

ASOS Test Review Board (ATRB) Meeting Minutes

Minutes: **ATRB Meeting**

Date: October 9, 2008

Attendees: Jerald Dinges, Joseph Fiore, Khien Nguyen, Harry Tran,
Ken Stricklett (NWS/OPS24)
Ashley Meenen, Caroline Normile, Greg Whitaker (SAIC/SFSC)
Dave Mannarano, Rick Parry (NWS/OPS22)
John Monte (OST11)
Hak Kim (NWS/OPS23)
Joe Devost Greg Dalyai (NWS/OPS12),
Christopher Stark (NWS/CIO12/AOMC)
Tom Townsend (NWS CR4)
FAA -absent
Gerald "Wayne" Knight, Ron Heatherdale (U.S. Navy SPAWARSYSCEN)
Scott Landolt (NCAR)
Bob Born (USAF)

The fourth ASOS Test Review Board (ATRB) Meeting was held on October 9 at 10 AM EDT using "GOTOMEETING" web-based meeting software to display various documents and presentations that were discussed during the meeting. The audio part of the meeting was held by telephone conference. Representatives from four of the five groups comprising the ATRB were in attendance: The Department of Commerce (DOC) National Weather Service (NWS), the Department of Defense (DoD) U.S. Air Force and U.S. Navy, and the National Center for Atmospheric Research (NCAR) were present. The FAA had no representation at the meeting.

The first part of the meeting consisted of a review of the previous meeting's minutes and associated action items for ratification by the ATRB, as well as status reports on the following approved projects:

- 1) The System Test for the ASOS Vaisala CL31 with ASOS Acquisition Control Unit (ACU) Version (V) 2.79S firmware and Data Collection Platform (DCP) V2.0 Erasable Programmable Read Only Memory (EPROM)
- 2) The CT12K and CL31 ceilometers meteorological comparison evaluation; and,
- 3) The OT&E for the Thin Client Replacement of the ASOS Operator Interface Device (OID) and Visual Display Units (VDU).

The remainder of the meeting was a discussion of new business. Two Powerpoint presentations (using GOTOMEETING) were given by Gregory Whitaker (SAIC/SFSC) on: 1) IFW Sensor Firmware Upgrade (V4.54); and, 2) AWPAG Sensor Hardware Upgrade (i.e., wind shield) and Firmware Upgrades (i.e., V3.61 – LOGOSense sensor firmware, and V2.01 heater controller

firmware). The purpose of the presentations was to have the ATRB vote on whether to proceed to the operational phase of testing for these changes.

The Office of Operational Systems (OOS), Field Systems Operations Center, Test and Evaluation Branch (OPS24) convened and moderated the meeting. Highlights of the meeting were:

- The first topic discussed was an introduction of the meeting purpose and an outline of the agenda by Jerry Dinges, Chair, ATRB. After the introduction, Jerry reviewed the minutes and action items from the September 4 ATRB meeting.
- **Action Item #2 and #3 remain “OPEN.”**
- **Action Items #1, #4, #5, and #6 are “CLOSED.”** A summary of each Action Item and status is listed below:

Action Item 1: (CLOSED) The minutes from the ATRB meetings, test plans, test reports, and the Powerpoint presentations will be put on the OPS24 web site under ASOS for user access in the near future. The link to the OPS24 website is:

http://www.nws.noaa.gov/ops2/ops24/documents/atrb_docs.htm

All future minutes, presentations, reports, and other important documents will be put on the OPS24 website for access and review.

Action Item 2: (OPEN) John Monte will perform a test of the bird abatement devices without the 4 short rod extensions at Sterling Field Support Center (SFSC), Sterling, VA before OT&E and provide the test results to the ATRB.

STATUS: John Monte (OST11) stated the test plan for the test of the ceilometer bird abatement device would be available for review next week (October 14-17). The test should follow shortly after the test plan is complete.

Action Item 3: (OPEN) OPS12 will provide OPS23 with a modified version of NWS Mod Note 80: ACU/DCP Configuration for ST.

STATUS: Hak Kim (OPS23) reported Peggy Hoch (OPS23) might have requested this action. A new action item was taken for Hak to check with Peggy to verify this action is still valid.

NOTE: Members of OPS24 made some changes to draft NWS Modification Note (Mod Note) 80 after using it to install ASOS ACU V2.79S firmware and DCP V2.0 EPROMS on the Sterling Field Support Center (SFSC) ASOS test system, ST0, on October 8. Joe Devost will incorporate these changes into Mod Note 80, and send the modified changes to all CL31 ST sites. If OPS23 still wants a copy, they should be given the revised draft based on OPS24's comments.

Action Item 4: (CLOSED) The NWS and FAA will determine the activation date for the new dedicated FTI line.

The FTI lines have been activated at SFSC and at The FAA Tech Center (FAATC) at Atlantic City, NJ last week. A preliminary test of communication between the SFSC ST0 ASOS and the ADAS/ALDARS testbed at the FAATC was successful. However, new Action Item was assigned. Currently the FAATC has two Interplex multiplexers installed. Harris Corp. needs to replace one of the Interplex multiplexers with a GDC modem.

A new action item was taken for SFSC to check their configuration and determine if they have the required configuration of a GDC modem and Interplex Multiplexer. If SFSC does not have a GDC modem, they will have to get one from Harris. OPS24 will work with Jim Brand, FAATC, to resolve this issue. OPS24 invited Bing Huang of the FAA to witness FTI testing at SFSC during CL31 ST.

Action Item 5: (CLOSED) The NWS will meet separately with the FAA to address concerns about this evaluation. Jerry will distribute the draft plan to the ATRB for review by Friday, September 5. Comments will be due Friday, September 19

Members of OPS24, OPS22, and OST11 met with the FAA representatives and the U.S. Navy SPAWARSYSCEN, Charleston, SC to discuss the FAA's concerns about the CT12K and CL31 Ceilometer Comparison Evaluation Plan. All of the FAA's concerns were addressed, and the FAA approved the plan. The U.S. Navy representative also concurred the explanations were satisfactory to approve the plan.

Action Item 6: (CLOSED) The ATRB will review the presentation material and reports including the ST and CL31 Meteorological Evaluation plans and provide comments along with vote by Friday, September 19 whether to proceed to the ST phase for the CL31.

All comments were received and incorporated into the ST and evaluation plans, and final comments from OST11 on the evaluation plan are almost complete. Once OST11's comments are included, the final ST plan will be available on the OPS24 website. All ATRB members and the NWS Regional ASOS focal Points concurred with the plan. The plan was posted Friday, October 17.

- The minutes for the September 4 ATRB meeting were ratified by vote.
- The second topic discussed was an update on the ASOS Ceilometer Replacement (CL31) System Test for the ceilometer replacement by Khien Nguyen and Jerald Dinges (OPS24): Khien stated on Tuesday, October 7, OPS22 and OPS24 personnel successfully built and installed the temporary mount for the CL31 test ceilometer at the SFSC using ASOS ST0's main DCP using draft installation instructions and materials provided by John Monte (OST11). Members of OPS22 and OPS24 modified the

mounting instructions and provided the changes to John Monte. John Monte will incorporate these changes into the final installation instructions for the temporary mount and provide the installation instructions and final parts list with accounting codes to OPS24. OPS24 will send this information to the ASOS regional focal points and DoD focal points for distribution the OT&E sites which do not have spare pedestals on the DCP rail.

On Wednesday, October 8, OPS24 personnel used draft Mod Note 80 to validate the installation instructions for downloading the ACU V2.79S firmware and installing DCP V2.0 EPROMS on ASOS ST0 and used draft Mod Note 92 to install the CL31 on the temporary mount. Changes to the Mod Notes 80 and 92 were made during the validation of Mode Note 80 at SFSC. These changes were passed to Joe DeVost (OPS12) for incorporation into revised drafts of Mode Note 80 and 92.

- The third topic was an update by Joe Fiore (OPS24) on CL31/CT12K meteorological comparison evaluation. Joe stated the changes made to the evaluation plan included the calculation of the Root Mean Square Deviation (RMSD) between the CT12K and CL31 ceilometer and a new table that quantifies the RMSD into categories: “Compliant;” “Some differences;” “significant differences;” and, “great differences.” Joe also stated the evaluation is underway, and positive results have been obtained to date. Only some differences have been noted in the analysis of the cases to date. One significant difference was noted in a recent fog case at SFSC. The CT12K was reporting Variable Visibility (VV)100 and the CL31 was either reporting Scattered (SCT)100 or VV500. Even though the RMSD was in the significant range, this case is an example of where the CL31 is a significant improvement over the CT12K. The CT12K has a known problem in low level ground fog conditions. Significant differences like this will be included in a Technical Implementation Notice (TIN) that will be distributed to the OT&E sites prior to switching the CL31 to the operational sensor.
- The fourth topic discussed was an update on ASOS OID/ VDU Replacement Using Thin Client by Greg Dalyai (OPS24). Greg stated the “first article” was received from the OID Thin Client vendor (AXEL) and tested at SFSC. OPS12 needed to make some small changes to the OID thin client set up configuration file. Change to the set up configuration file were made and passed to the OID thin client vendor for incorporation into the final set up configuration file. Another “first article” will be sent to OPS12 from the OID thin client vendor next week. It will be tested by OPS12. Next, Greg stated the VDU thin Client vendor has changed (now Vision Technologies). The first article for the new VDU Thin Client is scheduled to arrive at OPS12 next week, and will be tested at that time. Greg stated that 13 OID thin clients and 14 VDU thin clients will be ordered and stocked at NLSC for “initial issue” after “first article” tests are complete. Greg stated that 28 monitors and 13 keyboards are in stock at OPS12 and will be sent to NLSC for “initial issue.”

Jerry Dinges (OS24) stated the FAA submitted the Request for Change on Tuesday, October 7 to NWS Change Management (CM). The RC asks to swap the OID for a VDU

at the FAA facility in O'Hare International Airport, Chicago, IL. Greg asked Tom Townsend (CR1) why O'Hare wanted to swap the OID with a VDU. Tom stated O'Hare did not want an interactive system (OID and keyboard) in the tower cab; they just wanted a display (VDU). Dave Manarano suggest Jerry Dinges contact Deborah Levine, NWS CM, to make sure the RC is processed expeditiously.

- The fifth topic was the first order of new business and was a Powerpoint presentation given by Greg Whitaker of SAIC/SFSC on **IFW SENSOR FIRMWARE UPGRAGE (V4.54)**. During the presentation there was a lot of good dialogue between the members of the ATRB. John Monte stated the IFW, AWPAG firmware and AWPAG shield changes did not have to be bundled together for ST or OT&E or national deployment. The main change in V4.54 IFW firmware was to make sure that a failed flag "F" was sent to ASOS from the IFW sensor when there is a heater failure on the IFW sensor, the proper "WA/WD" commands are issued, and the proper System Log error message is generated. Testing confirmed ASOS successfully received the failed flag "F" when there was a heater failure, the failed flag was displayed on the ASOS maintenance page, and a \$ was generated to alert the ETs and AOMC of a failed IFW sensor. After the presentation, the ATRB had a clear understanding of this IFW firmware change was a specific correction to a "latent defect" and agreed the test results presented were sufficient, the firmware change is low risk for proceeding to the operational tet phases. The ATRB voted (4 out of 5 member consensus with FAA absent) to move to the operation phase of testing for IFW firmware 4.54.
- The sixth topic was the second order of new business, and was a Powerpoint presentation given by Greg Whitaker of SAIC/SFSC on **AWPAG Sensor Hardware (Wind shields) and Firmware (LogoSense V3.61 and Heater controller V2.01) Upgrades .** During the presentation there was a lot of interaction with members of the ATRB. Jerry requested after the presentation, that the discussion focus on just the wind screen modification first. The AWPAG firmware upgrades should be discussed separately. The AWPAG new outer shield design (stronger support structure) was discussed and everyone agreed that it was an improved design over the current outer wind shield. Rick Parry (OPS22) noted the shield was very sturdy. John Monte stated that this new shield has been installed at SFSC (ST0), the Johnstown (JST) test bed. He had also shipped the latest wind screens to Weather Forecast Office (WFO) Anchorage, AK. Rick Parry contacted the WFO and confirmed the wind screen was installed at Cold Bay, Alaska. The other new shield has been shipped to Bethyl Alaska, and will be installed shortly. Jerry Dinges stated the wind screen needs to be reviewed under two aspects: 1) the improved structural changes; and, 2) the performance of the new wind screen for improved precipitation catch. From a mechanical perspective, no one doubts the modified screen (bolts to the existing AWPAG shield and improved anchoring mechanism). Also, Jerry stated a lot of "hearsay" comments have been made that previous winter seasons, earlier versions of this same wind screen demonstrated the wind screen meets specification compliance and improves the AWPAG precipitation catch. Jerry suggested John Monte provide a past report from the winter of 2006-2007 on the meteorological performance of the outer shields that documents the increased

precipitation catch for AWPAGS with the new outer shield around a Tretykoff shield versus the AWPAG with only the Tretykoff shield. Also, the evaluation at Johnstown, PA and SFSC should continue this winter season, since only 5 cases were obtained thus far (although they looked encouraging). The compendium of the previous winter test results with the current winter season results from the two Alaska sites and from Johnstown, PA and SFSC should be sufficient to satisfy the performance of the new wind screen. Therefore, any operational test of the wind screen can focus solely on the installation modification note. The ATRB voted (4 out of 5 member consensus with FAA in absent) to move to the operation phase (OT&E) of testing for new AWPAG outer wind shield. Jerry Dinges stated that the biggest risk for fielding the new AWPAG shield was timing with winter coming and FAA moratorium approaching. Tom Townsend asked John Monte if Cheyenne, Wyoming could get one the new AWPAG shields. Tom also stated the field is very anxious to receive these new shields, especially at winter sites.

A summary of the AWPAG logo sense firmware V3.61 was presented next. V3.61 firmware was developed to: 1) eliminate false tips due to temperature gradient algorithm problems due to large diurnal ambient temperature fluctuations; 2) improve overall reporting accuracy of the AWPAG; and, 3) change a “hardcoded” value for a low temperature threshold when the orifice heater will cut-off to an adjustable value that can be set by an operator programming in the value using a digital readout touch pad on the sensor. This last change is tied to the orifice heater controller firmware upgrade V2.01. There was significant discussion on these firmware changes by both the NWS ATRB member, Dave Mannarano (OPS22), especially the adjustable low temperature cut-off for the orifice heater. Dave expressed his concern whether enough testing was performed on V3.61 firmware and V2.01 heater controller firmware. The NWS also has concerns about what the low temperature setting should be for heater cut-off. This is a policy issue. Do we uniformly implement a policy to use the same value across the U.S. or should the value change depending on climate regimes? Jerry Dinges (OPS24) stated the policy needs to be set so it can be incorporated into the draft Mod Note and then tested. John Monte (OST11) suggested the option that the firmware be implemented, but, not instruct the ET’s to change the low temperature cutoff and use the existing threshold value. John Monte stated that the low temperature cut-off would be set at 28F in the AWPAGS received from the factory. John stated the SFSC recommends a new cut-off of 18F be set for all AWPAGS deployed nationally. Dave Mannarano (OPS22) cautioned whether one national low temperature cut-off was a wise decision. The ATRB agreed that a policy decision should be made on this low temperature cut-off before a final decision can be made. Jerry Dinges (OPS24) expressed strong concern about the availability of resources from OPS24 to handle multiple OT&E’s at the same time. It was suggested that perhaps a phased approach for OT&E should be taken, with the IFW firmware and AWPAG shield OT&E occurring first, followed by AWPAG firmware OT&E at a later date when OPS24 has the proper resources to adequately cover those OT&E’s. John Monte stated that V3.61 firmware was particularly important. After a lot of discussion on the two firmware upgrades (V3.61 sensor firmware and 2.01 heater controller firmware the ATR B voted (4 out of 5 member consensus with FAA in absent) to move to the operation phase (OT&E) of testing for new AWPAG firmware noting the OPS24 resource issues. John Monte

(OST11) agreed to set up a presentation to the NWS regions early next week to go over the changes to AWPAG firmware (V3.61 sensor firmware and V2.01 heater controller firmware) and get their view on the implementation of these changes operationally.

The Jerry Dinges, Chair, ATRB will schedule the next ATRB meeting.

The following new action items were agreed upon during the meeting:

Action Item 1: Assigned to the FAA and OPS24. The FAA will have Harris Corporation check to make sure that the FAA Tech Center and SFSC have a GDC and Interplex Modem for FTI. OPS 24 will coordinate with the FAA Tech Center (Jim Brand) on the status of this request and status of testing the new FTI link during ST.

Action Item 2: Assigned to John Monte (OST11) and OPS24. John Monte will incorporate changes to the final installation instructions for the temporary mount for the CL31 test ceilometer (provided by OPS22 and OPS24) and provide the installation instructions and final parts list with accounting codes to OPS24 for distribution the ST sites and NWS regional focal points on October 10. The NWS regional focal points will then distribute the instructions and parts list with accounting codes to the OT&E sites that need the temporary mount. The goal is to have the temporary mounts installed at OT&E sites by the end of October.

Action Item 3: Assigned to Joe Devost (OPS12). OPS12 will incorporate changes to NWS Mod Note 80: ACU/DCP Configuration provided by OPS24. These changes will be distributed to the ST sites by OPS12.

Action Item 5: Assigned to OST11. John Monte (OST11) agreed to set up a presentation to the NWS regions early next week to go over all the changes to the IFW firmware and AWPAG firmware and shield changes to get their view on the implementation of these changes operationally.

Action Item 4: Assigned to OPS24 and the NWS Regions. Prioritize the operational implementation of AWPAG firmware changes 3.61 and 2.01 given resource limitations of OPS24.

Please direct all questions/concerns to Joseph Fiore (Phone (301)-713-0326 x 119, email joseph.fiore@noaa.gov).