

## Storm Data Bulk Data Format

There are 3 files linked by the event ID number. Details, locations and fatalities

### Event Details File (named StormEvents\_details-ftp\_v1.0\_d2019\_c20200219.csv):

Where d = data year and c = creation date

**begin\_yearmonth** Ex: 201212 (YYYYMM format)

The year and month that the event began

**begin\_day** Ex: 31 (DD format)

The day of the month that the event began

**begin\_time** Ex: 2359 (hhmm format)

The time of day that the event began

**end\_yearmonth** Ex: Ex: 201301 (YYYYMM format)

The year and month that the event ended

**end\_day** Ex: 01 (DD format)

The day of the month that the event ended

**end\_time** Ex: 0001 (hhmm format)

The time of day that the event ended

**episode\_id** Ex: 61280, 62777, 63250

ID assigned by NWS to denote the storm episode; Episodes may contain multiple Events.

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.

**event\_id** Ex: 383097, 374427, 364175

ID assigned by NWS for each individual storm event contained within a storm episode; links the record with the same event in the storm\_event\_details, storm\_event\_locations and storm\_event\_fatalities tables (Primary database key field).

**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) assigned to the county by the National Institute for Standards and Technology (NIST).

**year** Ex: 2000, 2006, 2012

The four digit year for the event in this record.

**month\_name** Ex: January, February, March

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

**cz\_type** Ex: C, Z, M

Indicates whether the event happened in a (C) County/Parish, (Z) NWS Public Forecast 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

The National Weather Service Forecast Office's area of responsibility (County Warning Area) in which the event occurred.

**begin\_date\_time** Ex: 04/1/2012 20:48:00

MM/DD/YYYY hh:mm:ss (24 hour time usually in LST)

**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: 04/1/2012 21:03:00

MM/DD/YYYY hh:mm:ss (24 hour time usually in LST)

**injuries\_direct** Ex: 1, 0, 56

The number of injuries directly caused by the weather event.

**injuries\_indirect** Ex: 0, 15, 87

The number of injuries indirectly caused by the weather event.

**deaths\_direct** Ex: 0, 45, 23

The number of deaths directly caused by the weather event.

**deaths\_indirect** Ex: 0, 4, 6

The number of deaths indirectly caused by 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.

The source reporting the weather event (can be any entry; isn't restricted in what's allowed)

**magnitude** Ex: 0.75, 60, 0.88, 2.75

The measured extent of the magnitude type ~ only used for wind speeds (in knots) and hail size (in inches to the hundredth).

**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**

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 (in miles to the tenth).

**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.

**begin\_range** Ex: 0.59, 0.69, 4.84, 1.17 (in miles)

The distance to the nearest tenth of a mile, to the location referenced below.

**begin\_azimuth** Ex: ENE, NW, WSW, S

16-point compass direction from the location referenced below.

**begin\_location** Ex: PINELAND, CENTER, ORRS, RUSK

The name of city, town or village from which the range is calculated and the azimuth is determined.

**end\_range** see begin\_range

**end\_azimuth** see begin\_azimuth

**end\_location** see begin\_location

**begin\_lat** Ex: 29.7898

The latitude in decimal degrees of the begin point of the event or damage path.

**begin\_lon** Ex: -98.6406

The longitude in decimal degrees of the begin point of the event or damage path.

**end\_lat** Ex: 29.7158

The latitude in decimal degrees of the end point of the event or damage path. Signed negative (-) if in the southern hemisphere.

**end\_lon** Ex: -98.7744

The longitude in decimal degrees of the end point of the event or damage path. Signed negative (-) if in the eastern hemisphere.

**episode\_narrative** Ex: *A strong upper level system over the southern Rockies lifted northeast across the plains causing an intense surface low pressure system and attendant warm front to lift into Nebraska.*

The episode narrative depicting the general nature and overall activity of the episode. The National Weather Service creates the narrative.

**event\_narrative** Ex: *Heavy rain caused flash flooding across parts of Wilber. Rainfall of 2 to 3 inches fell across the area.*

The event narrative provides descriptive details of the individual event. The National Weather Service creates the narrative.

## Storm Data Location File

(named StormEvents\_locations-ftp\_v1.0\_d1972\_c20181029.csv.gz)

Where dyyyy = data year and cyyymmdd = file creation date

**episode\_id** Ex: 61280, 62777, 63250

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**location\_index** Ex: 1-8

Number assigned by NWS to specific locations within the same Storm event. Each event's sequentially increasing location index number will have a corresponding lat/lon point

**range** Ex: 0.59, 0.69, 4.84, 1.17 (used with azimuth and location fields)

Distance (to the tenth of a mile) to the geographical center or primary post office of a particular village/city, providing that the reference point is documented in the Storm Data software location database table.

**azimuth** Ex: ENE, NW, WSW, S (used with range and location fields)

16-point compass direction from the reference point is documented in the Storm Data software location database table of > 130,000 locations.

**location** Ex: ASHEVILLE, DAVENPORT, SAN DIMAS

The name of city, town or village from which the range is calculated and the azimuth is determined

**lat** Ex: 31.25, 31.79, 32.76, 31.80

The latitude where the event occurred (Signed negative (-) if it's in the southern hemisphere)

**lon** Ex: -93.97, -94.18, -94.52, -95.13

The longitude where the event occurred (Signed negative (-) if it's in the western hemisphere)

## Storm Data Fatality File

(named *StormEvents\_fatalities-ftp\_v1.0\_d2011\_c20180718.csv.gz*)

Where dyyyy = data year and cyyymmdd = file creation date

**fatality\_id** Ex: 17582, 17590, 17597, 18222

ID assigned by NWS to denote the individual fatality that occurred)

**event\_id** Ex: 383097, 374427, 364175

ID assigned by NWS for each individual storm event contained within a storm episode; links the record with the same event in the storm\_event\_details, storm\_event\_locations and storm\_event\_fatalities tables (Primary database key field)

**fatality\_type** Ex: D , I

(D = Direct Fatality; I = Indirect Fatality; assignment of this is determined by NWS software; details below are from NWS Directive 10-1605 at

<http://www.nws.noaa.gov/directives/sym/pd01016005curr.pdf>, Section 2.6)

**fatality\_date** Ex: 4/3/2012 00:00

MM/DD/YYYY hh:mm (time is usually 00.00)

**fatality\_age** Ex: 38, 25, 69, 54

The age in years of the fatality (sometimes 'null' if unknown)

**fatality\_sex** Ex: M, F

The gender of the fatality (sometimes 'null' if unknown)

**fatality\_location** Ex: UT, OU, MH, PS

### Direct Fatality Location Table

BF Ball Field

VE Vehicle and/or Towed Trailer

BO Boating

BU Business

CA Camping

CH Church

EQ Heavy Equip/Construction

GF Golfing

IW In Water

LS Long Span Roof

MH Mobile/Trailer Home

OT Other/Unknown

OU Outside/Open Areas

PH Permanent Home

PS Permanent Structure

SC School

TE Telephone

UT Under Tree