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Section 3. Radio Astronomy

For these months our efforts have been concentrated on the final adjustment of the radioheliograph for a wavelength of 8 cm. The first goal has been to get satisfactory daily maps of the whole disk of the sun, because the solar minimum period is the best chance to observe large scale features of the lower corona without being disturbed by strong active regions. Though the process of smoothing is applied, the T-shaped array is very sensitive to phase errors when we try to observe the brightness distribution to the fraction of the quiet-sun temperature. An error of several degrees sometimes spoils the map considerably. The maps obtained so far are shown in this volume. The analysis of the various features by comparing with other observational materials is now going on. The next goal is to complete the phase correction system by using a reference antenna at the phase center.

Another radioheliograph for a wavelength of 3 cm needs reparation of transmission lines, which is expected to be performed in 1976. The oldest part of the array has been used for 16 years.

The modernization of total-flux equipments at frequencies of 9.4, 3.75, 2 and 1 GHz has not yet been completed. They are under parallel running for final adjustments. The minimum flux value for 1975 appeared around June 10, which is 75.2 sfu (1AU corrected) at 3.75 GHz. This value is about 2 sfu larger than the former minima in 1954 and 64.

The work as the WDC-C2 for solar radio emission is being continued, and the radio materials for the Quarterly Bulletin on Solar Activity have been prepared regularly.

H. Tanaka will become the chief member of the new project team for constructing big antennas prepared at the Tokyo Astronomical Observatory after January 1976, but his directorship on radio astronomy at Toyokawa will be continued.

December 15, 1975

- Haruo TANAKA -

Publications

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- Tanaka H. and S. Énomé: The Microwave Structure of Coronal Condensations and Its Relation to Proton Flares, Solar Phys., 40, 123 (1975).
- Shibasaki, K., M. Ishiguro, S. Énomé, H. Tanaka, C. Torii, Y. Tsukiji, S. Kobayashi and N. Yoshimi: λ 8 cm Radioheliograms, Proc. Res. Inst. Atmospheric, Nagoya Univ., 23 (1976).