

*TWP ARCS-1 Site  
RESET VISIT-Special  
Report  
02-21 February 1998  
PNG NWS Momote Station  
Manus Province, Papua New Guinea*

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## *1.0 INTRODUCTION:*

The main goals of the TWP Operations RESET-Special Visit to ARCS-1 at Momote Airport on Manus, PNG were as follows: 1) replace EVE (SAM); 2) redo ADaM data processing; 3) install RACE (and SAM); 4) install DC Power from D-Van to SMET tower and GRNDRD stand; 5) reset ceilometer data transmission mods and computer mods; 6) replace MPL laser diode; 7) repair MFRSR; and 8) move BBSS computer, digicora, and antennas to E-Van and install new printer fiber cable.

This Report is organized according to the planned tasks or work units performed during the RESET Visit. Within these work units the activities accomplished is arranged chronologically. Most of the information was based on the actual visit daily reports.

## *2.0TWP OPERATIONS/RESET MANAGEMENT:*

### *RESET-1 Members:*

- Larry Hatfield, TWP Team Lead
- Guy Wilcox, TWP RESET Team Member
- Jimmie Voyles, TWP RESET Team Member
- Peggy Malone, TWP RESET Team Member

### *RESET Local Contacts:*

- Geasa Stoesel, Momote NWS OIC
- Francis Anuma, Momote Observer
- David Akia, Momote Observer
- Pochalon Kametan, Momote Observer
- Ken Zorika, Port Moresby NWS
- Dick Pearse, Lorengau Shipping
- Max Vanuawaru and Tapas Ipau, Harbourside Hotel Managers

## *3.0RESET PREPARATION:*

Preparation for RESET Visits requires a long lead time to line up reservations, visas, shots, medication, documentation, procedures, and training plans. Close coordination with AIS/ATSS, instrument mentors, and shipping personnel well before the departure date is critical. Prioritization and task rejection is a difficult and important part of RESET visit preparation.

## *4.0TASKS PERFORMED:*

### *A. Site Audit-In: (All)*

Upon arrival at the site an inventory is taken to establish the baseline status of the instruments and equipment at the site. All changes during the RESET visit are compared to this inventory.

### **On 2/3/98:**

Completed audit-in and requested guidance on the following matters found during the audit-in:

- The diffused PSP and PIR on the Brusag (SKYRAD) are misaligned. The radiometers appear to be only 5 to 10% occluded.

- The NIP is not level on the Brusag.  
The UVB was set level at 11:45 am PNG time.

*B. Replace EVE: (Wilcox)*

**On 2/3/98:** Started trouble-shooting EVE.

**On 2/4/98:** Fixed EVE (replace mother board), but it needs some software adjustment; the bootprom was found to be faulty.

**On 2/6/98:** Backed up ADaM, EVE, and the RAID disks; synced ADaM and EVE.

**On 2/9/98:** Performed ADaM/EVE fail-over tests today; the fail-overs were successful.

*C. Redo ADaM Data Processing: (Hatfield)*

**On 2/9/98:** The ADaM processing tapes are bad; Larry Hatfield will talk to Annette Koontz about the tapes tomorrow.

*D. Install RACE (and SAM): (Hatfield)*

**On 2/ 3/98:** Set up the SAM hardware.

**On 2/4/98:** Installed the interim SAM computer and software. This is only a small part of the entire SAM system.

**On 2/6/98:**

- Completed Manus to DF connection via the INMARSAT-B satellite.
- Checked the GOES report from the D-Van.
- Cannot route out of PNL, so we cannot check the RESET installation manual for items.
- The INMARSAT-B system is networked into ARCS1 network, e.g., PNL could talk to ADaM.

**On 2/9/98:** Realigned the INMARSAT-B antenna.

*E. Install DC Power from D-Van to SMET Tower and GRNDRD Stand: (Voyles)*

**On 2/6/98:**

- Done; PV rerouted.
- One of the power supplies sent over is bad; need another spare sent over.
- Cleaned off solar panel leftovers from the top of the D-Van.
- Ripped out hot wires left over from the solar panel mishaps.
- In the main disconnect box in the D-Van the ADaM modules are not properly mounted and could potentially cause an operations hazard. If time permits, we might secure the modules. If time does not permit, we recommend that the next RESET team secures the modules.

**On 2/8/98:**

- Cleaned up the PV charging circuits and boxes.

- Fixed leaks in PV boxes on top of the D-Van.
- Checked that the battery charger was OK.
- Checked all the batteries in the instrument field. The results are listed below:
 

	Charge (Vdc)	Battery (Vdc)	Output (Vdc)
SMET:	16.62	12.81	12.80
GNDRAD:	16.42	12.65	12.64
SKYRAD:	16.80	12.79	12.77
MFRSR:	16.73	13.31	13.31

- Cleaned and resealed SKYRAD power distribution box.

**On 2/9/98:** Checked the power distribution box on the SKYRAD stand, and it was dry.

**On 2/11/98:** Checked battery charger, and it was OK.

*F. Ceilometer Data Transmission Mods, Computer Mods: (Hatfield)*

**On 2/6/98:** We noticed that there were several OS2 settings not set correctly. We think that the last time OS2 was placed on the computer by a RESET team, the setting information was not correctly relayed to the team; we are adjusting the settings and will watch the computer and see what happens.

**On 2/8/98:** Computer back on-line and noted an increase in speed.

**On 2/9/98:** Reseated the CPU board; started installing OS2/Warp.

**On 2/10/98:** Continued upgrade and testing.

**On 2/11/98:** Installed remote network management software; system appears stable.

**On 2/13/98:** Installed a cron job on the interim SAM computer to reboot the ceilometer computer 15 minutes after every hour.

*G. I-Van UPS Repair: (Voyles)*

**On 2/3/98:** Installed the new connectors. Noticed that there is one corroded bolt and battery connector. We will photo document and then clean the bolt and connector tomorrow. After the bolt is cleaned, we will turn on the UPS.

**On 2/4/98:** UPS is up and running. All instruments requiring the UPS are back on UPS circuits. All the extension cords were removed from the I-Van.

*H. MPL Laser Diode Replacement: (Voyles/Wilcox)*

**On 2/6/98:** Replaced the power supply, and the system is up and running; we had to reinstall OS2; we will perform the calibrations tomorrow.

**On 2/9/98:**

- Put in new power-up, reset board modification. Had problems getting the system to start. The MPL displayed erratic behavior, e.g., the laser diode was dropping out and the modulator was halting.
- Took the board out again and everything was OK.
- Put board back in and now the system appears stable.
- Believe there is some intermittent problem within the system, and we will perform more trouble-shooting tomorrow.

**On 2/10/98:** MPL is still unstable. We trouble-shot the system all day today. An e-mail was sent to Connor Flynn, and we are waiting for a reply.

**On 2/11/98:**

- Took out "CUSTOM" circuit board from the diode power supply.
- Reset PRF to 2500 and the integration time to 60 seconds.
- MPL appears to be working; will continue to monitor the instrument.

*I. MFRSR Repair: (Wilcox/Malone)*

**On 2/06/98:** Installed new logger board and MFRSR is running.

*J. Move BBSS Computer, Digicora, Antennas to E-Van; Install New Printer Fiber Cable: (Malone)*

**On 2/4/98:**

- Moved BBSS computer, Digicora, and antennas from the I-Van to the E-Van. Fiber to ADaM is in place. Need to test the connection between the Digicora and ADaM.
- Installed UPS/50hz in E-Van.

**On 2/6/98:** The Digicora can communicate with ADaM; ran the simulations requested by Barry Lesht. The results were relayed by e-mail. Sent Barry Lesht the SYSGEN and Configuration information from the Digicora as requested.

**On 2/8/98:** Barry's e-mail bounced. Will resend the data tonight.

**On 2/9/98:**

- Video taped a balloon sounding; all seemed to go according to the procedure.
- Lost sounding data from 2/4/98 to 2/9/98. All the zip disks were collected from the I-Van and moved to the E-Van. The zip disk selected for data backup was a MAC zip disk and not an IBM Zip disk. The two are not compatible therefore we lost data. The MAC zip disks were collected and stored in a filing cabinet. A new IBM zip disk was inserted in the zip drive and will start receiving data tomorrow.

**On 2/10/98:**

- Updated the SYSGEN of the Digicora to allow for data for calibrations for the wind shears.
- Have new SYSGEN in paper and electronic form.
- Downloaded and installed the BBSS sonde software. The software is now being tested.

- It is too late to install and test the reprocessing updates.

**On 2/11/98:**

- BBSS software is operational; sonde data is collected and stored to tape.
- Updated SYSGEN to allow the STATUS message to be sent to ADaM.
- Performed tests requested by mentor; e-mailed results to mentor with a copy to TWPPO.

**On 2/13/98:**

- Retrained the observers to use the sonde data for the Digicora requested surface data instead of the NWS site instrument data as they were previously doing.
- Informed the observers that they do not retain the ability to press the LIST button to get LIST information to the printer. This change occurred when data started being collected by ADaM.

*K. Replace SMET Data Logger Barometer Tubing/Purge Logger: (Wilcox)*

**On 2/8/98:** Replaced tubing; unit still needs purging.

**On 2/9/98:** System purged.

*L. Catalogue I-Van, D-Van, and E-Van Power Strip Usage: (Malone)*

**On 2/13/98:** Done.

*M. Take Digital Pictures of Site for Operations Reference: (Malone)*

**On 2/8/98:** Began taking digital pictures of the site. Larry Hatfield will start posting these pictures to [dmf.arm.gov/reset\\_special/general](http://dmf.arm.gov/reset_special/general). The pictures will be available by Monday, 2/9/98 MST. These will be “.gif” files. Most of the SKYRAD stand is completed.

**On 2/13/98:** Digital pictures completed. Need video of the X-Van.

*N. Brusag Solar Tracker: (Malone/Wilcox)*

**On 2/6/98:**

- Malone requested that the RESET procedure for the Brusag be faxed to ARCS1, since we cannot get the LANL part of the ARM web pages from the site.
- The shaded PSP/PIR on the Brusag tracker are not level. One screw was missing from the top of one of the radiometers and the other was dropped. A search of the site did not produce any more tiny screws. We now have four (4) screws holding the tops of the radiometers on, instead of six (6).

**On 2/8/98:** The Brusag PSP/PIR are now level. We had leveling problems since the leveling thumb screws appeared to be frozen. We ended up shearing one screw off (by accident). The other radiometer we had to move the radiometer so high that one leveling screw did not touch the base plate, so we left it off. There are digital pictures of these two screws as noted in bullet above.

**On 2/10/98:** Checked the level of the Brusag. The bubble was slightly more to the PSP side. The bubble barely crossed the line; the bubble is supposed to reside between.

**On 2/11/98:** Was able to get one drawing made of the shading problem and will fax it to TWPPO today.

**On 2/13/98:**

- Had intermittent sunshine today, so we diagrammed the shading of the sensors for TWPPO/Chris Cornwall.
- At solar noon the shading looked close. The diagrams were faxed to Chris Cornwall.
- Confirmed that the Brusag was in Sun mode.

*O. Replace D-Van Charge Controller: (Voyles)*

**On 2/6/98:** Done; D-Van Charge Controller replaced by Voyles.

*P. Observe Local Electrician Repair E-Van Air Conditioner: (Wilcox)*

**On 2/10/98:** Local electrician requested that one of our folks fix the air conditioner.

**On 2/11/98:** We believe the air conditioner needs freon; the freon representative will come today.

**On 2/13/98:** Freon representative may come after we depart.

*Q. Ship Old NOAA BBSS(CLASS) Back to ATSS: (Malone)*

**On 2/10/98:** Completed; equipment is packed, including the balloons/sondes.

**On 2/11/98:** Collecting information for customs.

*R. Mount Microplex Network Eye Camera at I-Van Window: (Hatfield)*

**On 2/6/98:** Done.

*S. Visit Ecom High School: (Hatfield/Malone)*

**On 2/13/98:** Done; also visited Manus High School.

*T. Site Audit-Out: (Malone)*

*Not done.*

#### **5.0NEXT RESET VISIT:**

Consider the following items for inclusion in the task planning for the next RESET visit:

- In the main disconnect box in the D-Van, the ADaM modules are not properly mounted and could potentially cause an operations hazard. If time permits, we might secure the modules. If time does not permit, we recommend that the next RESET team secures the modules.

- Local electrician requested that one of our folks fix the air conditioner; contact freon representative.

#### *6.0 LESSONS LEARNED:*

#### *7.0 ATTACHMENTS*

Audit-In Form