

Web-Based Software for Aviation Weather Reporting





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Aviation INTERCEPT®



Graphical User Interface (GUI) showing Controller Data Display (above) and Weather Observer (Data Collection Unit) Display (right).

Users may select screens optimized for day or night viewing.

Introduction

Aviation INTERCEPT® presents all the weather and Runway Visual Range (RVR) data from all the sensors at your airport in an easy-to-read, simple-to-navigate format. It fulfills all your acquisition, processing, data display, reporting, archiving, system maintenance, and external data distribution needs.

It is fully compliant with ICAO, FAA, WMO and FMH-1 approved algorithms.

It produces METAR, SPECI, OMO (MET REPORT) reports automatically or after augmentation (editing) and it can create or output COR, SYNOP, AFTN, ATIS, AIRMET, SIGMET, and TAF reports.

No User Licenses Required

Aviation INTERCEPT® is **web-based**. Any qualified and authenticated user can open their user interface (Controller, Weather Observer, Maintenance, or Administrator views) simply using a current web browser that is connected to the INTERCEPT®

server. User licenses are granted with each system purchased. There is no need to purchase additional user licenses. In addition, no license renewals are required.

INTERCEPT® allows multiple users to view the data on any computer via a web-based browser.

Aviation INTERCEPT® runs on Windows® Vista or higher, Windows® Server 2008 or higher, or Linux.

Menus Bar – Quick Easy Access to the Data You Want

The tabs at the left of the menu bar are User, Logs, Graph, and Help.

User allows you to logout, change your password, and select day or night view.

Logs allows you to view any information or data collected from any period of time.

The **Graph** function opens up a graph and fills in the data for the previous hour to give you a quick look at changing weather

patterns. The running hourly display is updated once per minute. You can scroll back through the last 24 hours, and you can choose what 24-hour period of data to graph.

Information Message Ticker

The single line Information Message Ticker at the bottom of each screen displays the most recent information message based on the user's role. Clicking on the expand button will open a scrollable window with the last 200 messages.

Remote Maintenance Monitoring

A maintenance user can access any of the required maintenance functions from a computer other than the server through the maintenance interface. This access is most often done from another computer on the same LAN as the server.

Remote maintenance monitoring can also be accessed by VPN.

No User Licenses Required



RVR Data Display

System Security

User access to INTERCEPT® is through a web browser. All users must log in with a valid username and password when they first access the URL. INTERCEPT® uses basic access authentication. The username and password are encrypted when sent to the server. Each subsequent call to the server also includes the username and password.

Login credentials are stored within the application, not the browser. This means that when a user logs out, the login credentials are gone and no user can get access without reentering valid credentials.

Aviation Weather Algorithms

The biggest value of Aviation INTERCEPT® is the Aviation Weather Algorithms. These ICAO, FAA, WMO, and FMH-1 compliant calculations are what take the data from the sensors and make it into useful information for pilots, controllers, maintenance personnel, and airport managers. Campbell has spent 10 years and a great deal of effort perfecting these algorithms. They have even been tested for over two years against Certified Weather Observers to make the data reported from the AWOS most closely match what an actual human weather observer would report. Additionally, Campbell is the only company that has created numerous multiple-sensor algorithms using other sensors to verify information. For example, when the precipitation identification sensor says it's raining, we check the rain gauge, temperature, dew point, and visibilities to ensure that it is, in fact, raining. Many of the multiple-sensor algorithms solve reporting issues that have plagued AWOS systems for the last 20 years.

Data Displays: Seeing the Data You Want to See

Depending on the status of a particular user, one or more data displays will be available by selecting a tab. Tabs include:

Controller – a view of the data optimized for air traffic controllers. Each tab displays the most relevant data for a single runway, labeled with the runway identifier. If there are multiple runways, there are multiple tabs.

Sensor Suite (Data Collection Unit – DCU) – shows relevant data for a given location on a runway. The tab will be labeled with the runway location.

Runway Visual Range (RVR) – if there is more than one physical runway, there will be an RVR tab displaying RVR for all active runways.

Lightning – a bullseye geographical depiction of lightning strikes in the last 15 minutes

Winds – a graphical analog depiction of winds from multiple locations on a runway or airfield

Wind information is updated every five seconds. RVR and lightning information can be updated every five seconds. All other data are updated at least every minute. All data are displayed numerically. In addition, winds and lightning are displayed with graphical analogs.

Controller Data Display

Designed for air traffic controllers in the tower, this display can be configured in one of two ways:

1. To show data from the touchdown, midfield, and rollout from one runway
2. To show touchdown data on one tab and rollout on another tab from more than one runway

The upper part of the screen shows one or two sensor suites (depending on your system) side-by-side. It displays wind, visibility, and sky data for each station, and an analog wind dial with instant wind speed and direction plus 10-minute variation. The lower portion of the screen contains items such as RVR, temperature, dew point, and several pressure values.

The most recent METAR or SPECI and the OMO reports are displayed at the bottom of the view.

The button for selecting the active end of the runway is at the very bottom of the screen. This can also be detected automatically.

Weather Observer Display

Weather observer displays are named by the location of sensors on the runway (such as 34R or 16L).

The upper section of the display has seven rows with up to five data elements in each row, a wind dial, and a timestamp. The second section contains rows that span the entire width of the display. The specific data displayed are dependent on the sensor set and are configurable. Beneath these fields and above the **Status** field is a control bar containing all the interactive features available to the weather observer related to the editing of aviation weather reports.

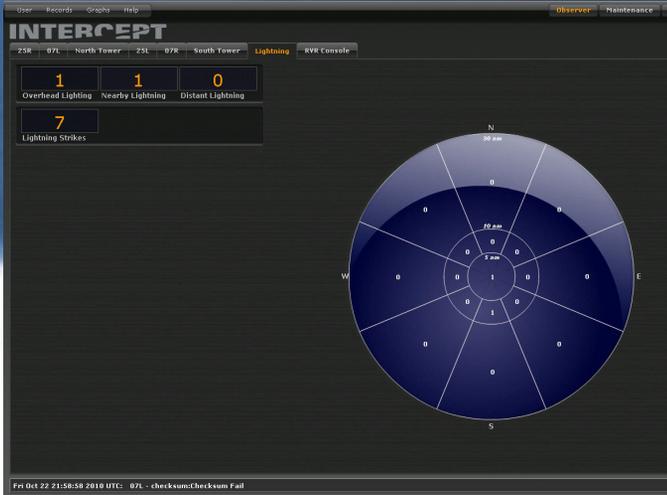
RVR Display

The RVR display is available when there can be more than one active runway and, therefore, more than one set of RVR values. If there is only one active runway at your airfield, the RVR data are just displayed in the runway display.

The RVR display shows RVR values for each runway location that has a visibility sensor, including touchdown, midpoint, and roll-out, as well as trends, the Runway Light Intensity Monitor (RLIM) settings, and the time of the most recent calculation.

The runway light settings can also be input manually if your system does not include an RLIM.

Weather Observer Data Displays



Lightning/Thunderstorm Data Display



Multiple Wind Dial Data Display

Lightning/Thunderstorm Display

The lightning display reports lightning to 50 nm (200 nm optional). It displays lightning reported within 30 nautical miles of your airfield in a "target style" display that is divided into eight sections (octants) and then sub-divided into three ranges.

Lightning within a five-mile radius is classified as "overhead." Lightning between 5 and 10 miles is "vicinity." Lightning beyond 10 miles to 30 miles is "lightning distant." The display shows total strikes within the last 15 minutes and can be updated every minute or five seconds.

There is also a box labeled **Total Strikes**. Total strikes are the strikes within 30 nm plus those within 50 nm.

Multiple Wind Dial Display

Single or multiple tabs are available for just the wind dial displays. Up to six different wind dials from any individual runway or multiple runways can be assigned to each tab.

Graphic Data Displays

Aviation INTERCEPT® displays hourly and daily graphs of the weather data, accessed through the **Graphs** menu. Clicking on the menu opens a drop-down list of the stations for which graphs are available. Selecting a station opens an additional list of the parameters for which graphs are available. Some of the standard graphs that are available are:

Temperature – plotting the average air temperature and dew point

Winds – plotting the two-minute average wind speed, direction, and a qualifying aviation gust

Visibility and RVR – plotting the one-minute average visibility and RVR. Visibility and RVR are both plotted in meters. The scale for visibility from 0 to 20,000 is shown on the left-hand axis. The scale for RVR from 0 to 2,000 is shown on the right-hand axis.

Pressure – plotting the one-minute average field pressure and altimeter setting

Sky – plotting the 30-minute integration of both the lowest cloud layer and lowest ceiling

The running hourly display is updated once per minute. A scroll bar at the bottom of the hourly graph allows the user to scroll back through the last 24 hours. There is also a calendar date selection to allow the user to choose what date (24 hours) of data to graph.

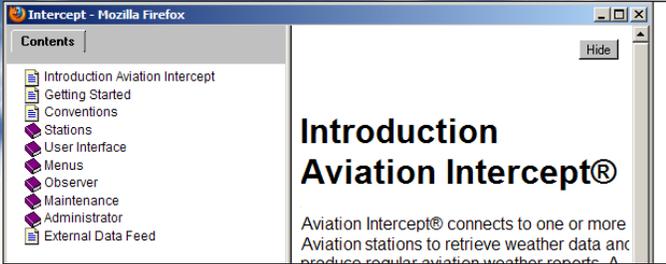


Day Screen - Hourly/Daily Visibility Graph

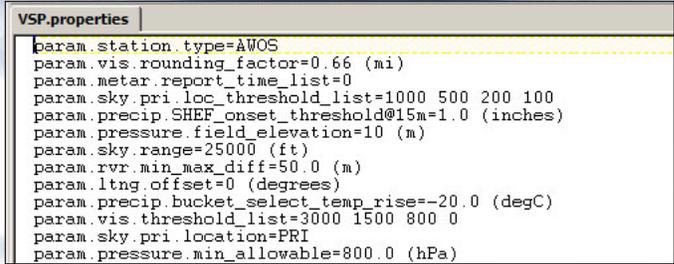


Example of Editing a METAR

Log Files and Online Help



Online Help Window



Example of VSP Properties File

Log Files

Aviation INTERCEPT® creates the following data log files:

1. Sensor Log Files – raw data
2. Report Log Files – OMO, METAR, and SPECI reports: COR, RVR, MET Report, etc.
3. Maintenance Log Files – Alarms and warnings generated by BITs, data quality checks, and continuous system monitoring

4. Communication Log Files – all messages sent out and any that are “ingested” in

5. Alert Log Files – the text messages when user-defined alerts are met

6. Customer Created Logs – custom data sets created by the customer

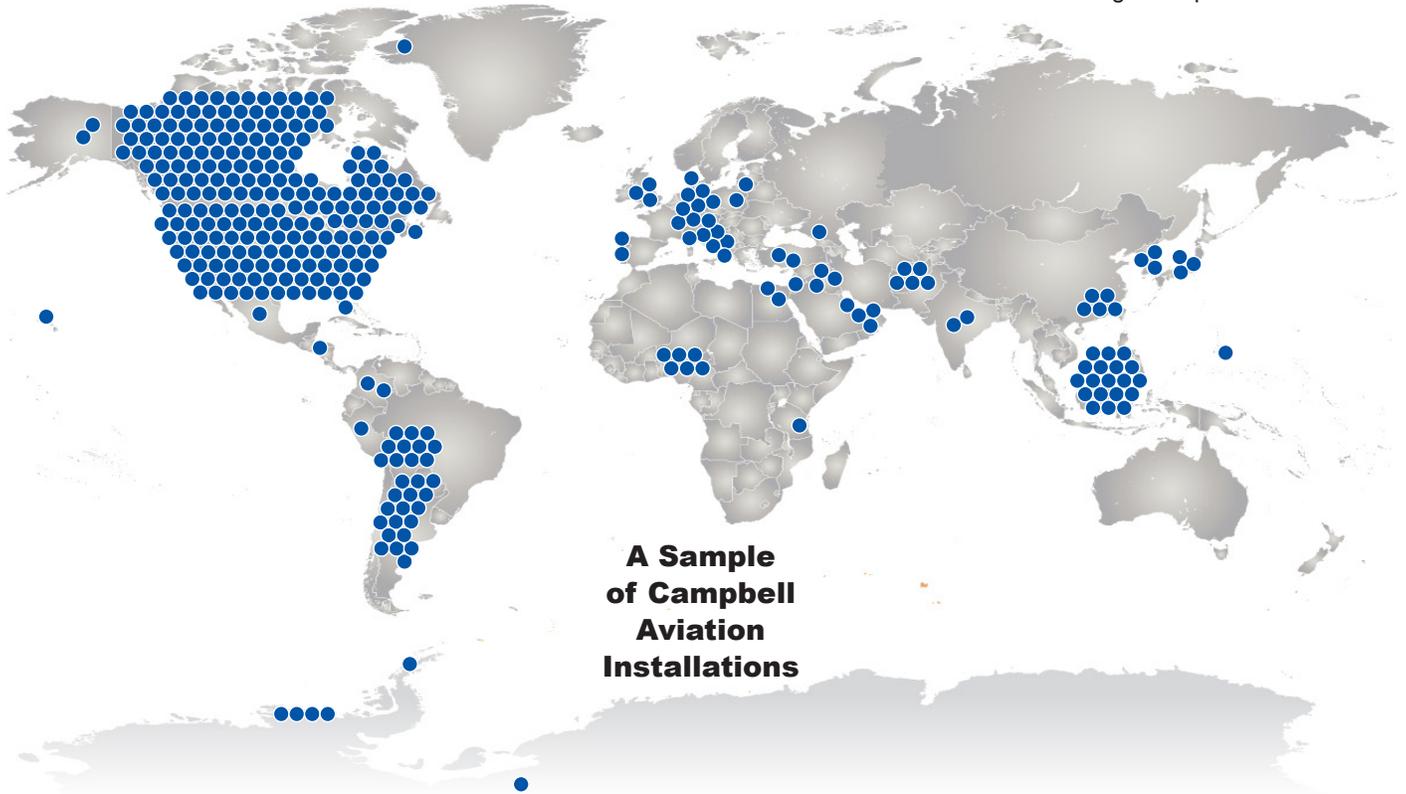
Log files are generated continuously but are completed at daily and hourly intervals. There is more than adequate hard drive space to log all of the files for at least a year.

Online Help

Aviation INTERCEPT® includes detailed online help files, easily accessed from the Help menu at the top of any screen.

INTERCEPT® also has a context-sensitive help mode, enabled by clicking an icon. In this mode, when the cursor is over certain “hot” screen components, it changes to indicate that clicking on the item will open help directly related to that object.

Maintenance users can select the option to **Generate Diagnostics**, which collects all configuration files and logs required for troubleshooting in a zip file.



A Sample of Campbell Aviation Installations





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