A Big Earth Data Platform for Three Poles

**China Daily snow albedo product data set (2000-2020)**

1、Description

ChinaSA is raster data with a geospatial extent of 72 - 142E, 16 - 56N, using an equal latitude and longitude projection and a spatial resolution of 0.005°. The dataset covers the period from 1 January 2000 to 31 December 2020 with a temporal resolution of 1 day. The data contains six elements: black sky albedo (Black\_Sky\_Albedo), white sky albedo (White\_Sky\_Albedo), solar zenith angle (Solar\_Zenith\_Angle), pixel-level cloud label (Cloud\_Mask), pixel-level forest pixel (Forest\_Mask) and pixel-level retrieval label (Abnormal\_Mask). Black\_Sky\_Albedo records the black sky albedo calculated by retrieved, with as a calculation factor of 0.0001 and a data range of 0-10000. White\_Sky\_Albedo records the white sky albedo calculated by retrieved, with as a calculation factor of 0.0001 and a data range of 0-10000. Cloud\_Mask records whether the pixel is cloud type, with a value of 0 indicating non-cloud and 1 indicating cloud. Forest\_Mask records whether the pixel has been corrected as a forest type, with a value of 0 indicating that it has not been corrected and 1 indicating that it has been corrected. Abnormal\_Mask records whether the retrieval of the black sky albedo and white sky albedo of the pixel is an anomaly of less than 0 or greater than 10000, with a value of 0 indicating a non-anomaly and 1 indicating an anomaly. ChinaSA was retrieved based on the MODIS land surface reflectance product MOD09GA, the snow cover product MOD10A1/MYD10A1 and the global digital elevation model SRTM. The snow albedo retrieval model was developed based on the ART model and produced using the GEE and local side interactions. To assess the retrieval quality of ChinaSA, the accuracy of the snow albedo product was verified using observations from in-situ meteorological stations and the sample observation validation method, and compared with the accuracy of four commonly used albedo products (GLASS, GlobAlbedo, MCD43A3 and SAD). The validation results show that ChinaSA outperforms the other products in all validations, with a root mean square error (RMSE) of less than 0.12, and can achieve a RMSE of 0.021 in forest areas.

2、Keywords

Theme：Black Sky Albedo,MODIS,Snow,Remote Sensing Technology,Albedo retrieval,Snow Albedo,Terrestrial Surface Remote Sensing,White Sky Albedo,Solar Zenith Angle
Discipline：Terrestrial Surface,Remote Sensing Technology,Cryosphere
Places：Chinese landmass
Time：2008, 2002, 2000, 2015, 2013, 2003, 2012, 2020, 2018, 2007, 2009, 2014, 2010, 2017, 2004, 2016, 2005, 2006, 2019, 2011, 2001

3、Data details

1.Scale：None

2.Projection：

3.Filesize：376800.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：56.0 | - |
| west：72.0 | - | east：142.0 |
| - | south：16.0 | - |

5、Time frame:1999-12-31 16:00:00+00:00--2021-12-30 16:00:00+00:00

6、Reference method

References to data:

ZHANG Zheng , XIAO Pengfeng , QIN Shen , HU Rui . China Daily snow albedo product data set (2000-2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2723122022

References to articles:

7、Supporting project information

8、Data resource provider

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