A Big Earth Data Platform for Three Poles

**HiWATER: 1km/5day fraction of absorbed photosynthetically active radiation product of Heihe River Basin**

1、Description

The fraction of absorbed photosynthetically active radiation data set of the Heihe River Basin provides the fraction of absorbed photosynthetically active radiation data products from 2013 to 2014. The fraction of absorbed photosynthetically active radiation is the the ratio of photosynthetically active radiation absorbed by the canopy that passes through the canopy and then reflected from the canopy during the passage of the canopy to total photosynthetically active radiation. It is determined by the physiological and ecological characteristics and structural characteristics of vegetation canopy. This data set algorithm is developed on the basis of the energy conservation-based FPAR inversion method, in order to reflect the different path and the absorption probability of direct radiation and scattered radiation in the canopy, a FPAR inversion model is developed, which can distinguish direct radiation from scattering radiation. The algorithm can invert the direct FPAR, scattered FPAR and total FPAR of the canopy of the vegetation. The RMSE obtained from the inversion between the instantaneous FPAR and the observed FPAR is 0.0289, and the R2 is 0.8419.

2、Keywords

Theme：Atmospheric remote sensing products,Atmosphere Remote Sensing  
Discipline：Atmosphere  
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, 2013

3、Data details

1.Scale：None

2.Projection：WSG-84

3.Filesize：22.2MB

4.Data format：ENVI标准格式

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：43.01 | - |
| west：95.99 | - | east：101.98 |
| - | south：37.02 | - |

5、Time frame:2013-01-12 08:00:00+00:00--2015-01-11 08:00:00+00:00

6、Reference method

References to data:

WU Shanlong, XIN Xiaozhou, WU Junjun. HiWATER: 1km/5day fraction of absorbed photosynthetically active radiation product of Heihe River Basin. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.291.2016.db2016

References to articles:

Li L, Du YM, Tang Y, Xin XZ, Zhang HL, Wen JG, Liu QH. A new algorithm of FPAR product in the Heihe River Basin considering the contributions of direct and diffuse solar radiation separately. Remote Sensing, 2015, 7(5): 6414-6432.  
  
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)

8、Data resource provider

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