Proceedings of the Research Institute of Atmospherics,
Nagoya University, vol. 28(1981) –Activity Report–

Section 3. Radio Astronomy

Final adjustment of the phase stability is made for the N-S 16-element array of the λ 8-CM radioheliograph. It is made clear that over-all phase error of the N-S 16-element array is less than 5° rms (Itoh and Torii, 1981), which fulfills the design goal (Ishiguro et al., 1979). Activation of the improved E-W 34-element array is scheduled to be done within a couple of months. During the course of the above studies a real time phase error detector is developed, which compares a fringe pattern of an arbitrary 2-element array of fundamental spacing with the internally generated fringe pattern of the true Sun, and phase and amplitude differences are displayed on the CRT of a synchroscope and on chart of a recorder. This system will be used complementary with the radioheliograph control system developed by Nishio (1980) to monitor and check the phase of the radioheliograph.

A preliminary experiment has been initiated for 2-element array to develop a correlator back-end system for the improved λ 8-cm radioheliograph.

Improvement is made of output data files from the Full-Automatic Radiopolarimeters and of softwares to process these files. Developments of non-routine softwares to process directly data files in the form of magnetic tapes have much increased the efficiency of data processing in the Full-Automatic Radiometer system. Using these radio data, comparisons are made with those data obtained on space vehicles such as ISEE-3, SMM, MS-T4 and probably 'HINOTORI' (ASTRO-A), which was successfully launched on February 21, 1981. Analysis of an oscillatory burst in radio and X-rays is in progress (Kane, Kai and Enome, 1980).

A preliminary analysis is made for medium sized impulsive bursts to examine their temporal behavior in microwave range by a correlation method. For eleven samples time differences (lag or lead) of 5 to 10 seconds were found referring to 9.4 GHz records (Enome, 1980).

An estimation is made of optical depth of the terrestrial atmos-

phere and correction is attempted to remove its effect in the solar radio data recorded by the 3.75-GHz Full-Automatic Radiopolarimeter (Tozawa, 1981).

K. Shibasaki has extended his stay at Dwingeloo, the Netherlands until August, 1981 for completion of radio data analyses, obtained by WSRT during SMY.

Professor Haruo Tanaka retired in the end of March, 1980 from Nagoya University, where he started his career in radioastronomy in 1949. He developed the 3.75-GHz radiopolarimeter in 1951 and the 4-GHz radio interferometer in 1953, both established fundamentals of precision measurements at Toyokawa Observatory, and thus contributed to the development of Japanese radioastronomy in every aspect.

March 5, 1981

- Shinzo ENOME -

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