The Virtual Solar-Terrestrial Observatory: interdisciplinary data-driven science

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Abstract. Virtual Observatories can provide access to vast stores of scientific data: observations and models. As these electronic stores become widely used, there is potential to improve the efficiency, interoperability, collaborative potential, and impact of a wide range of interdisciplinary scientific research. In order to realize this potential, technical challenges need to be addressed concerning (at least) representations and interoperability of data, access, and usability. In the Virtual Solar Terrestrial Observatory (VSTO) project, we are providing an electronic repository of observational data spanning the solar-terrestrial physics domain. We are also implementing semantic web tools and infrastructure for accessing and using the data. Our main contributions include the repository, infrastructure, and tools for the particular solar terrestrial physics as well as the design and infrastructure that may be broadened to cover more diverse science areas and communities of use. In this presentation, we describe the goals, design, current and planned prototypes, and technical infrastructure. We present what we have learned about the processes involved in developing VSTO and the required semantics, how they affect the framework architecture, choice of technologies and service interfaces. VSTO is an NSF-funded joint effort between the High Altitude Observatory and the Scientific Computing Division at the National Center for Atmospheric Research (NCAR) and McGuinness Associates Consulting.

Tools and services from the French VO

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Abstract. The French VO (Action Spécifique Observatoires Virtuels France – ASOV), a joint action of INSU and CNES, coordinates French participation in the VO for astronomy, solar, heliospheric and space plasma physics, and the study of the planets. It supports teams which develops VO services to uptake VO standards and methods, in particular by organizing tutorials for developers, provides forums for discussion, and funds travel of French participants to IVOA meetings. INSU, on behalf of the French VO, is a member of the IVOA and of Euro-VO, and coordinates the Euro-VO Data Center Alliance, which will be funded by the European Commission as a Coordination Action of the Infrastructure, Communication Network Development program from September 1, 2006. ASOV was created in 2004. Within a few years it has succeeded in creating a national community of VO developers. Several teams participate very actively in the IVOA Interoperability standard development, and collaborate with IT laboratories on VO-related subjects. Most French astronomy laboratories are involved in the development of VO-oriented services and tools, with a wide diversity of actions (observation archives/‘science ready’ data, value-added data bases and services; tools for visualisation, image analysis, ...; software suites; numerical simulations/theoretical astronomy services, thematic services). A recent census received more than 40 answers describing projects at different scales, some operational, some in development. Details on French VO teams and ASOV actions are available from the French VO Web site: <http://www.france-vo.org/>