

<http://www7.ncdc.noaa.gov/CDO/cdoselect.cmd?datasetabbv=GSOD&countryabbv=&georegionabbv=>

NNDC CLIMATE DATA ONLINE

Global Summary of the Day (GSOD)

Retrieve data for:

Worldwide

Geographic Region

Country

Station Range (IDs): to

	Data format documentation
	Station List
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FEDERAL CLIMATE COMPLEX
GLOBAL SURFACE SUMMARY OF DAY DATA
VERSION 7
(OVER 9000 WORLDWIDE STATIONS)
08/24/2006

SPECIAL NOTES

The data summaries provided here are based on data exchanged under the World Meteorological Organization (WMO) World Weather Watch Program according to WMO Resolution 40 (Cg-XII). This allows WMO member countries to place restrictions on the use or re-export of their data for commercial purposes outside of the receiving country. Data for selected countries may, at times, not be available through this system.

Those countries' data summaries and products which are available here are intended for free and unrestricted use in research, education, and other non-commercial activities. However, for non-U.S. locations' data, the data or any derived product shall not be provided to other users or be used for the re-export of commercial services. To determine off-line availability of any country's data, please contact NCDC--ncdc.orders@noaa.gov, 828-271-4800. Please email ncdc.info@noaa.gov if you have any other questions.

As described below, the data are available via:
WWW -- <http://www.ncdc.noaa.gov/cgi-bin/res40.pl?page=gsod.html>
and FTP -- <ftp://ftp.ncdc.noaa.gov/pub/data/gsod>
and...the WWW system includes graphing and selection of data by station and element.

OVERVIEW

The following is a description of the global surface summary of day product produced by the National Climatic Data Center (NCDC) in Asheville, NC. The input data used in building these daily summaries are the Integrated Surface Data (ISD), which includes global data obtained from the USAF Climatology Center, located in the Federal Climate Complex with NCDC. The latest daily summary data are normally available 1-2 days after the date-time of the observations used in the daily summaries. The online data files begin with 1929, and are now at the Version 7 software level. Over 9000 stations' data are typically available.

The daily elements included in the dataset (as available from each station) are:

Mean temperature (.1 Fahrenheit)
Mean dew point (.1 Fahrenheit)
Mean sea level pressure (.1 mb)
Mean station pressure (.1 mb)
Mean visibility (.1 miles)
Mean wind speed (.1 knots)
Maximum sustained wind speed (.1 knots)
Maximum wind gust (.1 knots)
Maximum temperature (.1 Fahrenheit)

Minimum temperature (.1 Fahrenheit)
 Precipitation amount (.01 inches)
 Snow depth (.1 inches)
 Indicator for occurrence of: Fog
 Rain or Drizzle
 Snow or Ice Pellets
 Hail
 Thunder
 Tornado/Funnel Cloud

For details on the contents of the dataset, see the format documentation shown below.

The data are available via:

- 1) WWW -- <http://www.ncdc.noaa.gov/cgi-bin/res40.pl?page=gsod.html>
- 2) FTP -- <ftp://ftp.ncdc.noaa.gov/pub/data/gsod> via browser
- 3) Command line ftp:

- a) Enter: open ftp.ncdc.noaa.gov
- b) Login is: ftp
- c) Password is: your email address
- d) To move to the correct subdirectory, enter:
`cd /pub/data/gsod`

The files included in this subdirectory are:

Data Files--

Annual files:

eg, gsod_2006.tar - All 2006 files (compressed) by station, in one tar file.

etc, etc - For each annual volume.

Note: Each year's data are contained in subdirectories/folders by year.

Station files:

eg, 010010-99999-2006.op.gz - Files by station year, identified by WMO number,

WBAN number (if appropriate), and year. For a cross reference of the filenames with location, see:
`ish-history.txt`

Informational/Utility Files--

`country-list.txt` - A list showing the station number range for each country.

`ish-history.txt` -- A station list to be used with the data files, showing the names and locations for each station.

Note: Global summary of day contains a subset of the stations listed in this station history.

`readme.txt` - A description of the data and its format.

- e) To get a copy of the data description, enter:
`get readme.txt destination` (destination is your output.location and name)...e.g.--
`get readme.txt c:readme.txt` - copies to hard drive c:

f) Then, to get a copy of any of the other files, use
 the same procedure, such as--
 get gsod_2006.tar c:data.txt

g) To logoff the system when finished, enter:
 bye

DETAILS/FORMAT

Global summary of day data for 18 surface meteorological elements are derived from the synoptic/hourly observations contained in USAF DATSAV3 Surface data and Federal Climate Complex Integrated Surface Data (ISD). Historical data are generally available for 1929 to the present, with data from 1973 to the present being the most complete. For some periods, one or more countries' data may not be available due to data restrictions or communications problems. In deriving the summary of day data, a minimum of 4 observations for the day must be present (allows for stations which report 4 synoptic observations/day). Since the data are converted to constant units (e.g., knots), slight rounding error from the originally reported values may occur (e.g., 9.9 instead of 10.0).

The mean daily values described below are based on the hours of operation for the station. For some stations/countries, the visibility will sometimes 'cluster' around a value (such as 10 miles) due to the practice of not reporting visibilities greater than certain distances. The daily extremes and totals--maximum wind gust, precipitation amount, and snow depth--will only appear if the station reports the data sufficiently to provide a valid value. Therefore, these three elements will appear less frequently than other values. Also, these elements are derived from the stations' reports during the day, and may comprise a 24-hour period which includes a portion of the previous day. The data are reported and summarized based on Greenwich Mean Time (GMT, 0000Z - 2359Z) since the original synoptic/hourly data are reported and based on GMT.

As for quality control (QC), the input data undergo extensive automated QC to correctly 'decode' as much of the synoptic data as possible, and to eliminate many of the random errors found in the original data. Then, these data are QC'ed further as the summary of day data are derived. However, we expect that a very small % of the errors will remain in the summary of day data.

The data are strictly ASCII, with a mixture of character data, real values, and integer values.

Following is the data format:

First record--header record.

All ensuing records--data records as described below.

All 9's in a field (e.g., 99.99 for PRCP) indicates no report or insufficient data.

FIELD	POSITION	TYPE	DESCRIPTION
STN---	1-6	Int.	Station number (WMO/DATSAV3 number) for the location.

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WBAN	8-12	Int.	WBAN number where applicable--this is the historical "Weather Bureau Air Force Navy" number - with WBAN being the acronym.
YEAR	15-18	Int.	The year.
MODA	19-22	Int.	The month and day.
TEMP	25-30	Real	Mean temperature for the day in degrees Fahrenheit to tenths. Missing = 9999.9 (Celsius to tenths for metric version.)
Count	32-33	Int.	Number of observations used in calculating mean temperature.
DEWP	36-41	Real	Mean dew point for the day in degrees Fahrenheit to tenths. Missing = 9999.9 (Celsius to tenths for metric version.)
Count	43-44	Int.	Number of observations used in calculating mean dew point.
SLP	47-52	Real	Mean sea level pressure for the day in millibars to tenths. Missing = 9999.9
Count	54-55	Int.	Number of observations used in calculating mean sea level pressure.
STP	58-63	Real	Mean station pressure for the day in millibars to tenths. Missing = 9999.9
Count	65-66	Int.	Number of observations used in calculating mean station pressure.
VISIB	69-73	Real	Mean visibility for the day in miles to tenths. Missing = 999.9 (Kilometers to tenths for metric version.)
Count	75-76	Int.	Number of observations used in calculating mean visibility.
WDSP	79-83	Real	Mean wind speed for the day in knots to tenths. Missing = 999.9 (Meters/second to tenths for metric version.)
Count	85-86	Int.	Number of observations used in calculating mean wind speed.
MXSPD	89-93	Real	Maximum sustained wind speed reported for the day in knots to tenths. Missing = 999.9 (Meters/second to tenths for metric version.)
GUST	96-100	Real	Maximum wind gust reported for the day in knots to tenths. Missing = 999.9 (Meters/second to tenths for metric version.)
MAX	103-108	Real	Maximum temperature reported during the day in Fahrenheit to tenths--time of max temp report varies by country and region, so this will sometimes not be the max for the calendar day. Missing = 9999.9

Flag 109-109 Char (Celsius to tenths for metric version.)
 Blank indicates max temp was taken from the explicit max temp report and not from the 'hourly' data. * indicates max temp was derived from the hourly data (i.e., highest hourly or synoptic-reported temperature).

MIN 111-116 Real Minimum temperature reported during the day in Fahrenheit to tenths--time of min temp report varies by country and region, so this will sometimes not be the min for the calendar day. Missing = 9999.9
 (Celsius to tenths for metric version.)

Flag 117-117 Char Blank indicates min temp was taken from the explicit min temp report and not from the 'hourly' data. * indicates min temp was derived from the hourly data (i.e., lowest hourly or synoptic-reported temperature).

PRCP 119-123 Real Total precipitation (rain and/or melted snow) reported during the day in inches and hundredths; will usually not end with the midnight observation--i.e., may include latter part of previous day.
 .00 indicates no measurable precipitation (includes a trace).
 Missing = 99.99
 (For metric version, units = millimeters to tenths & missing = 999.9.)
 Note: Many stations do not report '0' on days with no precipitation--therefore, '99.99' will often appear on these days.
 Also, for example, a station may only report a 6-hour amount for the period during which rain fell.
 See Flag field for source of data.

Flag 124-124 Char A = 1 report of 6-hour precipitation amount.
 B = Summation of 2 reports of 6-hour precipitation amount.
 C = Summation of 3 reports of 6-hour precipitation amount.
 D = Summation of 4 reports of 6-hour precipitation amount.
 E = 1 report of 12-hour precipitation amount.
 F = Summation of 2 reports of 12-hour precipitation amount.
 G = 1 report of 24-hour precipitation amount.
 H = Station reported '0' as the amount for the day (eg, from 6-hour reports), but also reported at least one occurrence of precipitation in hourly observations--this could indicate a trace occurred, but should be considered as incomplete data for the day.
 I = Station did not report any precip data for the day and did not report any

occurrences of precipitation in its hourly observations--it's still possible that precip occurred but was not reported.

SNDP 126-130 Real Snow depth in inches to tenths--last report for the day if reported more than once. Missing = 999.9
(Centimeters to tenths for metric version.)
Note: Most stations do not report '0' on days with no snow on the ground--therefore, '999.9' will often appear on these days.

FRSHTT 133-138 Int. Indicators (1 = yes, 0 = no/not reported) for the occurrence during the day of:
Fog ('F' - 1st digit).
Rain or Drizzle ('R' - 2nd digit).
Snow or Ice Pellets ('S' - 3rd digit).
Hail ('H' - 4th digit).
Thunder ('T' - 5th digit).
Tornado or Funnel Cloud ('T' - 6th digit).

REFERENCE

The NCDC Climate Services Branch (CSB) is responsible for distribution of NCDC products to users. NCDC's CSB can be contacted via the following phone number, internet address, or fax number.

Telephone Number: 828-271-4800
Fax Number: 828-271-4876
Internet Address: ncdc.orders@noaa.gov

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