



Modulation features on the dynamic spectra of the Jovian sporadic DAM emission

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Analysis of the large number of the Jovian sporadic decameter emission dynamic spectra allows confidently concluding that practically all observed radiation is in some way modulated. In each specific case the nature of modulation can be differ. A mechanism that generates S-bursts can itself create modulation processes as well as the initial emission characteristics can be changed along the propagation path from the source region to the observer (Jupiter magnetosphere, interplanetary medium, Earth ionosphere). Depending on the time and frequency resolution achieved in the experiment and also on the visualization time scale, different features of the radiation spectra appear on the Jovian dynamic spectra.

In spite of an extensive investigation of DAM radiation, detailed description and analysis of the modulation events with the different frequency-time scales are not sufficiently presented. The main problem which needs to be decided is the physical mechanisms able to produce the considered types of the modulation effects. In connection to this the following questions to be on interest: 1) the statistical set of the modulation events: their dependence or independence on Jupiter – Io – observer position, season time, day-night time, the Solar activity; 2) the strong definition of the observed parameters: sign and value of the frequency drift, lane's curvature, modulation depth, distances between the nearest lanes and their variety, scale of the modulation; 3) the detail analysis of the polarization properties; 4) the careful study of the reliability of already proposed mechanisms, i.e. diffraction model of Riihimaa and Imai, Cotton-Muton effect, Faraday rotation of the polarization ellipse, scintillation on the Earth

ionosphere disturbance (for instance, on the structure of the Traveling Ionospheric Disturbances) and so on.

The major attention in the present work is centered on the variety and features of the modulation effects observing in the dynamic spectra of the Jovian decameter emission, both of previously known type and those detected for the first time. The obtained experimental results, as well as the theoretical speculations, are presented.