



Ground-based and space observations of planetary thunderstorm activity

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The results of Saturn Electrostatic Discharges (SED) observations on the UTR-2 radio telescope and correlation functions obtained with the Radio Plasma Wave Spectrometer (RPWS) instrument of Cassini spacecraft are presented. We analyze the behavior of the SED in the start period of the storm F.

From 1 to 12 December 2007 observations of the initial phase of a storm on Saturn were made. The time resolution was 20 ms, and the frequency range - 12.4 ... 33 MHz. Recording was carried out with parallel FFT spectrum analyzer in the multibeam mode configuration of the UTR-2 radiotelescope (mode ON / OFF), using the sum and differential signals of "North-South and East-West" arms of the antenna array.

This allowed us to obtain the sum, differential and multiplied directional diagram toward the SED source (Saturn) and to detect SED signals with high reliability. A high degree of agreement between the results of ground-based and space receiving facility as well as reliability of the broadband event search method on the UTR-2 radio telescope at strong interference conditions in the decameter range are shown. We investigated the behavior of correlation functions of registered events during 5 observation days. The same method was used for search of broadband events in the Jovian decameter radio emission during recording of Io-dependent sources.