A Big Earth Data Platform for Three Poles

**A long term global daily soil moisture dataset derived from AMSR-E and AMSR2 (2002-2021)**

1、Description

This dataset contains 20 years (2002-2021) global spatio-temporal consistent surface soil moisture . The resolution is 36 km at daily scale, 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). This study transfers the merits of SMAP to AMSR-E/2 through using an Artificial Neural Network (ANN) in which SMAP standard SSM products serve as training targets with AMSR-E/2 brightness temperature (TB) as input. Finally, long term soil moisture data are output. The accuracy is about 5% volumetric water content. (evaluation accuracy of 14 dense ground network globally.)

2、Keywords

Theme：soil moisture,Soil,Passive microwave remote sensing,Surface Freeze-thaw Cycle/state Remote Sensing,Hydrology,Soil moisture/Water content  
Discipline：Terrestrial Surface,Cryosphere  
Places：Globe  
Time：2002-2021

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：21514.0MB

4.Data format：None

4、Space scope

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

5、Time frame:2002-07-27 08:00:00+00:00--2021-12-31 03:59:59+00:00

6、Reference method

References to data:

YAO Panpan, LU Hui. A long term global daily soil moisture dataset derived from AMSR-E and AMSR2 (2002-2021). A Big Earth Data Platform for Three Poles, doi:10.11888/Soil.tpdc.2709602020

References to articles:

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.  
  
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

7、Supporting project information

Second Tibetan Plateau Scientific Expedition Program  
the National Key Research and Development Program of China  
the Strategic Priority Research Program of Chinese Academy of Sciences

8、Data resource provider

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