CALLBACK

From NASA's Aviation Safety Reporting System

ASRS

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Obscurations to PIREP Visibility

In June 2016 the NTSB conducted a forum on Pilot Weather Reports (PIREPs) with the goal of "improving pilot weather report submission and dissemination to benefit safety in the National Airspace System" (NAS).[1] To that end, pilots and dispatchers, ATC personnel, atmospheric scientists, and NWS meteorologists use PIREPs extensively in real time. All require good fidelity weather feedback to validate and optimize their products so that pilots have accurate foreknowledge of current weather conditions.

The NTSB's Special Investigative Report[1] (SIR) that documents the forum's proceedings is comprehensive and makes for excellent reading. Many PIREP behind-the-scene needs are identified. Problem areas are diagnosed. Weaknesses in the PIREP system are pinpointed in categories of solicitation, submission, dissemination, and accuracy. Conclusions are drawn from top level philosophical thinking through component level hardware to enhance the PIREP system, and recommendations for improvement are prescribed.

ASRS presented data at this forum about reported incidents revealing complications with PIREPs that affected flight operations. ASRS reported incidents are offered this month to illustrate issues that were addressed by the NTSB's recent PIREP forum and recorded in the associated SIR.

What Did these Captains Really Mean?

This air carrier Captain landed in actual conditions that did not mirror the Field Conditions Report (FICON). He made required PIREP reports, but challenged the aviation community to become better, more accurate reporters using standardized tools and appropriate descriptors.

■ *The Providence Field Condition (FICON) was 5/5/5 with thin snow, and ATIS was [reporting] 1/2 mile visibility with snow. The braking report from [the] previous B757 was good. Upon breaking out of the clouds, we saw an all-white runway with areas that looked as if they had previously been plowed in the center, but were now covered with snow. Landing occurred with autobrakes 3, but during rollout I overrode the brakes by gently pressing harder. However, no matter how hard I pressed on the brakes, the aircraft only gradually slowed down. Tower asked me if I could expedite to the end.… I said, "NO," as the runway felt pretty slick to me. I reported medium braking both to the Tower and via ACARS to Dispatch. A follow-on light corporate commuter aircraft reported good braking.*

I was a member of the Takeoff And Landing Performance Assessment (TALPA) advisory group…and am intimately familiar with braking action physics as well as the Runway Condition Assessment Matrix (RCAM). There was no way the braking was good or the snow was 1/8th inch or less in depth.

I would [suggest that] data…be collected from the aircraft… to analyze the aircraft braking coefficient.… It would also be of value to ascertain the delivered brake pressure versus the commanded pressure for this event, as there can sometimes be a large disparity in friction-limited landings. I think that pilots do not really know how to give braking action reports, and I don't think the airport wanted to take my report of medium braking seriously. I also think pilots need to know how to use the RCAM to evaluate probable runway conditions that may differ from the FICON. Additionally, there is no such description as "thin" in the RCAM. None of the FAA Advisory Circulars that include the RCAM have thin snow as part of depth description.

Don't Wait to Disseminate; Automate

A Phoenix Tower Controller experienced and identified a common problem while disseminating an URGENT PIREP. He offers a potential solution, technique, and rationale.

■ *While working Clearance Delivery, I received an URGENT PIREP via Flight Data Input/Output General Information (FDIO GI) message stating, "URGENT PIREP...DRO [location] XA30Z [time] 140 [altitude] BE40 [type] SEV RIME ICING…." This was especially important to me to have this information since we have several flights daily going to Durango, Colorado. My technique would be to not only make a blanket transmission about the PIREP, but also specifically address flights going to that location to advise them and make sure they received the information. The issue is that…I did not receive this URGENT PIREP until [1:20 after it had been reported]. Severe icing can cause an aircraft incident or accident in a matter of moments. It is unacceptable that it takes one hour and twenty minutes to disseminate this information.*

[A] better PIREP sharing system [is needed.] PIREPs should be entered in AISR [Aeronautical Information System Replacement] immediately after receiving the report and

should automatically be disseminated to facilities within a specified radius without having to be manually entered again by a Traffic Management Unit or Weather Contractor, etc.

Informing the Intelligent Decision

This C402 Pilot encountered icing conditions in conjunction with a system failure. Teamwork and accurate PIREPs allowed him to formulate a plan, make an informed decision, and successfully complete his flight.

■ *During my descent I was assigned 6,000 feet by Approach.… I entered a layer of clouds about 8,000 feet. I turned on the aircraft's anti-icing equipment. I leveled at 6,000 feet and noticed the propeller anti-ice [ammeter] was indicating that the equipment was not operational. I looked at the circuit breaker and saw that the right one was popped.*

I informed ATC of my equipment failure. Approach requested and received a PIREP from traffic ahead of me indicating that there was ice in the clouds, but the bases were about 5,500 to 5,000 feet. Some light mixed ice was developing on my airframe. My experience [with] the ice that day was mostly light [with] some pockets of moderate around 5,000 to 6,000 feet. I informed [Dispatch] of my situation and elected to continue to [my destination] as I was close to the bottom of the icing layer, and a climb through it to divert would have prolonged exposure to the ice.

If the Controller's Away, the Pilots Can Stray

This Tower Controller experienced a situation that resulted in a hazard. He identified a potential risk associated with a Controller entering a new PIREP into AISR.

■ *I was working alone in the tower cab, all combined Tower and Approach positions, at the beginning of a midshift. Weather had been moving through the area with gusty winds and precipitation in the area.… Aircraft X checked [in while] descending via the SADYL [arrival] and immediately reported moderate turbulence.*

I issued a clearance to…JIMMI as a vector for sequencing with a descent to 9,000 feet. The instruction was read back correctly, and I observed Aircraft X turn left toward the fix and continue descending. I obtained some additional information from Aircraft X concerning the turbulence. At that point I went to the computer in the back of the room and logged on to the AISR website to enter a PIREP for the moderate turbulence. After successfully [completing that task,] …I walked back to the radar scope and observed Aircraft X descending through 8,000 feet. I instructed them to climb to 9,000 feet. The Pilot replied that they were descending to 6,000 feet. I again instructed them to climb to 9,000 feet and informed them that they were in a 9,000 foot Minimum Vectoring Altitude (MVA) area. They began climbing and reached approximately 8,400 feet before they crossed into a 7,000 foot MVA [area.] The 6,000 foot altitude is the final altitude on the arrival, and I suspect they missed entering the new altitude into the FMS.

The responsibility to enter the PIREP into AISR instead of transmitting it verbally to FSS resulted in my being away from the radar scope as the aircraft descended through their assigned altitude.… [We should] return the responsibility of computer based PIREP entry to FSS to allow Controllers to focus on the operation.

The Effective Party-Line PIREP

A B787 Crew experienced a severe, unexpected weather phenomenon that had not been forecast. Their situation and immediate actions illustrate the importance of both the PIREP process and the pilot response that it demands.

■ *The [aural] warning…sounded like the autopilot disconnect button. We immediately looked at the instruments and noticed that the airspeed was in the red zone and our altitude was off by -500 feet. The Captain reduced the throttles, but airspeed continued to increase, so [he] opened the speed brakes slightly. I noticed that yellow slash bars were indicated on both LNAV and VNAV. I told the Captain, "No LNAV or VNAV, engines look fine." The Captain disconnected the autopilot while continuing to get the airspeed under control and regain our altitude back to FL380. I reset the flight directors, selected Heading Select, and set V/S to +300. I reengaged LNAV/VNAV and informed the Captain that these systems were available.…*

…We were both stunned as to what had happened because the ride was smooth and had no bumps or chop at all. I immediately got on the radio and told another aircraft behind us (one that we had been communicating with and passing PIREP information) that we had just experienced something very erratic and strange. As I was making this call, a printer message came across the printer about a B777 that had experienced severe wave turbulence at FL350 in the same vicinity as [our encounter.] I relayed this information to the aircraft behind us. They informed us that, yes, they had just encountered the same and gained 1,000 feet and 50 knots. There were other aircraft in the area who later confirmed that they experienced the same wave, however were better prepared to handle it due to our detailed PIREPs, and [those crews] were very appreciative.

We sent a message to Dispatch. Dispatch did not show any unusual activity such as horizontal windshear or unusual jet streams in the area and was…surprised to get our [PIREP].

1. https://www.ntsb.gov/safety/safety-studies/Documents/SIR1702.pdf

ASRS Alerts Issued in June 2017	
Subject of Alert	**No. of Alerts**
Aircraft or Aircraft Equipment	1
Airport Facility or Procedure	1
Company Policy	1
TOTAL	**3**

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June 2017 Report Intake	
Air Carrier/Air Taxi Pilots	5,194
General Aviation Pilots	1,246
Controllers	593
Military/Other	429
Flight Attendants	405
Mechanics	223
Dispatchers	154
TOTAL	**8,244**