

EGU22-11250

<https://doi.org/10.5194/egusphere-egu22-11250>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Very long electric field disturbances induced by dust impact observed by the Solar Orbiter/RPW

Michiko Morooka¹, Yuri Khotyaintsev¹, Milan Maksimovic², Jan Soucek³, and David Pisa³

¹Swedish Institute of Space Physics (IRFU), Uppsala, Sweden (morooka@irfu.se)

²CNRS & LESIA, Paris observatory, France

³Institute of Atmospheric Physics, Czech Academy of Sciences, Prague, Czech Republic

Transient electric field perturbations are commonly observed when the interplanetary dust grains impact spacecraft, and their characteristics are well-studied. The signals are interpreted as due to the plasma expansion at the impact site and last typically in the order of micro-to milli-seconds. Radio and Plasma Wave (RPW) Instrument onboard Solar Orbiter can observe grains with a dedicated mode to capture such short-lived signals by the dust in the inner Heliosphere. On the other hand, a large impact can cause electric field disturbance for a longer time in tens of seconds. The long signals are observed in the low-frequency range (<10 kHz) and found more frequently during the inbound of the Solar Orbiter excursion. We will discuss the plasma and spacecraft conditions for the long durational impact signals.