Investigations on radiation characteristics of Jovian hectometric radiation by a ray tracing method

Satomi Ito[1]; Hiroaki Misawa[1]; Fuminori Tsuchiya[2]; Akira Morioka[3]; Tomoki Kimura[4]

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

We have investigated radiation characteristics of Jovian hectometric radiation (HOM) to reveal the origin, such as radiation conditions and energy sources, using radio wave data simultaneously observed with Cassini/RPWS and Galileo/PWS and ray-tracing method. We have analyzed occurrence dependence of HOM on Central Meridian Longitude (CML). As a result of the analyses, it is suggested that spectral morphology is similar but peak longitude of the HOM occurrence is clearly different between the two spacecrafts. We made a 3D ray tracing analysis to derive radiation conditions such as source position and direction based on the observed characteristics and geometrical difference of the spacecrafts with respect to Jupiter. As the result, it is suggested that 1) peak longitude of the HOM occurrence varies with distance from Jupiter, and 2) hollow cone opening half angle b=52- 56 degrees at L=12. In our presentation, we will show results of the analyses precisely and discuss expected origin of HOM.