

What do we know from activities of Jupiter's radio emissions?

Hiroaki Misawa[1]; Fuminori Tsuchiya[2]; Akira Morioka[3]; Hiromasa Nozawa[4]; Satomi Ito[1]

[1] PPARC, Tohoku Univ.; [2] Planet. Plasma Atmos. Res. Cent., Tohoku Univ.; [3] Planet. Plasma and Atmos. Res. Cent., Tohoku Univ.; [4] KNCT

<http://pparc.geophys.tohoku.ac.jp/>

Since the early 1990s, optical observations for Jupiter's UV and IR aurora have been intensively made by satellite-base (Hubble Space Telescope: HST) and ground-base (e.g., NASA/IRTF) observations. As well known, auroral phenomena are one of good indicators of magnetic activities of planetary magnetospheres. Planetary radio phenomena also tell us the magnetic activities, but (in my impression) our knowledge seem to be limited since we do not realize well where and how the radio emissions are generated.

We have made comparative surveys between Jupiter's UV auroral and HOM to DAM radio activities using the aurora data observed with HST/ACS and radio wave data observed with WIND/WAVES. The Planetary Atmospheres and Space Science Group of Boston University made the project of intensive observations for the auroras of Jupiter and Saturn in February to June, 2007 using HST. The observations with a large number of fine auroral images provide a precious opportunity to make precise source surveys of the radio emissions. Fortunately, the WIND spacecraft had cruised around the L1 point during the corresponding period, and provided natural radio wave data in a relatively good condition with low Earth origin interference.

In the presentation, we will introduce a preliminary study of the comparative surveys between the auroral and radio activities, and briefly discuss what observed radio phenomena inform us.

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