

GBT Systems Report on Project Coordination for June 2000
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COMSAT completed photogrammetry of the GBT primary reflector surface on June 6. Preliminary photogrammetry results indicate that only a small percentage (about 1%) of surface actuators need to be adjusted.

The routing of panel gaps is essentially complete. A 7.5 HP motor was installed on the prime focus boom, and electrical work continues near the feed receiver room. Significant effort has been devoted to determine what causes a pinging noise in the azimuth wheels.

The antenna CCU was connected to the GBT monitor and control (M&C) system on June 14. The connection allows the M&C software to monitor readings from the azimuth and elevation encoders. The encoder readings can be used by the laser metrology system for automatic pointing, as opposed to manual pointing, of the lasers for measurements of targets on the GBT structure.

The NRAO azimuth cable wrap was installed in the pintle bearing room. The optical fiber cable that carries IF and computer signals between the telescope and the electronics room was pulled from the base of the telescope to the receiver room on June 26. (The cable was pulled between the base of the telescope and the electronics room in the Jansky lab some time ago.) The cable was routed through the azimuth cable wrap and the servo room before being taken up the alidade and vertical feed arm. Many of the optical fibers will be separated from the cable and terminated in the servo room.

Ed Childers made measurements of the commercial and conditioned AC power in the new Jansky lab. The quality of the power was suspect because recently purchased UPS units were switching on and off. The tests were made on commercial and conditioned power before and after the RFI filters in the electronics room. The dominant structures in the spectra of commercial and conditioned power are the odd harmonics of 60 Hz. For either power source, commercial or conditioned, spectra of AC power are similar before and after the RFI filter, but the amplitudes of the harmonics in the post-filter measurements are about 5 dB higher than the pre-filter measurements. The spectra change with power source. The strongest harmonic in a spectrum of commercial power is the 5th harmonic (300 Hz) of 60 Hz, and is about 37 dB below the 60 Hz peak in a pre-filter spectrum. The strongest harmonic in a spectrum of conditioned power is the 11th harmonic (660 Hz), and is about 28 dB below the peak in a pre-filter spectrum. The 11th harmonic is visible in an oscilloscope trace. It was concluded that the RFI filter and power conditioner operate properly. Tests were also made with UPS units connected to and disconnected from the AC power. The UPS units appeared to have little or no effect upon power quality. Some of the UPS units had problems regardless of the AC power source. Upon the recommendation of the UPS manufacturer, the UPS units are being replaced with more robust units. The quality of the AC power does not appear to affect the operation of other equipment in the electronics room.

COMSAT and NRAO-GB completed the GBT Site Closeout Agreement on June 14. As a result of the agreement, the COMSAT warehouse and BUS walkways will remain after COMSAT leaves the site. In exchange for these items, NRAO agreed to install surface retroreflectors, take a more active role in testing and connecting actuator cables, and forego repairs on the damaged asphalt road.

Major components in the RF section of prime focus receiver 2 were assembled to test the ability of a Model 1020 refrigerator to cool down the receiver dewar. The test results show that the 1020 will be a suitable refrigerator for the receiver.

The road to the GBT is being rerouted around the GBT site. The road will be complete in early July after it is covered with gravel.

The machine shop fabricated the reinforcements for the laser ladder.

The COMSAT board of directors visited the GBT site on June 15. Phil Jewell gave a presentation to the board on the importance of the GBT to radio astronomy.