SuperAWOS on the rise

By Curt Epstein
May 1, 2008
Avionics

While automated weather observing systems (AWOS) have been a fixture at airports for many years, what some feel is the next generation of the technology has been gaining in popularity. The SuperAWOS, devised by Maryland airport owner David Wartofsky, has had a long and twisting road to certification. The homegrown system was originally designated as a unicom device for airfields without tower communication, but Wartofsky imbued it with a degree of artificial intelligence (AI).

Like every other non-tower general aviation airport, Potomac Airfield faced the problem of how to provide Unicom coverage. Most airports look to a commercial tenant or FBO to provide that.

With a pre-airport management background in designing life-saving high-tech medical equipment, Wartofsky created a unit that would monitor radio traffic in the area and respond when needed, as well as provide weather information to pilots. "For example, if you are coming into Potomac Airfield and say, 'Potomac Airfield 121 inbound, anyone in the pattern?' and no one replies, our system listening to the frequency knows that and says, 'Good evening, this is Potomac Airfield automated unicom, wind 220/7 conditions favor Runway 24 pilot's discretion."

In essence, said Wartofsky, the system acts as a receptionist and more. "The objective of the AI was to create a system that would act like an intelligent weather observer/pilot sitting out on the airport constantly evaluating," he said. "Whenever a pilot asks for information, this AI would give just what the pilot needs that's important for flight operations."

Expanded Capabilities

After years of development and certification bureaucracy, Wartofsky added other abilities that enabled the unit to unlock IFR approaches for airports, including approved altimeter check source, approved visibility source, radio check capability, ELT monitoring, and a semi-classified exotic radio transceiver that can detect weak transmissions at a range of 20 miles. A version currently under development even incorporates TCAS.

As the unit's capabilities grew, so did its size, and the SuperAWOS eventually outgrew its original housing. "I picked that two [cu] foot cube because it was the largest all-weather enclosure that I could buy off the shelf that would go through the door of my Skymaster," said Wartofsky.

The goal was to make the system as user-friendly as possible. The early units were clamped directly to the airport's windsock pole, which was usually powered for lighting. The SuperAWOS tapped into this source to charge its batteries. While the latest unit stands alone, it is as simple to install as the original, according to Wartofsky. "It's in a crate at 8 a.m. and by noon it is up and running."

The units have shown their durability, with some in operation for more than a decade. "Since 1994, no airport has ever spent a dime maintaining any of our equipment," according to Wartofsky, who credits his med-tech background for their reliability. In terms of accuracy and reliability, there is redundancy and diagnostics built in, and if that fails, Big Brother is always watching. Each of the 45 latest satcom-equipped units currently in operation sends regular satellite uplinks containing weather observations, usage statistics and system diagnostics to a

central monitoring station.

"I can click on a hyperlink and see if the antenna connections in South Dakota are tight, because all the units have this embedded capability and they are sending this information to us," said Wartofsky. "We actually detected a mouse chewing on a cable somewhere in Montana. We saw a performance figure starting to change which implied a connection was starting to go bad in a certain path. They went out there and, sure enough, something was chewing on the cable." In addition, NOAA receives and analyzes the weather and atmospheric signals to see if any data is inconsistent with its weather sensors in the region.

While sales of the $72,000 unit reached a high of 26 last year, Wartofsky believes he's just scratched the surface of potential use, and could easily ramp up to sales of 200 or more per year.

The system is eligible for airport improvement grants, and Wartofsky calculates there are thousands of airports that can benefit from SuperAWOS. "Every airport is basically a strip of asphalt with lights, so how do you enhance the utility of it so that that basic infrastructure is more valuable?" he asked. "You enhance the utility with instrument approaches, and once people can plan to use your airport 24/7 and know that they've got an instrument approach for pretty much all weather and they've got the flight requirements for all-weather flight operations, now you are one of the on-ramps into the national airspace system."

Back

Related Articles

Thrane & Thrane Taking Satcom System Orders
May 31, 2008
Thrane & Thrane (Booth No. 301) said it has started taking orders for its Aero-SB Lite satcom system. Billed as being the smallest and...
[more]

Boeing tweaks BBJ with EVS
May 21, 2008
Boeing continues to add utility to its BBJ series corporate jets, and the latest effort is the addition of enhanced vision system (EVS)...
[more]

Midcoast to install CMC EFBs in Challengers
May 21, 2008
Midcoast Aviation (Booth No. 1147) has been granted an STC approval to install CMC Electronics PilotView electronic flight bag systems (EFB) on...
[more]

Honeywell's Flight Dept. Applies for RNP SAAAR
May 21, 2008
Honeywell's corporate flight department recently applied for FAA authorization to perform Required Navigation Performance Special Aircraft and...
[more]

FAA Approves Honeywell SVS Database Update Process
May 21, 2008
Touted as an industry first, the U.S. Federal Aviation Administration has given Honeywell the same authority to update its synthetic-vision...
[more]