



A Statistical Study of Kilometric Radiation Fine Structure Striations Observed at Jupiter and Saturn

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The Cassini spacecraft, currently in orbit around Saturn, carries the Radio and Plasma Wave Science (RPWS) investigation, which measures several different types of radio emission from the local plasma environment at frequencies up to 16 MHz. One such type of emission is Saturn Kilometric Radiation (SKR), which is generally observed from a few tens of kHz up to about 1 MHz. One RPWS receiver, the Wideband Receiver, is capable of making measurements of the fine structure that makes up the SKR emission. This data has revealed narrow negative-sloping striations with durations of a few to about ten seconds. In addition, while en route to Saturn, RPWS observed similar emission in the kHz band as Cassini flew by Jupiter, and analysis has revealed the presence of similar striations in that emission. These striations may be related to similar features observed in Earth's Auroral Kilometric Radiation, which were explained by the presence of solitary ion structures, or alternatively by electromagnetic ion cyclotron waves. A statistical study has been performed to investigate the properties of this emission at Jupiter and Saturn, including its duration, frequency range, and drift rate, in order to compare these emissions to observations at Earth. This presentation will focus on the results from Jupiter, but will also include preliminary analysis from Saturn.