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Observations of Quasi-Periodic Whistler Mode Waves by the Van Allen Probes GEORGE HOSPODARSKY, DARRELLE WILKINSON, WILLIAM KURTH, CRAIG KLETZING, Univ of Iowa, ONDREJ SANTOLIK, Institute of Atmospheric Physics CAS and Charles University, Prague, Czech Republic — Observed in Earth's inner magnetosphere, quasi-periodic whistler mode emissions (QP) are electromagnetic waves in the frequency range from a few hundred Hz to a few kHz that exhibit a periodic modulation (typically a few minutes) of their wave intensity. These waves were first detected at high latitude ground stations, but more recently have been observed by a number of spacecraft, including the twin Van Allen Probes. The Electric and Magnetic Field Instrument Suite and Integrated Science (EMFISIS) instrument simultaneously measures the vector wave magnetic field and electric field, allowing wave propagation parameters, such as wave normal angle and Poynting vector, to be obtained. Almost four years of Van Allen Probes data have been examined and a statistical survey of the occurrence and properties of the QP emissions has been performed. The QP emissions were found to have periods ranging from 1 to 16 minutes with events lasting from less than 1 hour up to 6 hours. Some events were detected on successive orbits and a number of events were simultaneously detected by both spacecraft, even during large spacecraft separations, providing an opportunity to investigate the source and propagation properties of these waves.

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