A Big Earth Data Platform for Three Poles

**A global daily soil moisture dataset derived from Chinese FengYun-3B Microwave Radiation Imager (MWRI) (2010-2019)**

1、Description

This dataset contains 10 years (2010-2019) global daily surface soil moisture . The resolution is 36 km , the projection is EASE-Grid2, and the data unit is m3 / m3. This dataset adopts the soil moisture neural network retrieval algorithm developed by Yao et al. (2017，2021). This study transfers the merits of SMAP to FY-3B/MWRI through using an Artificial Neural Network (ANN) in which SMAP standard SSM products serve as training targets with FY-3B/MWRI brightness temperature (TB) as input. Finally, long term soil moisture data are output. The accuracy is about 5% volumetric water content，which is comparable with that of SMAP. (evaluation accuracy of 14 dense ground network globally.)

2、Keywords

Theme：Soil,Microwave Remote Sensing,Soil Water Content,Remote Sensing Technology,Soil moisture,Hydrology,Microwave radiometer  
Discipline：Terrestrial Surface,Remote Sensing Technology  
Places：Global  
Time：2010-2019

3、Data details

1.Scale：None

2.Projection：

3.Filesize：9462.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：83.64 | - |
| west：179.82 | - | east：179.82 |
| - | south：83.64 | - |

5、Time frame:2010-11-11 16:00:00+00:00--2019-07-03 03:59:59+00:00

6、Reference method

References to data:

YAO Panpan, ZHAO Tianjie, LU Hui, SHI Jiancheng, WU Shengli . A global daily soil moisture dataset derived from Chinese FengYun-3B Microwave Radiation Imager (MWRI) (2010-2019). A Big Earth Data Platform for Three Poles, doi:10.11888/Terre.tpdc.2719542021

References to articles:

Yao, P.P., Lu, H., Shi, J.C., Zhao, T.J., Yang K., Cosh, M.H., Gianotti, D.J.S., & Entekhabi, D. (2021). A long term global daily soil moisture dataset derived from AMSR-E and AMSR2 (2002-2019). Scientific Data, 8, 143 (2021). https://doi.org/10.1038/s41597-021-00925-8  
  
Yao, P.P., Lu, H., Zhao, T.J., Wu, S.L., Shi, J.C., Yang K., Cosh, M.H., Zhang, P. (2022). A global daily soil moisture dataset derived from Chinese FengYun-3B Microwave Radiation Imager (MWRI) (2010-2019) . Scientific Data. (Under Review)  
  
Yao, P.P., Shi, J.C., Zhao, T.J., Lu, H. & Al-Yaari, A. (2017). Rebuilding Long Time Series Global Soil Moisture Products Using the Neural Network Adopting the Microwave Vegetation Index. Remote Sensing 9(1), 35.

7、Supporting project information

the Second Tibetan Plateau Scientific Expedition and Research Program (STEP)  
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National Key Research and development Program

8、Data resource provider

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