

DATASET DESCRIPTION

Title: An All-sky 0.01° Daily Surface Air Temperature Product over Beijing (2003–2019)

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Abstract: This dataset is a sub-dataset generated from the all-sky 1 km daily surface air temperature (T_a) product over mainland China (Chen et al., 2021) after resampling and clipping. The raw dataset was developed mainly from the Moderate Resolution Imaging Spectroradiometer (MODIS) products and the Global Land Data Assimilation System (GLDAS) dataset. This sub-dataset was validated using ground measurements from 20 meteorological stations, with R^2 and root mean square error (RMSE) values of 0.987 and 1.295 K, respectively, indicating that this high-resolution dataset has satisfactory accuracy. Figure 1 presents an example of the all-sky 0.01° daily surface T_a dataset over Beijing. Figure 2 shows the validation results using station observations from 2003–2019.

Variable: Surface air temperature

Temporal resolution: Daily

Spatial resolution: 0.01° × 0.01°

Coverage: Beijing, China

Time standard: Chinese Standard Time (CST)

Time range: 2003–2019

Data format: TIF

Data volume: ~264 MB zipped file

Unit: K

Valid range: 200–350

Fill value: -1

Reference: Chen, Y., Liang, S., Ma, H., Li, B., He, T., and Wang, Q.: An All-sky 1 km Daily Surface Air Temperature Product over Mainland China, Zenodo, <http://doi.org/10.5281/zenodo.4399453>, 2021.

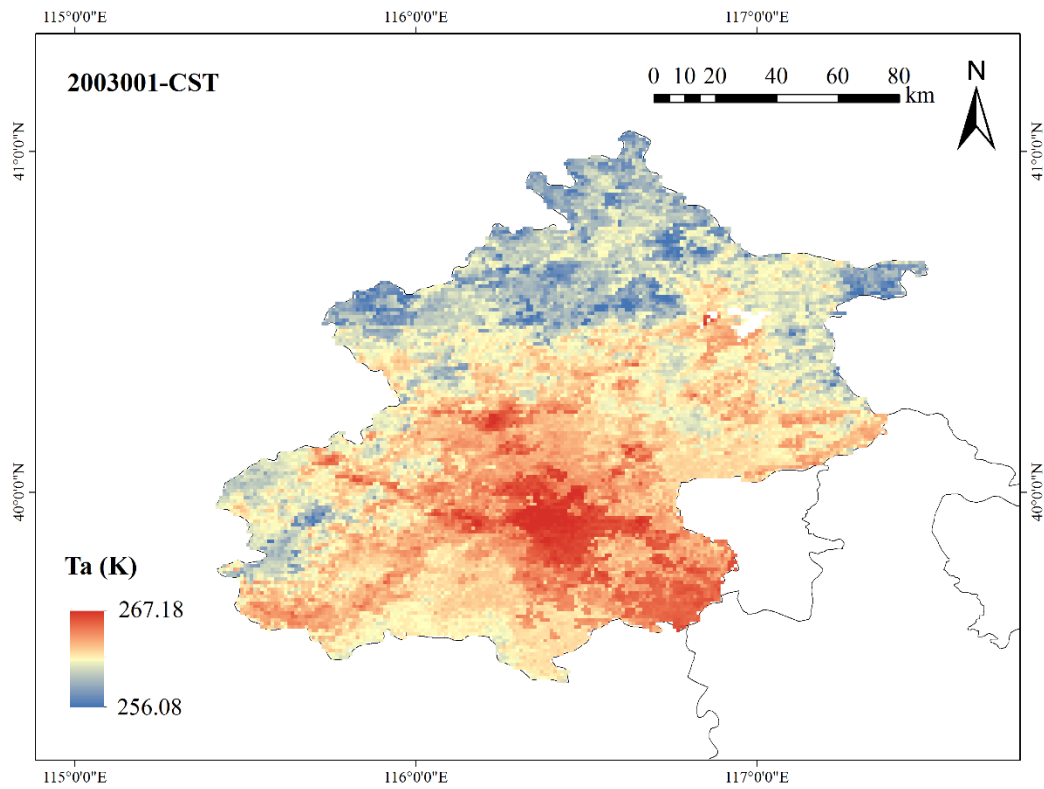


Figure 1: Daily mean T_a over Beijing on January 1, 2003

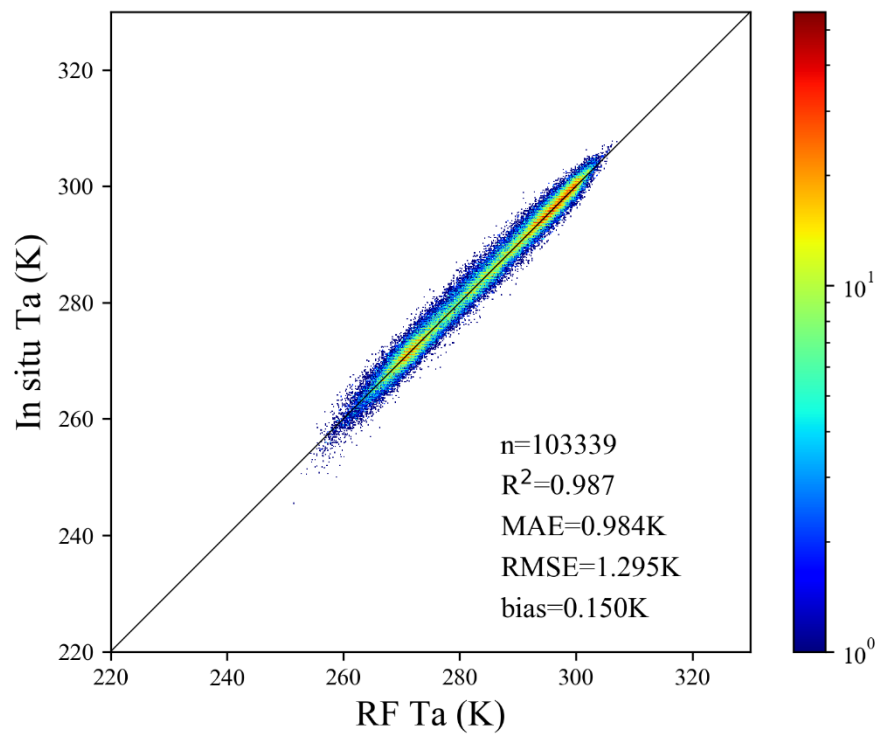


Figure 2: Density scatter plot of the T_a dataset and in situ T_a