

# HiTIC-Monthly: A Monthly High Spatial Resolution (1 km) Human Thermal Index Collection over China During 2003–2020

## 1. Institutional information

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## 3. Dataset information

*3.1 Dataset name:* HiTIC-Monthly: A Monthly High Spatial Resolution (1 km) Human Thermal Index Collection over China During 2003–2020

### *3.2 Content of the data set:*

The data set consists of 217 files:

(1) README.pdf: this file;

(2) 216 zip files: It contains data of HiTIC-Monthly from 2003 to 2020. It is compressed or stack by year, and each zip package or stack is composed of 12 monthly images in the **GeoTIFF** or **NetCDF** format.

*3.3 Latest version:* Version 1.0 (July 2022)

## 4. Brief introduction

The high spatial resolution monthly human thermal index collection (HiTIC-Monthly) includes 12 commonly used indices: surface air temperature (SAT), indoor Apparent Temperature ( $AT_{in}$ ), outdoor shaded Apparent Temperature ( $AT_{out}$ ), Discomfort Index (DI), Effective Temperature (ET), Heat Index (HI), Humidex (HMI), Modified Discomfort Index (MDI), Net Effective Temperature (NET), simplified Wet Bulb Globe Temperature (sWBGT), Wet-Bulb Temperature (WBT), and Wind Chill Temperature (WCT). This dataset has a high spatial resolution of  $1\text{ km} \times 1\text{ km}$  and covers mainland China from January 2003 to December 2020. The overall R-square, root mean square error, and mean absolute error of the dataset are 0.996,  $0.693^{\circ}\text{C}$ , and  $0.512^{\circ}\text{C}$ , respectively. It is compressed or stacked by year, and each zip package or stack is composed of 12 monthly images in the **GeoTIFF** or **NetCDF** format, with the data type of Int16 and the unit of 0.01 degree Celsius ( $^{\circ}\text{C}$ ). The projection coordinate system of the dataset is Albers Equal Area Conic Projection.

## 5. Coordinate projection information

### 5.1 Detailed information:

Projected Coordinate System: Albers\_Conic\_Equal\_Area

Projection: Albers

false\_easting: 4000000.00000000

false\_northing: 0.00000000

central\_meridian: 105.00000000

standard\_parallel\_1: 25.00000000

standard\_parallel\_2: 47.00000000

latitude\_of\_origin: 0.00000000

Linear Unit: Meter

Geographic Coordinate System: GCS\_WGS\_1984

Datum: D\_WGS\_1984

Angular Unit: Degree

### 5.2 Python Code

```
Albers_proj = CRS.from_proj4('+proj=aea +lat_1=25 +lat_2=47 +lat_0=0 +lon_0=105 +x_0=4000000
```

+y\_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no\_defs')

## 6. Copyright

Permission to use, copy, modify, and distribute this dataset and its documentation for any purpose is hereby granted without fee, provided that the accompanying article is cited.

### 6.1 Dataset citation:

Hui Zhang, Ming Luo, Yongquan Zhao, Lijie Lin, Erjia Ge, Yuanjian Yang, Guicai Ning, Zhaoliang Zeng, Ke Gui, Jing Li, Ting On Chan, Xiang Li, Sijia Wu, Peng Wang, & Xiaoyu Wang. (2022). HiTIC-Monthly: A Monthly High Spatial Resolution (1 km) Human Thermal Index Collection over China during 2003–2020 (1.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.6895533>.

or:

Zhang, H., Luo, M., Zhao, Y. (2022). HiTIC-Monthly: a monthly high spatial resolution (1 km) human thermal index collection over China during 2003–2020. National Tibetan Plateau/Third Pole Environment Data Center, <https://doi.org/10.5194/essd-15-359-2023>.

### 6.3 Article citation:

Zhang, H., Luo, M., Zhao, Y., Lin, L., Ge, E., Yang, Y., Ning, G., Cong, J., Zeng, Z., Gui, K., Li, J., Chan, T. O., Li, X., Wu, S., Wang, P., and Wang, X.: HiTIC-Monthly: a monthly high spatial resolution (1 km) human thermal index collection over China during 2003–2020, *Earth Syst. Sci. Data*, 15, 359–381, <https://doi.org/10.5194/essd-15-359-2023>, 2023.

## 7. Download Link

### 7.1 Dataset in NetCDF format:

(1) Zenodo: <https://zenodo.org/record/6895533>

or

(2) TPDC: <https://data.tpdc.ac.cn/zh-hans/data/036e67b7-7a3a-4229-956f-40b8cd11871d>

### 7.2 Dataset in GeoTIFF format:

(1) Zenodo: <https://zenodo.org/record/7903590>

or

(2) TPDC: <https://data.tpc.ac.cn/zh-hans/data/036e67b7-7a3a-4229-956f-40b8cd11871d>