



Web Services in the Virtual Solar-Terrestrial Observatory: Semantic Query and Data Access via OPeNDAP

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The Virtual Solar-Terrestrial Observatory (VSTO) is a production, scalable environment of an interdisciplinary virtual observatory for searching, integrating, and analyzing distributed databases. VSTO implements a semantic data framework with three interfaces: a Java (tm) applications programming interface (API) based on the VSTO ontology classes, a Spring-based web portal built on that API, and most recently a web services interface which provides an abstract-level search and query interface (via SOAP and WSDL) and a data access service via OPeNDAP (also SOAP and WSDL). These mechanisms provide the opportunity to enable distributed service interoperability between different systems both at the syntactic level (almost all web services to date) and semantically, when the client service also makes use of either the VSTO ontology in part or whole. In this presentation we present the exposed services and technical infrastructure using examples of current use and our plans for the future with the potential to improve the efficiency, interoperability, collaborative potential, and impact of a wide range of scientific research. 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.