A Big Earth Data Platform for Three Poles

**HiWATER: 1km/5day compositing vegetation index (NDVI/EVI) product of the Heihe River Basin (2011-2014)**

1、Description

The 1km / 5day vegetation index (NDVI / EVI) data set of Heihe River basin provides a 5-day resolution NDVI / EVI composite product from 2011 to 2014. The data uses the characteristics of FY-3 data, a domestic satellite, with high time resolution (1 day) and spatial resolution (1km), to construct a multi angle observation data set, which is the basis for analyzing multi-source data sets and existing composite vegetation index products and algorithms On the basis of this, an algorithm system of global composite vegetation index production based on multi-source data set is proposed. The vegetation index synthesis algorithm of MODIS is basically adopted, that is, the algorithm system of BRDF angle normalization method, cv-mvc method and MVC method based on the semi empirical walthal model. Using the algorithm system, the composite vegetation index is calculated for the first level data and the second level data, and the quality is identified. Multi-source data sets can provide more angles and more observations than a single sensor in a limited time. However, due to the difference of on orbit running time and performance of sensors, the observation quality of multi-source data sets is uneven. Therefore, in order to make more effective use of multi-source data sets, the algorithm system first classifies the quality of multi-source data sets, which can be divided into primary data, secondary data and tertiary data according to the observation rationality. The third level data are observations polluted by thin clouds and are not used for calculation. In the middle reaches of Heihe River, the verification results of farmland and forest areas show that the NDVI / EVI composite results of combined multi temporal and multi angle observation data are in good agreement with the ground measured data (RMSE = 0.105). Compared with the time series of MODIS mod13a2 product, it fully shows that when the time resolution is increased from 16 days to 5 days, a stable and high-precision vegetation index can describe the details of vegetation growth in detail. In a word, the NDVI / EVI data set of Heihe River Basin, which is 1km / 5day, comprehensively uses multi temporal and multi angle observation data to improve the estimation accuracy and time resolution of parameter products and better serves the application of remote sensing data products.

2、Keywords

Theme：Vegetation coverage data,Ecological remote sensing products,Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface
Places：Heihe River Basin
Time：2014, 2011, 2012, 2013

3、Data details

1.Scale：None

2.Projection：WSG-84

3.Filesize：65.1MB

4.Data format：ENVI标准格式

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.1 | - |
| west：97.8 | - | east：101.8 |
| - | south：37.3 | - |

5、Time frame:2011-01-10 08:00:00+00:00--2015-01-09 08:00:00+00:00

6、Reference method

References to data:

LI Jing, ZHONG Bo, LIU Qinhuo, YANG Aixia. HiWATER: 1km/5day compositing vegetation index (NDVI/EVI) product of the Heihe River Basin (2011-2014). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.289.2016.db2016

References to articles:

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)
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8、Data resource provider

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