CEDAR-GEM
Modeling Challenge at SWW-2013

Boulder, April 15, 2013
8:00 - noon

Conveners: Ja Soon Shim, Masha Kuznetsova, Barbara Emery, Aaron Ridley

Build upon GEM GGCM Challenge and CEDAR ETI Challenge
Share experience, lessons learned
Address topics of common interest,
Analyze effects of model coupling on metrics results
Develop tools & methods for further studies

Agenda Topics for Discussion I

- Review of the first results of the study on role of drivers (8:00 – 9:15)
  - Results for Dec 2006 event/Ja Soon Shim
  - Correlation between quality of input drivers and model output (metrics study)
  - Needs for assessment of high latitude ionosphere data steams
  - GITM results for GEM-CEDAR events/Aaron Ridley
  - About event runs with AMIE/Geoff Crowley
  - More events and more measurements
- Methods and tools for MI coupling studies/CCMC, Modelers (9:15 -10:00)
  - Tools for swapping high latitude electric potential drivers
  - Particle precipitation
  - Penetration electric field/Mihail Codrescu, Naomi Maruyama, Gang Lu
  - Action plan for development of swapping tools

Topics for Discussion II

- Model-Data comparison (10:00 -11:00)
  - How to quantify storm impact on the ionosphere and thermosphere/ Tim Fuller-Rowell
  - Suitable metrics for validation of IT parameters for different applications/Tim Fuller Rowell, Masha Kuznetsova
- Climatology project (11:00 – 11:20)
  - Status, lessons learned and future plans/Barbara Emery
- Ideal for real-time validation (11:20 – 11:45)
  - NASA missions needs. Ne and Te at ISS/Masha Kuznetsova, Mihail Codrescu
  - Other ideas
- Planning of future activities (11:45 – noon)
  - Plans for Summer GEM-CEDAR & CEDAR Workshops
  - Action items

Physical Parameters

- Ionosphere/Thermosphere models or coupled model components:
  - Vertical and horizontal drifts at Jicamarca
  - Neutral density at CHAMP orbit
  - Electron density at CHAMP orbit
  - NmF2 and HmF3 from LEO satellites (CHAMP and COSMIC) and ISRs
  - Temperature Tn and neutral winds at 250 km (FP Spectrometer, Arrival height, Resolute Bay)
  - Ne, Te, Ti, Ion vert velocity at 300 km (Millstone Hill, Sondrestrom, EISCAT, Svalbard ISRs)
- Geospace models or coupled model components:
  - Magnetic filed at geosynchronous orbit
  - Ground magnetic perturbations
  - Dst index
  - Auroral oval position (high latitude and low latitude boundaries)
- Parameters along DMSP tracks
  - Poynting flux (Joule heating) into ionosphere along DMSP tracks
  - Plasma Velocity (Vx - along track, Vy cross track, Vz - vertical)
- Additional time series in support of simulation results analysis
  - Cross polar cap potential (northern and southern hemisphere)
  - Joule heating (or Poynting flux) integrated over each hemisphere.

New!

Events

- Short events
  - December 14, 2006 12:00 UT - December 16, 00:00 UT
  - August 31, 2001 00:00 UT - September 1, 00:00 UT
  - August 31, 2005 10:00 UT - September 1, 12:00 UT
  - May 15, 2005 00:00 UT - May 16, 2005, 00:00 UT
  - July 9, 2005 00:00 UT - July 12, 2005, 00:00 UT
- Climatology projects
  - March 2007 – March 2008 (quiet, ISR observations)
  - March 2005 – Sept 2005 (disturbed, Dst study)

Supported by Community Coordinated Modeling Center

Community Coordinated Modeling Center

http://ccmc.gsfc.nasa.gov/challenges/

GEM-CEDAR Challenge

Challenge home | Selected events | Selected parameters | GEM-CEDAR metrics suite | CCMC

GEM-CEDAR Metrics Suite

Simulation results submission interface:

- Prior to submission of your simulation results please review: Selected events | Physical parameters | Model output file format
- **Submit your simulation results >>**

Simulation results analysis tools:

- Time series plotting tool >>
- Runs for metric studies performed at the CCMC

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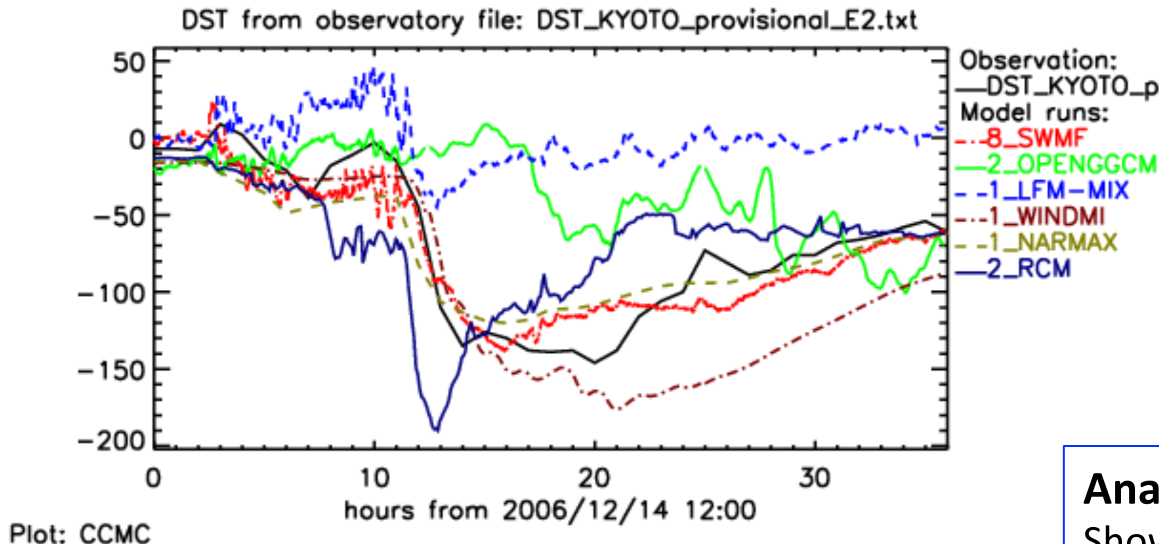

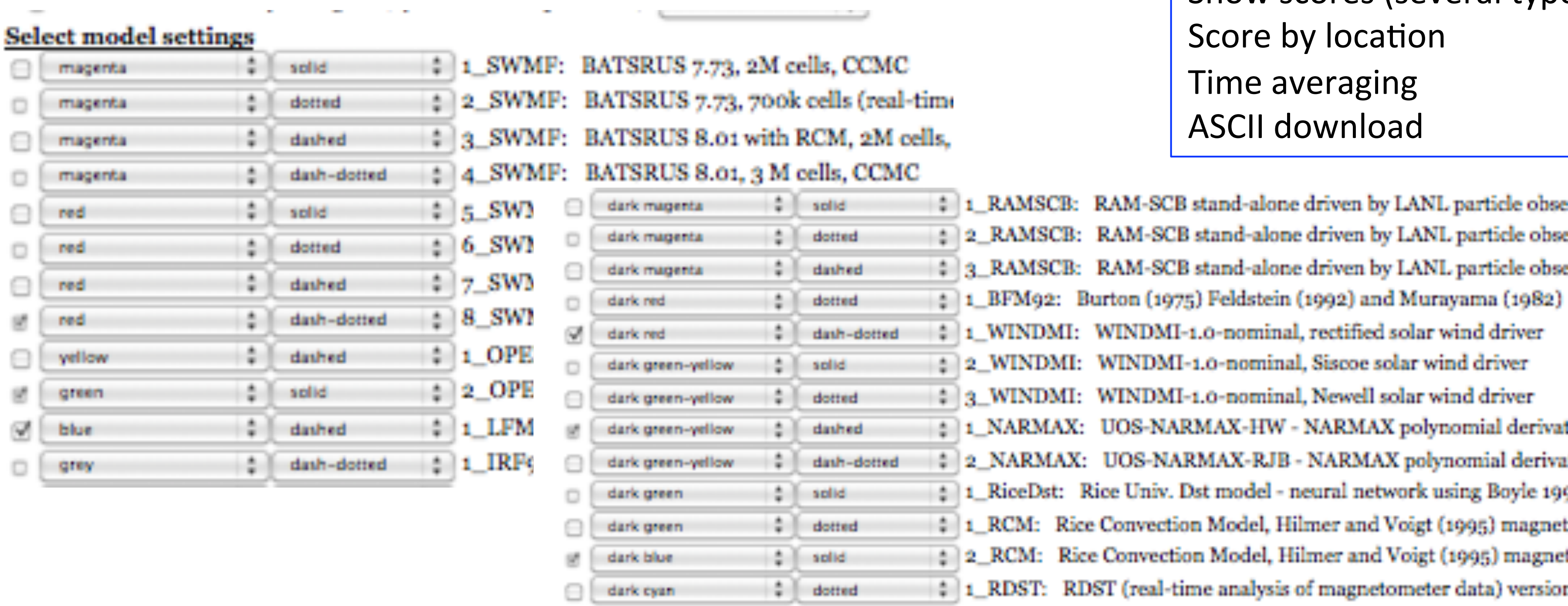

Analysis options:

Show scores (several types)

Score by location

Time averaging

ASCII download