<u>**1981 – 2010 Annual Normals Documentation**</u>

NOTE: For probability date of occurrence values, the date given is the "day-of-year" date, e.g. September 1 = 244. http://www.fs.fed.us/fire/partners/fepp/julian-calendar.pdf"

I. Description

The 1981-2010 Normals comprise all climate normals using the thirty year period of temperature, degree days, precipitation, snowfall, snow depth, wind, etc. Data is organized into hourly, daily, monthly, seasonal and annual. This document describes the elements and layout of the Seasonal and Annual Normals which are derived from a composite of climate records from numerous sources that were merged and then subjected to a suite of quality assurance reviews.

II. Format/Element (Value) Definitions

(note: the term 'element' is used throughout this documentation and refers to an individual meteorological/climatological measurement or statistical value such as temperature, precipitation (amount), number of days of snowfall >= 3 inches, etc.)

A. Initial section

Each record represents all selected elements available for a given station-day. The initial section of each record is ordered as follows with the following definitions:

STATION (17 characters) is the station identification code. Please see

ftp://ftp.ncdc.noaa.gov/pub/data/normals/1981-2010/station-inventories/

for a complete list of stations and their metadata.

STATION_NAME (max 50 characters) is the name of the station (usually city/airport name). Optional field.

GEOGRAPHIC_LOCATION (31 characters) is the latitude (decimated degrees w/northern hemisphere values > 0, southern hemisphere values < 0), longitude (decimated degrees w/western hemisphere values < 0, eastern hemisphere values > 0) and elevation above mean sea level (thousandths of meters). Optional field.

DATE is the year of the record (4 digits) followed by month (2 digits) and day (2 digits). Note: Day will always be coded as 01 (data values represent a complete month).

B. Elements (values) and flags (elements)

Following this initial section of the record, all selected elements and flags are given in the following order:

1st Element |Completeness Flag | 2nd Element | Completeness Flag| 3rd Element…etc., for all elements selected.

Element(s)/Value(s) is/are defined in Table 2 below. Please note only elements selected by user will appear in the specific output.

Completeness Flag (Attribute) is defined in **Table 1** below

Flags accompany every Normals value and indicate the completeness of the data record used to compute each value, accounting for methodological differences for different product classes. There are six flag options described generally in **Table 1** below. Due to methodological differences, the flags are applied somewhat differently between the temperature-based normals and the precipitation-based normals. For the precipitation-based and hourly normals, the following flags were assigned independently for each normals value reported based on number of years available for that individual calculation. For temperature-based normals, strong precedence is given to the monthly normals of maximum and minimum temperature or derived from the flags for these two variables.

Table 1 (CompletenessFlag/Attribute)

C = complete (all 30 years used)
S = standard (no more than 5 years missing and no more than 3 consecutive
    years missing among the sufficiently complete years)
R = representative (observed record utilized incomplete, but value was scaled
    or based on filled values to be representative of the full period of record)
P = provisional (at least 10 years used, but not sufficiently complete to be
    labeled as standard or representative). Also used for parameter values on
    February 29 as well as for interpolated daily precipitation, snowfall, and
    snow depth percentiles.
Q = quasi-normal (at least 2 years per month, but not sufficiently complete to
    be labeled as provisional or any other higher flag code. The associated
    value was computed using a pseudonormals approach or derived from monthly
    pseudonormals.
Blank = the data value is reported as a special value (see section B under III. Additional Information below).

Note: Flags Q and R aren't applicable to average number of days with different precipitation, snowfall, and snow depth threshold exceedance; precipitation/snowfall/snow probabilities of occurrence. Further, Q flags are not applicable for standard deviations.

Table 2 (Elements)

Annual elements/values:

ann-cldd-base45	Long-term averages of annual cooling degree days with base 45F
ann-cldd-base50	Long-term averages of annual cooling degree days with base 50F
ann-cldd-base55	Long-term averages of annual cooling degree days with base 55F
ann-cldd-base57	Long-term averages of annual cooling degree days with base 57F
ann-cldd-base60	Long-term averages of annual cooling degree days with base 60F
ann-cldd-base70	Long-term averages of annual cooling degree days with base 70F
ann-cldd-base72	Long-term averages of annual cooling degree days with base 72F
ann-cldd-normal	Long-term averages of annual cooling degree days with base 65F
ann-dutr-normal	Long-term averages of annual diurnal temperature range
ann-grdd-tb4886	Long-term averages of annual growing degree days with truncated bases 48F & 86F
ann-grdd-tb5086	Long-term averages of annual growing degree days with truncated bases 50F & 86F
ann-grdd-base40	Long-term averages of annual growing degree days with base 40F
ann-grdd-base45	Long-term averages of annual growing degree days with base 45F
ann-grdd-base50	Long-term averages of annual growing degree days with base 50F
ann-grdd-base55	Long-term averages of annual growing degree days with base 55F
ann-grdd-base57	Long-term averages of annual growing degree days with base 57F
ann-grdd-base60	Long-term averages of annual growing degree days with base 60F
ann-grdd-base65	Long-term averages of annual growing degree days with base 65F
ann-grdd-base70	Long-term averages of annual growing degree days with base 70F
ann-grdd-base72	Long-term averages of annual growing degree days with base 72F
ann-htdd-base40	Long-term averages of annual heating degree days with base 40F
ann-htdd-base45	Long-term averages of annual heating degree days with base 45F
ann-htdd-base50	Long-term averages of annual heating degree days with base 50F
ann-htdd-base55	Long-term averages of annual heating degree days with base 55F
ann-htdd-base57	Long-term averages of annual heating degree days with base 57F
ann-htdd-base60	Long-term averages of annual heating degree days with base 60F
ann-htdd-normal	Long-term averages of annual heating degree days with base 65F
ann-prcp-avgnds-ge001hi	Long-term averages of number of days during the year with precipitation >= 0.01 inches
ann-prcp-avgnds-ge010hi	Long-term averages of number of days during the year with precipitation >= 0.10 inches
ann-prcp-avgnds-ge050hi	Long-term averages of number of days during the year with precipitation >= 0.50 inches
ann-prcp-avgnds-ge100hi	Long-term averages of number of days during the year with precipitation >= 1.00 inches
ann-prcp-normal	Long-term averages of annual precipitation totals
ann-snow-avgnds-ge001ti	Long-term averages of number of days during the year with snowfall >= 0.1 inches
ann-snow-avgnds-ge010ti	Long-term averages of number of days during the year with snowfall >= 1.0 inches
ann-snow-avgnds-ge030ti	Long-term averages of number of days during the year with snowfall >= 3.0 inches
ann-snow-avgnds-ge050ti	Long-term averages of number of days during the year with snowfall >= 5.0 inches

ann-snow-avgnds-ge100ti	Long-term averages of number of days during the year with snowfall >= 10.0 inches
ann-snow-normal	Long-term averages of annual snowfall totals
ann-snwd-avgnds-ge001wi	Long-term averages of number of days during the year with

snow depth >= 1 inch |
| ann-snwd-avgnds-ge003wi | Long-term averages of number of days during the year with

snow depth >= 3 inches |
| ann-snwd-avgnds-ge005wi | Long-term averages of number of days during the year with

snow depth >=5 inches |
| ann-snwd-avgnds-ge010wi | Long-term averages of number of days during the year with

snow depth >=5 inches |
ann-tavg-normal	Long-term averages of annual average temperature
ann-tmax-avgnds-grth040	Long-term average number of days per year where tmax is greater than or equal to 40F
ann-tmax-avgnds-grth050	Long-term average number of days per year where tmax is greater than or equal to 50F
ann-tmax-avgnds-grth060	Long-term average number of days per year where tmax is greater than or equal to 60F
ann-tmax-avgnds-grth070	Long-term average number of days per year where tmax is greater than or equal to 70F
ann-tmax-avgnds-grth080	Long-term average number of days per year where tmax is greater than or equal to 80F
ann-tmax-avgnds-grth090	Long-term average number of days per year where tmax is greater than or equal to 90F
ann-tmax-avgnds-grth100	Long-term average number of days per year where tmax is greater than or equal to 100F
ann-tmax-avgnds-lsth032	Long-term average number of days per year where tmax is less than or equal to 32F
ann-tmax-normal	Long-term averages of annual maximum temperature
ann-tmin-avgnds-lsth000	Long-term average number of days per year where tmin is less than or equal to 0F
ann-tmin-avgnds-lsth010	Long-term average number of days per year where tmin is less than or equal to 10F
ann-tmin-avgnds-lsth020	Long-term average number of days per year where tmin is less than or equal to 20F
ann-tmin-avgnds-lsth032	Long-term average number of days per year where tmin is less than

	or equal to 32F
ann-tmin-avgnds-lsth040	Long-term average number of days per year where tmin is less than or equal to 40F
ann-tmin-avgnds-lsth050	Long-term average number of days per year where tmin is less than or equal to 50F
ann-tmin-avgnds-lsth060	Long-term average number of days per year where tmin is less than or equal to 60F
ann-tmin-avgnds-lsth070	Long-term average number of days per year where tmin is less than or equal to 70F
ann-tmin-normal	Long-term averages of annual minimum temperature
ann-tmin-prbfst-t16fp10	10% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp20	20% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp30	30% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp40	40% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp50	50% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp60	60% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp70	70% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp80	80% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t16fp90	90% probability date of first 16F occurrence or earlier
ann-tmin-prbfst-t20fp10	10% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp20	20% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp30	30% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp40	40% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp50	50% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp60	60% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp70	70% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp80	80% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t20fp90	90% probability date of first 20F occurrence or earlier
ann-tmin-prbfst-t24fp10	10% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp20	20% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp30	30% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp40	40% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp50	50% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp60	60% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp70	70% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp80	80% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t24fp90	90% probability date of first 24F occurrence or earlier
ann-tmin-prbfst-t28fp10	10% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp20	20% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp30	30% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp40	40% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp50	50% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp60	60% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp70	70% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp80	80% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t28fp90	90% probability date of first 28F occurrence or earlier
ann-tmin-prbfst-t32fp10	10% probability date of first 32F occurrence or earlier

ann-tmin-prbfst-t32fp20	20% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp30	30% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp40	40% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp50	50% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp60	60% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp70	70% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp80	80% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t32fp90	90% probability date of first 32F occurrence or earlier
ann-tmin-prbfst-t36fp10	10% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp20	20% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp30	30% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp40	40% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp50	50% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp60	60% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp70	70% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp80	80% probability date of first 36F occurrence or earlier
ann-tmin-prbfst-t36fp90	90% probability date of first 36F occurrence or earlier
ann-tmin-prbgsl-t16fp10	10% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp20	20% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp30	30% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp40	40% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp50	50% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp60	60% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp70	70% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp80	80% probability of 16F growing season length or longer
ann-tmin-prbgsl-t16fp90	90% probability of 16F growing season length or longer
ann-tmin-prbgsl-t20fp10	10% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp20	20% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp30	30% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp40	40% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp50	50% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp60	60% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp70	70% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp80	80% probability of 20F growing season length or longer
ann-tmin-prbgsl-t20fp90	90% probability of 20F growing season length or longer
ann-tmin-prbgsl-t24fp10	10% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp20	20% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp30	30% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp40	40% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp50	50% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp60	60% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp70	70% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp80	80% probability of 24F growing season length or longer
ann-tmin-prbgsl-t24fp90	90% probability of 24F growing season length or longer
ann-tmin-prbgsl-t28fp10	10% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp20	20% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp30	30% probability of 28F growing season length or longer

ann-tmin-prbgsl-t28fp40	40% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp50	50% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp60	60% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp70	70% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp80	80% probability of 28F growing season length or longer
ann-tmin-prbgsl-t28fp90	90% probability of 28F growing season length or longer
ann-tmin-prbgsl-t32fp10	10% probability of 32F growing season length or longer
ann-tmin-prbgsl-t32fp20	20% probability of 32F growing season length or longer
ann-tmin-prbgsl-t32fp30	30% probability of 32F growing season length or longer
ann-tmin-prbgsl-t32fp40	40% probability of 32F growing season length or longer
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ann-tmin-prbgsl-t32fp70	70% probability of 32F growing season length or longer
ann-tmin-prbgsl-t32fp80	80% probability of 32F growing season length or longer
ann-tmin-prbgsl-t32fp90	90% probability of 32F growing season length or longer
ann-tmin-prbgsl-t36fp10	10% probability of 36F growing season length or longer
ann-tmin-prbgsl-t36fp20	20% probability of 36F growing season length or longer
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ann-tmin-prbgsl-t36fp80	80% probability of 36F growing season length or longer
ann-tmin-prbgsl-t36fp90	90% probability of 36F growing season length or longer
ann-tmin-prblst-t16fp10	10% probability date of last 16F occurrence or earlier
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ann-tmin-prblst-t24fp50	50% probability date of last 24F occurrence or earlier
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ann-tmin-prblst-t36fp60	60% probability date of last 36F occurrence or earlier
ann-tmin-prblst-t36fp70	70% probability date of last 36F occurrence or earlier
ann-tmin-prblst-t36fp80	80% probability date of last 36F occurrence or earlier
ann-tmin-prblst-t36fp90	90% probability date of last 36F occurrence or earlier
ann-tmin-prbocc-lsth016	probability of 16F or below at least once in the year
ann-tmin-prbocc-lsth020	probability of 20F or below at least once in the year
ann-tmin-prbocc-lsth024	probability of 24F or below at least once in the year
ann-tmin-prbocc-lsth028	probability of 28F or below at least once in the year
ann-tmin-prbocc-lsth032	probability of 32F or below at least once in the year
ann-tmin-prbocc-lsth036	probability of 36F or below at least once in the year
ytd-prcp-normal	Long-term average year-to-date precipitation totals
ytd-snow-normal	Long-term average year-to-date snowfall totals

Seasonal elements:

djf-cldd-base45	Long-term averages of winter cooling degree days with base 45F
djf-cldd-base50	Long-term averages of winter cooling degree days with base 50F

djf-cldd-base55	Long-term averages of winter cooling degree days with base 55F
djf-cldd-base57	Long-term averages of winter cooling degree days with base 57F
djf-cldd-base60	Long-term averages of winter cooling degree days with base 60F
djf-cldd-base70	Long-term averages of winter cooling degree days with base 70F
djf-cldd-base72	Long-term averages of winter cooling degree days with base 72F
djf-cldd-normal	Long-term averages of winter cooling degree days with base 65F
djf-dutr-normal	Long-term averages of winter diurnal temperature range
djf-grdd-tb4886	Long-term averages of winter growing degree days with truncated bases 48F & 86F
djf-grdd-tb5086	Long-term averages of winter growing degree days with truncated bases 50F & 86F
djf-grdd-base40	Long-term averages of winter growing degree days with base 40F
djf-grdd-base45	Long-term averages of winter growing degree days with base 45F
djf-grdd-base50	Long-term averages of winter growing degree days with base 50F
djf-grdd-base55	Long-term averages of winter growing degree days with base 55F
djf-grdd-base57	Long-term averages of winter growing degree days with base 57F
djf-grdd-base60	Long-term averages of winter growing degree days with base 60F
djf-grdd-base65	Long-term averages of winter growing degree days with base 65F
djf-grdd-base70	Long-term averages of winter growing degree days with base 70F
djf-grdd-base72	Long-term averages of winter growing degree days with base 72F
djf-htdd-base40	Long-term averages of winter heating degree days with base 40F
djf-htdd-base45	Long-term averages of winter heating degree days with base 45F
djf-htdd-base50	Long-term averages of winter heating degree days with base 50F
djf-htdd-base55	Long-term averages of winter heating degree days with base 55F
djf-htdd-base57	Long-term averages of winter heating degree days with base 57F
djf-htdd-base60	Long-term averages of winter heating degree days with base 60F
djf-htdd-normal	Long-term averages of winter heating degree days with base 65F
djf-prcp-avgnds-ge001hi	Long-term averages of number of days during December-February with precipitation >= 0.01 inches
djf-prcp-avgnds-ge010hi	Long-term averages of number of days during December-February with precipitation >= 0.10 inches
djf-prcp-avgnds-ge050hi	Long-term averages of number of days during December-February with precipitation >= 0.50 inches
djf-prcp-avgnds-ge100hi	Long-term averages of number of days during December-February with precipitation >= 1.00 inches
djf-prcp-normal	Long-term averages of seasonal precipitation totals for December-February
djf-snow-avgnds-ge001ti	Long-term averages of number of days during December-February with snowfall >= 0.1 inches
djf-snow-avgnds-ge010ti	Long-term averages of number of days during December-February with snowfall >= 1.0 inches
djf-snow-avgnds-ge030ti	Long-term averages of number of days during December-February with snowfall >= 3.0 inches
djf-snow-avgnds-ge050ti	Long-term averages of number of days during December-February with snowfall >= 5.0 inches
djf-snow-avgnds-ge100ti	Long-term averages of number of days during December-February with snowfall >= 10.0 inches
djf-snow-normal	Long-term averages of seasonal snowfall totals for December-February
djf-snwd-avgnds-ge001wi	Long-term averages of number of days during December-February with

	snow depth >= 1 inch
djf-snwd-avgnds-ge003wi	Long-term averages of number of days during December-February with snow depth >= 3 inches
djf-snwd-avgnds-ge005wi	Long-term averages of number of days during December-February with snow depth >= 5 inches
djf-snwd-avgnds-ge010wi	Long-term averages of number of days during December-February with snow depth >= 10 inches
djf-tavg-normal	Long-term averages of winter average temperature
djf-tmax-avgnds-grth040	Long-term average number of days per winter where tmax is greater than or equal to 40F
djf-tmax-avgnds-grth050	Long-term average number of days per winter where tmax is greater than or equal to 50F
djf-tmax-avgnds-grth060	Long-term average number of days per winter where tmax is greater than or equal to 60F
djf-tmax-avgnds-grth070	Long-term average number of days per winter where tmax is greater than or equal to 70F
djf-tmax-avgnds-grth080	Long-term average number of days per winter where tmax is greater than or equal to 80F
djf-tmax-avgnds-grth090	Long-term average number of days per winter where tmax is greater than or equal to 90F
djf-tmax-avgnds-grth100	Long-term average number of days per winter where tmax is greater than or equal to 100F
djf-tmax-avgnds-lsth032	Long-term average number of days per winter where tmax is less than or equal to 32F
djf-tmax-normal	Long-term averages of winter maximum temperature
djf-tmin-avgnds-lsth000	Long-term average number of days per winter where tmin is less than or equal to 0F
djf-tmin-avgnds-lsth010	Long-term average number of days per winter where tmin is less than or equal to 10F
djf-tmin-avgnds-lsth020	Long-term average number of days per winter where tmin is less than or equal to 20F
djf-tmin-avgnds-lsth032	Long-term average number of days per winter where tmin is less than or equal to 32F
djf-tmin-avgnds-lsth040	Long-term average number of days per winter where tmin is less than or equal to 40F
djf-tmin-avgnds-lsth050	Long-term average number of days per winter where tmin is less than or equal to 50F
djf-tmin-avgnds-lsth060	Long-term average number of days per winter where tmin is less than or equal to 60F
djf-tmin-avgnds-lsth070	Long-term average number of days per winter where tmin is less than or equal to 70F
djf-tmin-normal	Long-term averages of winter minimum temperature
jja-cldd-base45	Long-term averages of summer cooling degree days with base 45F
jja-cldd-base50	Long-term averages of summer cooling degree days with base 50F
jja-cldd-base55	Long-term averages of summer cooling degree days with base 55F
jja-cldd-base57	Long-term averages of summer cooling degree days with base 57F

jja-cldd-base60	Long-term averages of summer cooling degree days with base 60F
jja-cldd-base70	Long-term averages of summer cooling degree days with base 70F
jja-cldd-base72	Long-term averages of summer cooling degree days with base 72F
jja-cldd-normal	Long-term averages of summer cooling degree days with base 65F
jja-dutr-normal	Long-term averages of summer diurnal temperature range
jja-grdd-tb4886	Long-term averages of summer growing degree days with truncated bases 48F & 86F
jja-grdd-tb5086	Long-term averages of summer growing degree days with truncated bases 50F & 86F
jja-grdd-base40	Long-term averages of summer growing degree days with base 40F
jja-grdd-base45	Long-term averages of summer growing degree days with base 45F
jja-grdd-base50	Long-term averages of summer growing degree days with base 50F
jja-grdd-base55	Long-term averages of summer growing degree days with base 55F
jja-grdd-base57	Long-term averages of summer growing degree days with base 57F
jja-grdd-base60	Long-term averages of summer growing degree days with base 60F
jja-grdd-base65	Long-term averages of summer growing degree days with base 65F
jja-grdd-base70	Long-term averages of summer growing degree days with base 70F
jja-grdd-base72	Long-term averages of summer growing degree days with base 72F
jja-htdd-base40	Long-term averages of summer heating degree days with base 40F
jja-htdd-base45	Long-term averages of summer heating degree days with base 45F
jja-htdd-base50	Long-term averages of summer heating degree days with base 50F
jja-htdd-base55	Long-term averages of summer heating degree days with base 55F
jja-htdd-base57	Long-term averages of summer heating degree days with base 57F
jja-htdd-base60	Long-term averages of summer heating degree days with base 60F
jja-htdd-normal	Long-term averages of summer heating degree days with base 65F
jja-prcp-avgnds-ge001hi	Long-term averages of number of days during June-August with precipitation >= 0.01 inches
jja-prcp-avgnds-ge010hi	Long-term averages of number of days during June-August with precipitation >= 0.10 inches
jja-prcp-avgnds-ge050hi	Long-term averages of number of days during June-August with precipitation >= 0.50 inches
jja-prcp-avgnds-ge100hi	Long-term averages of number of days during June-August with precipitation >= 1.00 inches
jja-prcp-normal	Long-term averages of seasonal precipitation totals for June-August
jja-snow-avgnds-ge001ti	Long-term averages of number of days during June-August with snowfall >= 0.1 inches
jja-snow-avgnds-ge010ti	Long-term averages of number of days during June-August with snowfall >= 1.0 inches
jja-snow-avgnds-ge030ti	Long-term averages of number of days during June-August with snowfall >= 3.0 inches
jja-snow-avgnds-ge050ti	Long-term averages of number of days during June-August with snowfall >= 5.0 inches
jja-snow-avgnds-ge100ti	Long-term averages of number of days during June-August with snowfall >= 10.0 inches
jja-snow-normal	Long-term averages of seasonal snowfall totals for June-August
jja-snwd-avgnds-ge001wi	Long-term averages of number of days during June-August with snow depth >= 1 inch
jja-snwd-avgnds-ge003wi	Long-term averages of number of days during June-August with

	snow depth >= 3 inches
jja-snwd-avgnds-ge005wi	Long-term averages of number of days during June-August with snow depth >= 5 inches
jja-snwd-avgnds-ge010wi	Long-term averages of number of days during June-August with snow depth >= 10 inches
jja-tavg-normal	Long-term averages of summer average temperature
jja-tmax-avgnds-grth040	Long-term average number of days per summer where tmax is greater than or equal to 40F
jja-tmax-avgnds-grth050	Long-term average number of days per summer where tmax is greater than or equal to 50F
jja-tmax-avgnds-grth060	Long-term average number of days per summer where tmax is greater than or equal to 60F
jja-tmax-avgnds-grth070	Long-term average number of days per summer where tmax is greater than or equal to 70F
jja-tmax-avgnds-grth080	Long-term average number of days per summer where tmax is greater than or equal to 80F
jja-tmax-avgnds-grth090	Long-term average number of days per summer where tmax is greater than or equal to 90F
jja-tmax-avgnds-grth100	Long-term average number of days per summer where tmax is greater than or equal to 100F
jja-tmax-avgnds-lsth032	Long-term average number of days per summer where tmax is less than or equal to 32F
jja-tmax-normal	Long-term averages of summer maximum temperature
jja-tmin-avgnds-lsth000	Long-term average number of days per summer where tmin is less than or equal to 0F
jja-tmin-avgnds-lsth010	Long-term average number of days per summer where tmin is less than or equal to 10F
jja-tmin-avgnds-lsth020	Long-term average number of days per summer where tmin is less than or equal to 20F
jja-tmin-avgnds-lsth032	Long-term average number of days per summer where tmin is less than or equal to 32F
jja-tmin-avgnds-lsth040	Long-term average number of days per summer where tmin is less than or equal to 40F
jja-tmin-avgnds-lsth050	Long-term average number of days per summer where tmin is less than or equal to 50F
jja-tmin-avgnds-lsth060	Long-term average number of days per summer where tmin is less than or equal to 60F
jja-tmin-avgnds-lsth070	Long-term average number of days per summer where tmin is less than or equal to 70F
jja-tmin-normal	Long-term averages of summer minimum temperature
mam-cldd-base45	Long-term averages of spring cooling degree days with base 45F
mam-cldd-base50	Long-term averages of spring cooling degree days with base 50F
mam-cldd-base55	Long-term averages of spring cooling degree days with base 55F
mam-cldd-base57	Long-term averages of spring cooling degree days with base 57F
mam-cldd-base60	Long-term averages of spring cooling degree days with base 60F
mam-cldd-base70	Long-term averages of spring cooling degree days with base 70F

mam-cldd-base72	Long-term averages of spring cooling degree days with base 72F
mam-cldd-normal	Long-term averages of spring cooling degree days with base 65F
mam-dutr-normal	Long-term averages of spring diurnal temperature range
mam-grdd-tb4886	Long-term averages of spring growing degree days with truncated bases 48F & 86F
mam-grdd-tb5086	Long-term averages of spring growing degree days with truncated bases 50F & 86F
mam-grdd-base40	Long-term averages of spring growing degree days with base 40F
mam-grdd-base45	Long-term averages of spring growing degree days with base 45F
mam-grdd-base50	Long-term averages of spring growing degree days with base 50F
mam-grdd-base55	Long-term averages of spring growing degree days with base 55F
mam-grdd-base57	Long-term averages of spring growing degree days with base 57F
mam-grdd-base60	Long-term averages of spring growing degree days with base 60F
mam-grdd-base65	Long-term averages of spring growing degree days with base 65F
mam-grdd-base70	Long-term averages of spring growing degree days with base 70F
mam-grdd-base72	Long-term averages of spring growing degree days with base 72F
mam-htdd-base40	Long-term averages of spring heating degree days with base 40F
mam-htdd-base45	Long-term averages of spring heating degree days with base 45F
mam-htdd-base50	Long-term averages of spring heating degree days with base 50F
mam-htdd-base55	Long-term averages of spring heating degree days with base 55F
mam-htdd-base57	Long-term averages of spring heating degree days with base 57F
mam-htdd-base60	Long-term averages of spring heating degree days with base 60F
mam-htdd-normal	Long-term averages of spring heating degree days with base 65F
mam-prcp-avgnds-ge001hi	Long-term averages of number of days during March-May with precipitation >= 0.01 inches
mam-prcp-avgnds-ge010hi	Long-term averages of number of days during March-May with precipitation >= a 0.10 inches
mam-prcp-avgnds-ge050hi	Long-term averages of number of days during March-May with precipitation >= 0.50 inches
mam-prcp-avgnds-ge100hi	Long-term averages of number of days during March-May with precipitation >= 1.00 inches
mam-prcp-normal	Long-term averages of seasonal precipitation totals for March-May
mam-snow-avgnds-ge001ti	Long-term averages of number of days during March-May with snowfall >= 0.1 inches
mam-snow-avgnds-ge010ti	Long-term averages of number of days during March-May with snowfall >= 1.0 inches
mam-snow-avgnds-ge030ti	Long-term averages of number of days during March-May with snowfall >= 3.0 inches
mam-snow-avgnds-ge050ti	Long-term averages of number of days during March-May with snowfall >= 5.0 inches
mam-snow-avgnds-ge100ti	Long-term averages of number of days during March-May with snowfall >= 10.0 inches
mam-snow-normal	Long-term averages of seasonal snowfall totals for March-May
mam-snwd-avgnds-ge001wi	Long-term averages of number of days during March-May with snow depth >= 1 inches
mam-snwd-avgnds-ge003wi	Long-term averages of number of days during March-May with snow depth >= 3 inches
mam-snwd-avgnds-	Long-term averages of number of days during March-May with

ge005wi	snow depth >= 5 inches
mam-snwd-avgnds-ge010wi	Long-term averages of number of days during March-May with snow depth >= 10 inches
mam-tavg-normal	Long-term averages of spring average temperature
mam-tmax-avgnds-grth040	Long-term average number of days per spring where tmax is greater than or equal to 40F
mam-tmax-avgnds-grth050	Long-term average number of days per spring where tmax is greater than or equal to 50F
mam-tmax-avgnds-grth060	Long-term average number of days per spring where tmax is greater than or equal to 60F
mam-tmax-avgnds-grth070	Long-term average number of days per spring where tmax is greater than or equal to 70F
mam-tmax-avgnds-grth080	Long-term average number of days per spring where tmax is greater than or equal to 80F
mam-tmax-avgnds-grth090	Long-term average number of days per spring where tmax is greater than or equal to 90F
mam-tmax-avgnds-grth100	Long-term average number of days per spring where tmax is greater than or equal to 100F
mam-tmax-avgnds-lsth032	Long-term average number of days per spring where tmax is less than or equal to 32F
mam-tmax-normal	Long-term averages of spring maximum temperature
mam-tmin-avgnds-lsth000	Long-term average number of days per spring where tmin is less than or equal to 0F
mam-tmin-avgnds-lsth010	Long-term average number of days per spring where tmin is less than or equal to 10F
mam-tmin-avgnds-lsth020	Long-term average number of days per spring where tmin is less than or equal to 20F
mam-tmin-avgnds-lsth032	Long-term average number of days per spring where tmin is less than or equal to 32F
mam-tmin-avgnds-lsth040	Long-term average number of days per spring where tmin is less than or equal to 40F
mam-tmin-avgnds-lsth050	Long-term average number of days per spring where tmin is less than or equal to 50F
mam-tmin-avgnds-lsth060	Long-term average number of days per spring where tmin is less than or equal to 60F
mam-tmin-avgnds-lsth070	Long-term average number of days per spring where tmin is less than or equal to 70F
mam-tmin-normal	Long-term averages of spring minimum temperature
son-cldd-base45	Long-term averages of autumn cooling degree days with base 45F
son-cldd-base50	Long-term averages of autumn cooling degree days with base 50F
son-cldd-base55	Long-term averages of autumn cooling degree days with base 55F
son-cldd-base57	Long-term averages of autumn cooling degree days with base 57F
son-cldd-base60	Long-term averages of autumn cooling degree days with base 60F
son-cldd-base70	Long-term averages of autumn cooling degree days with base 70F
son-cldd-base72	Long-term averages of autumn cooling degree days with base 72F
son-cldd-normal	Long-term averages of autumn cooling degree days with base 65F

son-dutr-normal	Long-term averages of autumn diurnal temperature range
son-grdd-tb4886	Long-term averages of fall growing degree days with truncated bases 48F & 86F
son-grdd-tb5086	Long-term averages of fall growing degree days with truncated bases 50F & 86F
son-grdd-base40	Long-term averages of fall growing degree days with base 40F
son-grdd-base45	Long-term averages of fall growing degree days with base 45F
son-grdd-base50	Long-term averages of fall growing degree days with base 50F
son-grdd-base55	Long-term averages of fall growing degree days with base 55F
son-grdd-base57	Long-term averages of fall growing degree days with base 57F
son-grdd-base60	Long-term averages of fall growing degree days with base 60F
son-grdd-base65	Long-term averages of fall growing degree days with base 65F
son-grdd-base70	Long-term averages of fall growing degree days with base 70F
son-grdd-base72	Long-term averages of fall growing degree days with base 72F
son-htdd-base40	Long-term averages of autumn heating degree days with base 40F
son-htdd-base45	Long-term averages of autumn heating degree days with base 45F
son-htdd-base50	Long-term averages of autumn heating degree days with base 50F
son-htdd-base55	Long-term averages of autumn heating degree days with base 55F
son-htdd-base57	Long-term averages of autumn heating degree days with base 57F
son-htdd-base60	Long-term averages of autumn heating degree days with base 60F
son-htdd-normal	Long-term averages of autumn heating degree days with base 65F
son-prcp-avgnds-ge001hi	Long-term averages of number of days during September-November with precipitation >= 0.01 inches
son-prcp-avgnds-ge010hi	Long-term averages of number of days during September-November with precipitation >= 0.10 inches
son-prcp-avgnds-ge050hi	Long-term averages of number of days during September-November with precipitation >= 0.50 inches
son-prcp-avgnds-ge100hi	Long-term averages of number of days during September-November with precipitation >= 1.00 inches
son-prcp-normal	Long-term averages of seasonal precipitation totals for September-November
son-snow-avgnds-ge001ti	Long-term averages of number of days during September-November with snowfall >= 0.1 inches
son-snow-avgnds-ge010ti	Long-term averages of number of days during September-November with snowfall >= 1.0 inches
son-snow-avgnds-ge030ti	Long-term averages of number of days during September-November with snowfall >= 3.0 inches
son-snow-avgnds-ge050ti	Long-term averages of number of days during September-November with snowfall >= 5.0 inches
son-snow-avgnds-ge100ti	Long-term averages of number of days during September-November with snowfall >= 10.0 inches
son-snow-normal	Long-term averages of seasonal snowfall totals for September-November
son-snwd-avgnds-ge001wi	Long-term averages of number of days during September-November with snow depth >= 1 inch
son-snwd-avgnds-ge003wi	Long-term averages of number of days during September-November with snow depth >= 3 inches
son-snwd-avgnds-ge005wi	Long-term averages of number of days during September-November with snow depth >= 5 inches
son-snwd-avgnds-ge010wi	Long-term averages of number of days during September-November with snow depth >= 10 inches

son-tavg-normal	Long-term averages of autumn average temperature
son-tmax-avgnds-grth040	Long-term average number of days per autumn where tmax is greater than or equal to 40F
son-tmax-avgnds-grth050	Long-term average number of days per autumn where tmax is greater than or equal to 50F
son-tmax-avgnds-grth060	Long-term average number of days per autumn where tmax is greater than or equal to 60F
son-tmax-avgnds-grth070	Long-term average number of days per autumn where tmax is greater than or equal to 70F
son-tmax-avgnds-grth080	Long-term average number of days per autumn where tmax is greater than or equal to 80F
son-tmax-avgnds-grth090	Long-term average number of days per autumn where tmax is greater than or equal to 90F
son-tmax-avgnds-grth100	Long-term average number of days per autumn where tmax is greater than or equal to 100F
son-tmax-avgnds-lsth032	Long-term average number of days per autumn where tmax is less than or equal to 32F
son-tmax-normal	Long-term averages of autumn maximum temperature
son-tmin-avgnds-lsth000	Long-term average number of days per autumn where tmin is less than or equal to 0F
son-tmin-avgnds-lsth010	Long-term average number of days per autumn where tmin is less than or equal to 10F
son-tmin-avgnds-lsth020	Long-term average number of days per autumn where tmin is less than or equal to 20F
son-tmin-avgnds-lsth032	Long-term average number of days per autumn where tmin is less than or equal to 32F
son-tmin-avgnds-lsth040	Long-term average number of days per autumn where tmin is less than or equal to 40F
son-tmin-avgnds-lsth050	Long-term average number of days per autumn where tmin is less than or equal to 50F
son-tmin-avgnds-lsth060	Long-term average number of days per autumn where tmin is less than or equal to 60F
son-tmin-avgnds-lsth070	Long-term average number of days per autumn where tmin is less than or equal to 70F
son-tmin-normal	Long-term averages of autumn minimum temperature

Note: Please note that all frost/freeze probabilities defined above have been derived from 1981 – 2010 serially complete daily data.

III. Additional Information

A.   Units

Fahrenheit or Celsius for maximum, minimum, average, dew point, heat index, wind chill, and air temperature normals and standard deviations depending on user's preference of standard or metric output.

Days for the number of days per month above or below certain threshold, such as days above 90F.

Fahrenheit or Celsius for heating and cooling degree days deviations depending on user's preference of standard or metric output.

Inches or millimeters for average monthly/seasonal/annual precipitation, month-to-date/year-to-date precipitation, and percentiles of precipitation deviations depending on user's preference of standard or metric output.

Inches or millimeters for average monthly/seasonal/annual snowfall, month-to-date/year-to-date snowfall, and percentiles of snowfall deviations depending on user's preference of standard or metric output.

Inches or millimeters for percentiles of snow depth deviations depending on user's preference of standard or metric output.

Percent for probabilities of precipitation, snowfall, or snow depth exceeding a specific threshold, as well as cloud and wind percentages.

Degree hours for heating and cooling degree hours.

Millibars/HPa or inches of Mercury for mean sea level pressure normals deviations depending on user's preference of standard or metric output.

Percent for prevailing and secondary wind direction percentages.

Prevailing and secondary wind directions can take on 8 values:
   1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

 Miles per hour or meters per second for wind speeds and vector magnitudes deviations depending on user's preference of standard or metric output.

Degrees for mean vector wind directions

B.   Special values


```
-7777: a non-zero growing degree day value that would round to zero
-6666: parameter undefined; used in probabilities of first/last events to
       indicate the event is too infrequent to estimate dates

-4444: year-round risk of frost-freeze
```


C.   For further information

For more detailed information, view complete documentation at:
http://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/readme.txt.