

Multi-spacecraft Observations of Saturn Kilometric Radio Emission

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Saturn kilometric radiation (SKR) is the auroral radio emission of Saturn, which has been observed by Voyager 1 & 2, Cassini, and Ulysses. Ulysses is able to detect the intense intervals of SKR from distances up to 10 AU, because of its long antennas (72 m tip-to-tip) and sensitive radio receivers. Studies of SKR by A. Lecacheux (PRE IV, 1997) gave the surprising result that the periodicity of SKR varied with time; it was not locked to a planetary rotation of Saturn. This result has been confirmed by Cassini radio observations. Here, we compare Ulysses and Cassini observations of SKR to constrain a model for the SKR emission geometry. Specifically, we examine the question – are the brighter sources of SKR fixed in Saturn longitude or local time? The results have significant consequences for our understanding of SKR and its varying periodicity.