

Storm Event Data and Documentation URL:

<https://www.ncdc.noaa.gov/stormevents/>

The Storm Events Database contains extensive National Weather Service data on storm events by state and county. Storm events are recorded for hurricanes, tornadoes, thunderstorms, hail, floods, drought conditions, lightning, high winds, snow, temperature extremes, and other weather phenomena. The data set available here includes detailed data on N=166,048 storm events that occurred between Jan, 2013 and October 2015.

An overview of the Storm Event Database can be found at:

<https://www.ncdc.noaa.gov/news/storm-events-database-version-30>

Detailed documentation on NWS storm event data collection procedures and comprehensive variable definitions can be found at:

<https://www.ncdc.noaa.gov/stormevents/pd01016005curr.pdf>

An example of a Storm Data publication can be found at:

<http://www.ncdc.noaa.gov/IPS/sd/sd.html>

Data Set name: *storm_event_data.csv* (*storm_event_data.sas7bdat* in SAS Studio)

Storm Event Details Variable Codebook

last_date_modified Ex: 4/4/2012 11:05:44 PM, 5/3/2012 5:10:49 AM
MM/DD/YYYY 12 hour time AM/PM

The last date of modification by NWS. Any corrections to the storm event/episode in question are made solely by NWS and the person that actually entered the event/episode.

last_date_certified Ex: 5/10/2012 9:10:51 AM, 5/18/2012 12:21:15 AM
MM/DD/YYYY 12 hour time AM/PM

The last date of certification by NWS. Any corrections to the storm event/episode in question are made solely by NWS and the person that actually entered the event/episode.

episode_id Ex: 61280, 62777, 63250

(ID assigned by NWS to denote the storm episode; links the event details file with the information within location file)

The occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. Rare, unusual, weather phenomena that generate media attention, such as snow flurries in South Florida or the San Diego coastal area; and Other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occur in connection with another event.

event_id Ex: 383097, 374427, 364175

(Primary database key field)

(ID assigned by NWS to note a single, small part that goes into a specific storm episode; links the storm episode between the three files downloaded from SPC's website)

state Ex: GEORGIA, WYOMING, COLORADO

The state name where the event occurred (no State ID's are included here; State Name is spelled out in ALL CAPS)

state_fips Ex: 45, 30, 12

A unique number (State Federal Information Processing Standard) is assigned to the county by the National Institute for Standards and Technology (NIST).

year Ex: 2000, 2006, 2012

Four digit year for the event in this record

month_name Ex: January, February, March

Name of the month for the event in this record (spelled out; not abbreviated)

event_type Ex: Hail, Thunderstorm Wind, Snow, Ice (spelled out; not abbreviated)

The only events permitted in Storm Data are listed in Table 1 of Section 2.1.1 of NWS Directive 10-1605 at <http://www.nws.noaa.gov/directives/sym/pd01016005curr.pdf>. The chosen event name should be the one that most accurately describes the meteorological event leading to fatalities, injuries, damage, etc. However, significant events, such as tornadoes, having no impact or causing no damage, should also be included in Storm Data.

From Section 2.1.1 of NWS Directive 10-1605:

Event Name	Designator (County or Zone)	Event Name	Designator (County or Zone)
Astronomical Low Tide	Z	Seiche	Z
Avalanche	Z	Sleet	Z
Blizzard	Z	Storm Surge/Tide	Z
Coastal Flood	Z	Strong Wind	Z
Cold/Wind Chill	Z	Thunderstorm Wind	C
Debris Flow	C	Tornado	C
Dense Fog	Z	Tropical Depression	Z
Dense Smoke	Z	Tropical Storm	Z
Drought	Z	Tsunami	Z
Dust Devil	C	Volcanic Ash	Z
Dust Storm	Z	Waterspout	M
Excessive Heat	Z	Wildfire	Z
Extreme Cold/Wind Chill	Z	Winter Storm	Z
Flash Flood	C	Winter Weather	Z
Flood	C		
Frost/Freeze	Z		
Funnel Cloud	C		
Freezing Fog	Z		
Hail	C		
Heat	Z		
Heavy Rain	C		
Heavy Snow	Z		
High Surf	Z		
High Wind	Z		
Hurricane (Typhoon)	Z		
Ice Storm	Z		
Lake-Effect Snow	Z		
Lakeshore Flood	Z		
Lightning	C		
Marine Hail	M		
Marine High Wind	M		
Marine Strong Wind	M		
Marine Thunderstorm Wind	M		
Rip Current	Z		

cz_type Ex: C, Z, M

Indicates whether the event happened in a (C) county/parish, (Z) zone or (M) marine

cz_fips Ex: 245, 003, 155

The county FIPS number is a unique number assigned to the county by the National Institute for Standards and Technology (NIST) or NWS Forecast Zone Number (See addendum)

cz_name Ex: AIKEN, RICHMOND, BAXTER (County/Parish, Zone or Marine Name assigned to the county FIPS number or NWS Forecast Zone)

wfo Ex: CAE, BYZ, GJT (National Weather Service Forecast Office's area of responsibility (County Warning Area) in which the event occurred)

begin_date_time Ex: 4/1/2012 20:48

Date and time that storm event began (MM/DD/YYYY 24 hour time AM/PM)

begin_time Ex 00:00 (12 AM), 20:48 (11:48 PM)

Time storm event began (24 hour time)

cz_timezone Ex: EST-5, MST-7, CST-6

(Time Zone for the County/Parish, Zone or Marine Name)

Eastern Standard Time (EST), Central Standard Time (CST), Mountain Standard Time (MST), etc.

end_date_time Ex: 4/1/2012 21:03

Date and time that storm event ended (MM/DD/YYYY 24 hour time AM/PM)

end_time Ex 00:00 (12 AM), 20:48 (11:48 PM)

Time that storm event ended (24 hour time)

injuries_direct Ex: 1, 0, 56

The number of injuries directly related to the weather event

injuries_indirect Ex: 0, 15, 87

The number of injuries indirectly related to the weather event

deaths_direct Ex: 0, 45, 23

The number of deaths directly related to the weather event.

deaths_indirect Ex: 0, 4, 6

The number of deaths indirectly related to the weather event

damage_property Ex: 10.00K, 0.00K, 10.00M

The estimated amount of damage to property incurred by the weather event. (e.g. 10.00K = \$10,000; 10.00M = \$10,000,000)

damage_crops Ex: 0.00K, 500.00K, 15.00M

The estimated amount of damage to crops incurred by the weather event (e.g. 10.00K = \$10,000; 10.00M = \$10,000,000)

source Ex: Public, Newspaper, Law Enforcement, Broadcast Media, ASOS, Park and Forest Service, Trained Spotter, CoCoRaHS, etc. (can be any entry; isn't restricted in what's allowed)
Source reporting the weather event

magnitude Ex: 0.75, 60, 0.88, 2.75

measured extent of the magnitude type ~ only used for wind speeds and hail size (e.g. 0.75" of hail; 60 mph winds)

magnitude_type Ex: EG, MS, MG, ES

EG = Wind Estimated Gust; ES = Estimated Sustained Wind; MS = Measured Sustained Wind; MG = Measured Wind Gust (no magnitude is included for instances of hail)

flood_cause Ex: Ice Jam, Heavy Rain, Heavy Rain/Snow Melt
Reported or estimated cause of the flood

category Ex:

Unknown (During the time of downloading this particular file, NCDC has never seen anything provided within this field.)

tor_f_scale Ex: EF0, EF1, EF2, EF3, EF4, EF5

Enhanced Fujita Scale describes the strength of the tornado based on the amount and type of damage caused by the tornado. The F-scale of damage will vary in the destruction area; therefore, the highest value of the F-scale is recorded for each event.

EF0 – Light Damage (40 – 72 mph)

EF1 – Moderate Damage (73 – 112 mph)

EF2 – Significant damage (113 – 157 mph)

EF3 – Severe Damage (158 – 206 mph)

EF4 – Devastating Damage (207 – 260 mph)

EF5 – Incredible Damage (261 – 318 mph)

tor_length Ex: 0.66, 1.05, 0.48

Length of the tornado or tornado segment while on the ground (minimal of tenths of miles)

tor_width Ex: 25, 50, 2640, 10

Width of the tornado or tornado segment while on the ground (in feet)

tor_other_wfo Ex: DDC, ICT, TOP, OAX

Indicates the continuation of a tornado segment as it crossed from one National Weather Service Forecast Office to another. The subsequent WFO identifier is provided within this field.

tor_other_cz_state Ex: KS, NE, OK

The two character representation for the state name of the continuing tornado segment as it crossed from one county or zone to another. The subsequent 2-Letter State ID is provided within this field.

tor_other_cz_fips Ex: 41, 127, 153

The FIPS number of the county entered by the continuing tornado segment as it crossed from one county to another. The subsequent FIPS number is provided within this field.

tor_other_cz_name Ex: DICKINSON, NEMAHA, SARPY

The FIPS name of the county entered by the continuing tornado segment as it crossed from one county to another. The subsequent county or zone name is provided within this field in ALL CAPS.

episode_title Ex: Severe weather outbreak on Saturday April 14 in eastern Nebraska

A short description of the episode. (Short name for the episode itself as determined by NWS.)

num_events Ex. 1, 10, 27

The number of events associated with each severe weather outbreak (episode).