





# SOUTH CAROLINA 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

## **SOUTH CAROLINA TOTAL LIGHTNING PULSES** 7,454,219 7.60% 92.39% Total Lightning Type Percentages





### **LIGHTNING COUNT RANKINGS**



### South Carolina ranked 26 in total lightning pulses for 2020.

### **COUNTIES**

### **TOTAL (CG+IC) PULSE DENSITY MAP**







Total Pulse Density (sqmi)

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.

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### **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 273 Dangerous Thunderstorm Alerts for the state in 2020.

### **SOUTH CAROLINA**





### **TOTAL STATE THUNDER DAYS: 197**



-10 -5 -15 **Change in Thunder Days Map** 

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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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.

# EARTH NETWORKS®



## 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 cloudto-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
ТХ	63,683,799	278
FL	35,430,198	246
ОК	26,159,420	205
KS	23,125,675	179
IL	16,785,149	166
NE	14,433,875	178
МО	14,081,658	184
VA	13,234,163	176
GA	13,016,803	217
ОН	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
	3,465,297	96
	1,951,574	172
	1,518,171	172
	1,207,040	5U 146
	1,237,002	00
	056 197	151
OP	930,187	131
	\$13,633 802 252	70
	618 242	70
	402 333	117
ME	358 334	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u>81</u></u>
	254 695	75
	190 992	42
	130,332 AA 20A	47
	47,204	** /

### APPENDIX

This table ranks all counties in the state 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
Charleston County	400,730	105
Horry County	376,966	102
Colleton County	344,834	103
Berkeley County	342,662	102
Georgetown County	325,857	103
Chesterfield County	260,035	85
Orangeburg County	238,323	98
Williamsburg County	236,292	93
Jasper County	231,733	96
Spartanburg County	229,185	88
Dorchester County	194,917	93
Florence County	187,352	93
Beaufort County	184,116	93
Hampton County	182,060	87
Kershaw County	173,285	89
Greenville County	161,133	100
Aiken County	155,041	98
Clarendon County	153,604	84
Marion County	149,649	85
York County	149,627	77
Lancaster County	145,242	79
Chester County	143,674	75
Lexington County	140,711	77
Darlington County	136,577	81
Richland County	135,162	87
Marlboro County	134,977	87
Anderson County	132,669	89
Laurens County	127,748	78
Oconee County	123,557	93
Fairfield County	115,958	75
Dillon County	114,329	84
Sumter County	107,970	91
Edgefield County	100,002	86
Pickens County	99,310	81
Abbeville County	99,307	76
Union County	98,447	69
Newberry County	98,346	78
Greenwood County	97,529	76
Bamberg County	90,347	77
Allendale County	89,499	77
Lee County	88,139	79
Cherokee County	88,009	66
Barnwell County	78,160	87
Calhoun County	67,926	75
McCormick County	58,262	84
Saluda County	54,283	71