



## **Preliminary survey of quasiperiodic emissions observed by the Van Allen Probes spacecraft**

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Quasiperiodic (QP) emissions are electromagnetic waves observed in the inner magnetosphere at frequencies between about 0.5 and 4 kHz. They are characterized by a nearly periodic time modulation of the wave intensity, with typical modulation periods on the order of tens of seconds to a few minutes. Although QP emissions were observed both by spacecraft and ground-based instruments, their origin is still not understood. We aim to perform a systematic survey of this type of emissions using the data measured by the Van Allen Probes spacecraft, which are uniquely equipped and have an orbit optimal for the analysis of this type of events. In the presented study, we compile a list of beginning and ending times of the events, and we derive basic statistical dependencies related to the event occurrence. Event occurrence rate is evaluated as a function of the L-shell and magnetic local time, and most favorable geomagnetic conditions for the events to occur are discussed. These are characterized both by geomagnetic indices, and relevant solar wind parameters. Additionally, two-point observations performed by the Van Allen Probes spacecraft are used to estimate spatial dimensions of the events. Finally, multicomponent wave measurements allow us to perform a detailed wave analysis, i.e. to determine the wave polarization properties and propagation directions.