

Reconsideration of generation processes of Jupiter's Io-related radio emission

MISAWA, Hiroaki^{1*}

¹PPARC, Tohoku Univ.

The following questions; 'What kind of magneto-ionic wave Jupiter's auroral radio emission is?' and 'How the radio emission is generated?' have been long years of subjects. I have investigated the subjects based on numerical calculations using several kinds of magnetic field and plasma density models, however, the questions have not been resolved yet: a hypothesis of a special energy transporter which does not meet with the observation results was needed. Recently Jupiter's new magnetic field model 'VIPAL' was proposed based on the satellites' foot print aurora data observed by the Hubble Space Telescope (Hess et al., JGR, 2011). I have tried to make a 3D raytracing analysis for Io-DAM using the VIPAL model. The preliminary analyses show that R-X mode waves are preferable as Io-DAM and the VIPAL gives more natural explanations for the origin of Io-DAM, though there still remain some questions on restriction of 'Io-DAM' and on origin of Io-C.

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