Robledo Station Report

EVN TOG Meeting 2007
Yebes, Spain

1. Hardware and Software issues.

During current year DSS-63 was stopped for maintenance (from June 4th until September 17th) to continue with phase #2 of Hydrostatic Bearing Assembly upgrade and other major maintenance works, as azimuth path regrouting and Depot Level Maintenance activities. A load cell measuring system has been installed to study the performance of the new elevation bearings. During this downtime period, Robledo has not been able to participate in 07 EVN/Global session #2.

In order to support 07 EVN/Global session #3, we recently installed Field System version FS-9.9.0 (including station dependent s/w version 14.2.0). This FS version will become the operational one at the DSN shortly. Our current Mark5 s/w version is the following:

```
DTS_id? 0 : Mark5A : 2005y147d17h : 1 : Mark560a : 1 : 1 : 2.7x : 0xb8 : 0x19 ;
mk5/!OS_rev1? 0 : "Linux version 2.4.20-8 (bhcompile@porky.devel.redhat.com) (gc" ;
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" ;
mk5/!SS_rev1? 0 : "BoardType PCI-816VXF2, SerialNum 8270, ApiVersion 5.21, ApiDateCode Apr  7 2005" ;
mk5/!SS_rev2? 0 : "FirmwareVersion 10.84, FirmDateCode Apr 06 2005, MonitorVersion 6.02, XbarVersion
3.18, AtaVersion 1.05, UAtaVersion 0.00, DriverVersion 623" ;
form/m,16,1:2,off,,3,pass,41,0x44,okay
```

Second transition phase to turn the Equipment Activity Controller (EAC) into a MON-2 compliant subsystem was completed at the end of 2006. Current EAC s/w version supports DSS-63 and DSS-65 (34m, SGP project) antennas.

The new JPL Mark5 software correlator has been already delivered to the off site operational location and is on schedule. The plan is to go into soak in FY08 and continue recording in piggyback mode for a short period of time. Tapes will be finally removed in early 09. It will support JPL Reference Frame Calibration projects as Catalog Maintenance & Enhancement (CatM&E) and Clock Synchronizations (TEMPO). The DSN already supports EVN, Global and SGP projects using the Mark5 recorder.

2. Calibration issues at DSN.

a. Calibration signal. Current EAC software automatically controls the calibration signal (noise diode) during the observations in order to provide system temperature monitoring, at only one frequency band or polarization (in case of dual observations).

b. Pointing and Efficiency. After elevation bearings replacement, subreflector position is being optimized for all bands and pointing models are being improved. New gain curves will be provided shortly.

c. 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 prevents us to provide gps-fmout data during experiments.

3. Future Plans.

There are plans to replace the DSN MarkIV DATs with a modified-type of Wide band VLBI Science Receiver (WVSR) developed at JPL. The WVSR is a digital front-end currently used for VLBI applications for navigation. It will integrate with the Mark 5 recorders using the VSI interface.

There are also plans to install a Q-band (7 mm) receiver at a 34m beam waveguide antenna, probably during 2008.

Robledo e-VLBI plans: *last mile* Gbps coverage problem from Robledo to the Spanish Research and Educational Network (RedIRIS) not yet solved.

4. Robledo support to EVN observations.

For EVN session#1 2007 Robledo could not participate due to a problem with the K-band receiver.

For EVN session#3 2007 Robledo participated in one observation:

EC025B (S/X-RCP): successful 1 Gbps recording; because of a problem with Field System station dependent software, 6% of sources were lost, problem currently under investigation. During this observation high resolution data from the elevation bearings load cells was collected to investigate behavior of loads on the EL bearings and EL drive torques, after EL bearings replacement.

Best regards,

Esther Moll & Cristina Garcia

emoll@mdscc.nasa.gov

cgmiro@mdscc.nasa.gov

Madrid Deep Space Communication Complex -MDSCC-
Robledo Tracking Station
Tel +34-91-867-7130
Fax +34-91-867-7185