FEDERAL CLIMATE COMPLEX

GLOBAL SURFACE SUMMARY OF DAY DATA

VERSION 7

(OVER 9000 WORLDWIDE STATIONS)

08/24/2006

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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.orders@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.

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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

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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.

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

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

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

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

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

GUST 96-100 Real Maximum wind gust reported for the day

in knots to tenths. Missing = 999.9

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 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

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

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

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).

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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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Neal Lott

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