A first 1 km high-resolution atmospheric moisture index collection over China, 2003–2020

1. Institutional information

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3. Dataset information

3.1 Dataset name: A first 1 km high-resolution atmospheric moisture index collection over China, 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 HiMIC-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 (June 2023)

4. Brief introduction

The high spatial resolution monthly atmospheric moisture index collection (HiMIC-Monthly) includes 6 commonly used indices: relative humidity (RH, %), actual vapor pressure (AVP, hPa), vapor pressure

deficit (VPD, hPa), dew point temperature (DPT, °C), mixing ratio (MR, g/kg), and specific humidity (SH, g/kg). This dataset has a high spatial resolution of 1 km×1 km and covers mainland China from January 2003 to December 2020. The overall R-square for all six indices exceeding 0.95 and root mean square error and mean absolute error values falling within a reasonable range. 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. All moisture values are stored in an integer type (Int16) for saving storage space, and need to be divided by 100 to get the values in %, hPa, hPa, °C, g/kg, g/kg for RH, AVP, VPD, DPT, MR, and SH, respectively, when in use. 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, Wenfeng Zhan, & Yongquan Zhao. (2023). A first 1 km high-resolution atmospheric moisture index collection over China, 2003–2020 (1.0) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.8070140.

or:

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6.3 Article citation:

Hui Zhang, Ming Luo, Wenfeng Zhan, & Yongquan Zhao. 2023.: A first 1 km high-resolution atmospheric moisture index collection over China, 2003–2020. *Remote Sensing of Environment* (submitted for consideration for publication).

7. Download Link

(1) Zenodo: https://zenodo.org/record/8070140

or

(2) TPDC: https://data.tpdc.ac.cn/zh-hans/data/6854ebb3-8a60-454a-8d43-4e6a8c0ebd5d