

AVIATION

The background of the entire page is a photograph of a large commercial airplane, likely a Boeing 747, flying over a landscape at dusk or dawn. The sky is a deep blue with some clouds. In the foreground, a tall, red and white lattice tower stands on a concrete pad. The tower is equipped with various sensors and antennas, including a large white weather sensor near the base and several smaller sensors higher up. A large white electrical box is mounted on the tower. The overall scene is dramatic and emphasizes the aviation theme.

AWOS

**Automated
Weather
Observing
Systems**



**CAMPBELL
SCIENTIFIC**
WHEN MEASUREMENTS MATTER



Global Sales & Support Network

A worldwide network to help meet your needs



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AWOS at a Glance

Standard categories of AWOS are listed below:

- **AWOS I:** Wind speed, wind gust, wind direction, variable wind direction, temperature, dew point, altimeter setting, density altitude
- **AWOS II:** AWOS I + visibility and variable visibility
- **AWOS III:** AWOS II + sky condition and cloud height and type
- **AWOS III-P:** AWOS III + present weather and precipitation identification
- **AWOS III-T:** AWOS III + thunderstorm and lightning detection
- **AWOS III-P-T:** AWOS III + present weather and lightning detection
- **AWOS IV-R:** AWOS III-P-T + runway surface condition

In addition, Campbell specializes in designing custom AWOS solutions.

Automated Weather Observing Systems (AWOS) measure and report weather conditions for aviation applications. AWOS are installed in a variety of locations, including commercial and private airports, military air bases, and heliports.

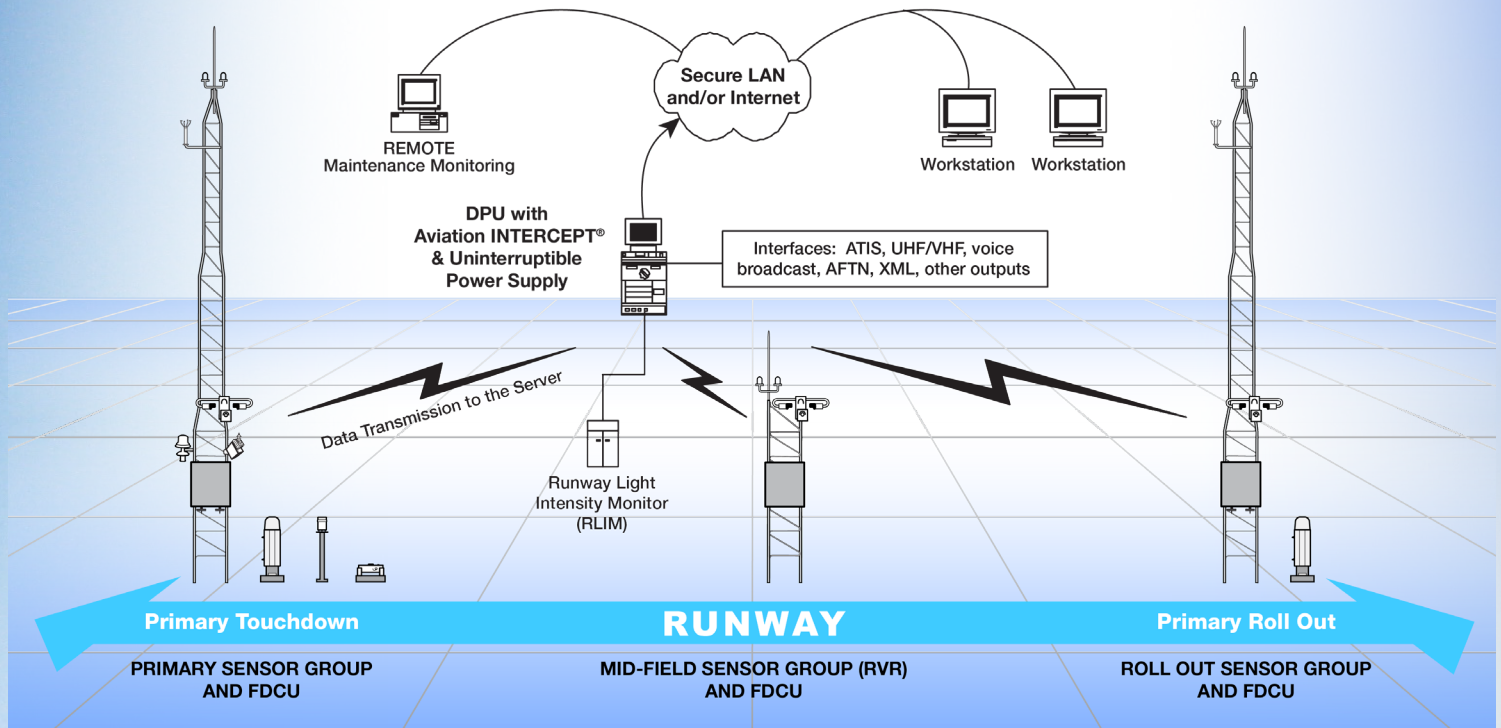
AWOS range in size and complexity, from a single weather station to a network of sensor groups on multiple runways.

A typical AWOS consists of the following components:

Field Meteorological Sensors

- Wind speed and direction*
- Barometric pressure (altimeter setting)*
- Dew point (relative humidity)*
- Air temperature*
- Visibility
- Cloud height
- Precipitation amount and identification (present weather)
- Freezing rain
- Lightning detection (thunderstorm)
- Runway Visual Range (RVR)
 - Ambient light
 - Runway Light Intensity Monitor (RLIM)
- Solar radiation
- Runway surface condition





Field Data Collection Unit (FDCU)*

The FDCU collects data from all of the field sensors and processes it using Campbell's technology. The unit is encased in a waterproof enclosure and can include an optional display.

Power Options

- AC power
- Solar power for all or part of the system
- Back-up battery

Communications Options

- Cable modem
- Fiber-optic cable
- UHF/VHF/Spread Spectrum radio
- Wireless mesh network
- Ethernet/IP

Server and Aviation INTERCEPT® Software*

Voice and Data Output

- AFTN/ATIS
- Voice output to pilots

- Integration with national weather service and other meteorological databases

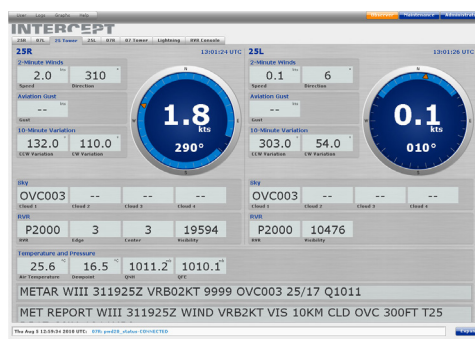
Displays and Workstations

- PC workstations (weather observer, control tower, maintenance, etc.)
- All-in-one displays
- Other displays available

**Indicates required item*

Aviation INTERCEPT® Software

- Web-based viewing platform, accessible to authorized users through a web browser on any computer
- Either Linux or Windows® operating systems
- ICAO/FAA/WMO/FMH-1 approved algorithms



- Automatic METAR/SPECI reports
- Other report formats available (SYNOP, CLIMAT, TAF, etc.)
- Remote maintenance monitoring
- Display screens are currently available in English, Spanish, Chinese, and Russian languages

Portable Aviation Weather Stations

Campbell's portable aviation weather stations are designed specifically to meet the demands of tactical or rapid deployment use. Built with Campbell's rugged WEATHERPAK® technology, these systems are able to withstand the rigors associated with portable use, such as transport in a vehicle and rough handling. Solar-powered systems are the solution for airfields with limited infrastructure.

Our systems are used throughout the world by militaries, emergency management agencies, energy companies, and universities and research organizations. They are particularly suited for remote locations with harsh environmental conditions.

Features include:

- A complete AWOS solution that is ICAO/FMH-1/WMO compliant
- Rugged, weatherproof construction (passed MIL-STD-461E and MIL-STD-810F)
- Professional grade meteorological sensors
- Very low power consumption
- Aviation INTERCEPT® installed on a rugged laptop computer
- Quick to assemble, no tools required
 - Easy to pack, carry, and ship



The Campbell Scientific Difference

Experience:

For years, aviation customers around the world have relied on Campbell's fixed-base and portable weather monitoring systems for their airports and aerodromes. Our team of engineers and project managers have decades of experience in aviation weather, system design, installation, training, after-sales service, and program management.

The best sensors:

We source the most advanced meteorological sensors from the best manufacturers and integrate them with our data processing units, telemetry solutions, and Aviation INTERCEPT® software. With our systems, customers can select which sensors they want to use.

Reliability in the harshest environments:

Campbell's aviation weather stations have been installed in some of the most remote locations and harshest environments in the world, including the U.S. Navy's station at the South Pole. Globally,

Additional Services:

- *System design and consultation*
- *AWOS refurbishment and upgrades*
- *Site surveys*
- *Training*
- *Program management*
- *Software development and integration*



our AWOS have near 100% operability, even 10-15 years after installation.

Scalability and flexibility:

The modular design of Campbell's AWOS enables us to design a system to fit any size application. Campbell's aviation software, Aviation INTERCEPT®, can be configured for up to ten sensor

groups on up to three runways. We also offer portable and solar-powered AWOS for portable operations and for locations with limited pre-existing infrastructure.

Value for money:

Our customers are able to optimize the configuration of sensors to meet their technical requirements and budget. In other words, they buy only what they need. Additionally, the high level of reliability and ease of integration mean that the customer will spend less on maintenance, sensor replacement, and upgrades during the life of the system.

Customer experience:

Campbell ensures that customers "take ownership" of their aviation weather monitoring systems. We prepare our customers to manage the operation and continued maintenance of their systems through the system design, the intuitive layout and features of Aviation INTERCEPT®, and factory and site-based trainings.



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Campbell's Experience & Expertise

Since 1981, Campbell Scientific's Aviation Weather Group has built professional grade weather stations that have been deployed in the harshest environments and used for the most demanding applications.

Campbell has successfully installed over 1,200 AWOS systems at commercial and military airports throughout the world. All of our systems are ICAO/FMH-1/WMO compliant.

We have installed hundreds of AWOS for civil and military aviation authorities in countries such as Poland, Nigeria, Tanzania, Egypt, Saudi Arabia, China, Bolivia, Afghanistan, Taiwan, Mexico and Argentina.

Previous contracts include:

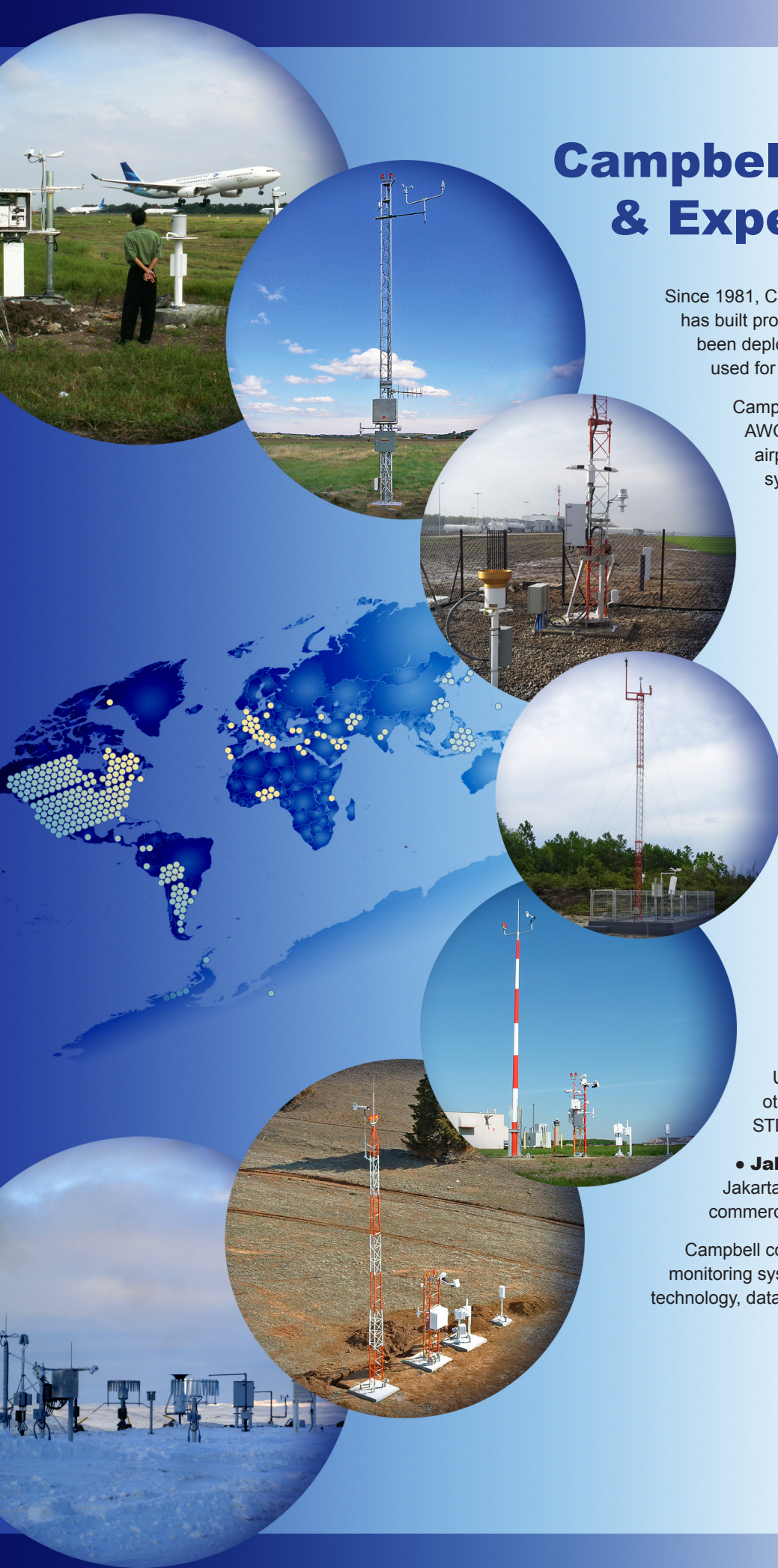
- **U.S. Air Force:** Campbell has installed over 100 AWOS at locations worldwide. This includes Joint Base Andrews (Maryland, USA), home airfield to Air Force One, the aircraft for the U.S. President.

- **NAV Canada:** Campbell has installed over 100 AWOS for NAV Canada, the civil air navigation authority of Canada. Many of these AWOS are located in extremely remote and harsh environments.

- **FAA:** 285 FAA-certified SAWS weather stations have been installed across the United States. These systems, and our other fixed-base AWOS, have passed MIL-STD-461E.

- **Jakarta International Airport:** Jakarta International is Indonesia's largest commercial airport.

Campbell continues to improve its aviation weather monitoring systems with the latest meteorological sensor technology, data processing, telemetry, and software.





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