

# CPC Station Reference List Documentation

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This document describes the CPC station reference file. The station reference file contains a list of stations and associated reference information, such as station numbers, call letters, location information, etc.

## Background and changes

The original version of the station list (before 2019) was formatted so that values such as lat and lon did not have decimals. Additionally, a few fields are now deprecated - including state number and country number, replaced with state abbreviation and removal of country number. A major change is the longitude convention. Previously the range of lons went from 0 to 360, but there was logic that changed the lons to be U.S. centric, not the standardized direction. Now lons range from -180 to 180. A new field is introduced containing the GHCN station ID associated with the WMO ID. The file is now in csv format rather than fixed width.

## File name and formatting

**File location:** Available on public FTP:

[https://ftp.cpc.ncep.noaa.gov/cadb\\_v2/library/cpc\\_station\\_list\\_master.csv](https://ftp.cpc.ncep.noaa.gov/cadb_v2/library/cpc_station_list_master.csv)

**File name:** [cpc\\_station\\_list\\_master.csv](#) - ASCII fixed width file.

The FTP dir [https://ftp.cpc.ncep.noaa.gov/cadb\\_v2/library/](https://ftp.cpc.ncep.noaa.gov/cadb_v2/library/) contains the most recent station library as well as other past ones, with dates in the file name denoting the update date. The generic file named file (cpc\_station\_list\_master.csv) is a copy of the most recent station file that would be used by the suite of summary data csv files.

**Note:** There are no commas, spaces, or apostrophes in the city, state, or country name. Other symbols and spaces are possible though.

Below formatting information is as follows:

**Column name -**

**Header** - First row - contains column names.

**Delimiter-** Comma

**Missing values** - A missing value is empty.

**Column info:**

Each of the columns in the file are listed in order below (right to left cols). Below info is formatted as:

**Name of col** - (data type, unit (if applicable) description | Any related format info or notes

**wmo\_id** - (integer) World Meteorological Organization (WMO) formatted station ID. Stations without a WMO ID number (e.g. just a station call) have an empty field.

**stn\_call** - (character) Call letters representing station. Some do not have one assigned.

**ghcnd\_id** - (character) Global Historical Climatology Network (GHCN) formatted station ID. These are obtained by various methods. Some GHCN IDs associated with a WMO ID is based on location reference pairing rather than explicit assignment. See Appendix A for details.

**city** - (character) Name of city. May be listed as 'UNKNOWN'.

**state** - (character) State abbreviation for the United States.

**country** - (character) Name of country.

**lat** - (float, degrees) Latitude. Range is from -90 to 90.

**lon** - (float, degrees) Longitude. Range is from -180 to 180.

**elev** - (integer, meters) Elevation in meters. Note that these may not necessarily be accurate or up to date. Range is 0 to positive values.

**source** - (character) Name of source of input that is reflected in a row of meta-data.

## Appendix A - GHCN ID

A GHCN ID is assigned to some of the WMO IDs. Below is a summary of how these values are matched:

- A station reference library from CPC with WMO IDs only is used as the base for the list of stations. These stations may change over time. Therefore the CPC station reference list is updated over time.
- A GHCN station reference file associated with daily GHCN data contains matched GHCN to WMO ID for some stations (<ftp://ftp.ncdc.noaa.gov/pub/data/ghcn/daily/ghcnd-stations.txt>). These assigned values are prioritized for the assignment of a GHCN ID to WMO ID.
- For stations that do not have an explicitly paired GHCN to WMO ID, the closest lat/lon is used for assignment. This is done by taking the absolute value of the summed lat/lon difference between the lat/lon of the GHCN IDs in the GHCN reference file and WMO IDs in the CPC station reference file. For each station in the CPC station reference file, the GHCN station with the smallest of this lat/lon difference is assigned to the WMO station ID, as long as the difference of both the lat and lon are less than 0.01.
- Logic is used to try to remove duplicate assigned GHCN/WMO stations incorporating lat/lon and elevation comparison between the GHCN and CPC station reference files. If there is insufficient information to discern differences, however, it is possible that there

are some WMO IDs that get assigned duplicate GHCN IDs and/or different WMO IDs that get assigned the same GHCN ID.