

WAAS Satellite Coverage Change for 2006

This bulletin is provided to help Mid-Tech customers understand changes that are occurring to the WAAS differential correction system and how these changes may impact the operation of certain Mid-Tech precision farming products.

There will be several major WAAS satellite configuration activities occurring during 2006. The first change will involve the moving of one existing satellite (AOR-W) to the West. The second change will be the introduction of a new satellite over the Eastern region. The result of these changes will be improved service availability for WAAS users.

Why is this happening?

The reasons for this configuration change are many. The most critical application of WAAS is aviation, which relies on the WAAS system for en-route and approach navigation to aircraft. Other reasons include satellite leases that are expiring and the fact that new satellites are coming into service.

AOR-W Satellite Moves West

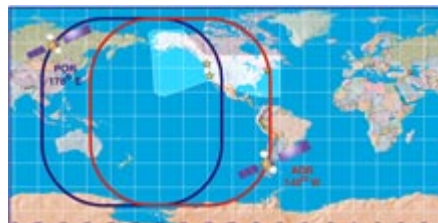
On February 1st, 2006 WAAS Satellite AOR-W along with its signal footprint began moving towards the West. This is the first of several WAAS related changes that will occur this year, resulting in a new configuration of WAAS Geostationary (GEO) satellites.

During the move, the AOR-W satellite will continue to broadcast corrections and integrity information for GPS.

Upon completion of this move, sometime in April or early May 2006, WAAS will temporarily be unavailable in the extreme Northeast U.S. No impact is expected for the remainder of the U.S. Service will be fully restored in the fall of 2006 when the FAA's new WAAS geostationary satellite (PanAmSat) is fully operational.



Coverage prior to AOR-W move



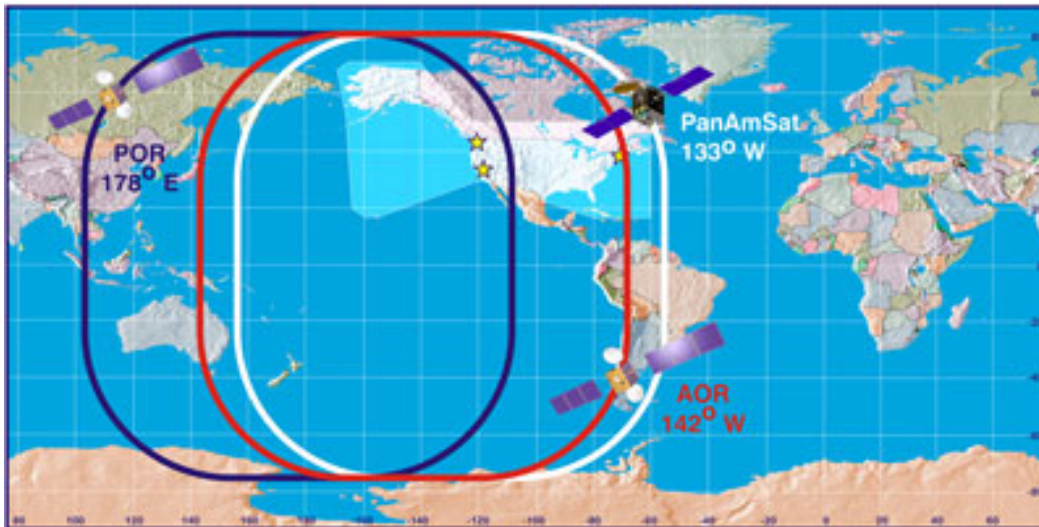
Coverage after the AOR-W move

New PanAmSat Satellite

A new PanAmSat satellite, launched in October 2005 will be coming on-line for the East coast. The current estimate for this new satellite to be fully operational is late September to early October of 2006. This new satellite will be "replacing" the AOR-W satellite that is moving towards the West.

Federal Aviation Administration Satellite Navigation Program Statement on PanAmSat as of May 1st 2006:

PRN 135 is the operational PRN for the new WAAS GEO satellite (PanAmSat). It will be transmitting as "Do Not Use" (for aviation purposes) until it becomes operational in late Sept/Early Oct. During this time it will continue to broadcast for non-aviation use. However there may be times when it is not available due to ongoing testing.



Final WAAS GEO Coverage Fall 2006

How does this affect me?

Eastern Region

The move of AOR-W to the west mainly impacts users on the East Coast or Northeastern regions of the US and Southeastern regions of Canada. Between now and the end of September our Eastern users will be experiencing poor WAAS reception and temporary interruptions of the signal.

Although the new satellite (PanAmSat) is in place, the WAAS message broadcast by the new satellite includes a test flag that is not recognized by certain Mid-Tech receivers. Because of this test flag, eastern users with RX350p receivers and CenterLine 220s will not be able to receive any WAAS corrections. A firmware update that makes this correction signal available to Mid-Tech products is available. See below for more details.

Western Region

Users in the Western part of the United States will eventually experience improved coverage and reception due to higher elevation of the AOR-W satellite. This new elevation using PRN 122 is currently available. **The vast majority of Mid-Tech products do not need firmware updates.** Only those users located in the Northeastern US and Maritime provinces of Canada are adversely affected by these changes.

Coverage Redundancy Improvements

Alaska and the eastern two-thirds of the U.S. have only been within the broadcast footprint of one WAAS satellite. As a result, both of these expansive areas were vulnerable to a loss of WAAS service if one of the two WAAS satellites failed. In its new location, the AOR-W satellite footprint will now cover

all of Alaska. Additionally, the new PanAmSat broadcast will also cover all of Alaska. Alaska will gain double redundant coverage. The benefit is similar in the eastern two-thirds of the U.S. where the new PanAmSat broadcast will add a second layer of WAAS coverage. By the end of the year, the majority of all WAAS users within the U.S. will now be in view of at least two WAAS satellites, and in some cases in view of three WAAS satellites.

I am affected by these changes. What should I do?

If you intend to operate Rx350p or CenterLine 220 in the Northeastern part of the United States or in the Maritime Provinces of Canada, you should contact Midwest Technologies for information on how to update the firmware in your product. Updates will be provided free of charge upon request. Rx360p receivers will also be affected by these changes, and we are working on a solution for owners of those products. Monitor the Mid-Tech web site for the latest information.

These updates will be performed at Midwest Technologies facilities. Customer will be asked to pay shipping to return the products. The product will be updated and shipped back to the customer's location the same day they are received by Midwest Technologies, and will be returned via the same shipping mode as the inbound shipment. Contact Midwest Technologies for an RMA prior to returning your device to the following address:

Midwest Technologies
WAAS Update
2864 Old Rochester Road
Springfield, IL 62703
217-753-8424

WAAS Related Links

<http://gps.faa.gov/Library/indexSatnav.htm>

<http://gps.faa.gov/index.htm>

<http://www.nstb.tc.faa.gov/vpl.html>

<http://www.nstb.tc.faa.gov/npa.html>

Where's that WAAS Satellite?

This is an interesting web site that lets you click on your location and shows you the relationship between your location and a WAAS satellite. Most importantly you can get the elevation of the WAAS satellite with respect to your position.

Satellite	PRN	Web Link
AOR-W	122	http://www.lyngsat.com/tracker/inmar3f4.html
PanAmSat	135	http://www.lyngsat.com/tracker/g15.html
POR	134	http://www.lyngsat.com/tracker/inmar3f3.html