A Big Earth Data Platform for Three Poles

**Downscaling simulations of future precipitation based on CMIP5 outputs over the Heihe River Basin (2011-2100)**

1、Description

Based on the data of downscaling results in the precipitation historical period of CMIP5 (Coupled Model Intercomparison Project Phase 5), the combined Method of geographical weighted regression and HASM (High Accuracy Surface Modeling Method) was used to analyze the annual mean precipitation in the future three periods of 2011-2040, 2041-2070 and 2071-2100 in the scenario of rcp2.6, rcp4.5 and rcp8.5. Through downscaling simulation and prediction, the 1km downscaling results of the multi-year average precipitation in the three periods of 2011-2040, 2041-2070 and 2071-2100 are obtained.

2、Keywords

Theme：Precipitation,Precipitation rate  
Discipline：Atmosphere  
Places：Heihe River Basin  
Time：

3、Data details

1.Scale：None

2.Projection：

3.Filesize：100.0MB

4.Data format：img

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.0 | - |
| west：98.0 | - | east：101.0 |
| - | south：38.0 | - |

5、Time frame:2011-01-09 08:00:00+00:00--2101-01-08 08:00:00+00:00

6、Reference method

References to data:

ZHAO Na, YUE Tianxiang. Downscaling simulations of future precipitation based on CMIP5 outputs over the Heihe River Basin (2011-2100). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2712432016

References to articles:

TianXiang Yue. 2011. Surface Modelling: High Accuracy and High Speed Methods. New York: CRC Press (Taylor & Francis group)  
  
Na Zhao, Tian-Xiang Yue, Xun Zhou et al. Statistical downscaling of precipitation using local regression and high accuracy surface modeling method. Theoretical and Applied Climatology, DOI: 10.1007/s00704-016-1776-z.  
  
Zhao, N. , Yue, T. X. , Chen, C. F. , et al. (2018). An improved statistical downscaling scheme of Tropical Rainfall Measuring Mission precipitation in the Heihe River basin, China. International Journal of Climatology, 38(8): 3309-3322.  
  
Zhao, N. , Yue, T. X. , Zhao, M. W. , Du, Z. P. , Fan, Z. M. , Chen, C. F. (2014). Sensitivity studies of a high accuracy surface modeling method. SCIENCE CHINA Earth Sciences. 57(1):1-11.  
  
Na Zhao, ChuanFa Chen, Xun Zhou, TianXiangYue\*. 2015. A comparison of two downscaling methods for precipitation in China. Environmental Earth Sciences74(8), 6563-6569

7、Supporting project information

8、Data resource provider

name: YUE Tianxiang  
unit: Institute of Geographic Sciences and Natural Resources Research,Chinese Academy of Sciences  
email: yue@lreis.ac.cn  
  
name: ZHAO Na  
unit:   
email: zhaon@lreis.ac.cn