CALLBACK ASRS

From NASA's Aviation Safety Reporting System

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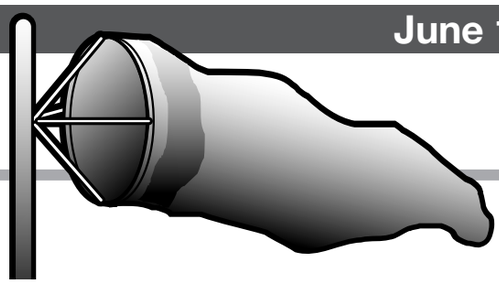
Weather ASOS-ciations



Automated Surface Observing System (ASOS) is the current weather reporting equipment at many airports. However, some pilots and controllers believe that this equipment occasionally provides inconsistent or unreliable weather information to users. Our first report, from a General Aviation pilot, illustrates:

■ *Weather at XYZ was reported as clear, visibility 7-10 miles, no remarks. I checked the ATIS repeatedly during the last 45 minutes of the flight. No change from clear and 8 miles. There was frequent lightning ahead with indications of storm activity on the [aircraft's] weather avoidance equipment.*

The ASOS at XYZ is supposed to be attended and augmented as necessary. In this case, a thunderstorm was close enough to the airport to be seen and heard, but there was no mention of it on the official weather.

Another reporter, an experienced weather observer, explains how the ASOS can arrive at these apparently inconsistent weather reports.

■ *The ceilometer only sees clouds directly over its sensor. This means on a dreary overcast day, if there is one small break in the clouds over the sensor, it calls the sky clear. Furthermore, the visibility sensors…generally show the visibility to be much greater than it actually is.*

Some technical advances have improved the accuracy of ASOS readings and increased the frequency of broadcast updates. However, the equipment is programmed to update ASOS and ATIS broadcasts only when a significant weather change occurs. For more information, check out the ASOS User's Guide on the Web at:

http://www.nws.noaa.gov/asos/index.html

Location, Location, Location

In another report to ASRS, a Local Controller notes that the location of ASOS sensing devices may generate wind reports that differ from those produced by sensors elsewhere on an airport.

■ *[ASOS] wind instrument is installed at the south end of the airport in a partially sheltered location. [The reading] differs by 50 degrees or more during northwest winds when compared to mid-field wind sensors. Additionally, this sensor is 2 miles from the approach end of Runway 19. I believe this instrument does not give a good representation of wind conditions. Tower and Approach have direct-reading instrument from the mid-field sensor.*

Reports such as this one, sent either directly to airport management or to ASRS, have resulted in the relocation of ASOS sensing equipment at several airports.

A Matter of Conscience

In an old Walt Disney movie, Jiminy Cricket sang a song that ended, "…and always let your conscience be your guide." A Tower Controller did just that, stating in his ASRS report that, "the only valid information the pilot had in this case was my notably unauthorized remark."

■ *The [small] aircraft had just turned base to final to Runway 16, having been cleared to land while it was on downwind. [At that time, I issued] the ASOS wind at 100 degrees at 8 knots. A thunderstorm was about three miles west of the field. I felt the Tower buffeted by the wind. I issued to the pilot, based on observation of [current] ASOS and the parking lot, "ASOS wind variable at 4 knots, in reality it's bending the trees."*

The aircraft required 3,200 feet of runway to land. On touchdown, the ASOS still read variable at 4 knots. As the aircraft exited the runway, ASOS updated the wind to 250 degrees at 9 knots gusting to 16 knots, then 270 degrees at 15 knots gusting to 21 knots.

The originally reported wind was 170 degrees different from the actual wind at the time of landing, and 2.5 times the velocity and approaching the aircraft's demonstrated crosswind landing capability.

Controllers may not transmit specific values (such as the ceiling, visibility, or, in this case, wind), other than those listed in the current ASOS. The exceptions include airports at which an official weather observer is on site, or at which the weather report has been composed or verified by the weather station. Pilots must therefore rely on their basic piloting skills (for example, observation of a wind sock or comparison of ground speed vs. airspeed) for final determination of safe landing conditions. To read more about a Controller's role in disseminating weather information, refer to the Air Traffic Control Handbook (7110.65L, Paragraph 2-6-7).

The Bottom Line

A final thought from a controller who is also a weather observer charged with trying to update the ASOS report during changing weather conditions:

■ *I attempted to manually override the system, but it was so slow, we were still reporting VFR while the storm raged outside. If you are using weather from an automated station, when the weather is changing rapidly, don't believe what is being reported.*

ASRS Recently Issued Alerts On…
Uncommanded roll in a B737
Metal shaving debris on A320 flight control wiring
P-56 (White House airspace) avoidance procedures
FOD (Foreign Object Damage) hazard at a Michigan airport
BAE-41 engine flameouts during reversal and at steady idle

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April 1999 Report Intake	
Air Carrier / Air Taxi Pilots	2314
General Aviation Pilots	656
Controllers	56
Cabin/Mechanics/Military/Other	145
TOTAL	**3171**

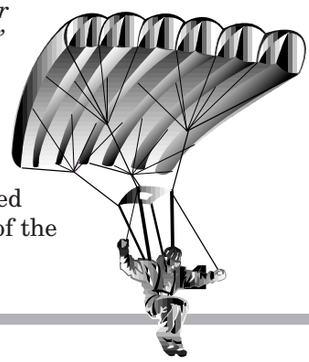
Jumping Off Point

Parachute jumping activity in high-density traffic areas can pose hazards to the parachutists, the jump plane, and other aircraft sharing the airspace. In the following report, a jump plane pilot describes an incident in which the parachutists jumped after the pilot had been advised by ATC to hold them.

■ *I was flying skydivers at 10,500 feet MSL on a Victor airway. As per Center's request, I announced, "Jumpers away in one minute." After that, Center issued an advisory of traffic at 10,000 feet MSL. The instructions were to hold the skydivers until the traffic was clear. However, as this advisory was being issued, the jumpers were already poised outside the aircraft. The jumpers left the aircraft, at which time [a commuter turboprop] at 10,000 feet MSL altered his course to avoid the skydivers and me.*

The commuter Captain saw the incident a little differently:

■ *Enroute on a Victor airway, in communication with Center. [We received] ATC clearance to descend from 10,000 feet to 8,000 feet, and a traffic issuance of jump aircraft on the airway approximately 5 miles at 10,500 feet. TCAS II verified target at 12 o'clock. At approximately 3 miles, the aircraft appeared visually. Within 30 seconds of [the plane being] in view, I observed a parachutist jump and a parachute begin to open. We immediately began a turn to avoid. Then a second jumper appeared. We increased our turn rate and reduced descent rate. The jump aircraft then turned and began a descent towards us. The second jumper passed us approximately 500 feet laterally and 500 feet vertically. The [jump aircraft] pilot was [on the same Center frequency] as we were. We heard Center tell the pilot, "Stop jumps…" before this event happened.*



Since the commuter crew had heard the instruction for the jump activity to cease, they were not prepared for the sudden appearance of the jumpers.

Powerline Encounters: A Hit...

An unplanned encounter with powerlines is an experience most pilots do not soon forget. Our first reporter, a glider-tow pilot, had avoided some well-known powerlines on numerous prior approaches, but a downdraft at just the wrong moment changed all that:

■ *After towing a glider to 2,000 feet AGL, I entered a normal left-hand pattern for Runway 03. As I turned short final at about 350-400 feet, some sink was encountered. After crossing the last house and powerlines, I felt a slight tug on the aircraft. A normal landing followed. Upon visual inspection from the ground, 4-6 feet of the 200-foot tow rope had snagged, broken off, and was hanging in the powerlines crossing the end of Runway 03. No powerlines were down and no damage could be detected. The local utility…came and removed the piece of tow rope.*

My error occurred when I did not add power once the sink was encountered. All remaining approaches were re-routed over a less hazardous route (fewer wires), accompanied by a steep slipping final approach, so the tow rope would remain up behind the aircraft and not hang down below.

We hope that "less hazardous route" becomes the standard route at this glider port from now on.

...and a Miss

Another General Aviation pilot, also familiar with the powerlines at a local airport, overlooked an important factor about best-rate-of-climb in an aircraft that was a variant of the model usually flown. The result was a very tight squeeze between the ground below and the powerlines above.

■ *Before taking the active runway, I noted that the checklist called for a V_R of 55 knots. However, I failed to notice the asterisk indicating that 55 knots required two notches of flaps (25 degrees). Prior experience taking off [from here] proved that a normal takeoff could be accomplished without the use of flaps, but at a V_R of 60-65 knots.*

…Reaching 55 knots, I rotated the airplane. The stall light came on so I reduced pitch slightly. By this time, I was about two-thirds of the way down the runway and had climbed no higher than 5 feet. I attempted to abort. The end of the runway was quickly approaching, and I knew I could either continue braking and possibly put the plane over a 2-3-foot bank and into a canal…or I could add full power and attempt to climb and avoid the obstacles. There are powerlines…12-15 feet high at the departure end of the runway. I applied full power, climbed over the bank and the canal, maintained a 1-2 foot clearance over [a field of grapevines], and avoided the powerlines approximately 3 feet above me. As I saw the powerlines pass overhead, I noted the airspeed at 65 knots, sufficient to establish a climb…

From this experience I have learned to review the speeds critical to proper rotation and climbout as noted in the pilot handbook, not on the checklists, and to have a predetermined point at which to attempt a safe abort.

Our reporter is lucky to have survived such a close encounter with 120 kv of electricity.