



## Spacecraft wakes in the solar wind

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The solar wind flow creates a wake behind any spacecraft immersed in it. We study the properties of this wake using the wire-boom mounted spherical electrostatic probes of the Electric Fields and Waves (EFW) instruments on the Cluster satellites. The solar wind is mostly close to the spin plane, so each probe (44 m away from the spin axis) passes through the wake once every spin period (around 4 s), thereby sampling a cut of the wake electrostatic potential structure. The signature of the wake is clearly seen in the data as a pulse with an amplitude typically of a few tenths of a volt. We present statistics of the wake signatures as well as detailed examples and a numerical simulation, and show a method to remove the wake signature from the electric field measurements. The wake direction agrees to within one degree to the solar wind direction determined from the Cluster Ion Spectrometer (CIS) detectors.