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**TITLE:** The 2-3 minutes periodicity in the polar aurora and the magnetosphere of Jupiter

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**ABSTRACT BODY:** The main aurora at Jupiter is related to the middle magnetosphere and the corotation breakdown of the magnetospheric plasma. On the other hand, the polar regions either magnetically map to the outer magnetosphere or correspond to field lines open to the interplanetary medium and most of the auroral emissions from this region are still poorly understood. Among these polar auroral emissions are the flares, dramatic brightenings of several million square kilometers over a couple of minutes. Two previously reported observations of the southern hemisphere showed that these flares can be quasi-periodic with a re-occurrence time of 2-3 minutes.

Here we report results from the Hubble Space Telescope campaign carried out in 2012-2013 with the STIS FUV instrument in time-tag mode (PI: D. Grodent). This campaign consisted in alternating observations of the two hemispheres. Based on the analysis of this dataset, we confirm that these quasi-periodic flares are ubiquitous and occur in both hemispheres. Moreover, in at least one case, these flares appear to occur in phase in both hemispheres.

We compare the characteristics of these flares with those of the relativistic electron bursts observed by the Ulysses spacecraft with the HET instrument. We find that 2-3 minutes quasi-periodic burst are much more frequent than previously reported and that they magnetically map to the same auroral area as the flares. We conclude that these two phenomena are most probably related and arise from a common origin.

**KEYWORDS:** 6220 PLANETARY SCIENCES: SOLAR SYSTEM OBJECTS Jupiter, 5408 PLANETARY SCIENCES: SOLID SURFACE PLANETS Aurorae and airglow, 5443 PLANETARY SCIENCES: SOLID SURFACE PLANETS Magnetospheres.

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### **Additional Details**

**Previously Presented Material:** Preliminary analyses (40%) have been presented at the 2011 EPSC and the 2013 MOP meeting.

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