Volume 23 Number 7
July 2007

IFR

The Magazine for the Accomplished Pilot

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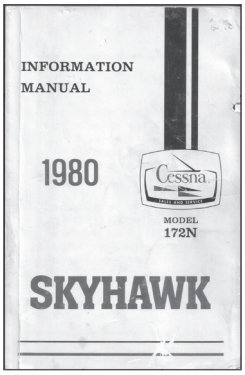

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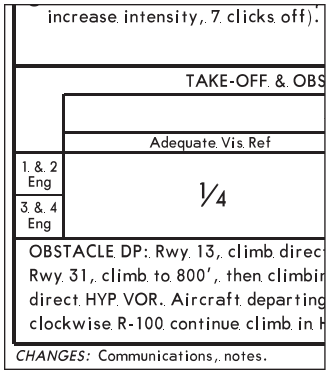

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WST CLIMATOLOGY

A typical July evening in Kansas will spawn its share of thunderstorms, but don't expect a Convective SIGMET (WST). Here's why.

by Scott C. Dennstaedt

I am always surprised to learn how many pilots rarely venture more than a few hundred miles from their home airport. When they do, they get butterflies in their gut about the weather they might face in this unexplored region. "Scott, I'm headed to the Southwest next year. Should I be worried about thunderstorms in March?" This is a common question I get from my online students and some *IFR* readers.

Obviously, these folks aren't asking about specific thunderstorms months in advance. What they're asking about is called thunderstorm climatology.

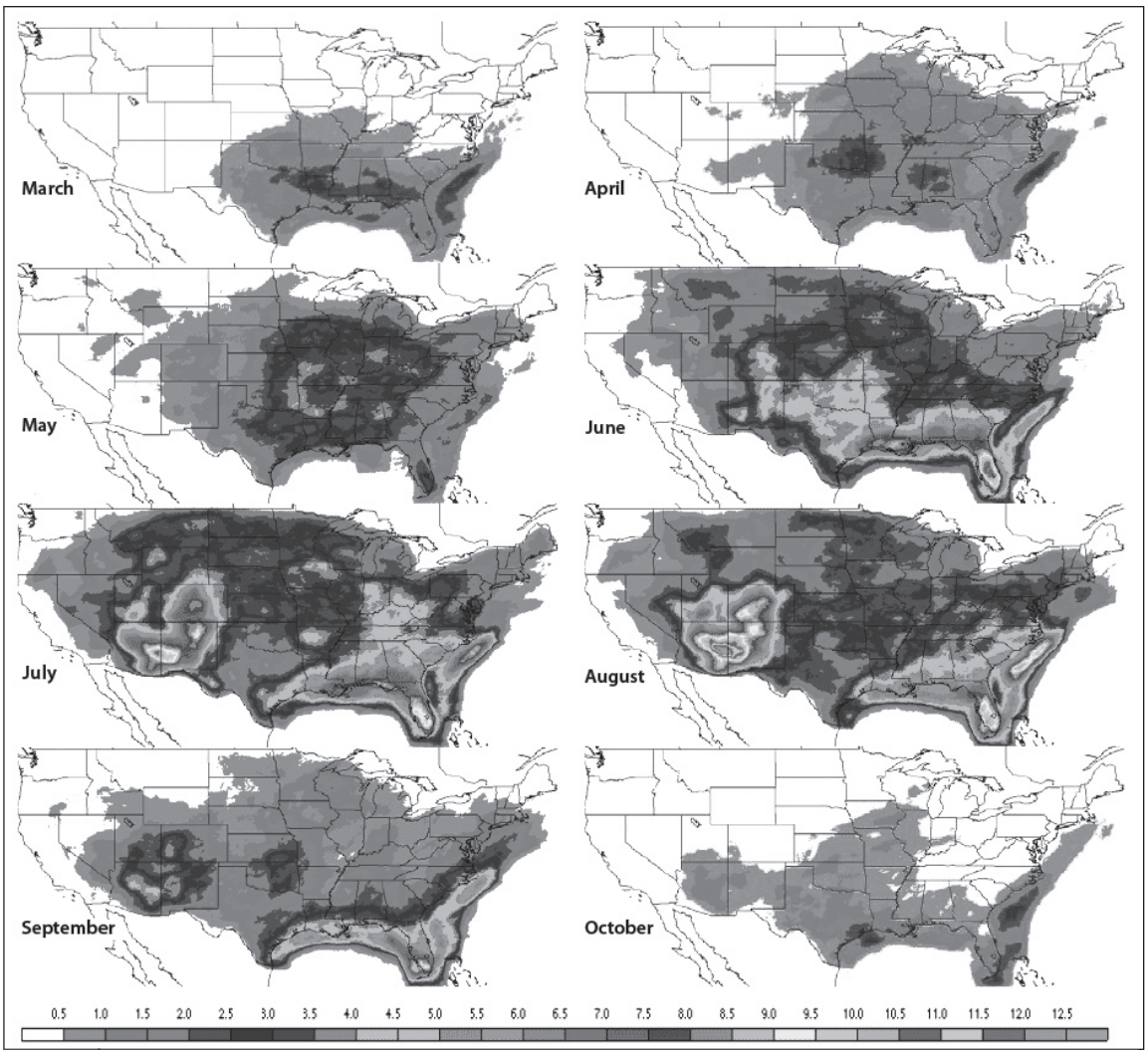
Are thunderstorms likely in the Southwest during the month of March? Pilots local to this area know that monsoon season doesn't start to heat up until July and August before it fizzles out in September. But you wouldn't know that unless you fly through the Southwest frequently or studied thunderstorm climatology.

We're not talking about just any thunderstorms, but thunderstorms that are significant to aviation. While a single thunderstorm may ruin your day at the amusement park, it may not be considered a significant hazard to aviation. It is not until thunderstorms start hiding within a warm front or form a solid wall that they become problematic to a pilot. The thunderstorms I am describing are those that meet Convective SIGMET criteria and therefore are significant to aviators.

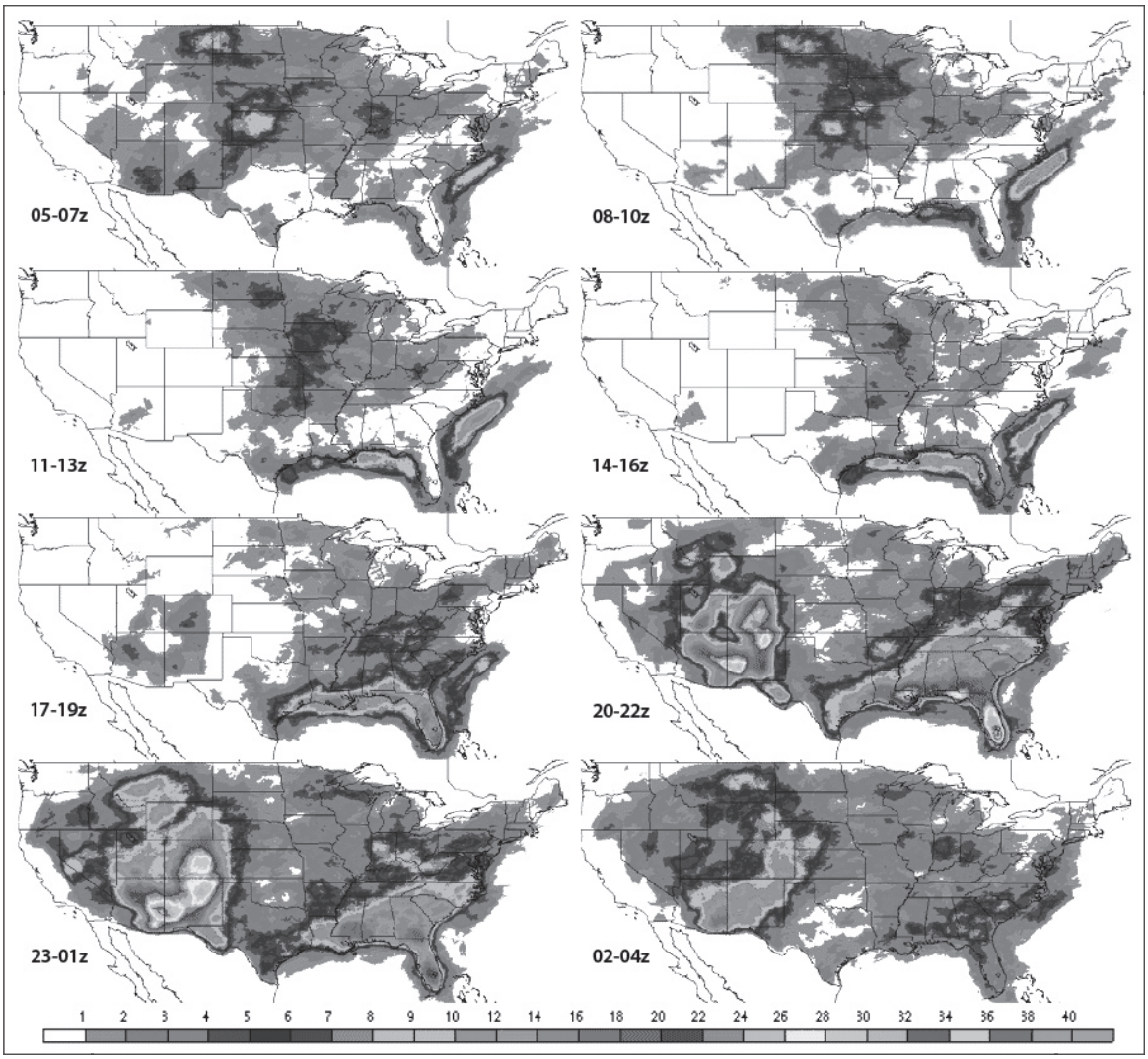
Worth the Warning

Convective SIGMETs are issued each and every hour by the Aviation Weather Center in Kansas City, Mo. They are advisories that are significant to aviation that warn the pilot of the potential of widespread, embedded, or severe thunderstorms. Since 1978, the AWC has been issuing Convective SIGMETs for:

1. Embedded thunderstorm(s) independent of the size, number or area of coverage
2. A line of thunderstorms of significant radar echoes at least 60 miles long with at least 40-percent coverage along the line
3. An area of thunderstorms producing precipitation of significant radar echoes affecting 40 percent or more of an area of at least 3000 square miles



Left: *The percent frequency of Convective SIGMETS over a 10-year average shows how the southwest concentrates its nastiness in July and August, while Florida can keep you hopping from May to September.*



Right: *No surprise here. Convective SIGMETS in July blossom in the southeast first and then move across the U.S. as the day progresses. Florida and Gulf Coast areas stay hot well into the evening, though.*

4. Storm(s) that the local Weather Forecast Office (WFO) has labeled as severe.

All thunderstorms are a threat to aviation; however, your garden-variety pulse thunderstorms (also known as airmass thunderstorms), which typically develop in the afternoon and early evening, normally don't meet Convective SIGMET criteria. For more information about Convective SIGMETs, see "Convective SIGMETs," April 2005 *IFR*.

Hotspots

In the U.S., what are the hotspots for Convective SIGMETs? I'm sure that Florida is probably high on your list of guesses. How about the famed Tornado Alley in the Midwest? You'd be right about Florida, but throughout most of the year, Tornado Alley isn't a significant hotspot for Convective SIGMETs.

A recent study by the AWC documents the thunderstorm threats that were significant to aviation from the period beginning January 1999 through July 2004 by examining the Convective SIGMETs that were issued by the AWC for this period. This study, among other parameters, documented the frequency of Convective SIGMETs throughout the U.S. and related them to the time of year, location, and time of day.

What three months throughout the year does the Aviation Weather Center issue the most Convective SIGMETs? No surprises here; they are June, July and August. Don't become complacent, however. The transition months of March, April and May as well as September, October and November have spawned some of deadliest thunderstorm outbreaks in U.S. history.

Tornado Alley remains relatively tranquil in July and August. June seems to carry most of the weight.

In March, most of the Convective SIGMETs are issued in the Southeastern U.S., inland along the Gulf of Mexico with the exception of the Florida peninsula, which remains on the quiet side for March. In April and May, this area spreads like a plague to the north and a bit more west into the Mississippi and Ohio Valleys, extending into the southern Great Lakes. By June, the southeastern states light up from Houston to Florida. The southern Great Plains and southern Rockies also begin to see a dramatic increase in June.

July is considered the peak as far as geographical extent in the U.S. In July, Convective SIGMETs were

issued for all of the lower 48 states with the exception of the state of Washington, Northern and Western Oregon and Western California.

The Southeast and Ohio Valley regions stay active throughout July and August. In July, the monsoon season in the Southwest explodes, covering the Four Corners region including Colorado, New Mexico, and Arizona. The monsoon season continues into August, spreading thunderstorms into Utah as well.

Perhaps the biggest surprise to pilots is that Tornado Alley remains tranquil in the months of July and August. While Tornado Alley has no clearly defined peaks throughout the year, June seems to carry most of the weight.

The study also looked at the diurnal changes throughout the month of July. As you would expect, the heating of the day supplies the atmosphere with the needed energy for thunderstorm development, with the most activity during the period between 2000Z and 0100Z over land, and the period between 0500Z and 1600Z being the most active over the coastal waters of the Atlantic and Gulf of Mexico.

These are averages, and that any particular month can depart from average depending on the weather pattern that prevails for that month.

Does this help you make the routing or go/no-go decision for a particular flight? Probably not. But it's always good to keep the big picture in mind when planning your trips, and it's important to remember that when a thunderstorm earns Convective SIGMET status, it means business.

Scott Dennstaedt is a flight instructor and former NWS meteorologist.

HABITS, NOT CHECKLISTS

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for your approach as the specific cue to look up at the whiskey compass.

Getting yourself organized is a two-step process. Step one is carefully designing your procedures for the way you do things and to correct and prevent the mistakes you make. Step two is practicing those procedures until they're habits, until you can perform those procedures the same way each and every time without really having to think about it.

Follow these two simple steps and you won't need me or anyone else to tell you where to put your charts. You'll think it through and figure the best place to put your charts (pens, flashlight, etc.) for ready access, so you can reach them without thinking or looking, in a place that won't cause you to accidentally grab the wrong thing, catch the seatbelt and unlatch it, or induce any other problem. Keep that up and cockpit organization will naturally result.

There's no magic formula. Good cockpit organization requires you to be capable of immediately putting your hands on the things you frequently need and knowing where the things are that you only occasionally need.

Now, all of this sounds just fine here. Putting it into real practice can be a challenge for many of us. What we're really talking about here may be a different approach to one segment of your life. If the rest of your life is well-structured and organized, it'll be easy to bring that to flying. However, it's challenging to adopt a highly organized, methodical approach to flying if the rest of your life is haphazard or chaotic.

I once knew this guy, Walter, who was absolutely brilliant, but completely disorganized — the absent-minded professor type. He was a pilot and I went flying with him. Once.

Walter's idea of holding altitude was to remain above ground and below the service ceiling of his plane. He was going to drop me off at my home 'drome, which was light IMC at the time. He announced proudly that he had approach plates that were less than a year old. They were loose-leaf charts, but he had no binder. He reached into the briefcase sitting on the backseat that served as his flight case, grabbed a wad of pages and started shuffling.

Miraculously, he did find the right chart. By this time, though, I merely asked if he would take me to an airport that was VMC and I'd call for a ride, rent a car, walk, anything.

Get it Together

If you recognize some of yourself in Walter, you may wish to examine your general approach to things and consider doing what is necessary to — at the very least — try to adapt a more methodical and structured approach to your flying. If you generally slop your way through most tasks, try to set aside this one critical part of your life to take a careful, reasoned, organized approach. I think you'll be glad you did and I'm sure your flying skills and comfort with tighter situations will improve.

Create problem-preventing and problem-solving procedures. Build good habits. Fly that way every time. Oh, and don't forget to keep your holster snapped.

Frank Bowlin is an airline captain and CFI in California. He's a regular contributor to IFR.