



## Active longitudes and Io-controlled decametric radio emissions of Jupiter

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The occurrence probability of the Io-controlled decametric radio emissions of Jupiter depends on both the central meridian longitude (CML) and Io's phase. This occurrence is found to be larger in some 'source' regions which are well-known as Io-A, Io-B, Io-C and Io-D. In some recent papers, Galopeau *et al.* [*J. Geophys. Res.* 112, A04211, doi:10.1029/2006JA011911, 2007] showed the existence of a domain of active longitude driven by Jupiter where the emission mechanism (the cyclotron maser instability) is more efficient and favours the generation of the decameter emissions, explaining the dependence of the sources on the CML. This model mainly involves the inner magnetic field of Jupiter near the surface. Another model was proposed by Zaitsev *et al.* [*Astron. Astrophys.* 454, 669-676, doi: 10.1051/0004-6361:20054450, 2006] who showed the formation of Io's active longitudes where the particles acceleration is more powerful, which also favours the radio emissions. This description involves the magnetic field in the vicinity of Io. We compare these two models and we discuss the possibility to combine them for a better understanding of the source region occurrences linked to the Jovian decametric radio emissions.