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### Section 3. Radio Astronomy

The two-year project to improve the sensitivity and the phase stability of the  $\lambda$  8-cm radioheliograph entered the second year (Ishiguro et al., 1970). Test observations are in progress with the N-S elements to check the performance of phase-locked oscillators, mixers, preamplifiers, 8-bit phase shifters and back-end amplifiers.

Mapping of the Sun is conducted with the old waveguide network system every day around local noon ( $\sim 0300$  U.T.).

Conversion is completed of radiopolarimeter observations at 9.4, 3.75, 2 and 1 GHz from the old equipments to the Full-Automatic System (Torii et al., 1979). From January, 1980 reports of observations are made on the basis of the Full-Automatic Radiopolarimeter records.

Development of a new control system for the improved  $\lambda$  8-cm radioheliograph is promoted making use of programmable micro-processors to manage monitoring and phase calibration of the new widely-distributed radioheliograph system (Nishio, 1980).

Through a statistical analysis of solar maps at  $\lambda$  8 cm in the period of the solar minimum between cycle 20 and cycle 21, we have obtained monthly-averaged quiet Sun from June through December, 1975. These series of quiet Sun show large difference between E-W and N-S brightness distributions. This difference is explained in terms of symmetrical base corona, which may be looked down through coronal holes, with arch belt around the equator (Ishiguro et al., 1980). A preliminary analysis of the array performance in several successive configurations is made for the 10-m $\phi$  5-element super-synthesis telescope, which will be set at Nobeyama (Morita and Ishiguro, 1980).

Ishiguro (1980) has proposed that a linear array, which achieves maximum resolution for a given number of antennas, is advantageous in earth-rotation aperture synthesis by a single linear array. A possibility is suggested of generating optimum arrays.

Masato Ishiguro moved to Tokyo Astronomical Observatory, University of Tokyo, Mitaka on February 1, 1980 to concentrate on the construction of Large Radio Telescope System, particularly on the 10-m $\phi$  5-element super-synthesis telescope.

K. Shibasaki is working at Dwingeloo, the Netherlands, from January, 1980 through January 1981, to join the SMM-associated radio observations of the Sun with the Westerbork Synthesis Radio Telescope.

February 23, 1980

- Shinzo ENOME -

- Haruo TANAKA -

### Publications

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