

# CALLBACK



From NASA's Aviation Safety Reporting System

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## The ASRS

# WEATHER REPORT

**With the approach of winter, many GA pilots will be filing IFR flight plans and encountering actual IMC. A recent sampling of GA weather-related reports revealed that a number of pilots who obtained an IFR flight plan experienced unexpected situations, including icing, loss of situational awareness, and automation surprises.**

### “I Declared an Emergency!”

In a pilot's arsenal of strategies for dealing with unexpected weather encounters, an emergency declaration can be a valuable tool. More from a C-182 pilot:

■ *While flying at 9,000 feet, requested and assigned altitude, with OAT 32 degrees...and clouds at my altitude ahead. I requested 11,000 feet from Approach, which would be above the clouds. Their reply was 'Stand by.' I entered the clouds at 9,000 feet MSL and got a healthy updraft and noticed rime ice forming on struts, windscreen and wings. Believing that clearance to 11,000 feet was imminent, I resisted the requirement to push over to maintain 9,000 feet. Approach advised me to remain at 9,000 feet. I replied I had ice accumulating and clear air at 11,000 feet, and could either climb as requested or would descend. They replied that I had busted my IFR altitude and to remain at 9,000 feet. I declared an emergency. They replied 'climb to 11,000 feet,' which I was able to do, clearing cloud tops at about 9,700 feet.*

*Probably I should have requested 11,000 earlier...or advised [Approach] upon being updrafted when entering the cloud. Communications could have been more timely.*

According to the AIM section 6-1-1, a pilot-in-command of an aircraft is the final authority on the operation of an aircraft, and may deviate from CFR Part 91, Subpart A, and Subpart B, Flight Rules, to the extent required to meet an emergency. If emergency authority is used to deviate from an ATC clearance, the pilot must notify ATC as soon as possible and obtain an amended clearance.

### “I Lost My Situational Awareness”

This PA-28 pilot's weather briefing called for marginal VFR conditions along the route of flight. Not long after departure, the IFR-rated pilot encountered rapidly deteriorating weather. The pilot contacted ATC and was given a “pop-up” IFR clearance and a climb to 3,000 feet. But then:

■ *...As I continued to brief the approach, I discovered I had vertigo as the plane was in a banked descent, but I*

*felt I was straight and level. Focusing on the instruments, I recovered to level flight and climbed back to 3,000 feet. By that time, I had lost situational awareness: I could not seem to orient my location in relation to the approach... Approach issued me vectors to the IAF and I made the approach...*

*As a pilot unfamiliar with the area, I was surprised at how rapidly the weather can change...The weakest part of my performance was not articulating to Approach that I had experienced vertigo and subsequent loss of situational awareness...The controller did recognize that I was having difficulty...and offered vectors, which were gratefully accepted.*

*Points learned: 1) If marginal VFR is forecast, always file IFR in unfamiliar territory. 2) Practice IFR in actual IMC rather than just hood time...3) Loss of situational awareness requires prompt notification to ATC and a request for vectors. 4) Emphasis on unusual attitude recovery in IFR and vertigo recognition/recovery are a critical part of IFR and VFR recurrent training.*

### “I Was Focusing Too Much on the Automation”

A pilot was flying a C-182 that was owned by another person. The pilot was unfamiliar with the GPS unit and the autopilot in the aircraft, but nevertheless filed an IFR flight plan. The forecast weather at destination was for marginal VFR. Nearing destination, the pilot requested a GPS approach into the airport:

■ *...I had some problems switching the approach in the GPS... While I was trying to get everything set up with the GPS and the autopilot, I lost altitude. The loss in altitude was due in part to focusing too much on the automation and also because I got vertigo. I went down to about 2,000 feet MSL before the controller came on and told me that I was too low and to climb and maintain 3,000 feet. I was also starting to pick up ice on the leading edge, which distracted me even further. Once I quit trying to get the autopilot to bail me out and I was able to get the GPS to do what I wanted, I was able to find my IAF and fly the approach...*

*I learned several valuable lessons from this experience: 1) Know the equipment that you will be using. Nothing is worse than being in a bad situation and not knowing how to use the tools available to you to resolve the problem. 2) ...I realize that I need a lot more time spent in actual conditions with a qualified instructor before I go into hard IMC alone.*

#### ASRS Alerts Issued in October 2006

Subject of Alert	No. of Alerts
Airport facility or procedure	3
ATC operations or equipment	3
Hazards to flight	1
<b>TOTAL</b>	<b>7</b>

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#### October 2006 Report Intake

Air Carrier/Air Taxi Pilots	2233
General Aviation Pilots	1147
Controllers	328
Cabin/Mechanics/Military/Other	262
<b>TOTAL</b>	<b>3970</b>

## The ASRS Weather Report – continued

**Air carrier flight crews must communicate inflight diversions to Dispatch, which is responsible for knowing where an aircraft is at all times. If a diverting aircraft is also carrying a light fuel load, Dispatch has fewer options for rerouting the aircraft to a safe landing site. Here are some glimpses into the decision making by air crews when weather becomes a major factor.**

### “We Elected to Do a Missed Approach”

For this ERJ flight crew, a missed approach was the beginning of an intense effort to find a landing airport that was not “socked in” by weather.

■ *Enroute rerouting into ZZZ due to weather / local thunderstorms. ATC rerouted us farther south and west than expected. I made frequent contact with Dispatch and advised of new routings and fuel on board. Operations indicated that ZZZ no longer needed an alternate due to improved weather conditions, so we elected to proceed with the approach phase of our flight.*

*On short final at approximately 1,500 feet, ZZZ ATC Tower indicated a new windshear alert in all quadrants of the field and asked us our intentions. We elected to do a missed approach and we were vectored to the west away from the bad weather. We asked ATC if our original alternate was available and they indicated ZZZ1 had a strong storm... moving south at a rapid rate. We asked if ZZZ2 was available but were told a strong storm was overhead that airport. After putting in ZZZ3 and ZZZ4 into our FMS, we determined we had insufficient fuel to safely proceed to either of those destinations. At that point I declared a fuel emergency and asked Approach the weather conditions at ZZZ4. The weather at ZZZ4 was acceptable and after reviewing our runway performance criteria, [we] told ATC we wanted to divert to ZZZ4. We landed without incident.*

### “Every Moment Was Taking Away Options”

A B737 was dispatched without fuel for an alternate airport. As the aircraft descended for landing through 4,000 feet, onboard weather radar detected thunderstorm cells:

■ *...Credit must now be given to the FAA for what is the best job by a controller I have seen in 19 years of military and civilian flying. The controller began by using a concise stream of descriptive communications to paint a picture of weather location, intensity, reported microburst activity, winds, and runway availability. He then went on to describe various options available to us. At this point, the flight conditions were VFR, but we were maneuvering to avoid several Level 4 returns on our radar. To facilitate our situational awareness, the controller turned the lights on Runway 08 to their highest setting...Our fuel was now 5,200 lbs. and Runway08 appeared clearly in front and to our right...The aircraft touched down on centerline approximately 1,100 feet from the threshold...*

*I knew instinctively that time was not on my side and every moment spent maneuvering at 2,000 feet with the fuel I had was quickly taking away options, and none of them were very good. This aircraft made it safely on deck due to the outstanding work of the FAA and the skills of the flight crew.*

### “We Declared an Emergency for Low Fuel”

A B747-400 flight crew departed the U.S. for an international destination with a legal fuel load, but encountered unforecast weather at the destination airport. The aircraft’s critical fuel state made it necessary to consider a “last option” for landing.

- 1) *Placed in holding pattern due to unforecast weather at ZZZ. Expect Further Clearance (EFC) 15 minutes. No HOLD fuel planned on Flight Plan Fuel [release] and only 12 minutes of EXTRA fuel available. Flight plan fuel was legal for original forecast.*
- 2) *EFC extended, declared minimum fuel.*
- 3) *Vectored from holding pattern shortly thereafter.*
- 4) *Flew ILS 34L in heavy rain and moderate turbulence. [Received] WINDSHEAR ALERT WARNING at approximately 200 feet. Initiated windshear escape maneuver. Transitioned to normal missed approach after warning subsided.*
- 5) *Informed ZZZ that we were minimum fuel and requested vector to Alternate ZZZ1. ZZZ stated that ZZZ1 was full and unavailable. We declared an emergency for low fuel and requested vector to ZZZ2.*
- 6) *We were vectored to ZZZ2 at low altitude, flew approach in moderate turbulence and heavy rain to ZZZ2, a single runway airport.*
- 7) *Landed with 14,500 lbs. of fuel, which equates to approximately 40 minutes of hold fuel, or enough fuel for 2 missed approaches at a single runway airport. ZZZ2 was our last option.*

## ASRS to Study Wake Vortex Encounters

In conjunction with the FAA, NASA/ASRS will conduct a study of Wake Turbulence Encounters at three airports: Saint Louis, MO (STL), New York (JFK), and San Francisco, CA (SFO). If you experience a wake encounter in either the arrival or departure phase of flight at these airports, we encourage you to submit a report to ASRS. (Note: You can submit your report electronically to ASRS if you wish, or use the standard paper forms – it’s your choice.) When your report has been received, ASRS may contact you to request your voluntary participation in completing an online supplemental questionnaire.