



An example of using the Virtual Heliospheric and Magnetospheric Observatories for a substorm study

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Finding and retrieving space physics data is a rather daunting task even when the data are publicly available on the Internet because there are thousands of relatively small and many large data sets stored in various formats and accompanied often only by terse documentation. Virtual Heliospheric and Magnetospheric Observatories (VHO and VMO) are being developed to help researchers by creating a single point of uniform discovery, access, and use of heliospheric (VHO) and magnetospheric (VMO) data. Available data can be searched based on various criteria as, for example, spatial location, time of observation, measurement type, parameter values, etc. The VHO and VMO also utilize event lists to quickly narrow down searches by specific events, e.g. bow shock crossings, flux transfer events (FTEs) or CMEs/ICMEs. We will demonstrate the utility of VHO/VMO for geospace studies by reprising a multi-spacecraft, multi-instrument analysis from the literature. In particular, simultaneous observations of earthward flow bursts and plasmoid ejection during magnetospheric substorms were identified by visual inspection of several years of ISTP measurements by Slavin et al. [2002]. Using the VHO/VMO we show how studies such as these can be carried out with substantial time savings and often with the added value of accessing additional relevant data sets that would not have been available to scientist performing the analysis.

References:

- <http://vho.nasa.gov>
- <http://vmo.nasa.gov>
- Slavin et al., Simultaneous observations of earthward flow bursts and plasmoid ejection during magnetospheric substorms, J. of Geophysical Research, 107 (A7), 10.1029/2000JA003501, 2002