LWS MOWG Report to SECAS

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LWS MOWG Findings

- General Comments
  1. Lower Cost Implementation Approaches
  2. Budgetary Restoration
  3. Workforce Development
  4. Task Force and Workshop Inputs
  5. Access to Space
  6. Partnerships
  7. Missions of Opportunity
  8. Support for the PICARD Mission
  9. Advancing Pre-Sentinels Science with Unique Constellations of Existing Spacecraft
Pleased to have Drs. Koskinen, Friis-Christensen, and Schwenn on LWS MOWG

Continued aggressive pursuit of the basic research goals of SEC is crucial

SEC has a role in the new Exploration Initiative

LWS is in a unique position to support Exploration

Concerned with SDO growth, but satisfied that LWS line was not cut in recent budget

Concerned that SEC budget falls well short of enabling balanced program as recommended in the Decadal Survey Report

Supports the concept of establishing a ‘Level 1’ NASA requirement for an end-to-end predictive capability for solar system environmental observations and modeling that will be the explicit responsibility of LWS and SEC

Encouraged by manner in which the SEC Division is attempting to execute this complex, but singularly important program
Lower Cost Implementation Approaches

- We find that LWS should return to its original theme of having integrated/concurrent observations in order to serve our broader mandate of supporting the Exploration Initiative.
- Alternative means of implementation should be explored. (e.g. PI mode, especially for upcoming IT and RB Storm Probes, without change in GMDT science scope)
- We find that an AO for a Heliospheric sentinels mission should come soon but only after IT and RB missions
Budgetary Restoration

- The MOWG finds that a process must be put in place to determine what **level of funds** are required to carry out a sensible and prudent MO&DA program in SEC.
- LWS needs the full SEC compliment of existing missions for a healthy space-weather program.
- The comparatively low cost of existing missions provide an exceptional scientific return.
- A ‘normal’ senior review can be useful only if a funding level is realistically established.
Workforce Development

- We find that every effort should be made to enable the community to participate in all aspects of the LWS missions.
- The Exploration Vision places a significant burden on the future workforce.
- The development of a future workforce has been most effectively achieved through a hands-on approach (e.g. Suborbital and Explorer programs).
- Graduate and undergraduate emphasis is particularly lacking from NASA.
Task Force and Workshop Inputs

We find that LWS should actively promote to relevant groups within the NASA organization those areas of research that clearly support the new Exploration Vision.

The LWS MOWG endorses the established task force that has examined the SEP effects on humans.

We find that the other areas of application within LWS should be studied in a similar fashion (such as Global Circulation Models applied to Mars, aero drag/capture, communication through terrestrial and Martian ionosphere, transition through radiation belts, prediction of Solar mass ejections).

We find that inclusion of independent input from such organizations as the CSSP would be highly valuable:
  - e.g. a workshop under LWS MOWG and CSSP auspices
Access to Space

We find that NASA should reopen and pursue vigorously means to reduce launch costs

- DoD secondary payloads
- Existing Air Force effort to use existing assets such as ICBMs
- the endorsement of and active support from the highest levels of NASA and the DoD will need to be obtained
Partnerships

We find that appropriate partnerships could be crucial for achieving the LWS scientific goals.

To be successful, partnerships must be made early in the program and at a high administrative level within each organization.

Examples

– With ESA to look at Sun and look at magnetosphere/radiation belts dynamics
– With Air Force to standardize secondary payload capability
With ever-increasing pressure on the Storm Probe budgets, the MOWG finds that missions of opportunities need to be vigorously pursued with sufficient flexibility to enable low-cost sensor suppliers and relatively rapid response.
Support for the PICARD Mission

- The MOWG is concerned about possible gaps in this time series from US satellites and endorses the French CNRS PICARD mission as one step toward ensuring such data continuity.

- A complete inventory was not made by the MOWG of other missions that may also complement the LWS program.
Unique Constellations of Existing Spacecraft

The MOWG endorses the proposal to jumpstart the Sentinels science program by taking advantage of spacecraft constellations - e.g. 2006-2008, the two STEREO spacecraft, Ulysses, ACE, SOHO, and Wind will all lie in a sector ideal for sampling Earth-directed CMEs.

Operations must be maintained.

Cost effective strategy to meet LWS goal of simultaneous observations.