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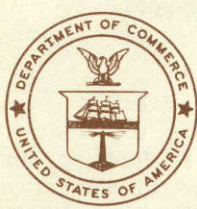
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**ION SERIES NO. 16**

**AERONAUTICAL  
CLIMATOLOGY**

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# *Thunderstorms*



(Originally Issued as Map-Back Article,  
DAILY WEATHER MAP, February 1, 1956.)

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## Thunderstorms. . .

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Thunderstorms occur in practically all parts of the United States. Because thunderstorms contain heavy turbulence and usually are accompanied by strong gusty surface winds, rain, and occasionally hail, they are of particular interest to airplane pilots.

Previous articles of this series have presented information on the structure and characteristics of thunderstorms, and how the individual thunderstorm cell goes through a definite life cycle (Aviation Series 7 and 8). The purpose of this article is to show how the frequency of thunderstorms varies with location and the seasons. The charts in Figures 1 through 4 show the average number of days thunderstorms occur during each of the seasons.

Figure 1 shows the average number of days with thunderstorms during the winter season. For the months of December, January, and February, thunderstorms are quite infrequent except for a small area in the lower Mississippi Valley. As a general rule, the pilot can consider that thunderstorms are rarely a problem to aircraft operations during these months except along the central Gulf Coast.

As the spring season arrives, the frequency of thunderstorms increases quite rapidly. At first, the increase in thunderstorm frequency is most apparent for the area along the Gulf Coast, but as the season progresses the thunderstorm frequencies increase northward into the Great Plains, the lower Great Lakes region, and the Central Atlantic Coast states. Figure 2 shows this over-all area has an average of ten or more thunderstorm days during the spring, and the highest average number of thunderstorm days is near the Texas-Oklahoma-Arkansas border, where at least 20 out of the 90 days have thunderstorms.

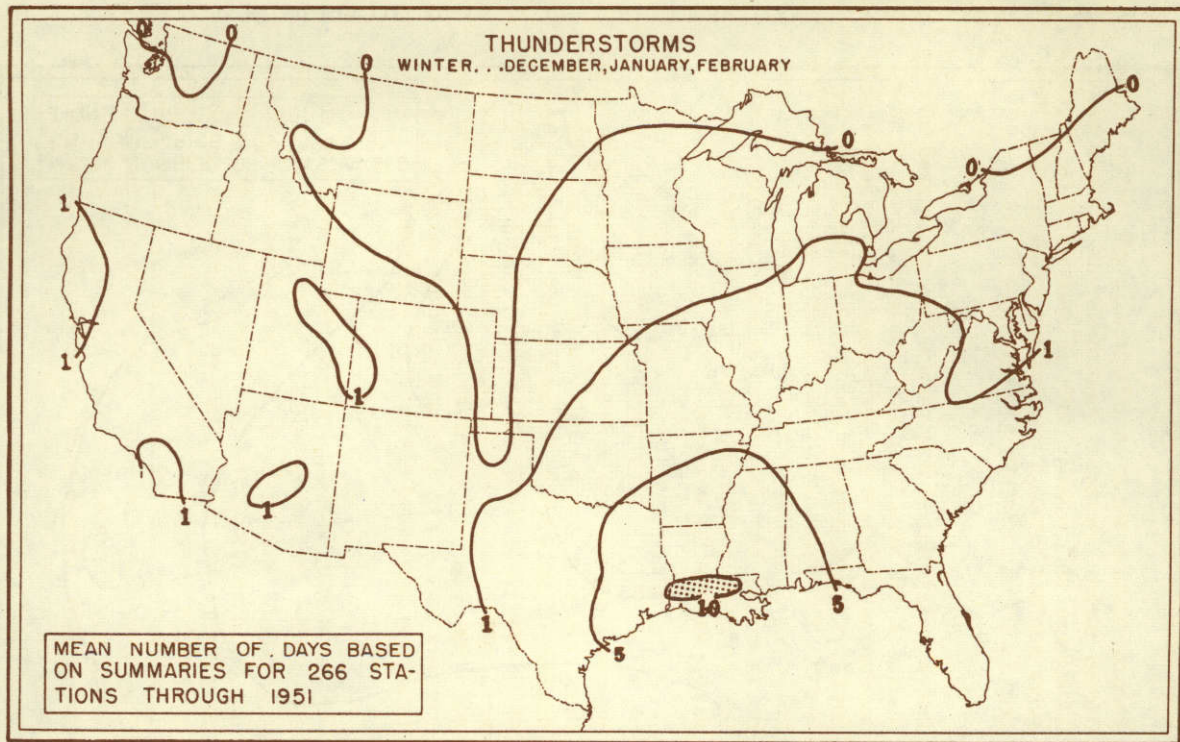


FIG. 1 - AVERAGE NUMBER OF DAYS WITH THUNDERSTORMS DURING WINTER SEASON

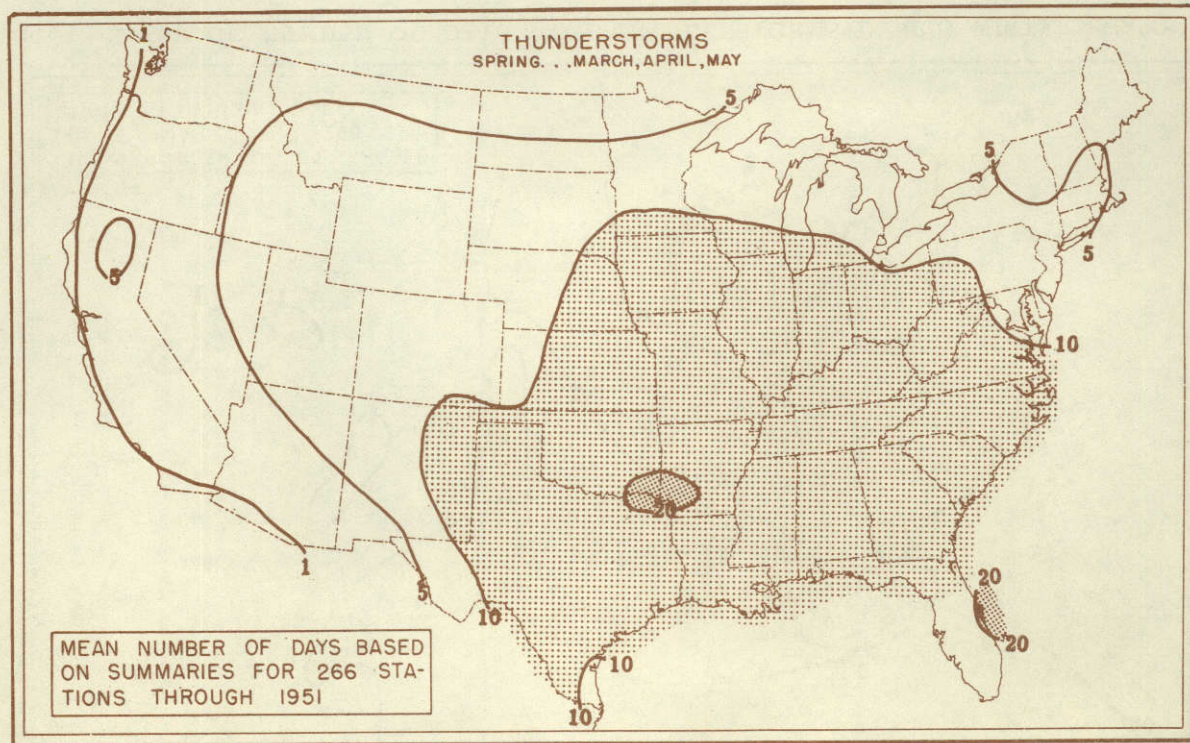


FIG. 2 - AVERAGE NUMBER OF DAYS WITH THUNDERSTORMS DURING SPRING SEASON

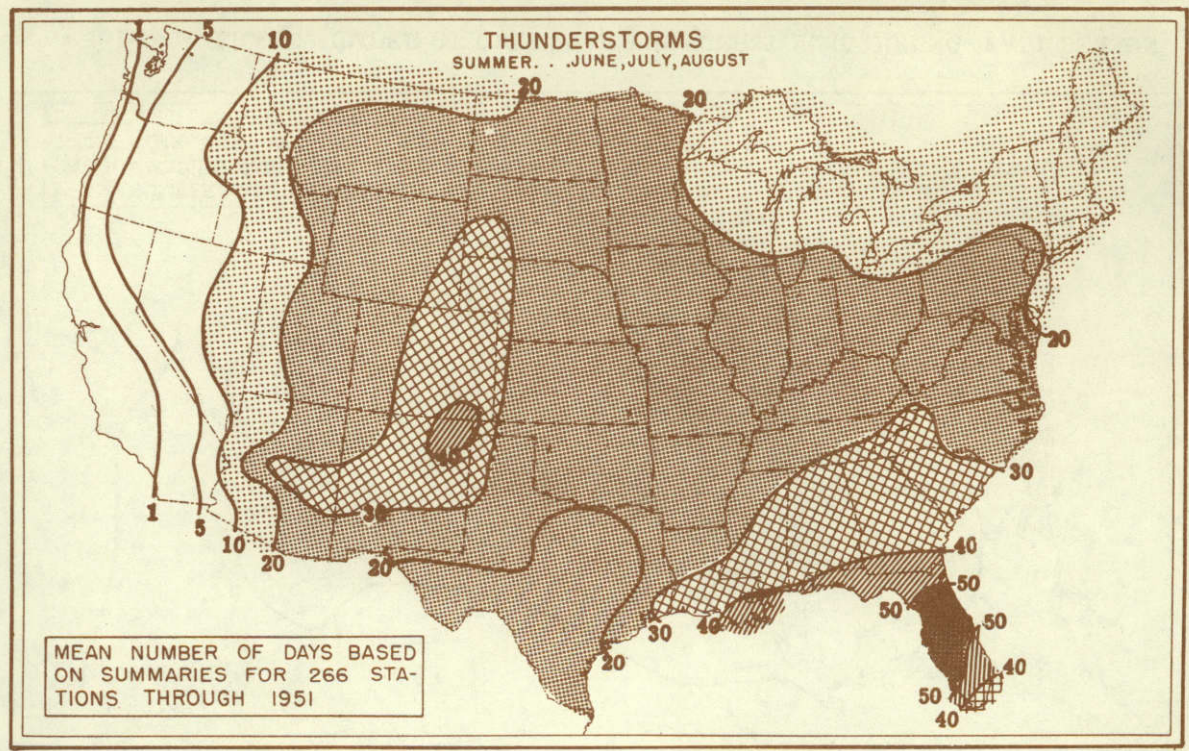


FIG. 3 - AVERAGE NUMBER OF DAYS WITH THUNDERSTORMS DURING SUMMER SEASON

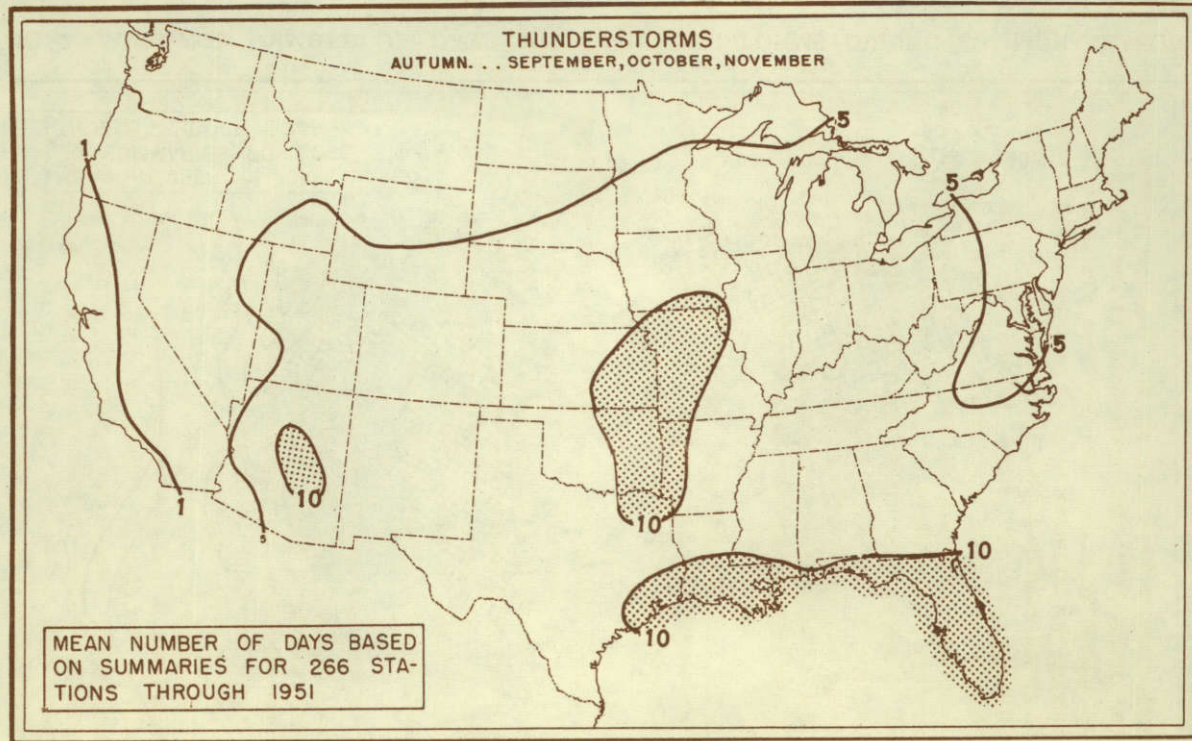


FIG. 4 - AVERAGE NUMBER OF DAYS WITH THUNDERSTORMS DURING FALL SEASON

## Thunderstorms. . .

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Referring to Figure 3, we see that the average number of days with thunderstorms during summer shows an appreciable increase over the average for spring. During the summer season an area of high frequency of thunderstorms (30 or more days with thunderstorms) extends from central Arizona into New Mexico and then northward over the central Rocky Mountain area and its eastern slopes. In the southeastern states there is another area of high frequency of thunderstorm occurrence, beginning in the lower portion of the Appalachian Chain and increasing in frequency toward the south. The maximum is reached in central Florida, where more than half of the days in the summer season have thunderstorms.

In the fall, the average number of thunderstorm days decreases rapidly, and is considerably less than in summer, as shown in Figure 4.

Figure 5 shows the average number of thunderstorm days per year for the United States. As would be expected from examination of the charts of seasonal frequency of thunderstorm days, this chart also shows that the greatest number of days per year with thunderstorms is along the Gulf Coast, and the least number along the Pacific Coast.

We have noted the change in the number of thunderstorm days with the seasons and location. It is also interesting to note that while we customarily think of thunderstorms as warm summer afternoon phenomena, thunderstorms do occur at other times of the day. Over the coastal waters of Florida and other Gulf Coast states, many thunderstorms occur at night. In the Great Plains nighttime thunderstorms, sometimes called "nocturnal thunderstorms," occur with considerable frequency during the spring and summer. In other cases, thunderstorms are closely associated with cold or warm fronts and therefore occur at night as well as during the day.

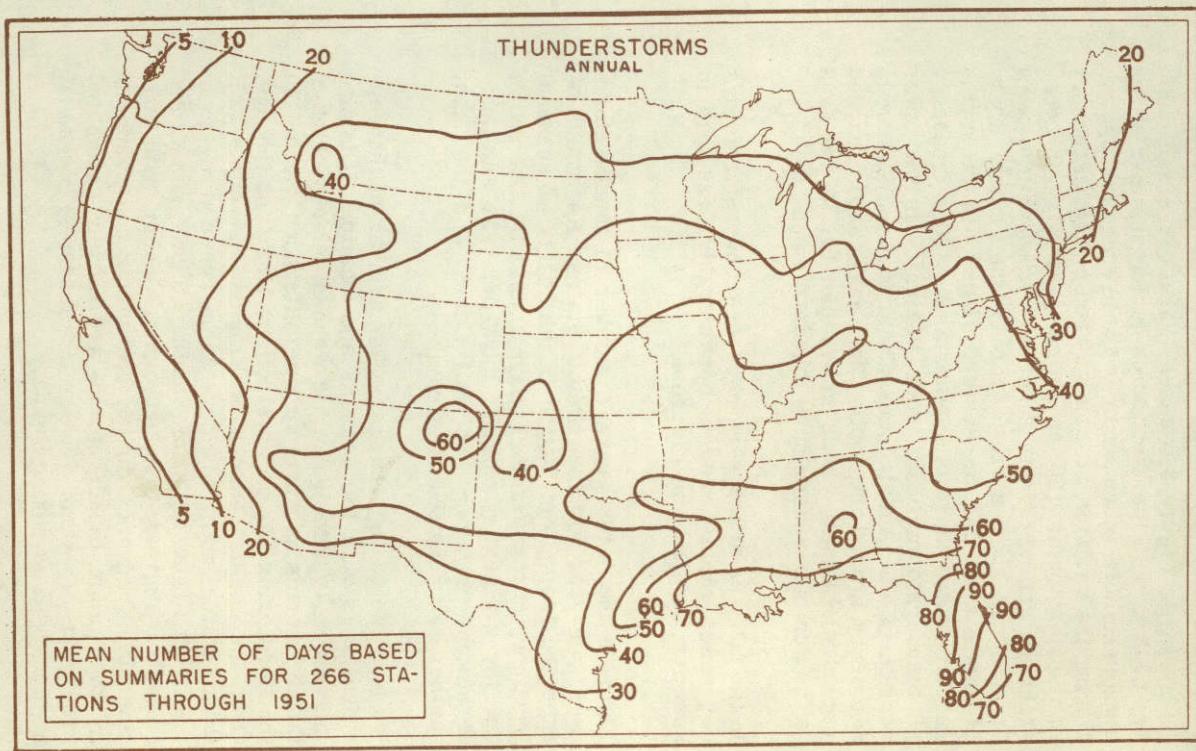


FIG. 5 - AVERAGE NUMBER OF DAYS PER YEAR WITH THUNDERSTORMS

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