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# Evidence Against the Nanodust Interpretation of STEREO Single Hits

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Single hits on the STEREO Spacecraft are time domain signals that are somewhat similar to what are now known to be dust impacts.
However, there are some features of these hits that led the authors to be skeptical of interpretation as dust impacts.
Some of the reasons for this skepticism were outlined in 2017. These are:
The single hits occur on only one of the three STEREO antennas, and on a different antenna on STEREO A and B.
No single antenna hits were found in a study of dust impacts on Wind and the
number of single hits does not correspond to the fluxes seen on Wind
The number of single hits is different, beyond statistical fluctuation, on the two spacecraft, and is each is much larger that the number of dust impacts seen on Wind
In 2011, single hits ceased on STEREO A.

These are not what is expected from nearly random hits by dust in the interplanetary medium.

More recently, more evidence has been recognized that these single hits are not likely to be dust impacts.
Their time domain waveform differs from that of recognized dust impact signals. They have sharp peaks characteristic of a sudden delivery of charge to the antenna, not the rounded peaks of the triple hit dust impacts.

There is also evidence against the interpretation of single hits as nanodust.
Many single hits make very large signals, often saturated, whereas nanodust, although it is very fast, is not expected, from the calculations of Czechowski and Mann to be so large.

So far, there is only speculation as to the true cause. We suggest, speculatively, that it is due to frictional charging and discharging of the cord running through the center of the tubular antennas, designed to control their deployment.