

Data analysis of Jupiter's decametric radio emission observed by LWA1

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We present new results in the study of Jupiter's decametric emission obtained using the newly commissioned Long Wavelength Array Station 1 (LWA1). The LWA1 is a low frequency radio array operating in the frequency band between 10 and 88 MHz. The array consists of 256 dual polarization dipole stands, and observations are possible with up to four simultaneous beams, each of which has two independent tuning frequencies. The LWA1 is well suited to studying details of Jovian phenomena due to its high sensitivity as well as high time and frequency resolution over a wide bandwidth. We present LWA1 observations and the developed data analysis software by using IDL. The observed Io-C dynamic spectrum on March 10, 2012 shows the modulation lanes of both left and right hand polarization components share the same lane structure. It indicates that the both left and right hand Io-C radiations are emitted from the southern hemisphere. And the locations of the radio sources along the Jupiter's magnetic field should be very close.

Keywords: Jupiter radio, decametric wave, data analysis, radio source, radio emission mechanism, LWA1