A Big Earth Data Platform for Three Poles

**Global ocean temperature and ocean wind dataset (1990-2018)**

1、Description

A gridded ocean temperature dataset with complete global ocean coverage is a highly valuable resource for the understanding of climate change and climate variability. The Institute of Atmospheric Physics (IAP) provides a new objective analysis of historical ocean subsurface temperature since 1990 for the upper 2000m through several innovative steps. The first was to use an updated set of past observations that had been newly corrected for biases (e.g., in XBTs). The XBT bias was corrected by CH14 scheme, which is recommended by the XBT community. The second was to use co-variability between values at different places in the ocean and background information from a number of climate models that included a comprehensive ocean model. The third was to extend the influence of each observation over larger areas, recognizing the relative homogeneity of the vast open expanses of the southern oceans. Then the observations were also used to provide finer scale detail. Finally, the new analysis was carefully evaluated by using the knowledge of recent well-observed ocean states, but subsampled using the sparse distribution of observations in the more distant past to show that the method produces unbiased historical reconstruction.  
The ocean wind data set is constructed using RSS Version-7 microwave radiometer wind speed data. The input microwave data are processed by Remote Sensing Systems with funding from the NASA MEaSUREs Program and from the NASA Earth Science Physical Oceanography Program. This wind speed product is intended for climate study as the input data have been carefully intercalibrated and consistently processed.  
Each netCDF file contains:  
 1) monthly means of wind speed, grid size 360x180xnumber of all months since Jan 1988(increases over time)  
 2) a 12-month set of climatology wind speed, grid size 360x180, the climatology is an average calculated over the 20-year period 1988-2007  
 3) monthly anomalies of wind speed derived by subtracting the above climatology maps from the monthly means, grid size 360x180x#months since Jan 1988 (increases over time)  
 4) a wind speed trend map, grid size 360x180, the trend is calculated from 1988-01-01 to the latest complete calendar year  
 5) a time-latitude plot (a minimum of 10% of latitude cells is required for valid data), grid size 180x#months since Jan 1988 (increases over time).

2、Keywords

Theme：Meteorological hazards,Natural Disaster  
Discipline：Human-nature Relationship  
Places：Pan-Third Pole  
Time：1990-2018

3、Data details

1.Scale：None

2.Projection：

3.Filesize：1876.77MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：90.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-90.0 | - |

5、Time frame:1990-01-28 00:00:00+00:00--2019-01-27 00:00:00+00:00

6、Reference method

References to data:

GE Yong, LI Qiangzi, DONG Wen. Global ocean temperature and ocean wind dataset (1990-2018). A Big Earth Data Platform for Three Poles, doi:10.11888/Disas.tpdc.2704212020

References to articles:

Cheng L. and J. Zhu, 2016, Benefits of CMIP5 multimodel ensemble in reconstructing historical ocean subsurface temperature variation, Journal of Climate. 29(15),5393-5416,doi:10.1175/JCLI-D-15-0730.1  
  
Wentz, F.J., Ricciardulli, L., Hilburn, K., & Mears, C. (2007). How much more rain will global warming bring?. Science, 317(5835), 233-235.

7、Supporting project information

8、Data resource provider

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