

A LARGE DECAMETRIC WAVELENGTH ANTENNA ARRAY FOR IPS OBSERVATIONS OF RADIO SOURCES

CH. V. SASTRY

Indian Institute of Astrophysics

and

Raman Research Institute, Bangalore, India

Most observations of interplanetary scintillations of radio sources are made at frequencies around 80 MHz. These observations are limited to regions close to the sun, where the scintillations are maximum at this frequency. It is possible to extend these observations to the weakly scattering regions beyond 1 A.U. by making measurements at low frequencies. We have built a low frequency antenna system at Gauribidanur, India (Lat. $13^{\circ} 36'$ N and Long. 5 hrs. 10 min.), which can be used for this purpose. Although this system will not be dedicated to IPS, we intend to use it exclusively for solar wind observations during periods of interest.

The antenna system consists of two broadband (25 to 35 MHz) arrays arranged in the form of the letter 'T'. One of the arrays is oriented in the EW direction with dimensions 1.6 km/25 M and the other one is along the NS direction with dimensions of 0.5 km/40 M. By correlating the outputs of the two arrays a beam of 30 arc minutes is produced at 30 MHz. The physical area exceeds 50,000 sq. metres. It will be possible to observe above 50 sources around the sun for solar wind mapping. A detailed description of the antenna and receiver system and the programs undertaken will be published elsewhere.

DISCUSSION

Dryer: Do you have any plans for cooperative studies with radio observations at other longitudes (such as those at Clark Lake, Nancy, etc.), as well as at the new and complementary IPS station at Ahmedabad? Such studies would be extremely useful especially during SMY/STIP periods when spacecraft tracking would be especially requested.

Sastry: Yes. We are planning to have cooperative studies with Ahmedabad IPS array and Cocoa Cross Operations at Clark Lake.