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HELIO - Discovering solar effects throughout the heliosphere

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Abstract

HELIO, the HELiophysics Integrated Observatory, consists of a set of integrated software tools developed by an international consortium under the European Commission's Seventh Framework Programme (FP7). HELIO is designed to help scientists easily search heliophysical data and discover any possible connections. This is achieved by merging information from feature and event catalogues and services that know about the locations and capabilities of instruments to find all the data available that contain information on a certain event by propagating it through the whole solar system. There are then tools to access data archives and processing tools that allow the users to create their own workflows.

HELIO is definitely making the research in heliophysics more accessible to different scientists [1] but it capabilities goes further than this. It can be adapted to other fields in science, where multiple observations in different observatories are used to study a particular event. The interfaces of the HELIO services are based on Web services and, as far as possible, are compliant with IVOA standards. This simplifies access to the capabilities via different tools like Web browsers, scripting languages (IDL, Python, etc.), and workflow tools (Taverna, Kepler, etc.). The overall capabilities of the system can greatly increased when the services are combined using workflows or scripting languages. While we try to hide the use of these tools for most users, those who choose to gain familiarity with such tools can address more complex problems

A brief introduction to HELIO services and a use case demonstration will be presented.

References

[1] D. Pérez-Suárez, S. Maloney, P. Higgins, D. Bloomfield, P. Gallagher, G. Pierantoni, X. Bonnin, B. Cecconi, V. Alberti, K. Bocchialini, M. Dierckxsens, A. Opitz, A. Blanc, J. Aboudarham, R. Bentley, J. Brooke, B. Coghlan, A. Csillaghy, C. Jacquey, B. Lavraud, and M. Messerotti, "Studying sun–planet connections using the heliophysics integrated observatory (HELIO)," *Solar Physics*, vol. 280, no. 2, pp. 603–621, 2012.