

Project Details

ROSES ID: NRA-02-OSS-01

Selection Year: 2003

Program Element: Independent Investigation: LWS

Project Title:

The Collaborative Sun-Earth Connector

PI Name: Neal E. Hurlburt

PI Email: atn@g.ucla.edu

Affiliation: Lockheed Martin Solar & Astrophysics Lab

Project Member(s):

- Freeland, Samuel L; COI; Lockheed Palo Alto Research Labs
- Hill, Frank ; COI; National Solar Observatory
- Bose, Prasanta ; COI; Lockheed Martin Advanced Techlgy Ctr
- Slater, Gregory Lee; COI; L941

Summary:

The success of the LWS program demands that scientists be able to navigate through a complex, distributed data system to find the data they need; efficiently cull through possibly peta-bytes of data to acquire the relevant information; and assimilate data from multiple instruments and missions reactively or proactively via intelligent interpretation, comparison and fusion. A working environment and data assimilation infrastructure that presents the LWS components as an integrated, robust system is essential to keeping the focus on the science rather than on data management - and this system must be operational when SDO is launched in 2007. We propose to develop a test-bed, distributed data system that can meet this goal. The Collaborative Sun-Earth Connector (CoSEC) will merge the successful components of current state-of-the-art prototype systems, including the "Problem-Solving Environment for Living with a Star" (PSELWS), the "European Grid of Solar Observations" (EGSO) and the "Virtual Solar Observatory (VSO), as well as on-going development of SolarSoft applications. PSELWS will provide the basic system architecture; ESGO and VSO will provide integration into the grid infrastructure -- with its security and resource-allocation capabilities -- and unified data descriptions. The CoSEC system will be populated with application services to support space weather prediction, space climate characterization and Solar-B and STEREO data analysis operations. A flare forecasting application will build upon these services to assess the performance of CoSEC and to form the foundation of a distributed, empirical tool for space weather forecasting -- the first space weather "killer-app". At the end of this three-year project, the CoSEC test-bed will have laid the groundwork for implementing a complete LWS/SDO data system.

Publication References:

no references