

EARTH
NETWORKS®

2020

TEXAS ***LIGHTNING REPORT***



ABOUT THIS REPORT

The 2020 Lightning Report was prepared by Earth Networks using the Earth Networks Total Lightning Network (ENTLN). The following report includes in-cloud, cloud-to-ground, and total lightning data for this state and the surrounding water bodies (if any) throughout 2020. Counts, densities, rankings, Dangerous Thunderstorm Alerts (DTAs), and Thunder Days in this report are from January 1, 2020 to December 31, 2020.

THE EARTH NETWORKS TOTAL LIGHTNING NETWORK (ENTLN)

The lightning data in this report is derived from the Earth Networks Total Lightning Network (ENTLN), which monitors the combination of in-cloud and cloud-to-ground lightning strikes over 100 countries. With over 1,800 sensors, the ENTLN is the most extensive and technologically advanced total lightning network in the world. ENTLN has been specifically deployed to detect real-time lightning and provide advanced warning for severe weather events that could threaten public safety and operational efficiency.

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REPORT TERMINOLOGY

To help you better understand the insights from this lightning report, we've included definitions of our frequently used report terminology below.

Lightning Pulse: This report measures lightning pulses. A pulse is a surge of electric current in lightning usually accompanied by a burst of light. Pulses are classified as In-cloud (IC) or Cloud-to-Ground (CG).

Lightning Flash: A lightning flash is a collection of pulses close in space and time that approximates the continuous ionized channels of a complete bolt of lightning.

Cloud-to-Ground Lightning (CG): Lightning that happens between opposite charges in a cloud and on the ground.

In-Cloud Lightning (IC): Lightning that occurs between opposite charges within a thunderstorm cloud.

Total Lightning Detection: The combination of all in-cloud and cloud-to-ground lightning activity.

Pulse Density: The number of lightning pulses per square mile per year.

Dangerous Thunderstorm Alerts (DTAs): Earth Networks patented advanced severe weather warnings that notify users of incoming storms up to 45 minutes before storm arrival.

Thunder Days: Any given day where lightning was detected in a certain area.

TOTAL LIGHTNING

is the combination of cloud-to-ground (CG) and in-cloud (IC) lightning strikes



Cloud-to-Ground lightning:

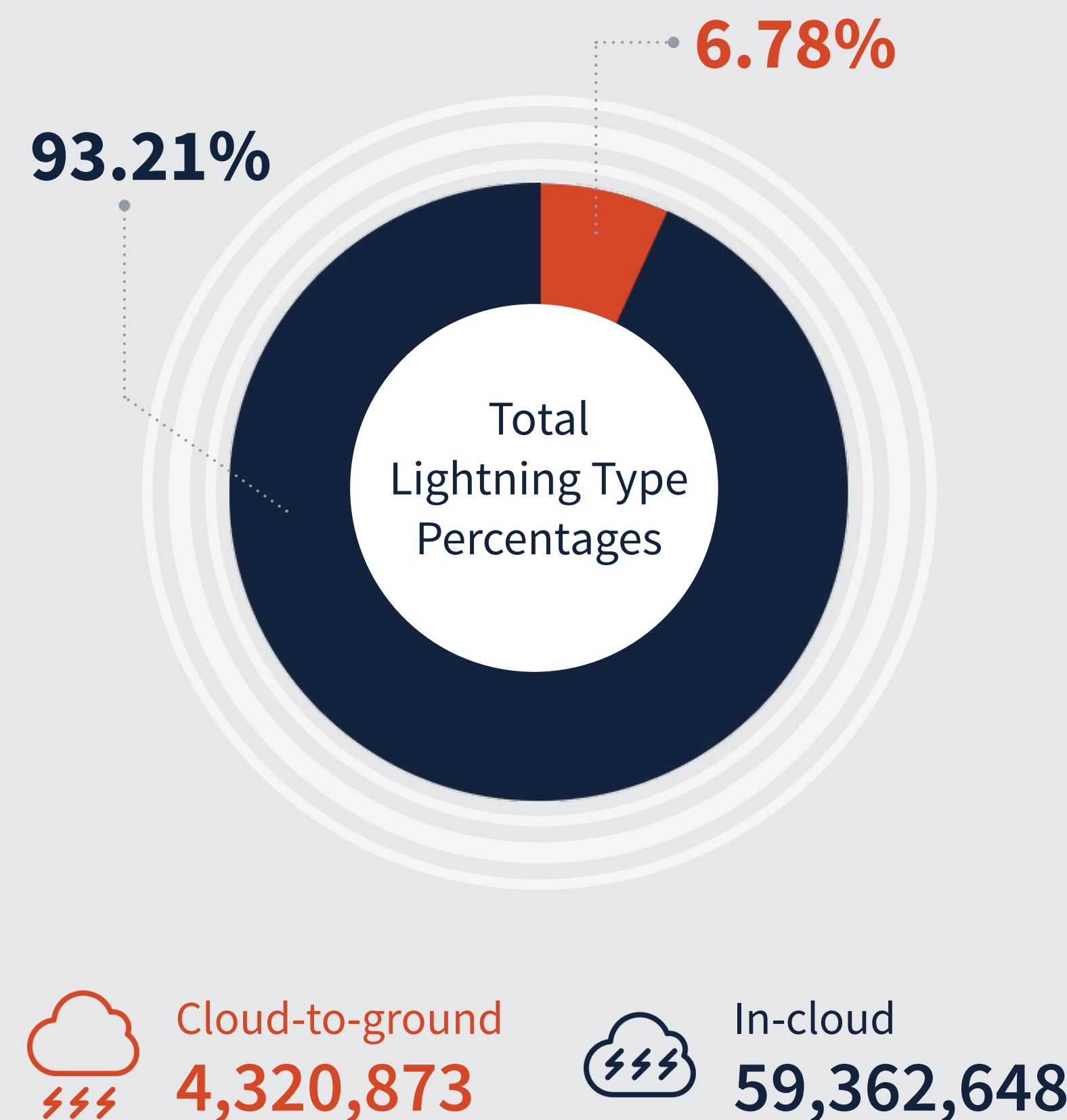
Lightning that happens between opposite charges in a cloud and on the ground

In-Cloud lightning:

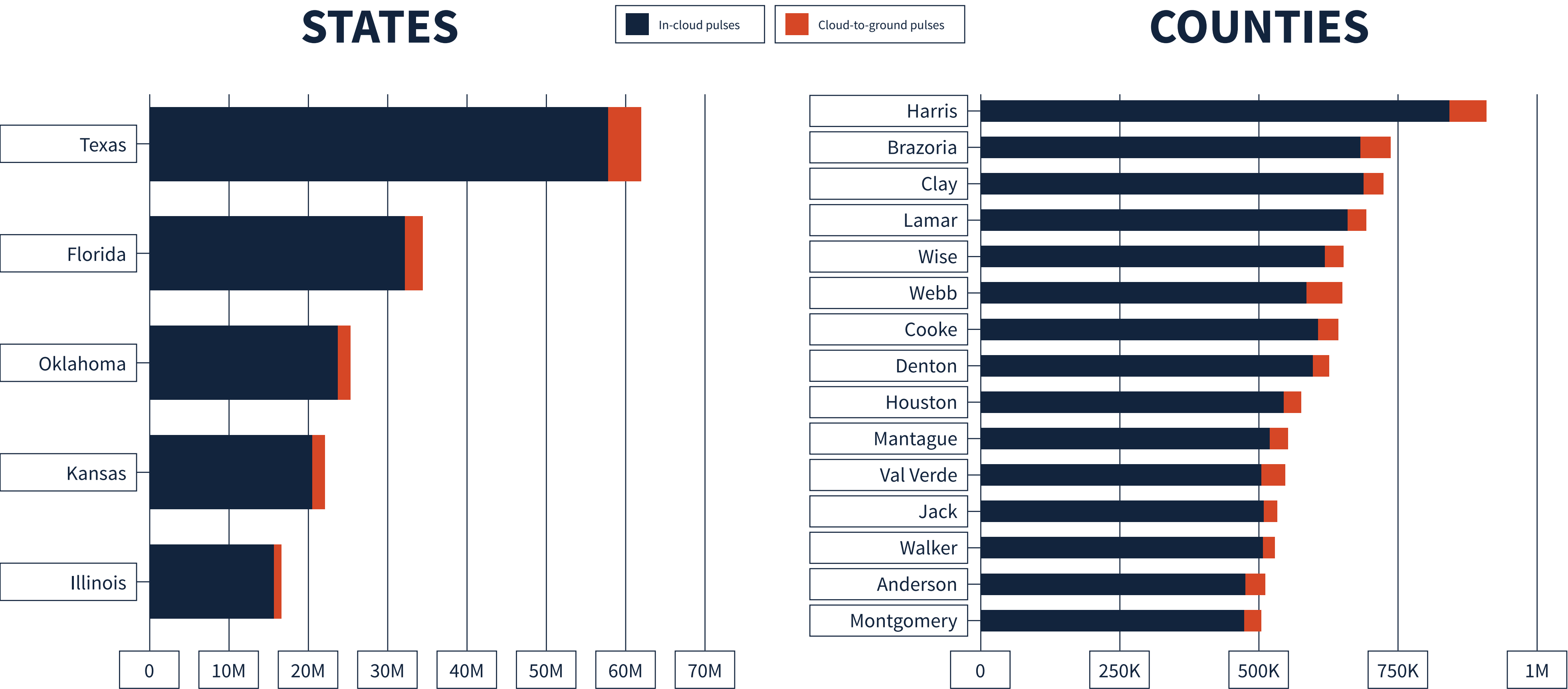
Lightning that occurs between opposite charges within a thunderstorm cloud

TEXAS TOTAL LIGHTNING PULSES

63,683,799

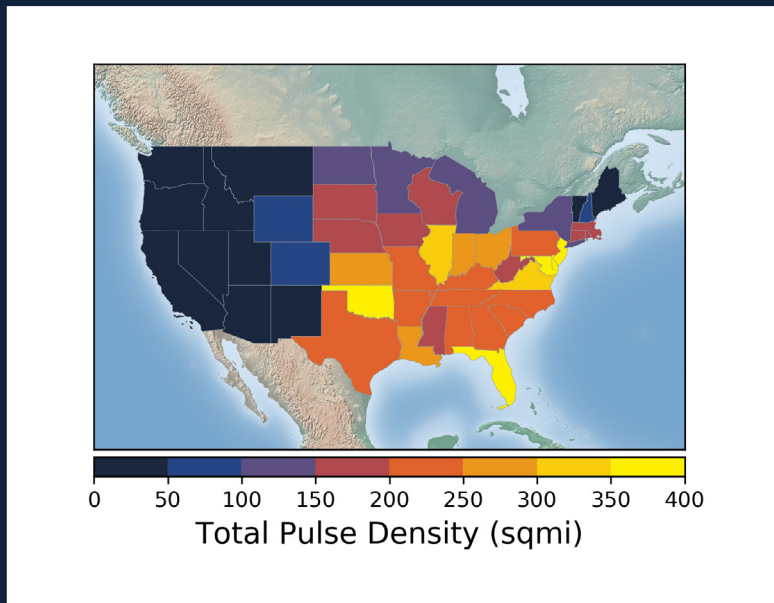
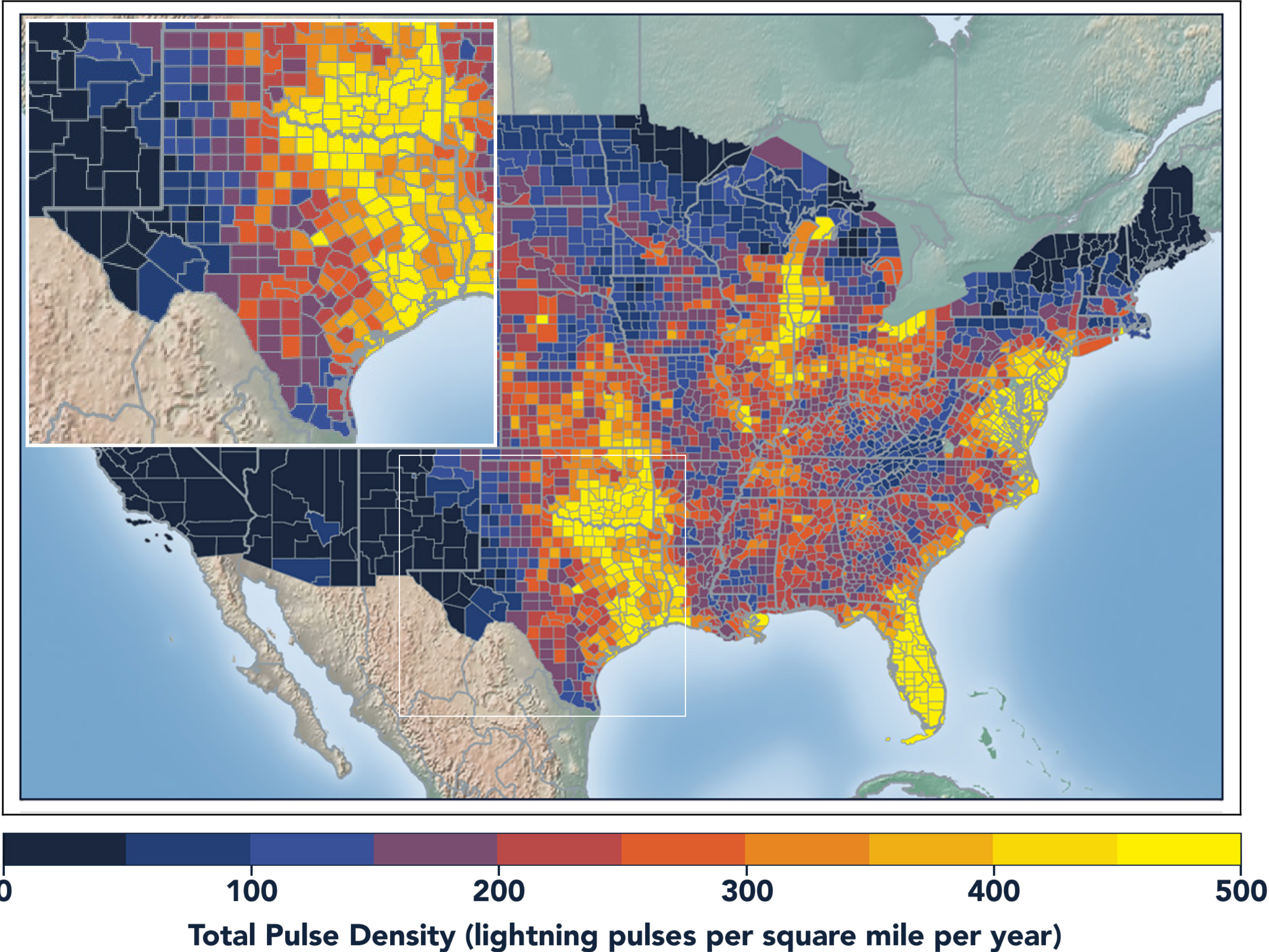


LIGHTNING COUNT RANKINGS



Texas ranked 1 in total lightning pulses for 2020.

TOTAL (CG+IC) PULSE DENSITY MAP

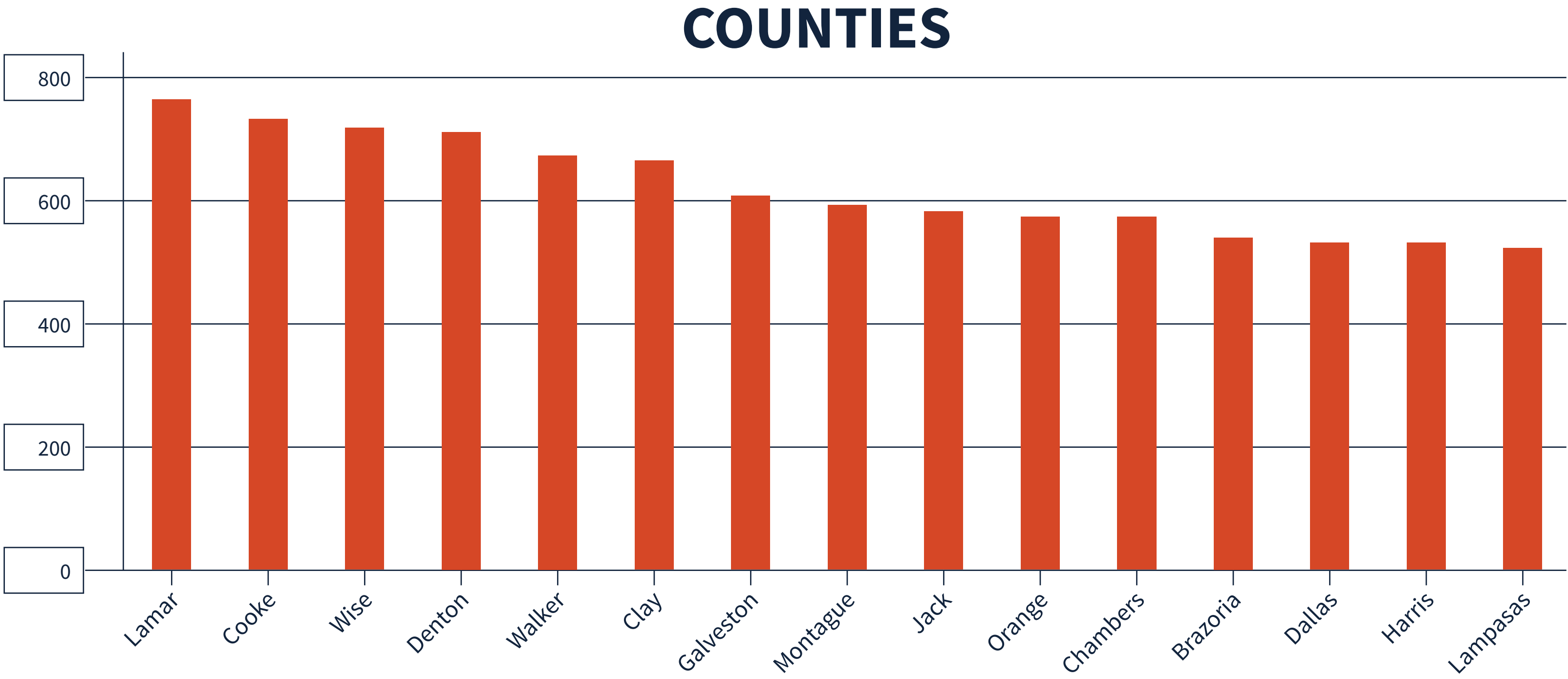


Pulse density is a better indicator of lightning activity than total lightning counts because it enables us to compare different sized areas (like states and counties) fairly.

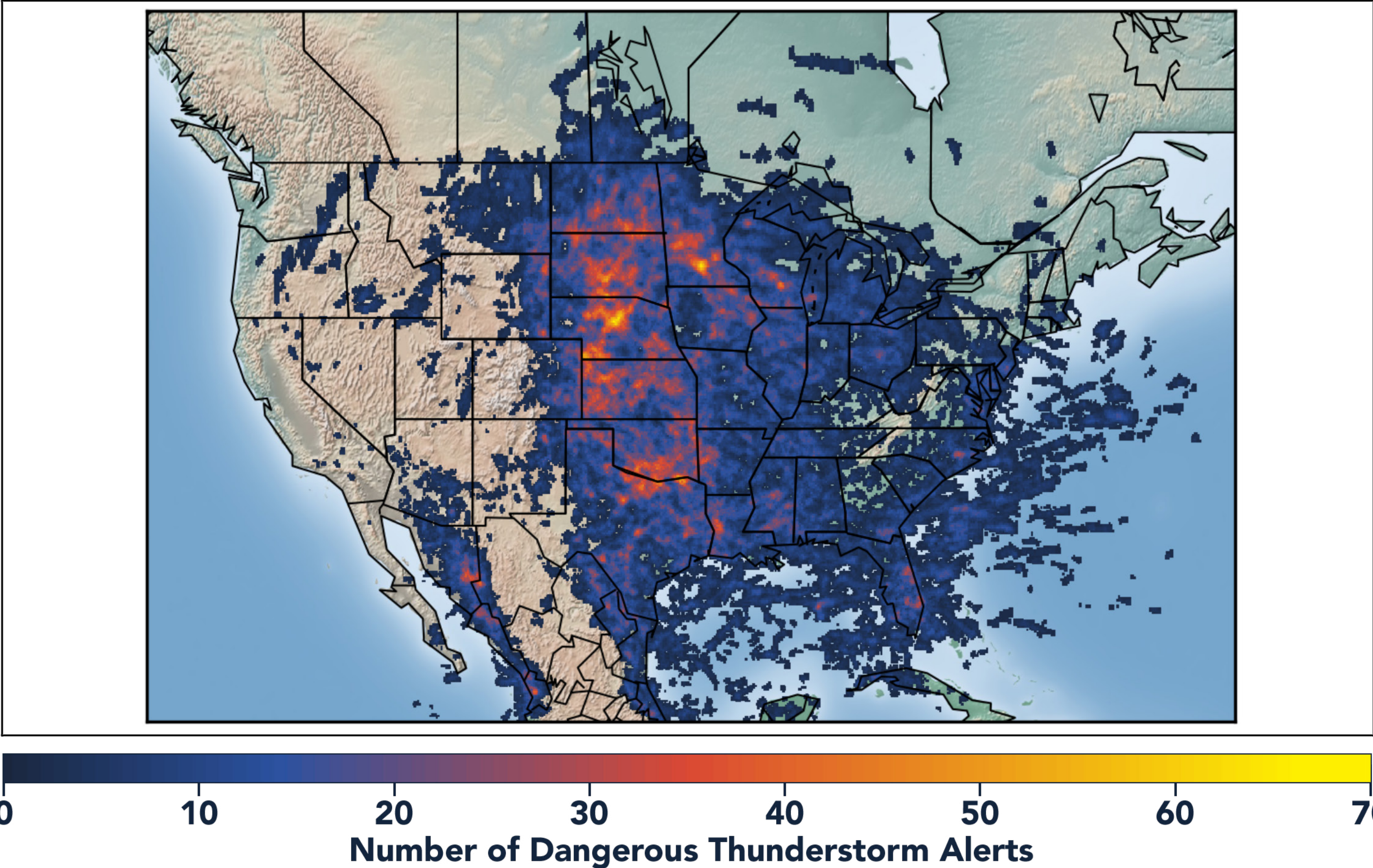
We cluster pulses together into a flash. With every pulse we detect, we receive a more precise measure of lightning activity. At left, areas in bright yellow experienced the highest lightning pulse density per square mile in 2020.

TOTAL PULSE DENSITY RANKINGS

This chart shows the top 15 counties in the state ranked by total pulse density, which is the total lightning divided by the area of the county (in square miles).



DANGEROUS THUNDERSTORM ALERTS IN THE U.S.

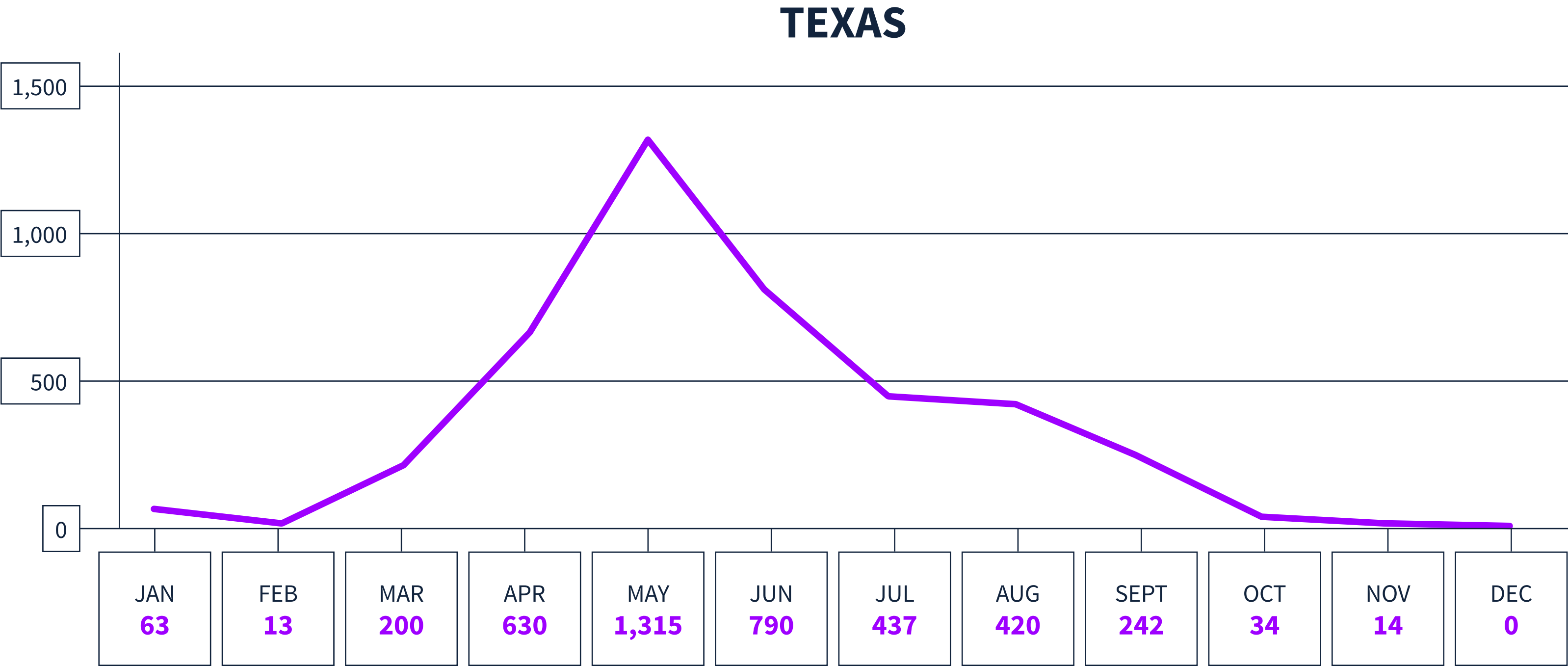


Dangerous Thunderstorm Alerts (DTAs), available exclusively to Earth Networks, provide **50% more lead time** to severe storms compared to publicly available alerts.

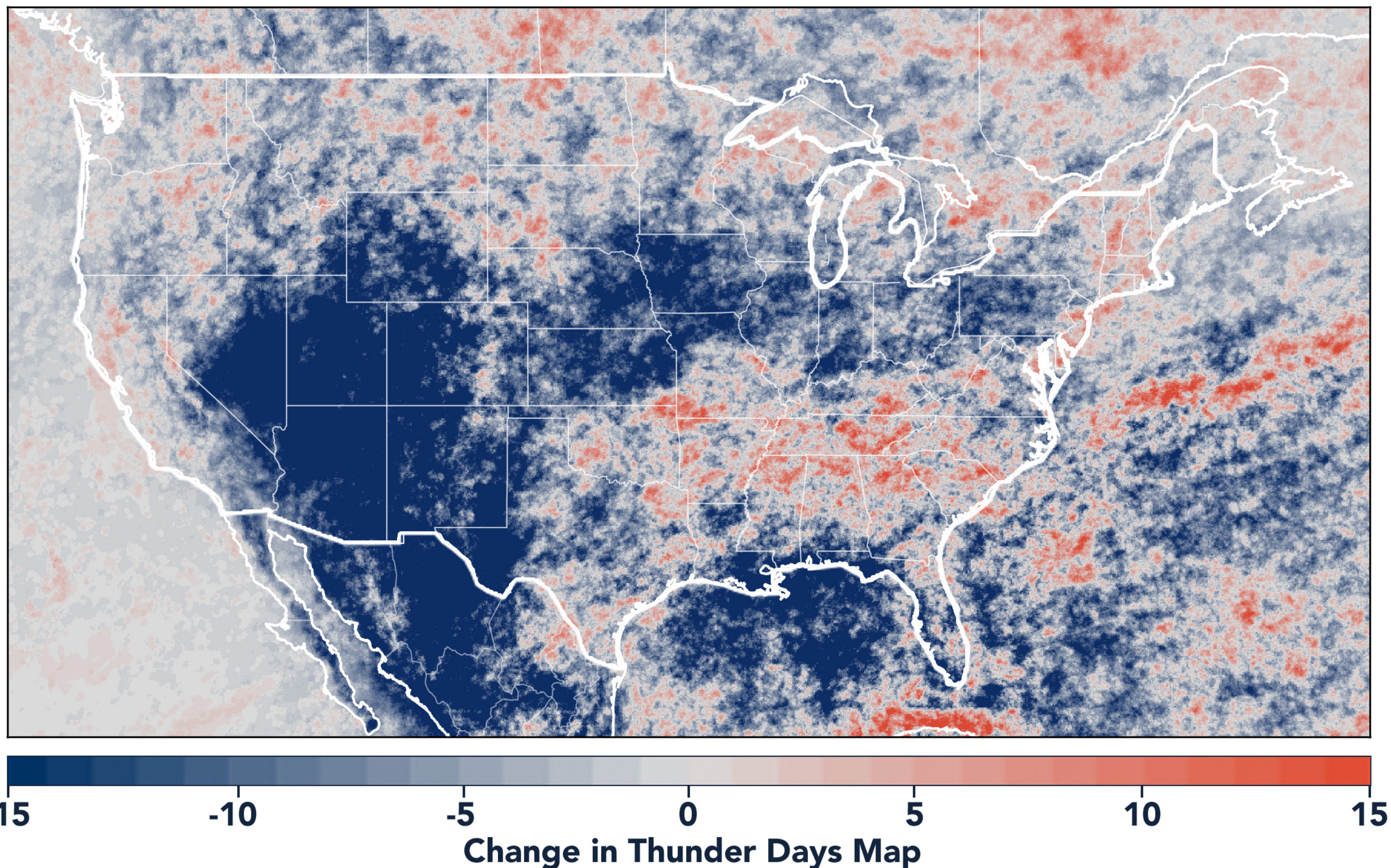
Earth Networks issued 29,401 Dangerous Thunderstorm Alerts (DTAs) in 2020. This year's map clearly shows the persistent drought conditions that have plagued the South and Southwest.

DANGEROUS THUNDERSTORM ALERTS BY MONTH

Earth Networks issued 4,158 Dangerous Thunderstorm Alerts for the state in 2020.



TOTAL STATE THUNDER DAYS: 278



Thunder Days are the days we detected lightning over a certain area. The map shows a deviation from our 7-year average and illustrates our overall finding that lightning decreased about 15% from 2019.

This year, the Southwest and Midwest experienced significantly less lightning than in previous years due to a persistent drought and weak monsoon. States in the Southeast experienced a substantial uptick in lightning activity this year, including Tennessee, North Carolina, South Carolina, Virginia, West Virginia, Georgia, Alabama, Mississippi, Florida, Louisiana, Arkansas, and Kentucky.



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THANK YOU

For additional insights or permission to use data or graphics from this report, please contact us at: info@earthnetworks.com or call 1 301.250.4000



APPENDIX

This table ranks all U.S. states by total lightning pulses, including in-cloud and cloud-to-ground from highest to lowest. Total number of thunder days in each state (the total number of days in the year when lightning was detected by ENTLN) are also included. The period covered is January 1, 2020 to December 31, 2020.

STATE	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
TX	63,683,799	278
FL	35,430,198	246
OK	26,159,420	205
KS	23,125,675	179
IL	16,785,149	166
NE	14,433,875	178
MO	14,081,658	184
VA	13,234,163	176
GA	13,016,803	217
OH	12,009,955	143
SD	11,940,870	156
LA	11,787,379	230
AL	11,448,621	202
AR	11,417,155	211
NC	10,666,834	203
PA	10,024,978	151
MS	9,236,279	210
IN	9,175,986	149
IA	9,121,097	140
WI	8,812,327	145
TN	8,458,373	186
MN	8,009,792	148
KY	7,974,926	166
MI	7,769,382	159
ND	7,634,287	131
SC	7,454,219	197
CO	7,360,769	185
MD	6,666,766	124
NM	5,819,550	196
MT	5,107,593	154
WY	4,951,397	166
NY	4,943,122	152
WV	4,684,226	150
AZ	3,532,759	151
NJ	3,465,297	96
UT	1,951,574	162
ID	1,518,171	172
MA	1,267,046	80
NV	1,237,862	146
DE	1,168,918	89
CA	956,187	151
OR	915,855	132
CT	802,252	70
NH	618,242	70
WA	402,333	117
ME	358,334	81
VT	354,695	75
RI	190,992	42
DC	44,204	47

APPENDIX

This table ranks all U.S. states by total lightning pulses, including in-cloud and cloud-to-ground from highest to lowest. Total number of thunder days in each state (the total number of days in the year when lightning was detected by ENTLN) are also included. The period covered is January 1, 2020 to December 31, 2020.

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Harris County	910,208	125
Brazoria County	739,476	105
Clay County	724,218	65
Lamar County	692,713	81
Wise County	652,045	68
Webb County	650,705	74
Cooke County	642,156	67
Denton County	626,056	70
Houston County	577,016	102
Montague County	551,721	64
Val Verde County	546,500	72
Jack County	533,421	63
Walker County	529,562	98
Anderson County	512,742	91
Montgomery County	503,728	103
Wilbarger County	485,437	67
Navarro County	482,564	75
Dallas County	465,850	68
Ellis County	462,891	69
Matagorda County	460,374	93
Liberty County	451,289	119
Grayson County	447,213	68
Edwards County	442,367	66
Smith County	437,411	87
Fort Bend County	435,691	94
Archer County	426,029	69
Jefferson County	422,638	102
Pecos County	420,584	86
Henderson County	414,327	88
Rusk County	411,224	92
La Salle County	402,361	64
Tom Green County	392,797	67
Grimes County	391,181	93
Harrison County	386,084	89
Wharton County	385,629	98
Freestone County	385,421	77
Cherokee County	380,885	88
Uvalde County	380,243	63
Fannin County	379,770	81
Jasper County	378,553	110
Tarrant County	377,693	69
Red River County	377,052	81
McLennan County	374,823	59
Lampasas County	374,196	54
Nacogdoches County	367,729	89
Limestone County	365,878	69
Shackelford County	361,653	56

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
DeWitt County	358,157	81
Shelby County	355,501	85
San Saba County	354,144	61
Leon County	353,880	92
Coryell County	352,784	60
Parker County	352,705	68
Polk County	345,649	113
Newton County	344,798	104
Chambers County	342,881	101
Kinney County	342,318	61
Runnels County	340,621	64
Collin County	335,482	74
Tyler County	334,192	105
Trinity County	330,468	95
Cass County	328,289	86
Hill County	322,319	65
Brewster County	318,787	100
Milam County	318,410	70
Van Zandt County	318,324	84
Victoria County	317,787	87
Panola County	315,175	93
Maverick County	312,618	57
Taylor County	311,561	64
Young County	310,918	62
Baylor County	309,508	67
Lavaca County	309,333	80
Hardin County	308,058	104
Brazos County	303,692	72
Wichita County	300,956	62
Kenedy County	299,913	72
Haskell County	299,462	62
Kerr County	299,294	61
Bosque County	298,617	66
Hemphill County	295,350	69
Hall County	292,311	65
Kaufman County	290,728	71
Burleson County	289,583	68
Palo Pinto County	288,969	66
Colorado County	288,209	83
Duval County	286,080	71
Austin County	282,820	85
Lipscomb County	281,340	67
Medina County	275,320	67
Hopkins County	275,187	85
Travis County	273,688	64
Bee County	271,843	67
Angelina County	270,887	101

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Dallam County	269,831	70
Erath County	268,307	62
Callahan County	267,253	63
Hunt County	262,161	82
Bowie County	261,523	84
Throckmorton County	259,553	59
Falls County	259,366	56
Wood County	258,829	82
Gonzales County	254,661	70
Zavala County	254,042	58
Gillespie County	253,318	56
Roberts County	251,453	67
King County	251,116	61
Sutton County	250,193	55
Coleman County	249,621	61
Washington County	249,214	79
Bell County	248,759	59
Jackson County	247,966	91
Schleicher County	245,310	63
Frio County	243,303	61
Jones County	243,261	61
Karnes County	243,156	59
Refugio County	242,675	69
Robertson County	237,421	71
Bastrop County	236,563	76
Stephens County	235,888	58
Llano County	235,079	55
Williamson County	234,924	62
Crockett County	234,659	75
Bandera County	232,890	54
McCulloch County	232,744	58
Galveston County	230,645	98
Burnet County	229,832	57
Calhoun County	226,416	76
Stonewall County	224,429	64
Childress County	222,943	61
McMullen County	221,274	63
Waller County	221,262	83
Johnson County	218,151	60
Atascosa County	217,463	58
Hamilton County	212,147	63
Kimble County	211,723	64
Dimmit County	211,571	47
Hays County	208,796	62
Donley County	208,160	63
Nueces County	207,881	65
Comanche County	207,810	67

APPENDIX

This table ranks all Texas counties by total lightning pulses including in-cloud and cloud-to-ground from highest to lowest. Total number of thunder days in each county (the total number of days in the year when lightning was detected by ENTLN) are also included. The period covered is January 1, 2020 to December 31, 2020.

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Fayette County	206,636	78
Ochiltree County	206,410	71
Coke County	206,183	62
Bexar County	206,053	64
Sabine County	205,882	96
Hardeman County	204,869	65
Live Oak County	204,143	74
San Jacinto County	203,625	101
Upshur County	202,778	83
Concho County	202,553	64
Oldham County	201,745	70
Terrell County	200,873	66
Hansford County	199,291	66
San Augustine County	198,540	94
Wilson County	197,089	62
Foard County	196,432	64
Mason County	195,217	54
Knox County	194,332	63
Zapata County	193,234	52
Orange County	192,554	97
Irion County	189,309	53
Cottle County	187,548	64
Deaf Smith County	186,386	71
Real County	182,701	56
San Patricio County	182,305	66
Hood County	179,622	60
Collingsworth County	178,749	65
Brown County	177,365	54
Sherman County	176,800	59
Hartley County	175,984	69
Crosby County	175,650	61
Briscoe County	174,018	67
Wheeler County	173,904	68
Kendall County	173,603	61
Dickens County	173,442	69
Goliad County	172,051	76
Hidalgo County	171,515	59
Motley County	170,662	61
Garza County	166,988	67
Armstrong County	164,000	64
Carson County	161,529	68
Madison County	160,330	87
Hutchinson County	159,329	68
Hale County	158,603	59
Gray County	158,594	68
Kent County	155,311	67
Mitchell County	154,958	55

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Jim Hogg County	152,345	50
Brooks County	149,430	54
Menard County	146,714	49
Mills County	146,523	59
Potter County	144,232	73
Fisher County	142,974	65
Lee County	142,873	66
Caldwell County	141,286	60
Titus County	138,019	75
Eastland County	137,651	55
Starr County	136,927	50
Comal County	135,832	59
Scurry County	135,391	66
Lynn County	133,910	61
Borden County	133,897	68
Lubbock County	132,459	59
Delta County	131,756	77
Moore County	131,484	66
Blanco County	131,139	55
Floyd County	128,222	62
Jim Wells County	127,237	65
Marion County	125,015	79
Sterling County	123,737	57
Kleberg County	123,640	59
Nolan County	121,094	63
Hockley County	117,267	58
Reagan County	114,084	56
Willacy County	113,829	61
Cameron County	112,555	61
Howard County	110,874	56
Guadalupe County	110,526	65
Gregg County	106,907	73
Lamb County	100,520	61
Castro County	99,905	58
Franklin County	96,858	70
Gaines County	94,268	61
Swisher County	94,219	64
Randall County	90,734	67
Rains County	90,082	62
Presidio County	89,878	110
Culberson County	89,385	74
Cochran County	87,710	56
Camp County	87,680	70
Glasscock County	85,793	50
Bailey County	84,783	56
Upton County	83,845	48
Andrews County	82,890	66

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Morris County	81,130	72
Aransas County	80,507	52
Dawson County	73,181	58
Martin County	72,097	58
Hudspeth County	64,265	79
Jeff Davis County	63,526	90
Ector County	61,436	53
Terry County	52,239	56
Somervell County	47,549	55
Reeves County	38,774	66
Parmer County	37,798	63
Rockwall County	36,750	56
Midland County	32,552	50
Crane County	31,861	44
Winkler County	31,142	43
Yoakum County	28,096	48
Ward County	19,513	40
Loving County	15,920	29
El Paso	6,789	51