

SPC Severe Thunderstorm Database (ONETOR,FHAIL,FWIND) Format

Blank spaces are assumed to be missing data

Distributions are from ONETOR through 1995

Column	Da ta	Range	Comments - <u><i>Distributions are counts of records NOT counts of tornadoes</i></u>
1 (A)	Year	1950-2001	Four digits (to be 2000 compliant)
2 (B)	Num	1-232	Number of tornado in state in given year.
3 (C)	State	1-99	FIPS Number of State (1-Alabama, 2-Alaska, 4-Arizona, 5-Arkansas, 6-California, 8-Colorado, 9-Connecticut, 10-Delaware, 11-District of Columbia, 12-Florida, 13-Georgia, 15-Hawaii, 16-Idaho, 17-Illinois, 18-Indiana, 19-Iowa, 20-Kansas, 21-Kentucky, 22-Louisiana, 23-Maine, 24-Maryland, 25-Massachusetts, 26-Michigan, 27-Minnesota, 28-Mississippi, 29-Missouri, 30-Montana, 31-Nebraska, 32-Nevada, 33-New Hampshire, 34-New Jersey, 35-New Mexico, 36-New York, 37-North Carolina, 38-North Dakota, 39-Ohio, 40-Oklahoma, 41-Oregon, 42-Pennsylvania, 44-Rhode Island, 45-South Carolina, 46-South Dakota, 47-Tennessee, 48-Texas, 49-Utah, 50-Vermont, 51-Virginia, 53-Washington, 54-West Virginia, 55-Wisconsin, 56-Wyoming, 97 (98 in 1999) -Virgin Islands, 98-Virgin Islands, 99-Porto Rico) -- For multi state tornadoes, the "1" record gives the state of initial touchdown
4 (D)	Month	1-12	Number of Month.
5 (E)	Day	1-31	Number of Day.
6 (F)	Date	MM/DD/YY	Paradox Coded Date.
7 (G)	Time	0.00-23.98	Decimal Format - 24 Hour Clock - Central Standard Time ... (6:15 pm CST=18.25 ).
8 (H)	Zone	0-9	Time Zone (0=?, 1=EST, 2=EDT, 3=CST, 4=CDT, 5=MST, 6=MDT, 7=PST, 8=PDT, 9=GMT) – <u>They All should be 3 (CST)</u> – During 1950-1997, the distribution was: 0-9; 1-1,617; 2-52; 3-33,255; 4-84; 5-838; 6-28; 7-107; 8-15; 9-2). We are checking these and the associated times against "Storm Data." The data set will be "corrected" when the check is finished.

9 (I)	Tor. No.	---	A count of tornadoes during the year. For 1998 on these numbers agree with the number assigned to the tornado by OM.
10 (J)	Type	1-7	Type of Event (1-Tornado, 4-Waterspout moving ashore, 5-Tornado moving over large body of water,6-hail greater than 3/4" in diameter,7-winds greater than 50 kts or damaging wind ). 4 and 5 last used in 1979. During 1950-1997, the distribution was: 1-35,832; 4-143; 5-32.
11 (K)	Rmks	0-5	Tornado Event Remarks (0-none, 1-with large hail, 2-with heavy rain, 3-with large hail and heavy rain, 4 no rain or hail, 5-?). Rarely been from 1983 on. During 1950-1997, the distribution was: 0-31,186; 1-975; 2-2012; 3-982; 4-851; 5-1.
12 (L)	No-Sts	1-3	Number of states traversed by the tornado. During 1950-1997, the distribution was: 1-35269; 2=717; 3=21. This is blank for non-tornado entries. Note this is NOT a count of tornadoes, it is a count of records.
13 (M)	State-Tor	1-9	A flag if 1 that this is a unique state entry...the number of tornadoes in a state is a count of the 1 entries (Note if a tornado leaves a state and re-enters it, there are two 1 entries in this column.
14 (N)	Segno	1,2,-9	A flag indicating the nature of the record . This is blank for non-tornadoes. During 1950-1997, the distribution was: 1-35,435; 2-484, -9-88)  1 designates a record is for a tornadoes entire path. (each tornado has 1 and only 1 record). A count of 1 records is a count of tornadoes.  2 designates of state information on a tornado that effects more than 1 state. If a tornado touches 2 states, it has two 2 records; 3 states it has three 2 cards (if a tornado leaves and reenters a state, it has two 2 records for that state, and one 2 record for the in between state. On 21 Nov. 1992 a tornado touched down in Kentucky crossed the Ohio River into Indiana, and re-crossed the river going back into Kentucky).  -9 indicates a continuation record listing additional counties affected by the tornado. A -9 record does not have latitudes,

			longitudes, lengths, widths, fatalities, or injuries listed.
15 (O)	Slat		The latitude of touchdown (tornado type 1 record, wind, hail) or of entry point into state (tornado type 2 record). Decimal format (90.50 = 90°30"). Not on tornado -9 records.
16 (P)	Stlon		The longitude of touchdown (tornado type 1 record, wind hail) or of entry point into state (tornado type 2 record). Decimal format (90.50 = 90°30"). Not on tornado -9 records.
17 (Q)	Splat		The latitude of lift-off (type 1 record) or of exit point into state (type 2 record), only given if point is differentiable from the (stlat,stlon) point. Decimal format (90.50 = 90°30"). Not on 9 records. Blank on hail and wind records.
18 (R)	Splon		The longitude of lift-off (type 1 record) or of exit point into state (type 2 record), only given if point is differentiable from the (stlat,stlon) point. Decimal format (90.50 = 90°30"). Not on 9 records. Blank on hail and wind records.
19 (S)	Lgth	0-2347	Length of tornado track if known in tenths of statute miles (146 = 14.6 miles). Since this accounts for nonlinear tracks so the result might not be the same as the great circle distance from touchdown to lift-off points. Not given for 9 records. The minimum length is assumed to be 0.1 mi (ie =1). A width is computed for each "segment" (state) that a tornado effects. Blank on hail and wind records.
20 (T)	Ongd	0-9	Percent of tornado path on the ground in tens of per cent (I.E., 5=50%) and 0 denoting 100%. This was an attempt to account for the damage area of "skipping" tornadoes. Not given for 9 records. During 1950-1997, the distribution was: 0-31,026; 1-306; 2-295; 3-325; 4-189, 5-1,335; 6-232; 7-271; 8-378; 9-318. Rarely used after 1983. Blank on hail and wind records.
21 (U)	Area	---	Tornado path area in square miles. Blank on hail and wind records.
22 (V)	F*AREA	---	Path area in square miles multiplied by the F-scale. Blank on hail and wind records.
23 (W)	Rot	0,1,2,3,6	An indicator for sense of tornado rotation (1-counterclockwise; 2-clockwise; 3-?; 6-?; blank if unknown). During 1950-1997, the distribution was: 0-35,584; 1-1,015;

			2-54; 3-5; 6-1. Not given on -9 records. Not used since 1986 Blank on hail and wind records.
24 (X)	Width	0-999	Mean tornado path width (if known) in tens of feet (528 = 5280 feet = 1 mile). The mean width along the entire track is reported. If a multi state event, it should be the same in all 2 records. Not given on -9 records. The minimum width is assumed to be 30 feet (ie = 3). A width is computed for each "segment" (state) that a tornado effects. Blank on hail and wind records.
25 (Y)	Fatal	0-116	Fatalities. A breakdown by state is given in 2 records. Not given on -9 records.
26 (Z)	Inj	0-1740	Injuries. A breakdown by state is given in 2 records. Not given for 9 records.
27 (AA)	Damage	0-9	For 1995 and before this is a categorization of tornado damage by dollar amount (0 or blank-unknown; 1<\$50; 2-\$50 to \$500; 3-\$500 to \$5,000; 4=\$5,000 to \$50,000; 5-\$50,000-\$500,000; 6-\$500,000 to \$5,000,000; 7-\$5,000,000 to \$50,000,000; 8-\$50,000,000 to \$500,000,000; 9>\$500,000,000). Not given for -9 records. During 1950-1995, the distribution was: 0-10,351; 1-1,593; 2-1,619; 3-5,159; 4-8,868; 5-6,087; 6-1,835; 7-373; 8-36; 9-0.  Starting with 1996 this is tornado property damage in millions of dollars.
28 (AB)			FIPS Number of first county (or equivalent) hit by event. Not given on 1 records of multi state tornadoes.
29 (AC)			FIPS Number of second county (or equivalent) hit by event. Not given on 1 records of multi state tornadoes.
30 (AD)			FIPS Number of third county (or equivalent) hit by event. Not given on 1 records of multi state tornadoes.
31 (AE)			For tornadoes FIPS Number of fourth county (or equivalent) hit by tornado. Not given on 1 records of multi state tornadoes.  For Hail, this field contains Hail Size in hundredths of inches.

For winds, this field contains Maximum Gust in knots.

32 (AF) F -9, 0 to 5 Fujita's F-scale. This is a damage classification. Wind estimates associated with damage are crude at best. The original reference is Fujita, T.T., 1971; "Proposed Characterization of Tornadoes and Hurricanes by Area and Intensity," Satellite & Mesometeorology Research Project, The University of Chicago, 40pp. A -9 indicates that no estimate of F-Scale is available. All records (1,2,-9) on a given tornado should have the same value. During 1950-1997, the distribution was: -9-1,864; 0-11,783; 1-12,700, 2-7,088; 3-1,953; 4-544; 5-75 (Note these are records not tornadoes). Blank on hail and wind records.

32 (AG) Pl -9, 0 to 5 Pl is a categorization of tornado path length. The formula is:  $Pl = 2 * \log(L) + 1$  where L is length in miles. Reference Fujita, T.T. and A.D.Pearson, 1973; "Results of FPP Classification of 1971 and 1972 Tornadoes" Preprints, American Meteorological Society Conference on Severe Local Storms, 142-145.

Pl	MAX	MIN	
3	31.610.0		-1 0.1 ----
4	99.931.7		5 316.2

hail and wind records.

33 (AH) Pw -9, 0 to 5 Pw is a categorization for path width. The formula is:  $Pw = 2 * \log(W) + 5$  where W is the mean width, This should be recalculated from column 24 (mean width). Reference Fujita, T.T. and A.D.Pearson, 1973; "Results of FPP Classification of 1971 and 1972 Tornadoes" Preprints, American Meteorological Society Conference on Severe Local Storms, 142-145.

Pw	MAX	MIN
0	10	—
1	160	52
2	525	170
3	1660	530
4	5270	1670
5	16690	5280

A -9 indicates that no estimate of Pw-Scale is available. (The value of Width was arbitrarily set at the minimum) All records (1,2,-9) on a given tornado have the same value. Blank on hail and wind records.

34 (AI)

Garbage number or character that serves as a record end.  
Has no meaning.