A Big Earth Data Platform for Three Poles

**Gridded Monthly Temperature Lapse Rates of the Tibetan Plateau**

1、Description

1) Data content (including elements and meanings): Gridded multiyear-average monthly air temperature lapse rate data over the Tibetan Plateau at three kinds of resolutions (i.e. 0.25°, 0.75° and 2°)

2) Data source and processing method: Locally reliable temperature lapse rates are created from filtered MODIS LST-elevation samples by using the thresholds of standard error of elevation and correlation coefficient

3) Data quality description: For ERA-Interim, the validation accuracy (based on 1980-2014 daily mean aire temperature records from 113 stations across the Tibetan Plateau) decreases from ~4℃ to ~2℃ after using the 0.75° temperaturel lapse rate.

4) Data application results and prospects: This dataset can be used for downscaling air temperature from multiple reanalysis datasets.

2、Keywords

Theme：Temperature
Discipline：Atmosphere
Places：Tibetan Plateau
Time：monthly average

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：1.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.125 | - |
| west：67.875 | - | east：105.375 |
| - | south：25.125 | - |

5、Time frame:None--None

6、Reference method

References to data:

ZHANG Hongbo, ZHANG Fan. Gridded Monthly Temperature Lapse Rates of the Tibetan Plateau. A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2702112019

References to articles:

Zhang, H., Zhang, F., Zhang, G., Che, T., & Yan, W. (2018). How accurately can the air temperature lapse rate over the Tibetan Plateau be estimated from MODIS LSTs?. Journal of Geophysical Research: Atmospheres, 123(8), 3943-3960.

Zhang, H.B, Immerzeel, W.W., Zhang\*, F., De Kok, R.J., Gorrie, S.J., & Ye, M. (2021). Creating 1-km long-term (1980–2014) daily average air temperatures over the Tibetan Plateau by integrating eight types of reanalysis and land data assimilation products downscaled with MODIS-estimated temperature lapse rates based on machine learning. International Journal of Applied Earth Observations and Geoinformation (accepted).

7、Supporting project information

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8、Data resource provider

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