

**Radiosonde Replacement System)
Radiosonde Workstation Software Build 2 System Test
Test Review Group Meeting
February 3, 2010**

ATTENDEES:

NWS:

Field Sites:

Newport, NC (MHX) – Central Wills
Springfield, MO (SGF) – Gerry Claycomb
Reno, NV (REV) – Jessica Kielhorn
Shreveport, LA (SHV) – Aaron Stevens

NWS Regional Headquarters:

George Montenegro – ER42

National Specialized Centers:

Bradley Ballish – NCEP (NP11)
Stuart Hinson – NCDC (CC21)

National Weather Service Headquarters:

Aaron Poyer – OPS24 (ST Test Director)	Jae Lee – OPS24
Richard Thomas – OPS23	Kevin Kay – OPS23
Eddie Roberts – OPS23	Don Johnson – OPS22
Carl Bower – OPS22	John Uhlman – OPS13
Hiram Escabi – OPS13	Brendan Rabb – ERT (RRS Helpline)

- I. Role call: The Test Review Group meeting (TRG) for Radiosonde Replacement System (RRS) Radiosonde Workstation Software (RWS) Build 2 System Test (ST) was held by audio conference call on Wednesday, February 3, 2010. Aaron Poyer, Test and Evaluation Branch (OPS24), ST Director, convened the meeting with a “roll call” (See above list of attendees).
- II. Agenda: Aaron described the agenda, which was as follows; Test Status, Evaluations (field personnel, NCEP, Helpline), SIR Discussion, outstanding Action Item status and any new action items, Question and Comments. The following are the summary from the meeting:
- III. Test Summary: Aaron gave a briefing of the current test status including the completed flights, and test procedures.
 - Aaron reported on the live flights flown by the Baltimore/Washington Forecast Office (KLWX) personnel that have been tracked by the ST test system at the Sterling Field Support Center (SFSC), as well as the live test flights flown at SFSC. To date, 22 procedures have been completed (2 to rerun with NOAAnet) and approximately 58

- Aaron reported on the test procedures being performed at National Weather Service Headquarters (WSH), to date 53 of 80 procedures completed of which:
 - i. 39 of 43 procedures have been successfully completed on the QA Wizard Pro automated testing setup on the 4th floor test stand-alone site system.
 - ii. 14 of 37 procedures have been successfully completed (two possible issues, appear to be related to the procedure typos, will be re-verified) completed on the OPS24 6th floor test system connected to National Oceanic and Atmospheric Administration Network (NOAAnet).

IV. Other Evaluations: Field Personnel, RRS Helpline personnel, and Brad Ballish from NCEP.

- Central Wills (MHX) gave a wrap-up of his thoughts from last weeks evaluation that he completed at SFSC.
 - i. Central's comments were discussed; see the full comments (Page 4) attached to these minutes.
 1. Central believes that all in all this is much better than what they have currently, and singled out the GPS tracking and the plots and editing features as strong points.
- Gerry Claycomb (SGF) and Brendan Rabb (RRS Helpline) gave their thoughts from this week's evaluation at SFSC.
 - i. Gerry and Brendan emailed numerous comments out and a discussion was had between Rich Thomas and the group as to which comments constitute SIRs, Brendan will enter them as SIRs.
 1. Gerry and Brendan's comments were discussed and explained; see the full comments (Page 7) attached to these minutes.
- Brad Ballish (NCEP) made a quick comment on some information he noticed in the data transmitted to NCEP relating to pressures around 10hPa not being shown. Further discussion will wait until OPS22's experts evaluate further.

V. System Issue Report (SIR) Overview and Status: Aaron briefed the group on the new SIRs and gave a short description of the SIR/Conditions leading up to them.
New SIRS:

- 1396: Fatal Exception when clicking on LDAD phone. When the user clicks on the edit feature for the LDAD phone, if the IP address field has an invalid IP (1.0.0.0) instead of stating there is an error and allowing an edit a fatal exception terminated RWS. **Ready for validation testing;**
- 1397: WMO Coded message pop-up in-flight, tab always the same. This was discussed last week and the formal SIR was entered at Rich Thomas' request. **Ready for validation testing;**
 - Rich said that the change that has been made will need to be pulled back and further refined. To reflect the proper checked boxes are marked at the proper times. It is anticipated this will be ready for the next maintenance release (v2.0.12.0)

- 1398: Inconsistent Status Message for UPS Battery information. See note in SIR from Kevin Kay. ***Ready for CCB Review;***
 - The software is properly displaying the information it has been provided by the UPS on battery status; however there may need to be a section in the User's Guide to describe the "quirks" of the UPS, the battery 100%, low battery can occur in situation where the battery life cycle is nearly met, or instances where the capacitor levels are weak.
 - Another SIR will be entered for the availability of cycling the UPS power during flight, Brendan Rabb suggested a warning if this is clicked since during a flight the time to recover the SPS/TRS may cause the flight to be lost if power were to accidentally be cycled.
- 1399: TRS Display has odd behavior when in GPS (Manual) Mode, See note in SIR from Aaron/Brendan and from Kevin Kay. ***Ready for validation testing.***

VI. Action Items:

- Carried Over Items:
 - i. None.
- New Items:
 - i. AI #12: (POC: Carl Bower) – Find the WMO standard 10 minute window before balloon release for surface observations.
 - 1. The surface weather observation portion of the radiosonde observation follows the WMO protocol Found in Manual on Codes, International Codes Volume 1.1, WMO No. 306. Specifically FM 12 SYNOP. The Volume I, Manual on the Global Observing System, Global Aspects, contains the regulatory material for the observations. The Volume 1 forms part of the WMO Technical Regulations and is referred to as Annex V to the WMO Technical Regulations. Under the section on Surface Synoptic stations (Section 2.3), paragraph 2.3.1.5 is the requirement for timing of the surface observation. It states: *"Atmospheric pressure observations should be made at exactly the standard time while the observation of other elements should be made within the ten minutes preceding the standard time"*.

VII. Further Questions and Discussion:

The next Test Review Group meeting (TRG) will convene in Rm. 8246 at SSMC2 at 2:30pm EST on 02/10/2010, to follow-up on existing SIRs and Action Items, and go over any new issues or questions that may have arisen during testing.

Please use the following information to dial into the meeting:

Telephone: 1-888-539-7320

Password: 1615944#

EVALUATION COMMENTS:

Central Wills

ITEMS OF INTREST FOR RWS BUILD 2.0

- 1. Chap 4.7 Controlling the TRS with RWS – Consider including the following remarks for the purpose of calcification.
Using the GPS Track Mode at the point (time) of release is not the preferred or recommended mode unless the Manual Track Mode or Auto Track Mode are nonfunctional .
- 2. The freezing level crossing listed on the flight summary is different from the RADAT message (FZL) on the 28/00Z flight and others. Is this a problem or just a different dataset?
- 3. My “SAVAED WORKSPACE” had been deleted when I opened the 28/12z and 29/00z flights.
- 4. Do all critical or important slider messages remain on screen until dismissed by observer?
- 5. The cloud code group is deleted from the Surface Observation Display after the sonde is released and the display refreshes. I don't think this would be well received by the observers. The only time I noticed that this happen is when the data was ingested from the RSOIS. If this is by design, why not wait until after the release to input this data group?
- 6. Consider reconfiguring the WMO Code and RADAT Message Display, to include all of the messages that have a check mark ready for transmission. In addition, when the RADAT message is generated, display the RADAT message, and likewise for the other messages. If the flight terminates prior to reaching 70 hPa the MAN, SIG, and ABV messages should all automatically display and wait for the approval from the observer to check the desired boxes.
- 7. Is it by design that the Telemetry Analysis Plot doesn't have the capability to overlay the previous plot? I don't think an overlay is really needed for this plot.
- 8. When the screen refreshes after editing the Tabular Data, the cursor should return to the point of the previously edited data instead of returning to the top of the Tabular Data display every time.
- 9. **Flight # 44, 28/13z special** - The Processed Tabular Display screen and the RH plot indicated a relative humidity of 999.9. The raw data was marked as rejected.
- 10. Flight Status Message - **UPS status: Code 72 (48x), AC Line Power, Battery: 100%, Low Battery**

- 11. Had two occasions when the software did not select the correct release point. Did the WFO system have the same results?
- 12. One occasion when the software indicated an excessive (extremely fast) ascension rate near the end of the flight. I selected a point about 5 minutes earlier for the termination point , 12Z flight on 1/28. Did the WFO system have the same results?
- Selected GPS mode and the antenna went to the GPS location. I then selected AUTO mode and the antenna went back to the previous position prior to the GPS location. Not sure what happen. I think this occurred just after the release but I am not sure.

POSITIVE FEATURES AND IMPROVEMENTS IN RWS BUILD 2.0

- 1. The observer has the ability to change the mode of transmission, (LAN, Phone) during an active flight. Also note worthy is the automatically deselecting of the LAN if connection cannot be established at the beginning of the flight.
- 2. The plots are greatly improved including the auto refresh of all plots.
- 3. The SKewt plots will be very useful in the forecast process.
- 4. The data tags which appears when you mouse over a data point
- 5. The ability to use the slider bar on the right side of the tabular data displays has been greatly improved. It is now really functional.
- 6. The GPS Mode function is a wonderful tool. When an observer releases using the manual mode, it makes the process a lot smoother to just simply use the GPS mode to lock onto the radiosonde, then place the TRS in auto vs. typing in the lat/long and placing the TRS into search mode. GREAT FEATURE!
- 7. The process for deleting data via the plots is a nice feature but it probably should not be the final mode used for editing. Editing via the tabular data screen allows more define or precise editing and forces the observer to look at the data. I believe this function should remain but perhaps include in the documentation, language concerning the preferred method of usage.

- 8. The ability to use the mouse to move the antenna via the Antenna Orientation /TRS Display
- 9. Inclusion of the freezing level crossing on the Flight Summary
- 10. The layout of the WMO Code and RADAT message Display
- 11. The functionality of the Surface Observation Display after release
- 12. The simplification of archiving the data and transmitting the data files to NCDC.

EVALUATION COMMENTS:

Gerry Claycomb (SGF) Brendan Rabb (RRS Helpline)

On 02/02/2010 Brendan.Rabb@noaa.gov wrote:

Aaron,

Gerry and I thought we would take a min to send you some notes on issues I have seen. This will help me (Brendan) not forget / loose my notes. Not all of these are issues most likely some may be unchangeable.

1. It is possible to turn off the UPS during a flight with no warning. Similar to TRS Reset however with the SPS resetting during this the recovery time for winds is much longer due to GPS almanac being reset also with the SPSs being as finicky as they are SPS resets mid flights are, in my opinion, ill advised.
2. If you place Freq control in edit mode then, while you have gps, use the search function the system will lock onto the signal and turn AFC on. However edit mode is still active and you can change the frequency which in fact does take the system out of AFC and change the freq to the new input. This of course causes the system to go into suspend or full search.
3. Minor - Once you click on Balloon MFG Date you can not click off of it unless a date is selected. This is more of a pet peeve of mine. If you accidently click on it you can not do anything until you fill it out.
4. I have a screen capture of this. When there is an over-current there is no indication of the event other than a small msg in the TRS display. There is not status message or hardware pop-up. This needs to be a major event with sound to indicate to the user that action needs to be taken. The current build at least pops up the hardware display. Due to the size of the new hardware display I would like to see something more direct and attention grabbing.
5. The constant popup of the msgs when you re-process the data is annoying and unnessasary. population of messages at 400, 70 and term is sufficient. Also users are trained and capable of coding the messages manually. Having the msgs populate when you edit the data, change release time, and at the initial release causes confusion.
6. Have the capability with the plotted Skew-T to compute indices in a legend on the Skew-T. Examples: PWAT, CAPE, Bulk Shear, Down-burst winds etc... Would be a great tool for office forecasters in a severe weather event as the sonde is progressing. For Aviation support, have it calculate low level wind shear, turbulence/icing layers, cloud heights, etc...
7. Make the TRS Display able to be re-sized. The current display takes up a lot of room that could be used for other displays.
8. Any way to add a height scale to the Trajectory Plot when you look at the plot in 3D. Would be nice to have a height scale.
9. Saving the status messages to file still brings up a pop-up while all other save to file indicators have been changed to the side scroll msg.

10. Need to have "critical angle" section in the Station Data Display where offices could add any critical angles unique to their office. For example, WFO Springfield has a critical angle of 113/7. At this angle, the RRS is pointing at the WSR88D antenna. If left in Auto Track, the flight will be lost. Have the capability that an alert window would pop up stating that the flight is getting close to the office's critical angle and that the operator may need to take action.

11. Due to new issues surrounding shifting frequency it would be nice for the software to notify the user of deviations to the frequency of more than 100 KHz. For example, if flying at 1680 anything outside the range of 1679.9 to 1680.1 would notify the user to watch for missing data and if this occurs to set the frequency back to the original freq at which the sonde was baselined.

12. Notification prior to 1 min of missing data would be nice since after 1 min has passed there is only 2 min left to identify and remedy the problem.

13. I have noticed that late in the flight at very low angles the software is having issues with the Search function not finding the signal. Pointing the antenna at the current AZ and EL and using auto works just fine though. This to me seems to be a problem with the search function algorithm. Brendan Rabb and Gerry Claycomb

on 02/03/2010 Gerald.Claycomb@noaa.gov wrote:

Aaron,

Good morning. A couple things from last evening's flight to pass on. First, you can't move the antenna by hitting the Return Key like we could do with the old version of RRS Software. You have to push the Move Antenna button. Was this intentional?

Second, when you pull up the Trajectory Plot at the beginning of the flight, it expands to the whole flight. So you can't see the flight path at the beginning of the flight unless you zoom in pretty close. This is very different from the current version that shows the trajectory plot close up, then expands out as the flight progresses. Any way to get this changed back? We at Springfield use the Trajectory Plot quite a bit for lock on procedures, so I think this is important.
Gerry/Brendan

on 02/03/2010 Gerald.Claycomb@noaa.gov wrote:

Aaron,

Disregard the Trajectory Plot issue from this email, we figured out what we did wrong.

Thanks,

Gerry

on 02/03/2010 Gerald.Claycomb@noaa.gov wrote:

Aaron,

To answer your question about the software, it's a huge improvement over what we're using in the field now.

Gerry