

Numerical modelling of Schumann Resonances at Titan

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The electromagnetic characteristics of Titan's atmosphere are determined by means of the Transmission Line Matrix (TLM) numerical method with the aim of calculating the Schumann resonance frequencies of Saturn's largest satellite. The Huygens probe aboard the Cassini spacecraft will enter Titan's atmosphere at the beginning of 2005 and will provide the first measurements of the electric properties and electric field fluctuations of Titan's atmosphere during its descend to the ground. The instruments will be able to indicate whether Schumann resonances driven by lightning discharges are indeed present at Titan. Our results suggest these frequencies to be located between 11 and 15 Hz, which is somewhat lower than theoretically expected due to the losses associated with the electric conductivity of Titan's atmosphere.