Upper Yangtze River Scientific Data Center

**COSMOS-based Soil Moisture Observations in Southwest China (2018-2020)**

1、Description

Cosmic ray neutron method is a nondestructive method for measuring soil moisture at the scale of 100 meters. This data is input from the neutron sequence synchronously measured by the Cosmic Ray Soil Moisture Observation System (COSMOS) in Qingmuguan Trough Valley District, Chongqing, and combined with the multi-layer soil moisture observation data of multiple stations around, a soil moisture inversion algorithm for this neutron observation is developed. The inversion algorithm introduces S-G filtering to smooth the COSMOS fast neutron number, and optimizes the data screening schemes in different calibration and verification stages of the algorithm. In addition, the meteorological data (mainly atmospheric pressure) required for inversion is provided by the automatic meteorological stations arranged around COSMOS stations to correct the original neutron number. The time resolution of cosmic ray soil moisture inversion sequence generated by the algorithm is 1h.

2、Keywords

Theme：COSMOS,Hydrology,Soil Moisture,Terrestrial Surface Remote Sensing  
Discipline：Terrestrial Surface  
Places：Southwest China  
Time：2020

3、Data details

1.Scale：None

2.Projection：

3.Filesize：10.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：29.762 | - |
| west：106.319 | - | east：106.319 |
| - | south：29.762 | - |

5、Time frame:None--None

6、Reference method

References to data:

ZHAO Long . COSMOS-based Soil Moisture Observations in Southwest China (2018-2020). Upper Yangtze River Scientific Data Center, 2022

References to articles:

彭书艳, 赵龙, 李婷婷, 韩旭军, 马明国, 杨帅, & 杨跃程 (2021). 基于宇宙射线观测的喀斯特槽谷区典型流域土壤水分反演研究. 遥感技术与应用, 36, 997-1008. DOI: 10.11873/j.issn.1004⁃0323.2021.5.0997

7、Supporting project information

8、Data resource provider

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