

Development and initial observation of Wideband Dynamic Polarimeter system(WDP)

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Since the discovery of the Jovian DecAMetric radiation (DAM) by Burke and Franklin(1955), it has been thought to be one of the most important planetary phenomena for space plasma physics as well as comparative planetary magnetosphere physics. In Tohoku University, observational study of DAM has been continuously carried out since 1974 to understand the physics of this strong planetary radio burst as well as that of Jovian magnetosphere. As for the continuous observations of DAM, radio meter system and short-baseline interferometer system has been operated successively; and from the analysis of these data, a lot of new aspects of DAM have been found especially concerning to the long term variation. In addition to these continuous observations, Wideband Dynamic Polarimeter system (WDP) has been newly developed and operated continuously for the observations of dynamic spectrum for frequency range from 15MHz to 40MHz since December 4, 2003.

WDP system has been installed in Iitate observatory. The receiving system of WDP consists of three parts; i.e. the front-end, the main receiver and the data acquisition system. The front-end consists of 9 elements crossed log-periodic antennas, polarization divider, high-pass filter, low pass filter and preamplifiers. The main receiver is a double stage super-heterodyne receiver, where the frequency of the first local signal is swept by DDS (Direct Digital Synthesizer) from 85MHz to 110MHz to obtain a spectrum of the RF signal from 15MHz to 40MHz for each 0.5sec for both R and L polarizations. The output signals (455kHz) are then detected by log-amplifier (AD8307), and recorded by the data acquisition system.

Initial observation have been successfully carried out from December 4, 2003. We have observed DAM, type III radio bursts and radiation from lightnings. With in such initial observation results, we have detected an intense non-*Io* C event on January 12, 2004 which shows a unique feature in the dynamic spectrum extending to a higher frequency range up to 34MHz.