Local Climatological Data Version 2 (LCDv2) Dataset Documentation

National Centers for Environmental Information

The National Centers for Environmental Information's (NCEI) Local Climatological Data version 2 (LCDv2) summaries are analogous to the original LCD (version 1) and provide summaries of weather conditions from thousands of weather stations worldwide. Observations are sourced from NCEI's Global Historical Climatology Network hourly (GHCNh) and daily (GHCNd) datasets. This product includes surface weather observations from U.S. observing networks such as the Automated Surface Observing System (ASOS) and Automated Weather Observing System (AWOS) as well as international stations courtesy of the U.S. Air Force and other sources. Observations include sub-hourly, hourly, daily, and monthly measurements of temperature, dew point, humidity, winds, sky condition, observed weather phenomena, atmospheric pressure and more. LCDv2 information and data access tools are available at: https://www.ncei.noaa.gov/products/land-based-station/local-climatological-data and documentation is here: https://www.ncei.noaa.gov/oa/local-climatological-data/v2/doc.

LCDv2 supersedes the original LCD (version 1) product. The previous LCDv1 data files are still available via bulk access (https://www.ncei.noaa.gov/data/local-climatological-data/). Unlike LCDv2, these files have data in standard U.S. units and were sourced from Integrated Surface Data (ISD) dataset (NCEI's legacy hourly surface observations dataset).

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NOTE: Major/minor changes and expected differences with the new version LCDv2

Due to bug fixes and other improvements there are changes, updates, and expected differences in the LCDv2 output as compared to version 1.

- **Station Inventory and data records** Many additional sources and stations have been added to LCDv2.
- **Station Identifiers** WBAN station identifiers have been replaced by GHCN station identifiers in LCDv2. GHCN identifiers are 11 characters beginning with the country's FIPS 10-4 code (2 characters), a network code identifying the station numbering system used (1 character), and finally the station identifier (8 characters). For U.S. stations with a network code of "W" (most airport sites), the last 5 digits of the GHCN station identifier is the WBAN ID. For example, Chicago's O'Hare Airport has a WBAN ID of '94846' and the GHCN identifier is 'USW00094846'. LCD version 1 used just the WBAN ID or an 11-digit combination of WMO-type ID (6-digits) and WBAN ID (5-digits) (international stations without WBAN IDs had '99999' as the final 5 digits). All station identifiers and aliases are cross-referenced in NCEI's station history database: Historical Observing Metadata Repository (HOMR). For additional information on GHCN identifiers and the network codes used refer to the GHCNh documentation.
- **Source / Station type** has different values in order to align with the GHCNh source codes. The most common station type code changes:

Old station type code (V1)	New station type code (V2)
4	223 (USAF SWO)
7	343 (NOAA SWO)

- **Net 3-hour pressure change** positive and negative signs are opposite from what they were in version 1. The signs were reversed in version 1 due to a software bug and have been corrected in LCDv2.
- **New/additional data values are available** such as average relative humidity derived from summary of the month values in the Global Summary of the Month dataset.
- **Departure from normal** values are different for every field because LCDv2 uses the latest release of the U.S. 30-Year Climate Normals (based on 1991-2020). LCDv1 departure from normals used the 1981-2010 base period.
- **Units** (CSV files only) The LCDv2 station-year Comma-Separated Value (CSV) data files are in metric / International Standard (SI) units in order to be usable by a more global audience. This is consistent with the GHCNh dataset. The LCDv2 PDF will have the same (standard / U.S.) units as LCDv1. Data Access conversion tools allow users to order tailored data in either standard or metric units. The CSV data files provided under bulk access links (see Section 1 below), and in the NCEI archive, are in SI/metric units.
- **Sunrise/Sunset** values can be slightly different in some cases. Although the same third-party library is used to calculate sunrise and sunset values, LCDv2 is using a more recent version of the software. In addition, unlike in LCDv1, when the daily record is missing, sunrise/sunset times are not calculated and will not be shown on the PDF form.
- **Weather type** values are expected to match but are in a different order.
  Example V1: RA FG BR V2: BR FG RA

Data Access and Formats

LCDv2 data are available in a number of ways; see the numbered sections below for more details.

(1) Direct access bulk download of station-year data files:
https://www.ncei.noaa.gov/oa/local-climatological-data/index.html#v2/.
(2) NCEI access tools allow users to custom order data in either standard (U.S.) or SI/metric units.
(3) PDF station summary forms can be custom ordered using NCEI access tools. Values in these forms

are generally given in standard/Imperial (U.S.) units (temperature in degrees Fahrenheit, wind speed in miles per hour, etc) unless otherwise noted.

1. Direct Access Bulk Download of Station Data Files

LCDv2 station data files in Comma-Separated Value (CSV) format are easily downloaded and viewed using spreadsheet and database applications. Individual files can be saved by right-clicking on the filename and selecting "Save link as…".

Data Access Locations	Where **<station>** refers to the GHCN identifier and <yyyy> refers to the year: Station/year files (one year of data for a particular station) ● https://www.ncei.noaa.gov/oa/local-climatological-data/index.html#v2/access/<YYYY>/LCD_<station>_<yyyy>.csv Example file URL: https://www.ncei.noaa.gov/oa/local-climatological-data/index.html#v2/access/2023/LCD_USW00003812_2023.csv Tar files of all stations with data in a particular year ● https://www.ncei.noaa.gov/oa/local-climatological-data/index.html#v2/archive/<archived files> LCDv2 documentation: https://www.ncei.noaa.gov/oa/local-climatological-data/index.html#v2/doc/

Data rows begin with the GHCN station identifier, date-time in ISO format, latitude (degrees), longitude (degrees), station elevation above sea level (tenths of meters), and station name when applicable. A list of data elements with SI/metric units and precision are shown in the table below.

2. Custom Order Data Files

In addition to downloading station data from the web-accessible folders, LCDv2 data can be ordered via NCEI access tools with customized selections by specifying stations, time periods, unit types, and hourly/daily/monthly variables at: https://www.ncei.noaa.gov/access/search/data-search/local-climatological-data-v2.

3. LCDv2 Summary PDF Forms

The LCDv2 summary PDF forms can be ordered at: https://www.ncei.noaa.gov/access/search/data-search/local-climatological-data-v2. Data are shown in standard units (Fahrenheit, miles per hour, etc.) familiar to U.S. users unless otherwise noted. Times are in Local Standard Time (LST) and Daylight Saving Time is not used. Temperatures are given in whole degrees F and tenths of degrees C. Wind speeds are in miles per hour, with wind direction given using a 360 degree compass indicating the direction from which the wind was blowing with respect to true north (e.g. 360 = winds blowing from true north, 180 = south, etc.). Precipitation amounts are given in inches, usually to the nearest hundredth, unless otherwise noted. Trace amounts, indicated with a "T" denotes rain, snow, or other precipitation, that is greater than zero, but too small to be measured by standard units or methods of measurement (see Precipitation Indicators below for details). Departures from normal are given for some elements using the 30-Year U.S.

Climate Normals for 1991-2020. Please refer to the detailed information shown below in the PDF Form Details sections.

Data Elements and Units

Column Headings in Station-Year CSV Files	Standard (U.S.) units (PDF Form)	International/metric units (Station-Year Files)
STATION	GHCNh station identifier	GHCNh station identifier
DATE	YYYY-MM-DDTHH:mm:ss	YYYY-MM-DDTHH:mm:ss
LATITUDE	decimal degrees	decimal degrees
LONGITUDE	decimal degrees	decimal degrees
ELEVATION	feet	feet
NAME	Station long name	Station long name
REPORT_TYPE	Code: see GHCNh documentation	Code: see GHCNh documentation
SOURCE	Code: see GHCNh documentation	Code: see GHCNh documentation
HourlyAltimeterSetting	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
HourlyDewPointTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
HourlyDryBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
HourlyPrecipitation	inches (in) to hundredths	millimeters (mm) to tenths
HourlyPresentWeatherType	up to 3 weather code(s): see appendix	up to 3 weather code(s): see appendix
HourlyPressureChange	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
HourlyPressureTendency	code	code
HourlyRelativeHumidity	whole percent	whole percent
HourlySkyConditions	up to 3 sky cover codes (oktas), plus cloud base height in hundreds of feet (ft*100)	up to 3 sky cover codes (oktas), plus cloud base height in hundreds of meters (m*100)
HourlySeaLevelPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
HourlyStationPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
HourlyVisibility	miles to hundredths	kilometers (km) to thousandths
HourlyWetBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
HourlyWindDirection	whole degrees (1-360)	whole degrees (1-360)
HourlyWindGustSpeed	whole miles per hour (mph)	meters per second (m/s) to tenths
HourlyWindSpeed	whole miles per hour (mph)	meters per second (m/s) to tenths
Sunrise	LST time (no daylight savings time used)	LST time (no daylight savings time used)

Sunset	LST time (no daylight savings time used)	LST time (no daylight savings time used)
DailyAverageDewPointTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
DailyAverageDryBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
DailyAverageRelativeHumidity	whole percent	whole percent
DailyAverageSeaLevelPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
DailyAverageStationPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to hundredths
DailyAverageWetBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
DailyAverageWindSpeed	miles per hour (mph) to tenths	meters per second (m/s) to tenths
DailyCoolingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
DailyDepartureFromNormalAverage Temperature	degrees Fahrenheit (degF) using a 65 degree base to tenths	degrees Celsius (degC) using 18.3 degree base to tenths
DailyHeatingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
DailyMaximumDryBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
DailyMinimumDryBulbTemperature	whole degrees Fahrenheit (degF)	degrees Celsius (degC) to tenths
DailyPeakWindDirection	whole degrees (1-360)	whole degrees (1-360)
DailyPeakWindSpeed	whole miles per hour (mph)	meters per second (m/s) to tenths
DailyPrecipitation	inches (in) to hundredths	millimeters (mm) to tenths
DailySnowDepth	whole inches (in)	whole millimeters (mm)
DailySnowfall	inches (in) to tenths	millimeters (mm) to tenths
DailySustainedWindDirection	whole degrees (1-360)	whole degrees (1-360)
DailySustainedWindSpeed	whole miles per hour (mph)	meters per second (m/s) to tenths
DailyWeather	2-digit codes (can be several); see appendix	2-digit codes (can be several); see appendix
MonthlyAverageRH	whole percent	whole percent
MonthlyDaysWithGT001Precip	number of days in month	number of days in month
MonthlyDaysWithGT010Precip	number of days in month	number of days in month
MonthlyDaysWithGT32Temp	number of days in month	number of days in month
MonthlyDaysWithGT90Temp	number of days in month	number of days in month
MonthlyDaysWithLT0Temp	number of days in month	number of days in month
MonthlyDaysWithLT32Temp	number of days in month	number of days in month
MonthlyDepartureFromNormalAverageTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to hundredths
MonthlyDepartureFromNormalCoolingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths

MonthlyDepartureFromNormalHeatingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
MonthlyDepartureFromNormalMaximumTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to tenths
MonthlyDepartureFromNormalMinimumTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to tenths
MonthlyDepartureFromNormalPrecipitation	inches (in) to hundredths	millimeters to ten-thousandths
MonthlyDewpointTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to hundredths
MonthlyGreatestPrecip	inches (in) to hundredths	millimeters (mm) to tenths
MonthlyGreatestPrecipDate	DD-DD (up to 3 dates)	DD-DD (up to 3 dates)
MonthlyGreatestSnowDepth	inches (in) to tenths	whole millimeters (mm)
MonthlyGreatestSnowDepthDate	DD-DD	DD-DD
MonthlyGreatestSnowfall	inches (in) to tenths	whole millimeters (mm)
MonthlyGreatestSnowfallDate	DD-DD (up to 3 dates)	DD-DD (up to 3 dates)
MonthlyMaxSeaLevelPressureValue	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
MonthlyMaxSeaLevelPressureValueDate	DD	DD
MonthlyMaxSeaLevelPressureValueTime	HHmm	HHmm
MonthlyMaximumTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to tenths
MonthlyMeanTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to hundredths
MonthlyMinSeaLevelPressureValue	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
MonthlyMinSeaLevelPressureValueDate	DD	DD
MonthlyMinSeaLevelPressureValueTime	HHmm	HHmm
MonthlyMinimumTemperature	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to tenths
MonthlySeaLevelPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
MonthlyStationPressure	inches of mercury (inHg) to hundredths	hectopascals (hPa) to tenths
MonthlyTotalLiquidPrecipitation	inches (in) to hundredths	millimeters (mm) to tenths
MonthlyTotalSnowfall	inches (in) to tenths	millimeters (mm) to tenths
MonthlyWetBulb	degrees Fahrenheit (degF) to tenths	degrees Celsius (degC) to hundredths
MonthlyAverageWindSpeed	miles per hour (mph) to tenths	meters per second (m/s) to tenths
CoolingDegreeDaysSeasonToDate	whole degrees Fahrenheit (degF) using a 65 degree base; (season-to-date: Jan in Northern Hemisphere; July in	degrees Celsius (degC) using 18.3 degree base to tenths; (season-to-date: Jan in Northern Hemisphere; July in Southern

	Southern Hemisphere)	Hemisphere)
MonthlyCoolingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
MonthlyNumberDaysWithSnowfall	number of days in month with snow (>= 1 inch/25 millimeters)	number of days in month (>= 1 inch/25 millimeters)
HeatingDegreeDaysSeasonToDate	whole degrees Fahrenheit (degF) using a 65 degree base; (season-to-date: Jan in Northern Hemisphere; July in Southern Hemisphere)	degrees Celsius (degC) using 18.3 degree base to tenths; (season-to-date: Jan in Northern Hemisphere; July in Southern Hemisphere)
MonthlyHeatingDegreeDays	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
MonthlyNumberDaysWithThunderstorms	number of days in month	number of days in month
MonthlyNumberDaysWithHeavyFog	number of days in month with visibility less than 1/4 statute mile	number of days in month with visibility less than 1/4 statute mile
NormalsCoolingDegreeDay	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
NormalsHeatingDegreeDay	whole degrees Fahrenheit (degF) using a 65 degree base	degrees Celsius (degC) using 18.3 degree base to tenths
ShortDurationEndDate005	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate010	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate015	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate020	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate030	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate045	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate060	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate080	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate100	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate120	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate150	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationEndDate180	YYYY-MM-DD HH:mm	YYYY-MM-DD HH:mm
ShortDurationPrecipitationValue005	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue010	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue015	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue020	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue030	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue045	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue060	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue080	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue100	inches (in) to hundredths	millimeters (mm) to tenths

ShortDurationPrecipitationValue120	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue150	inches (in) to hundredths	millimeters (mm) to tenths
ShortDurationPrecipitationValue180	inches (in) to hundredths	millimeters (mm) to tenths
REM		
BackupDirection		
BackupDistance		
BackupDistanceUnit	miles	miles
BackupElements		
BackupElevation		
BackupEquipment		
BackupLatitude	decimal degrees	decimal degrees
BackupLongitude	decimal degrees	decimal degrees
BackupName		
WindEquipmentChangeDate		

LCDv2 PDF Form Details

Daily Summary

The month and year as well as the station information (GHCN identifier, location, latitude, longitude, elevation) are included in the heading at the top of the table. A description of the daily data values follows:

Date: Date (day of month given in two digits) Note: Month and year are given in the heading.

Temperature - Max: Maximum temperature for the day (in whole degrees Fahrenheit). An asterisk (*) is used to designate when a daily maximum temperature is also the extreme maximum for the month.

Temperature - Min: Minimum temperature for the day (in whole degrees Fahrenheit). An asterisk (*) is used to designate when a daily minimum temperature is also the extreme minimum for the month.

Temperature - Avg: Average temperature for the day (in whole degrees Fahrenheit). This is based on the arithmetic average of the maximum and minimum temperature for the day.

Temperature - Dep: Average temperature's departure from (1991-2020) normal temperature (in whole Fahrenheit degrees using "-" to indicate below normal)

Temperature - ARH: Average daily relative humidity (in whole percent)

Temperature - ADP: Average daily dew point temperature (in whole degrees Fahrenheit)

Temperature - AWB: Average daily wet-bulb temperature (in whole degrees Fahrenheit)

Degree Days - Heat: Heating degree days (in whole degrees using a 65 degree F base)

Degree Days - Cool: Cooling degree days (in whole degrees using a 65 degree F base)

Sun - Rise: Time of sunrise using a 24-hour clock (Local Standard Time – Daylight Savings Time is not used)

Sun - Set: Time of sunset using a 24-hour clock (Local Standard Time – Daylight Savings Time is not used)

Weather (WT**): Daily occurrences of weather types. The 2-digit number in each designation corresponds to the WT (weather type code) used in the GHCN-Daily dataset. For example WT01 in GHCN-Daily is represented as FG:01 (fog) in the LCD. Contractions used are given below.

FG:01 (WT01) - Fog, ice fog, or freezing fog (may include heavy fog)

FG+:02 (WT02) - Heavy fog or heavy freezing fog (not always distinguished from fog)

TS:03 (WT03) - Thunder

PL:04 (WT04) - Ice pellets, sleet, snow pellets or small hail

GR:05 (WT05) - Hail (may include small hail)

GL:06 (WT06) - Glaze or rime

DU:07 (WT07) - Dust, volcanic ash, blowing dust, blowing sand or blowing obstruction

HZ:08 (WT08) - Smoke or haze

BLSN:09 (WT09) - Blowing or drifting snow

FC:10 (WT10) - Tornado, water spout or funnel cloud

WIND:11 (WT11) - High or damaging winds

BLPY:12 (WT12) - Blowing spray

BR:13 (WT13) - Mist

DZ:14 (WT14) - Drizzle

FZDZ:15 (WT15) - Freezing drizzle

RA:16 (WT16) - Rain

FZRA:17 (WT17) - Freezing rain

SN:18 (WT18) - Snow, snow pellets, snow grains or ice crystals

UP:19 (WT19) - Unknown precipitation

MIFG:21 (WT21) - Ground fog

FZFG:22 (WT22) - Ice fog or freezing fog

Precipitation - Total Liquid Content (TLC): Water equivalent amount of precipitation for the day (in inches to hundredths). This is all types of precipitation (melted and frozen). T indicates trace amount of precipitation (see Precipitation Indicators below). If left blank, precipitation amount is unreported.

Precipitation - Snowfall: Daily amount of snowfall (in inches to the tenths). T indicates trace amount (see Precipitation Indicators below).

Precipitation - Snow Depth: Daily reading of snow on ground (in whole inches). T indicates trace amount (see Precipitation Indicator below).

Pressure - Avg Stn: Daily average station pressure (in inches of mercury, to hundredths)

Pressure - Avg SL: Daily average sea level pressure (in inches of mercury, to hundredths)

Wind - Avg Spd: Daily average wind speed in miles per hour miles per hour, to tenths)

Maximum Wind Speed - Peak Speed: peak wind speed for the day (in whole miles per hour)

Maximum Wind Speed - Peak Dir: direction of wind during peak wind speed for the day given as direction from which wind was blowing using a 360 degree compass with respect to true north (e.g north = 360, south = 180, etc.)

Maximum Wind Speed - Sust. Speed: maximum sustained wind speed for the day (in whole miles per hour). Note: For U.S. locations this is the fastest reported speed for the day that is sustained for at least 2 minutes for years 1994 and later. For earlier years it is the fastest reported speed sustained for at least 1 minute.

Maximum Wind Speed - Sust. Dir): direction of wind during maximum sustained wind speed for the day given

as direction from which wind was blowing using a 360 degree compass with respect to true north

Monthly Summary

The bottom section of the Daily Summary form includes information such as monthly maximum, minimum and mean temperatures, average dew point, wet-bulb and relative humidity, monthly total heating and cooling degree days, precipitation and snowfall totals, etc. Departures from normal (using 1991-2020 normals) are also included for both temperature, precipitation as well as a tally of the number of days selected temperature thresholds (max temperature >=90/<=32, min <=32/<=0) and precipitation thresholds (>=0.01 and >=0.10) were reached, number of snowfall days > = 1 inch, number of days thunderstorms or heavy fog are reported, etc. The month's greatest amount of precipitation to fall in 24 hours is also given (amount and date) as well as the 24 hour greatest snowfall (amount and date) and highest snow depth (height and date). Monthly and season-to-date totals are computed for heating and cooling degree day data and departures from 1991-2020 normal are also given with these. The extreme highest and lowest sea-level pressures recorded and the dates they occurred are also given. Units used are consistent with what appears in the upper part of the table (described above). These data originate from NCEI's Global Summary of the Month (GSOM) product with supplemental elements from monthly summaries calculated in the ASOS processing stream.

Hourly Observations

The month and year as well as the station information (station identifier, station name, latitude, longitude, elevation) are included in the heading at the top of the table. A description of the data values follows:

Date: Date (day of month given in two digits) Note: Month and year are given in the heading.

Time: Time of observation given as a 4-digit number using a 24-hour clock in local standard time (e.g. 1751 = 5:51 pm LST). No adjustments are made to account for Daylight Savings Time (DST).

Station Type: Code showing source or combination of sources used in creating the observation. Decoding information for this is found in the GHCNh documentation.

Sky Conditions: A report of each cloud layer (up to 3) giving the following information.

Each layer given in the following format: ccc:ll-xxx where:

1) ccc is Coverage: CLR (clear sky), FEW (few clouds), SCT (scattered clouds), BKN (broken clouds), OVC (overcast), VV (obscured sky), 10 (partially obscured sky).

2) ll is Layer amount used in conjunction with coverage code above. Given in eighths (aka "oktas") of sky covered by cloud. Specifically 00-08 indicates the number of oktas that cloud layer takes up in the total sky. 00 corresponds to CLR, 01-02 corresponds to FEW, 03-04 corresponds to SCT, 05-07 corresponds to BKN and 08 corresponds to OVC. 09 indicates an obscuration (i.e. the sky cannot be seen due to obscuring phenomena - e.g. due to smoke, fog, etc.). 10 indicates a portion of the sky is obscured (i.e. partial obscuration).

3) xxx is the Cloud base height at lowest point of layer. In the case of an obscuration this value represents the vertical visibility from the point of observation. Given in hundreds of feet (e.g. 50 = 5000 ft, 120 = 12000 feet). In some cases a cloud base height will be given without the corresponding cloud amount. In these cases the cloud amount is missing or not reported.

Up to 3 layers can be reported however by definition when clear skies are reported it will be reported as only one layer as CLR-00. Obscurations will be reported as VV-xx where xx is the vertical visibility into the obscuring phenomena.

Additional information about cloud cover data: The GHCNh documentation further defines the coverage of a layer in oktas (i.e. eighths) or tenths of sky covered by cloud as per the following table:

0 oktas/0 tenths is defined as CLR (clear sky)

1-2 oktas/1-3 tenths is defined as FEW (few clouds)

3-4 oktas/4-5 tenths is defined as SCT (scattered clouds)

5 to less than 8/6 to less than 10 is defined as BKN (broken clouds)

8 oktas/10 tenths is defined as OVC (overcast)

Partial obscuration - sky is partially obscured and therefore cloud coverage cannot be fully determined

Total obscuration - sky is completely obscured and therefore cloud coverage is not available

Note: Since up to 3 cloud layers can be reported, the full state of the sky can best be determined by the contraction given for the last layer. In other words if three layers are reported and the third layer uses BKN then the total state of sky is BKN which is similar in definition to "mostly cloudy." OVC is similar to "cloudy" or overcast and FEW or SCT is similar to "partly cloudy." It should also be noted that in cases where there are more than 3 cloud layers, the highest layers will not be reported.

Visibility: The horizontal distance an object can be seen and identified given in whole miles. Note visibilities less than 3 miles are usually given in smaller increments (e.g. 2.5).

Weather Type (AU|AW|MW): Weather types describe precipitation or obstructions to vision occurring at the time of observation. These are reported by automated sensors (AU or AW) and manually (MW) by human observation. AU elements are listed first and followed by "|" and followed by AW elements. After the AW elements there will be another "|" followed by the MW elements (e.g. "-RA:02|RA:61|RA:61"). In the preceding example -RA:02 is an AU element, RA:61 is an AW element and RA:61 is an MW element. Note that precipitation types often use "-" for light intensity or "+" for heavy intensity. If a precipitation type has no "-" or "+" it is considered to be moderate intensity. It is not uncommon for one type of element to be reported without another. In other words, it is possible to have an AU element without an AW element or MW element. Definitions of contractions used are listed in the Present Weather Appendix at the end of this document.

Dry Bulb Temp (F): This is the dry-bulb temperature and is commonly used as the standard air temperature reported. It is given here in whole degrees Fahrenheit.

Dry Bulb Temp (C): This is the dry-bulb temperature and is commonly used as the standard air temperature reported. It is given here in tenths of a degree Celsius.

Wet Bulb Temp (F): This is the wet-bulb temperature. It is given here in whole degrees Fahrenheit.

Wet Bulb Temp (C): This is the wet-bulb temperature. It is given here in tenths of a degree Celsius.

Dew Point Temp (F): This is the dew point temperature. It is given here in whole degrees Fahrenheit.

Dew Point Temp (C): This is the dew point temperature. It is given here in tenths of a degree Celsius.

Rel Hum: This is the relative humidity given to the nearest whole percentage.

Wind Speed: Speed of the wind at the time of observation given in miles per hour (mph).

Wind Dir: Wind direction from true north using compass directions (e.g. 360 = true north, 180 = south, 270 = west, etc.). Note: A direction of "000" is given for calm winds.

Wind Gusts: Wind gusts occurring during time of observation. Given in miles per hour (mph).

Station Press.: Atmospheric pressure observed at the station during the time of observation. Given in inches of Mercury (in Hg).

Press. Tend: Pressure tendency (In general a 0 through 3 here indicates an increase in pressure over previous 3 hours and a 5 through 8 indicates a decrease over the previous 3 hours and 4 indicates no change during the previous 3 hours). See GHCNh documentation for further details.

Net 3-Hr Change: Difference in pressure over the past 3 hours. Prefixed with a "+" or "-" to indicate increase or decrease in pressure respectively. Given in inches of Mercury (in Hg).

Sea Level Press.: Sea level pressure given in inches of Mercury (in Hg).

Report Type: Indicates type of weather observation. See GHCNh documentation for further details

Precip Total: Amount of precipitation in inches to hundredths over the past hour. For certain automated stations, precipitation will be reported at sub-hourly intervals (e.g. every 15 or 20 minutes) as an accumulated amount of all precipitation within the preceding hour. A "T" indicates a trace amount of precipitation (see Precipitation

Indicators below).

Altimeter setting: Atmospheric pressure reduced to sea level using the temperature profile of the "standard" atmosphere. Given in inches of Mercury (in Hg).

Hourly Remarks

Hourly Remarks present the raw surface observation data in the original format encoded into ICAO-standardized METAR format for global dissemination. Further information on decoding these observations can be found in the Federal Meteorological Handbook (FMH) No. 1, Surface Weather Observations & Reports (METAR) (see https://www.icams-portal.gov/resources/ofcm/fmh/FMH1/fmh1_2019.pdf). Contact customer service at 828-271-4800 or ncei.orders@noaa.gov for further information.

Hourly Precipitation Table

The hourly precipitation data contained in the Hourly Observations are formatted into a 1 page table for easy viewing.

The hours of the day are on the horizontal axis in Local Standard Time (note: Daylight Savings Time (DST) is not used) and the days of the month are on the vertical axis. The liquid precipitation observation values given in inches to hundredths and are placed in the cell corresponding to the intersection of the day and hour. All quantities represent what amount of precipitation fell for the hour ending at the time indicated on the table. Trace amounts of precipitation are indicated with a "T" (see Precipitation Indicators below).

Maximum Short Duration Precipitation: This table gives the greatest amount of precipitation to fall in the month over 12 different periods given in minutes (5, 10, 15, 20, 30, 45, 60, 80, 100, 120, 150 and 180). The top row value gives the maximum precipitation amount to the nearest hundredth of an inch and the bottom row value gives the day of the month and the ending time that the precipitation event ended using a 24-hour clock (Local Standard Time).

Precipitation Indicators

s = Suspect value (appears with value)
* = Erroneous value
0 = Precipitation measurement taken; no measurable precipitation
T = Trace amount of liquid precipitation (an amount too small to measure, usually < 0.005 inches water equivalent). For snowfall, T generally indicates less than 0.05 inches. For snow depth, T generally indicates less than 0.5 inches. For more detailed information on trace measurements of snow please refer to: https://www.weather.gov/media/coop/Snow_Measurement_Guidelines-2014.pdf
Blank = Value is missing or unreported; do not assume 0.0 precipitation

Station Augmentation / Backup Equipment

Some stations have backup equipment which can be used when the primary equipment fails. When applicable, information on backup equipment for each station is presented in the station augmentation section of the LCD form. The LCD data (CSV format) contains this information under the column headers: BackupName, BackupLatitude, BackupLongitude, BackupDirection, BackupEquipment, BackupElevation, BackupElements, BackupDistance, BackupDistanceUnit, and WindEquipmentChangeDate. The National Weather Service provides the backup information and it can be viewed in NCEI's Historical Observing Metadata Repository (HOMR).

Appendix: Present Weather Codes

AU codes

If AU codes are present they are listed first for weather type. AU codes are acquired from automated weather sensors. Codes for precipitation and obscurations are defined below:

DZ:01 - Drizzle
RA:02 - Rain
SN:03 - Snow
SG:04 - Snow Grains
IC:05 - Ice Crystals
PL:06 - Ice Pellets
GR:07 - Hail
GS:08- Small Hail and/or Snow Pellets
UP:09 - Unknown Precipitation
BR:1 - Mist
FG:2 - Fog
FU:3 - Smoke
VA:4 - Volcanic Ash
DU:5 - Widespread Dust
SA:6 - Sand
HZ:7 - Haze
PY:8 - Spray
PO:1 - Well developed dust/sand whirls
SQ:2 - Squalls
FC:3 - Funnel CLoud, Waterspout or Tornado
SS:4 - Sandstorm
DS:5 - Dust storm

The codes above could be preceded with a combination of the following descriptors:

- = light
+ = heavy
VC = vicinity (apparent but not at point of observation)
MI = shallow
PR = partial
BC = patches
DR = low drifting
BL = blowing
SH = showers
TS = thunderstorm
FZ = freezing

AW codes
Depending on equipment used at the location, some automated stations report AW codes either with or instead of AU codes. AW codes appear after AU codes (separated by a "|") when present. AW codes are defined as follows:

HZ:04 - Haze, smoke, or dust in suspension in the air, visibility equal to or greater than 1km
FU:05 - Smoke
DU:07 - Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no dust storm or sandstorm seen or, in the case of ships, blowing spray at the station
BR:10 - Mist
11 - Diamond dust
12 - Distant lightning
SQ:18 - Squalls
20 - Fog (during preceding hour but not at time of observation)
21 - Precipitation (during preceding hour but not at time of observation)

22 - Drizzle (not freezing) or snow grains (during preceding hour but not at time of observation)
23 - Rain (not freezing) (during preceding hour but not at time of observation)
24 - Snow (during preceding hour but not at time of observation)
25 - Freezing drizzle or freezing rain (during preceding hour but not at time of observation)
26 - Thunderstorm (with or without precipitation) (during preceding hour but not at time of observation)(during preceding hour but not at time of observation)
27 - Blowing or drifting snow or sand (during preceding hour but not at time of observation)
28 - Blowing or drifting snow or sand, visibility equal to or greater than 1 km (during preceding hour but not at time of observation) 29 - Blowing or drifting snow or sand, visibility less than 1 km (during preceding hour but not at time of observation)
FG:30 - Fog
FG:31 - Fog or ice fog in patches
FG:32 - Fog or ice fog, has become thinner during the past hour
FG:33 - Fog or ice fog, no appreciable change during the past hour
FG:34 - Fog or ice fog, has begun or become thicker during the past hour
FG:35 - Fog, depositing rime
40 - Precipitation
41 - Precipitation, slight or moderate
42 - Precipitation, heavy
43 - Liquid precipitation, slight or moderate
44 - Liquid precipitation, heavy
45 - Solid precipitation, slight or moderate
46 - Solid precipitation, heavy
47 - Freezing precipitation, slight or moderate
48 - Freezing precipitation, heavy
DZ:50 - Drizzle
DZ:51 - Drizzle, not freezing, slight
DZ:52 - Drizzle, not freezing, moderate
DZ:53 - Drizzle, not freezing, heavy
FZDZ:54 - Drizzle, freezing, slight
FZDZ:55 - Drizzle, freezing, moderate
FZDZ:56 - Drizzle, freezing, heavy
DZ:57 - Drizzle and rain, slight
DZ:58 - Drizzle and rain, moderate or heavy
RA:60 - Rain
RA:61 - Rain, not freezing, slight
RA:62 - Rain, not freezing, moderate
RA:63 - Rain, not freezing, heavy
FZRA:64 - Rain, freezing, slight
FZRA:65 - Rain, freezing, moderate
FZRA:66 - Rain, freezing, heavy
RA:67 - Rain or drizzle and snow, slight
RA:68 - Rain or drizzle and snow, moderate or heavy
SN:70 - Snow
SN:71 - Snow, slight
SN:72 - Snow, moderate
SN:73 - Snow, heavy
PL:74 - Ice pellets, slight
PL:75 - Ice pellets, moderate
PL:76 - Ice pellets, heavy
SG:77 - Snow grains
IC:78 - Ice crystals
80 - Showers or intermittent precipitation

SHRA:81 - Rain showers or intermittent rain, slight
SHRA:82 - Rain showers or intermittent rain, moderate
SHRA:83 - Rain showers or intermittent rain, heavy
SHRA:84 - Rain showers or intermittent rain, violent
SHSN:85 - Snow showers or intermittent snow, slight
SHSN:86 - Snow showers or intermittent snow, moderate
SHSN:87 - Snow showers or intermittent snow, heavy
HAIL:89 - Hail
TS:90 - Thunderstorm
TS:91 - Thunderstorm, slight or moderate, with no precipitation
TS:92 - Thunderstorm, slight or moderate, with rain showers and/or snow showers
TS HAIL:93 - Thunderstorm, slight or moderate, with hail
TS:94 - Thunderstorm, heavy, with no precipitation
TS:95 - Thunderstorm, heavy, with rain showers and/or snow
TS+HAIL:96 - Thunderstorm, heavy, with hail
+FC:99 - Tornado

MW codes

Depending on equipment used at the location, manually augmented stations report MW codes either with or instead of AU and AW codes. MW codes appear last, after AU and AW codes (all three types are separated by a "|") when present. MW codes are defined as follows:

FU:04 - Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes
HZ:05 - Haze
DU:06 - Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
DU:07 - Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no dust storm or sandstorm seen or, in the case of ships, blowing spray at the station
DU:08 - Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no dust storm or sandstorm
DU:09 - Dust storm or sandstorm within sight at the time of observation, or at the station during the preceding hour
BR:10 - Mist
FG:11 - Patches of shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
FG:12 - More or less continuous shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
13 - Lightning visible, no thunder heard
14 - Precipitation within sight, not reaching the ground or the surface of the sea
15 - Precipitation within sight, reaching the ground or the surface of the sea, but distant, i.e., estimated to be more than 5 km from the station
16 - Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
TS:17 - Thunderstorm, but no precipitation at the time of observation
SQ:18 - Squalls at or within sight of the station during the preceding hour or at the time of observation
FC:19 - Funnel cloud(s) (Tornado cloud or waterspout) at or within sight of the station during the preceding hour or at the time of observation
20 - Drizzle (not freezing) or snow grains not falling as shower(s) (during the preceding hour but not at the time of observation)
21 - Rain (not freezing) not falling as shower(s) (during the preceding hour but not at the time of observation))
22 - Snow not falling as shower(s) (during the preceding hour but not at the time of observation)
23 - Rain and snow or ice pellets not falling as shower(s) (during the preceding hour but not at the time of observation)

24 - Freezing drizzle or freezing rain not falling as shower(s) (during the preceding hour but not at the time of observation)
25 - Shower(s) of rain (during the preceding hour but not at the time of observation)
26 - Shower(s) of snow or of rain and snow (during the preceding hour but not at the time of observation)
27 - Shower(s) of hail (Hail, small hail, snow pellets), or rain and hail (during the preceding hour but not at the time of observation) 28 - Fog or ice fog (during the preceding hour but not at the time of observation)
29 - Thunderstorm (with or without precipitation) (during the preceding hour but not at the time of observation)
DU:30 - Slight or moderate dust storm or sandstorm has decreased during the preceding hour
DU:31 - Slight or moderate dust storm or sandstorm no appreciable change during the preceding hour
DU:32 - Slight or moderate dust storm or sandstorm has begun or has increased during the preceding hour
DU:33 - Severe dust storm or sandstorm has decreased during the preceding hour
DU:34 - Severe dust storm or sandstorm no appreciable change during the preceding hour
DU:35 - Severe dust storm or sandstorm has begun or has increased during the preceding hour
DRSN:36 - Slight or moderate drifting snow generally low (below eye level)
DRSN:37 - Heavy drifting snow generally low (below eye level)
BLSN:38 - Slight or moderate blowing snow generally high (above eye level)
BLSN:39 - Heavy blowing snow generally high (above eye level)
FG:40 - Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer
FG:41 - Fog or ice fog in patches
FG:42 - Fog or ice fog, sky visible, has become thinner during the preceding hour
FG:43 - Fog or ice fog, sky invisible, has become thinner during the preceding hour
FG:44 - Fog or ice fog, sky visible, no appreciable change during the preceding hour
FG:45 - Fog or ice fog, sky invisible, no appreciable change during the preceding hour
FG:46 - Fog or ice fog, sky visible, has begun or has become thicker during the preceding hour
FG:47 - Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour
FG:48 - Fog, depositing rime, sky visible
FG:49 - Fog, depositing rime, sky invisible
DZ:50 - Drizzle, not freezing, intermittent, slight at time of observation
DZ:51 - Drizzle, not freezing, continuous, slight at time of observation
DZ:52 - Drizzle, not freezing, intermittent, moderate at time of observation
DZ:53 - Drizzle, not freezing, continuous, moderate at time of observation
DZ:54 - Drizzle, not freezing, intermittent, heavy (dense) at time of observation
DZ:55 - Drizzle, not freezing, continuous, heavy (dense) at time of observation
FZDZ:56 - Drizzle, freezing, slight
FZDZ:57 - Drizzle, freezing, moderate or heavy (dense)
DZ:58 - Drizzle and rain, slight
DZ:59 - Drizzle and rain, moderate or heavy
RA:60 - Rain, not freezing, intermittent, slight at time of observation
RA:61 - Rain, not freezing, continuous, slight at time of observation
RA:62 - Rain, not freezing, intermittent, moderate at time of observation
RA:63 - Rain, not freezing, continuous, moderate at time of observation
RA:64 - Rain, not freezing, intermittent, heavy at time of observation
RA:65 - Rain, not freezing, continuous, heavy at time of observation
FZRA:66 - Rain, freezing, slight
FZRA:67 - Rain, freezing, moderate or heavy
RA:68 - Rain or drizzle and snow, slight
RA:69 - Rain or drizzle and snow, moderate or heavy
SN:70 - Intermittent fall of snowflakes, slight at time of observation
SN:71 - Continuous fall of snowflakes, slight at time of observation
SN:72 - Intermittent fall of snowflakes, moderate at time of observation
SN:73 - Continuous fall of snowflakes, moderate at time of observation
SN:74 - Intermittent fall of snowflakes, heavy at time of observation

SN:75 - Continuous fall of snowflakes, heavy at time of observation
76 - Diamond dust (with or without fog)
SG:77 - Snow grains (with or without fog)
SN:78 - Isolated star-like snow crystals (with or without fog)
PL:79 - Ice pellets
SHRA:80 - Rain shower(s), slight
SHRA:81 - Rain shower(s), moderate or heavy
SHRA:82 - Rain shower(s), violent
SHRASN:83 - Shower(s) of rain and snow mixed, slight
SHRASN:84 - Shower(s) of rain and snow mixed, moderate or heavy
SHSN:85 - Show shower(s), slight
SHSN:86 - Snow shower(s), moderate or heavy
SH:87 - Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, slight
SH:88 - Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, moderate or heavy
SH:89 - Shower(s) of hail (hail, small hail, snow pellets), with or without rain or rain and snow mixed, not associated with thunder, slight
SH:90 - Shower(s) of hail (hail, small hail, snow pellets), with or without rain or rain and snow mixed, not associated with thunder, moderate or heavy
RA:91 - Slight rain at time of observation, thunderstorm during the preceding hour but not at time of observation
RA:92 - Moderate or heavy rain at time of observation, thunderstorm during the preceding hour but not at time of observation
93 - Slight snow, or rain and snow mixed or hail (Hail, small hail, snow pellets), at time of observation, thunderstorm during the preceding hour but not at time of observation
94 - Moderate or heavy snow, or rain and snow mixed or hail(Hail, small hail, snow pellets) at time of observation, thunderstorm during the preceding hour but not at time of observation
TS:95 - Thunderstorm, slight or moderate, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation
TS:96 - Thunderstorm, slight or moderate, with hail (hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation
TS:97 - Thunderstorm, heavy, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation
TS:98 - Thunderstorm combined with dust storm or sandstorm at time of observation, thunderstorm at time of observation
TS:99 - Thunderstorm, heavy, with hail (Hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation

Wind Chill Chart

Temperature (°F)

Wind (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75($V^{0.16}$) + 0.4275T($V^{0.16}$)

Where, T= Air Temperatur · (°F) V= Wind Speed (mph)

Effective 11/01/01

NOAA's National Weather Service

Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger