

ARM Manus Research Station

Site Visit 0711N Report

Visit Duration: 23 November to 7 December, 2007

Nauru Island, Republic of Nauru

# SV-0711N-CAL

## Final Report

<b>Site:</b> Nauru	<b>Dates on Site:</b> 23 November - 7 December 2007
<b>Team Members:</b> John Glowacki Mike Ryczek Paul Smith (30Nov - 7Dec)	<b>Required Items &amp; Other Actions:</b> <ul style="list-style-type: none"> <li>• USB cable for MPL computer and polarization box - JG to purchase and hand-carry</li> <li>• Satellite routers (in transit)</li> <li>• MS Office 2003 software - BOM to purchase and hand-carry</li> <li>• Anemometer cable to be built and hand-carried by MR</li> <li>• MPL computer extra RAM - JG to purchase and hand-carry</li> <li>• MPL pump diode - LJ to check w/ mentor</li> <li>• LICOR laptop battery - JG to purchase and hand-carry</li> <li>• LICOR building lockbox - JG to purchase and hand-carry</li> </ul>
<b>Task Summary:</b>	<p><b>Safety:</b>  <u>Major Hazards:</u> Caustic chemicals (KOH), Explosive gas (H2), AC electricity  <u>Hazard Controls:</u> BOM Electrolyser Handbook, BM Electrolyser Operations/Maintenance Training, ASNZS 4836/2001-Safe Working on LV Electrical Installations, 2-man rule</p> <p style="color: red;">When replacing items (e.g., desiccant, filters, etc.), record and report the quantity of spares left on site.</p>

### SITE TASKS

High priority / usually non-routine

Low priority / usually routine

Completed

Priority	System	Date Completed (dd/Month)	Service Time (hours)	Tasks <small>For each priority item insert new line (row) for each date/time entry</small>
1	COMM			Install new satellite routers/modems
		28-Nov-07	25.0	<b>Completed 00:25 28Nov07.</b> Friday-23Nov First new modem configured. Tuesday 09:00 Down loaded config file for modem. System powered down and antenna, rx and tx modules changed. Antenna alignment done with ISOC help. First modem configurations started. Wednesday - modems configured and work carried out with Dick Egan to configure routers. Vsat system back on line at 00:25 28Nov07 Modem in use is Ser # 40490. Configed and checked spare is ser# 13153
2	COMM			Inspect VSAT antenna bolts and report on necessary replacements
		27-Nov-07 04 Dec-07	2.5	Fri 23Nov - Observers washed down antenna for inspection. <b>Completed</b> - the bolts replacement is not as critical as Manus antenna but still needs change out in nearest future, the grease has been applied to protect bolts. The list of spare parts has been sent in separate e-mail
3	H2GEN			Troubleshoot electrolyser
		6-Dec-07	3.5	<b>Completed</b> Compressor rings worn. Compressor motor not starting. Unit is producing good gas. Oxygen test unit has a intermittent select switch.
4	PSP (SKY)			Replace w/calibrated rad (and spare) and notify mentor
		26-Nov-07	1.0	<b>Completed</b> 26Nov07 Unpacked cal instruments ready for change out.
5	PIR #1 (SKY)			Replace w/calibrated rad (and spare) and notify mentor
				<b>No replacement sent</b>
6	PIR #2 (SKY)			Replace w/calibrated rad (and spare) and notify mentor
				<b>No replacement sent</b>
7	B/W			Replace w/calibrated rad (and spare) and notify mentor

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Completed

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		26-Nov-07	1.0	<b>Completed</b> 02:20 26Nov07 UTC
8	NIP			Replace w/calibrated rad (and spare) and notify mentor
		26-Nov-07	1.0	<b>Completed</b> 22:20 26Nov07
9	IRT (SKY)			Comparison with portable black body (Vaisala)
		25-Nov-07	1.0	<b>Completed</b> 25Nov07
10	PSP (GND)			Replace w/calibrated rad (and spare) and notify mentor
		25-Nov-07	1.0	<b>Completed</b> 22:00 25Nov07UTC
11	PIR (GND)			Replace w/calibrated rad (and spare) and notify mentor
				<b>No replacement sent</b>
12	IRT (GND)			Replace w/calibrated rad (and spare) and notify mentor
				<b>No replacement sent</b>
13	TRH (HMP45D)			1) Check installed sensor with Std T/RH probe 2) Replace sensor (and spare) w/ newly calibrated sensors 3) Check newly installed sensor again with Std T/RH probe 4) Send results to MR 5) Send replaced sensor (and spare) to vendor (Vaisala) for cal 6) Send Std T/RH probe to SGP for calibration
		23-Nov-07	1.0	<b>Completed</b> Probe changed out for calibrated unit 23:40 23 Nov07. Comparison data done and entered into a spreadsheet.
14	WND			1) Replace anemometers (and spare) with newly calibrated anemometers from Darwin 2) Send replaced anemometers to Darwin for calibration
		26-Nov-07	4.0	<b>Completed</b> 26Nov07
15	WND			Install new cables and lightning protection
		28-Nov-07	8.0	<b>Completed</b> 26Nov07
16	MPL			Replace serial cables between computer and polarization box and laser controller w/ USB cables
		1-Dec-07	1.0	<b>Completed On going</b> USB serial cable between polarizer unit and computer fitted. Problem restarting the MPL program. Problem referred to Tim Martin. 25Nov07 Worked with Tim Martin to resolve start up problems with MPL startup. <b>Completed</b> - Tim Martin sorted out the software problem
17	MPL			Install 1 GB RAM to PC (per BCR 01397) - JG to purchase and hand-carry
				<b>Wrong memory module purchaes in Darwin.</b>
18	BAR			Compare with Std barometer
		25-Nov-07	1.5	<b>Completed</b> 25Nov07
19	ORG			Compare w/ ORG calibrator
		25-Nov-07	2.0	<b>Completed</b> 25Nov07
20	AWS TBRG (BOM)			BOM AWS TBRG calibrated by BOM
		5-Dec-07	2.0	<b>Completed</b>
21	TSI			Shadow band alignment at solar noon aligned N-S w/shadow of camera arm. Check camera arm orientation to be plum w/lens centered over mirror and image focus.

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		1-Dec-07	1.0	<b>Completed</b> - Alignment checked at solar noon, camera arm orientation checked, image focus checked
22	BBSS GCS			1) Replace the temp sensor in installed GCS with freshly calibrated sensor 2) Put removed 1-yr-old temp sensor in Spare GCS 3) Trash oldest temp sensor 4) order new sensor for next year
		3-Dec-07	2.0	<b>Completed</b> - Temp sensor replaced with freshly calibrated one, sensor B474010 (cal date 30Nov06) put in spare GCS, sensor A152006 (cal date 10May05) trashed
23	LICOR			Install new battery in LICOR laptop
				New battery on order from US
24	LICOR			Install lockbox in LICOR building
		29-Nov-07	1.5	<b>Completed</b>
25	LGR			Modify DC power supply to loggers (pending ECR 615)
				Awaiting results of Darwin modifications.
26	MWR			Upgrade/install waterproof 110-V outlet at MWR stand - Apple to order outlets
		25-Nov-07	2.5	<b>Completed</b> 25Nov07
27	GENSET			Oversee Smith perform routine maintenance work
		6-Dec-07	4.0	<b>Completed</b>
28	GENSET			Install phase-loss detector and integrate into GENSET startup
				<b>Cancelled</b>
29	GENSET			Change out transfer switch control board
				<b>Cancelled</b>
30	GENSET			Smith train BOM techs, Franklin and David Cook
		4-Dec-07	5.0	<b>Completed</b>
31	OTHER			Replace Observer PC w/ GX620
		24-Nov-07	3.0	<b>Completed</b> NewGX-620 (serial #85RC881) configured for Observers PC. Checked old Observers PC and found hard disk and video output had failed. Old PC hard disk destroyed. The old PC had a Los Almos tag # 1144280.
32	OTHER			Install MS Office 2003
				<b>Completed in Darwin</b>
33	AERI			Change out desiccant on interferometer
		15-Nov-07	1,5	<b>Completed</b> by Observers
34	AWS			Change out fan in AWS SAT phone antenna
		30-Nov-07	1.0	<b>Completed</b>
35	BBSS			Change out Velcro strap sonde retainer
		3-Dec-07	0.5	<b>Completed</b>
36	OTHER			Inspect cables per Cable Inspection Procedure
		6-Dec-07	3.0	
37	CIMEL		0.1	Inspect belt and change out (if necessary)
		25-Nov-07	0.1	<b>Completed</b> 28Nov07
38	GENSET			1000-hr maintenance
		3-Dec-07	8.0	<b>Completed 1000 Hour Service</b>
39	ES&H			Change out defibrillator battery

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		1-Dec-07	0.5	<b>Completed</b> - battery tested, spare battery install before 08-2013
40	ES&H			Replace Industrial First-Aid Kit
				<b>Completed</b> First aid kit replaced.
41	ES&H			Change out eyewash fluids in U- and H-Vans
		1-Dec-07	1.5	<b>Completed</b>
42	IRT (SKY)			Change out gold mirror
		24-Nov-07	0.2	<b>Completed</b> 24Nov07
43	IRT (GND)			Change out lens
				<b>Nil spares on site.</b>
44	MFRSR			Assess/inspect head and board for possible change-out
		4-Dec-07	0.5	<b>Completed</b> - no need to change head or board, they are in good condition
45	MMCR			Change out antenna heater power supply - note if no spare is on site
		29-Nov-07	1.0	<b>Completed</b> - heater element changed out
46	MMCR			Change out UPS batteries - note if no spare is on site
				no spares on site
47	MMCR			Change out 12VDC fan for Radian Receiver - note if no spare is on site
		29-Nov-07	1.0	<b>Completed</b> - fan replaced
48	MMCR			Change out antenna heater blower - note if no spare is on site
		29-Nov-07	1.5	<b>Completed</b>
49	MPL			Determine operating hours since last Pump Diode change-out
				<b>Not determined for new MPL system</b>
50	MWR			Replace Teflon window and heater fan assembly
		24-Nov-07	2.0	<b>Completed</b> 24Nov07 Four spare windows on site <b>No spare heater assembly</b>
51	SMET			Change out T/RH aspirator fan
		25-Nov-07	0.5	<b>Completed</b> 25Nov07 Four fan assemblies spare.
52	OTHER			Perform routine maintenance as per Maintenance Checklist
		5-Dec-07		<b>Completed</b>
53	OTHER			Check ARM Kiosk
		5-Dec-07	1.5	<b>Completed</b> Unit checked and PC had to be power cycled
	SHIPPING			List items to be shipped following visit
				Old DigiCORA II equipment (antenna, etc.) to SGP
	FUTURE NEEDS			List items needed for future visits (spares, etc.)
				12Volt fans for radiometer ventilators.
				Lens cleaning tissues
				3 x new ventilators to replace badly corroded units.
				Cables ties various sizes
				6 inch Bench vice
				Replacement air compressor general use
				Van power timer relays SSAC type TDM230 (230Vac)
				Replacement compressor - Electrolyser
				2x Cat maintenance free batteries 135-5700
				BBSS GCS temperature sensor

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				2 x DeWalt18volt torchs 4 x Dewalt 18volt batteries
				Car polish
				Cleaning rag