EPSC Abstracts,
Vol. 2, EPSC2007-A-00088, 2007
European Planetary Science Congress 2007

Amalthea's modulation of Jovian decametric radio emission

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

(1) Institute of Radio Astronomy, Kharkiv, Ukraine (rai@ira.kharkov.ua), (2) Space Research Institute, Graz, Austria (rucker@oeaw.ac.at)

Most modulation lanes in dynamic spectra of Jovian decametric emission (DAM) are formed by radiation scattering on field-aligned inhomogeneities in the Io plasma torus. The positions and frequency drift of hundreds of lanes have been measured on the DAM spectra from UFRO archives. A special 3D algorithm is used for localization of field-aligned magnetospheric inhomogeneities by the frequency drift of modulation lanes. It is found that some lanes are formed near the magnetic shell of the satellite Amalthea mainly at longitudes of 123 to 140 deg. (north; III 1965 system) and 284 to 305 deg. (south). These disturbances coincide with regions of plasma compression by the rotating magnetic field of Jupiter. Such modulations are found at other longitudes too (189 to 236 deg.) with higher sensitivity. Amalthea's plasma torus could be another argument for the ice nature of the satellite, which has a density less than that of water.