



2020

ILLINOIS 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:

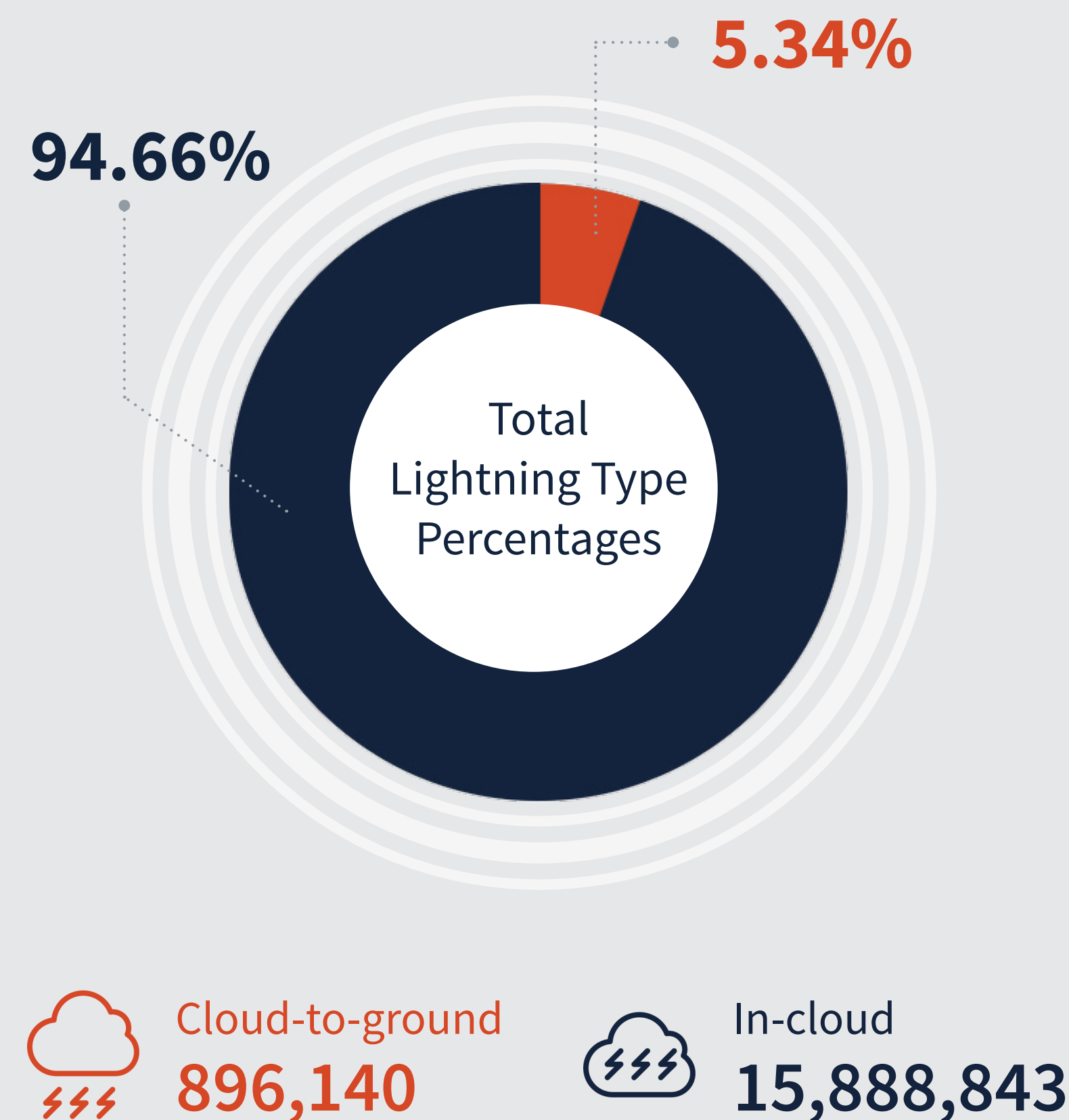
Lightning that happens between opposite charges in a cloud and on the ground

In-Cloud lightning:

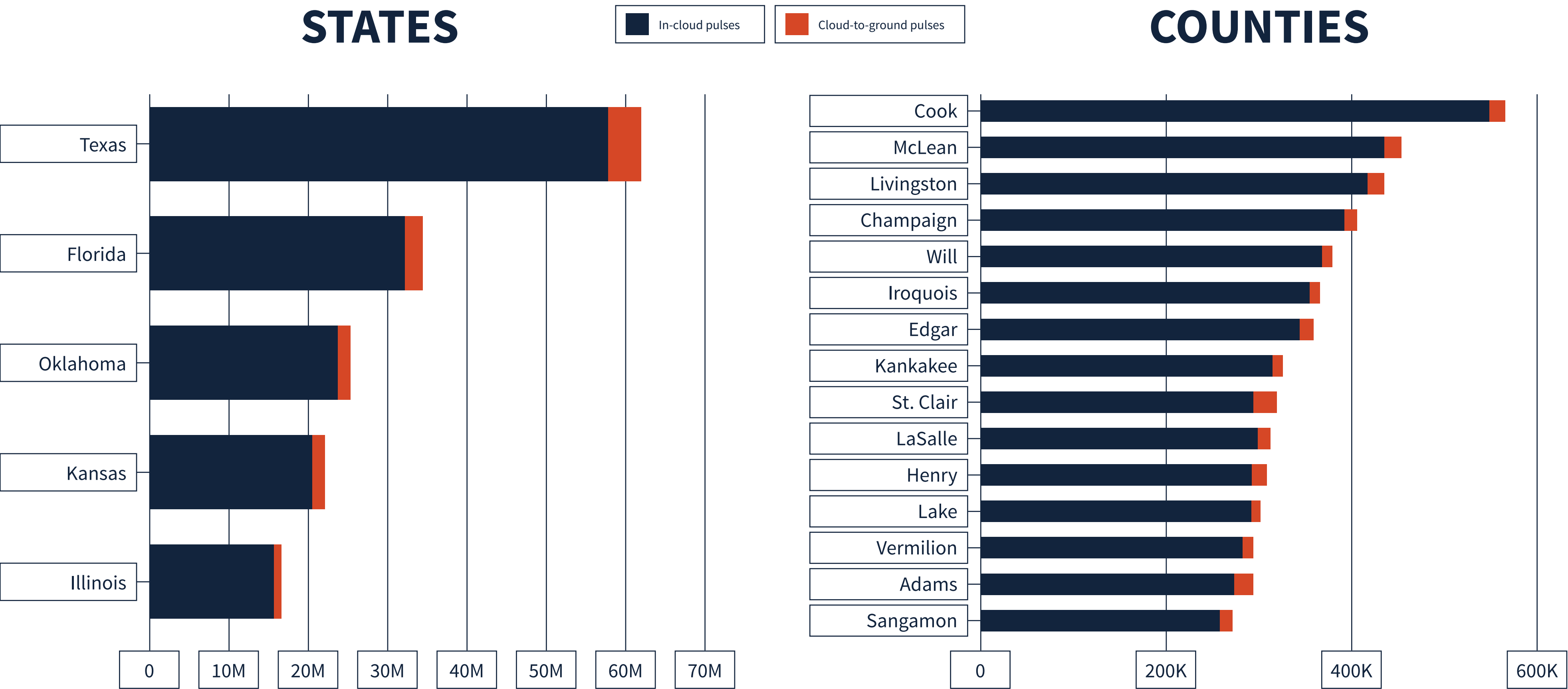
Lightning that occurs between opposite charges within a thunderstorm cloud

ILLINOIS TOTAL LIGHTNING PULSES

16,785,149

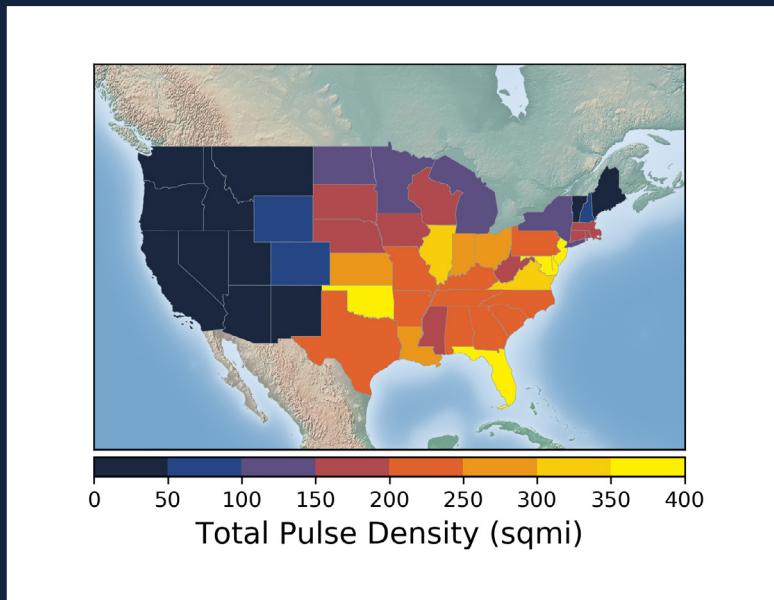
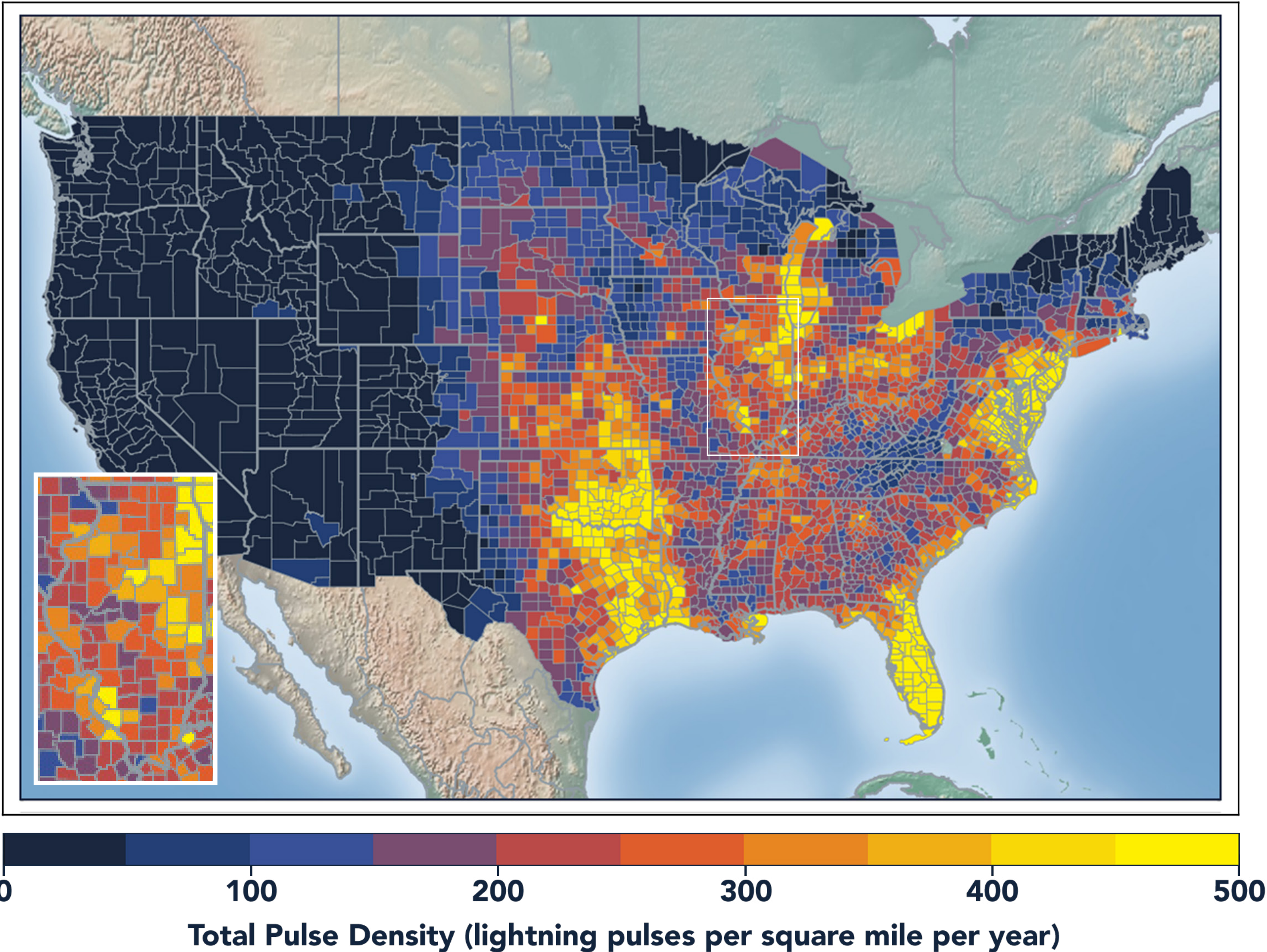


LIGHTNING COUNT RANKINGS



Illinois ranked 5 in total lightning pulses for 2020.

TOTAL (CG+IC) PULSE DENSITY MAP

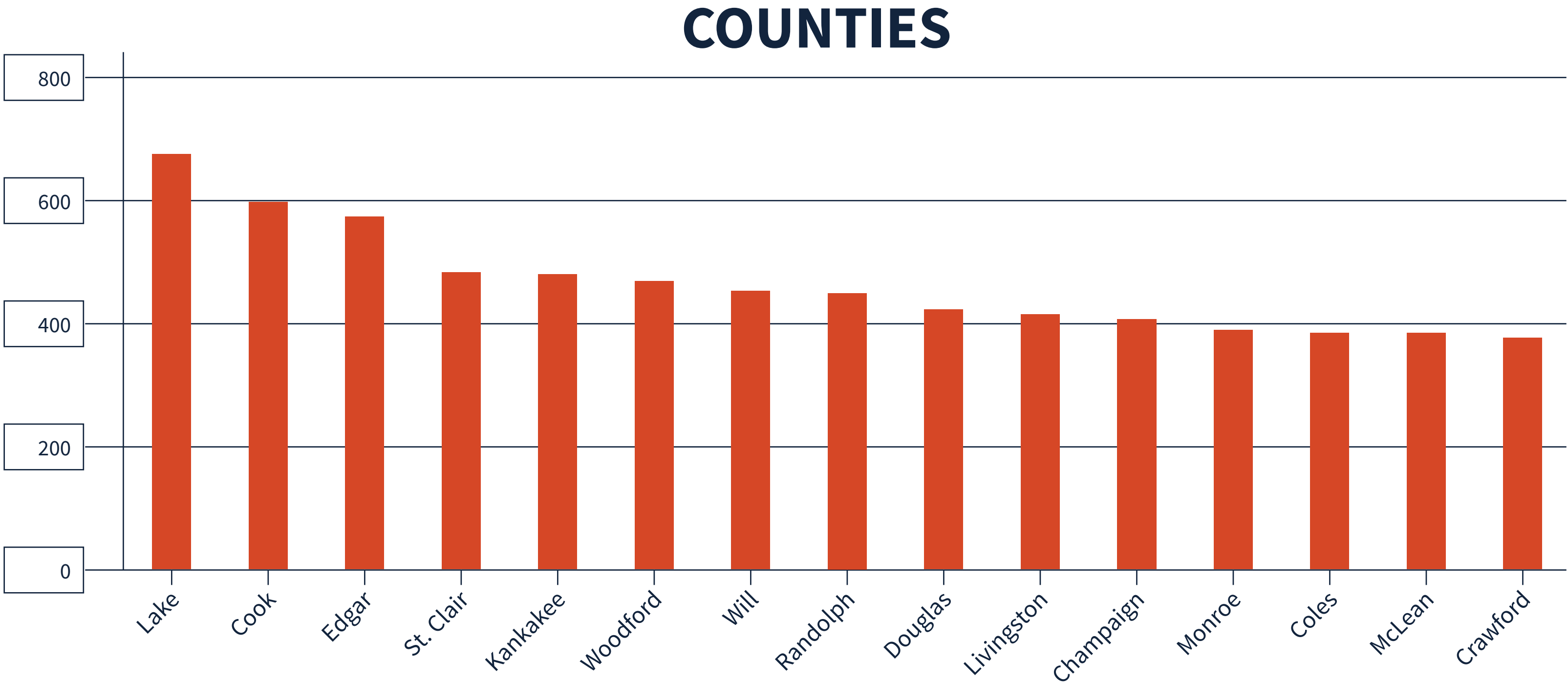


Pulse density is a better indicator of lightning activity than total lightning counts because it enables us to compare different sized areas (like states and counties) fairly.

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.

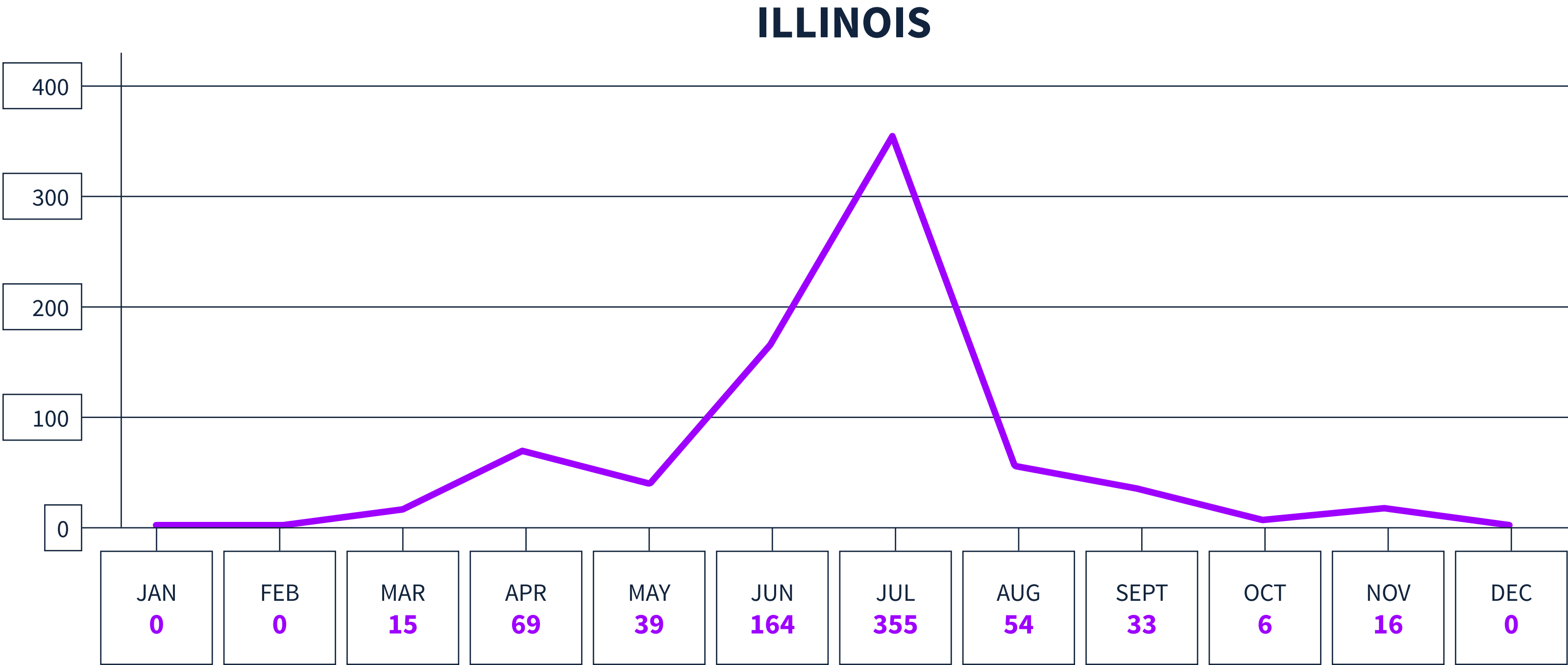


Earth Networks issued 29,401 Dangerous Thunderstorm Alerts (DTAs) in 2020. This year's map clearly shows the persistent drought conditions that have plagued the South and Southwest.

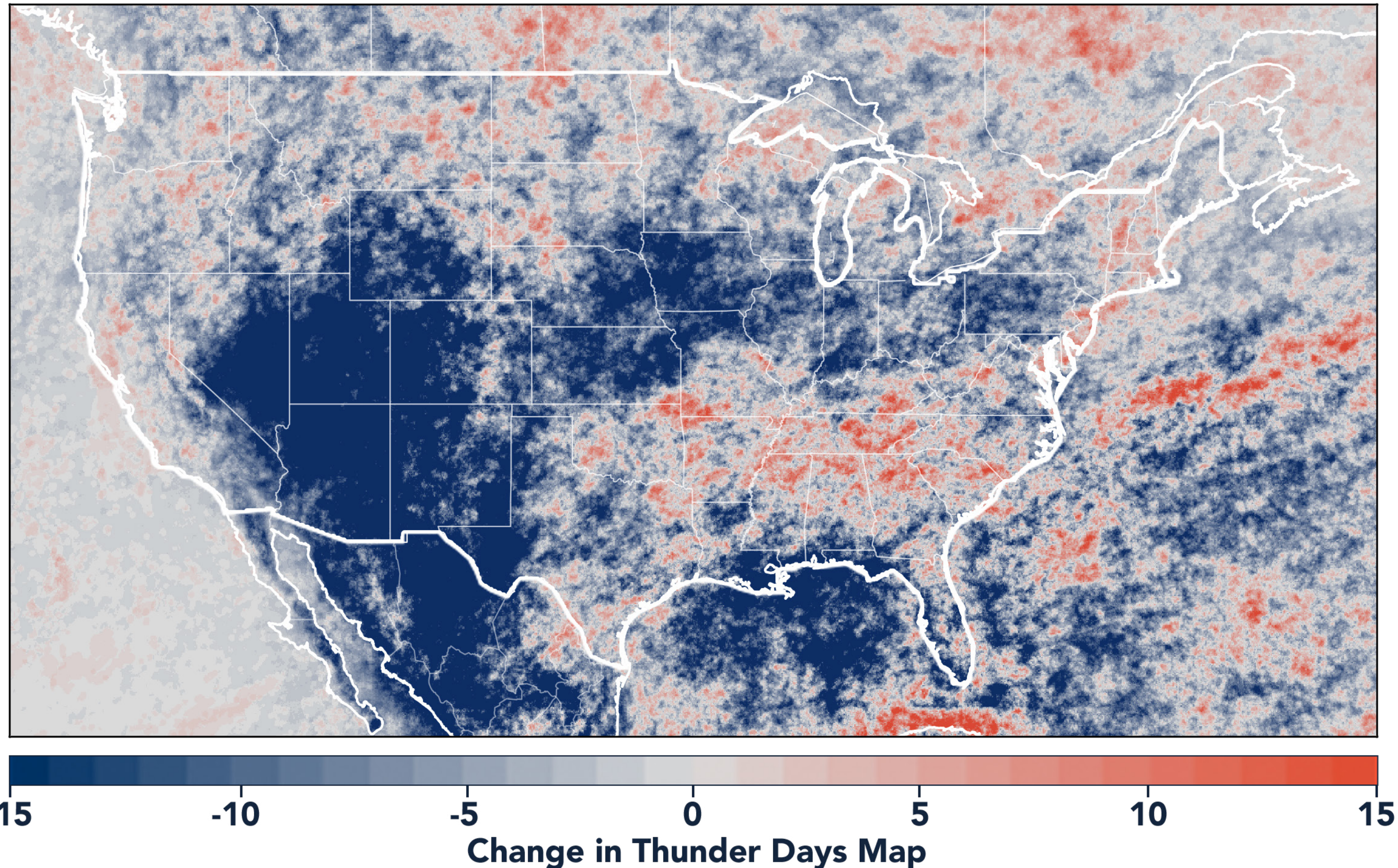
Dangerous Thunderstorm Alerts (DTAs), available exclusively to Earth Networks, provide **50% more lead time** to severe storms compared to publicly available alerts.

DANGEROUS THUNDERSTORM ALERTS BY MONTH

Earth Networks issued 751 Dangerous Thunderstorm Alerts for the state in 2020.



TOTAL STATE THUNDER DAYS: 166



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
Cook County	565,399	76
McLean County	453,407	64
Livingston County	434,038	62
Champaign County	405,722	69
Will County	378,764	67
Iroquois County	365,145	64
Edgar County	359,107	55
Kankakee County	324,979	64
St. Clair County	318,850	71
LaSalle County	312,425	62
Henry County	307,741	55
Lake County	301,161	66
Vermilion County	293,689	70
Adams County	293,273	59
Sangamon County	271,052	65
Bureau County	269,930	53
Randolph County	258,883	63
Fulton County	258,244	55
Pike County	251,942	57
Woodford County	246,689	51
Tazewell County	236,790	57
Whiteside County	225,109	51
Macoupin County	218,435	65
Madison County	212,813	67
Shelby County	202,744	66
Coles County	196,213	54
Ogle County	193,434	55
Peoria County	192,830	51
Christian County	186,392	62
Lee County	184,444	48
Knox County	182,932	56
Mercer County	178,365	55
Fayette County	176,994	69
Douglas County	175,892	53
Clark County	173,065	51
Wayne County	173,037	75
Macon County	170,712	62
Jackson County	169,267	69
Crawford County	167,930	56
Ford County	162,248	60
McHenry County	162,086	52
DeKalb County	159,551	53
Hancock County	159,292	56
Piatt County	157,939	57
Perry County	155,513	63
Grundy County	152,777	54
Winnebago County	152,386	49

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Clay County	150,409	67
Monroe County	148,953	70
Jasper County	142,905	55
Rock Island County	141,633	49
Kane County	138,046	52
Stephenson County	133,639	53
Warren County	131,360	51
Washington County	130,177	63
White County	127,280	63
Effingham County	125,773	59
Marshall County	124,440	52
Morgan County	121,342	58
Greene County	120,157	59
Marion County	119,937	67
McDonough County	119,225	58
Montgomery County	117,635	65
Jo Daviess County	117,261	55
Moultrie County	115,893	58
Clinton County	115,186	61
Gallatin County	110,100	60
Pope County	106,691	73
Hamilton County	106,376	69
Logan County	106,215	62
Kendall County	105,450	44
DuPage County	102,193	51
Williamson County	100,826	58
Franklin County	99,179	63
Mason County	98,472	51
De Witt County	94,286	54
Cumberland County	93,052	50
Saline County	90,405	59
Union County	86,630	64
Jefferson County	82,495	70
Schuyler County	81,714	53
Bond County	79,582	56
Boone County	77,854	46
Richland County	77,258	56
Henderson County	77,123	47
Jersey County	75,899	60
Stark County	75,161	45
Massac County	71,704	66
Johnson County	70,673	61
Calhoun County	70,359	59
Lawrence County	69,308	48
Carroll County	66,299	49
Brown County	66,131	45
Cass County	64,431	50

COUNTY	TOTAL LIGHTNING PULSES	TOTAL THUNDER DAYS
Scott County	61,933	48
Putnam County	54,261	42
Hardin County	52,888	61
Menard County	50,352	51
Edwards County	47,983	45
Wabash County	45,541	45
Alexander County	45,464	67
Pulaski County	29,569	61