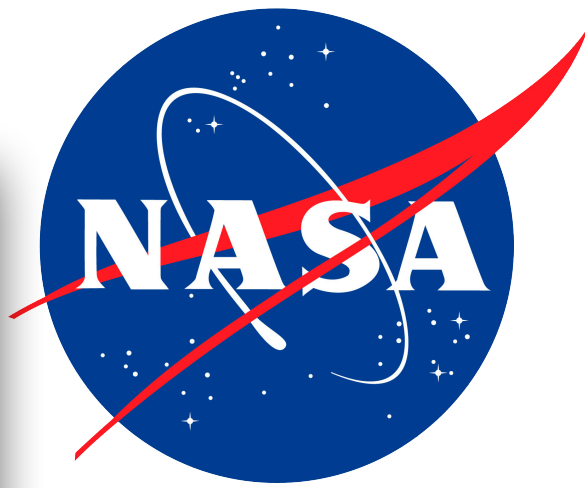


Software and Services at the Space Physics Data Facility (SPDF)

July 8, 2026

Eric Grimes on behalf of the SPDF team (NASA-SPDF-Support@nasa.onmicrosoft.com)



Space Physics Data Facility



Goddard

SPDF ▾

Data Access & Orbit Services ▾

Software ▾

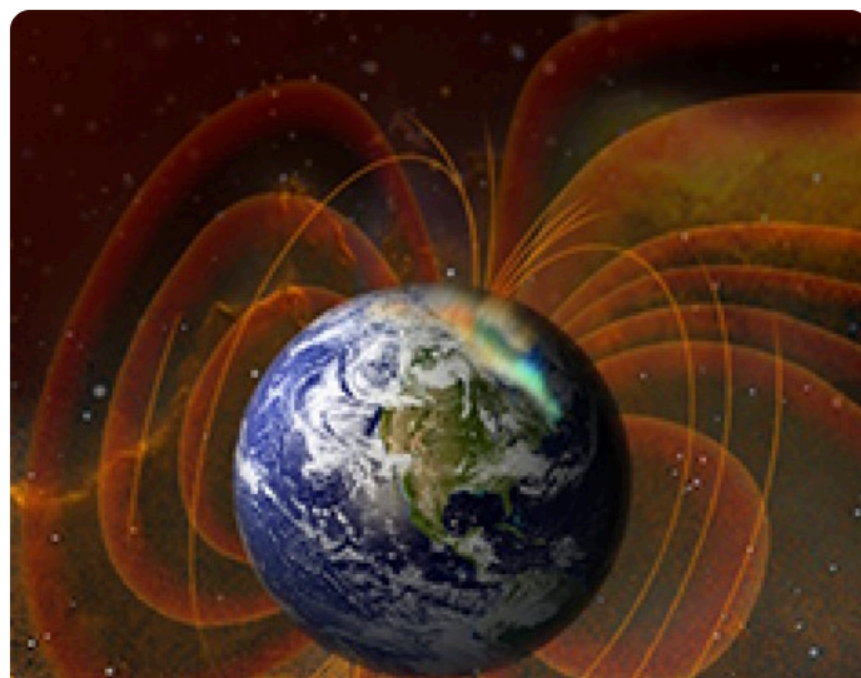
Submit Data ▾

Resources ▾

Contact Us



[SPDF Archive](#)



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

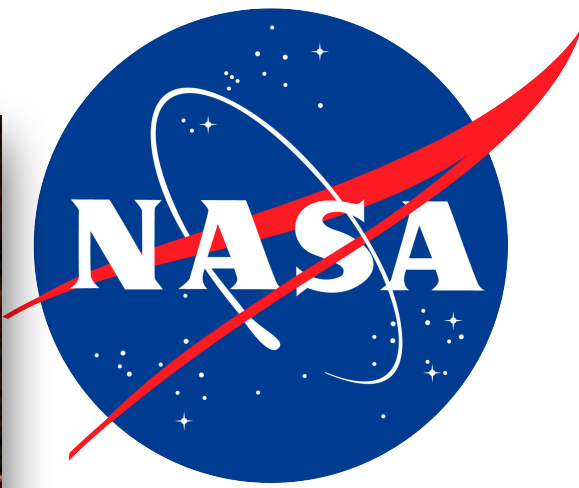
[CDAWeb](#)

NASA's Space Physics Data Facility (SPDF)

[Heliophysics](#) studies the nature and dynamic interactions of the Sun, the heliosphere, and the plasma environments of the planets and interstellar space. The [Heliophysics Digital Resource Library \(HDRL\)](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division \(HSD\)](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and permanent archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Policy](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative research across discipline and mission boundaries with present and past missions. Many datasets from current missions are updated regularly (even daily), including reprocessed data for older time periods, and SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and browsing system, the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized database, and the Common Data Format (CDF) self-describing science data format and associated software.

[News & Announcements](#)



Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

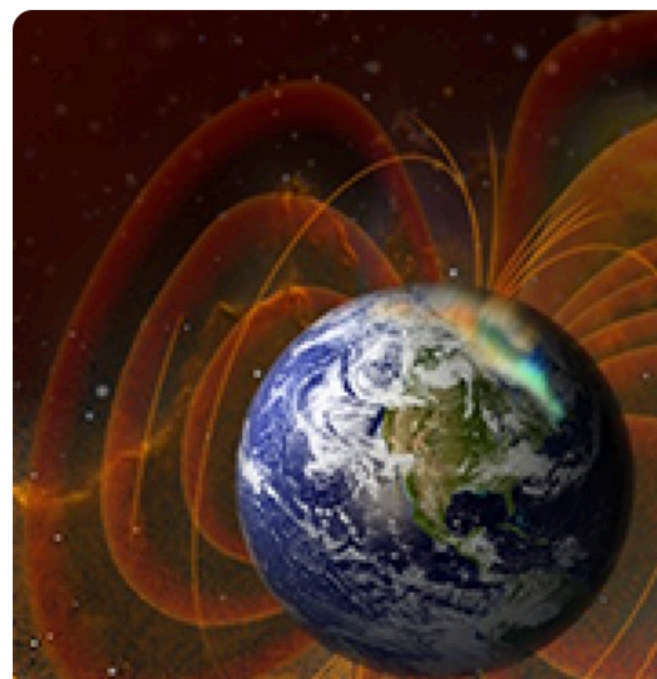
Submit Data

Resources

Contact Us



SPDF Archive



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

CDAWeb

Linking Missions and Services

CDAWeb (data browser)

CDAWeb Inside IDL

OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, HelioWeb and CGM)

SSCWeb (orbit search)

4D Orbit Viewer

Plot Walk for pre-generated plots

CDAWeb Audification

Direct HTTPS file access

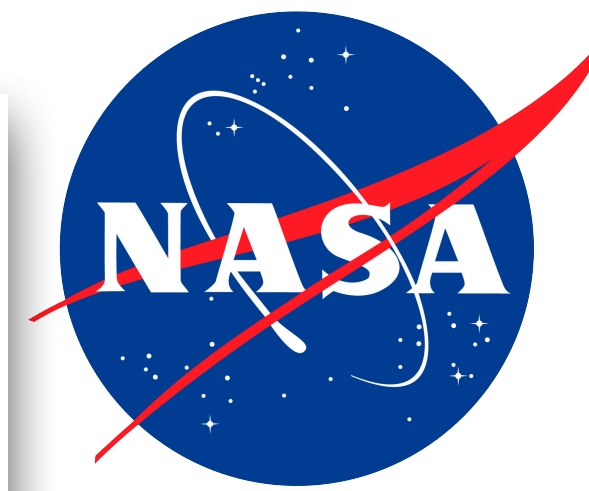
Alternative Data Access

Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from recent missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and archive system, the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data archive, and the Common Data Format (CDF) self-describing science data format and associated

News & Announcements



Linking SPDF Services with Missions

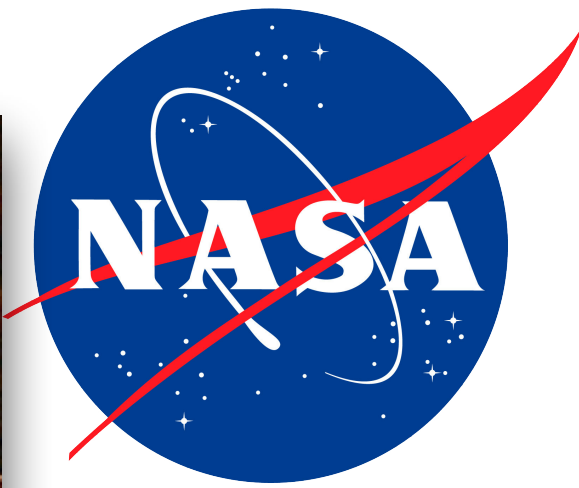
Click an **SPDF service name** to check mark (✓) the spacecraft whose data are available.

Click a **spacecraft name** to check mark (✓) the SPDF services with its data.

See [Info for New Users](#) for more information about these data services.

GO =Go to Service's Home Page **i** =Show Source Info * = Orbit/Trajectory Data Only

DATA SERVICES:	SOURCE SPACECRAFT:					OTHER DATA SOURCES:
<p>➤ CDAWeb GO</p> <p>High-resolution, current space physics data with graphics and listings from many missions.</p>	<p>✓ ACE i</p> <p>Active* i</p> <p>Aditya-L1* i</p> <p>✓ Aerocube i</p> <p>Aeros i</p> <p>✓ AIM i</p> <p>Akebono* i</p> <p>✓ Alouette (1,2) i</p> <p>AMPTE i</p> <p>APEX-MAIN* i</p> <p>✓ Apollo i</p> <p>Aqua* i</p> <p>Ariel-4* i</p> <p>✓ Arase (ERG) i</p> <p>ARCAD i</p> <p>✓ ARTEMIS (1,2) i</p> <p>Artemis2-Orion i</p> <p>ASTRID II* i</p> <p>AE i</p> <p>Aura* i</p>	<p>✓ DE i</p> <p>✓ ELFIN i</p> <p>✓ Endurance i</p> <p>✓ Equator-S i</p> <p>ESCAPADE i</p> <p>Explorer i</p> <p>EZIE (A, B, C) i</p> <p>✓ FAST i</p> <p>FIREBIRD* i</p> <p>✓ Formosat i</p> <p>Freja* i</p> <p>✓ Galileo* i</p> <p>Gateway* i</p> <p>GCOM W1* i</p> <p>✓ Genesis i</p> <p>✓ Geotail i</p> <p>✓ Giotto* i</p> <p>GOCE* i</p> <p>✓ GOES(1-2, 5-19) i</p> <p>✓ GOLD i</p> <p>✓ GPS i</p>	<p>JUICE* i</p> <p>✓ Juno i</p> <p>Jupiter* i</p> <p>Kepler* i</p> <p>KPLO* (Danuri) i</p> <p>Lagrange Point 1* (L1) i</p> <p>Landsat* i</p> <p>✓ LANL i</p> <p>LRO* i</p> <p>LUNA i</p> <p>Magsat i</p> <p>✓ MAP i</p> <p>Mariner 10 i</p> <p>Mars i</p> <p>✓ MAVEN i</p> <p>✓ MESSENGER i</p> <p>✓ MGS i</p> <p>Microlab 1* i</p> <p>Mir* i</p> <p>✓ MMS (1-4) i</p>	<p>Reimei i</p> <p>✓ Rosetta* i</p> <p>RHESSI i</p> <p>✓ SAMPEX i</p> <p>✓ Sakigake* i</p> <p>San Marco i</p> <p>Saturn* i</p> <p>SCATHA* i</p> <p>SDO* i</p> <p>SET-1/DSX* i</p> <p>SMILE* i</p> <p>✓ SNOE i</p> <p>✓ SOHO i</p> <p>✓ SOLAR-1 i</p> <p>✓ Solar Orbiter i</p> <p>SORCE* i</p> <p>Spartan-A i</p> <p>Spitzer* i</p> <p>SPORT* i</p> <p>Sputnik 1* i</p> <p>✓ STEREO (A, B) i</p>	<p>✓ Planet & Comet Positions</p> <p>✓ Ground-based</p> <p>Activity Indices</p>	
<p>➤ OMNIWeb Plus GO</p> <p>Hourly-averaged solar wind magnetic field and plasma, etc.</p>						
<p>➤ Plot Walk GO</p> <p>Browse pregenerated data and orbit plots</p>						
<p>➤ SPDF FTPS Site GO</p> <p>Read FTP to FTPS information.</p>						



Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

Submit Data

Resources

Contact Us



SPDF Archive



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

CDAWeb

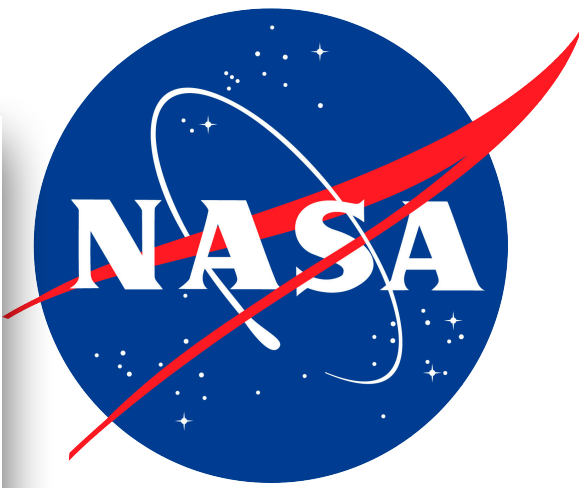
- Linking Missions and Services
- CDAWeb (data browser)
- CDAWeb Inside IDL
- OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, HelioWeb and CGM)
- SSCWeb (orbit search)
- 4D Orbit Viewer
- Plot Walk for pre-generated plots
- CDAWeb Audification
- Direct HTTPS file access
- Alternative Data Access


Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from past missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data system, and the Common Data Format (CDF) self-describing science data format and associated

News & Announcements



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

+ Goddard Home
+ Visit NASA.gov

SEARCH NASA
 + GO

+ HOME + Mission Data + ModelWeb at CCMC + SCIENCE ENABLED + AND MORE

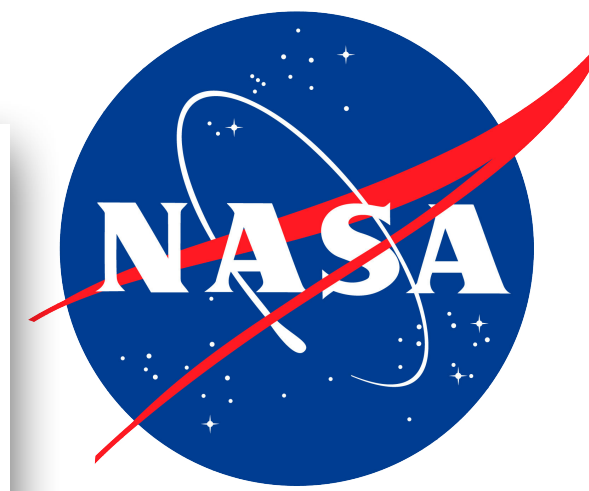
OMNIWeb Plus
SPDF • Goddard Space Flight Center

Paths to Magnetic field, Plasma, Energetic particle data relevant to heliospheric studies and resident at Goddard's Space Physics Data Facility.


- OMNIWeb Plus, Home
- + ABOUT THE DATA
- + DOI citing OMNI data usage
- + ABOUT THE INTERFACE
- + Data from command line
- + SPDF/FTP
- DATA via FTPBrowser
- Energetic Particle fluxes
- ATMOWeb main page
- CGM transformation
- Magnetopause Crossings
- Bowshock Crossings
- + CDAWeb (data browser)
- + SSCWeb (orbit search)

- OMNI data (spacecraft-interspersed, near-Earth solar wind data)
 - Low resolution OMNIWeb (1-hour, 1 and 27 days, yearly, 1963 - current)
 - High resolution OMNIWeb (1-min, 5-min, 1981 - current)
- Spacecraft-specific data sets (near 1 AU, including near-Earth)
 - + ACE
 - + Geotail
 - + IMP-8, IMP6&7
 - + Wind
 - + Explorer 33&35, Genesis, ISEE 3, Prognosz, SOHO, GOES
 - + Moon Related Spacecraft
 - + DSCOVR
- Deep space data
 - COHOWeb-formatted hourly solar wind field, plasma and proton fluxes
 - + Pioneer
 - + Ulysses
 - + Voyager
 - + Cassini, Helios, Mariner, STEREO
- Interfaces for comparing multi-source data
 - + Merged Magnetic field and Plasma 1-min
 - + Magnetic field

- Allows listing, plotting solar wind data that has been time shifted to the magnetopause



- A lot of features, but we're going to use it to find some large geomagnetic storms

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

+ Goddard Home
+ Visit NASA.gov

SEARCH NASA
 + GO

+ HOME + Mission Data + ModelWeb at CCMC + SCIENCE ENABLED + AND MORE

+ OMNIWeb Plus, Home

+ INPUT DATA

+ LRO NEWS

+ DOI citing OMNI data usage

+ High res. OMNIWeb Home

+ DATA via FTPBrowser

+ OMNI via SPDF/FTP

+ CDAWeb (data browser)

+ SSCWeb (orbit search)

OMNIWeb

SPDF • Goddard Space Flight Center

Hourly "Near-Earth" solar wind magnetic field and plasma data, energetic proton fluxes (>1 to >60 MeV), and geomagnetic and solar activity indices.

Browse and Retrieve Data

- Plots, listings, output files
- Scatter plots and linear regression fits
- **Event lists or hourly lists/plots, with filtering**
- Distribution functions, averag., std. deviation
- IMF polarity (1963-present)
- Derived parameters

About OMNI 2 Data and OMNIWeb

- Overview
- **OMNI 2 Data**
 - Data availability
 - Description of records and words
 - Time shifts
 - Parameter normalizations

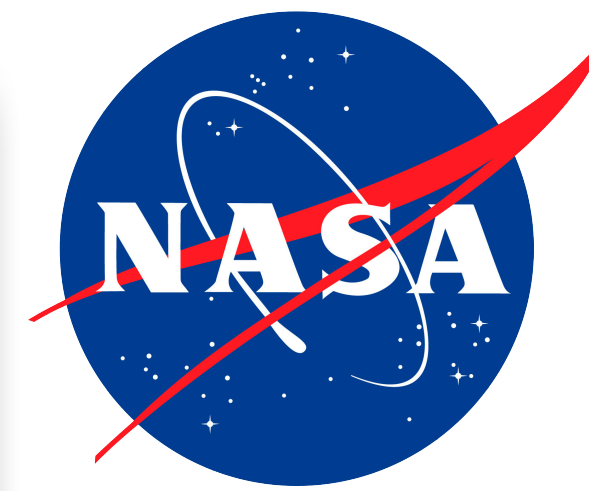
Access Data by FTP

- Hourly averages
- Daily averages (omni_01_av.dat)
- 27-day averages(omni_27_av.dat)
- Yearly averages(omni_yearly.dat)
- Plasma,IMF in RTN system(omni_m files)



Access data contributing to OMNI

- **S/C Specific data shifted to to Earth**
- Wind and ACE cross-normaized plasma data
- Magnetic field: IMP-8, ISEE-3, Wind, ACE
- Plasma: IMP-6,7,8, ISEE-3, Wind, ACE
- Energetic particle fluxes
- Geomagnetic and solar indices

If you have any questions/comments about OMNI/OMNIWEB data and service, contact: [Dr. Natalia Papitashvili](#), or [NASA-SPDF-Support](#), Space Physics Data Facility, Mail Code 672, NASA/Goddard Space Flight Center, Greenbelt, MD 20771



- We're setting the start and stop dates to from Jan 2000 through July 2026
- Note that you can filter the variables by min/max value for that variable

 **OMNIWeb** 
SPDF • Goddard Space Flight Center

[About](#) [Browse](#) [FTP](#) [Input-Data](#) [News](#) [Feedback](#)

Interface to produce listings/plots with filtering

For Advanced Options (listings with filtering and/or event lists) click [HERE](#)

This page provides the ability to list (or create a file of) any selection of the OMNI parameters listed below, specified numeric ranges.
Click [HERE](#) for more on using this interface.

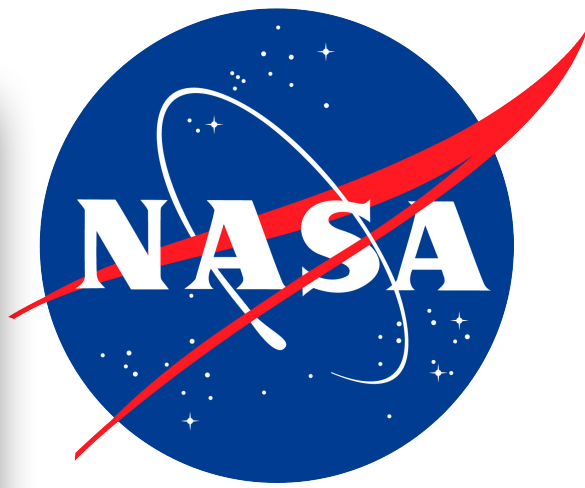
• **Select an activity**

List data Create file Plot filtered data

• **Select start and stop dates** (Use yyyyddd or yyymmdd)
Start Stop Click [here](#) to get time spans for individual parameters.

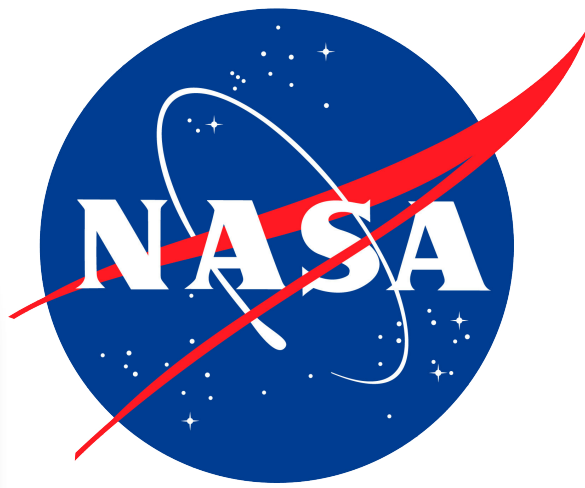
• **Select output parameters and enter desired minimum and/or maximum value(s) of any desired "filtering" parameter(s)**

Variable Name	Format	Min/Max values:	
		Low	High
<input type="checkbox"/> IMF Spacecraft ID	I2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Plasma Spacecraft ID	I2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> # Pts in IMF Avgs Avgs	I3	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> # Pts in Plasma Avgs	I3	<input type="text"/>	<input type="text"/>
Magnetic field			
<input checked="" type="checkbox"/> IMF Magnitude Avg, nT	F5.1	<input type="text" value="5"/>	<input type="text"/>
<input type="checkbox"/> Magnitude Avg IMF Vr nT	F5.1	<input type="text"/>	<input type="text"/>



- We used the default parameters, but also selected Dst and set the max value to -350 nT (so the output should be limited to very large storms)

<input type="checkbox"/> Sigma-V	F5.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Sigma-Flow-Longitude	F5.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Sigma-Flow-Latitude	F5.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Sigma-Alpha/Proton Ratio	F5.1	<input type="text"/>	<input type="text"/>
Derived Parameters			
<input type="checkbox"/> Electric Field, mV/m	F6.2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Plasma beta	F6.2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Alfvén Mach number	F5.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Magnetosonic Mach number	F5.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Proton Quazy-Invariant(QI)	F6.4	<input type="text"/>	<input type="text"/>
Indices			
<input type="checkbox"/> Kp*10 Index	I2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> R Sunspot number (new version)	I3	<input type="text"/>	<input type="text"/>
<input checked="" type="checkbox"/> Dst Index, provisional when?	I5	<input type="text"/>	<input type="text" value="-350"/>
<input type="checkbox"/> ap Index, nT	I4	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Solar index F10.7	F6.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> AE Index, provisional when?	I4	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> AL Index, nT	I5	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> AU Index, nT	I5	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> PCN index from Thule	F6.1	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Lyman Alpha Solar index	F9.6	<input type="text"/>	<input type="text"/>
Particles			
<input type="checkbox"/> Proton Flux* > 1 MEV	F9.2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Proton Flux* > 2 MEV	F8.2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Proton Flux* > 4 MEV	F8.2	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Proton Flux* >10 MEV	F8.2	<input type="text"/>	<input type="text"/>



Listing for omni2 data from 20000101 to 20260701

Number of Records=11

Constraints on parameter values:

Scalar B, nT (5, 99999999)

SW Proton Density, N/cm³ (0., 20)

Dst-index, nT (-99999, -350)

#N Parameters:

1 Scalar B, nT

2 BZ, nT (GSM)

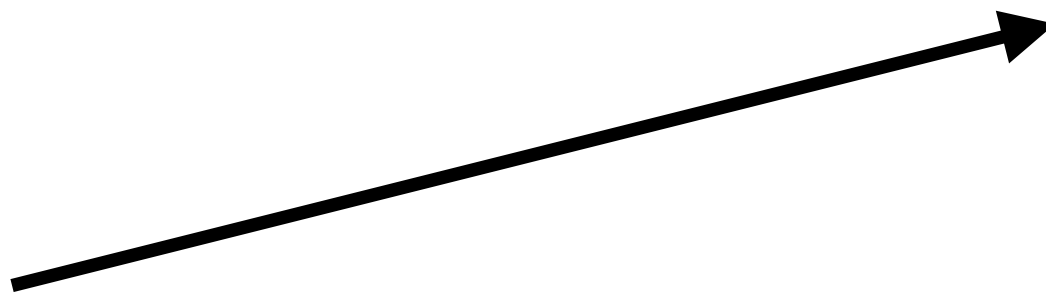
3 SW Proton Density, N/cm³

4 Dst-index, nT

YEAR	DOY	HR	1	2	3	4
2001	90	7	43.1	-36.3	13.1	-351
2001	90	8	37.6	19.4	17.5	-387
2003	324	18	40.4	-37.5	18.7	-396
2003	324	20	26.5	-17.2	16.7	-422
2003	324	21	25.5	-17.8	14.9	-422
2003	324	22	24.7	-14.8	9.5	-405
2004	313	5	29.3	-28.0	6.6	-368
2004	313	6	25.5	-23.5	5.5	-374
2024	132	3	34.7	-22.8	17.5	-395
2024	132	4	39.6	-18.9	8.4	-389
2024	132	5	38.5	5.9	19.9	-358

- The first 3 parameters are the default selections, and the 4th is Dst (which we're using to limit)

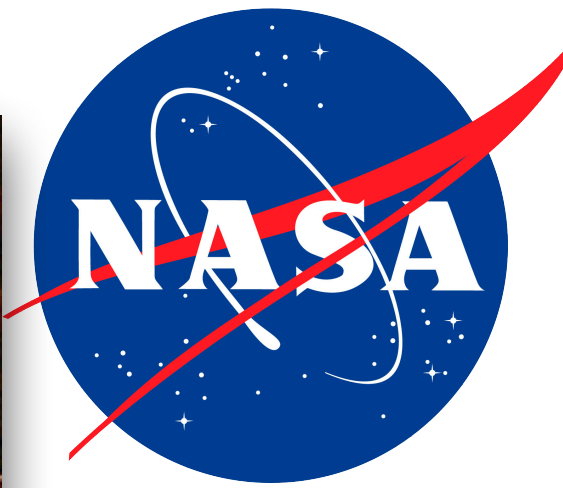
- We can see the large May 2024 storm



If you have any questions about OMNIWeb Plus Interface, contact:

[Dr. Natalia Papitashvili](#), Code 672, Greenbelt, MD 20771.

Last Update: July 07, 2026, NEP.



Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

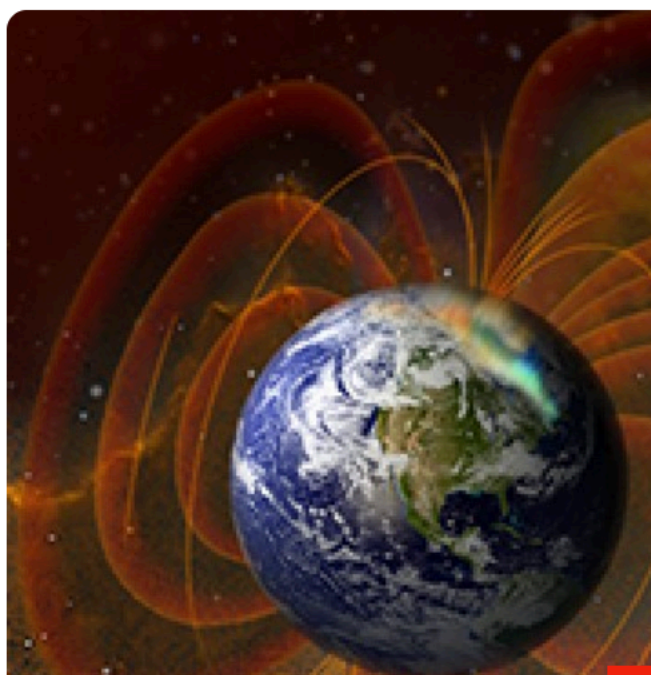
Submit Data

Resources

Contact Us



[SPDF Archive](#)



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

[CDAWeb](#)

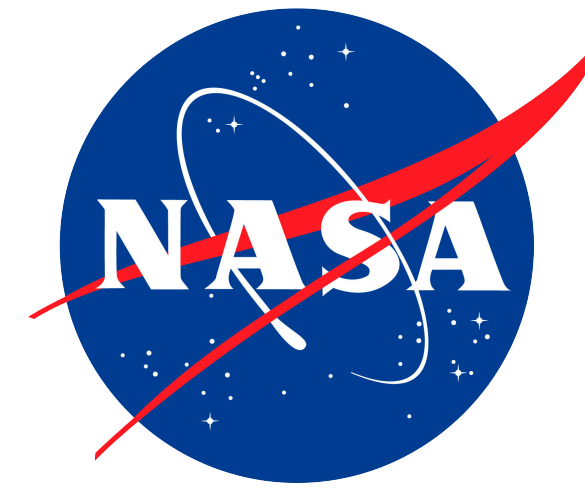
- Linking Missions and Services
- CDAWeb (data browser)
- CDAWeb Inside IDL
- OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, HelioWeb and CGM)
- SSCWeb (orbit search)**
- 4D Orbit Viewer
- Plot Walk for pre-generated plots
- CDAWeb Audification
- Direct HTTPS file access
- Alternative Data Access

Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from recent missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and archive system, the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data archive, and the Common Data Format (CDF) self-describing science data format and associated

[News & Announcements](#)



SSC Database Contents

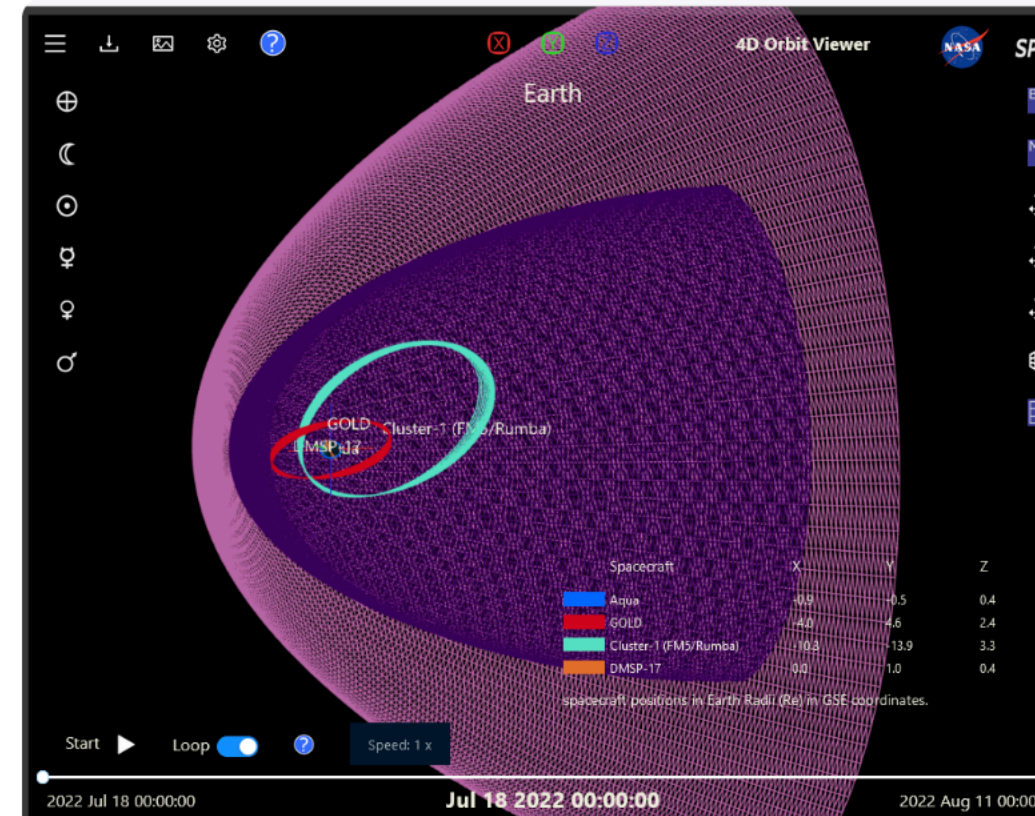
SSCWEB Spacecraft Availability & Time Ranges

Satellite	res(sec)	Time Range (yyyy doy hr)	pred/def
ace	720	[1997 237 17.80000, 2024 56 17.40000]	definitive
		(2024 56 17.40000, 2024 78 23.80000]	predictive
active	60	[1989 272 0.00000, 1991 277 8.00000]	definitive
aec	60	[1973 351 8.01667, 1978 344 0.00000]	definitive
aed	60	[1975 290 0.00000, 1976 60 0.00000]	definitive
aee	60	[1975 324 21.06667, 1981 161 0.00000]	definitive
aerocube6a	60	[2014 180 0.00000, 2024 56 11.56667]	definitive
		(2024 56 11.56667, 2024 77 0.00000]	predictive
aerocube6b	60	[2014 180 0.00000, 2024 57 1.33333]	definitive
		(2024 57 1.33333, 2024 78 0.00000]	predictive
aim	60	[2007 115 0.00000, 2017 5 0.00000]	predictive
		[2017 5 0.00000, 2024 56 20.26667]	definitive
		(2024 56 20.26667, 2024 77 0.00000]	predictive

[Spacecraft Availability & Time Ranges](#)

[Data Provenance](#)

4-D Orbit Viewer



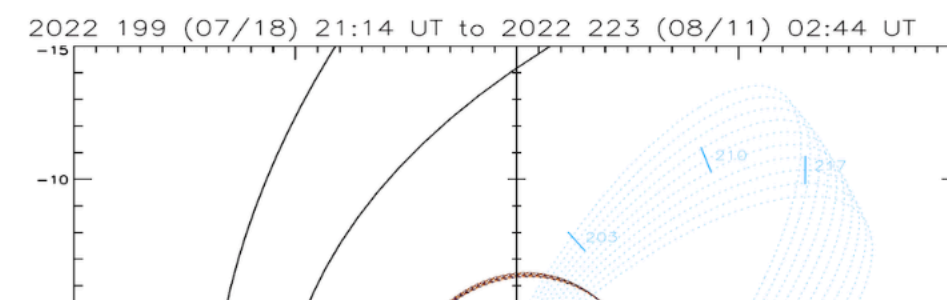
4D Orbit Viewer provides an interactive 4-D animation of spacecraft orbits over time.

Locator Listing

Time	Sat.	GSE (RE)			Magnetic	Spacecraft
yyyy ddd hh:mm:ss		X	Y	Z	FldStrth	Region
2023 220 00:00:00	goes17	1.76	6.22	1.38	103.09	D_Mosphere
2023 220 00:01:00	goes17	1.74	6.23	1.39	103.01	D_Mosphere
2023 220 00:02:00	goes17	1.71	6.23	1.40	102.92	D_Mosphere
2023 220 00:03:00	goes17	1.68	6.24	1.41	102.83	D_Mosphere
2023 220 00:04:00	goes17	1.66	6.24	1.42	102.75	D_Mosphere
2023 220 00:05:00	goes17	1.63	6.25	1.43	102.66	D_Mosphere
2023 220 00:06:00	goes17	1.60	6.25	1.44	102.58	D_Mosphere
2023 220 00:07:00	goes17	1.58	6.25	1.45	102.49	D_Mosphere
2023 220 00:08:00	goes17	1.55	6.26	1.45	102.40	D_Mosphere
2023 220 00:09:00	goes17	1.52	6.26	1.46	102.32	D_Mosphere

Locator provides a table of spacecraft coordinate locations in various coordinate systems with other location-related information. ([THEMIS Saved Examples](#))

2-D Locator Graphics



Conjunction Query

REQUIRED INPUT

Spacecraft/Time Range Selection

Occupancy/Conjunction Condition Combinations

Ground Station

Lead Satellite

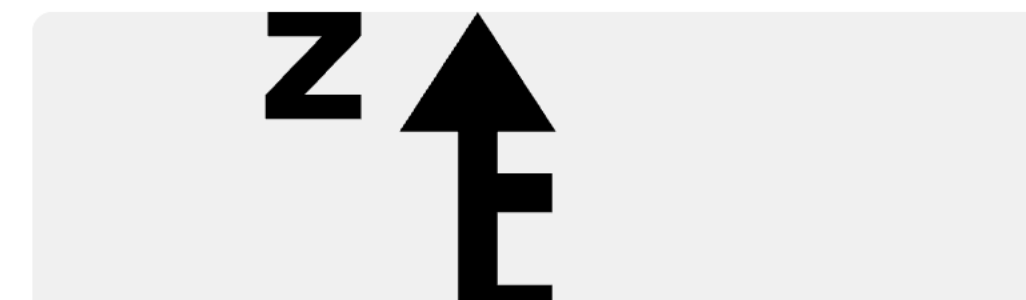
Region

2

INPUT SUMMARY

Input Summary

Coordinate Converter





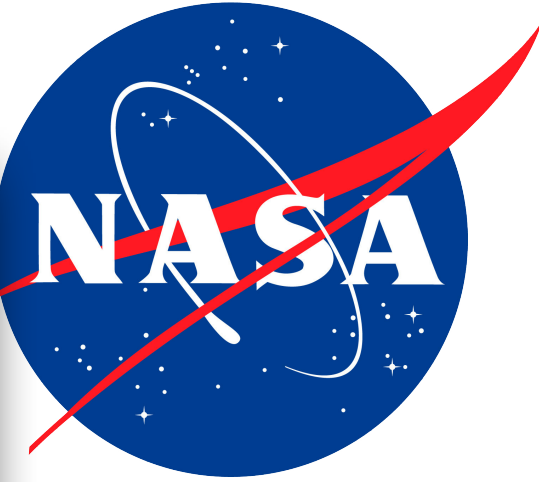
Select Spacecraft

4D Orbit Viewer

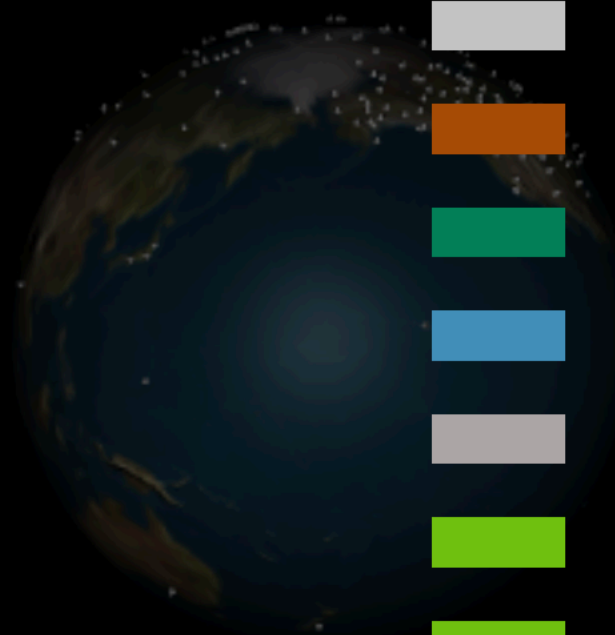
v0-2025.10.06.1331



SPDF



Select	Name	Color	Shape
<input type="checkbox"/>	Landsat8		cone ▾
<input type="checkbox"/>	Landsat9		cone ▾
<input type="checkbox"/>	Mars		sphere ▾
<input type="checkbox"/>	Mercury		sphere ▾
<input type="checkbox"/>	MetOp-B (MetOp-1)		sphere ▾
<input checked="" type="checkbox"/>	MMS 1		sphere ▾
<input checked="" type="checkbox"/>	MMS 2		sphere ▾
<input checked="" type="checkbox"/>	MMS 3		cone ▾
<input checked="" type="checkbox"/>	MMS 4		sphere ▾
<input type="checkbox"/>	Moon		sphere ▾
<input type="checkbox"/>	Neptune		cone ▾
<input type="checkbox"/>	New Horizons		cone ▾
<input type="checkbox"/>	NOAA-20		cone ▾
<input type="checkbox"/>	NOAA-21		cone ▾
<input type="checkbox"/>	Oersted		cylinder ▾
<input type="checkbox"/>	Pluto		cone ▾
<input type="checkbox"/>	Psyche		cone ▾



Display Orbits





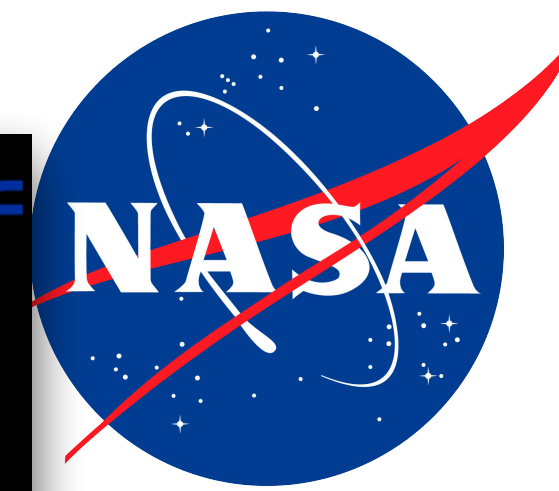
Select Start Date/Time

4D Orbit Viewer

v0-2025.10.06.1331



SPDF



< May 2024 >

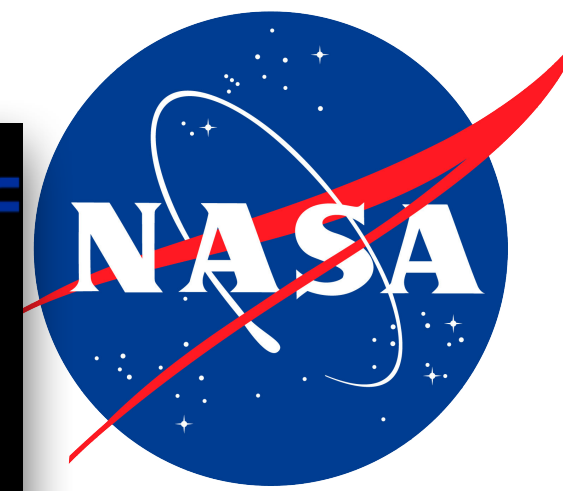
Sun	Mon	Tue	Wed	Thu	Fri	Sat
119	120	121	122	123	124	125
126	127	128	129	130	131	132
133	134	135	136	137	138	139
140	141	142	143	144	145	146
147	148	149	150	151	152	153
154	155	156	157	158	159	160

00 : 00 : 00

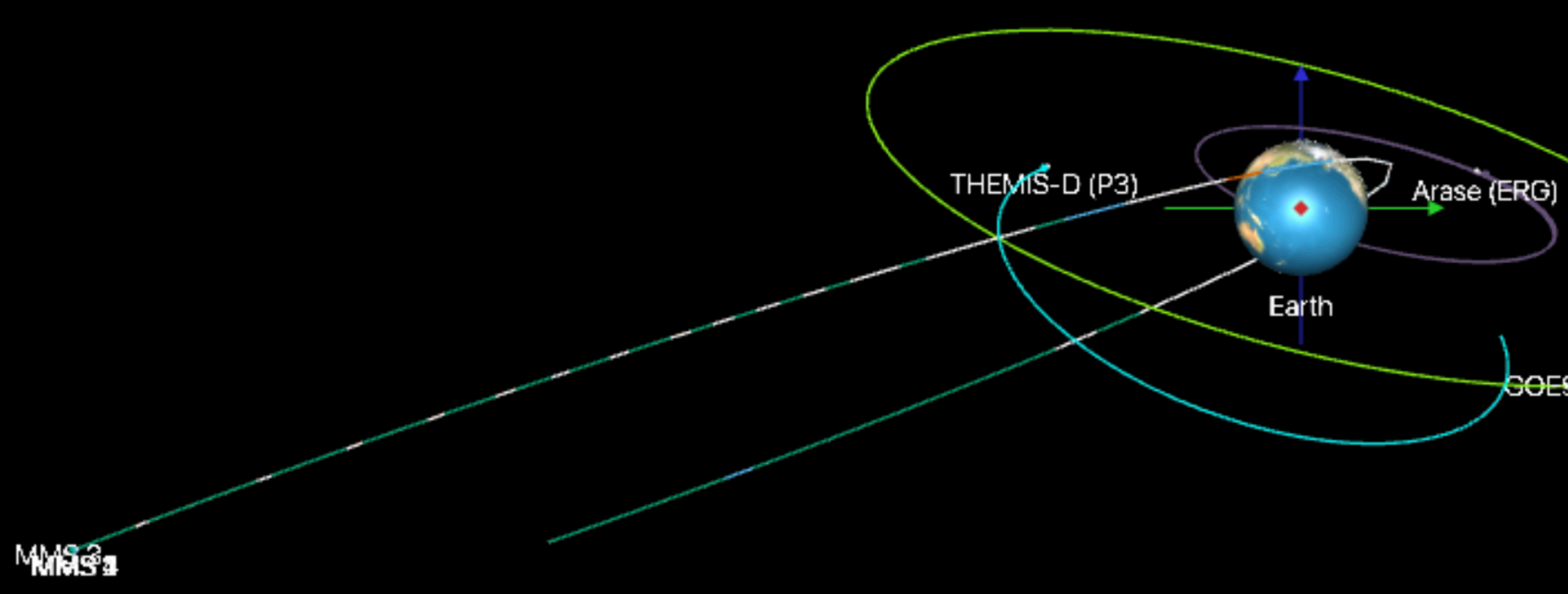
Date View

Display Orbits





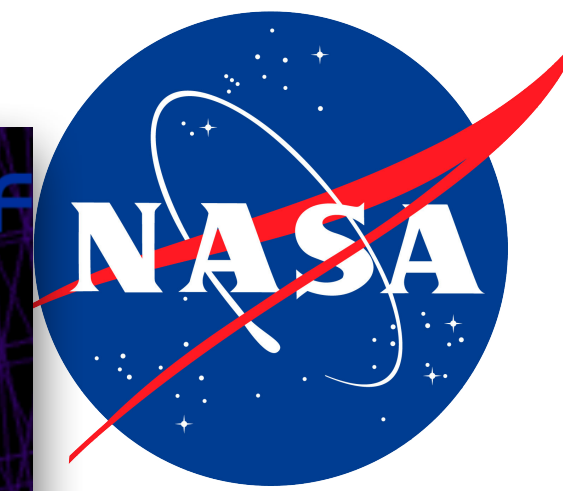
Earth



Spacecraft

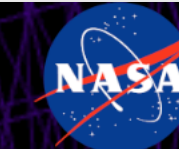
Spacecraft	X	Y	Z
MMS 1	11.58	-18.10	-5.04
MMS 2	11.58	-18.10	-5.04
MMS 4	11.58	-18.10	-5.04
MMS 3	11.58	-18.11	-5.04
GOES-18	4.53	4.03	-2.63
Arase (ERG)	5.35	2.73	0.50
THEMIS-D (P3)	3.10	-3.79	0.59

spacecraft positions in Earth Radii (Re = 6378.16 km) in GSE coordinates



4D Orbit Viewer

v0-2025.10.06.1331



SPDR



Earth



MMS 3

THEMIS-D (P3)

Arase (ERG)

GOES-18



Spacecraft	X	Y	Z
MMS 1	11.58	-18.10	-5.04
MMS 2	11.58	-18.10	-5.04
MMS 4	11.58	-18.10	-5.04
MMS 3	11.58	-18.11	-5.04
GOES-18	4.53	4.03	-2.63
Arase (ERG)	5.35	2.73	0.50
THEMIS-D (P3)	3.10	-3.79	0.59

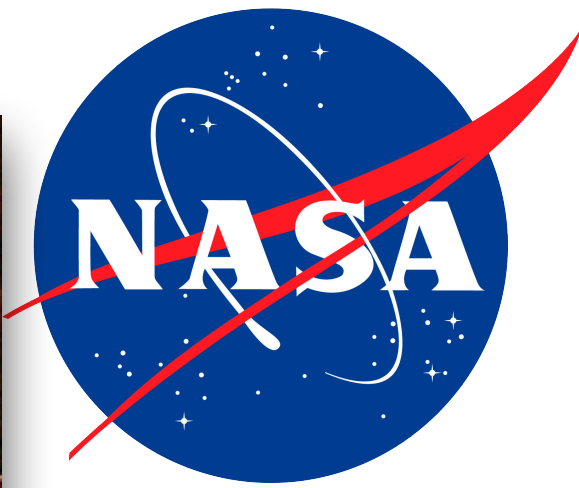
spacecraft positions in Earth Radii (Re = 6378.16 km) in GSE coordinates

Start Loop Speed: 1 x

2024 May 11 00:00:00

2024 May 11 00:00:00

2024 May 12 00:00:00



Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

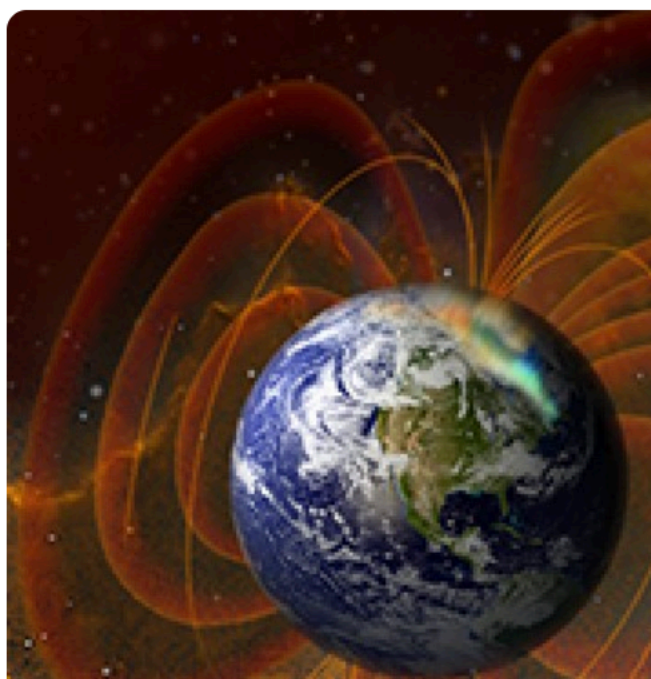
Submit Data

Resources

Contact Us



[SPDF Archive](#)



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

[CDAWeb](#)

Linking Missions and Services

CDAWeb (data browser)

CDAWeb Inside IDL

OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, Helioweb and CGM)

SSCWeb (orbit search)

4D Orbit Viewer

Plot Walk for pre-generated plots

CDAWeb Audification

Direct HTTPS file access

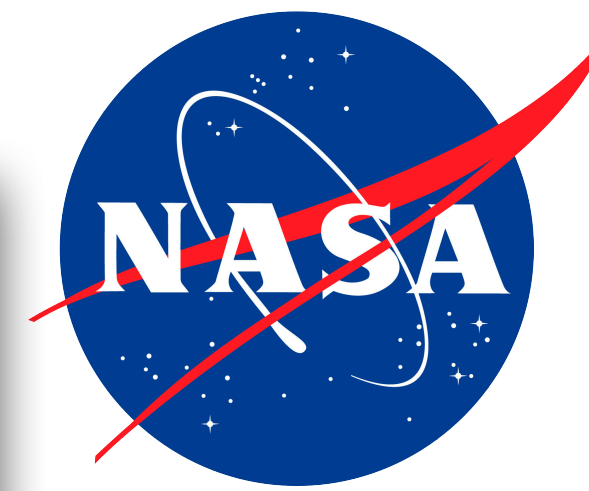
Alternative Data Access

Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from past missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data system, and the Common Data Format (CDF) self-describing science data format and associated

[News & Announcements](#)



Plot Walk

[User Guide](#)

Mission:

Orbits

Plot type:

Geospace S/C Orbits at 30 Re

Time range:

8 hours

Date:

2024-05-11

Time:

10:07

<< < > >>

Links:

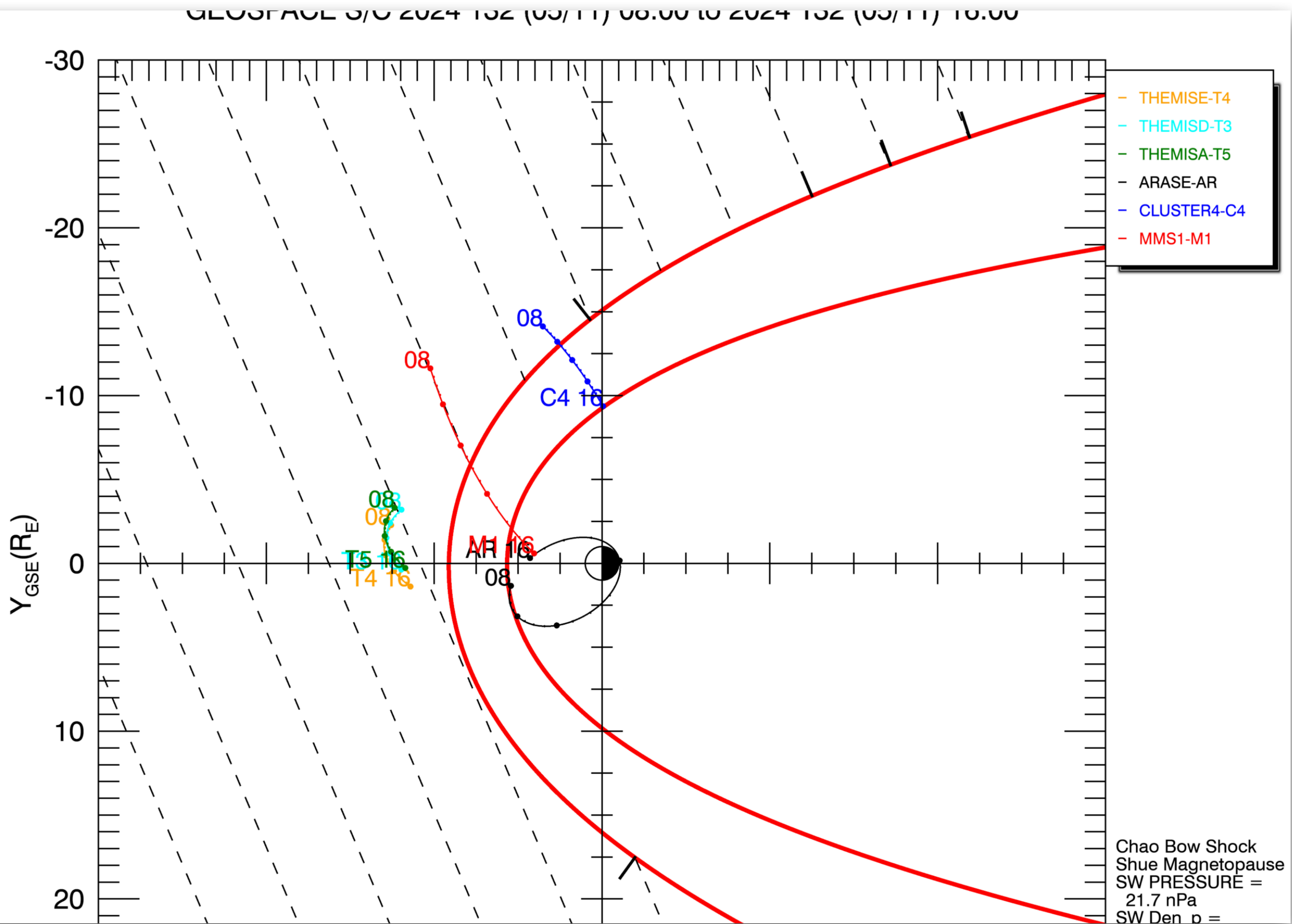
[README](#)

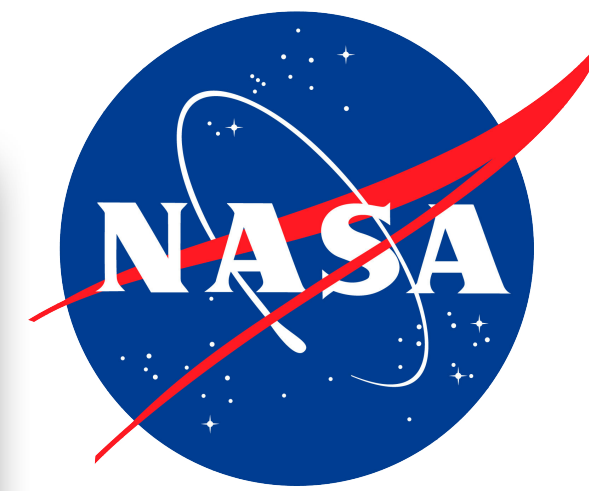
[Image](#)

[PDF](#)

[Postscript](#)

[4D orbit viewer](#)





Plot Walk

[User Guide](#)

Mission:

MMS

Probe:

1

Plot type:

Multi-Instrument Summary

Time range:

1 day

Date:

2024-05-11

Time:

10:07

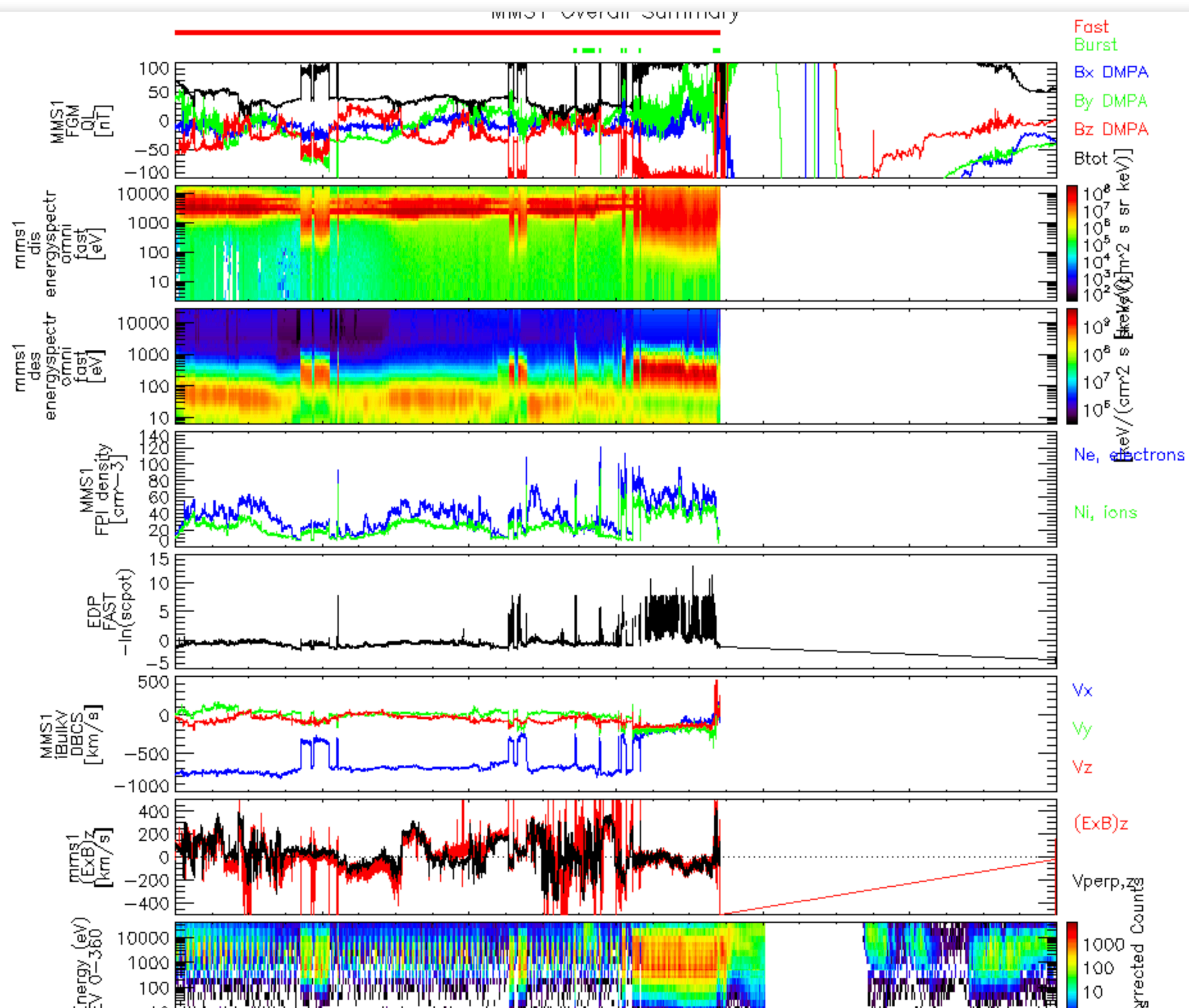


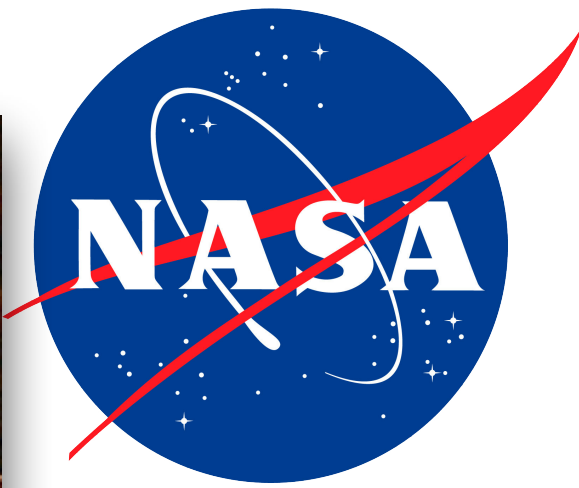
Links:

[Image](#)

[4D orbit viewer](#)

The inventory of MMS plots





Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

Submit Data

Resources

Contact Us



[SPDF Archive](#)



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

[CDAWeb](#)

Linking Missions and Services

[CDAWeb \(data browser\)](#)

CDAWeb Inside IDL

OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, HelioWeb and CGM)

SSCWeb (orbit search)

4D Orbit Viewer

Plot Walk for pre-generated plots

CDAWeb Audification

Direct HTTPS file access

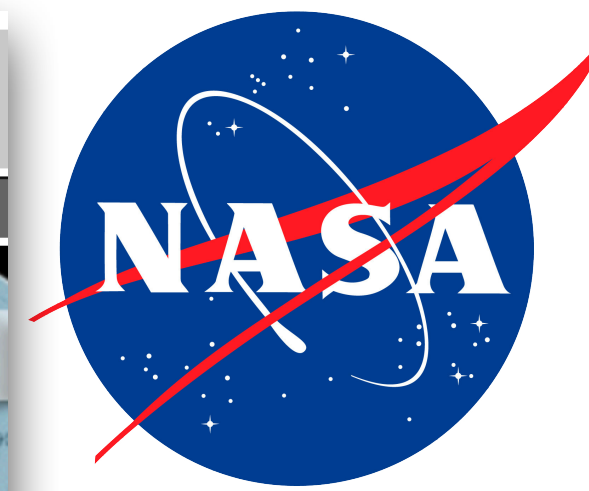
Alternative Data Access

Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from recent missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and archive system, the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data archive, and the Common Data Format (CDF) self-describing science data format and associated

[News & Announcements](#)



- We can search the CDAWeb datasets by selecting the “source” and/or “instrument type”

GODDARD SPACE FLIGHT CENTER
Space Physics Data Facility

+ Goddard Home
+ NASA Home

+ SPDF HOME + MISSION DATA + MODELS at CCMC + SCIENCE ENABLED + AND MORE

CDAWeb

+ CDAWEB HOME
+ FEEDBACK
+ ABOUT CDAWEB

Guides and Tutorials
+ CDAWeb help
+ Internet browser help

Direct Access to Data
+ Direct HTTP(S) to Data
+ Direct FTP(S) to Data (FTPS required)

Additional Services
+ CDAWeb Inside IDL
+ Overview of Alternative Data Access Methods
+ Autoplot.org (non-NASA) interface to public CDAWeb database
+ New Plot Walk for viewing pre-generated plots

Additional Resources
+ Usage Statistics
+ Space Physics Use of CDF
+ **SPASE & DOI Registry of CDAWeb data sets**
+ Data Inventory Graphs
+ SPDF Home Page

Coordinated Data Analysis Web (CDAWeb)

CDAWeb contains selected public non-solar heliophysics data from current and past heliophysics missions and projects. Many datasets from current missions are updated regularly (even daily), including reprocessing older time periods, and SPDF only preserves the latest version. To find all of the public data and documents archived by the SPDF, see the [SPDF archive](#). To search for additional heliophysics data products, check the [heliophysics data portal](#).

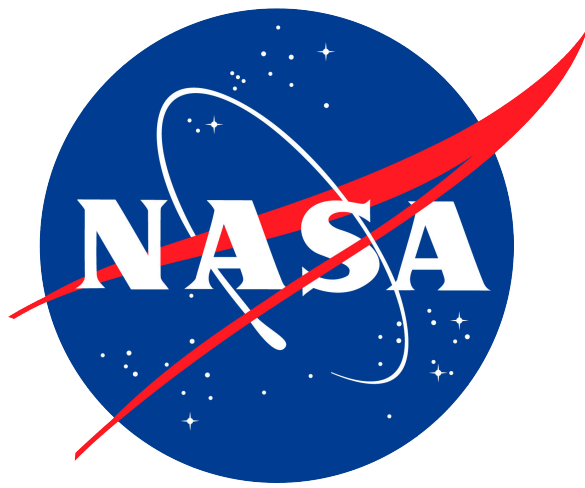
REMINDER: CDAWeb offers CREATION of subset/supersets of data sets (by date and variables), CREATION of uniformly time binned data, PLOTS in PDF, PS and PNG formatted files, MOVIES of specific image sequences, ON-THE-FLY Inventory plots, ADJUSTABLE height time/spectrogram plots, plus many more options...

Please expect all SPDF services (CDAWeb, SSCWeb, OMNIWeb, etc.) to be unavailable on Wednesday of the first full workweek of each month for system maintenance.

PREVIOUS DATA & SOFTWARE UPDATES ...

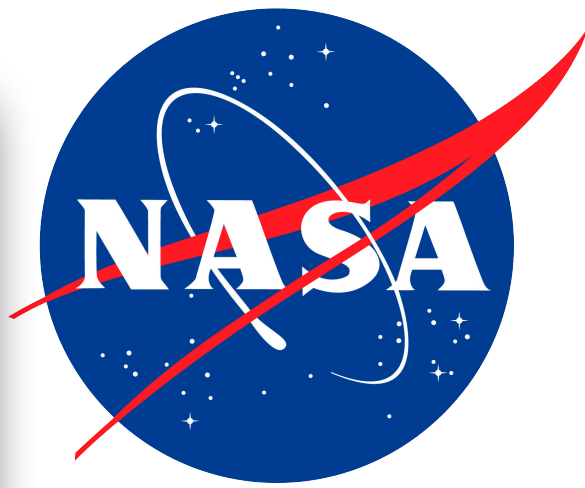
- **Select zero OR more Sources**
(default = All Sources if >=1 Instrument Type is selected)
- **Select zero OR more Instrument Types**
(default = All Instrument Types if >=1 Source is selected)


<input type="checkbox"/> Balloons	<input type="checkbox"/> Activity Indices
<input type="checkbox"/> Geosynchronous Investigations	<input type="checkbox"/> Dust and Debris
<input type="checkbox"/> Ground-Based Investigations	<input type="checkbox"/> Electric Fields (space)
<input type="checkbox"/> Helio Ephemeris	<input type="checkbox"/> Engineering
<input type="checkbox"/> OMNI (Combined 1AU IP Data, Magnetic and Solar Indices)	<input type="checkbox"/> Ephemeris/Attitude/Ancillary
<input type="checkbox"/> Smallsats/Cubesats	<input type="checkbox"/> Ground-Based HF-Radars
<input type="checkbox"/> Sounding Rockets	<input type="checkbox"/> Ground-Based Imagers
<input type="checkbox"/> ACE	<input type="checkbox"/> Ground-Based Magnetometers, Riometers, Sounders
<input type="checkbox"/> AIM	<input type="checkbox"/> Ground-Based VLF/ELF/ULF, Photometers
<input type="checkbox"/> AMPTE	<input type="checkbox"/> Housekeeping
<input type="checkbox"/> ARTEMIS	<input type="checkbox"/> Imaging and Remote Sensing (ITM/Earth)
<input type="checkbox"/> AWE	<input type="checkbox"/> Imaging and Remote Sensing
<input type="checkbox"/> Alouette	



- For the following example, we selected MMS and THEMIS magnetic fields data

<input type="checkbox"/> CRRES	<input type="checkbox"/> Magnetic Fields (balloon)
<input type="checkbox"/> Cassini	<input checked="" type="checkbox"/> Magnetic Fields (space)
<input type="checkbox"/> Cluster	<input type="checkbox"/> Particle Flux (space)
<input type="checkbox"/> DMSP	<input type="checkbox"/> Particles (space)
<input type="checkbox"/> DSCOVR	<input type="checkbox"/> Plasma and Solar Wind
<input type="checkbox"/> Dynamics Explorer	<input type="checkbox"/> Radio and Plasma Waves (space)
<input type="checkbox"/> Equator-S	
<input type="checkbox"/> FAST	
<input type="checkbox"/> Formosat	
<input type="checkbox"/> GOES	
<input type="checkbox"/> GOLD	
<input type="checkbox"/> GPS	
<input type="checkbox"/> Genesis	
<input type="checkbox"/> Geotail	
<input type="checkbox"/> Hawkeye	
<input type="checkbox"/> Helios	
<input type="checkbox"/> IBEX	
<input type="checkbox"/> ICON	
<input type="checkbox"/> IMAGE	
<input type="checkbox"/> IMAP	
<input type="checkbox"/> IMP (All)	
<input type="checkbox"/> ISEE	
<input type="checkbox"/> ISIS	
<input type="checkbox"/> ISS	
<input type="checkbox"/> Interball	
<input type="checkbox"/> LANL	
<input type="checkbox"/> MAVEN	
<input type="checkbox"/> MESSENGER	
<input checked="" type="checkbox"/> MMS	
<input type="checkbox"/> Mariner	
<input type="checkbox"/> Mars Global Surveyor (MGS)	
<input type="checkbox"/> Mars Science Laboratory (MSL)	
<input type="checkbox"/> Moon	
<input type="checkbox"/> NOAA	
<input type="checkbox"/> New Horizons	
<input type="checkbox"/> POES/MetOp	
<input type="checkbox"/> Parker Solar Probe (PSP)	
<input type="checkbox"/> Pioneer	
<input type="checkbox"/> Polar	
<input type="checkbox"/> REACH	
<input type="checkbox"/> SAMPEX	
<input type="checkbox"/> SOHO	
<input type="checkbox"/> SOLAR	
<input type="checkbox"/> ST5	
<input type="checkbox"/> STEREO	
<input type="checkbox"/> Solar Orbiter	
<input checked="" type="checkbox"/> THEMIS	
<input type="checkbox"/> TIMED	
<input type="checkbox"/> TSS-1R	



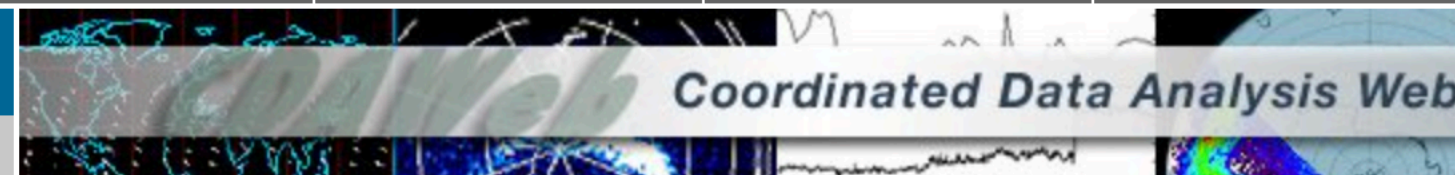
 **GODDARD SPACE FLIGHT CENTER**
Space Physics Data Facility

+ Goddard Home
+ NASA Home

+ SPDF HOME + MISSION DATA + MODELS at CCMC + SCIENCE ENABLED + AND MORE

+ CDAWeb Home
CDAWeb

+ FEEDBACK

 **Coordinated Data Analysis Web**

CDAWeb Data Selector

🔍 **SELECT AT LEAST ONE DATA SET below before pressing the "Submit" button to continue.**

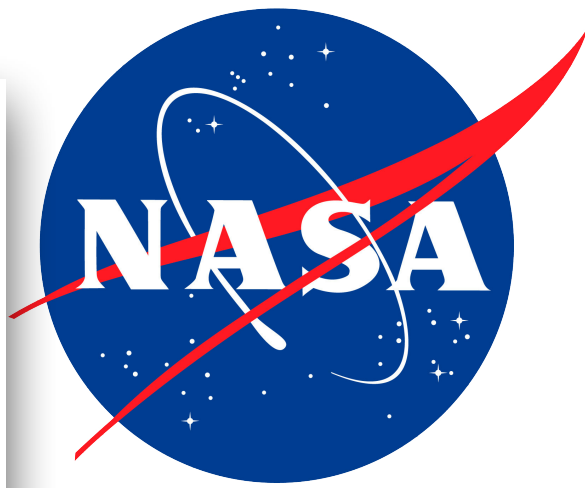
[SELECT ALL checkboxes](#)

[CLEAR ALL checkboxes](#)

Submit

- MMS1_DSP_FAST_L2_BPSD**: SCM Low frequency Magnetic spectral density from the FIELDS Digital Signal Processor - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/04 22:14:08] [Info/DOI](#) [Metadata](#)
- MMS2_DSP_FAST_L2_BPSD**: SCM Low frequency Magnetic spectral density from the FIELDS Digital Signal Processor - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/04 22:14:20] [Info/DOI](#) [Metadata](#)
- MMS3_DSP_FAST_L2_BPSD**: SCM Low frequency Magnetic spectral density from the FIELDS Digital Signal Processor - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/04 22:14:19] [Info/DOI](#) [Metadata](#)
- MMS4_DSP_FAST_L2_BPSD**: SCM Low frequency Magnetic spectral density from the FIELDS Digital Signal Processor - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/04 22:14:30] [Info/DOI](#) [Metadata](#)
- MMS1_DSP_SLOW_L2_BPSD**: search coil magnetometer spectral density - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/05 04:02:16] [Info/DOI](#) [Metadata](#)
- MMS2_DSP_SLOW_L2_BPSD**: search coil magnetometer spectral density - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/05 05:15:51] [Info/DOI](#) [Metadata](#)
- MMS3_DSP_SLOW_L2_BPSD**: search coil magnetometer spectral density - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/05 06:22:12] [Info/DOI](#) [Metadata](#)
- MMS4_DSP_SLOW_L2_BPSD**: search coil magnetometer spectral density - J. Burch, R. Ergun, O. Le Contel (SWRI, LASP, LPP)
[Available Time Range: 2015/09/01 00:00:00 - 2026/05/05 09:01:32] [Info/DOI](#) [Metadata](#)
- MMS1_FGM_SRVY_L2**: Level2 Flux Gate Magnetometer Combined Fast/Slow Survey DC Magnetic Field for MMS Satellite Number 1 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 00:00:12 - 2026/03/30 23:59:59] [Info/DOI](#) [Metadata](#)
- MMS2_FGM_SRVY_L2**: Level2 Flux Gate Magnetometer Combined Fast/Slow Survey DC Magnetic Field for MMS Satellite Number 2 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 00:00:03 - 2026/03/31 00:00:00] [Info/DOI](#) [Metadata](#)
- MMS3_FGM_SRVY_L2**: Level2 Flux Gate Magnetometer Combined Fast/Slow Survey DC Magnetic Field for MMS Satellite Number 3 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 00:00:06 - 2026/03/31 00:00:03] [Info/DOI](#) [Metadata](#)
- MMS4_FGM_SRVY_L2**: Level2 Flux Gate Magnetometer Combined Fast/Slow Survey DC Magnetic Field for MMS Satellite Number 4 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 00:00:04 - 2026/03/31 00:00:06] [Info/DOI](#) [Metadata](#)
- MMS1_FGM_BRST_L2**: Level2 Flux Gate Magnetometer Burst DC Magnetic Field for MMS Satellite Number 1 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 12:11:14 - 2026/03/29 03:09:32] [Info/DOI](#) [Metadata](#)
- MMS2_FGM_BRST_L2**: Level2 Flux Gate Magnetometer Burst DC Magnetic Field for MMS Satellite Number 2 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 12:11:14 - 2026/03/29 03:09:32] [Info/DOI](#) [Metadata](#)
- MMS3_FGM_BRST_L2**: Level2 Flux Gate Magnetometer Burst DC Magnetic Field for MMS Satellite Number 3 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 12:11:14 - 2026/03/29 03:09:32] [Info/DOI](#) [Metadata](#)
- MMS4_FGM_BRST_L2**: Level2 Flux Gate Magnetometer Burst DC Magnetic Field for MMS Satellite Number 4 - J. Burch, C. Russell, W. Magnus (SWRI, UCLA, IWF)
[Available Time Range: 2015/09/01 12:11:14 - 2026/03/29 03:09:31] [Info/DOI](#) [Metadata](#)
- MMS1_SCM_SRVY_L2_SCSR**: Level 2 Search Coil Magnetometer AC Magnetic Field Survey (32S/s) Data - J. Burch, O. Le Contel (SWRI, LPP)
[Available Time Range: 2015/09/02 00:00:01 - 2026/04/21 00:00:04] [Info/DOI](#) [Metadata](#)
- MMS2_SCM_SRVY_L2_SCSR**: Level 2 Search Coil Magnetometer AC Magnetic Field Survey (32S/s) Data - J. Burch, O. Le Contel (SWRI, LPP)
[Available Time Range: 2015/09/02 00:00:03 - 2026/04/21 00:00:03] [Info/DOI](#) [Metadata](#)
- MMS3_SCM_SRVY_L2_SCSR**: Level 2 Search Coil Magnetometer AC Magnetic Field Survey (32S/s) Data - J. Burch, O. Le Contel (SWRI, LPP)

- Note that you can click on the links in the dataset list for information on the dataset and examples of accessing the data from IDL and Python



- We can list data, plot data, download the original files, create v3.9 CDF files and create audio files from the selected variables

CDAWeb Data Explorer

Select start and stop times from which to GET or PLOT data:

Start time (YYYY/MM/DD HH:MM:SS.mmm):

Stop time (YYYY/MM/DD HH:MM:SS.mmm):

Compute uniformly spaced binned data for scalar/vector/spectrogram data (not available with noise filtering)

Use spike removal to filter data without binning (not available with noise filtering)(Warning: Experimental !!).

Select an activity:

Data Availability Chart : Generate a chart showing when data is available for the selected data set(s) and time range (Select > 1day).

Plot Data : select one or more variables from list below and press submit.

Also create PS and PDF best quality outputs (all plot types except images and plasmagrams).

Many panels per dataset are allowed but <=4 panels optimal for standard Y-axis height and single page display.

Use coarse noise filtering to remove values outside 3 deviations from mean of all values in the plotted time interval.

Change the X-axis width for time-series and spectrogram PNG plots (NEW default=3). **NEW**

Change the Y-axis height for time-series and spectrogram plots (NEW default=2). **NEW**

Autoscale time axis (useful for finding discrete bursts/events). **NEW**

Combine all time-series and spectrogram plots, for all requested datasets, into one plot file.

Plot overlay options.

List Data (ASCII/CSV): select one or more variables from list below and press submit. (Works best for < 31 days)

Download original files : press submit button to retrieve list of files. (Max. 200 days - use [HTTPS site](#) for larger requests)

Create V3.9 CDFs for download: select one or more variables from the list below and press submit. **NEW**

Create audio files based on data from selected variables. [More information about audification.](#)

Note: [CDF patch](#) required for reading Version 3.9 CDFs in IDL or MATLAB.

Get [CDFX](#) - IDL GUI plotting/listing toolkit software. To be used with either the daily or "created" CDF files available above.

Pressing the "Submit" button will spawn a new window/tab in order to support the new "Previous" and "Next" functions.

Variable parameters (required for Listing, Creating and Plotting data only)

MMS4_FGM_SRVY_L2: Level2 Flux Gate Magnetometer Combined Fast/Slow Survey DC Magnetic Field for MMS Satellite Num

Available dates: 2015/09/01 00:00:04 - 2026/03/31 00:00:06 [Info/DOI](#) [Metadata](#) [Archive](#)

(Continuous coverage not guaranteed - check the [inventory graph](#) for coverage)

Magnetic field vector in Geocentric Solar Ecliptic (GSE) cartesian coordinates plus Btotal (8 or 16 S/s)

--> Magnetic field vector in Geocentric Solar Ecliptic (GSE) cartesian coordinates plus Btotal (8 or 16 S/s), including flagged data

Magnetic field vector in Geocentric Solar Magnetospheric (GSM) cartesian coordinates plus Btotal (8 or 16 S/s)

--> Magnetic field vector in Geocentric Solar Magnetospheric (GSM) cartesian coordinates plus Btotal (8 or 16 S/s), including flagged data

Magnetic field vector in Despun MPA-aligned cartesian coordinates plus Btotal (8 or 16 S/s)

--> Magnetic field vector in Despun MPA-aligned cartesian coordinates plus Btotal (8 or 16 S/s), including flagged data

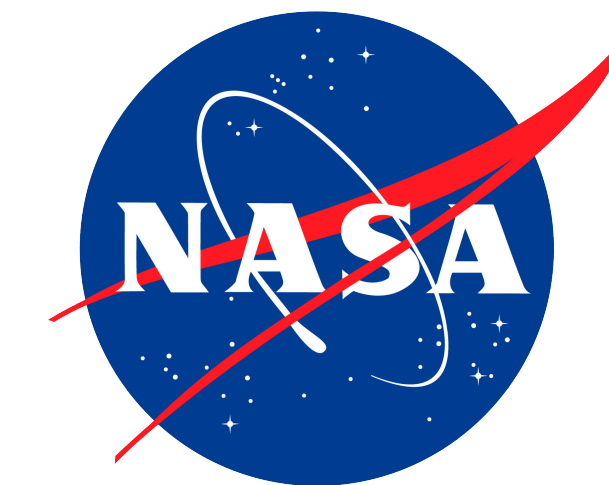
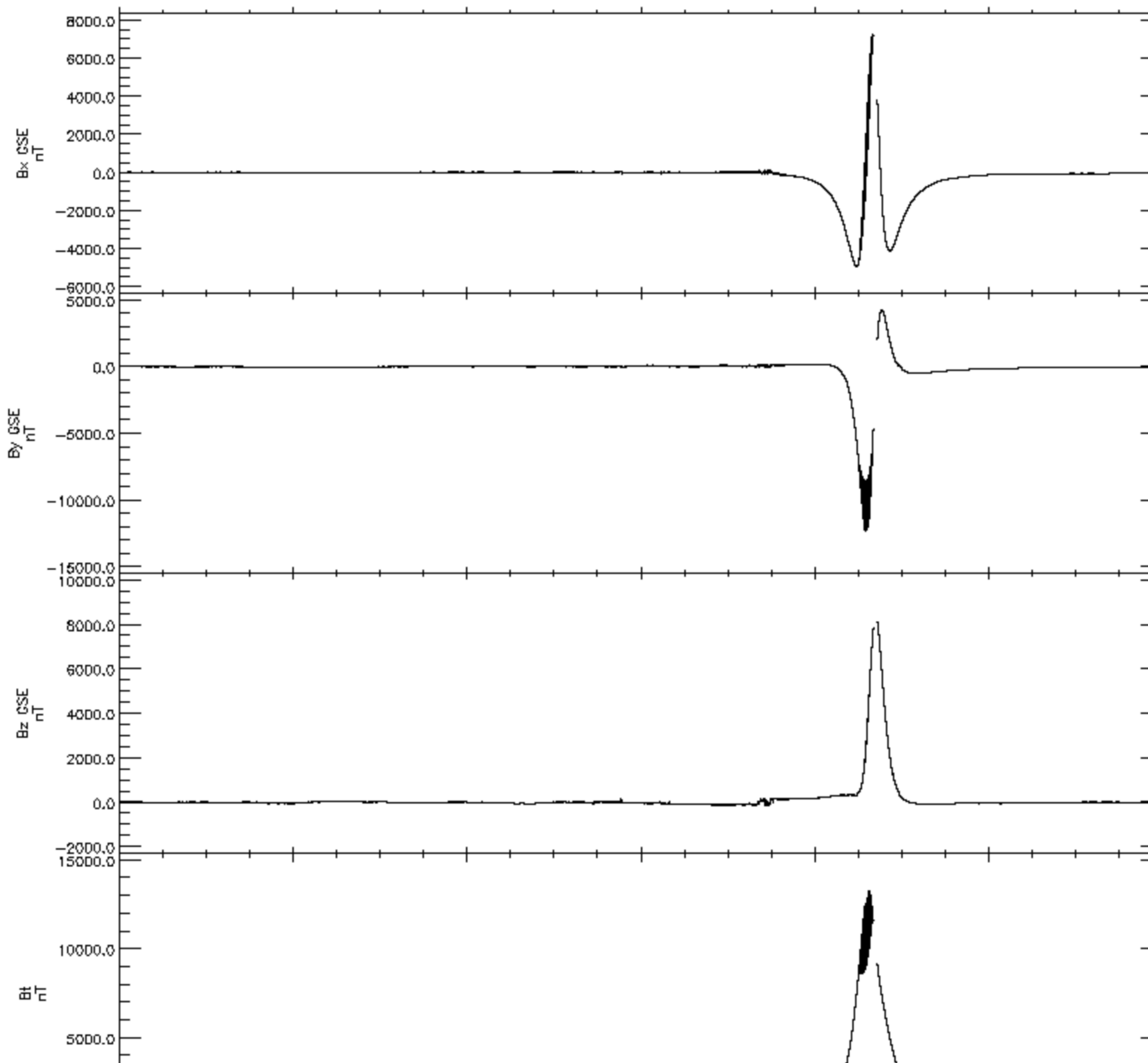
Magnetic field vector in Body Coordinate System cartesian coordinates plus Btotal (8 or 16 S/s)

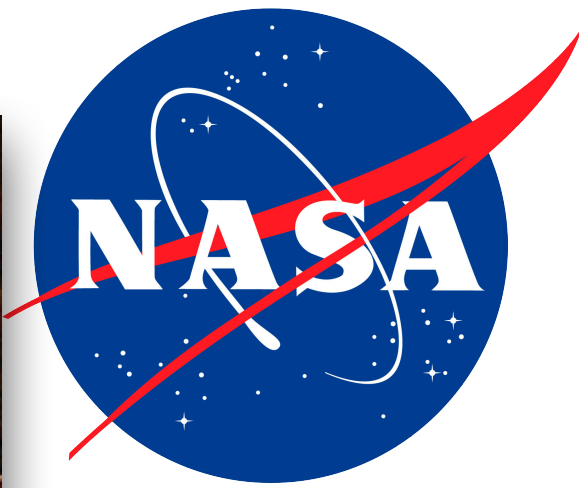
--> Magnetic field vector in Body Coordinate System cartesian coordinates plus Btotal (8 or 16 S/s), including flagged data



MMS4_FGM_SRVY_L2

MMS4_FGM>Flux Gate Magnetometer srvy_L2





Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

Submit Data

Resources

Contact Us



[SPDF Archive](#)



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\)](#).

[CDAWeb](#)

Linking Missions and Services

CDAWeb (data browser)

CDAWeb Inside IDL

OMNIWeb Plus (now including COHWeb, ATMOWeb, FTP Browser, HelioWeb and CGM)

SSCWeb (orbit search)

4D Orbit Viewer

Plot Walk for pre-generated plots

CDAWeb Audification

Direct HTTPS file access

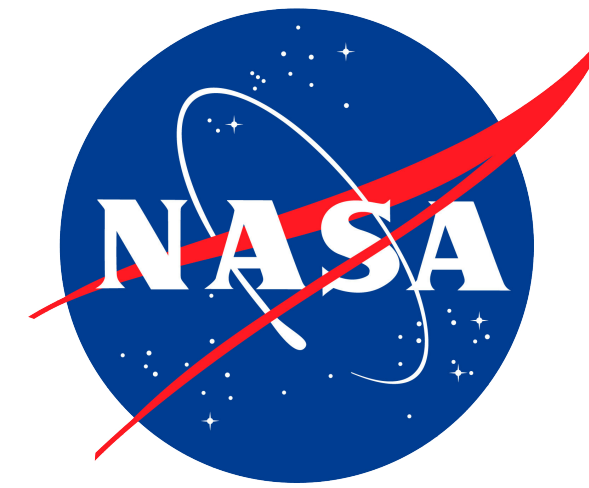
Alternative Data Access

Space Physics Data Facility (SPDF)

SPDF studies the nature and dynamic interactions of the Sun, the heliosphere, and the environments of the planets and interstellar space. The [Heliophysics Digital Resource Library](#) archives and serves the heliophysics data, as a project in the [Heliophysics Science Division](#) at NASA's Goddard Space Flight Center. **Space Physics Data Facility (SPDF)** is the active and growing archive for the space physics data, while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as components of the HDRL, per NASA's [Heliophysics Science Data Management Plan](#). Visit [NASA Heliophysics Data](#) for more information, policy, and document templates.

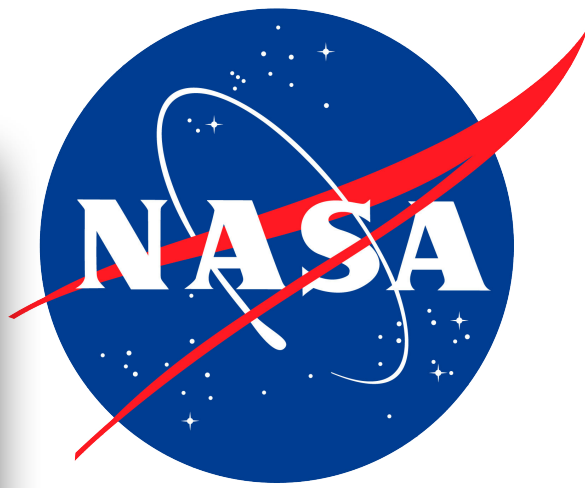
SPDF provides multi-project, cross-disciplinary access to data to enable correlative and collaborative work across discipline and mission boundaries with present and past missions. Many datasets from recent missions are updated regularly (even daily), including reprocessed data for older time periods. SPDF only preserves the latest version. SPDF maintains the CDAWeb data explorer and archive system, the SSCweb database of spacecraft orbits, the OMNIWeb cross-normalized data archive, and the Common Data Format (CDF) self-describing science data format and associated

[News & Announcements](#)



Index of /pub/data

<u>Name</u>	<u>Last modified</u>	<u>Size</u>
Parent Directory.		-
000_readme.txt	2023-08-11 14:47	3.7K
1963-038C/	2014-08-08 11:05	-
aaa_balloons/	2021-01-13 15:36	-
aaa_groundbased/	2023-04-05 16:15	-
aaa_planetary/	2026-02-05 11:48	-
aaa_smallsats_cubesats/	2026-02-24 14:35	-
aaa_sounding_rockets/	2023-03-10 14:33	-
aaa_special-purpose-datasets/	2024-05-07 13:18	-
ace/	2025-02-10 00:48	-
ae/	2013-03-04 14:58	-
aeros/	2013-12-03 08:51	-
aim/	2021-01-29 14:58	-
alouette/	2015-06-19 10:41	-
ampte/	2009-02-12 11:33	-
apollo/	2021-09-24 21:21	-
arase/	2019-05-07 13:35	-
arcad/	2023-08-14 11:44	-
ariel/	2014-05-28 15:36	-
ats/	2012-09-26 14:20	-
aureol/	2017-05-11 14:34	-
awe/	2025-07-09 15:12	-
azur/	2014-08-07 15:25	-
balloons/	2021-01-13 15:36	-
barrel/	2020-12-15 22:08	-
bepicolombo/	2025-02-10 00:48	-
canopus/	2012-10-01 18:08	-
cassini/	2025-02-10 00:48	-
cdaw9/	2012-10-01 01:03	-
cluster/	2024-06-12 19:42	-
cnofs/	2013-02-13 16:37	-



Space Physics Data Facility



Goddard

SPDF

Data Access & Orbit Services

Software

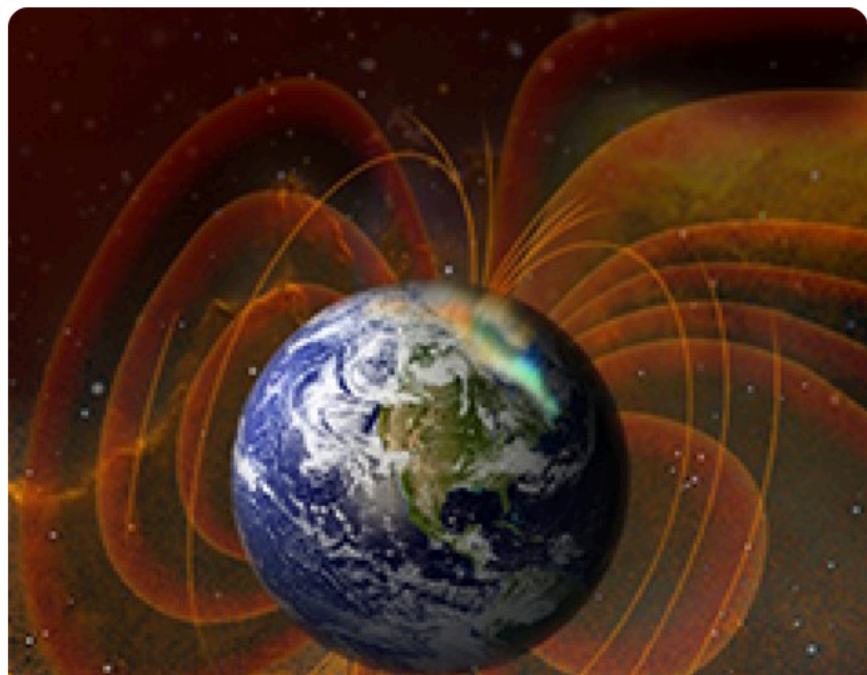
Submit Data

Resources

Contact Us



SPDF Archive



Access to the Space Physics Data Facility (SPDF) public archive by directory, with [additional access methods\(including web services\).](#)

CDAWeb

NASA's Sp

[Heliophysics](#) studies the interactions of the Sun, the heliosphere, and the plasma environment of the solar system and interstellar space. The [Heliophysics Digital Resource Library \(HDRL\)](#) archives data, as a project in the [Heliophysics Science Division \(HSD\)](#) at NASA's Goddard Space Flight Center. The [Space Physics Data Facility \(SPDF\)](#) is the active and permanent archive of solar and heliospheric data while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as part of the [Heliophysics Science Data Management Policy](#). Visit [NASA's Heliophysics Science Data Management Policy](#).

SPDF provides many data access methods for research across disciplines. Data is available from current missions and historical data from past periods, and SPDF provides a web browser browsing system, a data browser, a database, and the associated software.

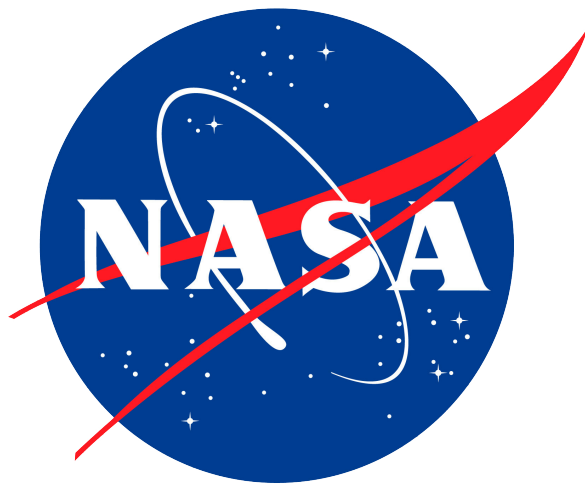
News & Announcements

Facility (SPDF)


interactions of the Sun, the heliosphere, and the plasma environment of the solar system and interstellar space. The [Heliophysics Digital Resource Library \(HDRL\)](#) archives data, as a project in the [Heliophysics Science Division \(HSD\)](#) at NASA's Goddard Space Flight Center. The [Space Physics Data Facility \(SPDF\)](#) is the active and permanent archive of solar and heliospheric data while solar data is archived at [Solar Data Analysis Center \(SDAC\)](#), as part of the [Heliophysics Science Data Management Policy](#). Visit [NASA's Heliophysics Science Data Management Policy](#).

SPDF provides many data access methods for research across disciplines. Data is available from current missions and historical data from past periods, and SPDF provides a web browser browsing system, a data browser, a database, and the associated software.

- CDF (Common Data Format)
- ISTP Metadata Guidelines
- CDF/netCDF/FITS/HDF/XML/ASCII Format Translations
- ISTP Metadata Editor
- MakeCDF
- CDAWeb (IDL)
- CDFX (IDL)
- CDAWeb Web Service API
- SSCWeb Web Service API
- Heliophysics Data Portal
- Web Service API



- We have a lot of examples of using Python (and IDL) to access the data
- Note that the cdasws package is included in HelioCloud by default

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

+ Goddard Home
+ Visit NASA.gov

+ SPDF HOME + MISSION DATA + ModelWeb at CCMC + SCIENCE ENABLED + AND MORE

CDAS RESTful Web Services

Notice

For two decades, there was also a Simple Object Access Protocol (SOAP) version of the CDAS web services, but they were eliminated in March 2024 due to lack of computer industry support.



Introduction

The **Coordinated Data Analysis System (CDAS)** supports simultaneous multi-mission, multi-instrument selection and comparison of science data among a wide range of current space missions. While CDAWeb provides access to this data through an HTML-based user interface, these Web services provides a [\(Web\) application programming interface \(API\)](#) to CDAS. If you are not a software developer and simply want to use the existing web (HTML) interface to CDAS, then return to the [main CDAWeb page](#). If you are developing software that requires science data from any of the [CDAWeb datasets](#), then the CDAS Web services will provide access to the data without having to explicitly find, download, and read the data files. This document is organized as follows:

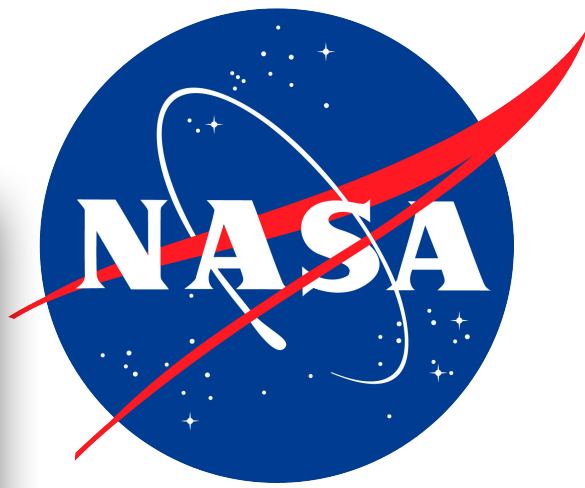
- [Simple Access Mechanisms](#)
- [Example URLs](#)
- [Technical Details](#)

Simple Access Mechanisms

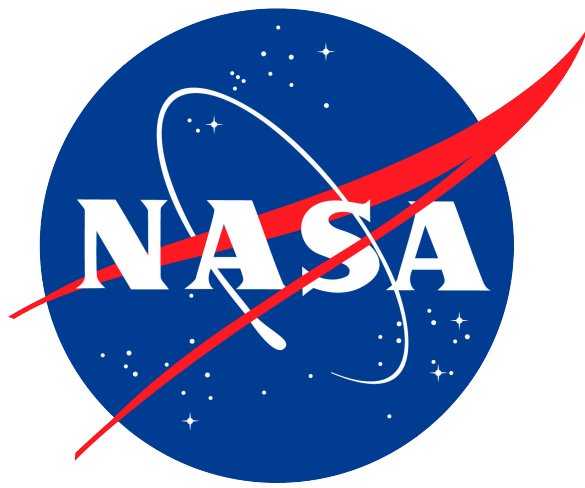
This section describes simple, high-level, mechanisms for accessing CDAS data through these web services from various programming languages. If these do not meet your needs, you may be interested the [low-level details](#) instead.

-  [python](#)
 - [cdasws](#) is a Python module to easily access CDAS data ([FAQ](#)). [python 3](#)
 - [cdasws](#) at [PyPI](#) [v1.8.16](#)
 - [cdasws](#) at [Anaconda.org](#) [1.8.16](#)
 - Jupyter Notebook Examples: [launch](#) [binder](#)
 - [Data Retrieval](#) into SpacePy DataModel, xarray.Dataset, and Pandas DataFrame ([ipynb file](#)).
[launch](#) [binder](#)
 - [CDAWeb Binning Example](#) (with SpacePy DataModel results) ([ipynb file](#)).
[launch](#) [binder](#)
 - [NetCDF Example](#) (with xarray.Dataset results) ([ipynb file](#)).
[launch](#) [binder](#)
 - [CDAWlib Graph Example](#) ([ipynb file](#)).
[launch](#) [binder](#)
 - [CDAWlib Audio Example](#) ([ipynb file](#)).
[launch](#) [binder](#)
 - [Magnetic Field Line Conjunction Example](#) ([ipynb file](#)) with related data retrieval/plotting using cdasws.
[launch](#) [binder](#)
 - [Example of finding the data with hdpws](#) ([ipynb file](#)) and then retrieving the data with cdasws.
[launch](#) [binder](#)
 -  [HelioCloud](#) cdasws is included in the HelioCloud "base image", so no installation is required to use it there.
 - These [web services themselves](#) can produce example Python and IDL® source code. For example, here is [example client code](#) to get data from the [AC_H2_MFI](#) dataset.
- [ai.cdas](#) is another Python library to access CDAS data.

- [NV5 Geospatial Interactive Data Language \(IDL®\)](#)
- [SPDF CDAS IDL® Web Service Library](#). This library makes it easy to call these web services from IDL code. The library contains several complete example clients (e.g., [spdfwsexample](#), [spdfcdawebchooser](#), [spdfgetdata](#), and an IDL Jupyter notebook).



- [sscws Package API](#)
 - [Getting started](#) with the sscws client library.
 - sscws at the [PyPI repository](#).
 - sscws at the [Anaconda.org](#) `2.4.4`
 - Jupyter Notebook Examples: [launch binder](#)
 - [Simple Location Example \(ipynb file\)](#). [launch binder](#)
 - [Complex Location Example \(ipynb file\)](#) requesting many values including magnetic field line tracing. This example also demonstrates how to diagnose a problem with an invalid request. [launch binder](#)
 - [Radial Conjunction With Ground Location \(ipynb file\)](#). [launch binder](#)
 - [Magnetic Field Line Conjunction Example \(ipynb file\)](#) with related data retrieval/plotting using [cdasws](#). [launch binder](#)
 - [PyScript example](#) of using [sscws](#) in a web page.
 - These [web services themselves](#) can produce example client Python and IDL[®] source code. For example, here is [example client code](#) to get [International Space Station](#) (ISS) orbit information.
- [NV5 Interactive Data Language \(IDL[®]\)](#)
 - [SPDF SSC IDL[®] Web Services Library](#). This library makes it easy to call these web services from IDL[®] code. The library contains several complete example clients (e.g., `spdfsscwsexample`) and an IDL[®] Jupyter notebook).
- Unix [Shell Script](#)
 - [Shell Script Examples](#). These examples should run on most [Unix-like](#) (e.g., macOS, Linux, Solaris, Windows Subsystem for Linux, etc.) platforms that have `curl`, `xsltproc`, and `xmlLint`. To install the prerequisite software on debian/ubuntu based Linux distributions, do



Thank you!

If you have questions, comments, feature requests, etc. please don't hesitate to contact us!
NASA-SPDF-Support@nasa.onmicrosoft.com