

NASA HQ & LWS TR&T Update

September 16, 2008

Doug Rowland
On Detail to LWS TR&T Program



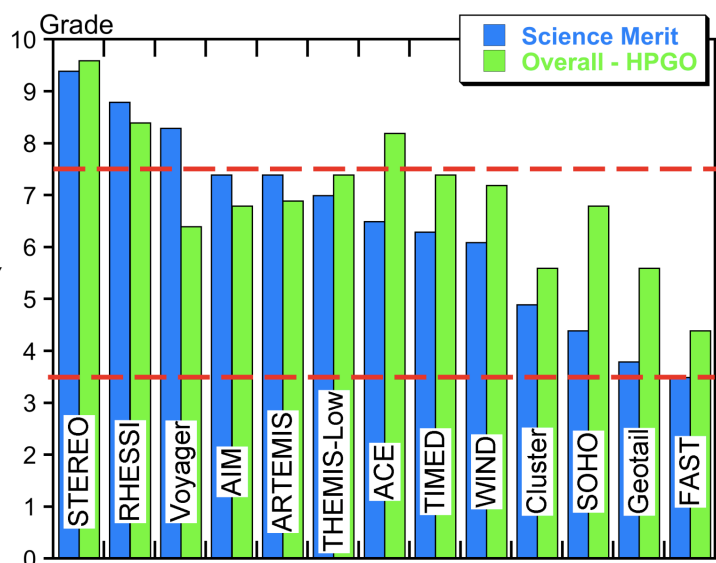
HQ News

 New (returning) AA - Ed Weiler

 Senior Review

Opportunities for major advances over the next few years are unprecedented. NASA truly will have a Heliophysics Great Observatory during current rise to solar max.

*Planned annual GIP budgets for FY09–FY12 : \$15.8M, \$15.5M, \$16.2M, \$18.0M. **marked increase** from the FY06–FY08 budgets of \$10.0M, \$11.5M, \$11.9M.*








HQ News - SMEX announcement

NASA has selected **six candidate mission proposals** for further evaluation as part of the agency's Small Explorer (SMEX) Program. Following detailed mission concept studies, **NASA intends to select two** of the mission proposals in the spring of 2009 for full development as SMEX missions. The first mission could launch by 2012. Both will launch by 2015. Mission costs will be capped at \$105 million each, excluding the launch vehicle.



The candidate missions in Heliophysics are:

-  **Coronal Physics Explorer (CPEX)**, PI Dennis G. Socker, NRL, CPEX will use a solar coronagraph to study the processes responsible for accelerating the solar wind and generating the coronal mass ejections that can impact the Earth.
-  **Interface Region Imaging Spectrograph (IRIS)**, PI Alan M. Title, Lockheed Martin, IRIS will use a solar telescope and spectrograph to reveal the dynamics of the solar chromosphere and transition region.
-  **Neutral Ion Coupling Explorer (NICE)**, PI Stephen B. Mende, UCB, NICE will use a suite of remote sensing and in situ instruments to discover how winds and the composition of the upper atmosphere drive the electrical fields and chemical reactions that control the Earth's ionosphere.



Explorer Mission of Opportunity

NASA has selected two science proposals to be the agency's next Explorer Program Mission of Opportunity investigations. One activity will study black holes and other extreme environments in the universe. The other will determine how the Earth's outer atmosphere responds to external forces. The two investigations were selected from among 17 proposals received by NASA earlier this year.

-  **High-Resolution Soft X-Ray Spectrometer (SXS)**, PI Richard L. Kelley, Goddard Space Flight Center, Greenbelt Md. SXS will probe matter in extreme environments; investigate the nature of dark matter on large scales in the universe; and explore how galaxies and clusters of galaxies form and evolve.
-  **Global-scale Observations of the Limb and Disk (GOLD)**, PI Richard Eastes, University of Central Florida, Orlando, Fla. GOLD will increase our understanding of the temperature and composition in the ionosphere; and provide understanding of the global scale response of the Earth's thermosphere and ionosphere.



Proposals and Awards

- ~130 current awards with average funding level of \$110,000
 - 26% of these have separately funded co-Investigators (gov't agency Co-I)
 - Most have 3 year duration (SC - 5 year duration)

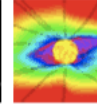
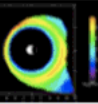
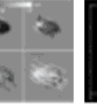
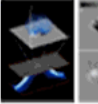
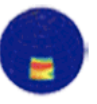
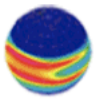
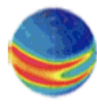
Selection for FY07

- 161 proposals submitted; 50 selected (success ratio: 1/3.2) for TR&T
- Proposal selection March 2008, funding in process
- Partnership with Planetary Division - one Focus Topic
- 3 workshops/summer schools selected

ROSES 2008

- ~ \$5M available
- Update released July 2008
- NOI due September 19, 2008.
- Proposals due October 17, 2008.
- For 2008: Focus Team proposals can be up to 4 years in duration

Living With a Star Targeted Research and Technology



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LWS TR&T Focus Teams:

- strategic capability
- focus teams
- steering committee
- mowg

- [Input for 2008 Teams](#)

2007

- [Exploring the Magnetic Connection Between the Photosphere and Low Corona](#)
- [Solar Modulation of the Galactic Cosmic Rays and the Production of Cosmogenic Isotope Archives of Long-term Solar Activity, Used to Interpret Past Climate Changes](#)
- [Toward Combined Models of Acceleration, Loss and Transport of Energetic Electrons and Protons in the Magnetosphere](#)
- [Determine the Sources of Daily Variability in the Thermosphere and Ionosphere](#)
- [Prediction of the Interplanetary Magnetic Field Vector Bz at L1](#)
- [Extreme Space Weather Events in the Solar System](#)

2006

- [Predict Emergence of Solar Active Regions Before they are Visible](#)
- [Flares particle acceleration near the Sun and Contribution to large SEP events](#)
- [Effects of Ionospheric-Magnetospheric Plasma Redistribution on Storms](#)
- [Global Distribution, Sources and Effects of Large Electron Density Gradients](#)
- [Solar Origins of Irradiance Variations](#)

 TR&T website: <http://lws-trt.gsfc.nasa.gov>



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LWS TR&T Focus Teams:

Shock acceleration of SEPs by interplanetay CMEs

Team Chair: Martin Lee

Next Team Meeting:

Team-Maintained Web Site:

Team Publications:

Team Members:








- Cohen, Christina
- le Roux, Jakobus
- Mewaldt, Richard
- Roussev, Ilia
- von Rosenvinge, Tycho
- Vourlidas, Angelos

Target description: Understanding large, gradual solar energetic particle (SEP) events is central to space weather and space climate. Gradual events observed at Earth are accelerated near the Sun and in the heliosphere by shocks associated with interplanetary CMEs (ICMEs). However, direct comparisons between observations, models, and theories have been scarce. It is now clear that in order to make progress in understanding the solar particle radiation environment near Earth, a cross-disciplinary approach is needed. It is necessary to combine studies of shock acceleration of energetic-particles, their propagation, and the evolution of CMEs in the heliosphere.



Questions for TEAMS

Answer **RED** questions at AGU Town Hall meeting (2-3 slides, 5-10 mins)

-  What overall progress has been made by your team and where does this fit within the LWS strategic goals?
-  What unresolved questions remain that need to be addressed urgently?
-  What models or model improvements need to be developed before more progress in your area can be made?
-  What kinds of data need to become available before more progress in your area can be made? Of these data, which just need to become accessible to a wider community and which are new measurements requiring new instrumentation? Be specific.
-  Is the problem you are working on mature enough to define a "Strategic Capability?"
-  What value did the team concept bring to the scientific output of the group?
-  How will the community access your results and products?