



Quasi-periodic variations of solar wind parameters and their signatures in modulation of Saturnian Kilometric radiation.

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Strong correlation between Saturnian Kilometric radiation (SKR) and solar wind plasma parameters may provide an efficient method for monitoring of the solar wind out of remote observations of the SKR activity. In view of this goal we consider possible connection between variations of the SW parameters measured by different spacecraft and SKR radio emission recorded by Cassini RPWS instrument. In course of this study, main attention is paid to analysis of relations between variation of SW plasma parameters and long-periodic (7-25 days) features in the measured spectra of SKR. The data sets collected by Cassini-RPWS (SKR radio emission measurements), Cassini-CAPS (SW plasma measurements), Ulysses-SWOOP (SW plasma measurements) and Wind SWE (Solar Wind Experiment) experiments are used. SKR time profile has been produced by integration of the Stokes parameters spectra of the SKR over frequency range from 20 to 1000 kHz. Profiles of the SW parameters measured by Wind and Ulysses were projected onto Cassini orbit by means of a MHD simulation of the SW evolution between 1 and 9.5 AU. The analyzed period covers the years 2004-2005. The analysis of the long period modulations of SKR and SW plasma parameters is based on "sliding window" Fourier and nonlinear Wigner-Ville methods. Performed study confirms strong correlation between SW plasma parameters (in particular with the solar wind ram pressure) and SKR and shows evident existences of 7-8, 9-10, 12-13 and 25-27 days modulation lines in the spectra of the SKR and SW profiles. These effects are very likely to be connected with variations of the global solar activity.