EPSC Abstracts,
Vol. 2, EPSC2007-A-00038, 2007
European Planetary Science Congress 2007

EFFECTS OF MAGNETOHYDRODYNAMIC WAVES IN JOVIAN DECAMETRIC EMISSION

O.V. Arkhypov (1) and H.O. Rucker (2)

(1) Institute of Radio Astronomy, National Academy of Sciences of Ukraine, Chervonopraporna 4, 61002 Kharkiv, Ukraine,

(2) Space Research Institute, Austrian Academy of Sciences, Schmiedlstrasse 6, A-8042 Graz, Austria (rucker@oeaw.ac.at)

The flux variability of Jovian decametric radio emission (DAM) is analysed to search for its possible modulations by propagating magnetohydrodynamic waves of ultra low frequencies (ULF). ULF modulating waves are found in DAM dynamic spectra as a moving pattern (moiré) on the background of S-bursts. Their frequency drift ($\sim$55 MHz/s) corresponds to the wave motion to Jupiter with Alfvén velocity ($\sim$4x10^4 km/s).

There are whistler-like drifting details in the dynamic power spectra of S-flux variations at fixed radio frequency. Their frequency drift rates are consistent with dispersion of whistlers which are formed mainly in the Io torus or Jovian ionosphere. Formally our analysis of S-emission reveals the specific 2s-modulation of S-emission corresponding to the known magnetic pulsations near gyrofrequencies of heaviest ions (SO_2^+ and SO^+) in the Io torus.