

Ice storm summaries

The process of establishing superstations from the weather stations, used for estimating extreme ice thicknesses from freezing rain, requires the compilation of information on past ice storms from *Storm Data* (NOAA 1959 to present), *Climatological Data National Summary* (U.S. Weather Bureau 1950 to 1959), and newspapers from the cities in the regions (**link to Fig 3. at <http://www.americanlifelinesalliance.org/pdf/IceLoad.pdf>**) analyzed. This information was compiled for all storms in which the modeled equivalent radial ice thickness was at least 0.5" at one or more weather stations. The footprint of each storm was established based on reports of ice and wind-on-ice damage to trees, phone lines, telegraph lines, power lines, cable TV and communication towers. A delineation of each storm footprint and information on the storm's severity is provided in the following tables. Table 1 describes damaging ice storms in the interior of the Carolinas (**link to Table 1**) and Table 2 covers the Plains (**link to Table 2**) states.

In the tables, the start date of each ice storm is the date that freezing rain began at a station in the region. The end date is the date that the air temperature warmed to above freezing at all the stations in the region affected by the storm. The descriptive information for each storm includes any mention of outages associated with fog, high winds accompanying or following the freezing rain, galloping wires, the duration of particularly long power or phone outages, comparisons to previous storms, and descriptions of the amount of ice on trees and wires. These observations of the amount of ice should not be considered to be the equivalent uniform radial thickness of the ice. They are probably estimated maximum dimensions, either the maximum thicknesses of ice on one side of a wire or branch, or the maximum diameter of a wire plus the accreted ice. For storms with no distinguishing characteristics, the descriptive information is limited to mentions of damage to trees or overhead lines.

Table 1. Ice storm summaries, Plains states

Storm Start	Storm End	Extent	Description
12/31/1946	1/5/1947	Southern Texas north and east paralleling the Gulf Coast and across northern Louisiana into Mississippi	Trees and power and communication lines damaged
1/9/1949	1/12/1949	West Texas and southeastern New Mexico through the panhandle and north Texas, northeast across central Oklahoma and the southeastern corner of Kansas into southcentral Missouri	Ice storm of unusual proportions; worst in Midland's history; long distance phone circuits out across region; 2 to 3" of ice
1/22/1949	2/4/1949	North Texas north across central and eastern Oklahoma, northwest Arkansas and southeast Kansas and northeast into central Missouri	Worst ice storm in company history for Dallas P+L; steel towers crumpled; winds to 35 mph on 1/30 slowed repairs; 2" of ice on wires; some phone lines had not been repaired from previous storm
2/12/1949	2/15/1949	Wichita Falls area	Heaviest ice in the 17 years experience of the newspaper editor
12/21/1949	12/23/1949	West North Texas northeast across west central Oklahoma	Trees and power and communication lines damaged; little wind
1/3/1950	1/6/1950	Eastern Arkansas, western Tennessee, into Missouri and north	2" of ice and sleet; worst ice storm in 17 years in Memphis area; one of worst in history in eastern AR
1/30/1950	2/3/1950	West North Texas into southeast Oklahoma and northwest Arkansas	1 lb of ice on 20" length of wire in Mountainburg AR; worst in many years; 2" ice on wires and trees; heavy timber damage; "untold damage" in parts of TX
1/29/1951	2/3/1951	Lower Rio Grande Valley and Gulf coast of Texas into eastern Texas, western coastal Louisiana and north, except far northern Louisiana	Ice storm pounded Valley; heavy icing and thunderstorm winds in LA
2/13/1951	2/15/1951	Southcentral Texas northeast across eastern Oklahoma and western Arkansas, into Missouri	Communication almost paralyzed in AR; ice on wires 1.5" in diameter in San Antonio area; worst ice storm in Palestine TX history; timber damage in MO and AR

Storm Start	Storm End	Extent	Description
1/1/1952	1/7/1952	Northeast South Plains, northeast across of central Oklahoma and east across north Arkansas and south Missouri	Ice on wires 2" in diameter with 6" long icicles in MO
1/23/1953	1/23/1953	Tulsa, Oklahoma area	Local ice storm
4/17/1953	4/19/1953	Northcentral Oklahoma east into Missouri	Ice, wind and lightning damaged phone and power lines
2/19/1954	2/21/1954	Sioux Falls, South Dakota area	Damage to phone system
2/1/1955	2/5/1955	Northwest Arkansas; northwest Oklahoma excluding Panhandle	Phone and power lines damaged in OK; 1" ice on wires; in AR damage was at higher elevations;
1/17/1956	1/19/1956	Central North Texas from Waco to Dallas	3/4" of ice on wires; phone company in Dallas had weatherproofed lines so they had no problems
12/7/1956	12/10/1956	Northeastern Oklahoma northeast into Missouri and on	Power and communication lines damaged
1/26/1957	1/28/1957	Central Arkansas northeast through southeast Missouri and on	Most severe ice storm in northeast AR in 20 years; both water and power out in some towns; one of worst in memory in southeast MO;
3/25/1959	3/27/1959	Northeast Colorado	Ice hampered phone service
12/14/1959	12/15/1959	Texas Panhandle and into New Mexico	2 lb/ft of ice on transmission lines; worst since 1940 in Amarillo
2/29/1960	3/2/1960	East North Texas and east across northern Louisiana and southern Arkansas and east	Trees, timber and power and communication lines damaged; most severe ice storm in memory in AL
12/6/1960	12/14/1960	West Texas and southeast and eastcentral New Mexico; Abilene, Texas, area; northwest Oklahoma excluding panhandle; central to northeast Kansas	Power and phone lines damaged, TV tower collapsed in NM; ice up to 2" in diameter on wires--worst ice storm in decade in Nolan Co, TX; ; top 200 ft of TV tower broke off in TX; up to 1" thick ice--worst in 20 years in KS; windy
1/25/1961	1/29/1961	Gulf coast from Houston across half of Louisiana	Trees and power and communication lines damaged
11/14/1961	11/21/1961	South Plains into the Texas and Oklahoma panhandles; north-central Kansas	Trees and power and communication lines damaged; windy; 3/4" ice on wires in KS
12/20/1963	12/24/1963	Northwest Louisiana	Trees and power and communication lines damaged
4/1/1967	4/2/1967	Extreme southwestern corner of Minnesota	Trees and power lines damaged

Storm Start	Storm End	Extent	Description
12/13/1967	12/17/1967	Southeast New Mexico; central to west North Texas into southwest Oklahoma; northwest Iowa, eastern South Dakota and southwest Minnesota	Worst ice storm in more than 10 years in OK, ice on wires up to 4" in diameter; great ice storm of 1967 in Abilene area lasted 4 days, worst since Feb 1949; thick fog noted in both TX and OK; worst in 20 years in some parts of MN; 1-2" ice in IA
2/13/1968	2/15/1968	Abilene and San Angelo area in Texas	Phone lines damaged
2/13/1969	2/21/1969	Southwest to central Kansas	Trees and power lines damaged
1/5/1973	1/13/1973	Gulf coast of south Texas into Louisiana; North Louisiana into southern Arkansas	Worst winter disaster for Nuecus Electric Coop; compared to 1951 storm; communication towers down in the Coastal Bend; compared to hurricane in LA; outages lasted up to 2 days
11/15/1973	11/29/1973	Eastern Nebraska and north into South Dakota	Worst storm for some electric utilities in NE in 25 to 30 years; up to 1.5" of ice in SD
12/2/1973	12/7/1973	Southwest Kansas, northeast across southeast Nebraska and northwest Missouri, and into central Iowa	Power outages lasted up to 6 days; one of most severe ice storms of record in KS; worst ice in this century in southwest IA; communication towers damaged
12/23/1973	1/14/1974	North Texas and east in southern Arkansas and northern Louisiana; north-central Kansas	Not as bad as Dec 3 storm in KS; windy--wire breaks in this storm, rather than the pole and cross-arm breaks that were common in the last storm; outages lasted several days in AR
4/6/1975	4/10/1975	Southcentral to northwest North Dakota; southwest Minnesota	Freezing rain followed by snow and wind
3/3/1976	3/6/1976	Eastern Kansas across southeast Nebraska and northeast	Trees and power and phone lines damaged
1/9/1977	1/14/1977	Little Rock Arkansas+C26 area	Isolated outages
2/23/1977	3/7/1977	Eastcentral South Dakota across southern Minnesota	Worst power failure in a decade in the Twin Cities; trees splintered by ice and wind
1/9/1978	1/28/1978	Northcentral Arkansas	Trees and power lines damaged
12/6/1978	12/10/1978	Central to northeast Arkansas into extreme southeast Missouri	Trees and power and phone lines damaged in AR; worst ice storm in extreme southeast MO since the 1950s; outages lasted up to 1 week

Storm Start	Storm End	Extent	Description
12/29/1978	1/4/1979	Central Texas northeast across southeast Oklahoma, northwest Arkansas and into Missouri	Worst ice storm in 30 years in TX and AR--10 day long outages in some places; gusty winds following ice storm in MO
1/4/1979	1/10/1979	East North Texas across southern Arkansas	One of worst ice storms ever in AR; up to 3" of ice; outages lasted up to 2 weeks; timber damaged
3/18/1979	3/21/1979	Northeast North Dakota	Windy; repairs slowed by snow-plugged roads; not as bad as Dec 1977 storm
12/12/1979	12/14/1979	Central north Texas into southcentral Oklahoma; southeast Missouri	Trees and power lines damaged; galloping; gusty winds
2/7/1980	2/13/1980	Westcentral Oklahoma and southeast into westcentral Arkansas	Trees and power lines damaged; many tree fires
12/6/1980	12/9/1980	Southcentral to northeast Kansas into southeast Nebraska	Up to 1" ice; power outages lasting up to 4 days
1/11/1982	1/14/1982	Southeast Texas along Gulf coast into northern Louisiana	Worst ice storm since 1/7/73; some towns without water; cable TV out
12/7/1982	12/11/1982	Southeast New Mexico into South Plains of Texas	Worst ice storm in 22 years in NM; fog with freezing rain
3/4/1983	3/12/1983	North Dakota, except southeast, into northwest Minnesota and northern South Dakota	Up to 8" of ice in ND; power outages lasted up to 2 weeks; communication towers down; windy; galloping
5/11/1983	5/13/1983	West central to north central North Dakota	Repairs not complete from March ice storm; not nearly as bad as that storm
11/26/1983	12/8/1983	Central Kansas to southeast Nebraska and into Iowa	2000' tower in IA fell on 375-kV line; more than 1/2" ice--outages lasted up to 1 week in KS; up to 3" ice in NE
12/18/1983	1/1/1984	Northwest Louisiana northeast across Arkansas	Extensive timber damage in AR; many without water or heat; most widespread problem ever for AP+L
3/18/1984	3/20/1984	Southwest Kansas northeast to northwest Missouri and southeast Nebraska	Up to 2" thick ice--communication towers fell-- one of most damaging and widespread ice storms ever in KS; outages lasted up to 1 week; no water in rural districts
4/27/1984	4/28/1984	Southcentral to northeast North Dakota	1" ice on wires; galloping

Storm Start	Storm End	Extent	Description
3/2/1985	3/6/1985	Northcentral Nebraska into southeast South Dakota and east	In SD many towns without water, outages lasted up to 1 week; windy; communication tower in Iowa down
12/13/1987	12/17/1987	Northwest Arkansas and southwest Missouri	Higher elevations in Ozarks affected
12/24/1987	12/30/1987	West North Texas northeast across central Oklahoma, northwest Arkansas, and southeast Kansas, and northeast through Missouri	Up to 1" thick ice in KS; in MO up to 2" thick ice, outages lasted up to 6 days, worst winter storm since early 70s, more ice and ice remained longer at higher elevations; up to 3" thick ice in OK, communication tower down in Tulsa, worst ice storm in the experience of many
1/1/1988	1/11/1988	Eastcentral Texas into westcentral Louisiana; Alabama; in cloud icing in New Mexico	Not as bad as 1979 storm in TX; gusty winds and outages lasting up to 3 days in LA, worst winter storm there since Dec 1983
2/1/1989	2/8/1989	Houston, Texas area; northwest Louisiana; eastcentral Oklahoma into northwest Arkansas	Steel towers of power line down in TX; outages in Ft. Worth area from water seeping into underground wires; up to 2" of ice in LA; damage limited by recent tree trimming in AR
3/1/1989	3/7/1989	Northwest Arkansas; eastcentral Nebraska and east	Steel towers of power line down in NE; windy in AR; in cloud icing in eastern CO and western KS; chicken houses collapsed from freezing rain and ice pellets in MO and AR
1/18/1990	1/21/1990	Western Panhandle and South Plains of Texas and eastern New Mexico; southcentral Kansas and north	Galloping
12/29/1990	1/2/1991	Arkansas, except south and east, into southwest Missouri	Most severe ice storm since Dec 1983 with outages lasting up to 8 days in AR
10/28/1991	11/11/1991	West North Texas across westcentral Oklahoma and eastcentral Kansas, and southeast Nebraska and the northwest Missouri and into Iowa and MN; southcentral South Dakota into southcentral North Dakota	Galloping in OK, extensive tree pruning limited damage to power lines; up to 2" ice and windy in KS, TV tower down; up to 2" ice in NE; 1.5" ice and windy in ND, galloping; most costly ice storm in history in IA; up to 3" of ice in MN
12/1/1991	12/4/1991	West North Texas northeast across central Oklahoma into southeast Missouri	Trees and power lines damaged

Storm Start	Storm End	Extent	Description
2/21/1993	2/27/1993	Northwest Arkansas and northeast Oklahoma	Trees and power lines damaged
1/16/1994	1/22/1994	North Arkansas into southeast Missouri	Power outages lasted more than 1 day in some areas
2/9/1994	2/11/1994	Eastern Gulf coast of Texas northeast through northwest Louisiana and southeast Arkansas and into the Southeastern U.S.	Up to 1" of ice in TX; outages lasted up to 3 weeks in AR, worst ice storm in history for some utilities; worst since 1988 in Houston area;
11/13/1996	11/27/1996	Northwest Arkansas, northeast Oklahoma into southcentral Missouri and north; northeastern Nebraska, southeast South Dakota and into western Iowa; in cloud icing in western Montana	Up to 3" thick ice in SD, outages lasted up to 4 days
1/6/1997	1/9/1997	From Waco, TX, northeast into southwest Arkansas	1" thick ice on wires in TX
1/12/1997	1/15/1997	Eastern Gulf coast of Texas into western Gulf coast of Louisiana; Extreme southeast Missouri	Record ice storm in LA; up to 1" thick ice in MO, windy, communication tower down
4/5/1997	4/13/1997	Northern South Dakota, across eastern half of North Dakota into northwest Minnesota	Power outages lasted up to 1 week in SD, most damage in 30 years; windy in ND, steel towers for power lines failed, communication tower down, outages lasted up to 1 week; 1/2" thick ice in MN
12/20/1997	12/29/1997	Eastern Texas Panhandle into western Oklahoma, except Panhandle	3/4" thick ice in OK, power outages lasted more than 2 days
3/15/1998	3/20/1998	Southwest Kansas east and north to northcentral Kansas	Windy; communication towers down; up to 6" of ice; power outages lasted up to 6 days
1/1/1999	1/6/1999	Northwest and northcentral Arkansas across southwest Missouri	More than 1" thick ice in AR; in MO up to 2" thick ice, outages lasted up to 6 days
1/28/1999	1/31/1999	Eastern Texas and Oklahoma Panhandles across central Kansas to the Nebraska border	In TX power outages lasted more than 2 days; up to 1/2" thick ice in TX and OK
4/1/1999	4/5/1999	Eastcentral North Dakota northeast into northwest Minnesota and east	Windy; up to 2" ice in ND; power outages lasted for days in MN

Table 2. Ice storm summaries, Carolinas

Storm Start	Storm End	Extent	Description
12/20/1951	12/21/1951	Northwest South Carolina	Long distance and local phone lines out
12/6/1954	12/7/1954	Raleigh area, North Carolina	Scattered phone and power outages
2/13/1960	2/15/1960	Eastern Piedmont to western North Carolina and northwest South Carolina, into Tennessee	Worst in 33 years of NCP+L district manager's experience, "worst in modern day memory"; CP+L " worst since 1915"; worse than hurricane Hazel; 1000s of miles of wire down; wind added to damage
3/2/1960	3/3/1960	Tennessee and Carolinas	Severe ice storm with high winds in TN; scattered phone and power outages in NC; essential services interrupted in SC
3/16/1960	3/17/1960	Western Piedmont and mountains of NC	Considerable damage to trees, shrubs and communication lines
12/25/1962	12/26/1962	Northwest North Carolina, northeast Georgia	Extremely heavy damage to utility lines in 10-county area centered around Hall Co. in GA; damage to power and phone lines in NC
12/23/1963	12/25/1963	Northwest South Carolina, extending into both North Carolina and Georgia	Trees and power and phone lines damaged
12/31/1963	1/1/1964	Piedmont of North Carolina southwest across most of South Carolina and into central Georgia	Damage from ice and wind; severe in SC; one of most destructive ice storms of record in GA
1/26/1966	1/27/1966	Southcentral South Carolina northeast to the southern coastal plains of North Carolina	Weeklong power and phone outages; worst ice storm in 50 years according to power company officials
1/9/1968	1/15/1968	Northwest South Carolina into central North Carolina to the coast	2 to 3" of ice; several counties in NC without power or phones for 1 to 5 days; compared to Christmas 1945 ice storm in SC; worst power failure in Charlotte's history
2/16/1969	2/17/1969	Central South Carolina into southwestern North Carolina	45,000 without power for more than 2 weeks in SC; worst in CP+L's 60 year history; heavy steel towers crumpled
12/25/1969	12/26/1969	Northwest South Carolina, northeast across the Piedmont of North Carolina and into central Virginia	Trees and power and phone lines damaged

Storm Start	Storm End	Extent	Description
2/3/1971	2/5/1971	Northwest South Carolina northeast into the Piedmont of North Carolina	Duke "worst in Greenville SC since Dec. 1963"; wind squall added to damage; transformer failures; sliding cars broke poles
11/24/1971	11/25/1971	Northeast Georgia into northwest South Carolina and the western Piedmont of North Carolina	Duke district manager in Greenville "one of worst catastrophes of recent years"; more damage than usual because trees still had leaves
12/3/1971	12/4/1971	Midlands of South Carolina into Georgia	Trees and power and phone lines damaged
2/4/1975	2/5/1975	Northcentral South Carolina into western Piedmont of North Carolina to Virginia border	Trees uprooted in wet ground; substation problems caused some lengthy outages; Duke "Charlotte's worst since 1969", more widespread but less intense than past storms; line crews remembered a worse ice storm in 1960
1/13/1978	1/14/1978	Northwestern South Carolina; northcentral Piedmont of North Carolina into central Virginia toward Richmond	Trees and power and phone lines damaged
1/19/1978	1/20/1978	Northcentral Piedmont of North Carolina into central Virginia toward Richmond	Second ice storm within a week; first back-to-back ice storms official can remember in his 44 years at Duke; worse than 1967 storm; devastating ice storm in VA; windy
1/12/1979	1/13/1979	Border area of South Carolina into Piedmont of North Carolina	Widespread power outages across Piedmont
1/19/1979	1/20/1979	Northeast Georgia into northwest South Carolina and the western Piedmont and mountains of North Carolina, into southwest Virginia	One of worst ice storms in memory in VA; not as bad as last year's storms in NC; windy
2/7/1979	2/8/1979	Northeast and eastcentral Georgia across most of South Carolina, into southcentral North Carolina	One of worst ice storms of century in GA; weeklong outages in SC; some damaged lines in SC must be completely rebuilt
12/31/1981	1/1/1982	Mountains, foothills and western Piedmont of the Carolinas	Trees and power and phone lines damaged
2/27/1982	2/28/1982	Portion of eastern Piedmont of North Carolina	1/2"-thick ice on trees and wires
1/21/1983	1/22/1983	Alabama, Georgia, Tennessee, northwestern South Carolina into mountains and western Piedmont of North Carolina	Worst ice storm in memory in Hickory area

Storm Start	Storm End	Extent	Description
2/16/1987	2/18/1987	Northeastern South Carolina in south, and central coastal area of North Carolina	Extensive damage to power lines in NC; most expensive storm in history for one co-op; transformer problems caused by lines slapping together; timber damage
2/17/1989	2/19/1989	Georgia, northwest South Carolina east across Piedmont of central North Carolina	1"-thick ice on trees and power lines; cable TV out; freezing rain caused outages above 2200' in northeast GA
12/8/1989	12/10/1989	Mountains and western Piedmont of North Carolina east almost to coast	Two 2000' towers collapsed in Auburn; storm caused havoc to power lines in NC; more severe damage than in some recent tornadoes and hurricanes
3/13/1993	3/15/1993	Northern Piedmont of North Carolina	Saturated ground; windy; snow followed freezing rain; not as bad as 1978 ice storm according to Duke repairman
2/10/1994	2/13/1994	Texas, Arkansas, Louisiana, Mississippi, Alabama, Tennessee, Kentucky; northeast Georgia through western South Carolina across the mountains and western Piedmont of North Carolina and east through central Virginia to the coast	Enormous damage from falling trees and power lines in SC; 1" ice and 10 to 20 mph winds in SC; major ice storm in TN; worst ice storm in recent memory with 3 to 5" of ice in VA; 1 to 2" of ice in NC; 1 ft of ice on wires in MS caused steel towers to collapse
1/6/1996	1/9/1996	Northcentral South Carolina into eastern Piedmont of North Carolina	Widespread power outages; gusty winds contributed to damage in SC
2/2/1996	2/7/1996	Northwest South Carolina into Piedmont of North Carolina to Virginia border	Worst ice storm ever for utilities in Hickory area; week long outages; 3" of ice on Paris Mountain; communication towers fell
1/2/1999	1/3/1999	Northwest South Carolina and across Piedmont of North Carolina to Virginia border	Worst ice storm in 45 years in northwest Gaston County in NC; widespread outages in the Upstate of SC

References

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Amarillo Daily News
Amarillo Globe News
Arkansas Democrat Gazette
Austin American-Statesman
Beaumont Enterprise
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Brownsville Herald
Carlsbad Current-Argus
Clovis News Journal
Corpus Christi Caller-Times
Daily Oklahoman
Dallas Morning News
Denver Post
Dodge City Daily Globe
Fargo-Morehead Sun
Ft. Worth Star-Telegram
Grand Forks Herald
Hollis News
Houston Chronicle
Laredo Morning Times
Lubbock Avalanche-Journal
McAlester News-Capital and Democrat
Midland Reporter Telegram
Minot Daily News
Monroe News-Star World
Northwest Arkansas Times
Roswell Daily Record
San Antonio Express News
Shreveport Times
Sioux Falls Argus-Leader
Southwest Times-Record
Springfield News-Leader
The Aberdeen American News
The Baton Rouge Advocate
The Lawton Constitution
The McAllen Monitor
The Salina Journal
The Sheridan Press
The Wichita Eagle
Tulsa World

Wichita Falls Times Record News
Woodward News
Wyoming Tribune-Eagle

Newspapers from the Carolinas (various dates)

Greensboro Daily News
Greenville News
Hickory Daily Record
The Charlotte Observer
The Fayetteville Observer
The Raleigh News and Observer
The Raleigh Times