COMBINING IN-SITU, IMAGERY & RADIO DATA

- **Introduction: What is Needed?**

- **Individual presentations**

- **General discussion**

- **Summary / Action items**

Introduction: What is Needed?

- **Features to Study**
  - **Small-scale structures in solar wind**
  - **Large-scale structures**
    - **- Transients (move outward radially)**
    - **- CIRs, streamers (corotate)**

- **Types of Data to Display**

- **Types of Displays**
  - **Stackplots**
  - **Quicklook displays**
    - **- Beacon data; ACE-type browse; Key parameters**
    - **- Type, range, time scales of each measurement**
    - **- Side-by-side or all-in-one displays?**
  - **Final displays**

- **Incorporating data from other missions**
  - **STEREO (images+in-situ) + Solar-B (images/spectroscopy/mag. field)**
  - **Existing: ACE, Wind (WAVES & EPACT), SOHO, TRACE, Ulysses, SMEI, IPS, SXI 1 (& 2)**
  - **Are special arrangements needed?**

- **Incorporating Models**
    - **High res., 3-D at Sun; Global, low res. for heliosphere**
    - **Modeling discussion this afternoon**

- **Space weather aspects**
    - **Drivers of geoactivity**
    - **Support NASA Moon, Mars initiative (particles; radiation)**

DATA BROWSERS AND VIEWERS

STEREO Science Center Real-Time Data Pages *(W. Thompson et al*)
http://stereo-ssc.nascom.nasa.gov/mockup/latest_mockup.shtml

Solar Weather Browser *(B. Nicula, D. Berghmans, R. van der Linden; ROB)*
User-friendly browser tool for finding & displaying solar data & (SWB) context information. Test version available at http://sidc.oma.be/SWB/

STEREO Key Parameters *(C. Russell & IMPACT, PLASTIC & SWAVES teams; UCLA)*
An easily browseable Merged Key Parameter data display including the in-situ & SWAVE radio data from STEREO.

Carrington Rotation In-situ Browser *(J. Luhmann, P. Schroeder UCB)*
Browser for identifying in-situ events & their solar sources at CR-time scales.
Includes near-Earth (ACE) data sets for third point views & image movies from SECCHI & near-Earth (SOHO).
See: http://sprg.ssl.berkeley.edu/impact/data_browser.html.

JAVA-3D Synoptic Information Viewer *(J. Luhmann, P. Schroeder UCB)*
JAVA-3D applet for viewing 3D Sun & solar wind sources based on synoptic solar maps & potential field models of the coronal magnetic field.

Radio and CME Data Pages *(M. Pick, M. Maksimovic, J.L. Bougeret, A. Lecacheux, R. Romagan, and A. Bouteille)*
Ground radio imaging and spectra; movies; S-WAVES SECCHI summary CMEs (NRL); Use standard html browsers.

Individual Presentations

(Mewaldt –   ACE/STEREO, 3 views)
Luhmann -   displays, browsers, etc.
Jian –   SIRs over cycle
Culhane –   solar event & Cluster/ACE obs.
Galvin –   displays for PLASTIC
Thompson   SSC displays
Kaiser -   WAVES & SWAVES
Kellogg   "
Reiner –   Triangulation with radio data
Riley –   model reconnection jet & hi speed flows
Jackson –   observed hi speed transient flows
Vourlidas –   white light & radio
Bothmer –   photospheric fields, low coronal transients, CMEs
                    & energetic electrons

General topics:
Involvement of ground-based radio
Solar weather browser
Metric/kilometric radio waves displays

Sun
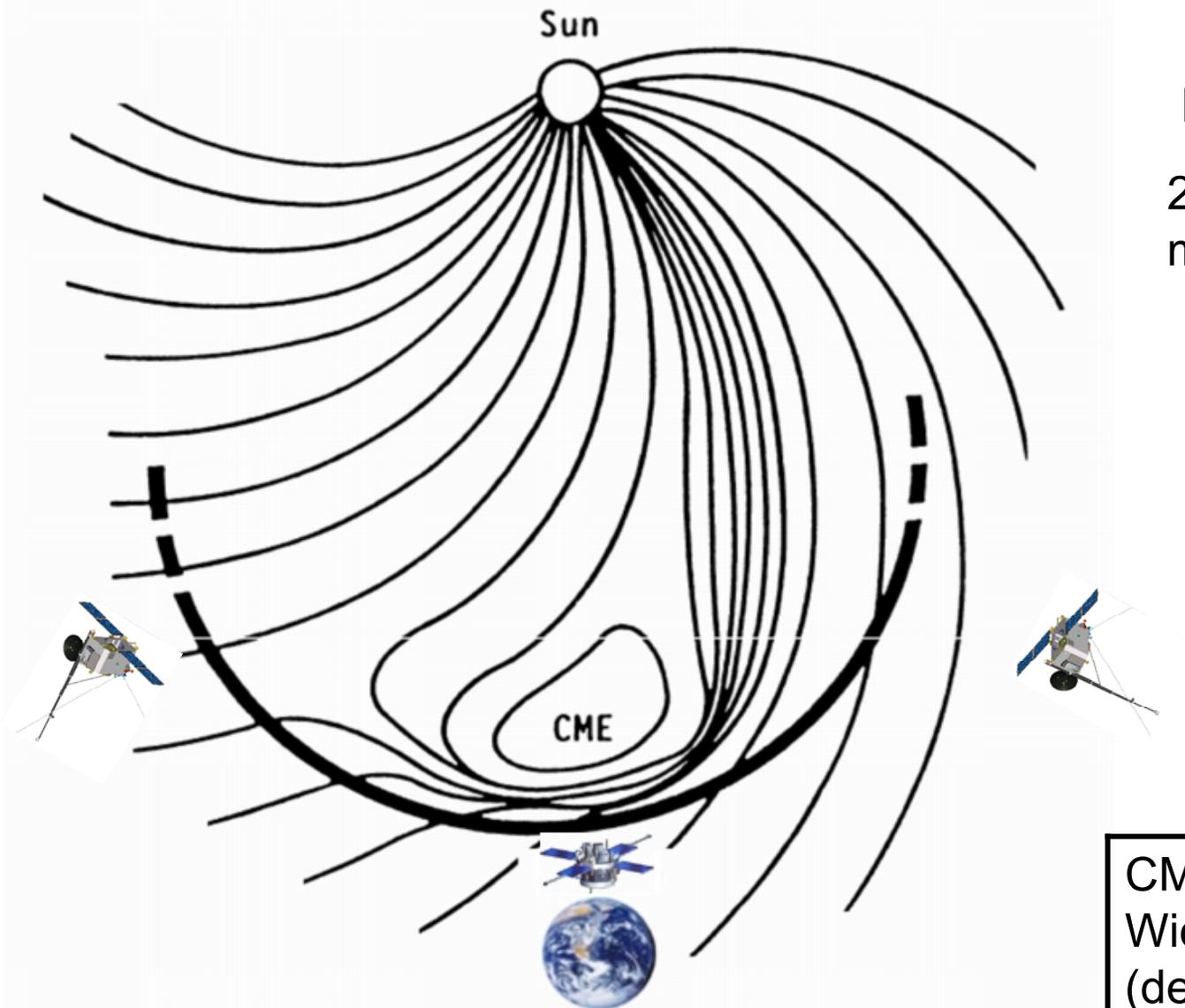
End of Year 2

2(3)-point CME measurements

CME

Addition of ACE increases the number of ≥ 2 point measurements

CME Width (deg)	Increase in 2 pt. meas.
60	56%
100	68%
150	23%

Mewaldt Summary

- ACE-STEREO combination allows many more 3- and 2- point measurements to be made
- Multipoint measurements help constrain models and explore longitudinal dependences
  - Flux rope modeling
  - Shock front topology
  - SEP seed population
  - SEP acceleration processes
  - SEP release times

Summary

- ACE-STEREO is a natural combination because of the compatibility of the instrumentation
  - solar wind and suprathermal composition
  - SEP composition
- Space Weather
  - Both ACE and STEREO have real-time space weather modes with good overlap in capability
  - ACE can provide ground truth for forecasts based on STEREO imaging data

Summary and Action Items