

### Space VLBI Co-Observing Developments at the DSN

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20% of the DSN's 70m antenna time is committed to providing co-observing support to VSOP and Radioastron Space VLBI missions for the period beginning September of 1996 to 2000. In order to provide reliable support, the DSN is upgrading its radio astronomy equipment at L- and K-bands (1.65 and 22.2 GHz), its VLBI recorders and its computers and software for co-observing operations. This upgrade also will benefit VLBI radio astronomy observations at the DSN which are not connected with Space VLBI.

The newly developed radio astronomy capabilities to be implemented at the DSN under this plan are 1) the capability to perform simultaneous dual polarization (LCP and RCP) observations at K and L-bands (currently only one polarization), 2) new HEMT LNAs at K-band instead of maser LNAs, 3) MkIV recording capability, 4) the Equipment Activity Controller (EAC) and the Radio Astronomy Equipment Controller (RAC) to provide remote access to monitor and control co-observing equipment, including antenna, 5) automated calibration procedures, and 6) new automated scheduling (predict) interface for the VLBI DSN operations.

The first phase of this upgrade plan (Goldstone complex prepared to observe with VSOP) must be completed by August 1996. The other two complexes, Canberra and Madrid, will be ready to co-observe a half year later.

The status of the upgrade and parameters of the DSN co-observing system are described.