

Geophysical Research Abstracts,  
Vol. 10, EGU2008-A-04492, 2008  
SRef-ID: 1607-7962/gra/EGU2008-A-04492  
EGU General Assembly 2008  
© Author(s) 2008



## Next Generation Semantic Virtual Observatories

**Fox, P.** (1), McGuinness, D. (2,3,4), Cinquini, L. (5), West, P. (1)

(1) HAO/NCAR, Boulder CO USA (pfox@ucar.edu), (2) McGuinness and Associates, Stanford CA USA, (3) RPI, Troy, NY, (4) Stanford Univ. CA (5) SCD/NCAR, Boulder CO USA

After almost three years experience in developing the Virtual Solar-Terrestrial Observatory (VSTO), we report on what we have learned about the level of knowledge representation required to satisfying the science user needs. To date, we have achieved a unified query workflow based on an abstraction of classes (instrument, parameter, date-time) and provided semantic web services to make these available across the internet. We have also moved to the next level and generation of classes that capture science-level (higher) concepts such as state of the atmosphere, domains (e.g. neutral upper atmosphere), spatial locations, and parameterized representations of time (e.g. high geomagnetic activity). We also present our needs for extension of the existing knowledge encoding, particularly aimed at supporting additional reasoning. This task will require the identification of additional terms, concepts and relations, representation of them, and perhaps the building of tools to handle the extended reasoning and information manipulation. Developing the mid-level semantics and rules/logic to achieve the closing of the knowledge gap between education and science, this requires educational use cases. Finally, we present the results of our informal evaluation study for VSTO and plans for a formal evaluation component to assess and document which activities enhance end-user access to and use of data to advance science and education.