Observation of Jupiter's synchrotron radiation at the frequencies of 327MHz

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The Jovian synchrotron radiation (JSR) is a radio wave emitted from the relativistic electrons in the Jovian radiation belt, which has infomation of dynamics of high-energy particles and electromagnetic disturbances in the Jovian inner magnetosphere. The intensity variation of JSR, however, has been little understood in its timescales and origin. We have observed JSR for several months a year since 1994 to reveal characteristics of the flux variations especially at the time scales of days to months (short-term) and years (long-term). The regular observations have been made at a frequency of 327MHz by using 2000m^2 parabolic cylinder anttenas of the Fuji and Kiso sites of Solar Terrestrial Enviroment Laboratory (STE), Nagoya University. The observed JSR flux include apparent variation due to inevitable system gain variation of the STE radio receiving system. In order to compensate the system gain variation, we have evaluated system

gain using a flux reference radio source that was observed quasi-simultaneously with JSR, and made observations of 'actual' galactic back-ground radiation with the high-stable radio receiver system of Tohoku

University. The observations have been made in the night time to avoid the intense solar radio waves for the sky where Jupiter moved after 1999. We have also considered a pointing offset of the STE antennas to radio sources in the derivation of the JSR flux. In the presentation, we will report on outline of this analysis and the results of the JSR observation in 1999.