

# Visualization of Jupiter's Decametric Radio Sources by using 3D CG Animations

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<http://jupiter.kochi-ct.jp/cg/>

Frequency-time dynamic spectra of Jupiter's decametric radio emission display a complex structure on several different time scales. One of the characteristic spectral patterns on a time scale of a few tens of seconds are the modulation lanes discovered by Riihimaa in 1968.

We developed a model for the mechanism responsible for their production in which the free parameters can be adjusted to provide a very close fit with the observations [Imai et al., 1992a, 1992b, 1997, 2002]. In our model, we propose the existence of a grid-like interference screen composed of field-aligned columns of enhanced or depleted plasma density located along the longitudinal direction near Io's orbit.

Recently we performed a statistical analysis of Io-A source modulation lanes observed at Nancay Observatory in France. The results of the analysis of three events show that the lead angle between the Io flux tube (IFT) and the Previously Energized Flux Tube (PEFT) smoothly and consistently decreases from 20 to 0 degrees during the Io-A events.

After the lead angle passes through the 0 degree point, the intensity of the radio emissions from Io-A source usually falls rather sharply. Based on these results and the previous study of Io-B source modulation lanes, we show the very realistic view of Jupiter's radio source locations and its beaming by using the 3D computer graphic animations for the first time.