



On polarisation of Jovian decametric radiation

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Among known planetary non thermal radio emissions, mostly circularly polarised, the decametric (DAM) radiation from Jupiter is characterized by its strong elliptical polarisation.

A campaign of extensive broadband measurements of the DAM polarisation was performed by using the Nançay Decameter Array. The measurements use unprecedented high time-frequency resolutions throughout wide time/frequency coverage. Thus the DAM polarisation ellipse could be described with a reasonable accuracy over long lasting DAM storms (several hours, i.e. a noticeable part of Jupiter's rotation) as well as at the shorter scales of the fine structures which appear on intensity spectrograms (arcs, modulation lanes, S-bursts, etc...).

In most of the studied cases, and when only one sense of circular polarisation could be observed, the degree of polarisation was measured to reach 100%, and the polarisation ellipse was found to remain stable in shape and orientation over hours and within the whole observed bandwidth, in agreement with the polarisation from a steady single source. When both senses of circular polarisation were present, the two corresponding polarisation ellipses could be extracted from the data. Furthermore, the spectral structures at shorter time scales, - including the so called S-bursts -, did not show up any further specific polarisation signature.

The significance of those observations is briefly discussed.