

Solve for X

With that catchy title, I'll bet you thought this article would be about something like navigation. Well, it's not. Instead, this piece is about weather. Yes, weather! So stay with me and don't fret, as I won't be talking about upper-level vorticity advection or skew-t diagrams.

Let's face it: many pilots dislike studying and learning about the weather. Admittedly, I was one of those pilots a couple of decades ago before becoming a card-carrying member of the weather-geek community. Most of my disdain for weather in the early part of my aviation career was because of how it was presented and taught — or not taught. I have found that CFIs generally don't like to teach weather and it shows. This creates a situation that has plagued our safety record since the early days of aviation.

While some weather theory is necessary, such as thunderstorm development and icing, pilots and instructors need to focus on two hard-hitting facets concerning weather. The first is understanding weather situational awareness. This situational awareness can be summed up by three parts of a whole working harmoniously together. Imagine a Venn diagram consisting of three circles to represent overall weather situational awareness. Those circles represent what the weather was, what it is now, and what we think it will be (based on a forecast or local weather knowledge).

Secondly, pilots should focus on the acquisition, interpretation and application of the various weather products available. If you can learn to use these weather products (charts, etc.) in a way that describes those three Venn diagram categories, you will not only be more apt to master weather-related questions on FAA exams, but more importantly you will be in a better position to avoid becoming a weather-related statistic. CFIs represent one of the most critical elements in the flight training landscape and directly impact the quality of the pilots they produce. This is where instructors can excel by teaching how to "solve for X." Teach students where to acquire the correct weather information through weather products, how to interpret that information, and how to apply it to any flight. When the weather is "clear and a million," find an area in the country that doesn't have great weather and have the student find the necessary weather info, interpret it, and then apply that information as if they were planning a flight in that area.

It is easy to become saturated with too much information. "Analysis paralysis" is common for pilots when it comes to weather. Instructors and students alike should add two new terms to their lexicon related to weather: temporal and spatial.

Temporal refers to the timespan involved in a given weather product, and spatial refers to the space or area covered by a given weather product.

As an example, I have presented applicants with examples of METARs containing "LTG DSNT NW" or "VCTS," asking what this indicates in terms of the distance (spatial) of lightning from the reporting station. And while most can "decode" this part, few know the correct answer in terms of distance. Similarly, applicants often present well-laid-out cross-country flight plans, yet when queried on what weather products they used to make their "go/no-go" decision, many will use TAFs for a cross-country spanning more than 100 miles with a TAF at the beginning and ending points. Few understand TAFs and their limitations, the most prominent being that they are a point forecast for an area covering a 5-statute-mile radius around the airport's runway complex. That's hardly enough "coverage" for a cross-country flight.

The "system" for ensuring pilots have the knowledge they need certainly isn't perfect. Take, for example, weather radar. Outside of self-taught knowledge or the occasional tribal knowledge passed along during "hangar flying," few pilots truly understand ground-based weather radar. Yet, it is so essential for our total weather situational awareness picture. If you do a search in most of the PTS/ACS, you will get few returns (no pun intended) related to radar. When you do, it is usually associated with "radar flight following," and when it is weather-radar related, it is about the "radar summary chat," a less-than-ideal product of little value to most.

In both the helicopter and airplane CFI test standards, the "Weather Information" task is one of a few that fall under the "Preflight Preparation" area of operation. Only one of these tasks is mandatory, as indicated by the note "The examiner shall select at least one task," meaning that weather isn't necessarily tested at the CFI level. If I were a proverbial king for a day, that would change. Whether a student pilot or aspiring CFI, it may be time to dust off that algebra textbook and learn how to solve for x when it comes to the weather.



Matt Johnson has been an FAA designated pilot examiner for over a decade, conducting exams ranging from Private to ATP and CFI. Additionally, he is a single-pilot IFR air medical captain, Part 135 instructor and check airman. He can be reached at HelicopterDPE@gmail.com and via Twitter @HelicopterDPE