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S-bands of Jovian decametric emission

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There are theoretical and experimental arguments for a modulation of Jovian decametric S-emission by standing Alfvén waves in the regions of radio sources. One effect of such modulation is the concentration of S-burst emission around certain frequencies (S-bands) in dynamic spectra of radio emission. It is argued that S-bands are generated at the local electron cyclotron frequencies, around nodes of a standing Alfvén wave.

To test this hypothesis, several verifiable predictions are derived: the anti-correlation of radio-flux in adjacent S-bands at short time scales (<0.1 s); the correlation of frequency shifts of S-bands at long time scales (>0.1 s); the transformation of the broadband S-storm into S-bands. These effects are searched for and found experimentally. As the predictions are confirmed, the standing wave modulation of Jovian S-emission appears valid.