

# **Whether the Weather is Right**

## *Aeronautical Decision Making and Weather Resources for Helicopter Pilots*

*By Matt Johnson and Steve Sparks*

A typical day in the life of a helicopter pilot is anything but typical. Unlike airplanes that fly from point A to point B, “point B” for a helicopter might be a rooftop, an accident scene in the middle of nowhere, or a helipad protruding from the middle of the ocean. Because of these unique destinations, helicopter pilots must be able to handle dynamic situations on the fly, which include unknown or rapidly changing weather conditions.

Regardless of experience, all pilots face the same challenging and often unpredictable conditions delivered by Mother Nature — conditions that should never be taken lightly.

### **FRAT Party**

Helicopter pilots should take immediate action should they encounter unexpected weather conditions. If the weather starts getting crummy, there’s a high probability conditions will get worse before they get better. One simple resource available in deteriorating weather conditions is called a “trigger-point.” According to this philosophy, when pilots find themselves in deteriorating conditions requiring them to reduce airspeed by a pre-determined amount in relationship to normal cruise speed, they have reached a “trigger-point.” At trigger-points, pilots are encouraged to land, turn-around, or change direction in order to break this potential accident chain.

Risk management, prior to and during flight, plays a critical role in maintaining safety, especially when weather is a factor. One tool available to all pilots is a Flight Risk-Analysis Tool (FRAT). Although helicopter air ambulance pilots are most familiar with FRATs because of regulations, their use can enhance safety in all segments of the rotorcraft industry. In essence, a FRAT enhances situational awareness for crew members in even small, seemingly innocuous situations. A FRAT serves as a simple reminder that every flight has some degree of risk and can help reveal previously unseen hazards.

Unfortunately, some aspects of weather awareness and risk management training can be neglected during the early phases of primary flight training. Although student pilots have to absorb a lot when learning to fly, flight instructors must emphasize the importance of weather knowledge and risk management from the very first flight. More flight schools are utilizing standardized risk assessment tools on their training flights as they recognize that building a successful safety culture starts on day one.

### **HEMS Weather Tool**

The Helicopter Emergency Medical Service (HEMS) Weather Tool is a terrific system used by helicopter pilots to gain awareness of weather conditions in between certified reporting stations. This tool is specially designed to help meet the weather forecasting needs of low-

altitude VFR helicopter air ambulance first responders. The HEMS Weather Tool overlays multiple fields of interest: ceiling, visibility, flight category, winds, relative humidity, temperature, radar (base and composite reflectivity), AIRMETs and SIGMETs, METARs, TAFs, and PIREPs in a 3-D format interpolated to AGL altitudes for enhanced perspective on what weather might be expected at the destination.

Currently, the HEMS Weather Tool operates on an experimental Aviation Digital Data Service (ADDS) platform, maintained by the National Center for Atmospheric Research in Boulder, Colorado, but soon should be fully operational with 24/7 support with limited restrictions. The tool has high-resolution base maps, including colored elevation contours, streets, hospitals, airports, and heliports for the entire United States. Preferred views can be saved for quick recall later and automatically updated with current data.

### **Take Action**

Most pilots would agree that weather is never truly static. It can change without warning, leaving pilots shaking their heads in disbelief. To help mitigate this uncertainty, safety professionals from the United States Helicopter Safety Team have provided free resources for making flying enjoyable and safe on their website at [www.USHST.org](http://www.USHST.org).

As we head into the spring flying season, be mindful of changing weather conditions. Always have a plan B and don't be afraid to act on it should you become uncomfortable. Remember, it's better to be on the ground wishing you were in the air versus desperately wishing you were safely on the ground. When in doubt, keep your helicopter skids planted firmly on the surface and wait things out. It's as simple as that.

*Matt Johnson serves the FAA Cincinnati FSDO as a Designated Pilot Examiner and FAA Team Representative. Matt flies for the Hamilton County Sheriff's office and holds an ATP Helicopter Certificate.*

*Steve Sparks is an Aviation Safety Inspector with the General Aviation and Commercial Division (AFS-820) and serves as Coordinator for the US Helicopter Safety Team (USHST).*

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