

EVN TOG Meeting 2006

Dwingeloo, Netherlands

Robledo Report

1. Hardware and Software issues.

At DSN Mark5 will be operational in October 06, with at least one year overlap with tape drives to accommodate JPL users, mainly. But during year 05 Robledo has started supporting EVN, Global and SGP projects using Mark5 recorder. It required the installation of latest Mark5 s/w version, FS-9.7.7 (including Station Dependent s/w version 14.2.0) and formatter firmware was updated to version 41:

```
2006.064.02:49:04.24/mk5!/OS_rev1? 0 : "Linux version 2.4.20-8 (bhcompile@porky.devel.redhat.com) (gc" ;
2006.064.02:49:04.24/mk5!/OS_rev2? 0 : " version 3.2.2 20030222 (Red Hat Linux 3.2.2-5)) #1 Thu Mar 13
17:54:28 EST 2003" ;
2006.064.02:49:04.24/mk5!/ISS_rev1? 0 : "BoardType PCI-816VXF2, SerialNum 8270, ApiVersion 5.21,
ApiDateCode Apr 7 2005" ;
2006.064.02:49:04.24/mk5!/ISS_rev2? 0 : "FirmwareVersion 10.84, FirmDateCode Apr 06 2005, MonitorVersion
6.02, XbarVersion 3.18, AtaVersion 1.05, UAtaVersion 0.00, DriverVersion 623" ;
2006.064.02:59:03.17/form/m,16,1:2,off,,3,pass,41,0x44,okay
```

First Robledo Mark5 1 Gbps recording failed due to problems with Mark 5 power supplies and interferences from video cables. Problems already solved.

First release of JPL software correlator will be October 06. It contains 19 processing nodes each with 4 processors on a Gigabit LAN. Each node will have at least 650 GB total internal disks for work area/storage, plus 400 GB external storage. It will support JPL projects as Catalog Maintenance & Enhancement (CatM&E) and Clock Synchronizations (TEMPO).

The Equipment Activity Controller (EAC) was upgraded from a Sun UltraSPARC 1 to a Sun Blade 2000 workstation. First transition phase to turn the EAC into a MON-2 compliant subsystem completed by September 05 to support DSS-65 antenna return to operations.

DSS-63 (70m) scheduled downtime from 22 May – 01 Oct 06. During the downtime period the Antenna Controller will be replaced, the Hydrostatic Bearing Assembly and the Master Equatorial will be upgraded. These upgrades will solve recent pointing problems. DSS-63 will not be able to participate on EVN session#2, 06.

2. Calibration issues at DSN.

a. Sub-reflector configuration. Subreflector has been configured in autofocus mode for all GLOBAL and EVN observations.

b. Calibration signal. Current EAC software is not able to automatically control the calibration signal (noise diodes) during the observations. In order to provide system temperature monitoring, the calibration signal was configured and controlled automatically by a connection block running at the Network Monitor and Control console. This workaround will be used until transition into a MON2 complaint subsystem is completed by next summer.

c. Pointing and Efficiency. In general during year 05 and beginning of year 06 we have experienced DSS-63 pointing problems due to Master Equatorial instabilities. Such instabilities prevented us to generate improved pointing models. Problem will be solve during DSS-63 scheduled downtime; new pointing models will be derived and gain curves and DPFU values will be measured for all bands.

No problems experienced with ANTABFS application since we are using FS-9.7.7

d. Timing System. A new DSN Timing System will be installed at Robledo during next months. The Timing System consists of three major assemblies: Master Clock Assembly (MCA), Distribution Assembly (DA) and new Time Code Translators (TCT) interconnected by fiber-optic. MarkIV DAT TCT will be replaced shortly. Its set-ability will improve from 100 to 10 ns.

e. GPS data. Although a GPS receiver and a frequency counter were installed in the MarkIV DAT we only provide gps-fmout values at start and end of observations. A station dependent software problem (vlbisrv server communication problem with frequency counter) prevents us to provide gps-fmout data during experiments.

3. Future Plans.

Q-band (7 mm) receiver will be installed at DSS-54 34m Beam Wave Guided antenna at beginning of 2008, simultaneously with the Ka-band upgrade.

Robledo e-VLBI plans: *last mile* Gbps coverage problem from Robledo to the Spanish Research and Educational Network (RedIRIS) not yet solved. Fiber already installed, but no funds available to hire broadband lines to Spanish PTT (Telefonica).

4. Robledo support to EVN observations.

For EVN session#3 05 Robledo participated in two observations:

- a. N05L5 (L-LCP): First MDSCC ftp fringe test. Pointing problems (DSS-63 master equatorial RED).
- b. EP051 (L-LCP): 1 Gbps recording failure. Pointing problems (DSS-63 master equatorial RED).

For EVN session#1 06 Robledo participated in two observations:

- c. ED026 (X-Dual): First successful 1 Gbps Mark 5 recording. Pointing problems due to DSS-63 master equatorial instabilities.
- d. RO001A (L-LCP): Delays sending modules caused by shipper, under investigation. Pointing problems due to DSS-63 master equatorial instabilities.

Best regards,

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