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Section 6. Solar Emissions and Related Phenomena

The three-point observations of interplanetary scintillations (IPS) of radio sources have been continued at Toyokawa, Fujigane, and Sugadaira.

Watanabe, Kakinuma, Kojima and Shibasaki analysed the solar wind disturbances detected by IPS observations of radio sources 3C48, 3C144, 3C147, 3C161 and 3C273 in early August 1972. In this period several major flares took place and produced pronounced disturbances in solar wind. It was found that the high speed of the solar wind observed by Pioneer 9 after the passage of the shock wave on August 5 was mainly due to the corotating stream which originated from the EUV coronal hole following the flare-producing active region. It was also found that the spatial extent of the shock wave on August 9 was at least 50° in the heliocentric latitude and 110° in the heliocentric longitude. This longitudinal extent should have been greater than 160° if the shock structure was symmetrical with respect to the radial direction passing the flare site.

Washimi investigated the nonlinear wave propagations in the magnetosphere. He derived the wave equations and proposed the explanations for the two conspicuous phenomena about one-half of the electron cyclotron frequency: one is the fact that the upper cutoff exists at this frequency and the other is the fact that artificially triggered VLF emissions are most easily detectable near this frequency.

Both works mentioned above were presented to the IAGA second general scientific assembly held at Kyoto in September 1973.

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Publications

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- Watanabe, T., T. Kakinuma, M. Kojima and K. Shibasaki: Solar Wind Structure Estimated from Observations of Interplanetary Scintillation of Radio Sources in August 1972, IAGA Bulletin No. 34 (Program and Abstracts for the Second General Assembly-Kyoto, 1973), 192 (1973).
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