STEREO Space Weather Group Update

• Group leaders: Dave Webb & Doug Biesecker

• Website updated occasionally:
  - Webmaster is Lynn McNutt of NRL/SECCHI

• Contains background on SWx, SWx-related meetings, PI SWx studies, tools/projects, references & links
  - Member list with email addresses
    - Currently have ~120 members
    - Recent emailing; bounces – **I need updated addresses!**
    - Contact me to join ([david.webb@hanscom.af.mil](mailto:david.webb@hanscom.af.mil)) or request to subscribe at [http://ares.nrl.navy.mil/cgi-bin/majordomo](http://ares.nrl.navy.mil/cgi-bin/majordomo)

• Maintain a list of URLs/links that all PI teams can use
  - Recently added more STEREO CME/event catalog links
  - Feedback please!

• Maintain reference list of key SWx papers
  - Recently updated; need **feedback!**

• Tools/Projects list
  - Feedback: Need updates from each team
  - Interactions with STEREO Teams & SSC

DFW, STSWG, Paris, 20Apr08
STEREO Space Weather Event Pages

• Based on old ISTP Sun-Earth Connection Events site:
  - http://www-istp.gsfc.nasa.gov/istp/events/

• Contains an event summary, online data, modeling & links to other data

• First STEREO SWx event was Dec. 13-15, 2000

• Event just added: May 19-22, 2007

• Need your feedback on these Event pages!
  - Incorporate or link to other STEREO data:
    Beacon (NRT quicklook)
    SECCHI & SWAVES imagery
    PLASTIC & IMPACT in-situ data
    Modeling/simulation results
  - Need more geo inputs!
  - Try to incorporate new events/pages soon after events occurrence
SPACE WEATHER TOOLS

General:
- Geometric Localization of STEREO CMEs  (V. Pizzo & D. Biesecker, 2004; NOAA)
- WSA Model Predictions  (N. Arge, J. Luhmann, D. Biesecker; AFRL, UCB, NOAA; Arge & Pizzo, 2000)
  Leslie Mayer work, SWPC, incorporating STEREO locations into the WSA model. Will resemble standard output at: http://www.swpc.noaa.gov/ws/ but w/ ST A & B added

CME Detection:
- CACTUS – Computer Aided CME Tracking  (E. Robbrecht & D. Berghmans, 2005; ROB)
  Latest COR2 runs at http://sidc.oma.be/cactus/
- SEEDS – Solar Eruptive Event Detection System  (J. Zhang et al.,; GMU)
  Being tested/used on LASCO & SECCHI CMEs: http://spaceweather.gmu.edu/seeds/index.php
  • On-board Automatic CME Detection Algorithm  (E. De Jong, P. Liewer, J. Hall, J. Lorre & R. Howard) ; JPL, NRL Not implemented?

CME-Related Features Detection:
- Computer Aided EUVI Wave and Dimming Detection  (O. Podladchikova, D. Berghmans, A. Zhukov; ROB; Podladchikova & Berghmans, 2005)
  Tested on SOHO EIT images: http://sidc.oma.be/nemo/. SECCHI soon?
  • Velocity Map Construction  (J. Hochedez, S. Gissot; ROB)
  • Automatic Solar Feature Classification  (D. Rust, P. Bernasconi; JHU/APL)
SPACE WEATHER – ENABLING PROJECTS

- Identifying and Tracking CMEs with the Heliospheric Imagers (R. Harrison, C. Davis; RAL)
- Structural Context of Heliosphere Using SMEI Data (D. Webb, B. Jackson; BC/AFRL, UCSD; Jackson et al., 2006)
  - Interplanetary Acceleration of ICMEs (M. Owens; BU)
  - Relationship Between CMEs and Magnetic Clouds (S. Matthews; MSSL)
  - 3D Structure of CMEs (V. Bothmer, H. Cremades, D. Tripathi; MPI, Ger., Cambridge, UK; Cremades & Bothmer, 2004)
DATA BROWSERS AND VIEWERS

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

- Solar Weather Browser *(B. Nicula, D. Berghmans, R. van der Linden; ROB)*
  http://sidc.oma.be/SWB/

- STEREO Key Parameters *(C. Russell & IMPACT, PLASTIC & SWAVES teams; UCLA)*
  http://www-ssc.igpp.ucla.edu/forms/stereo/heliocentric.html

- Carrington Rotation In-situ Browser *(J. Luhmann, P. Schroeder UCB)*
  http://sprg.ssl.berkeley.edu/impact/data_browser.html

- JAVA-3D Synoptic Information Viewer *(J. Luhmann, P. Schroeder UCB)*

- Radio Monitoring and CME Data Pages *(M. Pick et al.)*
THE END
Incorporating Data from Other Sources

• **Existing Data:** ACE, Wind WAVES & EPACT (MeV protons), SOHO, TRACE, (SXIs), Hinode, Ulysses, SMEI, IPS
  
  • **Near-future Data:** SDO, MWA/IPS (Faraday rotation), FASR, new heliospheric imagers, Sentinels & Solar Orbiter (HELIX)

Are special arrangements needed?

• CCMC use of STEREO data as inputs to models
  - Clearly has space weather context

• **Future SWx meetings:**
  - Updates at all SWGs & SECCHI Consortia
  - Separate Space Weather workshop?

• **Interfaces with:**
  - 3D Reconstruction & Visualization Team
  - Virtual observatories
  - IHY (CIPs related to STEREO data & analyses)
  - Outreach aspects
    With NASA EP/O & PAO efforts; Press Releases?
    A feature article in Space Weather journal?

• **Other ideas; changes??**