

**TWP ARCS-1 Site  
RESET VISIT-4  
Report**

*03 August - 22 August 1998*

*PNG NWS Momote Station, Manus Province and  
PNG NWS Headquarters, Port Moresby,  
Papua New Guinea*

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## **1.0 INTRODUCTION:**

The main goals of the TWP Operations RESET-4 Visit (routine) to ARCS-1 at Momote Airport on Manus, PNG were the following: 1) install WSI, 2) replace UPS Batteries in I- and D-Vans, and 3) replace ADaM drives. Details of the RESET visit planning are found in Attachment 2.

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 put together by the RESET-4 members based on the actual visit, daily reports.

## **2.0 TWP OPERATIONS / RESET MANAGEMENT:**

Once an ARCS Site is established the Operations part of TWP is responsible for keeping the site running and reporting data. Operations also coordinates equipment retrofits at these established sites. This is accomplished by the local NWS personnel at the site, routine RESET visits and nonroutine RESET visits.

**Routine RESET** visits are scheduled on approximately six-month intervals and are focused mainly on routine maintenance, instrument calibration, instrument replacement, and training. A formal audit-in is performed upon arrival and audit -out before departure.

**Nonroutine RESET** visits are intended for technical nonroutine tasks such as emergency repairs, retrofits, or the addition of new instruments.

The work on a RESET visit is performed by the RESET Team, but many times in close coordination with the local on-site observers. The Team holds a daily tasking meeting each morning at the site using the proposed RESET visit tasking schedule. After each day's work, the team meets to summarize what was done and an assigned Team member writes a "Daily Report" to be e-mailed back to TWP personnel in the US. Because of the time-zone differences, necessary calls to instrument mentors in the US are done in the morning.

### *RESET-4 Members:*

- Fred Helsel, TWP RESET Lead
- Peggy Malone, TWP RESET Team Member, Daily Reporting
- Doug Scott, TWP RESET Team Member, Audit In/Out

### *PNG On-Site Observers:*

- Geasa Stoesel, OIC
- Francis Anuma
- David Akia

### *Others On-site:*

- Paul Johnston, NOAA

### **3.0 RESET 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 is critical well before the departure date. Prioritization and task rejection is a difficult and important part of RESET visit preparation.

#### **TASKS PERFORMED:**

##### **A. UPS: (Helsel)**

**8/12:**

- Batteries and electronic module arrived.

**8/14:**

- Changed batteries in I-Van.
- Changed out electronics module. (Encountered problems with repaired unit and ended up installing the new unit and shipped back the repaired unit for further repairs.)

**8/15:**

- Completed the electronics module changeout in I-Van.

**8/16:**

- Started changing out batteries in D-Van UPS; had to remove MACS and COMS from the shelf above the UPS. (MACS and COMS had to be turned OFF and put on the D-Van floor. Reconnected MACS and COMS after the batteries were installed. ADaM was OFF until the task was completed.)

**8/17:**

- Finished changing out batteries in D-Van; ADaM, MACS/COMS reinstalled.

##### **B. ADaM: (Malone)**

**8/10:**

- Backed up files 1/home and deleted old data.
- Backed up staging area.
- Added accounts for Annette Koontz and Jeff Schmaltz.
- Packed up site-processed, raw tapes for return to USA.
- Tape drives installed.

**8/11:**

- Removed old users from the system.
- Finished backing up the staging area to free up disk space.
- All eve tape drives tested out OK.

**8/12:**

- Removed six months of data from the staging area per A. Koontz's request.

**8/20:**

- Replaced a tape drive in adam and shipped the defective drive back to AIS and then to PNNL.

**8/23:**

- The tape drive (/dev/rmt/0) in adam was acting up, therefore we removed the tape drive and moved the drive from eve (/dev/rmt/1) over; placed the spare drive in eve (/dev/rmt/1).
- Attempted to sync up adam & eve; failover failed. (eve is not taking data from the dataloggers and the MFRSR. Rebooted to give adam control again and still did not receive the data from loggers and MFRSR. Informed A. Koontz about the problem and got on the plane to leave.)

### ***C. WSI Installation: (Scott)***

**8/11:**

- Leveled the WSI stand in the instrument stand.
- Installed new WSI manuals in Observer's filing cabinet.

**8/12:**

- WSI crates arrived at site and unloaded.
- Placed White Box on stand.

**8/13:**

- Cables routed from I-Van to WSI White Box on stand.

**8/14:**

- Installed and oriented White Box on the stand.

**8/15:**

- Blue Box configured; added coolant to and shimmed occulter on White Box.

**8/16:**

- WSI operational.

**8/17:**

- Adjusted the occulter sunshade.
- An I-Van breaker had tripped the previous night; installed a dedicated circuit for the Blue Box air conditioner. (PNNL requested to post WSI data to [dmf.arm.gov](http://dmf.arm.gov).)

**8/18:**

- Moved GPS unit to outside of the Blue Box for observers to monitor it better.
- PNNL moved data to [dmf.arm.gov](http://dmf.arm.gov); scientists began monitoring.

**8/19:**

- The WSI ran all day without need of assistance.
- Installed light shades after sunset after receiving permission from TWPPPO to travel at night; there is still one bright light; it is a reflection off of the SMET tower.

**8/20:**

- The WSI ran all day without need of assistance.
- Mentor began looking at images for sources of light pollution.

**8/21:**

- Found around five drops of water coming from the camera housing, and we found standing water between the camera flange and the occulator base. We re-RTVed this area; we also received plenty of rain yesterday (1.5 inches).
- There is around 60% humidity in the white box. We thought there was suppose to be a yellow flag when the humidity was over 50%. We do not see a yellow flag for humidity problems.
- Charged the camera housing to 4.0 PSI when the white box was warm; it dropped to 2.5 PSI (reported from the Occulator ACP) when the sun went down; saw a yellow flag reporting that the pressure is below 2.0 PSI.
- RTVed the remaining places in the white box (e.g., where the cables come into the bottom of the white box).
- Replaced the desiccant in the white box.
- Talked with Tim Tooman regarding light pollution and solutions.

**8/22:**

- Moved one of the lights that was causing light pollution to the WSI; need to check the night-time data from 1000Z JD234 on to see if this helped.

***D. MPL Repair: (Scott)*****8/10:**

- Noticed condensation on the inside of the MPL corrector plate.

**8/11:**

- Eliminated most of the condensation problem with dehumidifiers running.
- Shutter repair started.
- Air compressor repair started.

**8/12:**

- No condensation on corrector plate.
- MPL is working; will not replace any parts unless the MPL fails while we are here. (The relative humidity of the I-Van is now 9% according to MACS; there is no condensation on the corrector plate.)

**8/14:**

- Saw graphs on the MPL and assumed it was working; the scientists say it is not.
- Flynn and Mather report data looks bad; so bad that controller and diode will be replaced tomorrow.

**8/15:**

- Lidar replacement completed.
- Hand controller replacement completed.

**8/16:**

- Shutter disk replaced.

**8/18:**

- Requested site-scientist and mentor feedback on MPL data.

**8/21:**

- Minor leak in one of the air compressor valves. There was no spare to replace the valve; system continued to work in spite of the minor leak.
- Flynn said the data looks good.

***E. Review HRPT System Port Moresby (Helsel):***

**8/7:**

- System had a problem locking onto the satellite signal; forwarded the error messages to Larry Jones. Larry then routed the error messages as necessary.
- The system has not collected data since 12/26/97. (The orbital element file was not correct and we located the error message.)
- Located the system documents, manuals, blank tapes in Ken Zorika's office .
- All the current phone lines are taken by the new airport; a brand new line takes awhile to install. (Phone line might be installed by 2000.)
- Printer and cable are in Ken Zorika's office.
- Wrote up a procedure to change the orbital elements for Ken Zorika who has a paper and electronic copy. Also passed on to Larry Jones.
- We were unable to perform the following:
  - Observe HRPT operations and identify operators.
  - Review other computer systems for later action.
  - Investigate e-mail provider in POM for phone connection to ARCS-1 site.
  - Review tape removal procedure and clarify the tape mailing process, responsibility.

**8/8:**

- Implemented the fix recommended by SeaScape, but Ken Zorika called the Habourside Hotel later and reported the system was not collecting any data.

**8/10:**

- Began Moyap and Kevin's training.

**8/19:**

- Moyap placed some TereScan data on tape and delivered it to us to be placed on the dfm.arm.gov ftp site.

**8/22:**

- Tape arrived; will give to TWPPPO to ship to TereScan personnel.

## ***F. Data Management Plan/Boxes (ADaM, BBSS, WSI): (Malone)***

**8/16:**

- Completed.

## ***G. SDL Computer Replacement: (Malone)***

**8/12:**

- Installed the new SDL computer; it had incorrect users so e-mailed B. Perkins to help resolve the problem.

**8/14:**

- Found a few more problems and B. Perkins helped solve them.

**8/15:**

- Fixed one problem and found Another; e-mailed B. Perkins for help. (No SDL's sent since 8/12/98 due to this task.)

**8/17:**

- SDL Computer on-line.

**8/20:**

- SDL messages have the new file names (due to ARCS2 SDL implementation).
- Modified the ADaM code to look for the new file names.

**8/21:**

- SDL reports reached ADaM in /files0/ADaM/data\_hold/raw/oms/ingested.

## ***H. E-Van AC Unit Installation: (Helsel)***

**8/10:**

- Completed.

## ***I. ISS Troubleshooting: (Malone)***

**8/20:**

- Helped Johnston with RASS repairs (1 day); completed.
- Trained by Johnston on ISS system.

## ***J. Solar Tracker Action: (Helsel)***

**8/12:**

- New tracker installed; worked on configuration for the tracker.

**8/14:**

- Decided the tracker shipped from AIS is faulty; installed spare ARCS1 tracker today.
- Installed the AIS's tracker seals and flanges on the spare tracker; it is working.

**8/15:**

- Worked on tracker but had time questions.

**8/16:**

- Fixed the time on the tracker.

**8/19:**

- Shipped more data to the dmf.arm.gov site.

**8/22:**

- Replaced tracker with ARCS-3 tracker.
- Shipped back operating and disassembled spare tracker for seal repair.

### ***K. Datalogger Action: (Scott)***

**8/17:**

- Started modification of five dataloggers to have RS422 on outside.

**8/18:**

- Worked on loggers and started modifying boxes for placement outside near loggers.

**8/20:**

- SMET logger completed, but not reconnected today due to rain. (GNDRAD logger is being modified today. Both loggers are off-line. )

**8/21:**

- Shipped spare SMET Logger for repair (Barometer).

### ***L. BBSS Firmware Upgrade: (Malone)***

**8/9:**

- Installed the new firmware.
- Reprogrammed DigiCORA: believe the old configuration was kept intact.

**8/10:**

- Began test sondings.

**8/11:**

- Kept old configuration; sent configuration files and sonding to Barry Lesht.
- Began relaying sondings to B. Lesht.

**8/12:**

- Changed the WMO region code to 5 as per B. Lesht's request.

**8/22:**

- P. Johnston created a program to give G. Stoesel the wind shears he desired.
- P. Johnston needed the processed data on ADaM moved to a specific directory for processing; the details were relayed to A. Koontz for action.



- The wind shear data was suppose to occur on the DigiCora printouts, but we could never find it.
- Installed new firmware.
- Reprogrammed digacora.
- Ran test sondings.

**8/23:**

- Backed up and deleted a year's worth of archived data on the BBSS Computer; sent the backup to PNNL.

***M. Install Replacement Computer in E-Van for Observers: (Malone)***

**8/12:**

- Began work; cleaned up some data on the computer before training the observers on the system.

**8/22-23:**

- Completed installing computer using the new fax machine as the printer.
- Moved the old PC and printer to the ISS van but the PC did not boot up.

***N. Repair E-Van Lead Lag Controller: (Helsel)***

**8/10:**

- Repair completed.

***O. IRT Shutter Repair: (Helsel)***

**8/9:**

- SKYRAD IRT heating properly. (During a previous remote fix by phone we assumed the green wire was cut by the observers, but the wire was still intact, therefore once the wire was cut ,the IRT began heating properly.)

**8/22:**

- Completed the check of shutter sensor heater, and mechanism was working properly.

***P. Ceilometer PC Changeout (Windows 95): (Malone)***

**8/10:**

- Completed PC changeout (ADaM is collecting data).

***Q. Changeout Van Thermostats to Manual: (Helsel)***

**8/15:**

- Completed thermostat changeout in both D-and I-Vans.

### ***R. Replace Logger Box Batteries: (Helsel)***

**8/18:**

- Started charging batteries.

**8/21:**

- SKYRAD is charging, and the rest are completed.

### ***S. Train Observers on New Instruments, Rounds: (Malone)***

**8/18:**

- Started training observers; need to modify the Daily Rounds for the WSI.

**8/19:**

- Continued training observers.

**8/20:**

- Continued training observers.

**8/21:**

- Trained observers on rebooting ADaM and WSI.

### ***T. Change MWR Heater:***

**8/23:**

- Removed the existing fan housing and activated the heater by touching the sensor circuit. Heater light did come ON, and then I felt the heater element and did not detect any heat. Performed same test with spare housing and received the same results; so deduced that either both heater elements are faulty or internal MWR error. So left original housing mounted on the MWR. Spare is still in Manus.

### ***U. ARCS-1 Site Audit-Out: (Scott)***

**8/22:**

- Completed quick audit out.

### ***V. Ship Equipment Back to AIS***

The following was returned to AIS:

- 1 each SMET Datalogger Spare
- 1 each Clary UPS Module
- 1 each Survey Kit
- 2 each Brusag Tracker  
P/N: INTRA II  
SN: INTRA 13  
SN: INTRA 15
- 1 each Power Distribution Box for Brusag
- 1 each Brusag Tracker Hardware

- 1 each BBSS EPROMS and Manual
- 3 each Walkie-Talkie  
SN: 90626313  
SN: 90626314  
SN: 90626386
- 1 each UCAR Class Balloon Sounding System Manuals (Zirzow)
- 1 each Okidata Printer
- 1 each WSI Desiccant Can
- 1 each Spectra Physics Laser Diode (Mendoza) (w/fiber optic cable and hand-held unit )  
Model MPL 1003; SN: 003
- 60 each Data Tapes 40mm
- 1 each IBM Laptop ThinkPad  
SN: 97-033PR  
Prop #: WD22310
- 1 each ADaM Tape Drive
- 1 each Label Writer (bad unit)  
PN: 60420  
SN: SE942610015A
- 1 each Apple PowerBook SDL w/Ethernet connector  
Prop # LANL 934329
- 1 each Synergetics (MACS)  
Model: 3489A  
SN: 4794A1248

**5.0 NEXT RESET VISIT:**

*The following items should be considered for inclusion in the task planning for the next RESET visit:*

- NA

**6.0 LESSONS LEARNED:**

*The following observations were made by the RESET members that should be considered for future TWP installations and operations:*

- NA

**7.0 ATTACHMENTS:**

- Audit-In/Out Form
- RESET 4 Tasking Details

### Attachment 1 – Audit-In/Out Form

LOCATION	SYSTEM	P/N	S/N	CONFIG.	CONFIG.	OTHER
SMET	TRH	HMP35A	693979			
	WND1	05106/08234	N/A			(SN: 18426/44680)
	WND2	05106/08234	N/A			(SN: 18424/44687)
	ORG	ORG-115-DA	03327-C7			
	DAQM	ZENO-3200	24	V951025		
GNDRAD	NET	REBS Q*7.1	N/A			(SN: Q94204)
	PSP	PSP	2991833			
	PIR	PIR	3019139			
	IRT	KT19.85	N/A			(SN: KT19.85nr865)
	DAQG	ZENO-3200	37	V980429		
SKYRAD	PSPG	PSP	30084F3			
	PIRG	PIR	29916F3			
	UVB	501A V3	N/A			(SN: 1899)
	MFRSR	MFR7-Head	N/A			(SN: 226)
	IRT	KT19.85	N/A			(SN: KT19.85nr866)
	TRK	INTRA II	16			REPLACEMENT
	NIP	NIP	31347E6			
	PSPD	PSP	29915F3			
	PIRD	PIR	30056F3			
	DAQS	ZENO-3200	39	V980429		
STAND ALONE	CEIL	CT25K	P0110009			
	MWR	WVR-1100	N/A			(SN: 016)
	AERI	not installed				
	WSI	EHT02	MPL000102			
IVAN	MPL	MPL1001	003a			
	MMCR	not installed				
	WSI	WSI-E/06-B	WSI-E/06-B-3			INSTALLED
EVAN	BBSS	97-MW15G	S17401			WD24977
SAFETY	FIRST AID					KITS MISSING
OTHER						

values in brackets ( ) are from previous audit or OMS

## Attachment 2 – Tasking Details

### RESET-4

#### Team:

Fred Helsel - lead

Peggy Malone - Daily reporting

Doug Scott - Audit in/out

#### Tasks:

##### 1. UPS

Helsel

- Battery changeout in I-Van and D-Van
- Fan replacement in I-Van and D-Van
- Electronics module changeout in I-Van

##### 2. ADaM

Malone

- Replace Tape drives
- Sync up ADaM/EVE
- Back up ADaM

##### 3. WSI Installation

Scott

##### 4. MPL repair

Scott

- Shutter
- Air compressor
- Lidar replacement
- Hand held controller replacement

##### 5. Review HRPT Port Moresby (Helsel)

Helsel

- Meet with Moyap, Elijah, Kevin and Ken
- Review the HRPT system status.
- Locate the system documents, manuals, blank tapes.
- Review tape removal procedure and clarify the tape mailing process, responsibility.
- Hook up system to new phone line(if available).
- Verify printer is working.
- Observe HRPT operations and identify operators.
- Review other computer systems for later action.
- Investigate E-Mail provider in POM for phone connection to ARCS-1 site.

##### 6. Data Management Plan/boxes(ADaM, BBSS, WSI)

Malone

##### 7. SDL computer replacement

Malone

##### 8. E-Van AC Unit installation

Helsel

<b>9. ISS Troubleshooting</b>	Malone
<ul style="list-style-type: none"> <li>• Help Johnston with RASS repairs(1 day)</li> <li>• Be trained by Johnston on ISS system</li> </ul>	
<b>10. Solar tracker action</b>	Helsel
<ul style="list-style-type: none"> <li>• Replace tracker with ARCS-3 tracker</li> <li>• Ship back operating &amp; disassembled spare tracker for seal repair.</li> </ul>	
<b>11. Data Logger action:</b>	Scott
<ul style="list-style-type: none"> <li>• Modify 5 data loggers to have RS422 on outside.</li> <li>• Ship back spare SMET Logger for repair (Barometer)</li> </ul>	
<b>12. BBSS firmware upgrade</b>	Malone
<ul style="list-style-type: none"> <li>• Install new firmware</li> <li>• Reprogram digacora</li> <li>• Run test sondings</li> </ul>	
<b>13. Install replacement computer in E-Van for Observers</b>	Malone
<b>14. Repair E-Van lead lag controller</b>	Helsel
<b>15. IRT shutter repair</b>	Helsel
<ul style="list-style-type: none"> <li>• Check if shutter sensor, heater and mechanism is working properly</li> </ul>	
<b>16. Ceilometer PC changeout(Windows 95)</b>	Malone
<b>17. Changeout Van thermostats to manual</b>	Helsel
<b>18. Replace Logger box batteries</b>	Helsel
<b>19. MWR software switch (Automatic LOS to TIP)</b>	Koontz
<b>20. Train Observers on new instruments, rounds</b>	Malone
<b>21. Install propeller on spare anemometer</b>	Scott