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Solar-Terrestrial Onotoloy Development

D. McGuinness (1), **P. Fox** (2), D. Middleton (3), J. Garcia (2), L. Cinquini (3), P. West (2), J.A. Darnell (2), J. Benedict (1)

(1) McGuinness and Associates, Stanford CA USA (dlm@ksl.stanford.edu), (2) HAO/NCAR, Boulder CO USA, (3) SCD/NCAR, Boulder CO USA

The development of an interdisciplinary virtual observatory (the Virtual Solar-Terrestrial Observatory; VSTO) as a scalable environment for searching, integrating, and analyzing databases distributed over the Internet requires a higher level of semantic interoperability than here-to-fore required by most (if not all) distributed data systems or discipline specific virtual observatories. The formalization of semantics using ontologies and their encodings for the internet (e.g. OWL - the Web Ontology Language), as well as the use of accompanying tools, such as reasoning, inference and explanation, open up both a substantial leap in options for interoperability and in the need for formal development principles to guide ontology development and use within modern, multi-tiered network data environments. In this presentation, we outline the formal methodologies we utilize in the VSTO project, the currently developed use-cases, ontologies and their relation to existing ontologies (such as SWEET).