2002-06-30 16:00:00+00:00--2018-12-31 03:59:59+00:00

6、Reference method

References to data:

MAO Kebiao. SMC dataset: Soil Moisture in China dataset (2002-2018). A Big Earth Data Platform for Three Poles, doi:10.5281/zenodo.47385562021

References to articles:

Meng, X., Mao, K., Meng, F., Shi, J., Zeng, J., Shen, X., Cui, Y., Jiang, L., & Guo, Z. (2021). A fine-resolution soil moisture dataset for China in 2002–2018. Earth System Science Data, 13(7), 3239–3261. https://doi.org/10.5194/essd-13-3239-2021

7、Supporting project information

8、Data resource provider

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