

Pilot's Report of Heavy Icing Incident (January 11, 2017)

I departed from Sawyer International (KSAW) at 1105 Zulu with a planned destination of International Falls (KINL). Conditions were VFR at time of take off.

This incident occurred due to the presence of heavy icing and the loss of lift at approximately 20-30ft from ground. The icing included a full obliteration of any forward vision (no windshield vision) so that the landing was executed with only side vision through side windows and the assistance from Green Bay approach utilising approach surveillance.

The loss of lift and hard landing occurred while the landing was being executed on runway 18 at Green Bay, Wisconsin (KGRB) in circumstances where the initial guidance had brought me in right of the runway (to the west) but I was able to correct and was set up down the middle of runway 18 before taxiway M3 (which is the halfway point on runway 18 which is 8699 ft in length).

I had full tanks and therefore some 6-6.5 hrs flying time for what I anticipated to be approximately a 3-3.5 hr trip (314NM).

I opted for flight following immediately upon departure from KSAW and so was picked up on radar by Minneapolis Centre.

After approximately half an hour (this is an estimate) Minneapolis Centre advised that moderate icing was reported over Houghton County Memorial Airport (KCMX) (Hancock). This is the Keweenaw Point peninsula, Lake Superior with which I am very familiar due to my regular travel in C-GTBI between Toronto and Thunder Bay (I have offices in both cities).

I advised Minneapolis Centre that I would deviate even more to the southwest to avoid the area and did so by choosing a course that now took me southwest of Duluth rather than my original plan to fly over Duluth (KDLH).

After approximately one hour into the trip (this is an estimate) I picked up icing which I first identified on my main wheel and wing. I advised Minneapolis Centre that I picked up in ING and was looking to divert.

Heavier icing came on very quickly and almost immediately included obliterating my forward vision on my windshield.

I chose Lakeland/Noble Memorial Field (KARV) based on its close proximity to me and based on its runway dimension of 5100 x 100 ft as well as the fact that it was still VFR at the time of the planning.

I advised Minneapolis Centre of the decision to divert to KARV and proceeded accordingly.

I established contact with KARV maintenance who advised of runway conditions and that they were clear. I was engaged in circuits and managing the challenge of landing with no frontal visibility including flying overhead the field and familiarising myself with the lay of the land including potential obstructions.

In the process of doing circuits, KARV became IFR and I determined that it was no longer advisable to land at KARV that had no tower and now deteriorated conditions.

I advised Minneapolis Centre that I was no longer going to land at KARV and was headed south. My decision to head south was based on my view of the direction of cloud and the prospect of VFR conditions to the south.

Once I concluded in flight planning, I opted to land at KGRB (Green Bay) and advised Minneapolis Centre accordingly. Among other things, I determined that there could be more options at an airport the size of KGRB then smaller airports including KSAW.

Consistent with my expectations from readouts from METARS for the area and the MFD NEXRAD, skies started clearing up and as I travelled south VFR conditions significantly improved.

I kept Minneapolis Centre apprised of my circumstances including my obliterated windshield and requested an exceptionally lengthy approach for runway 18 and assistance.

I was turned over to Green Bay approach who provided me approach surveillance. I informed Green Bay Approach of all circumstances and received a briefing on the mechanics of approach surveillance.

I commenced a lengthy final approach (approximately 18 NM). Ultimately, the guidance resulted in my being at the correct altitude but slightly west of runway 18 after threshold.

I corrected and was in a position to land before the halfway point of runway 18 (M3) which left me over 4000 feet.

When I felt it was safe to do so and I was about to touch down I applied flaps. As I got within approximately 30 feet of landing I lost lift and the hard landing occurred. The heavy icing created more weight to the fore and the aircraft landed nose heavy.

I reported the incident over the radio, shut down masters and cooperated with first responders on scene.

I planned to fly via Duluth (KDLH) rather than direct as I planned to avoid flight over water (northwest corner of Lake Superior) where I anticipated increased risk of difficult weather.

Prior to departure my flight planning included a full weather analysis and a filed flight plan (in which I advised about the plan to fly direction KDLH).

In addition to conducting a weather analysis the night before, upon my arrival at the Boreal Aviation Centre (1000 Zulu), I conducted an on line weather study utilising Foreflight tools including Foreflight imagery and access to NOAA web site.

The Foreflight imagery plates provide extensive icing reports including probabilities of icing (more than 25% and more than 50%) combined with excellent graphics.

My Foreflight tools include full access to relevant TAFS and MOS – I checked all of these prior to departure.

I have the G1000 Nav suite aboard the aircraft and avail myself of regular checks on the MFD as called for including access to up to date weather data for relevant airports. Through NEXRAD I am able to follow the track of clouds including their tops and did so during this flight.

Finally I have a third screen (in addition to G1000 PFD and MFD) set up in my aircraft through the IPAD in which I rely on Foreflight throughout my flight. This screen is set up through a suction fixture on the windshield to the pilots left.

I filed a flight plan and advised that I would be flying direction KDLH and opting for flight following. Furthermore I filed for 2500 feet as I noted some areas with MVFR conditions and did not want to be caught in cloud and wanted to ensure VFR at all times.