



2020

MISSOURI 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:

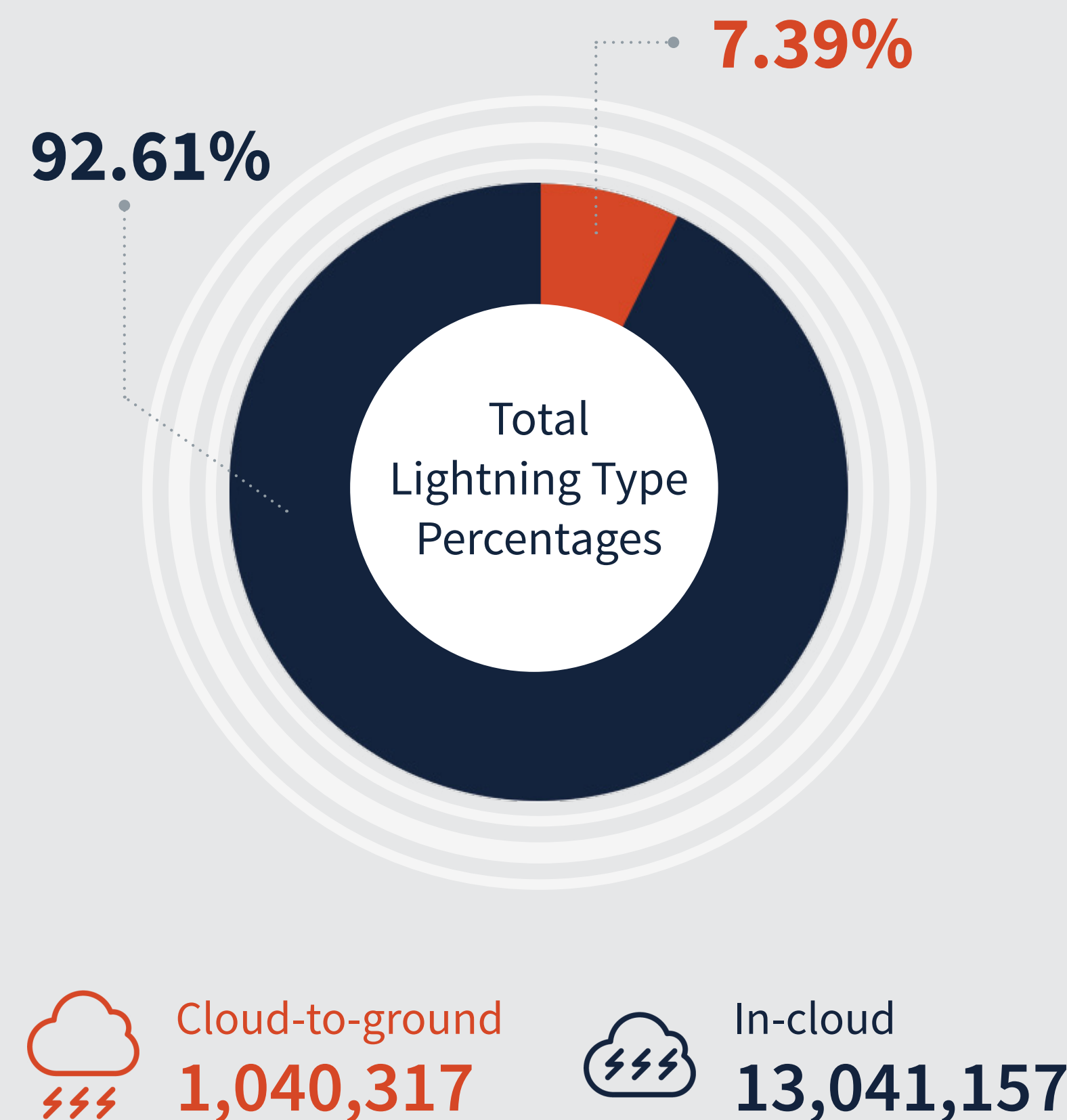
Lightning that happens between opposite charges in a cloud and on the ground

In-Cloud lightning:

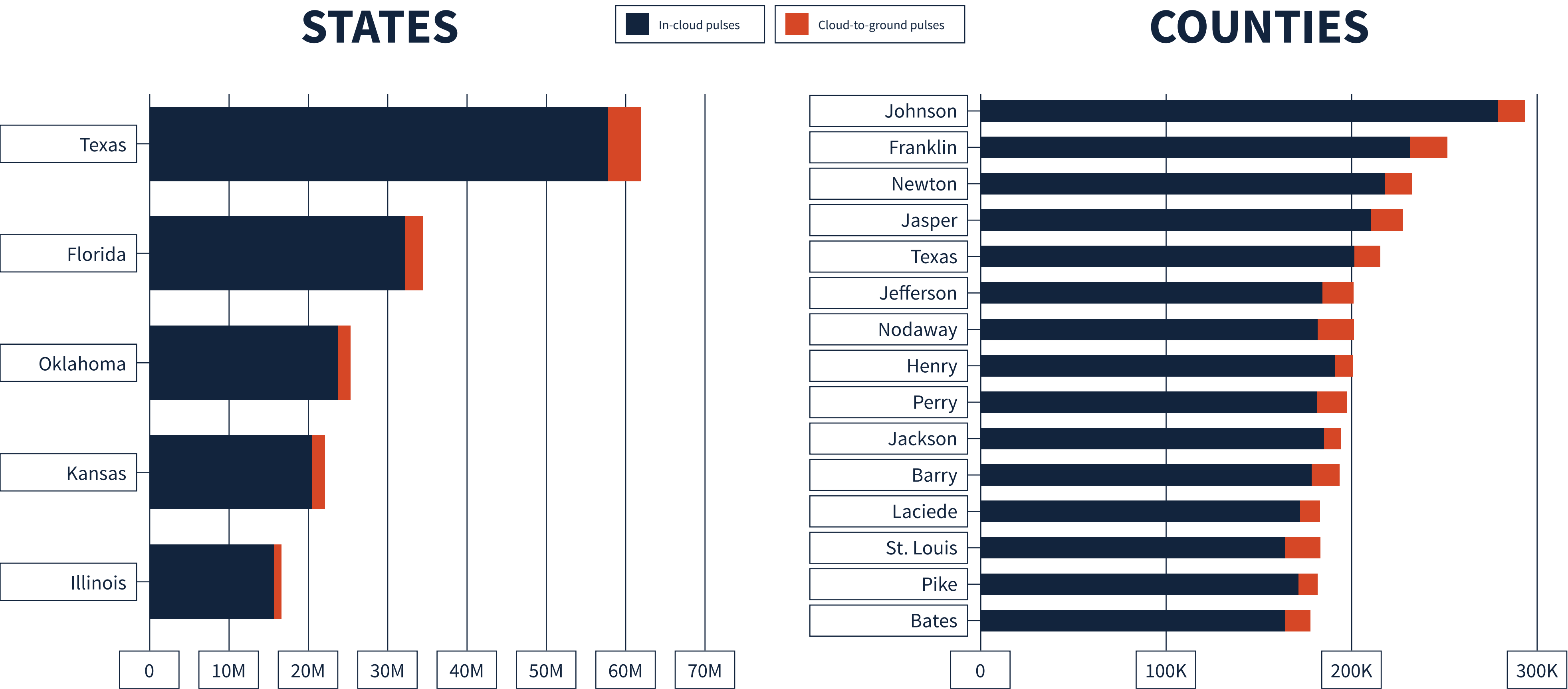
Lightning that occurs between opposite charges within a thunderstorm cloud

MISSOURI TOTAL LIGHTNING PULSES

14,081,658

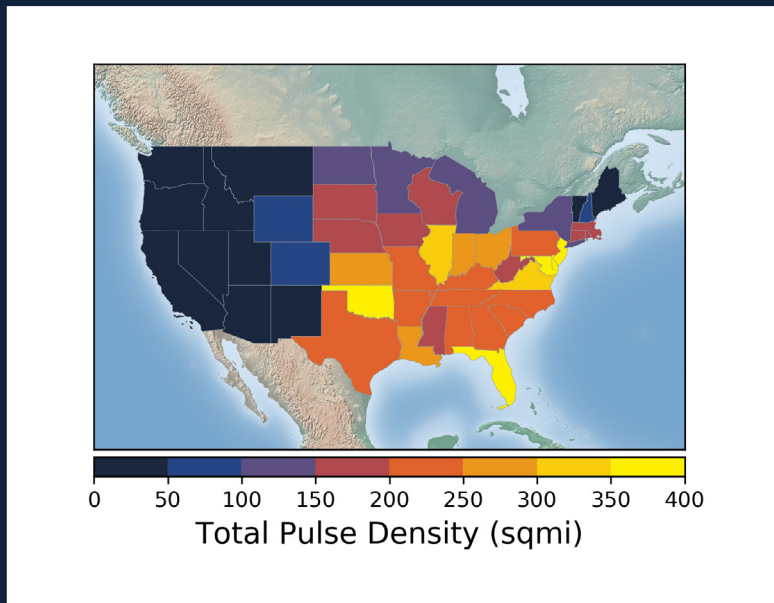
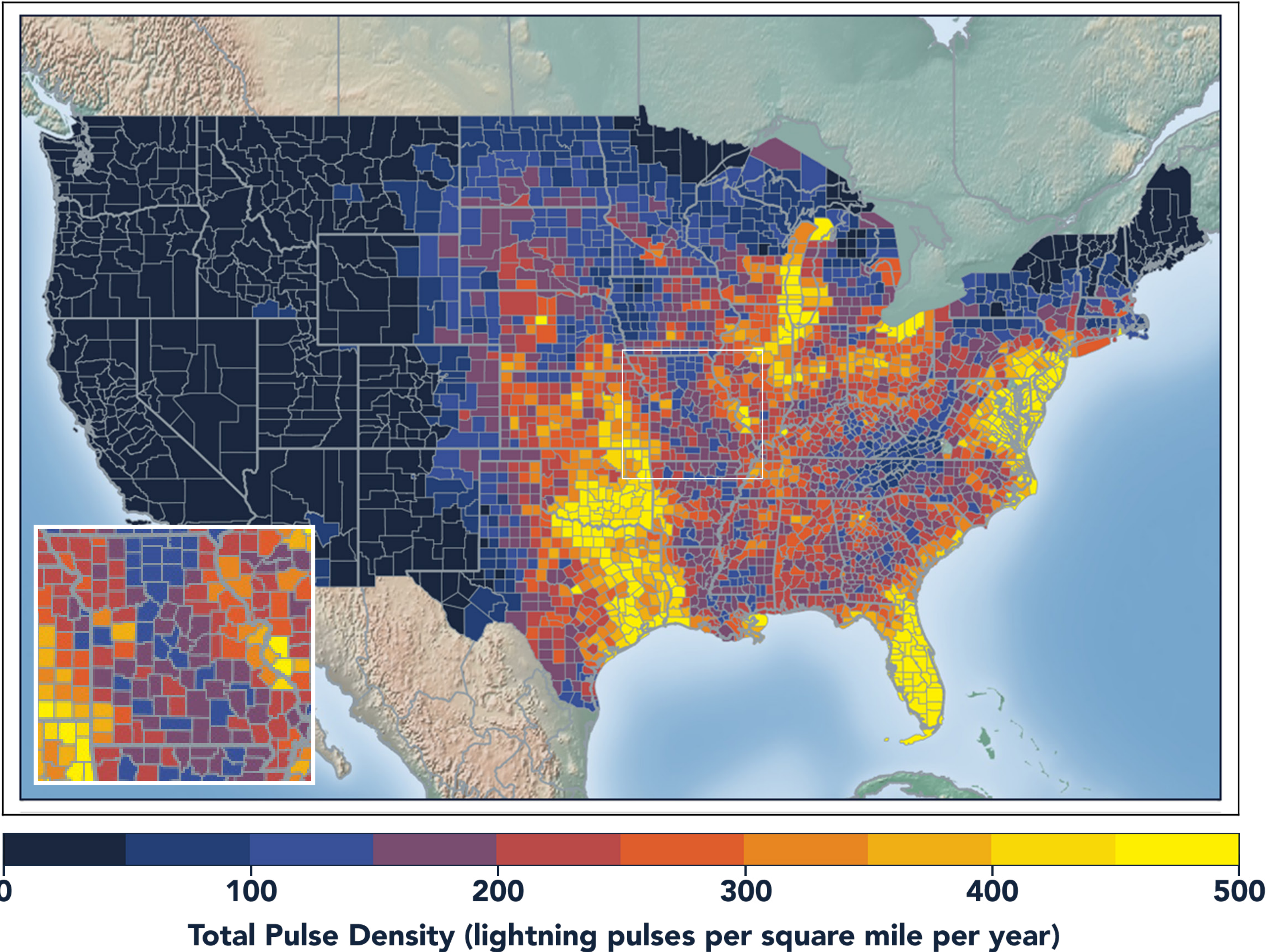


LIGHTNING COUNT RANKINGS



Missouri ranked 7 in total lightning pulses for 2020.

TOTAL (CG+IC) PULSE DENSITY MAP

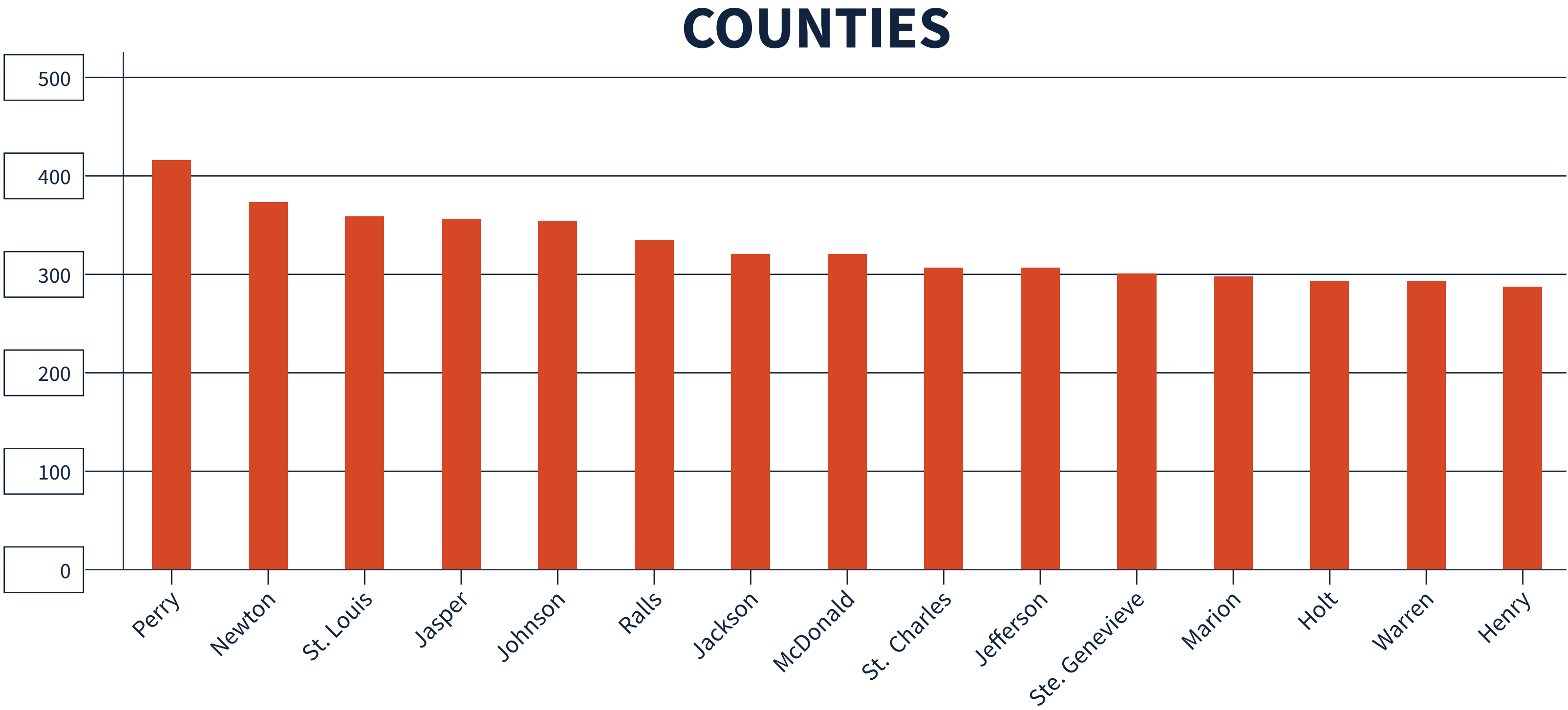


Pulse density is a better indicator of lightning activity than total lightning counts because it enables us to compare different sized areas (like states and counties) fairly.

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.



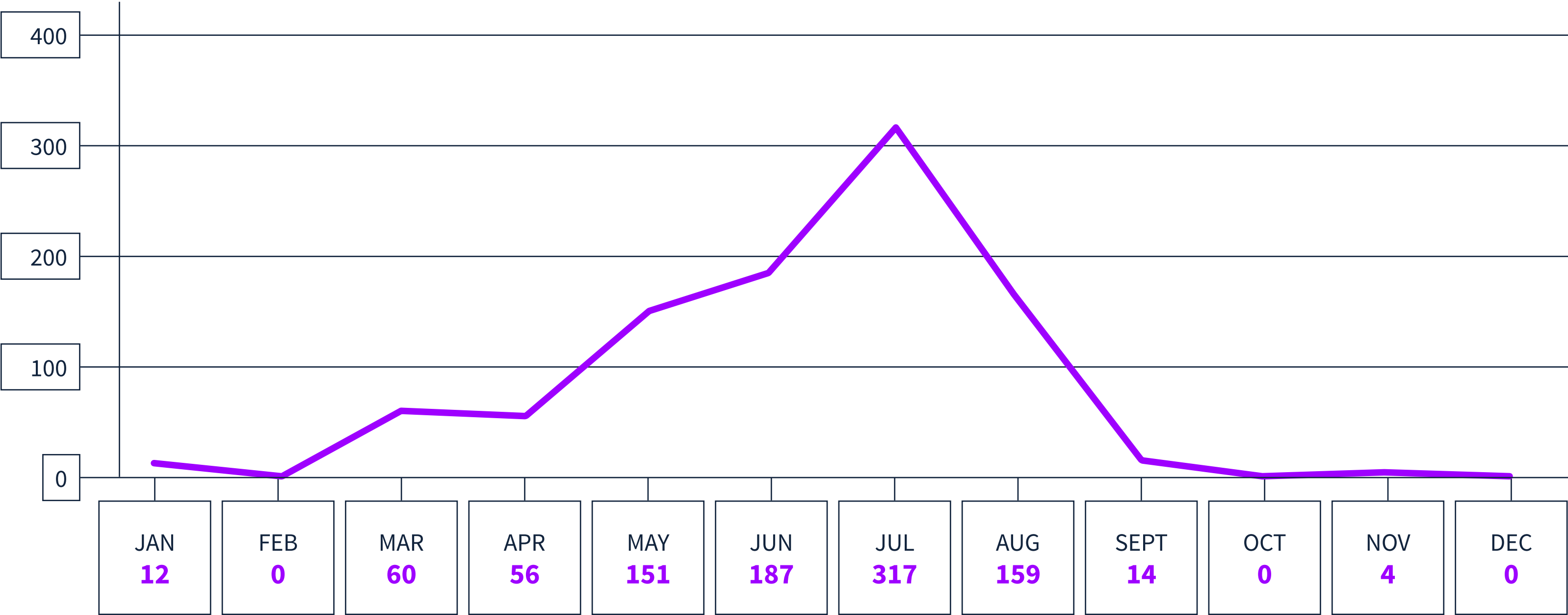
Earth Networks issued 29,401 Dangerous Thunderstorm Alerts (DTAs) in 2020. This year's map clearly shows the persistent drought conditions that have plagued the South and Southwest.

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

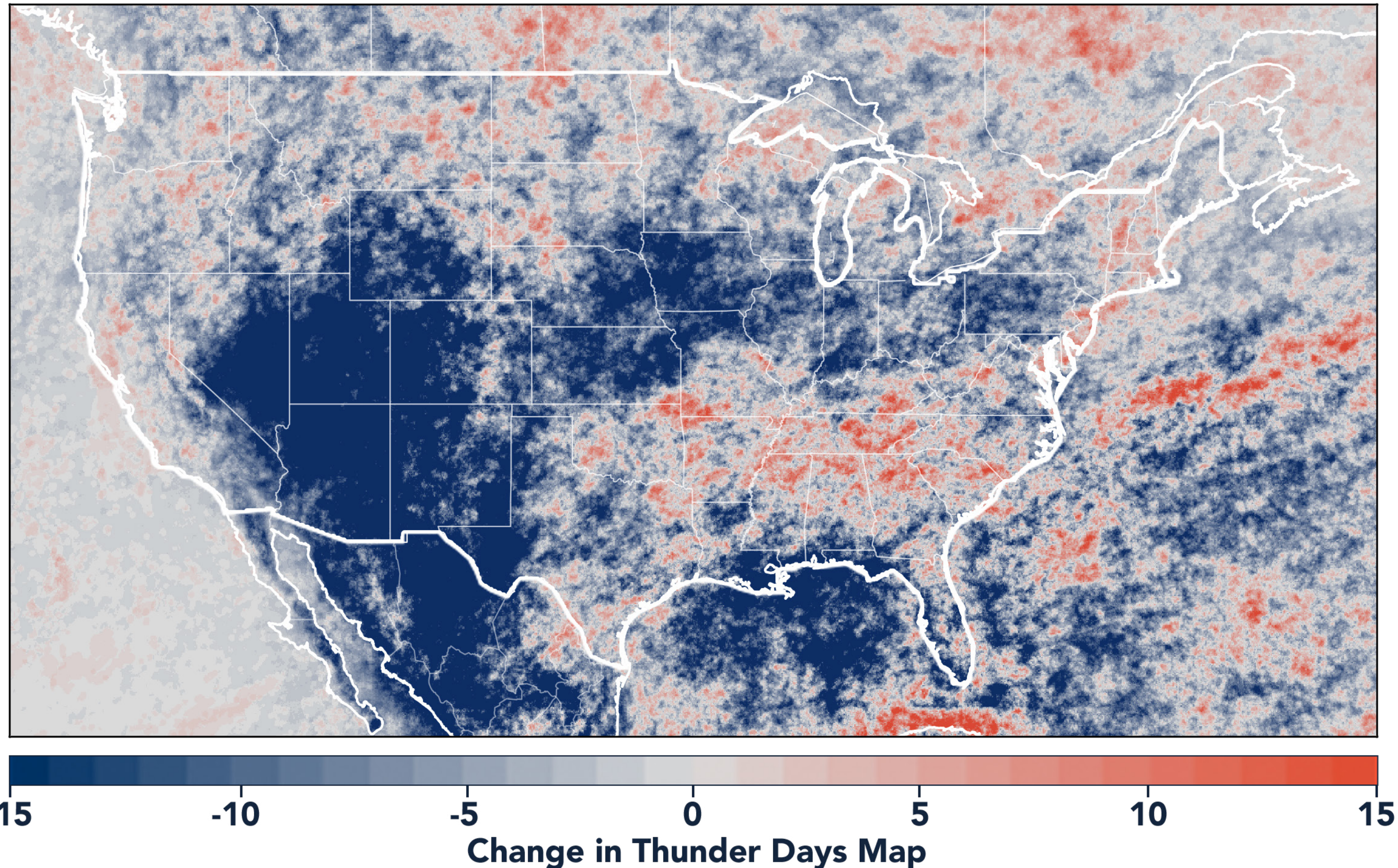
DANGEROUS THUNDERSTORM ALERTS BY MONTH

Earth Networks issued 960 Dangerous Thunderstorm Alerts for the state in 2020.

MISSOURI



TOTAL STATE THUNDER DAYS: 184



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

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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
Johnson County	292,905	60
Franklin County	251,658	72
Newton County	232,622	82
Jasper County	228,025	84
Texas County	215,648	86
Jefferson County	201,437	74
Nodaway County	201,130	57
Henry County	200,371	68
Perry County	197,092	68
Jackson County	193,907	54
Barry County	193,290	87
Laclede County	183,072	78
St. Louis County	182,737	131
Pike County	181,873	60
Bates County	177,550	71
Lincoln County	175,073	68
McDonald County	173,009	79
St. Charles County	172,250	73
New Madrid County	171,836	78
Stoddard County	169,099	83
Audrain County	166,256	65
Lawrence County	160,966	85
Vernon County	160,629	80
Ralls County	157,302	55
Monroe County	156,899	55
Wright County	152,878	86
Butler County	152,725	80
Lafayette County	152,674	56
Ste. Genevieve County	150,055	69
Washington County	149,860	70
Shannon County	149,445	80
Ozark County	146,103	86
Barton County	145,481	81
Crawford County	142,944	77
Wayne County	140,708	72
Howell County	140,080	80
Taney County	139,184	83
Callaway County	137,061	71
Holt County	135,291	53
Oregon County	131,788	78
Bollinger County	131,479	74
Marion County	130,279	49
Harrison County	129,153	48
Benton County	127,959	65
Reynolds County	127,410	81
Daviess County	127,305	45
Camden County	127,115	75

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Warren County	125,277	72
Carroll County	124,193	50
Cape Girardeau County	123,964	74
Atchison County	121,219	52
Douglas County	119,985	89
Montgomery County	118,768	71
Ray County	117,627	52
Clark County	117,181	46
Dent County	116,466	78
Boone County	115,459	65
Webster County	114,009	78
Saline County	111,553	59
Buchanan County	111,411	43
St. Clair County	110,983	70
Chariton County	110,453	59
Dunklin County	110,311	84
Lewis County	109,729	47
Gasconade County	109,162	67
Ripley County	108,523	75
Stone County	107,929	82
Christian County	107,799	80
St. Francois County	105,488	69
Polk County	104,699	82
Andrew County	104,156	51
Cass County	102,903	62
Carter County	102,826	75
Pettis County	102,058	61
Greene County	100,417	76
Pemiscot County	100,034	81
Osage County	99,929	70
Gentry County	99,713	53
Macon County	97,757	54
Dade County	97,227	81
Clinton County	97,208	43
Sullivan County	96,469	54
Madison County	93,805	65
Shelby County	92,384	50
Phelps County	91,715	78
Cooper County	89,474	54
Maries County	87,617	75
Caldwell County	87,546	47
Dallas County	87,415	74
Howard County	85,236	55
Platte County	84,904	44
Pulaski County	84,235	74
DeKalb County	83,719	46
Scott County	83,563	67

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Clay County	82,591	44
Morgan County	81,065	65
Hickory County	80,106	69
Randolph County	80,006	54
Adair County	77,180	45
Mississippi County	72,417	73
Livingston County	71,374	45
Miller County	70,884	69
Cole County	70,567	64
Worth County	69,330	45
Mercer County	67,422	51
Iron County	67,258	70
Linn County	66,280	47
Knox County	66,057	45
Putnam County	64,019	49
Cedar County	60,649	72
Grundy County	59,333	46
Scotland County	50,949	43
Moniteau County	43,577	59
Schuyler County	41,856	44