A Big Earth Data Platform for Three Poles

**HiWATER: 1km/5day compositing Fraction Vegetation Cover (FVC) product of Heihe River Basin**

1、Description

The 1 km / 5-day FVC data set of Heihe River basin provides the 5-day FVC synthesis results from 2011 to 2014. The data uses the data of Terra / MODIS, Aqua / MODIS, and domestic satellites fy3a / MERSI and fy3b / MERSI to build a multi-source remote sensing data set with a spatial resolution of 1 km and a time resolution of 5 days. The whole country is divided into different vegetation divisions and land types, and the conversion coefficient of NDVI and FVC is calculated respectively. The conversion coefficient look-up table and 1km / 5-day synthetic NDVI product production area 1km / 5-day synthetic FVC product are used. In the Heihe River Basin, 1 km / 5-day synthetic FVC products can directly obtain vegetation coverage ratio through high-resolution data to reduce the impact of low-resolution data heterogeneity; in addition, select the typical period of vegetation growth and change, obtain the corresponding growth curve parameters of each pixel by fitting the vegetation index of each pixel time series; and then cooperate with land use map and vegetation classification map, To find the representative uniform pixel of the region to train the conversion coefficient of vegetation index. Compared with the results of high-resolution aster reference FVC in Heihe River Basin, the first step is to aggregate the aster products in Heihe River basin to 1km scale by combining the measured ground data and using the scale up method, and to obtain the aster aggregate FVC data, which is based on spot vegetation remote sensing data released by geoland 2 project (geov1 for short) The results show that the results of geov1 are higher than those of ASTER image combined with ground measurement, and the results of 1 km / 5-day synthetic FVC products in Heihe River Basin are between the two, and the results of 1 km / 5-day synthetic FVC products in Heihe River Basin in the experimental area are better than those of geov1 products. In a word, the comprehensive utilization of multi-source remote sensing data to improve the estimation accuracy and time resolution of FVC parameter products can better serve the application of remote sensing data products.

2、Keywords

Theme：Vegetation coverage data,Ecological remote sensing products,Land-use and land-cover change(LUCC),Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, the cold region hydrology experimental area in the upper reaches, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2014, 2011, 2012, 2013

3、Data details

1.Scale：None

2.Projection：WSG-84

3.Filesize：33.7MB

4.Data format：ENVI标准格式

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.69 | - |
| west：97.11 | - | east：101.96 |
| - | south：37.74 | - |

5、Time frame:2011-01-12 16:00:00+00:00--2015-01-11 16:00:00+00:00

6、Reference method

References to data:

RUAN Gaiyan, MU Xihan, ZHONG Bo, LIU Qinhuo. HiWATER: 1km/5day compositing Fraction Vegetation Cover (FVC) product of Heihe River Basin. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.293.2016.db2016

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Mu, X., Liu, Y., Yan, G., Yao, Y. (2010). Fractional Vegetation Cover Retrieval Using Multi-spatial Resolution Data and Plant Growth Model. IGARSS, 241-244.

Mu X, Huang S, Ren H, Yan G, Song W, Ruan G. Validating GEOV1 Fractional Vegetation Cover Derived From Coarse-resolution Remote Sensing Images Over Croplands. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2015, 8(2): 439-446.

Li, X., Liu, S.M., Xiao, Q., Ma, M.G., Jin, R., Che, T., Wang, W.Z., Hu, X.L., Xu, Z.W., Wen, J.G., Wang, L.X. (2017). A multiscale dataset for understanding complex eco-hydrological processes in a heterogeneous oasis system. Scientific Data, 4, 170083. doi:10.1038/sdata.2017.83.

7、Supporting project information

The CAS (Chinese Academy of Sciences) Action Plan for West Development Project
National High-tech R&D Program of China (863 Program)
National High-tech R&D Program of China (863 Program)

8、Data resource provider

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