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)
Astronomical Low Tide	Z
Avalanche	Z
Blizzard	Z
Coastal Flood	Z
Cold/Wind Chill	Z
Debris Flow	C
Dense Fog	Z
Dense Smoke	Z
Drought	Z
Dust Devil	C
Dust Storm	Z
Excessive Heat	Z
Extreme Cold/Wind Chill	Z
Flash Flood	C
Flood	C
Freezing Fog	Z
Frost/Freeze	Z
Funnel Cloud	C
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	C
Marine Hail	M
Marine High Wind	M
Marine Strong Wind	M
Marine Thunderstorm Wind	M
Rip Current	Z
Seiche	Z
Sleet	Z
Storm Surge/Tide	Z
Strong Wind	Z
Thunderstorm Wind	C
Tornado	C
Tropical Depression	Z
Tropical Storm	Z
Tsunami	Z
Volcanic Ash	Z
Waterspout	M
Wildfire	Z
Winter Storm	Z
Winter Weather	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 cyyyymmdd = file creation date

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)

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 cyyyymmdd = 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 Directve 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
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
VE Vehicle and/or Towed Trailer