

## Charter of the LWS Targeted Research & Technology (TR&T) Steering Committee

As stated in the recent report of the LWS TR&T Science Definition Team (SDT) (<http://lws-trt.gsfc.nasa.gov>), the goal of the TR&T program is to provide the theory, modeling, and data analysis necessary to enable an integrated, system-wide understanding of Sun-Earth Connection science with societal relevance. The SDT concluded that a successful TR&T program must include four defining elements:

- 1. Periodically updated scientific targets.**
- 2. Investigations that provide clearly-defined schedules and deliverables.**
- 3. Cross-disciplinary research.**
- 4. Large-scale projects that provide essential strategic capabilities for LWS.**

The SDT further recommended, and the LWS MOWG endorsed, the establishment of a Steering Committee with broad community representation that would advise and support NASA in developing and directing the TR&T program. Consequently, NASA HQ hereby charters a TR&T Steering Committee (TSC) to function as a top-level science working group for the LWS program, reporting to both the LWS Program Scientist and the LWS MOWG. The main role of the TSC will be to examine the TR&T from an overall point of view to promote integrated Sun-Earth system science. The TSC will be composed of solar-terrestrial scientists and representatives from the applications community. The members will be selected on a rotating basis by the LWS Program Scientist as the LWS program evolves. The main responsibilities for the TSC include:

### **1. Periodically Updating Scientific Targets.**

Since the TR&T, and LWS as a whole, are required to produce science with a demonstrable impact on society, the TR&T must be a directed program with well-conceived "targets" that are defined and updated on a regular and systematic basis. The TSC will determine the most important and timely scientific targets. The TSC must ensure that no critical science "falls through the cracks", thereby compromising the whole LWS initiative. This task is especially critical for the LWS program, whose breadth is unique and whose success requires coordination across several disciplines.

### **2. Defining Strategic Capabilities.**

Both physics-based and empirical large-scale models must be developed to advance our capabilities in specifying and forecasting the Sun-Earth system. These models will also serve as community tools and as prototypes for an

eventual operational capability. The SDT identified such models as essential aspects of the LWS program infrastructure that should be emphasized and fostered. The TSC will recommend the strategic capabilities that are required by the TR&T, their delivery sequencing, and the mechanism(s) for community access.

### **3. Developing Strategies for Cross-Disciplinary Research.**

Understanding the coupled Sun-Earth system clearly requires research that crosses the space physics subdiscipline boundaries. Due to the traditional organizational structure within both the science community and NASA, such research is the least likely to occur spontaneously. Therefore, a vital responsibility of the TSC will be to develop tools by which the TR&T can promote cross-disciplinary research. Examples include focused campaigns, workshops, community centers, or student/post-doc programs. The TSC will develop strategies for creating the new community of cross-disciplinary researchers that is required for the success of LWS.

### **4. Assessing Progress.**

Since the TR&T is a directed program with specified targets, deliverables, and capabilities, metrics and validation methods must be implemented to measure its success in achieving these goals. Furthermore, mechanisms must be developed to assess the societal benefits derived from the TR&T. The TSC will help develop the necessary metrics and validation methods, and employ them to measure progress in the TR&T program. The TSC will assist NASA HQ in using the results of these assessments to support and advocate the TR&T mission.