Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

PCG040-11 Room: 301A Time: May 28 14:45-15:00

Characteristics of Jovian ionospheric Alfven resonator observed by using wave modulations of L-burst emissions

Tomonori Koshida[1*], Takashi F. Shibata[2], Satoshi Taguchi[2], Hiroaki Misawa[3]

[1]Sugadaira,Univ. of electro-Communication, [2]Univ. of Electro-Communications, [3]PPARC, Tohoku Univ.

On June 4, 2008 UT Io-A phase, we observed Jovian decametric (DAM) radio emissions using a waveform receiver and detected wave modulations (WMs) in the DAM emissions that appeared four times at intervals of approximately 7 min for durations of 3-10 s. We found that the WMs had fundamental frequencies of 2.5-5 Hz, and the 1st and 2nd harmonics of these frequencies were odd multiples of the fundamental frequencies. The characteristics of the WMs are consistent with those of Alfven waves that are trapped between the ionosphere in the northern hemisphere of Jupiter and the northern boundary of the Io plasma torus, and the ionospheric Alfven resonator (IAR) expected in the system of Jupiter. We consider that the Alfven waves arrived at the polar region in the northern hemisphere of Jupiter at intervals of 7 min; these induced IAR, giving rise to the WMs in the DAM emissions.

Keywords: Jupiter, decametric, radio, ionospheric alfven resonator