A Big Earth Data Platform for Three Poles

**A global dataset of standardized moisture anomaly index incorporating snow dynamics (SZIsnow) from 1948 to 2010**

1、Description

The SZIsnow dataset was calculated based on systematic physical fields from the Global Land Data Assimilation System version 2 (GLDAS-2) with the Noah land surface model. This SZIsnow dataset considers different physical water-energy processes, especially snow processes. The evaluation shows the dataset is capable of investigating different types of droughts across different timescales. The assessment also indicates that the dataset has an adequate performance to capture droughts across different spatial scales. The consideration of snow processes improved the capability of SZIsnow, and the improvement is evident over snow-covered areas (e.g., Arctic region) and high-altitude areas (e.g., Tibet Plateau). Moreover, the analysis also implies that SZIsnow dataset is able to well capture the large-scale drought events across the world. This drought dataset has high application potential for monitoring, assessing, and supplying information of drought, and also can serve as a valuable resource for drought studies.

2、Keywords

Theme：soil moisture,Precipitation,Evapotranspiration,Snow,Snowmelt water,Meteorological Disaster,Drought,Snowpack,Hydrology,Snow water equivalent
Discipline：Atmosphere,Terrestrial Surface,Cryosphere
Places：Three poles, Tibetan Plateau, Global
Time：Multiscalar

3、Data details

1.Scale：None

2.Projection：

3.Filesize：28672.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：90.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-60.0 | - |

5、Time frame:1947-12-31 16:00:00+00:00--2010-12-30 16:00:00+00:00

6、Reference method

References to data:

TIAN Lei, ZHANG Baoqing, WU Pute. A global dataset of standardized moisture anomaly index incorporating snow dynamics (SZIsnow) from 1948 to 2010. A Big Earth Data Platform for Three Poles, doi:10.5281/zenodo.56273692021

References to articles:

Zhang, B.Q, Xia, Y.L., Huning, L.S., Wei, J.H., Wang, G.Q., and AghaKouchak, A. (2019). A framework for global multicategory and multiscalar drought characterization accounting for snow processes. Water Resources Research, 55, 9258-9278. https://doi.org/10.1029/2019WR025529.

Tian, L., Zhang, B., and Wu, P. (2022). A global drought dataset of standardized moisture anomaly index incorporating snow dynamics (SZIsnow) and its application in identifying large-scale drought events. Earth Syst. Sci. Data, 14, 2259–2278, https://doi.org/10.5194/essd-14-2259-2022.

Zhang, B.Q., Zhao, X.N., Jin, J.M., and Wu, P.T. (2015). Development and evaluation of a physically based multiscalar drought index: The Standardized Moisture Anomaly Index. Journal of Geophysical Research: Atmospheres, 120, 11,575-511,588. https://doi.org/10.1002/2015JD023772.

7、Supporting project information

the National Key Research and Development Program of China
Natural Science Foundation of China (NSFC)
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8、Data resource provider

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