Project Details

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Project Title:
Extending the LWS Data Environment: Distributed Data Processing and Analysis

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Summary:
Current studies demand the combination of data from multiple instruments aboard different spacecraft. The curvature of shock fronts and the correlation scales of turbulent processes serve as prime examples. The need for quick and reliable access to this data is an ever-increasing one. In the current space science paradigm various data sets are available from different data providers, often in different countries. The currently developed SEC virtual observatories (e.g. the Virtual Solar Observatory (VSO) and Virtual Heliospheric Observatory (VHO)) primarily address the need of the scientific community to discover and access the most appropriate space science data sets via a user-friendly common interface that allows queries. Thus the VxOs will locate and deliver data from a large number of missions but, at least in their early form, will leave post-processing of the data to the user. Mere access to distributed data is not sufficient to create a comprehensive data environment. Specifically, there is clear need in the scientific community for some common post-processing of the data such as re-averaging, merging of multiple data sets to the same time grid, coordinate transformations and basic filtering and formatting. Therefore, we propose to develop a mechanism to provide distributed data services that can serve as an additional building block of the VxOs. Moreover, a prototype would be deployed providing processing support for WIND and IMP 8 magnetometer data to test the architecture and would be useful to the community even before integration into the VxOs. Since our concept is fully extensible, once the architecture is developed, tested, and integrated into the VHO with full public documentation, other members of the heliospheric community could add further data processing services with relative ease.

Publication References:

Summary: ''

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