Monthly Climatic Data for the World (MCDW)

(last revision: 8.16.2019)

1. Introduction

The National Centers for Environmental Information (NCEI) processes globally transmitted CLIMAT data, for the purposes of consolidating the multiple forms of CLIMAT data, including but not limited to those transmitted in the "traditional alphanumeric codes" or TAC format and the Binary Universal Form for the Representation of meteorological data, also known as BUFR into a single comprehensive format. The MCDW contains a specific subset of the total available data transmitted within CLIMAT messages. MCDW may be expanded in the future to include additional data fields that are currently transmitted within CLIMAT messages. MCDW data are used in agricultural and energy assessment activities, in crop yield model development, and the analysis of global and atmospheric and regional climatic variations. Finally, MCDW serves as a critical source input data set, for larger global climate change data sets, such the NCEI's Global Historical Climatology Network – Monthly (GHCNM).

2. Data Format

The MCDW is distributed in a single comma separated value format. The format is more specifically described, by each comma separated field below:

Field 01: World Meteorological Organization (WMO) Station Identification Number (5 digits)

Field 02: Observation is valid for the following month, specified in YYYY-MM form.

Field 03: Longitude of observing station in decimal degrees (missing = -9999)

Field 04: Latitude of observing station in decimal degrees (missing = -9999)

Field 05: Elevation of observing station in meters (m) (missing = -9999)

Field 06: Mean station atmospheric pressure for the month of record, expressed as an integer in millibars to the nearest tenth.

Field 07: Source flag for previous field (Table A).

Field 08: Mean sea level pressure for the month of record as computed for the station, expressed as an integer in tenths of a millibar (Note: the exceptions that can occur for this field, see Field 10).

Field 09: Source flag for previous field (Table A).

Field 10: Mean sea level pressure height flag. For high-altitude stations, the height of a standard pressure level (whole geopotential meters) is normally given instead the actual pressure. Therefore,

“Y” = Field 08 represents the height of the 850 millibar pressure level in whole geopotential meters.

“Z” = Field 08 represents the height of the 700 millibar pressure level in whole geopotential meters.

“ “ = no height specified for any particular level, and Field 08 represents the mean sea level pressure, expressed as an integer in tenths of a millibar.

Field 11: Mean monthly value of mean daily partial vapor pressure, expressed as an integer in tenths of a millibar.

Field 12: Source flag for previous field (Table A).

Field 13: Mean monthly value of mean daily partial vapor pressure departure from a specified period mean, expressed as an integer in tenths of a millibar.

Field 14: Source flag for previous field (Table A).

Field 15: Mean daily minimum temperature, expressed as an integer, in tenths of a degree Celsius.

Field 16: Source flag for previous field (Table A).

Field 17: Mean monthly temperature, expressed as an integer in tenths of a degrees Celsius.

Field 18: Source flag for previous field (Table A).

Field 19: Mean monthly temperature departure from a specified period mean, expressed as an integer in tenths of a degree Celsius.

Field 20: Source flag for previous field (Table A).

Field 21: Mean daily maximum temperature, expressed as an integer, in tenths of a degree Celsius.

Field 22: Source flag for previous field (Table A).

Field 23: Number of days in the month with precipitation >= 1.0 mm

Field 24: Source flag for previous field (Table A).

Field 25: Total monthly precipitation, expressed as an integer in millimeters.

Field 26: Source flag for previous field (Table A).

Field 27: Total monthly precipitation departure from a specified period mean, expressed as an integer in millimeters.

Field 28: Source flag for previous field (Table A).

Field 29: Precipitation quintile (0 through 6) …. All previous precipitation totals for the month of record, and the current monthly total, are listed in order of increasing amounts; the list is divided into five equal sections; the current monthly total is then, based upon its value, assigned to the appropriate section. That section number is reported as the precipitation quintile. However, a current monthly total lower than any other total is assigned 0; and a current total higher than any other total is assigned 6.

Field 30: Source flag value for previous field (Table A).

Field 31: Monthly sunshine duration in hours.

Field 32: Source flag value for previous field (Table A).

Field 33: Monthly sunshine duration expressed as a long term mean (in percent).

Field 34: Source flag value for previous field (Table A).

Field 35: The version of MCDW, represented by the date the version was processed and created, and is in the form "mcdw.YYYYMMDD".

Field 36: WMO Station Name

TABLE A: Source Flags (in priority, with top or first listed flags having highest priority)

"E" = manual edit (highest priority, will overwrite and supersede all other flags)

"U" = United Kingdom Meteorological Office quality controlled CLIMAT data

Available from:
https://www.metoffice.gov.uk/hadobs/crutem4/data/climat_summary/index.html

"B" = Binary Universal Form for the Representation of meteorological data transmitted CLIMAT

"T" = Traditional Alphanumeric Code transmitted CLIMAT

"M" = traditional mailed in and/or emailed data that are digitized and entered into the MCDW

"L" = Legacy TD3500 (or MCDW 1.0 from 1986 to 2018) data

3. Download/Contact

A) The MCDW is available in its entirety, at:

https://www.ncei.noaa.gov/data/monthly-climatological-data-of-the-world/access/

B) If you have further questions about downloading the dataset, you may contact:

NCDC.Orders@noaa.gov

B) If you have technical questions or comments about the MCDW, you may email:

GCOS.NCDC@noaa.gov