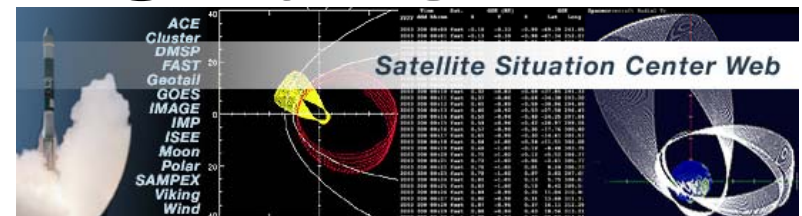
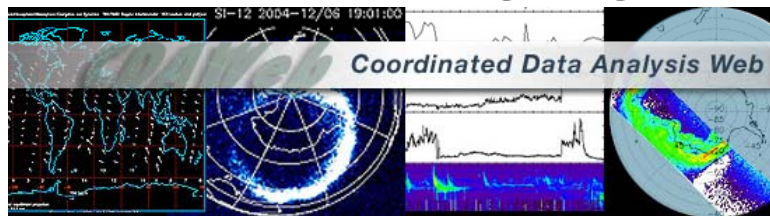
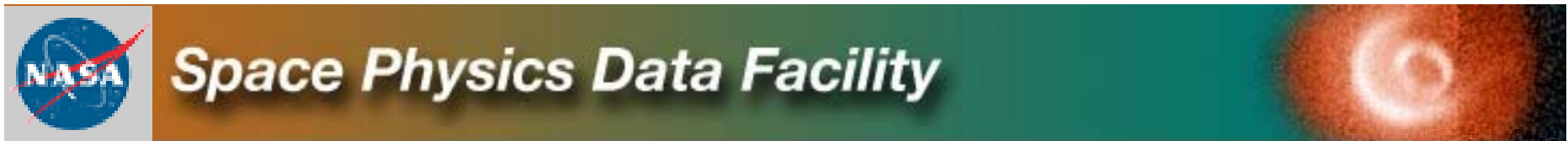




# Data and Orbits



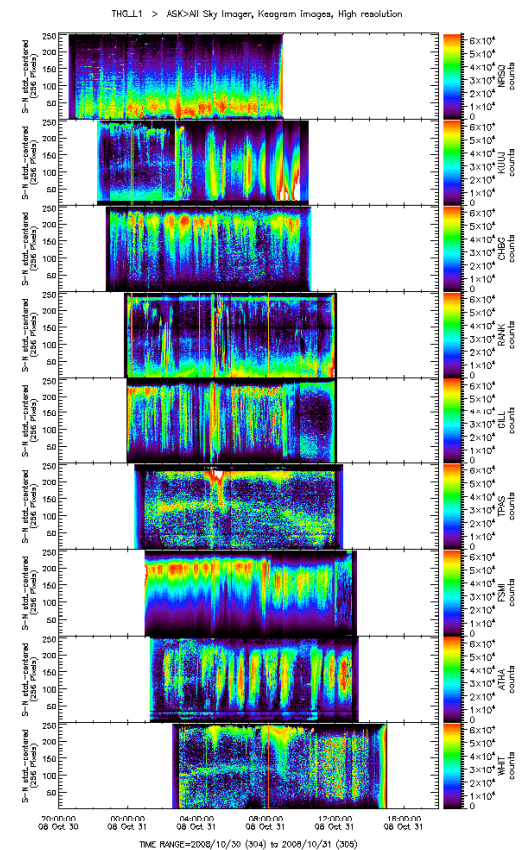
## at SPDF



<http://spdf.gsfc.nasa.gov>

# CDAWeb - THEMIS data

- ◇ Level-2 Data from all 4 Instruments on all 5 Satellites
- ◇ Ground Magnetometer Data from 42 stations (GBO, GEONS)
- ◇ **NEW:** Keograms from 22 All-Sky-Imagers (ASI) going back to 2005.
- ◇ All data updated daily (auto-ingest) from THEMIS data site.
- ◇ GIF-Walk: pre-generated Magnetopause Crossing Survey plots (David Sibeck, NASA GSFC)



<http://cdaweb.gsfc.nasa.gov>

# CDAWeb - News

- ◇ November 25, 2008: All THEMIS L2 FIT files reprocessed to fix data problem - new files available in CDAWeb on November 24, 2008.
- ◇ November 10, 2008: CDAWeb has been updated to contain all of the newly reprocessed THEMIS ESA, FGM, SST and State files. This new version of the THEMIS L2 ESA files contain data quality variables (which are applied to the marked variables when plotted).
- ◇ New functionality added to all output pages: Previous/Next buttons produce the next or previous plot, listing or cdf.
- ◇ Postscript and PDF plotting files now supported for all plot types except images.

<http://cdaweb.gsfc.nasa.gov>

# CDAWeb - Other Data

- ◇ Many data products of THEMIS interest: ACE, Cluster, Geotail, FAST, NOAA, GOES, LANL, Wind ...
- ◇ ITM data to study storm effects in ITM region: TIMED, ROCSAT, GPS (under development)

- ACE
- CRRES
- Cluster
- DMSP (selected links only)
- Equator-S
- FAST
- GPS
- Genesis
- Geotail
- IMAGE
- IMP (All)
- Interball
- NOAA
- OMNI (Combined 1AU IP Data)
- Pioneer
- Polar
- ROCSAT-1(FORMOSAT-1)/IPEI
- Russian/USSR
- SAMPEX
- SNOE
- SOHO
- STEREO
- THEMIS
- TIMED
- Ulysses
- Voyager
- Wind
- Geosynchronous Investigations>GOES
- Geosynchronous Investigations>LANL
- Ground-Based Investigations

<http://cdaweb.gsfc.nasa.gov>

# SSCweb TIPSOD

Orbits for most science satellites, updated regularly and often including predicts.

TIPSOD  
4-D orbit viewer

Saved queries for typical THEMIS-related SSCweb runs (1-click access).



**GODDARD SPACE FLIGHT CENTER**  
 Space Physics Data Facility

[+ Goddard Home](#)  
[+ Visit NASA.gov](#)

SEARCH NASA

+ SPDF HOME
+ DATA & ORBITS
+ MODELS at CCMC
+ RESOURCES
+ RESEARCH
+ EDUCATION

SSCWeb

- + SSCWEB HOME
- + FEEDBACK
- + LOCATOR GRAPHICS
- + 4-D ORBIT VIEWER
- + LOCATOR TABULAR
- + QUERY
- + COORD. CALCULATOR
- + FACILITIES INTERFACES
- + ABOUT SSCWEB



Satellite Situation Center Web

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SATELLITE SITUATION CENTER (SSCWeb) SYSTEM AND SERVICES

All systems/services are available.

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**Graphics**

- + Locator Graphics  
The Locator graphics component provides the ability to plot the orbits of multiple spacecraft. In addition to orbit plots, mapped and time series plots can also be generated. [\(THEMIS Saved Examples\)](#)
- + 4-D Orbit Viewer  
This application provides the user with the capability to select spacecraft(s) and time ranges of interest, and see their orbits represented as an interactive 4-D animation.

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**Listings**

- + Locator Tabular  
The Locator component provides tabular information. As tabular output, the spacecraft's coordinate location can be listed in a variety of coordinate systems, as well as other location related items. [\(THEMIS Saved Examples\)](#)
- + Query  
The Query component provides two query matching options: magnetospheric region occupancy and magnetic field line tracing. The region query lists the entry and exit times during which specified satellite(s) were in particular magnetospheric regions. The trace query identifies periods when one or more spacecraft are on the same magnetic flux tube of force, or periods when one or more spacecraft occupy a field line which traces down to a specified ground station. [\(THEMIS Saved Examples\)](#)
- + Coordinate Calculator

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**Facilities Interfaces**

In addition to the interface above, the Satellite Situation Center provides limited access to an extended interface that permits users to make Locator and Query runs in a batch mode and save queries on the host. Other than these batch and save capabilities, the Facilities interface is exactly the same as the public interface. Use of the facilities interface is advised for users who need to make runs over long time ranges or those using complex queries.

If you would like access to this Facilities interface, please send e-mail to [ssc@sscweb.gsfc.nasa.gov](mailto:ssc@sscweb.gsfc.nasa.gov) including a very brief description of your specific objectives and needs.

- + Locator Graphics Facilities Interface
- + Locator Facilities Interface
- + Query Facilities Interface

**Guides and Tutorials**

- + Users Guide
- + Navigation Tips
- + Models and Regions of Geospace
- + Query Tutorial
- + Locator Tutorial

**Additional Services**

- + Web Service Access to SSCWeb
- + Heliospheric spacecraft, planet and comet trajectories
- + Space Physics models at CCMC
- + IGRF/DGRF and CGM coordinate transformations
- + Products and information
- + Data Format Translations

**Additional Resources**

- + Usage Statistics
- + Key parameter and orbit plots produced by the PWG project

<http://sscweb.gsfc.nasa.gov>



# SSCweb TIPS

Coordinate System: GEO  
 THEMIS-A (P5)  
 THEMIS-B (P1)  
 THEMIS-C (P2)  
 THEMIS-D (P3)  
 THEMIS-E (P4)  
 2008-02-26 02:00:00

4D Orbit Viewer File Options Tools Help  
 Satellite Chooser

coordinates: fr: 2008-02-26 02: Field-Line Tracing: db sar  
 GSE to: 2008-02-27 02: Enabled Not Enabled

Satellite	Color	Shape	Pa
<input type="checkbox"/> STEREO-Ahead	Green	Sphere	Solid
<input type="checkbox"/> STEREO-Behind	Purple	Diamond	Solid
<input checked="" type="checkbox"/> THEMIS-A (P5)	Purple	Cylinder	Solid
<input checked="" type="checkbox"/> THEMIS-B (P1)	Red	Cube	Solid
<input checked="" type="checkbox"/> THEMIS-C (P2)	Green	Sphere	Solid
<input checked="" type="checkbox"/> THEMIS-D (P3)	Cyan	Diamond	Solid
<input checked="" type="checkbox"/> THEMIS-E (P4)	Blue	Cone	Solid
<input type="checkbox"/> THEMIS-A (Pred)	Purple	Cylinder	dash
<input type="checkbox"/> THEMIS-B (Pred)	Red	Cube	dash
<input type="checkbox"/> THEMIS-C (Pred)	Green	Diamond	dash
<input type="checkbox"/> THEMIS-D (Pred)	Cyan	Sphere	dash
<input type="checkbox"/> THEMIS-E (Pred)	Blue	Cone	dash
<input type="checkbox"/> TIMED	Yellow	Sphere	Solid
<input type="checkbox"/> TRACE	Purple	Diamond	Solid

Graph Orbits

Position

time: 2008-02-26 02:00:00

coordinate system: GSE

coordinates (RE/°):  
 Cartesian  
 Spherical

distance to (RE):  
 Magnetopause  
 Bowshock  
 Neutral Sheet

footpoints (°):  
 North  
 South  
 Closest

Satellite	Color	X	Y	Z
THEMIS-A (P5)	Purple	-0.995	3.797	-1.135
THEMIS-B (P1)	Red	-23.019	3.514	-4.747
THEMIS-C (P2)	Green	-17.697	4.171	-5.035
THEMIS-D (P3)	Cyan	-9.494	3.965	-3.437
THEMIS-E (P4)	Blue	-8.177	4.493	-3.321

SSCWeb 3D Thursday 4 December, 2008

<http://sscweb.gsfc.nasa.gov>

### Satellite Chooser

coordinates:

fr: 2007-03-23 00:00  
to: 2007-03-24 00:00

Field-Line Tracing:  Enabled  Not Enabled

db sampling:

Satellite	Color	Shape	Pattern
<input type="checkbox"/> ST5-B		Cone	Solid
<input type="checkbox"/> ST5-C		Sphere	Solid
<input type="checkbox"/> STEREO-Ahead		Sphere	Solid
<input type="checkbox"/> STEREO-Behind		Diamond	Solid
<input checked="" type="checkbox"/> THEMIS-A (P5)		Cylinder	<input checked="" type="checkbox"/> Solid
<input checked="" type="checkbox"/> THEMIS-B (P1)		Cube	dash
<input checked="" type="checkbox"/> THEMIS-C (P2)		Sphere	dot
<input checked="" type="checkbox"/> THEMIS-D (P3)		Diamond	dash_dot
<input checked="" type="checkbox"/> THEMIS-E (P4)		Cone	dash_dot_dot_dot
<input type="checkbox"/> THEMIS-A (Pred)		Cylinder	dash_dot_dot_dot
<input type="checkbox"/> THEMIS-B (Pred)		Cube	dash
<input type="checkbox"/> THEMIS-C (Pred)		Diamond	dash
<input type="checkbox"/> THEMIS-D (Pred)		Sphere	dash
<input type="checkbox"/> THEMIS-E (Pred)		Cone	dash

### Position

time: 2007-03-23 12:00:00

coordinate system: GSE

coordinates (RE/°):  Cartesian  Spherical

distance to (RE):  Magnetopause  Bowshock  Neutral Sheet

footpoints (°):  North  South  Closest

Satellite	Color	X	Y	Z	Magnetopause	Bowshock
Cluster-1		16.525	-7.09	-9.203	9.1	5
Cluster-2		16.45	-7.824	-8.612	9.1	5
Cluster-3		15.605	-8.08	-10.233	9.2	4.8
Cluster-4		15.651	-8.062	-10.192	9.2	4.8
FAST		0.254	-0.763	1.223	-10	-13.9
Polar		0.32	-4.501	-7.548	-4.6	-11.9
THEMIS-A (P5)		-6.892	8.139	-2.525	-9.5	-20.4
THEMIS-B (P1)		-6.855	7.852	-2.466	-9.7	-20.5
THEMIS-C (P2)		-5.848	4.214	-1.633	-12.2	-20.1
THEMIS-D (P3)		-6.831	7.649	-2.425	-9.9	-20.5
THEMIS-E (P4)		-6.895	10.406	-2.954	-7.5	-19.7

### Ground Stations

Name	Acronym	Latitude	Longitude
<input checked="" type="checkbox"/> THM_Kiana	KIAN	66.97	-160.44
<input checked="" type="checkbox"/> THM_Lac de ...	EKAT	64.72	-109.33
<input checked="" type="checkbox"/> THM_Loysburg	LOYS	40.17	-78.38
<input checked="" type="checkbox"/> THM_Mcgrath	MCGR	62.95	-155.6
<input checked="" type="checkbox"/> THM_Nain	NAIN	56.5	-61.7
<input checked="" type="checkbox"/> THM_Peters...	PTRS	56.83	-133.16
<input checked="" type="checkbox"/> THM_Pinawa	PINA	50.16	-96.07
<input checked="" type="checkbox"/> THM_Pine Ri...	PINE	43.11	-102.6
<input checked="" type="checkbox"/> THM_Prince ...	PGEO	53.82	-122.83
<input checked="" type="checkbox"/> THM_Rankin...	RANK	62.83	-92.11
<input checked="" type="checkbox"/> THM_Remus	RMUS	43.6	-85.16
<input checked="" type="checkbox"/> THM_Sanikil...	SNKQ	56.54	-79.23
<input checked="" type="checkbox"/> THM_Shawano	SWNO	44.78	-88.6
<input checked="" type="checkbox"/> THM_Ukiah	UKIA	45.13	-118.93
<input checked="" type="checkbox"/> THM_White ...	WHIT	61.01	-135.22
<input type="checkbox"/> Talkeetna	TLK	62.3	-150.1
<input type="checkbox"/> Tashkent	TKT	41.33	69.62
<input type="checkbox"/> Tbilisi	TFS	42.09	44.71
<input type="checkbox"/> Teoloyucan	TEO	19.74	99.19
<input type="checkbox"/> Thule	TFP	76.53	-68.44
<input type="checkbox"/> Thule/Qaana...	THL	77.48	-69.17
<input type="checkbox"/> Tixie Bay	TIK	71.58	129
<input type="checkbox"/> Tjornes	TJN	66.2	-17.12
<input type="checkbox"/> Tomsk	TMK	56.47	84.93
<input type="checkbox"/> Tucson	TUC	32.25	-110.83

Stations Display Features:  
Color:  Size:  Stations Name on:

#### Magnetopause

Color:

Opacity:

SWP (nP):

Min at (RE):

Display Style:  wireframe  screen\_door  surface

#### Bowshock

Color:

Opacity:

SWP (nP):

Min at (RE):

Display Style:  wireframe  screen\_door  surface

#### Neutral Sheet

Color:

Opacity:

SWP (nP):

Min at (RE):

Display Style:  wireframe  screen\_door  surface

### Magnetic Field

**B Field Model**

Internal:  IGRF  Dipole

External:  Tsyganenko 96  Tsyganenko 89c  Tsyganenko 87

**B Field Model Parameters**

KP Index:

DST Index:

SWP (nP):

IMF (nT):

Stop At (km):

# Common Data Format- CDF

- ◇ CDF Version 3.2.2 release, fixes memory leak and ReadOnly mode problems, and includes some changes for the tool programs.
- ◇ CDF Patch for Matlab
- ◇ CDF Patch for IDL 6+ (strongly recommended)
- ◇ CDF's Java Network Launching Protocol latest development

<http://cdf.gsfc.nasa.gov>