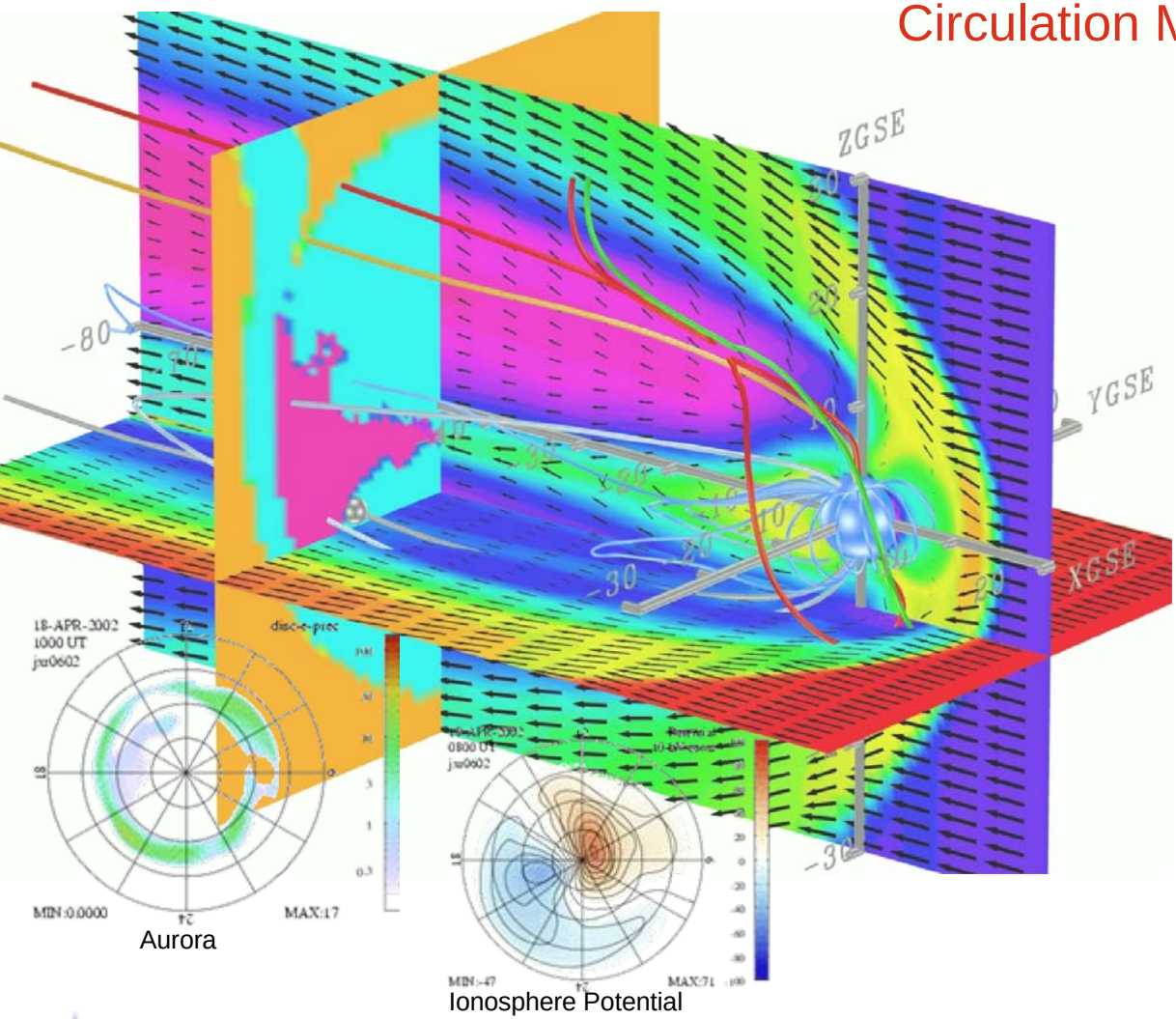
penGGCM: Global Magnetosphere Modelir



The Open Geospace General Circulation Model:

- Coupled global magnetosphere - ionosphere - thermosphere model.
- 3d Magnetohydrodynamic magnetosphere model.
- Coupled with NOAA/SEC 3d dynamic/chemistry ionosphere - thermosphere model (CTIM).
- Model runs on demand provided at the Community Coordinated Modeling Center (CCMC at NASA/GSFC http://ccmc.gsfc.nasa.gov/
- Will be coupled with ring current models (RCM, Fok/Jordanova models) in the near future.
- Fully parallelized code, real-time capable.
- Used for basic research, data analysis support, mission planning, space weather studies, and Space Weather Forecasting in the future.

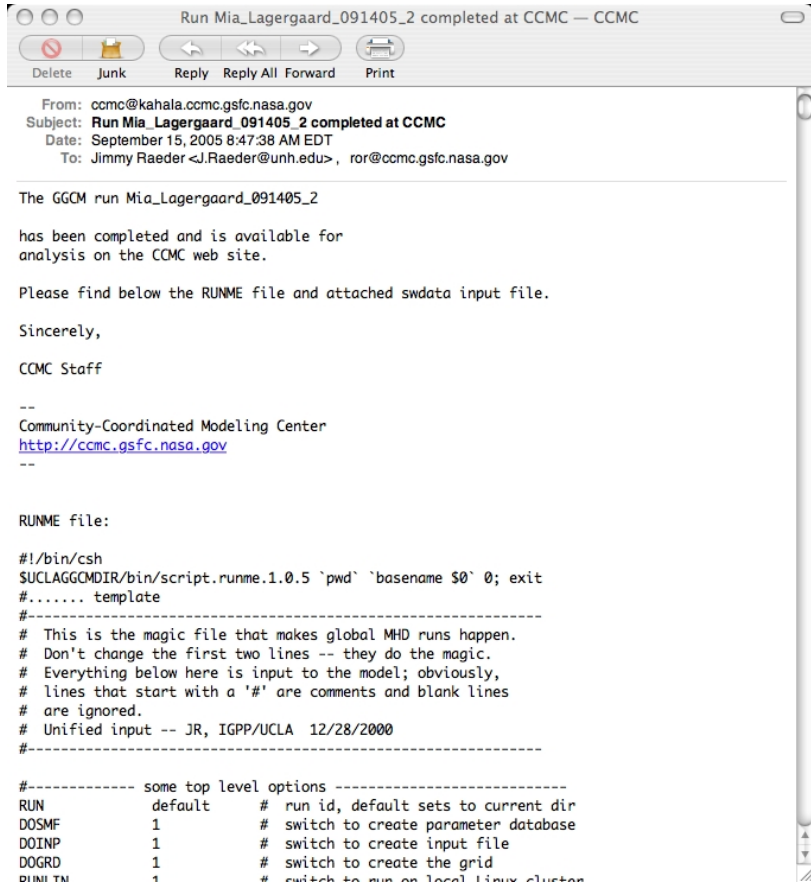
Personnel: J. Raeder, J. Dorelli, D. Larson, T. Fuller-Rowell (NOAA/SEC), F. Toffoletto (Rice U.), M.-C. Fok (GSFC), V. Jordanova, W. Li, B. Loring, T. Fogal, T. Olson

Developer Perspective/Concerns

- What does CCMC do with the model?
- What do run-on-demand users do with the model? Is the model abused (Tsyganenko effect)?
- Is there anything tangible coming out? papers talks, extensions, really new physics I never thought of? Citations?
- Can the CCMC provide a path to operations?
- What would users like to have that the model does not provide?
- How does the CCMC help me?

Users Feedback

- Routine CCMC feedback: every run sends automatic e-mail with ‘runme’ and ‘swdata’ files.
- User classes:
  - Uses model once or a few times, never comes back (maybe UCLA students?).
  - Many runs, but have no clue what (s)he is doing (G. Siscoe, …).
  - User who makes many runs, and cares, e-mails: ‘I see this, what does it mean…..’ (GSFC postdoc, Finnish grad student, …)
  - Many runs, followed by collaboration (Vennerstroem, Moretto, Rastaetter,…)
- Yes, it has been, and is, very useful,



Run Mia_Lagergaard_091405_2 completed at CCMC — CCMC

Delete Junk Reply Reply All Forward Print

From: ccmc@kahala.ccmc.gsfc.nasa.gov
Subject: **Run Mia_Lagergaard_091405_2 completed at CCMC**
Date: September 15, 2005 8:47:38 AM EDT
To: Jimmy Raeder <J.Raeder@unh.edu>, ror@ccmc.gsfc.nasa.gov

The GGCM run Mia_Lagergaard_091405_2

has been completed and is available for
analysis on the CCMC web site.

Please find below the RUNME file and attached swdata input file.

Sincerely,

CCMC Staff

--
Community-Coordinated Modeling Center
http://ccmc.gsfc.nasa.gov
--

RUNME file:

```
#!/bin/csh
$UCLAGGCMDIR/bin/script.runme.1.0.5 `pwd` `basename $0` 0; exit
#....... template
#-----------------------------------------------------------------
#  This is the magic file that makes global MHD runs happen.
#  Don't change the first two lines -- they do the magic.
#  Everything below here is input to the model; obviously,
#  lines that start with a '#' are comments and blank lines
#  are ignored.
#  Unified input -- JR, IGPP/UCLA  12/28/2000
#-----------------------------------------------------------------

#------------- some top level options ----------------------------
RUN             default      #  run id, default sets to current dir
DOSMF           1            #  switch to create parameter database
DOINP           1            #  switch to create input file
DOGRD           1            #  switch to create the grid
```

CCMC Feedback

- They find bugs.
- They do new things with the model.
- They force better documentation, version control, etc.
- They encourage data standards.
- They develop new analysis and visualization tools.
- They do metrics studies of their own.
- They provide a permanent archive.

New Versions / Features

- Using ‘subversion’ now. Minor bug fixes.
- Ring current coupling: RCM (F. Toffoletto, Rice U.), CRCM (M.-C. Fok, GSFC), Jordanova (UNH) RC models (NASA SR&T funded).
- High-res grid files.
- Direct output to CCMC data standards.
- Resurrect OpenGGCM runs on demand an UNH for larger runs, wider parameter selection.

Suggestions

- Wiki pages for FAQ, user comments, etc.
- More routine output: time series plots, simple movies, …
- Raw data and analysis / visualization software to download.
- Publication database (V&V papers, papers resulting from model usage).
- CCMC provide V&V data sets.