



2020

NEBRASKA 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:

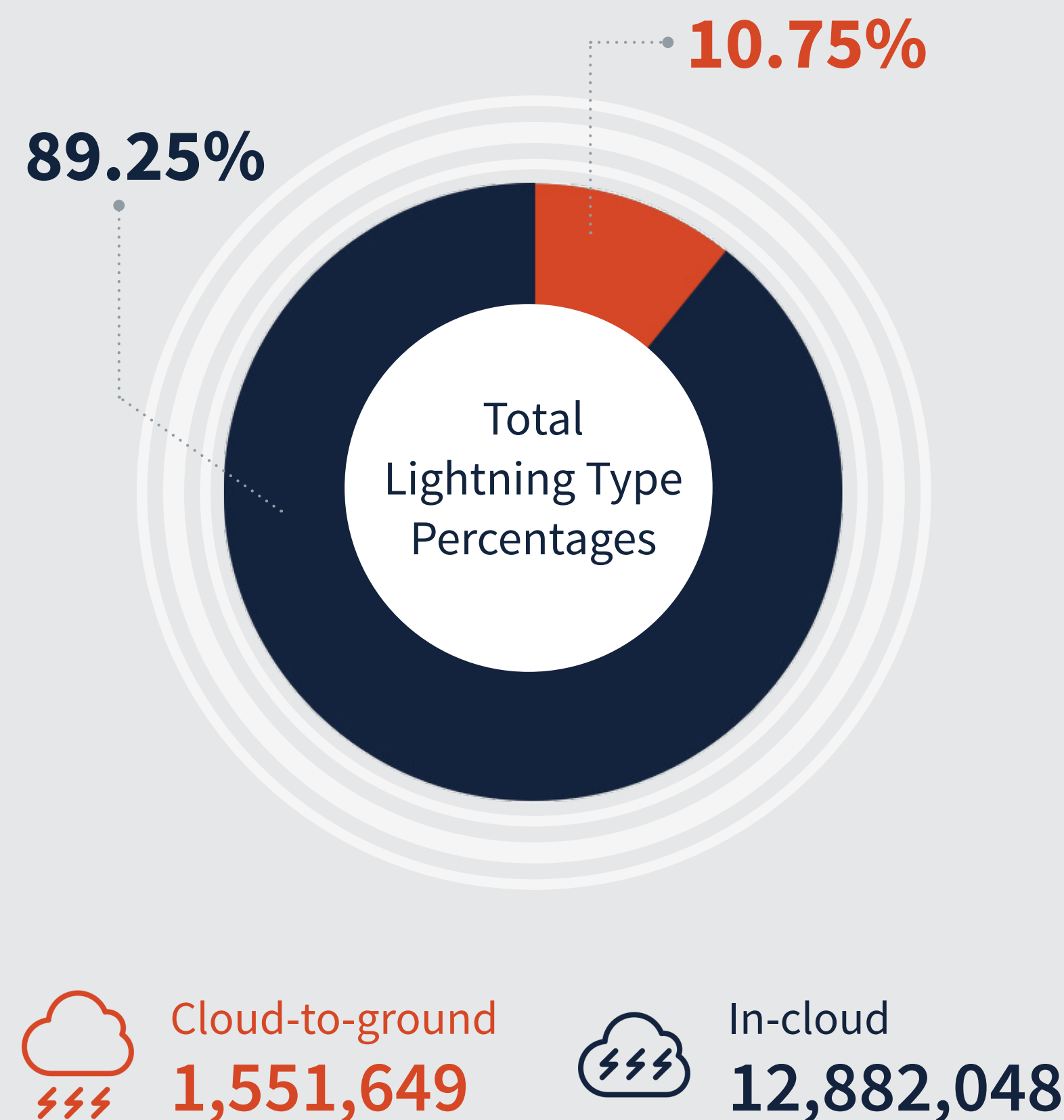
Lightning that happens between opposite charges in a cloud and on the ground

In-Cloud lightning:

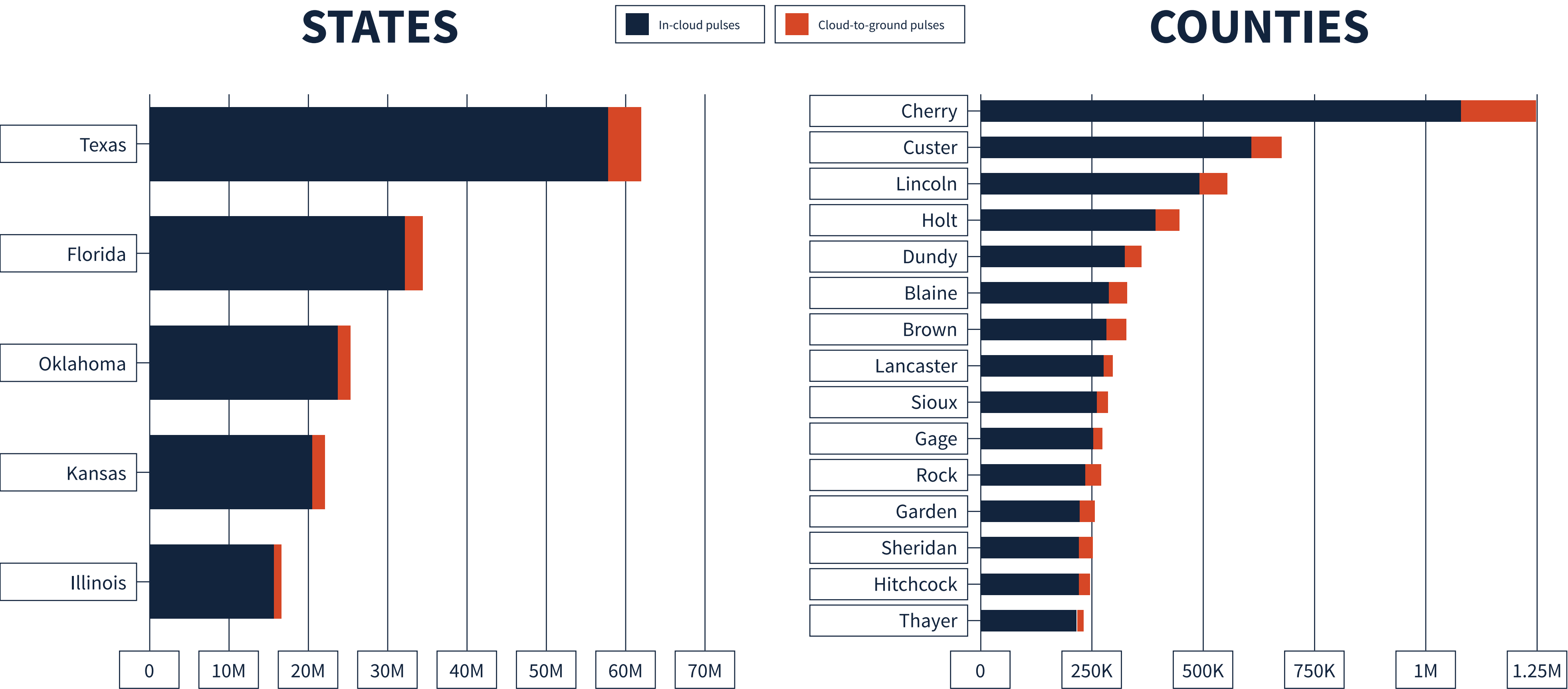
Lightning that occurs between opposite charges within a thunderstorm cloud

NEBRASKA TOTAL LIGHTNING PULSES

14,433,875

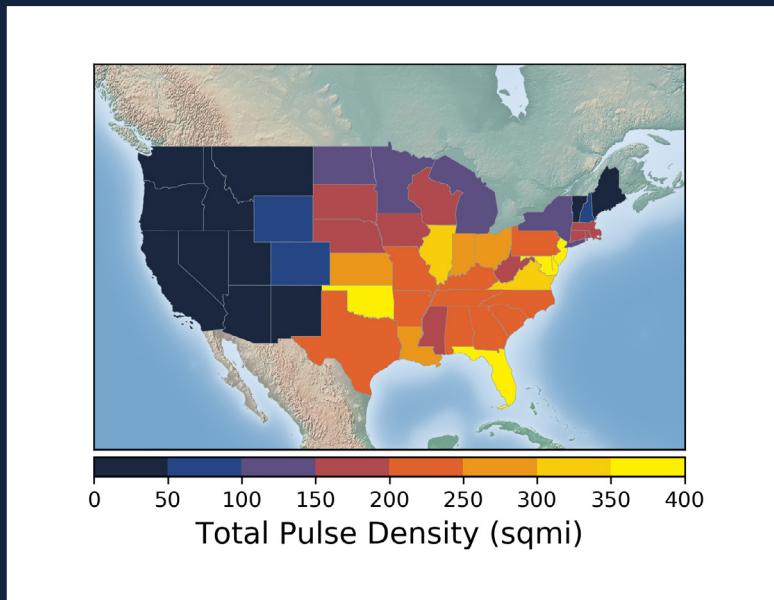
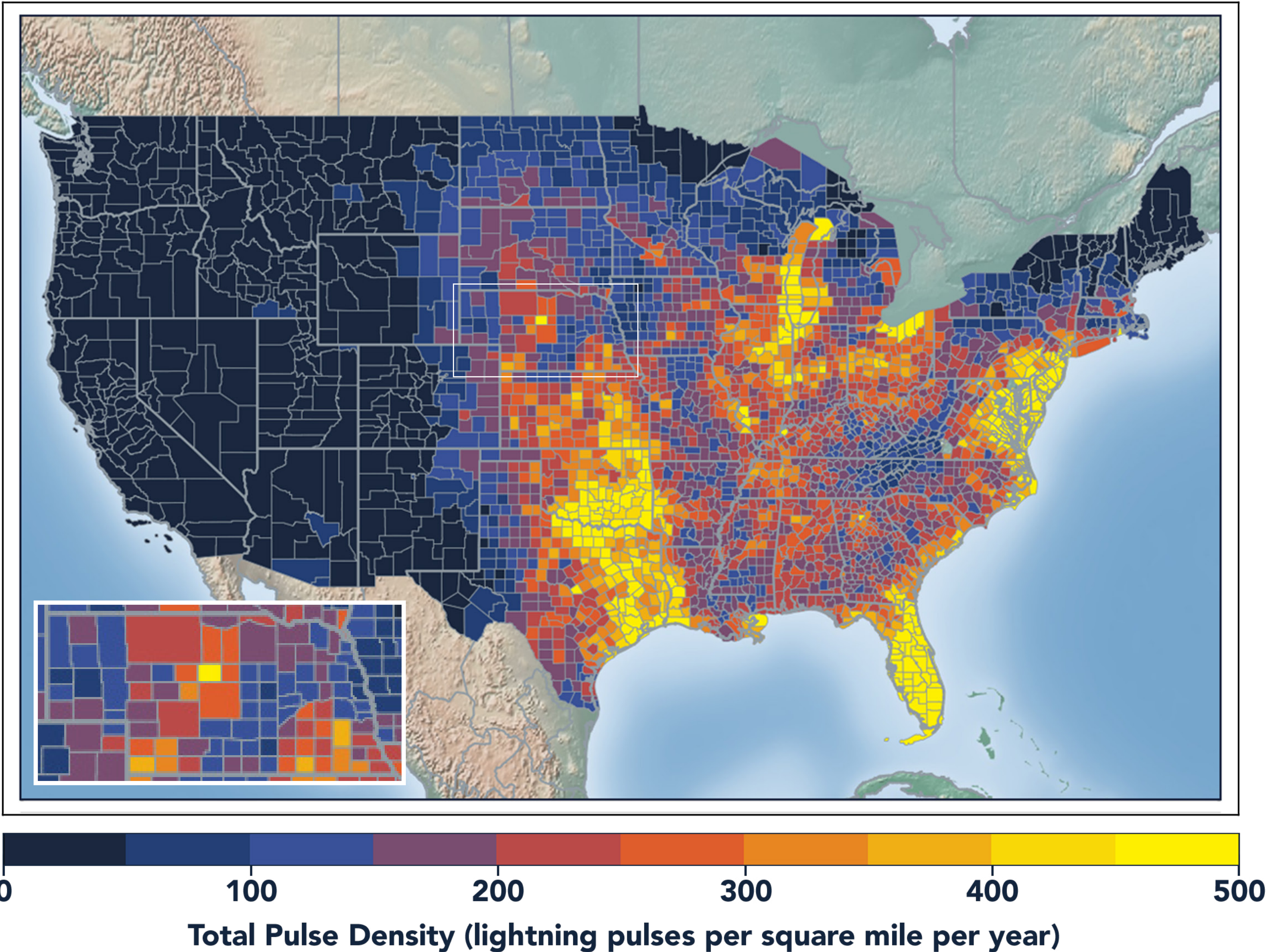


LIGHTNING COUNT RANKINGS



Nebraska ranked 6 in total lightning pulses for 2020.

TOTAL (CG+IC) PULSE DENSITY MAP

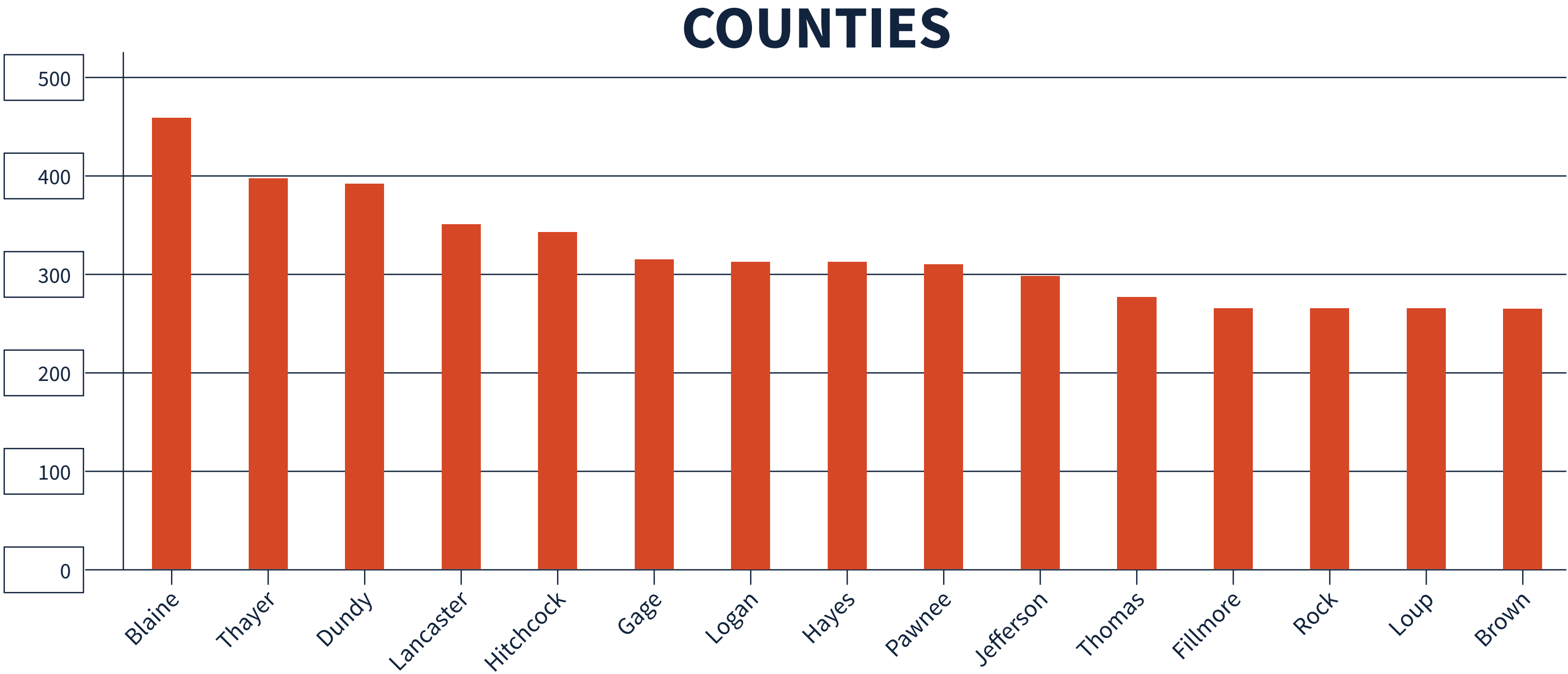


Pulse density is a better indicator of lightning activity than total lightning counts because it enables us to compare different sized areas (like states and counties) fairly.

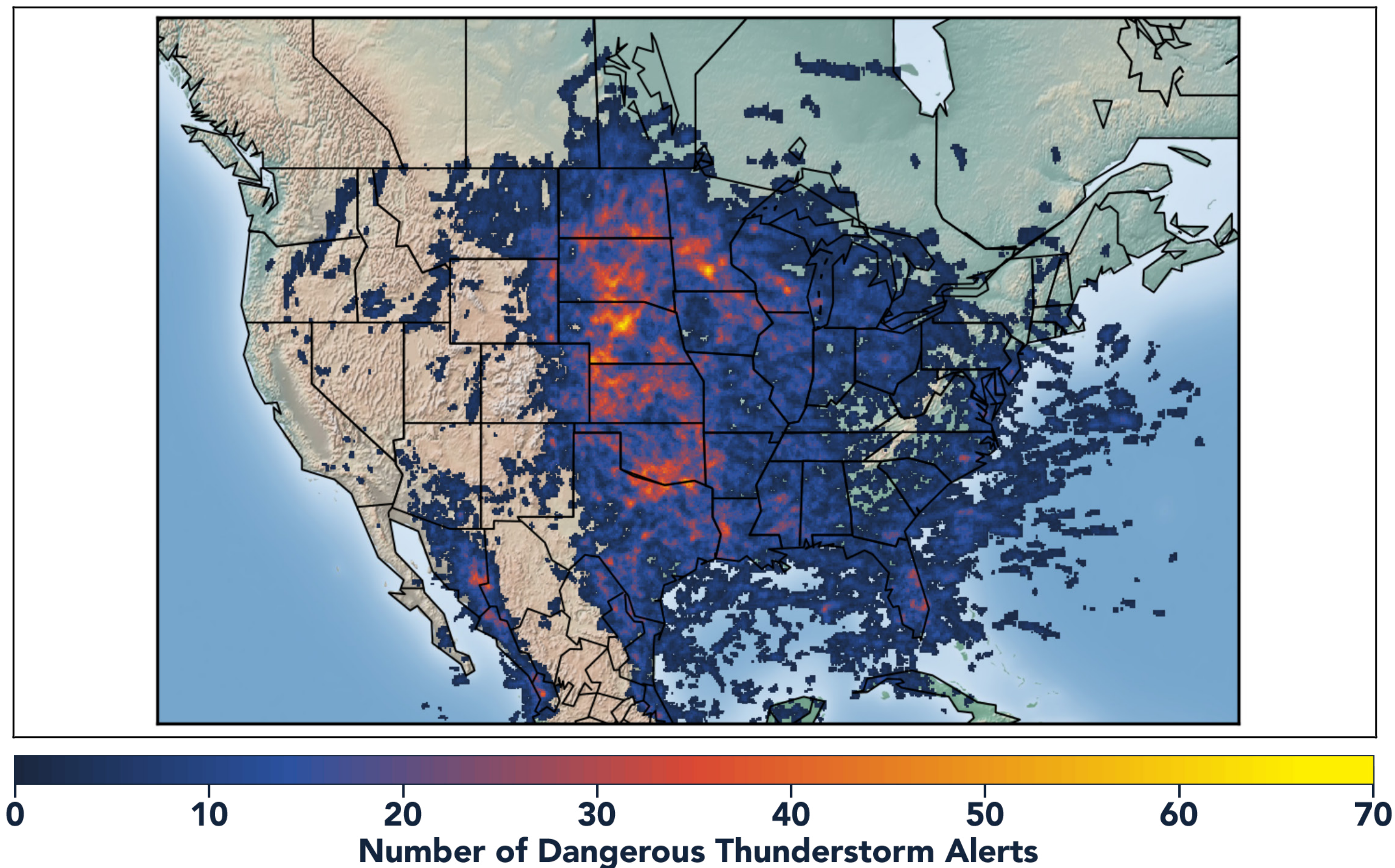
We cluster pulses together into a flash. With every pulse we detect, we receive a more precise measure of lightning activity. At left, areas in bright yellow experienced the highest lightning pulse density per square mile in 2020.

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.

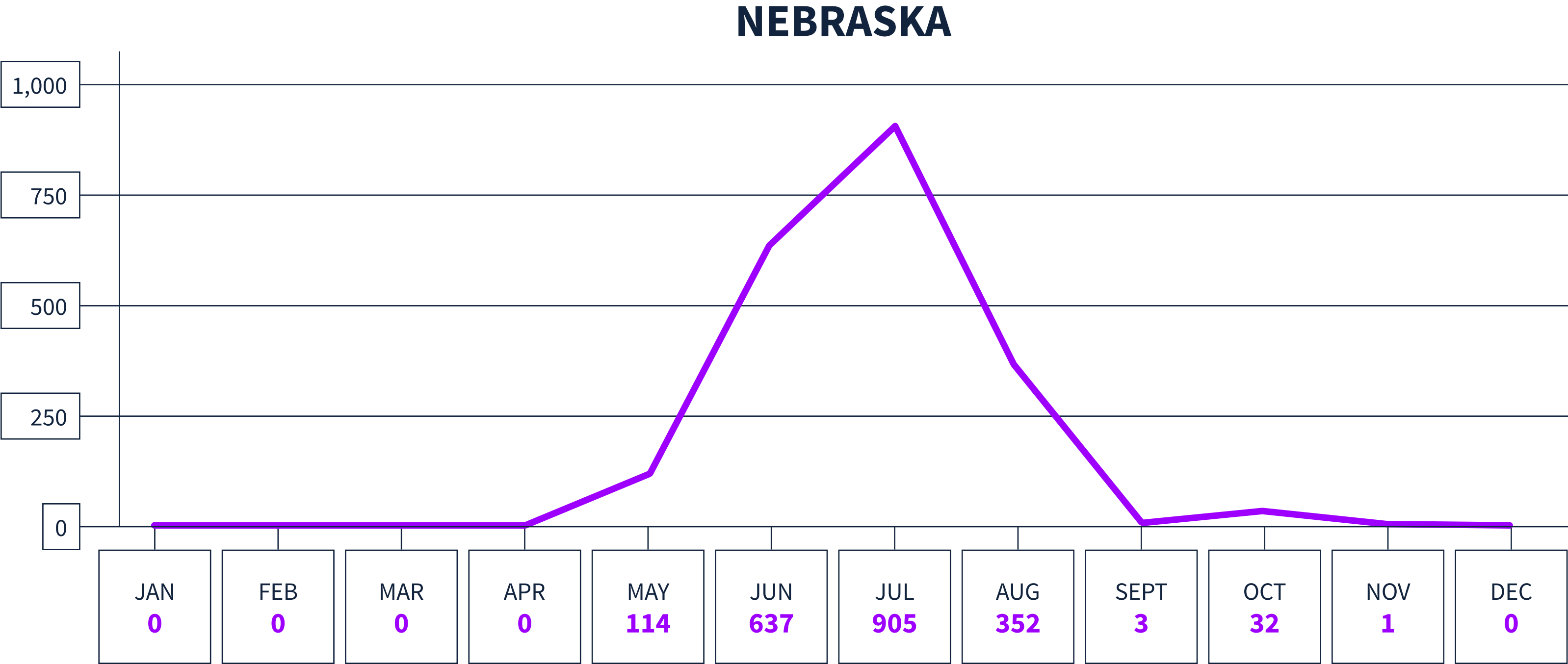


Earth Networks issued 29,401 Dangerous Thunderstorm Alerts (DTAs) in 2020. This year's map clearly shows the persistent drought conditions that have plagued the South and Southwest.

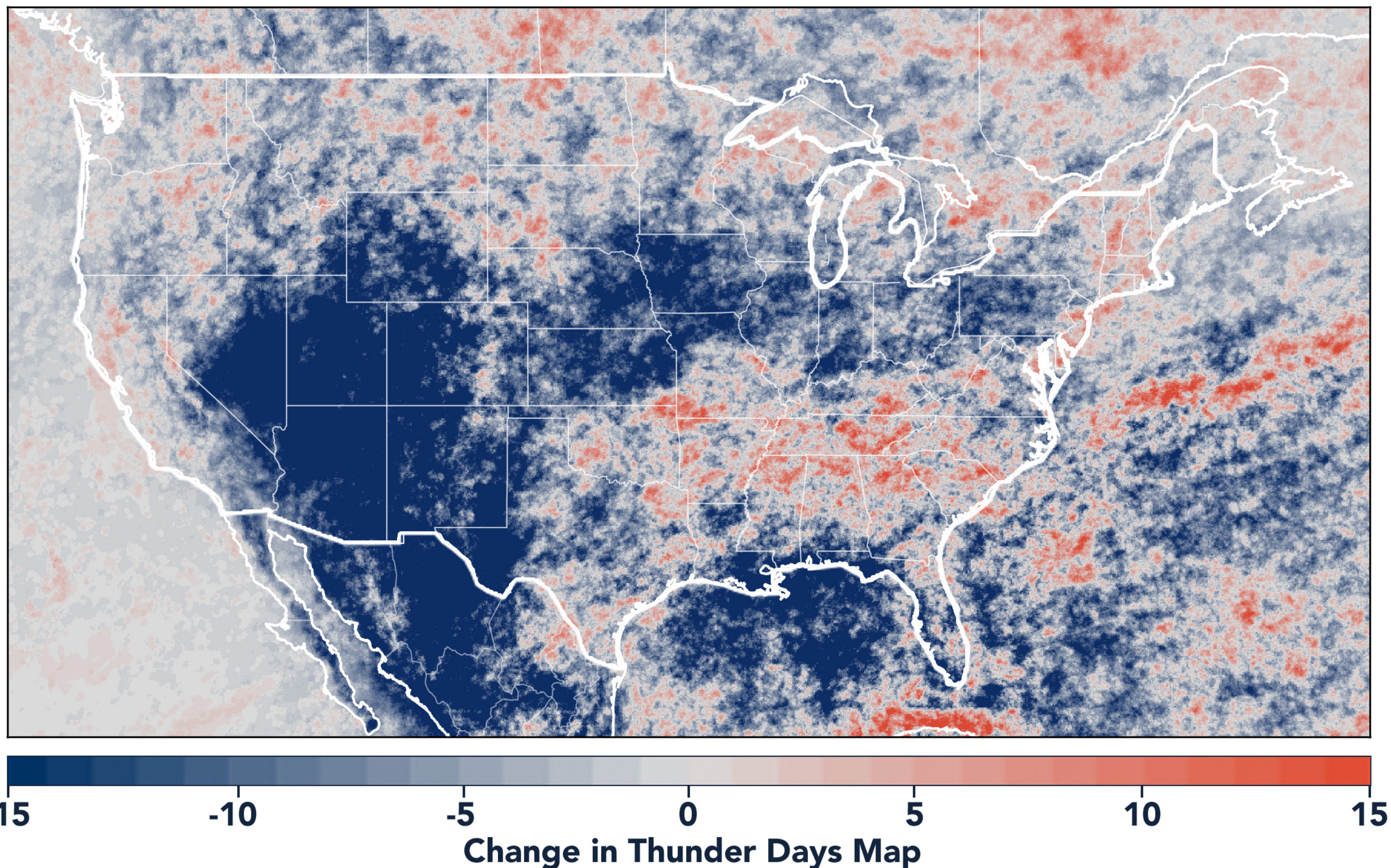
Dangerous Thunderstorm Alerts (DTAs), available exclusively to Earth Networks, provide **50% more lead time** to severe storms compared to publicly available alerts.

DANGEROUS THUNDERSTORM ALERTS BY MONTH

Earth Networks issued 2,044 Dangerous Thunderstorm Alerts for the state in 2020.



TOTAL STATE THUNDER DAYS: 178



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 |
|-------------------|------------------------|--------------------|
| Cherry County | 1,248,515 | 96 |
| Custer County | 673,672 | 78 |
| Lincoln County | 552,878 | 81 |
| Holt County | 443,782 | 64 |
| Dundy County | 360,417 | 60 |
| Blaine County | 326,011 | 56 |
| Brown County | 323,272 | 64 |
| Lancaster County | 292,916 | 57 |
| Sioux County | 284,437 | 83 |
| Gage County | 268,808 | 59 |
| Rock County | 267,443 | 66 |
| Garden County | 253,297 | 66 |
| Sheridan County | 247,638 | 80 |
| Hitchcock County | 243,263 | 53 |
| Thayer County | 228,086 | 53 |
| Chase County | 227,567 | 54 |
| Hayes County | 223,269 | 49 |
| Dawes County | 219,236 | 73 |
| Thomas County | 197,546 | 58 |
| Cheyenne County | 182,956 | 77 |
| Logan County | 178,840 | 56 |
| Keith County | 176,683 | 62 |
| Perkins County | 175,872 | 57 |
| Red Willow County | 175,416 | 52 |
| Jefferson County | 170,325 | 51 |
| Knox County | 169,028 | 50 |
| McPherson County | 165,102 | 58 |
| Kimball County | 162,855 | 82 |
| Antelope County | 153,195 | 50 |
| Fillmore County | 152,883 | 54 |
| Frontier County | 152,272 | 61 |
| Keya Paha County | 150,710 | 52 |
| Seward County | 150,260 | 49 |
| Loup County | 149,398 | 46 |
| Arthur County | 149,305 | 60 |
| Nuckolls County | 145,805 | 50 |
| Otoe County | 144,860 | 54 |
| Grant County | 140,591 | 61 |
| Saline County | 140,405 | 51 |
| York County | 135,898 | 45 |
| Pawnee County | 134,063 | 52 |
| Dawson County | 132,676 | 61 |
| Clay County | 128,140 | 50 |
| Richardson County | 126,090 | 54 |
| Box Butte County | 119,939 | 64 |
| Morrill County | 119,008 | 70 |
| Butler County | 118,578 | 51 |

| COUNTY | TOTAL LIGHTNING PULSES | TOTAL THUNDER DAYS |
|---------------------|------------------------|--------------------|
| Buffalo County | 116,336 | 60 |
| Boyd County | 114,609 | 44 |
| Polk County | 109,980 | 41 |
| Hamilton County | 104,279 | 44 |
| Furnas County | 103,016 | 53 |
| Hooker County | 99,501 | 62 |
| Cass County | 99,239 | 51 |
| Nemaha County | 96,675 | 52 |
| Pierce County | 95,346 | 46 |
| Platte County | 94,358 | 46 |
| Banner County | 87,798 | 60 |
| Saunders County | 87,688 | 51 |
| Franklin County | 87,417 | 50 |
| Harlan County | 84,083 | 50 |
| Cedar County | 83,651 | 53 |
| Boone County | 81,614 | 49 |
| Valley County | 76,585 | 46 |
| Dodge County | 76,142 | 49 |
| Webster County | 75,390 | 53 |
| Madison County | 73,943 | 46 |
| Garfield County | 73,877 | 51 |
| Cuming County | 72,968 | 46 |
| Hall County | 72,288 | 43 |
| Dixon County | 72,051 | 46 |
| Howard County | 71,490 | 42 |
| Kearney County | 70,296 | 46 |
| Colfax County | 69,509 | 44 |
| Wayne County | 69,408 | 46 |
| Stanton County | 68,318 | 49 |
| Scotts Bluff County | 66,320 | 58 |
| Sherman County | 65,857 | 52 |
| Merrick County | 64,437 | 41 |
| Johnson County | 64,395 | 49 |
| Wheeler County | 62,108 | 42 |
| Phelps County | 59,387 | 51 |
| Nance County | 57,763 | 39 |
| Gosper County | 56,112 | 54 |
| Adams County | 54,118 | 47 |
| Deuel County | 52,346 | 52 |
| Greeley County | 46,800 | 46 |
| Burt County | 46,551 | 42 |
| Thurston County | 43,157 | 42 |
| Douglas County | 37,894 | 43 |
| Washington County | 30,946 | 41 |
| Dakota County | 29,876 | 38 |
| Sarpy County | 24,560 | 49 |