

# CALLBACK

From NASA's Aviation Safety Reporting System



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## ASRS "ICE CAPADES"

This month's *CALLBACK* is devoted to various icing incidents reported to ASRS by general aviation and air carrier pilots. These reports have several themes. One is that ATC may be able to provide assistance to pilots for icing avoidance and escape. The air carrier reports, in turn, emphasize the importance of following standard procedures for de-icing to ensure the safety of flight.

### "WE ARE NOT IN THE AIR ALONE"

A Cessna 182 pilot on a VFR flight over mountainous terrain encountered unexpected clouds and icing. Rather than let the situation deteriorate further, our reporter remembered that help was just a radio call away.

■ I was enroute from ZZZ to ZZZ1. My cruising altitude was 9,500 feet. The flight had been smooth and uneventful. No flight plan had been filed. After passing ZZZ2, I climbed to 11,000 feet to give myself plenty of room over the mountains. When I got to the mountains it seemed that the clouds just enveloped me and I lost visual reference with the ground. I tried to turn back but became even further disoriented. I climbed even higher, to 13,000 feet. The aircraft began to ice up. However, the airplane was still controllable. After about 20 minutes I dialed in 121.5 and declared an emergency, as I needed help to get oriented and safely back on the ground. I was passed to Center who vectored me to the VOR and down out of the clouds to 9,500 feet where there was more than 10 miles visibility. The ice came off and I landed at ZZZ3 to collect myself. After landing, I contacted Approach to confirm that I was safely on the ground....

I feel that some of the ways it could have been prevented are: (1) Obtain a weather briefing before any and all flights. (2) When flying cross-country, always file a flight plan regardless of how often the route has been flown. (3) During a cross-country flight, obtain flight following. It would have saved a lot of fear on both sides had I done that. Had I done #1 above, I would have waited to go another day. However, I was in a hurry to get back home...I am now more motivated to obtain my instrument rating, and will not put it off...I am grateful to ATC controllers who helped me in my time of need. It is good and comforting that we are not in the air alone....

### "ATC ASKED ME IF I WANTED TO DECLARE AN EMERGENCY"

An instrument rating is no guarantee that a pilot will not exceed personal and aircraft capabilities during actual instrument conditions. More from an instrument-rated pilot who received assists from airline pilots and ATC.

■ ...I am a new instrument pilot and I was a little nervous as this would be my first real actual flight in IMC. Just prior to the VOR, I started to experience what I thought was a mountain wave. The nose of the aircraft was pitching up to almost vertical...I tried to push the nose over and I started to enter the cloud.... The course change was given to me to go direct to the next VOR. I was trying to change course and change the GPS when I got turned around in the cloud. I started a steep descent and lost about 2,000 feet before I was able to stabilize the plane. ATC was trying to contact me and I just had time to tell them that I was disoriented. They asked me if I wanted to declare an emergency, and I said yes...I had been cleared to climb to 17,000 feet so I could get out of the cloud...I was trying to climb...when the engine started to run rough. I started to lose power and started to descend again (carb icing. I pulled on the carb heat and it finally started to run OK again). I was also starting to pick up ice on the windscreen and the leading edges of the control surfaces.... I...told [the controller] about the new problems. He asked what I wanted to do. I told him that I needed to get down out of the ice. I was not able to climb, and I was in an area where the MEA was 16,000 feet MSL and I could barely maintain 14,000 feet. With the help of two air carrier pilots, the controller was able to get me headed toward ZZZ where it was clear. The radio coverage in this area (at the altitudes I was at) is really bad, and without the help of the airlines relaying the vectors, I would have had a much harder time getting out of the situation I was in.

By the time I was handed off to Approach, I was able to get a lower altitude and ice started coming off. There was about 2-3 inches of ice on the leading edge of the wings. By the time I was cleared to land, the ice was gone and I had calmed down a little...I got parked on the ramp and was told to call Center and speak to a Supervisor. I called and spoke to the Supervisor and thanked him and the controllers for getting me out of a bad situation. The Center controllers were very helpful and professional.

### "BOTH ENGINES FAILED"

A Part 91 Turbo Commander passenger-carrying aircraft was well-equipped to handle icing, but its flight crew didn't follow all the procedures for icing conditions.

■ Prior to the event we had used de-ice, and anti-icing equipment while en route, and for that portion of the descent while in icing conditions. Icing was estimated to be light to moderate clear, changing to rime through the descent. Engine inlet heat was not turned on at any time during the flight. After breaking out of the bases and acquiring visual contact with the airport, we were cleared for the visual and subsequently cancelled our IFR clearance. Descent, approach and before landing checks were completed...At approximately 1/4 to 1/2 mile final,

ASRS Alerts Issued in October 2007	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	22
Airport facility or procedure	14
ATC procedure or equipment	7
Hazards to flight	3
Other	5
<b>Total</b>	<b>51</b>

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October 2007 Report Intake	
Air Carrier/Air Taxi Pilots	3022
General Aviation Pilots	1050
Controllers	98
Cabin/Mechanics/Military/Other	216
<b>TOTAL</b>	<b>4386</b>

*the right engine stopped producing power, followed almost immediately by the left engine. The Captain identified [that] both engines had failed and pulled the condition levers into the emergency shutoff/feather position. I called out airspeeds and the Captain continued to fly the aircraft onto the runway. The aircraft touched down approximately on the numbers and we rolled to a stop just off the runway with both engines stopped/feathered....*

*A possible cause of the flameouts was melting ice being ingested into each engine. Proper procedure will be adhered to in the future with regard to use of engine inlet heat. Proper procedure is to turn engine ignition on followed by engine inlet heat prior to entering icing conditions. Upon exiting icing conditions, engine inlets are turned off first, followed by engine ignition. If ice remains on the aircraft structure, ignition is to be left on for the duration of the flight until the aircraft is on the ground.*

## "FREEZING FOG REPORTED"

Freezing fog is composed of supercooled water droplets that freeze on contact with a solid surface and form ice crystals. An A320 flight crew, unfamiliar with this weather phenomenon, failed to check the "Adverse Conditions" section of their Flight Operations Manual before takeoff.

■ *Both the Captain and myself had not operated before in freezing fog. And neither of us recognized / remembered that condition was on the anti-icing sheet. The situation is not overly obvious in itself, as there is no falling precipitation to cause awareness of the need for anti-icing. Received ATIS report during preflight preparations. Weather was 600 RVR for most of the airport, with freezing fog reported (temperature -2 degrees C). This was the first time I had been in freezing fog conditions. My initial thoughts were that since visibility was less than 1 mile, and temperature was below 10 degrees C, that we would need to select engine anti-ice 'on' for the takeoff. On the walkaround earlier, I saw no signs of ice / frost on the aircraft...Since precipitation was not actually falling (fog only), I was not thinking about de-icing...The Captain did not consider de-icing either. We taxied out and took off of Runway 30, without de-icing...I started wondering if there may have been something we missed, so I looked at the de-ice flow sheet, and noticed that freezing fog was a meteorological factor that required de-icing. I pointed this out to the Captain, who said he also was unaware that freezing fog was listed on the sheet....*

## "THE UPPER FUSELAGE WAS 'COVERED'"

■ *I was Captain / PNF of this flight. There was light snow falling throughout our operation. My First Officer and I observed substantial amounts of snow and ice on the airplane including the upper fuselage. We configured the airplane for de-ice and I used the terminal windows as a mirror to observe the de-ice procedures in progress. The de-ice crew advised us that de-icing had been completed. I could plainly see that the upper fuselage was 'covered' with snow and ice! I opened my cockpit window and reached out to grab a 'handful' of snow and ice, which was very hard to break free from the upper skin of the airplane. At this point my First Officer and I became very concerned, to say the least. I had my First Officer call Operations to no avail.*

*We obtained a phone patch to Dispatch. I advised them to have Ops call us on VHF. Dispatch also told me that he would advise the Station Manager of the company's 'clean aircraft policy.' I terminated the phone patch with Dispatch and then made a phone call to the Ops Duty Manager. I gave him a full briefing of the severity of the situation... The Duty Manager concurred with me and said he would get right on it. Ops called us on VHF and I advised them of the situation. I had them de-ice the whole airplane. We completed de-ice procedures and had an uneventful flight.*

*In closing, had the sunlight been any less or we had been out of sight of the terminal windows, the failure to de-ice the entire airplane would have not been observed and acted upon by this crew...I am gravely concerned that a de-ice crew would not fully understand the clean aircraft policy....*

## "THE CABIN SMELLED OF GLYCOL"

A conscientious member of a de-icing crew decided to de-ice a B-737-700 that had sat on the ramp through a snow storm. Unknown to this ground crew member, the air conditioning packs on the aircraft were still operating.

■ *I had just finished de-icing an aircraft, which departed, when I realized that the...aircraft on the other side of the terminal had sat through the snow event we just encountered. I knew it sat on the ground for a period of time prior to departure. I decided to de-ice the aircraft while it had some ground time. I was driving the truck and made the decision to de-ice aircraft. During the de-ice operation, we noticed the APU was in operation. This is normal for any de-ice operation. What we didn't know was the [air conditioning] packs were running. It is normal for crew onboard aircraft to put the aircraft in a configuration for de-icing, but there were no crew members or anyone else on board. It wasn't until we approached the cabin that we realized the cabin smelled of glycol. We called Maintenance Control and notified them that there had been contamination [by glycol].*

## "THE AIRCRAFT FELT EXTREMELY SLUGGISH"

An A300 flight crew called for a third de-icing sequence when the first and second sequences left the aircraft covered with ice.

■ *...The aircraft was de-iced in the blocks. After they finished [the third de-icing] the mechanic said the aircraft was clean. We performed a normal engine start and taxied to Runway 19R. We accomplished 2 engine run-ups with all systems operations normal. We did a max power takeoff, and takeoff was normal. During the climbout, the aircraft felt extremely sluggish. The aircraft felt like we were carrying a lot of extra weight. We notified Flight Control that we needed an ice inspection on landing and to have the de-ice cart ready. I thought maybe we had a block of ice in the belly...After landing I started to walk around the aircraft and found ice still all over the aircraft. I showed the mechanic and my co-pilot all the ice. The aircraft was covered with clear ice...I believe the ice was masked by all the de-ice fluid....*

*In the future, I will inspect the aircraft with a tactile inspection process....*