



Do we detect dust impacts with BMSW onboard Spektr-R?

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Dust is an important constituent of the heliosphere capable to transport significant mass, momentum, and energy through the system. Hypervelocity dust impact on a spacecraft produces a transient cloud of impact-generated plasma that could be observed using a proper apparatus. The Spektr-R spacecraft is equipped with the BMSW instrument (Bright Solar Wind Monitor) that consists six Faraday cups measuring the electric current through its base at a frequency as high as 30 Hz. Spektr-R orbits the Earth at a highly elliptical trajectory with the apogee reaching $50 R_E$, therefore, it moves in the solar wind and magnetosheath where the impact plasma clouds should be possible to detect.

Based on statistics provided by several experiments detecting hypervelocity dust impacts that were in operation within the last 30 years (Cassini, Helios, etc.), we predict the frequency of detectable BMSW impacts to about one per day. We compare BMSW detection statistics to the Wind/WAVES measurements to verify a statement whether the BMSW dust impact candidates are real dust impacts or not.