Project Details

ROSES ID: NRA-01-OSS-01
Selection Year: 2002
Program Element: Independent Investigation: Geospace LWS

Project Title:
Integrated Numerical Simulation of the Solar-Terrestrial Environment for the Living with a Star Program

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Summary:
We propose to develop a general purpose software framework capable of linking the diverse simulation codes needed to model
the solar-terrestrial environment from the base of the solar corona to the atmosphere of the earth. We will test and prototype use
of this framework with a complete set of the leading codes in solar-terrestrial research through simulation of several data driven
events. Such a computational infrastructure, in concert with new observational platforms and instruments, will be essential for
the success of the Living with a Star program. A joint team of simulation modelers and computer scientists with experience in
large-scale code coupling will work together on this project. This is a major undertaking that will produce major advances. The
benefits to the LWS program will include: Development and testing of a robust software framework capable of linking the
simulation codes selected for LWS. Integrated simulations from the corona to the upper atmosphere for several CME/magnetic
storms and other geoeffective events. Understanding of the observations needed to run and validate the integrated codes
Understanding of the data system requirements to supply input to the codes and store their output

Publication References:

Summary:"