CCMC-VMR Partnership

Virtual Model Repository
http://vmr.engin.umich.edu/

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Virtual Model Repository

- The VMR is a virtual observatory that enables scientific analysis of numerical models. A variety of model results are made available in a consistent and intuitive way through visualization tools and data/ model comparisons. Open access to most model output is provided, especially when used in support of published papers.

- The VMR enables browse/search of model output and satellite data for time periods of scientific interest. Data discovery and exchange is coordinated through various APIs from multiple sites to bring in the relevant data for visualization.

VMR Homepage

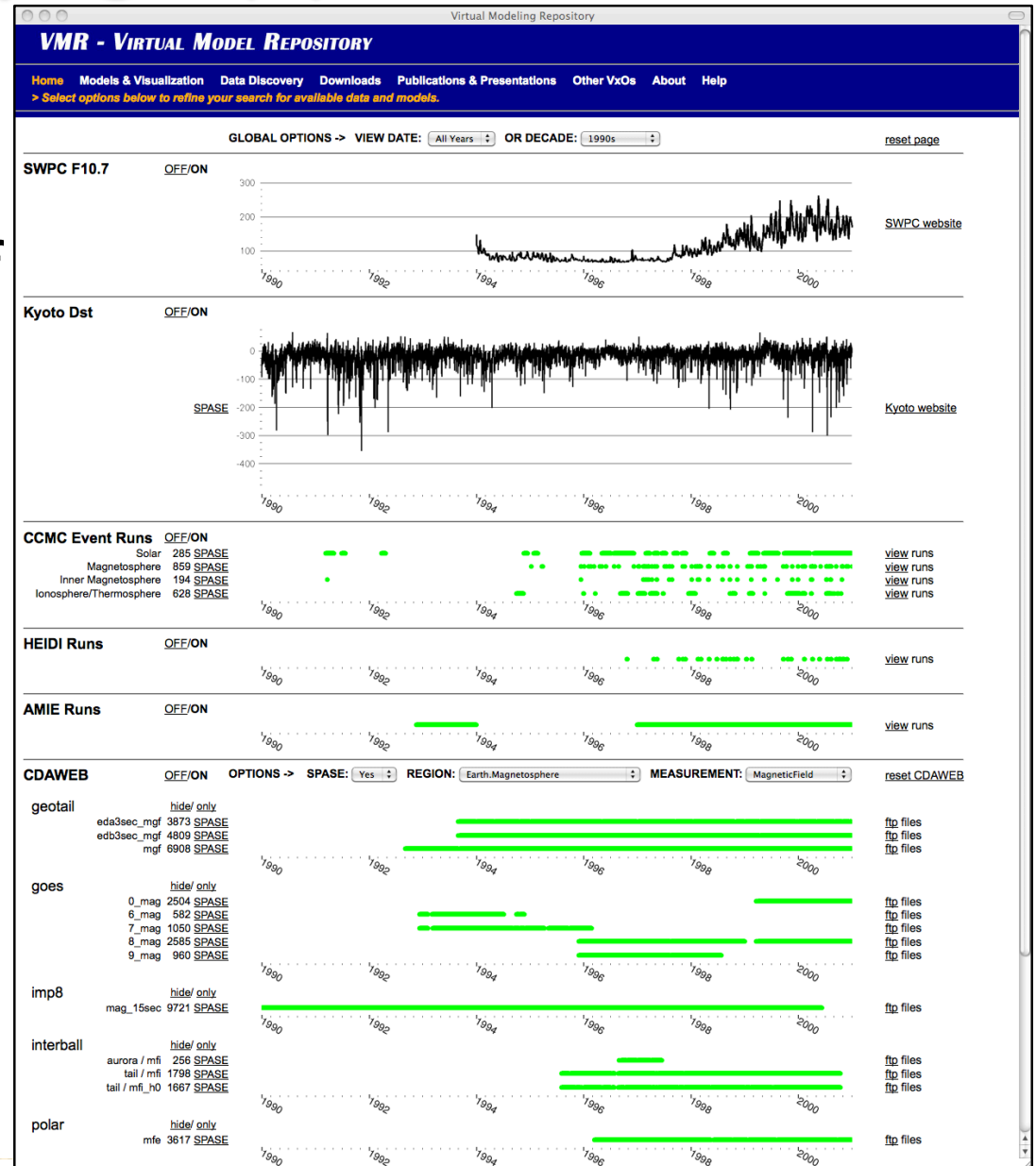The new VMR homepage allows you to quickly get to the information you want.

A cross-section of data and model output from a variety of sources is shown with dates of availability immediately visible.
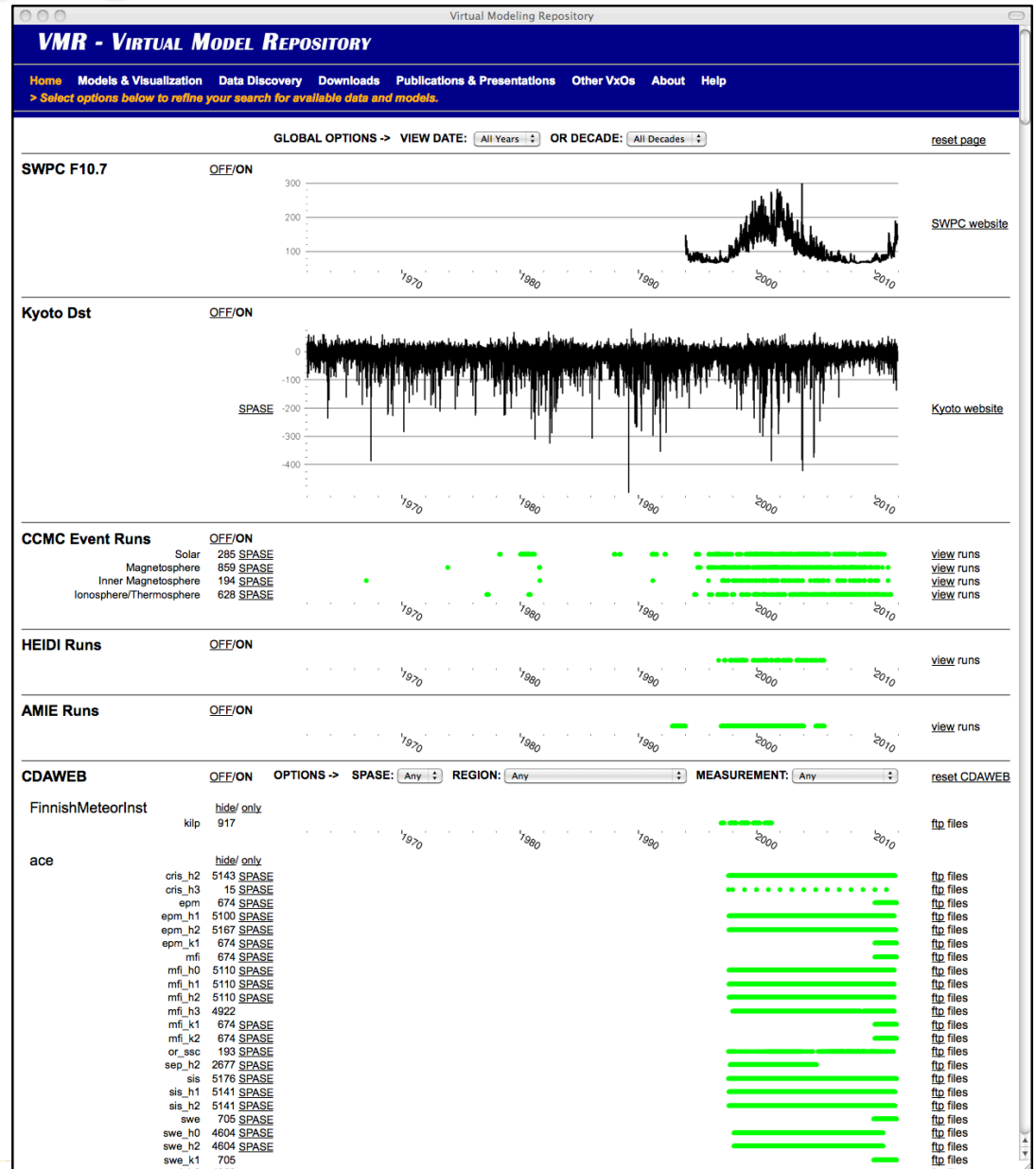
VMR Homepage (2)

Selecting a date, observed region of space, and/or type of measurement enables quickly drilling down to the data you are looking for.

VMR Homepage (3)

When SPASE
metadata is available,
it can be used to
refine the search.

CCMC Event Runs

We have created an interface to facilitate searching the CCMC Run-on-Request event runs and provide data/model comparisons.

The interface has several search values and sorting options.

CCMC Event Runs (2)

A detailed view of the run shows information from the CCMC database as well as satellites that have relevant data for the model run time and have had satellite trajectories extracted from the model output.

CCMC Event Runs (3)

Following this link will bring you to the CCMC webpage with the overview information about this run.

CCMC Event Runs (4)

Here you see the CCMC page for this run.

If satellite trajectories have been computed from this run output, they will be listed here.

Run information

COMMUNITY
COORDINATED
MODELING
CENTER

Related Links | Frequently Asked Questions | Community Feedback | Downloads | Sitemap

About | Models at CCMC | Request A Run | View Results | Instant Run | Metrics and Validation | Education | RT Simulations

SWPC_SWMF_052811_3

Title/Introduction:

Key Word: SWPC, GEM Challenge

Model Type: GM
Model: BATSRUS version v20110131

Inflow Boundary Conditions:
Start Time: 2001/08/30 19:00
End Time: 2001/09/01 00:00
Dipole Tilt at Start in X-Z Plane: 18.50 deg.
Dipole Tilt in Y-Z GSE Plane: -15.40 deg.
Dipole Update With Time: yes
Ionospheric Conductance: auroral

Radio Flux 10.7 cm: 203
Coordinate System for the Output: GSM
Initial Solar Wind (SW) Parameters in GSM Coordinates:

    SW Density: 3.60000 n/cc
    SW Temperature [Kelvin]: 83109.29000 Kelvin
    X Component of SW Velocity: -461.04000
    Y Component of SW Velocity: -31.53000 km/sec
    Z Component of SW Velocity: -13.29000 km/sec
    IMF Bx: 0.00000 nT
    IMF By: -3.89000 nT
    IMF Bz: -4.77000 nT
    IMF |B|: 6.16000 nT
    IMF Clock Angle: 219.2 deg.

- View solar wind input data
- List solar wind input data in ASCII format (see format description here).
- View Magnetosphere
- Create Timeseries in Magnetosphere
- View Ionosphere

    View pre-computed timeseries data:
    - Northern hemisphere polar cap flux and area
    - Southern hemisphere polar cap flux and area
    - Magnetopause standoff and closest approach within 30 deg. of Sun-Earth line (local noon)
    - Polar cap boundary at 24 magnetic local times
    - Ionospheric dissipation

- View Rice Convection Model data
- View Rice Convection Model data mapped to ionosphere

    View model outputs along satellite trajectories:
    - Cluster-1
    - Cluster-2
    - Cluster-3
    - Cluster-4
    - GOES-10
    - GOES-11
    - GOES-8
    - GOES-9
    - Geotail
    - IMAGE
    - IMP-8
    - LANL-89
    - LANL-90
    - LANL-91
    - LANL-94

CCMC Event Runs (5)

Scroll down this page to the bottom.

If this run is available to make data/model comparison plots in the VMR, this line will be shown with a link to the VMR page for that run.

Run information

SW Density: 3.60000 n/cc
SW Temperature [Kelvin]: 83109.29000 Kelvin
X Component of SW Velocity: -461.04000
Y Component of SW Velocity: -31.53000 km/sec
Z Component of SW Velocity: -13.29000 km/sec
IMF Bx: 0.00000 nT
IMF By: -3.89000 nT
IMF Bz: -4.77000 nT
IMF |B|: 6.16000 nT
IMF Clock Angle: 219.2 deg.

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- List solar wind input data in ASCII format (see format description here).
- View Magnetosphere
- Create Timeseries in Magnetosphere
- View Ionosphere

View pre-computed timeseries data:
- Northern hemisphere polar cap flux and area
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- Polar cap boundary at 24 magnetic local times
- Ionospheric dissipation

- View Rice Convection Model data
- View Rice Convection Model data mapped to ionosphere

View model outputs along satellite trajectories:
- Cluster-1
- Cluster-2
- Cluster-3
- Cluster-4
- GOES-10
- GOES-11
- GOES-8
- GOES-9
- Geotail
- IMAGE
- IMP-8
- LANL-89
- LANL-90
- LANL-91
- LANL-94
- LANL-97
- Moon
- Polar
- goes10
- goes8
- lanl01
- lanl90
- lanl94
- lanl97

View model outputs along satellite trajectories (files generated by model):
- goes10
- goes8
- lanl01
- lanl90
- lanl94
- lanl97

- Perform model data comparison for this run at the Virtual Model Repository

This interface has been recently updated. If you experience problems or have any questions please contact the CCMC staff.

Curator: Anna Chulaki | NASA Official: Dr. Michael Hesse | | Privacy, Security Notices

CCMC logo designed by artist Nana Bagdavadze

CCMC Event Runs (6)

Only runs where the satellite extraction has been made and where the satellite has it's magnetic field data published can be used for data/model plots.

A variety of plots can be made from this page.

Plot Satellite B field

Satellite magnetic field plots can be made for the modeled a custom time period.

Plot Output Along Trajectory

Model density along the GOES-12 trajectory for the modeled time period.
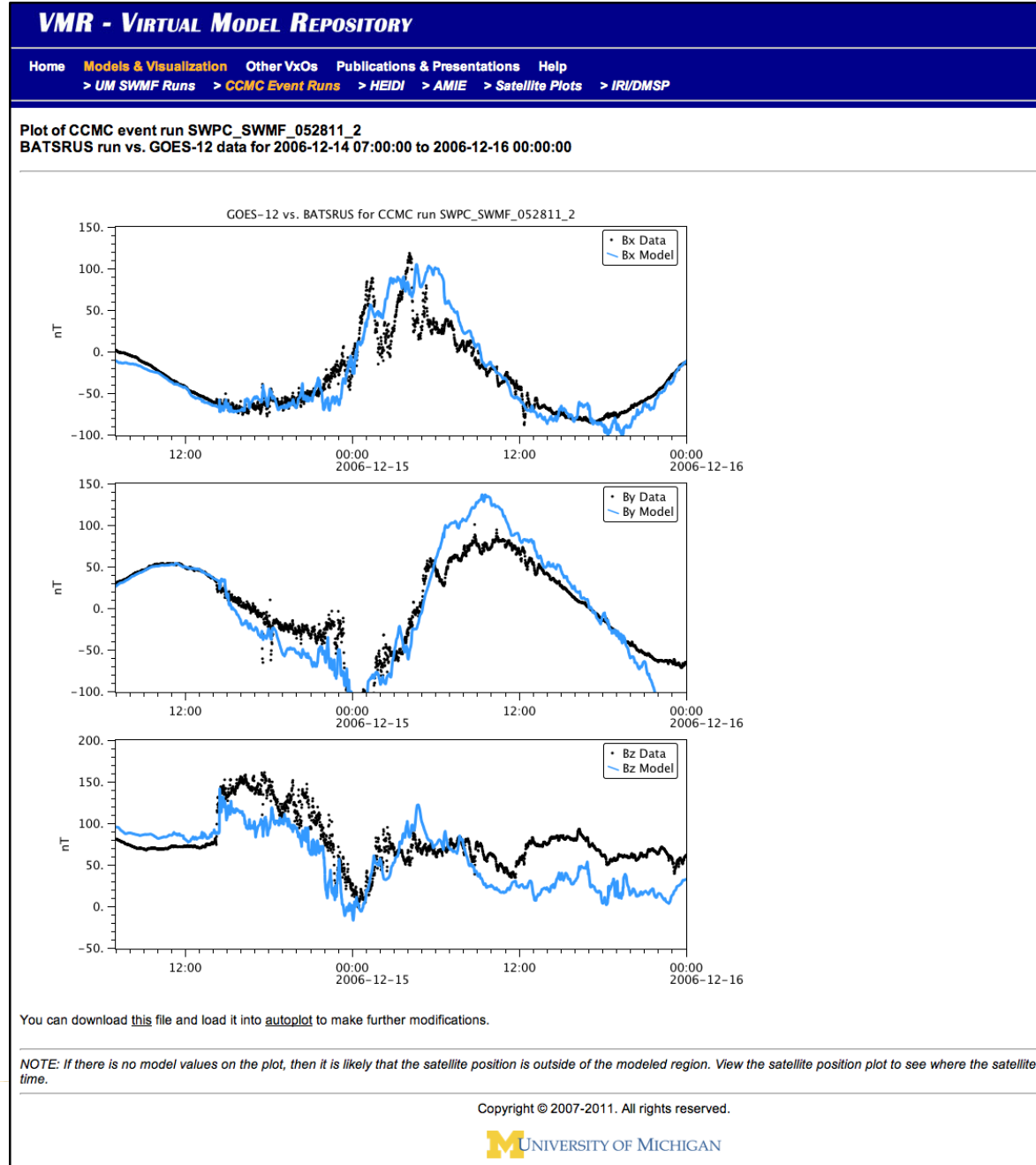
Plot Satellite Location

GOES-12 location for the modeled time period.
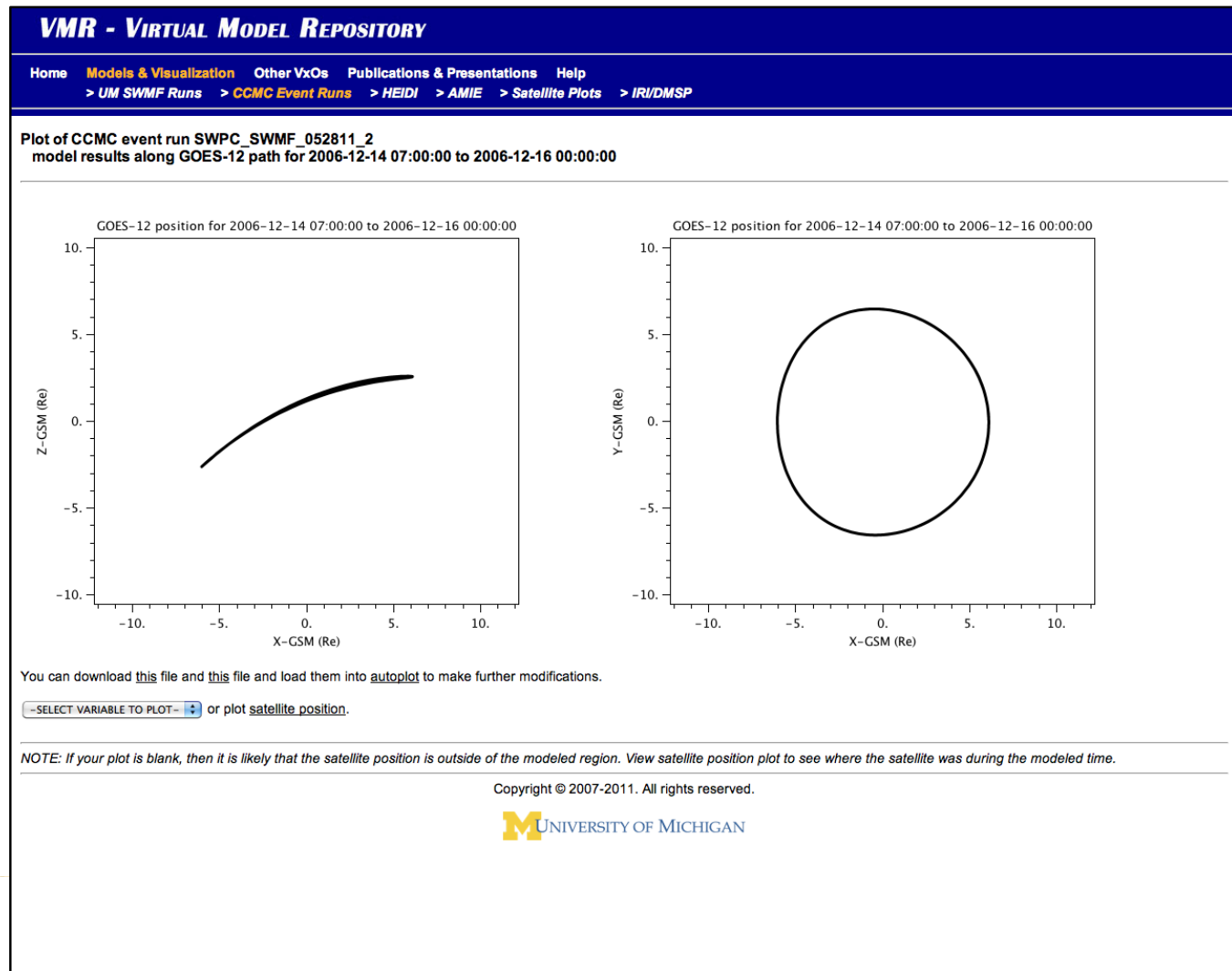
Plot Data/Model Comparison

Modeled vs. measured magnetic field data for the modeled time period.

Other Models in the VMR

- IRI can be run through the VMR and comparison plots made with DMSP data.

- A large collection of AMIE runs are available.

- HEIDI runs for 90 intense storms are available, each run with five different code settings.

- Many SWMF runs are also available. Numerous simulations have been performed at the University of Michigan using the SWMF. Some of those runs have led to publications, including event studies and numerical analysis papers. Many of these runs, as well as other runs where we have collaborated with others are available at the VMR.

SWMF Runs

The interface for the SWMF runs is setup to be similar to the CCMC runs page.

SWMF Runs (2)

Basic run information is shown, such as grid, solver, boundary conditions, etc., as well as upstream values.

VMR - VIRTUAL MODEL REPOSITORY

◀ return

Run Info

Plot Regions

GM
  1D-logfile
  2D-y=0-plt
  2D-z=0-plt
  3D-plt

IE
  1D-logfile
  2D-idl

IM

Extra Files
  view (3)

SWMF Plotting Tool: Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB / IE / 1D-logfile

=> Select plot options below and click 'Update plot'

Plot variable:

[cpcpn ▼]

(Update Plot)

Plot result for: IElogfile.txt

Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB: IE logfile

Click here to view instructions to download data and recreate this figure locally.

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VMR - VIRTUAL MODEL REPOSITORY

SWMF Plotting Tool: Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB / GM / 2D-y=0-plt

10 recent ⬩ sorting

Plot Styles

return

Run Info

Plot Regions

GM
 1D-logfile
 2D-y=0-plt
 2D-z=0-plt
 3D-plt

IE
 1D-logfile
 2D-idl

IM

Extra Files

 view (3)

=> Select plot options below and click 'Update plot'

Plotfile: T=Hour:Min:Sec N=Iterations E=Date Time   (421 files found)
Y=0: T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000

Contour
Variable: V5: U_x [km/s]   Range: ⦿ Min/Max ◯ Custom ____ ____   Color: ⦿ Blue-Green-Red ◯ Blue-Red

Grid:
Plot grid? ⦿ No ◯ Yes

View:
Center at: X= -8.   Y= 0.   with view width 48.

Vector Traces:
Plot fieldlines? ◯ No ⦿ Yes   Line Color: ◯ Black ⦿ White

Body:
Plot circle at origin? ◯ No ⦿ Yes with radius 2.7

Text Label:
Label: \&(AUXZONE[1]:TIMEEVENT)

(Update Plot) (wait <1 minute unless fieldlines plotted)

Plot result for: Y=0: T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000 (file: y0_mhd_1_t00070000_n0015767.plt)
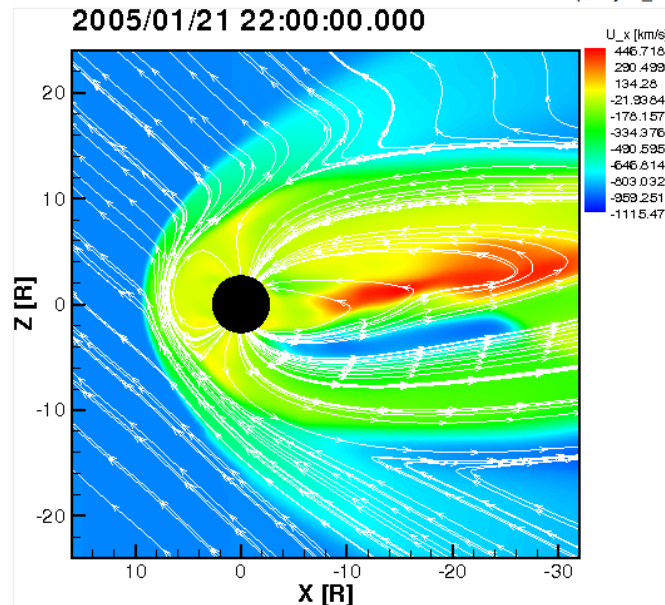
2005/01/21 22:00:00.000

U_x [km/s]
446.718
290.499
134.28
-21.9384
-178.157
-334.376
-490.595
-646.814
-803.032
-959.251
-1115.47

Z [R] / X [R]

21 (1) movie

5 (1) movie
2005/01/21 22:00:00.000

1 (1) movie
2005/01/21 22:00:00.000

23 (1) movie
2005/01/21 19:56:00.004

20 (410) movie
2005/01/21 15:00:00.000

Click here to view instructions to download data and recreate this figure locally.

Movies and plots already created with this plot stye: – SELECT FROM 1 FILES –

VMR - VIRTUAL MODEL REPOSITORY

SWMF Plotting Tool: Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB / GM / 2D-z=0-plt

10 recent ⬍ sorting

Run Info

Plot Regions

GM
  1D-logfile
  2D-y=0-plt
  2D-z=0-plt
  3D-plt

IE
  1D-logfile
  2D-idl

IM

Extra Files
  view (3)

=> Select plot options below and click 'Update plot'

Plotfile: T=Hour:Min:Sec N=Iterations E=Date Time   (421 files found)
   Z=0: T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000 ⬍

Contour
  Variable: V13: J_y [`mA/m^2] ⬍ Range: ◯ Min/Max ⬤ Custom -.005 .005   Color: ◯ Blue-Green-Red ⬤ Blue-Red

Grid:
  Plot grid? ⬤ No ◯ Yes

View:
  Center at: X= -8. Y= 0. with view width 48.

Vector Traces:
  Plot fieldlines? ⬤ No ◯ Yes Line Color: ⬤ Black ◯ White

Body:
  Plot circle at origin? ◯ No ⬤ Yes with radius 2.7

Text Label:
  Label: \&(AUXZONE[1]:TIMESIM)

(Update Plot) (wait <1 minute unless fieldlines plotted)

Plot result for: Z=0: T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000 (file: z0_mhd_2_t00070000_n0015767.plt)
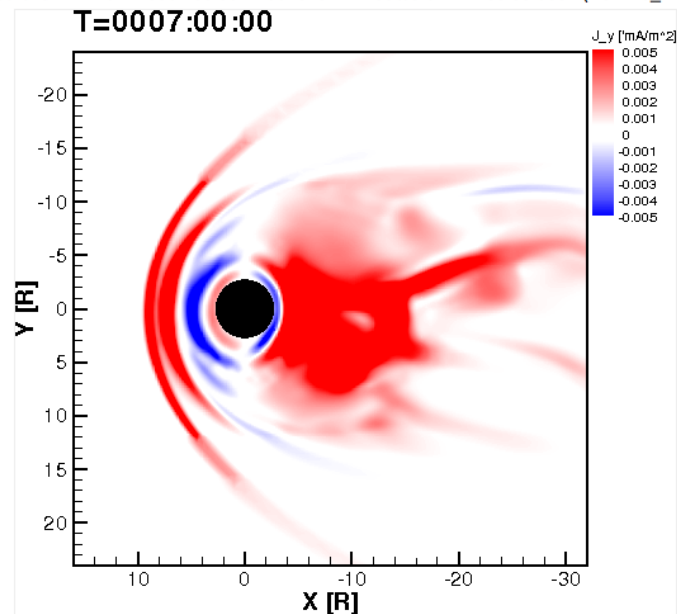
Click here to view instructions to download data and recreate this figure locally.

Movies and plots already created with this plot stye: – SELECT FROM 1 FILES – ⬍

Plot Styles
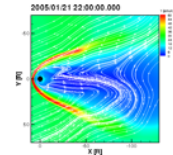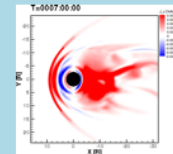
28 (1) movie
16 (1) movie
15 (1) movie
13 (1) movie
12 (1) movie
11 (1) movie
10 (1) movie
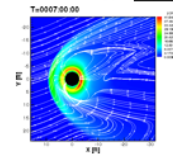
VMR - VIRTUAL MODEL REPOSITORY
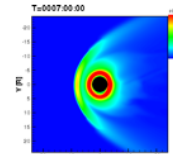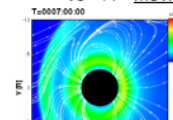
SWMF Plotting Tool: Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB / GM / 3D-plt

10 similar ⬍ sorting

Plot Styles

return

Run Info

Plot Regions

GM
1D-logfile
2D-y=0-plt
2D-z=0-plt
3D-plt

IE
1D-logfile
2D-idl

IM

Extra Files

view (3)

=> Select plot options below and click 'Update plot'

Plotfile: T=Hour:Min:Sec N=Iterations E=Date Time   (85 files found)

T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000 ⬍

Contour
Variable: V11: p [nPa] ⬍   Range: ⦿ Min/Max ◯ Custom 0.   1.   Color: ⦿ Blue-Green-Red ◯ Blue-Red

Slice:
Slice 1: ⦿ No Slice ◯ X= ◯ Y= ◯ Z= 0.
Slice 2: ◯ No Slice ◯ X= ◯ Y= ⦿ Z= 0.
Plot grid on slices? ⦿ No ◯ Yes

Isosurface:
⦿ No ◯ Yes   Variable= `r [amu/cm^3] ⬍   Value= 1.

View:
Center at: X= 0.   Y= 0.   Z= 0.   with view width 30.
Perspective angles: Phi= 0.   Theta= 180.   (Help me with view angles.)

Vector Traces:
Plot last closed fieldlines? ◯ No ⦿ Yes (5-10 minutes render time)

Body:
Plot sphere at origin? ◯ No ⦿ Yes with radius 2.7

Text Label:
Label: \&(AUXZONE[1]:TIMESIM)
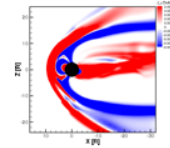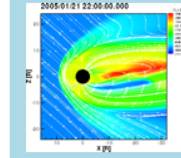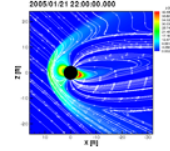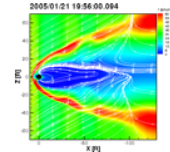
(Update Plot) (wait ~1 minute unless fieldlines plotted)

Plot result for: T=0007:00:00 N=0015767 E=2005/01/21 22:00:00.000 (file: 3d__mhd_3_t00070000_n0015767.plt)
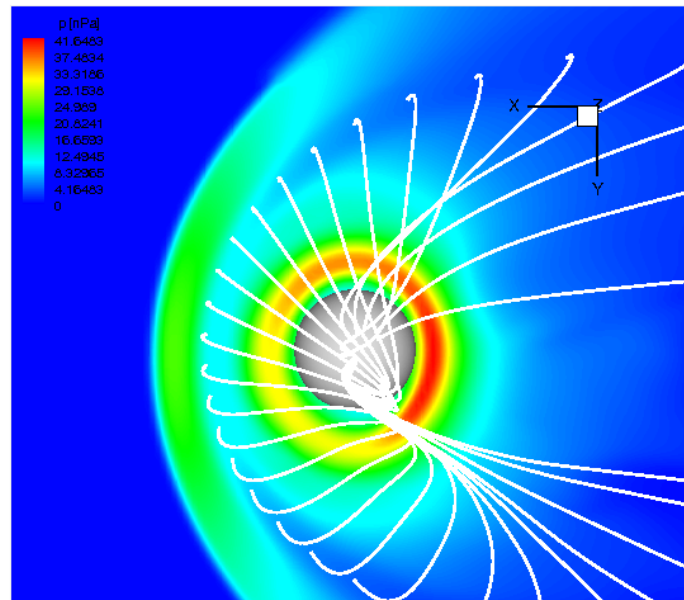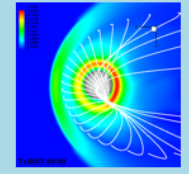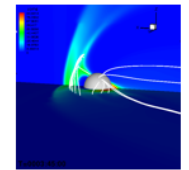
5 (1) movie
6 (0) movie
1 (0) movie
2 (0) movie
8 (0) movie
7 (0) movie
3 (0) movie
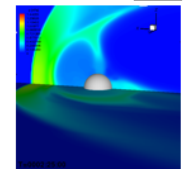
VMR - VIRTUAL MODEL REPOSITORY

SWMF Plotting Tool: Kozyra_run20050121_DeZeeuw-GMIEIM-New7hrsB / IE / 2D-idl

Run Info

Plot Regions

GM
1D-logfile
2D-y=0-plt
2D-z=0-plt
3D-plt

IE
1D-logfile
2D-idl

IM

Extra Files
view (3)

all numeric ⬍ sorting

Plot Styles

1 (0) movie

2 (1) movie

3 (0) movie

4 (0) movie

5 (1) movie

6 (1) movie

=> Select plot options below and click 'Update plot'

Plotfile: N=iteration T=Year:Month:Day - Hour:Min:Sec (421 files found)
T=2005:01:21 – 22:00:00 ⬍

Contour
NOTE: Not expecting more than 11 variables in file, fix form

Variable	Yes/No	Range
SigmaH [mhos]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
SigmaP [mhos]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
Jr [mA/m^2]	⊙ Yes ○ No	Range: ⊙ Max ○ Custom
Phi [kV]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
E-Flux [W/m2]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
Ave-E [eV]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
RT 1/B [1/T]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom
RT Rho [amu/cm^3]	⊙ Yes ○ No	Range: ⊙ Max ○ Custom
RT P [Pa]	○ Yes ⊙ No	Range: ⊙ Max ○ Custom

(Update Plot)

Plot result for: T=2005:01:21 - 22:00:00 (file: it050121_220000_000.idl)

21-JAN-05 22:00

Jr [mA/m^2]   RT Rho [amu/cm^3]

12   12

18   06

0.187   2.43·10

-0.44   0.75   0.00e+00   4.87e-20

Time to create plot: 2 seconds

Click here to view instructions to download data and recreate this figure locally.

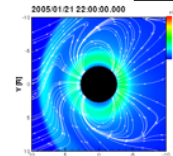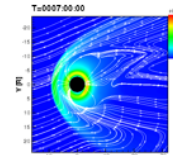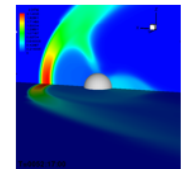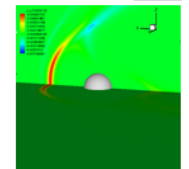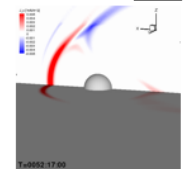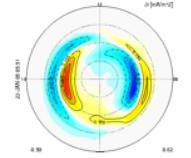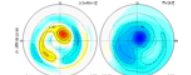**Movies and plots already created with this plot stye:** – SELECT FROM 1 FILES – ⬍
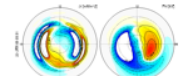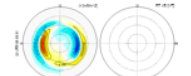
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Conclusions

- We have a history of successful collaboration with the CCMC.

- The CCMC and VMR have setup cross-links on each web page to make more plotting and analysis options available to the community.

- We are looking for feedback on how well the VMR works for you and suggestions for ways to improve it.

Live Demo

- If we have time, a live demo of the VMR is possible:

- http://vmr.engin.umich.edu