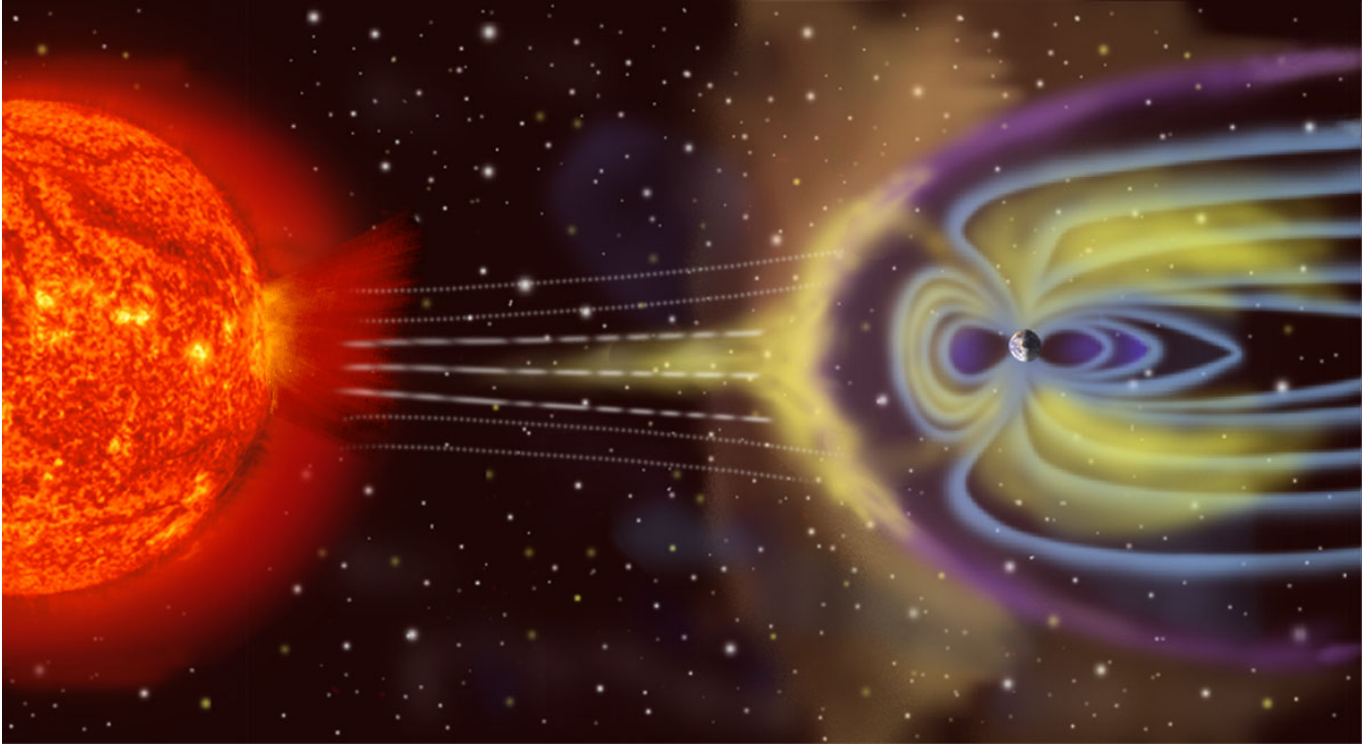




# Living with a Star Data Environment

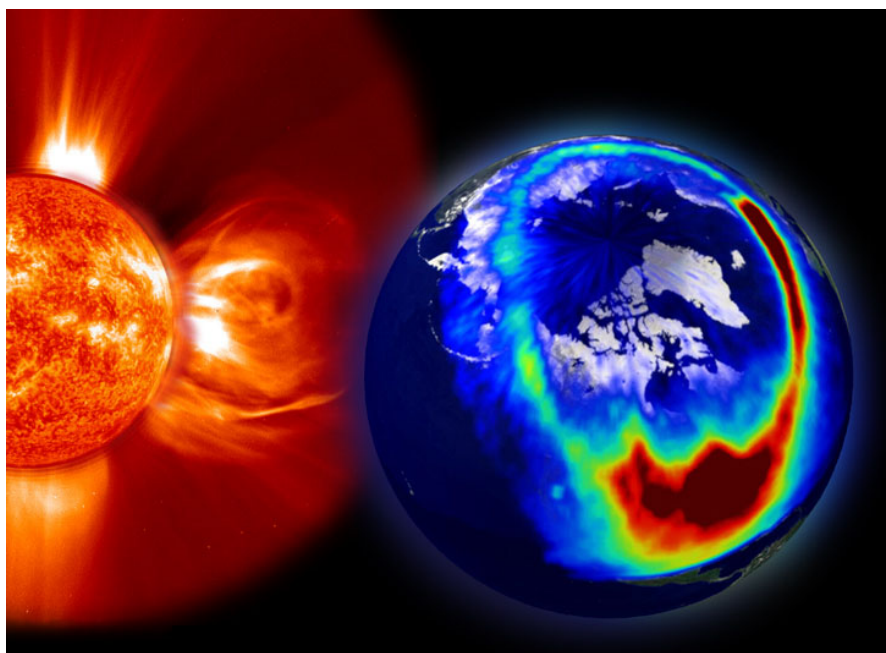


**T. Kucera**  
**NASA/GSFC**



# Living with a Star

A program of applied scientific research geared towards understanding and predicting effects of the Sun on human society



Spacecraft  
Navigation  
Communications  
Power Systems  
Climate  
Astronaut Safety



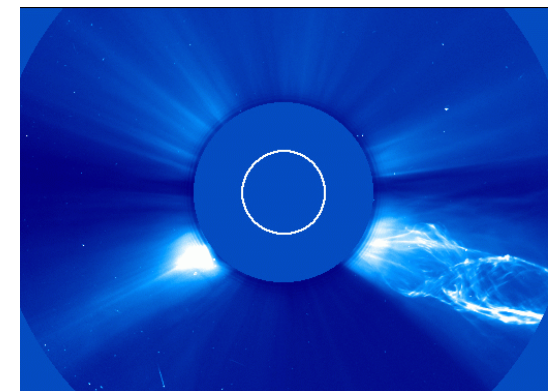
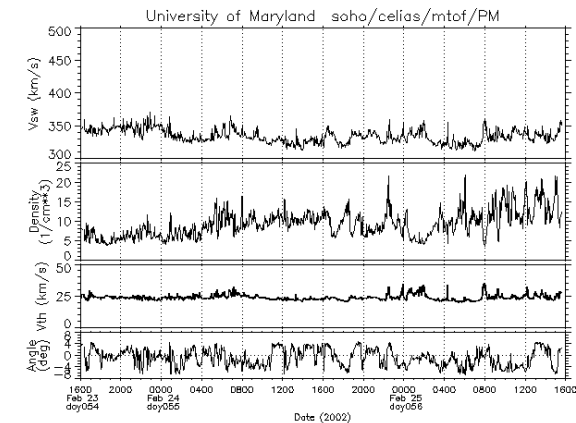
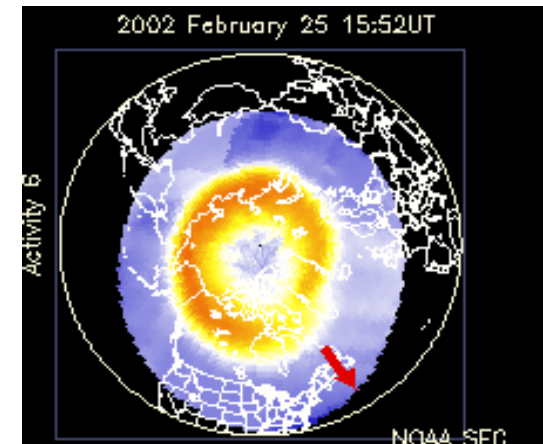
# LWS Components

- Targeted Research and Technology Program
- Space Environment Testbeds Program
- Science Missions
  - Solar Dynamic Observatory (Launch 2007)
  - Geospace Missions (Radiation Belts & Ionosphere)  
(Launch 2008, 2009)
  - Heliospheric Sentinels



# Data Sources

- LWS Missions
- Other NASA Missions
- Other US Govt. agencies (*e.g.*, NOAA, DoD)
- Ground Based Observatories
- Foreign Space Agencies
- Models





# Data Users

Applied science mission, so most users will still be scientists

Expect interest from operational agencies such as NOAA & DoD and industry.

Public



# Issues and Challenges

- Cultural – The success of LWS depends on cross-disciplinary research
- Diverse data sets & diverse data sources
- Integration of Data and Models
- Long Term Trends are Important
- Data Volume (Searching, Transporting)
- Tight budget



# LWS Data Environment Studies

LWS Science Data Environment Ad-hoc Study Team:  
GSFC, APL team chaired by Terry Kucera, Barry LaBonte; Dave  
Sibeck, past chair

LWS Project Ground and Data System Study Group (Mary DiJoseph)

Community Panels:

Sun Earth Connection Data and Computing Working Group (Ray  
Walker, Chair)

TR&T Definition Team (Jack Gosling, chair)



# Distributed Data Environment

- **Data system providing centralized interface(s) for distributed data and software**
  - Establishment of metadata and data access standards (including those needed to incorporate models and catalogues)
  - Open ended so that we can make sure the basics get done but other capabilities can be added.
- LWS Instrument Teams provide ALL their data and basic calibration and analysis software
- Further analysis software and tools provided by data users and those working closely with them.





# Analysis Tools for Different Needs

- Modular, open-access analysis software, written by the science community and available to all (*a la SolarSoft*)
- Easy to use web-style tools for use by those who are unfamiliar with the data and need to access basic data products easily



# Community Based Data Environment:

How to build a data system which will be used by a diverse community?

“Bottom up”

Expand data system from

- Existing resources in the science community

and

- via projects proposed and developed by the community and tested by use with existing data.



# Ideas? Suggestions?

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