



Study of inherent components linked to Saturnian radio emissions

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The RPWS experiment onboard Cassini spacecraft provides, since mid 2004, regular and continuous observations of Saturnian radio emissions in the frequency range from few Hz to 1.3 MHz. A first attempt to classify and to recognize the different components have been reported by Galopeau et al. (JGR, 2007). It has been shown that three main components are observed principally dominated by the so-called Saturnian Kilometric Radiation (80 kHz – 900 kHz), and two others at low (5 kHz – 80 kHz) and high (900 kHz – 1.2 MHz) frequencies. These components are observed when the spacecraft orbits were mostly in the equatorial plane of the planet. In this contribution we re-analyse these components by considering another time interval in which the Cassini orbits are above the equatorial plane, in particular at latitudes close to the Southern and Northern auroral regions. We study the probability of occurrence of these components taking into consideration the distance to Saturn, the latitude, the Saturnian Longitude System (SLS), and the geometric configuration between the spacecraft, the planet and the Sun. We show a spectral alteration of Saturnian radio emissions when the Cassini positions (i.e. from the equatorial plane to the high latitudes) is close to the auroral regions. We examine the spectral distinction between the radio emissions emitted from the Northern and Southern Hemispheres in particular in the case of the Saturnian Kilometric Radiation (SKR). Our results are discussed and compared with those already reported by the Voyager and Cassini missions.