

Radio and plasma wave observations during Cassini's Grand Finale

W. S. Kurth (1), P. Canu (2), B. Cecconi (3), W. M. Farrell (4), G. Fischer (5), P. Galopeau (6), D. A. Gurnett (1), G. B. Hospodarsky (1), L. Lamy (3), A. Lecacheux (3), P. Louarn (7), R. J. MacDowall (4), J. D. Menietti (1), M. Morooka (8), A. Pedersen (9), A. M. Persoon (1), A. Sulaiman (1), J.-E. Wahlund (8), P. Zarka (3), R. Bostrom (8), N. Cornilleau-Wehrlin (2), G. Gustafsson (8), and R. Modolo (6)
(1) University of Iowa, Iowa City, IA, USA, (2) Plasma Physics Laboratory, Ecole Polytechnique, Paris, France, (3) LESIA, Observatoire de Paris, CNRS, PSL, Meudon, France, (4) NASA Goddard Space Flight Center, Greenbelt, MD, USA, (5) Austrian Academy of Sciences Space Research Institute, Graz, Austria, (6) LATMOS/IPSL, UVSQ, University Paris CNRS, Guyancourt, France, (7) IRAP, Toulouse, France, (8) Swedish Inst. of Space Physics, Uppsala, Sweden, (9) University of Oslo, Oslo, Norway, (william-kurth@uiowa.edu / Fax: 319-335-1753)

Abstract

Cassini has commenced its high inclination Grand Finale orbits with perikrones falling between the inner edge of the D ring and the upper limits of Saturn's atmosphere. The Cassini Radio and Plasma Wave Science (RPWS) instrument makes a variety of observations in these unique orbits including Saturn kilometric radiation, plasma waves such as auroral hiss associated with Saturn's auroras, dust via impacts with Cassini, and the upper reaches of Saturn's ionosphere. This paper will provide an overview of the RPWS results from this new and

final phase of the Cassini mission with the unique opportunities afforded by the orbit. Based on just the first passage of Cassini, we can already say that the spacecraft has passed through cyclotron maser source regions of the Saturn kilometric radiation, found only small amounts of dust in the micron size range in the equatorial region, and observed plasma densities of order 1000 cm^{-3} in the ionosphere at altitudes of a few thousand km.