

## Periodicities of Jovian Quasi-Periodic bursts observed by Galileo and Ulysses spacecraft

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Observations by the Ulysses, Galileo, and Cassini spacecraft reported that Jovian Quasi-Periodic radio bursts (QP bursts), which are possibly related to relativistic particle acceleration processes in the Jovian polar region, occur with quasi periodicities in a few to tens of minute. Based on Ulysses' radio observations in the Jovian high and low latitude regions, MacDowall et al. (1993) categorized these radio emissions into two types: ones with  $\sim 15$  min periodicity, called QP15 bursts, and the others with  $\sim 40$  min periodicity, QP40 bursts. Galileo also observed QP bursts in the equatorial region, and some studies reported that their periodicities are different from those observed by Ulysses: Kaiser et al. (1993) mentioned that QP burst periodicities are distributed more broadly rather than the bimodal distributions ( $\sim 15$  min and  $\sim 40$  min) shown by MacDowall et al. (1993).

In this study, Lomb-Scargle periodogram analysis was performed based on radio data observed by Galileo (from mid-1996 to mid-2003) and Ulysses (from early-2003 to end-2004), and statistical properties on QP burst periodicities were discussed. The periodogram analysis indicated that QP bursts statistically have a main periodicity around  $\sim 40$  min and suggested that the  $\sim 40$  min periodicity is a characteristic period for the particle acceleration process in the Jovian polar region.