



Interagency Aviation Accident Prevention Bulletin



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Subject: Visibility and Thunderstorms
Area of Concern: Aviation Operations
Distribution: Fire and Aviation Operations

Discussion: Reoccurring safety issues concerning aerial supervision operations remain persistent throughout many of our fire related operations. In recent years, Safety Communiques [IASA 12-02 Aerial Supervision and Fire Traffic Area](#), [IASA 12-04 Aerial Supervision](#), and [IAAPB 11-03 Mid-Air Collision Avoidance](#) were issued to raise awareness on a variety of subjects that impact safety and efficiency. Recently, two additional safety related issues were identified as requiring a heightened awareness: visibility and thunderstorms.

Visibility

We've seen pictures, videos, and have heard stories of aviation resources flying in support of fire suppression operations with marginal visibility. While conducting fire suppression in Class G airspace only requires 1 statute mile (SM) visibility (FAR §91.155), operations in a fire area can be congested and complex.

The Fire Traffic Area (FTA) was developed by aerial firefighting personnel to provide a standardized initial attack airspace structure and enhance air traffic separation for all aircraft over incidents.

Additionally, FAR §91.137 allows for the establishment of Temporary Flight Restrictions (TFR) to provide a safe environment for the operation of disaster relief aircraft.

The one mile visibility requirement is based on a much larger geographic area where aircraft would seldom operate and primarily rely on pilots ability to "see and avoid" one another. In contrast, the intensity and magnitude of operations within a FTA or TFR usually involve more aircraft in a smaller geographic area. Needless to say, one mile of visibility is insufficient to maintain flight safety.



Thunderstorms



The 2013 FAA Aeronautical Information Manual (AIM) makes this statement: "Avoiding thunderstorms is the best policy". However, aircraft supporting firefighting activities routinely see thunderstorms near the area where the fire started. Currently, there is no DOI or USFS policy restricting flights near thunderstorms. Last year a MAFFS C-130 crashed in the vicinity of a thunderstorm while conducting fire suppression activities. The ASM aircraft on this mission was also damaged in the process of recovering from the severe turbulence.

The military accident report emphasized the military policy to avoid thunderstorms by 5 Nautical Miles (NM) or 6 SM for low level operations below 23,000 feet MSL. Additionally, in 2010 the military issued a memo stating that MAFFS aircraft configured with a nozzle assembly extending out from the aircraft should avoid thunderstorms by 25 NM due to the increased risk of a lightning strike.

Lightning is one hazard associated with thunderstorms and hail is another. When hail stones exceed 0.5 inches (13mm) in diameter, aircraft can be seriously damaged within seconds and unable to remain airborne. Weather systems that are either known or forecast to produce hail should be avoided by an even greater margin.



Recommendations:

- ◆ Avoid Thunderstorms
 - Remain at least 5 NM from the edge of a thunder cell when operating in the low level tactical environment.
 - Develop contingency plans for severe weather that provides suitable alternatives for participating aircraft that need to be either diverted or relocated.
 - Monitor long range weather activity and forecasts - delay aerial operations when strong storm cells are approaching.
 - Suspend operations if within 5 nm of a thunderstorm.
- ◆ Avoid Marginal VFR
 - Aerial Supervision needs to ensure the operating area contains adequate visibility to conduct operations safely regardless of the type of airspace involved.
- ◆ Ensure transponders are operating with mode C (altitude reporting) in order to aid detection by TCAS configured aircraft.
- ◆ Communicate changing visibility and thunderstorm activity over the incident and operating bases.
- ◆ Review recent Safety Alerts: [IASA 12-04](#) & [IASA 12-02](#), on Aerial Supervision and Accident Prevention Bulletin: [IAAPB 11-03](#), on Mid-Air Collision Avoidance.

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