**ARM Nauru Research Station
RESET Visit 17N Report**

Visit Duration: 04 November to 22 November 2002

Denig District, Republic of Nauru

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A. Introduction

The main goals of the TWP Operations RESET17-N Visit (routine) to ARCS-2 at Nauru were the following: 1) New Data System installation 2) New VSAT satellite dish and system installation.

This Report is organized according to the planned tasks or work units performed during the RESET Visit. Within these work units the activities accomplished are arranged chronologically. Most of the information was out together by the RESET-17N members based on the actual visit, daily reports.

B. TWP Operations Management and RESET Visits

Once an ARCS Site is established, TWP Operations maintains the site and performs data reporting. TWP Operations also coordinated equipment retrofits at the established sites; accomplished by local NWS site personnel, routine RESET visits, and non-routine RESET visits.

Routine RESET Visits
Routine 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.

Non-Routine RESET Visits
Non-routine visits are intended for technical non-routine tasks such as emergency repairs, retrofits, and/or the addition of new instruments.

The work on the RESET visit is performed by the RESET team, but often in close coordination with the local on-site Observers. The team holds a daily, morning tasking meeting at the site using the proposed RESET visit, tasking schedule. After each day's work, the team meets to summarize work activities and an assigned team member writes a "Daily Report" and e-mails the report to TWP personnel in the U.S. Because of time-zone differences, necessary calls to instrument mentors in the U.S. are done in the morning.

Reset Members

- Richard Eagan (ANL)
- Jason Ortega (Hughes Global)
- Rex Pearson (BOM)
- Ronald Reed (SGP)
- Terry Stiles (BOM)
- Guy Wilcox (PNNL)

C. Tasks Performed

1) Install Satellite Antenna
04Nov
- Physical installation of dish completed, pointed in approx position, feed assy to be added tomorrow

05Nov
- LNB and HPA installed, dish panning completed, good s/n for link, testing with Intelsat to commence tonight

07Nov
- Clean up of dish installation and placement of final locking bar on dish.

2) Commission satellite system
06Nov
- Commenced bert testing of link. Initial indications are showing nill errors over a 12-hour period with 4 framing errors. Will continue until tomorrow morning then try to go on line a receive traffic

07Nov
- Satellite link performing to specification. Performed network tests and confirmed ability to ping sites in the US and Australia from the console port of the router. Was unable to ping from the Ethernet port of the router – this is a router Config issue and does not affect the satellite installation.

11Nov
- Satellite link failed – checked signal from Manus, this was ok-advised Brewster. They replaced equipment in US – link back to normal

13Nov
- Sat link down again. Brewster had to clear logs and restart modulator

14Nov
- Sat link down again. Brewster had to clear logs and restart modulator Contacted Hughes re the continuing problem – they will advise back.

15Nov
- Discussion between Hughes/Brewster and site re problems with link at 7.30pm local time. Hughes suspect there may be a problem with the lnb (low noise block converter) on the antenna. Discussing progress from here including trying to get replacement lnb to site.

19Nov
- Continue to trouble shoot problems with system

20Nov
- System down on arrival at site. Liase with Hughes re problem. Found "F" style connector on Nauru and made a temp lead to replace multiple connectors on the LNB assembly. Also swapped IDU back to original unit. Satellite link bought back up and has been stable for the later part of the day. Fault finding continuing.

21Nov
- Additional configuration changes to sat modem have removed alarms.

3) Repair D Van AC power system

04Nov

- Traced power fault to faulty relay – Magnacraft 12 VDC type. Have ordered a replacement from Australia – will replace when data system is taken off line

12Nov

- Relay replaced - D van power system operating normally.

4) Repair MMCR

05Nov

- OS2 computer appears faulty. Phoned Widener and advised of situation. Kevin is attempting to get replacement to Nauru before we leave, as MMCR is now not collecting data.
- OS2 computer installed in MMCR and functioning normally. DMS computer fails to boot. Will call Kevin tomorrow morning.
- Downloading Solaris software to try to setup MMCR DMS computer
- Continued downloading Solaris software, disk 2 completed, disk 3 commenced.
- Was able to get the system to boot. Determined that problem appears to be related to network traffic. When the system receives traffic over the network, it hangs. Continuing to diagnose problems with help of Matt and Kevin.

5)   Repair Cimel

04Nov

- Cimel 12 volt battery reading 12.9 volts. No display on instrument.
  Checked internal 5 volt battery - it is 3.6 volts. Need mentor to advise.

05Nov

- Checked battery/solar panel system. Replaced RJ12 connector and monitoring battery voltage. Overcast so little solar charge today.

06Nov

- Removed 5-volt battery pack and Cimel started to function – display now working, checked park and gosun functions worked. Reset time and lat/long.
- Tried to get battery pack to take a charge without success. Applied a high current to the battery to reform it and is now taking a charge but may not be reliable – will need to be replaced.

07Nov

- Cimel is now functioning with 5-volt battery in place and holding charge. Realigned Cimel az & el positions and need Scott Smith to confirm data.

10Nov

- Installed tagging labels on Cimel

20Nov

- Measured Cimel parameters as requested and forwarded to D. Reass

6)   ~~Install MPL – if arrives in time~~

7)   Install TSI – if arrives in time

07Nov

- TSI arrived. Installed temporarily to confirm unit was functioning. Initial serial communications failed, cables in computer needed to be reseated after shipment. Data is

being received in the I van. Need to call C. Long tomorrow morning (Nauru) to confirm password format. Also there was a computer board, Ethernet card and memory modules packed with the TSI. We need to be advised what to do with them.

08Nov
- Corrected passwords to right format. Aligned TSI and monitored shading of unit during the day.

09Nov
- Continued "tuning" TSI settings

12Nov
- TSI IP changed to match new data system \

13Nov
- Ethernet to fiber converter failed – replaced unit and TSI functioning normally again

8)   Replace data system

11Nov
- Inventory data system. Data collection shutdown 2045z 10Nov02
- Backup Artecon NFS to laptop
- Remove Artecon and prepare for shipping back to US
- Begin installation on data system equipment
- Install NFS and Collector hardware into data system rack
- Installed VPN link to VPN server

12Nov
- NFS system now running
- Collector system now running but no collections enabled
- E Van laptops and IOP network completed and tested. Observer laptop is now on the Internet and able to receive ARCS2 e-mail. (But not send due to relay blocking by ISP)
- Sat modem placed in rack and cabled.
- Data system network completed
- Zenocom modified as per BCR474 – completed

13Nov
- Jump-started DS2 – used spare 18Gb drive from Nauru due faulty drive. There is one 9Gb and 18Gb in system. Replacement drives being sent from SGP.
- Enabled all working instrument collections. (MMCR & MPL not functioning, AERI yet to be done)
- Checked functionality of DSView page
- Installed router filters on Vsat serial link.
- Network equipment configured.

14Nov
- R1 installed and operating. Latest Netscape downloaded and installed
- APC power switch configured.
- Setup of term server.
- Setup of console server commenced

15Nov
- Continued setup of console server
- APC data UPS configured and setup on the network

16Nov
- Cleaned up rack wiring;
- Finished programming APC switches
- Continued to monitor VSAT performance

17Nov
- I van APC power switches configured.
- R1 setup for mail relay to allow observers to send mail from site. NOTE their e-mail address remains arcs2@cenpac.net.nr.
- Began configuring console server to accept sat phone modem dial in
- Continued to monitor VSAT performance

20Nov
- Setup of second VPN circuit to DMF to provide backup circuit should current VPN server fail

21Nov
- Installed new switch in AERI van.
- Commenced work on setting up VoIP circuit.
- Setup of spare router commenced.

9)   Install MWR 4.13 software
08Nov
- Installed MWR ver 4.13 software at 2300 on 7th Nov. System rebooted normally

09Nov
- MWR data not being ingested. Changed software back to previous version and ingest functioning again. Will try again when new SDS installed.

13Nov
- MWR ver 4.13 software at 2215 on 12Nov02. Collections functioning normally.

10) Program satellite fax
06Nov
- Programmed time/date function of sat fax and programmed in speed dial numbers to assist observers

11) AERI
- AERI Mads computer functioning after power supply replacement
- AERI system computer failed during ip network setup. Attempting to restart.
- Eagan has contacted mentors re this

15Nov

15th Nov – still require advice on AERI problems

16Nov

16th Nov – able to get the OS2 computer to run OS2 operating system by loading a backup system. Initial attempts at replacing the config.sys file had no effect.
The GUI does not show the AERI components – looking for the startup files.

17Nov
- APC UPS's for OS2 computer and hatch need new web/SNMP cards, current cards unusable. Ship cards to SGP so Ron can program before leaving the US.

- Need replacement hard drive setup for replacement of existing unit. This needs to be in Nauru or Darwin prior to return trip for sat system.

12) SAM setup
SAM setup for new SDS
- Removed SAM components power alarms

13) Install AWS
15Nov
- Hole dug for screen stand. AWS tower has arrived in Nauru and awaiting the containers to be off loaded from barge.
- Earth cable run from existing met tower to AWS tower.

16Nov
- 16th Nov – Tower base and screen obtained from shipping container, mast assembly still in container – hope to obtain tomorrow.
- Base assembly in place on concrete pad and leveled. AWS electronics placed inside.

19Nov
- Tower assembly completed and electronics wiring commenced.

20Nov
- AWS system completed and calibrated. Advised observers.
  Checking satellite dialup circuit to BOM

21Nov
- Confirmed AWS data being received in Darwin – log files for last night confirmed successful transmissions all night.
- Have advised observers system is commissioned.