

**Data Access**

- [FTPS from the MMS SDC \(not with most browsers\)](#)
- [HTTPS from the MMS SDC](#)
- [FTPS from SPDF \(not with most browsers\)](#)
- [HTTPS from SPDF](#)
- [CDAWeb](#)
- [HAPI: CDAWeb HAPI Server](#)

**MMS 1 Fast Plasma Investigation, Dual Electron Spectrometer (FPI, DES) Instrument Distributions, Level 2 (L2), Burst Mode, 30 ms Data**

Gershman, D.J., Giles, B.L., Pollock, C.J., Moore, T.E., and Burch, J.L. (2022). MMS 1 Fast Plasma Investigation, Dual Electron Spectrometer (FPI, DES) Instrument Distributions, Level 2 (L2), Burst Mode, 30 ms Data [Data set]. NASA Space Physics Data Facility. <https://doi.org/10.48322/1rpt-0w56>. Accessed on 2023-April-5.

**ResourceID**

spase://NASA/NumericalData/MMS/1/FastPlasmaInvestigation/DES/Burst/Level2/Distribution/PT0.03S

**Description**

The Fast Plasma Instrument (FPI) usually Operates in Fast Survey (FS) Mode in the MMS Region Of Interest (ROI) for the current Mission Phase. Data are taken at Burst (30/150 ms for DES/DIS) Resolution in this Mode. Data are also made available at Survey (4.5 s, etc.) Resolution. Per Mission Design, not all Burst Resolution Data are downlinked, but all Survey Data are downlinked. This Product contains Phase Space Distribution Maps of those Burst Resolution Data selected for downlink. In particular, the (highest possible Quality at the Time of Release) corrected/converted "Burst Sky Map" Distributions are reported with Time Stamps and other Annotation characterizing the State of the Instrument System at the indicated Time.

**Details**

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Version:2.5.0

**NumericalData****ResourceID**

spase://NASA/NumericalData/MMS/1/FastPlasmaInvestigation/DES/Burst/Level2/Distribution/PT0.03S

**ResourceHeader****ResourceName**

MMS 1 Fast Plasma Investigation, Dual Electron Spectrometer (FPI, DES) Instrument Distributions, Level 2 (L2), Burst Mode, 30 ms Data

**AlternateName**

MMS1\_FPI\_BRST\_L2\_DES-DIST

**DOI**

<https://doi.org/10.48322/1rpt-0w56>

**ReleaseDate**

2023-03-28 12:34:56.789

**RevisionHistory****RevisionEvent****ReleaseDate**

2021-04-27 15:38:11

**Note**

Only known prior ReleaseDate of the metadata

**RevisionEvent****ReleaseDate**

2022-08-04 12:34:56.789

**Note**

Added DOI and PublicationInfo minted by LFB, updated the RepositoryID, updated the SPDF MetadataContact Person to Robert M. Candey, metadata updated to SPASE 2.4.1, reviewed by LFB 20220803

**RevisionEvent****ReleaseDate**

2023-03-04 12:34:56.789

**Note**

Standardized the ResourceName Format, Set AlternateName equal to the ProductKey, Revised the Acknowledgement, PublicationInfo Authors, and Contact Person list per request of the MMS FPI team, metadata updated to SPASE 2.5.0, reviewed by LFB 20230304

**RevisionEvent****ReleaseDate**

2023-03-28 12:34:56.789

**Note**

Remove Stephen Kreisler from Author and Acknowledgment lists per request of the MMS FPI team, revised by LFB 20230328

**Description**

The Fast Plasma Instrument (FPI) usually Operates in Fast Survey (FS) Mode in the MMS Region Of Interest (ROI) for the current Mission Phase. Data are taken at Burst (30/150 ms for DES/DIS) Resolution in this Mode. Data are also made available at Survey (4.5 s, etc.) Resolution. Per Mission Design, not all Burst Resolution Data are downlinked, but all Survey Data are downlinked. This Product contains Phase Space Distribution Maps of those Burst Resolution Data selected for downlink. In particular, the (highest possible Quality at the Time of Release) corrected/converted "Burst Sky Map" Distributions are reported with Time Stamps and other Annotation characterizing the State of the Instrument System at the indicated Time.

**Acknowledgement**

Please acknowledge D.J. Gershman, B.L. Giles, C.J. Pollock, T.E. Moore, and J.L. Burch for use of these data

**PublicationInfo****Authors**

Gershman, Daniel, J.; Giles, Barbara, L.; Pollock, Craig, J.; Moore, Thomas, E.; Burch, James, L.

**PublicationDate**

2022-01-01 00:00:00

**PublishedBy**

NASA Space Physics Data Facility

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**InformationURL****Name**

The Magnetospheric Multiscale (MMS) Mission home page at Goddard Space Flight Center (GSFC)

**URL**

<https://mms.gsfc.nasa.gov/>

**Description**

The Magnetospheric Multiscale (MMS) Mission Home Page hosted by the Goddard Space Flight Center (GSFC).

**InformationURL****Name**

The Magnetospheric Multiscale (MMS) Mission home page at Goddard Space Flight Center (GSFC)

**URL**

<https://mms.gsfc.nasa.gov/>

**Description**

The Magnetospheric Multiscale (MMS) Mission Home Page hosted at the Goddard Space Flight Center (GSFC)

**InformationURL****Name**

The MMS Mission home page at the Science Data Center (SDC) LASP, UC Boulder

**URL**

<https://lasp.colorado.edu/mms/sdc/public/>

**Description**

The Magnetospheric Multiscale (MMS) Mission Home Page hosted by the Laboratory of Atmospheric and Space Physics, Science Data Center (LASP, SDC) at the University of Colorado, Boulder

**InformationURL****Name**

NASA Web Page providing Information for the Magnetospheric Multiscale (MMS) Fast Plasma Investigation (FPI) Instrument

**URL**

[https://www.nasa.gov/mission\\_pages/mms/spacecraft/mms-instruments.html#fpi](https://www.nasa.gov/mission_pages/mms/spacecraft/mms-instruments.html#fpi)

**Description**

NASA Web Page providing an Overview of the Magnetospheric Multiscale (MMS) Fast Plasma Investigation (FPI) Instrument

**PriorIDs**

<spase://VSPO/NumericalData/MMS/1/FastPlasmaInvestigation/DES/Burst/Level2/Distribution/PT0.03S>

**AccessInformation****RepositoryID**

[spase://SMWG/Repository/UCOLO/LASP/MMS\\_SDC](spase://SMWG/Repository/UCOLO/LASP/MMS_SDC)

**Availability**

Online

**AccessRights**

Open

**AccessURL****Name**

FTPS from the MMS SDC (not with most browsers)

**URL**

<ftps://lasp.colorado.edu/mms/sdc/public/data/mms1/fpi/brst/l2/des-dist/>

**Description**

In CDF via ftp from the MMS Science Data Center

**AccessURL****Name**

HTTPS from the MMS SDC

**URL**

<https://lasp.colorado.edu/mms/sdc/public/data/mms1/fpi/brst/l2/des-dist/>

**Description**

In CDF via http from the MMS Science Data Center

**Format**

CDF

**Encoding**

None

**Acknowledgement**

Please acknowledge D.J. Gershman, B.L. Giles, C.J. Pollock, T.E. Moore, and J.L. Burch. Also please acknowledge the data providers and CDAWeb when using these data.

**AccessInformation****RepositoryID**

<spase://SMWG/Repository/NASA/GSFC/SPDF/CDAWeb>

**Availability**

Online

**AccessRights**

Open

**AccessURL****Name**

FTPS from SPDF (not with most browsers)

**URL**

<ftps://pdf.gsfc.nasa.gov/pub/data/mms/mms1/fpi/brst/l2/des-dist/>

**Description**

In CDF via ftp from SPDF

**AccessURL****Name**

HTTPS from SPDF

**URL**

<https://spdf.gsfc.nasa.gov/pub/data/mms/mms1/fpi/brst/l2/des-dist/>

**Description**

In CDF via http from SPDF

**AccessURL****Name**

CDAWeb

**URL**

[https://cdaweb.gsfc.nasa.gov/cgi-bin/eval2.cgi?dataset=MMS1\\_FPI\\_BRST\\_L2\\_DES-DIST&index=sp\\_phys](https://cdaweb.gsfc.nasa.gov/cgi-bin/eval2.cgi?dataset=MMS1_FPI_BRST_L2_DES-DIST&index=sp_phys)

**ProductKey**

MMS1\_FPI\_BRST\_L2\_DES-DIST

**Description**

Access to ASCII, CDF, and plots via NASA/GSFC CDAWeb

**Format**

CDF

**Encoding**

None

**Acknowledgement**

Please acknowledge D.J. Gershman, B.L. Giles, C.J. Pollock, T.E. Moore, and J.L. Burch. Also please acknowledge the data providers and CDAWeb when using these data.

**AccessInformation****RepositoryID**

<spase://SMWG/Repository/NASA/GSFC/SPDF/CDAWeb>

**Availability**

Online

**AccessRights**

Open

**AccessURL****Name**

CDAWeb HAPI Server

**URL**

<https://cdaweb.gsfc.nasa.gov/hapi>

**Style**

HAPI

**ProductKey**

MMS1\_FPI\_BRST\_L2\_DES-DIST

**Description**

Web Service to this product using the HAPI interface

**Format**

CSV

**Acknowledgement**

Please acknowledge D.J. Gershman, B.L. Giles, C.J. Pollock, T.E. Moore, and J.L. Burch. Also please acknowledge the data providers and CDAWeb when using these data.

**ProcessingLevel**

Calibrated

**InstrumentIDs**

<spase://SMWG/Instrument/MMS/1/FastPlasmaInstrument/DES>

**MeasurementType**

EnergeticParticles

**TemporalDescription****TimeSpan****StartDate**

2015-07-15 00:00:00.000

**StopDate**

2018-09-15 23:59:59.999

**Cadence**

PT0.03S

**ObservedRegion**

Earth.Magnetosheath

**ObservedRegion**

Earth.Magnetosphere

**ObservedRegion**

Earth.Magnetosphere.Magnetotail

**ObservedRegion**

Earth.Magnetosphere.Main

**ObservedRegion**

Earth.Magnetosphere.RadiationBelt

**ObservedRegion**

Earth.NearSurface.EquatorialRegion

**ObservedRegion**

Earth.NearSurface.Plasmasphere

**ObservedRegion**

Heliosphere.NearEarth

**Caveats**

This SPASE Numerical Data Description is for the MMS1\_FPI\_BRST\_L2\_DES-DIST Data Product. This Numerical Data Description has been written by utilizing the ADAPT Software Package. ADAPT can harvest Metadata that are embedded in Data Files stored in Common Data File Format that are then leveraged to populate corresponding SPASE Schema Text Fields. Typically, the CDF embedded Metadata are harvested from CDF Master Files, which contain no actual Data, in order to populate SPASE Documents. In this case, the Metadata were harvested from a "Data" CDF, which contains actual Data Observations from one of the four MMS FPI Instruments. The "Data" CDF used by ADAPT has the following Specifications: Data Product Version Number: 3.3.0, CDF Generation Date: 2018-11-03T05:09:43, CDF Skeleton Version Revision Number: 8026, and CDF Skeleton Version Revision Date: 2017-05-26T15:45:00.

**Parameter #1****Name**

Epoch Time

**ParameterKey**

Epoch

**Description**

Epoch Time Tags in Terrestrial Time 2000 (TT2000), Nanoseconds since J2000

**Caveats**

Burst Data Begin Time, derived from the Burst Packet Time. This Parameter exhibits an increasing Monotonic Progression.

**Cadence**

PT0.03S

**Units**

ns

**UnitsConversion**

1.0e-9&gt;s

**RenderingHints****AxisLabel**

Epoch

**ScaleType**

LinearScale

**ValidMin**

1990-01-01T00:00:00.000000000

**ValidMax**

2100-01-01T00:00:01.000000000

**FillValue**

9999-12-31T23:59:59.999999999

**Support****SupportQuantity**

Temporal

## Parameter #2

**Name**

Epoch Plus Var

**ParameterKey**

Epoch\_plus\_var

**Description**

Epoch Plus Var

**Cadence**

PT0.03S

**Units**

s

**UnitsConversion**

1.0&gt;s

**RenderingHints****ValueFormat**

F4.2

**ValidMin**

0.0

**ValidMax**

4.5

**Support****SupportQuantity**

Temporal

## Parameter #3

**Name**

Epoch Minus Var

**ParameterKey**

Epoch\_minus\_var

**Description**

Epoch Minus Var

**Cadence**

PT0.03S

**Units**

s

**UnitsConversion**

1.0&gt;s

**RenderingHints****ValueFormat**

F4.2

**ValidMin**

0.0

**ValidMax**

4.5

**Support****SupportQuantity**

Temporal

## Parameter #4

**Name**

Data Quality Error Flags

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_errorflags\_brst

**Description**

Vector of Data Quality Indicator Flag Flags at Burst Start Time

**Caveats**

A Value of Zero signifies no Quality Errors. For Non-Zero Values: Bit-0=Manually flagged Interval, Bit-1=Overcounting/Saturation Effects likely present in Sky Map, Bit-2=Compression Pipeline Error

**Cadence**

PT0.03S

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

Error\_Flags

**ValueFormat**

I10

**ScaleType**

LinearScale

**ValidMin**

0

**ValidMax**

4294967294

**FillValue**

4294967295

**Support****SupportQuantity**

Other

## Parameter #5

**Name**

Compression Flag

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_compressionloss\_brst

**Description**

Compression Lossless/Lossy Indicator Flag at Survey Start Time

**Caveats**

Compression Loss Indicator, 0=Lossless, 1=Lossy

**Cadence**

PT0.03S

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

Compress\_Flag

**ValueFormat**

I1

**ScaleType**

LinearScale

**ValidMin**

0

**ValidMax**

1

**FillValue**

255

**Support****SupportQuantity**

Other

## Parameter #6

**Name**

Step Table Parity

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_steptable\_parity\_brst

**Description**

Step Table Parity, this Burst

**Caveats**

The FPI/DES alternates between two Tables, designated "even" (0) and "odd" (1).

**Cadence**

PT0.03S

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

Step\_Table\_Para

**ValueFormat**

I1

**ScaleType**

LinearScale

**ValidMin**

0

**ValidMax**

1

**FillValue**

255

**Support****SupportQuantity**

Other

## Parameter #7

**Name**

Start Del-Phi Count

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_startdelphi\_count\_brst

**Description**

Del-Phi (Observatory Spin Phase) Count at Burst Start Time

**Caveats**

Nominally, the Spin Phase Counts range over [0000,5759] Counts. Each Count represents 1/16 of a Degree (0.0625°) of Observatory Spin Phase. Zero Spin Phase Angle indicates that the Observatory +X-axis is aligned with the Sun Sensor Axis.

**Cadence**

PT0.03S

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

DelPhi\_Count

**ValueFormat**

I4.4

**ScaleType**

LinearScale

**ValidMin**

0

**ValidMax**

5761

**FillValue**

65535

**Support****SupportQuantity**

Other

## Parameter #8

**Name**

Start Del-Phi Angle

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_startdelphi\_angle\_brst

**Description**

Del-Phi (Observatory Spin Phase) Angle at Burst Start Time

**Caveats**

Nominally, the Spin Phase Angles range over [0°,360°). Each Count represents 1/16 of a Degree (0.0625°) of Observatory Spin Phase. Zero Spin Phase Angle indicates that the Observatory +X-axis is aligned with the Sun Sensor Axis.

**Cadence**

PT0.03S

**Units**

°

**UnitsConversion**

0.0174532925&gt;rad

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

DelPhi\_Angle

**ValueFormat**

E12.2

**ScaleType**

LinearScale

**ValidMin**

0.0

**ValidMax**

360.0

**FillValue**

-1.0e+31

**Support****Qualifier**

DirectionAngle.AzimuthAngle

**Qualifier**

PhaseAngle

**SupportQuantity**

Positional

## Parameter #9

**Name**

Electron Sky Map Azimuth Angle, Phi

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_phi\_brst

**Description**

Electron Burst Survey Sky Map Azimuth Angle, Phi

**Caveats**

Azimuth Angles in the Instrument Frame, i.e., the Azimuthal Angle of the Instrument Look Direction

**Cadence**

PT0.03S

**Units**

°

**UnitsConversion**

0.0174532925&gt;rad

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

Phi

**ValueFormat**

E12.3

**ScaleType**

LinearScale

**Structure****Size**

32

**ValidMin**

0.0

**ValidMax**

360.0

**FillValue**

-1.0e+31

**Support****Qualifier**

DirectionAngle.AzimuthAngle

**SupportQuantity**

Positional

## Parameter #10

**Name**

Electron Sky Map Azimuth Angle, Phi, Delta Value

**ParameterKey**

mms1\_des\_phi\_delta\_brst

**Description**

Electron Burst Survey Sky Map Azimuth Angle, Phi, Bin Delta Value

**Caveats**

Azimuth Angle Deltas

**Cadence**

PT0.03S

**Units**

°

**UnitsConversion**

0.0174532925&gt;rad

**RenderingHints****AxisLabel**

Delta\_Phi

**ValueFormat**

E12.2

**ScaleType**

LinearScale

**Structure****Size**

32

**ValidMin**

0.0

**ValidMax**

360.0

**FillValue**

-1.0e+31

**Support****Qualifier**

DirectionAngle.AzimuthAngle

**SupportQuantity**

Positional

## Parameter #11

**Name**

Electron Sky Map Distribution

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_dist\_brst



28.32
<b>Bin</b>
<b>BandName</b>
Energy 06, Bin Center 32.8 eV
<b>Low</b>
28.27
<b>High</b>
37.33
<b>Bin</b>
<b>BandName</b>
Energy 07, Bin Center 43.0 eV
<b>Low</b>
37.39
<b>High</b>
48.61
<b>Bin</b>
<b>BandName</b>
Energy 08, Bin Center 56.2 eV
<b>Low</b>
48.54
<b>High</b>
63.86
<b>Bin</b>
<b>BandName</b>
Energy 09, Bin Center 73.6 eV
<b>Low</b>
63.88
<b>High</b>
83.32
<b>Bin</b>
<b>BandName</b>
Energy 10, Bin Center 96.3 eV
<b>Low</b>
83.3
<b>High</b>
109.3
<b>Bin</b>
<b>BandName</b>
Energy 11, Bin Center 126.0 eV
<b>Low</b>
109.3
<b>High</b>
142.7
<b>Bin</b>
<b>BandName</b>
Energy 12, Bin Center 165.0 eV
<b>Low</b>
142.8
<b>High</b>
187.2
<b>Bin</b>
<b>BandName</b>
Energy 13, Bin Center 216.0 eV
<b>Low</b>
187.2
<b>High</b>
244.8
<b>Bin</b>
<b>BandName</b>
Energy 14, Bin Center 283.0 eV
<b>Low</b>
245.0
<b>High</b>
321.0
<b>Bin</b>
<b>BandName</b>
Energy 15, Bin Center 370.0 eV
<b>Low</b>
320.6
<b>High</b>
419.4
<b>Bin</b>
<b>BandName</b>
Energy 16, Bin Center 485.0 eV
<b>Low</b>
420.0
<b>High</b>
550.0
<b>Bin</b>
<b>BandName</b>
Energy 17, Bin Center 635.0 eV
<b>Low</b>

550.2
<b>High</b>
719.8
<b>Bin</b>
<b>BandName</b>
Energy 18, Bin Center 831.0 eV
<b>Low</b>
720.0
<b>High</b>
942.0
<b>Bin</b>
<b>BandName</b>
Energy 19, Bin Center 1090.0 eV
<b>Low</b>
945.0
<b>High</b>
1235.0
<b>Bin</b>
<b>BandName</b>
Energy 20, Bin Center 1420.0 eV
<b>Low</b>
1229.0
<b>High</b>
1611.0
<b>Bin</b>
<b>BandName</b>
Energy 21, Bin Center 1860.0 eV
<b>Low</b>
1611.0
<b>High</b>
2109.0
<b>Bin</b>
<b>BandName</b>
Energy 22, Bin Center 2440.0 eV
<b>Low</b>
2113.0
<b>High</b>
2767.0
<b>Bin</b>
<b>BandName</b>
Energy 23, Bin Center 3190.0 eV
<b>Low</b>
2763.0
<b>High</b>
3617.0
<b>Bin</b>
<b>BandName</b>
Energy 24, Bin Center 4180.0 eV
<b>Low</b>
3621.0
<b>High</b>
4739.0
<b>Bin</b>
<b>BandName</b>
Energy 25, Bin Center 5470.0 eV
<b>Low</b>
4738.0
<b>High</b>
6202.0
<b>Bin</b>
<b>BandName</b>
Energy 26, Bin Center 7160.0 eV
<b>Low</b>
6201.0
<b>High</b>
8119.0
<b>Bin</b>
<b>BandName</b>
Energy 27, Bin Center 9370.0 eV
<b>Low</b>
8120.0
<b>High</b>
10620.0
<b>Bin</b>
<b>BandName</b>
Energy 28, Bin Center 12300.0 eV
<b>Low</b>
10660.0
<b>High</b>
13940.0
<b>Bin</b>
<b>BandName</b>

Energy 29, Bin Center 16100.0 eV
<b>Low</b>
13950.0
<b>High</b>
18250.0
<b>Bin</b>
<b>BandName</b>
Energy 30, Bin Center 21000.0 eV
<b>Low</b>
18190.0
<b>High</b>
23810.0
<b>Bin</b>
<b>BandName</b>
Energy 31, Bin Center 27500.0 eV
<b>Low</b>
23820.0
<b>High</b>
31180.0
<b>AzimuthalAngleRange</b>
<b>Low</b>
0.0
<b>High</b>
360.0
<b>Units</b>
°
<b>Bin</b>
<b>BandName</b>
Sector 00, 5.625° Bin Center
<b>Low</b>
0.0
<b>High</b>
11.25
<b>Bin</b>
<b>BandName</b>
Sector 01, 16.875° Bin Center
<b>Low</b>
11.25
<b>High</b>
22.5
<b>Bin</b>
<b>BandName</b>
Sector 02, 28.125° Bin Center
<b>Low</b>
22.5
<b>High</b>
33.75
<b>Bin</b>
<b>BandName</b>
Sector 03, 39.375° Bin Center
<b>Low</b>
33.75
<b>High</b>
45.0
<b>Bin</b>
<b>BandName</b>
Sector 04, 50.625° Bin Center
<b>Low</b>
45.0
<b>High</b>
56.25
<b>Bin</b>
<b>BandName</b>
Sector 05, 61.875° Bin Center
<b>Low</b>
56.25
<b>High</b>
67.5
<b>Bin</b>
<b>BandName</b>
Sector 06, 73.125° Bin Center
<b>Low</b>
67.5
<b>High</b>
78.75
<b>Bin</b>
<b>BandName</b>
Sector 07, 84.375° Bin Center
<b>Low</b>
78.75
<b>High</b>
90.0

<b>Bin</b>
<b>BandName</b> Sector 08, 95.625° Bin Center
<b>Low</b> 90.0
<b>High</b> 101.25
<b>Bin</b>
<b>BandName</b> Sector 09, 106.875° Bin Center
<b>Low</b> 101.25
<b>High</b> 112.5
<b>Bin</b>
<b>BandName</b> Sector 10, 118.125° Bin Center
<b>Low</b> 112.5
<b>High</b> 123.75
<b>Bin</b>
<b>BandName</b> Sector 11, 129.375° Bin Center
<b>Low</b> 123.75
<b>High</b> 135.0
<b>Bin</b>
<b>BandName</b> Sector 12, 140.625° Bin Center
<b>Low</b> 135.0
<b>High</b> 146.25
<b>Bin</b>
<b>BandName</b> Sector 13, 151.875° Bin Center
<b>Low</b> 146.25
<b>High</b> 157.5
<b>Bin</b>
<b>BandName</b> Sector 14, 163.125° Bin Center
<b>Low</b> 157.5
<b>High</b> 168.75
<b>Bin</b>
<b>BandName</b> Sector 15, 174.375° Bin Center
<b>Low</b> 168.75
<b>High</b> 180.0
<b>Bin</b>
<b>BandName</b> Sector 16, 185.625° Bin Center
<b>Low</b> 180.0
<b>High</b> 191.25
<b>Bin</b>
<b>BandName</b> Sector 17, 196.875° Bin Center
<b>Low</b> 191.25
<b>High</b> 202.5
<b>Bin</b>
<b>BandName</b> Sector 18, 208.125° Bin Center
<b>Low</b> 202.5
<b>High</b> 213.75
<b>Bin</b>
<b>BandName</b> Sector 19, 219.375° Bin Center
<b>Low</b> 213.75

	<b>High</b>	225.0
<b>Bin</b>		
	<b>BandName</b>	Sector 20, 230.625° Bin Center
	<b>Low</b>	225.0
	<b>High</b>	236.25
<b>Bin</b>		
	<b>BandName</b>	Sector 21, 241.875° Bin Center
	<b>Low</b>	236.25
	<b>High</b>	247.5
<b>Bin</b>		
	<b>BandName</b>	Sector 22, 253.125° Bin Center
	<b>Low</b>	247.5
	<b>High</b>	258.75
<b>Bin</b>		
	<b>BandName</b>	Sector 23, 264.375° Bin Center
	<b>Low</b>	258.75
	<b>High</b>	270.0
<b>Bin</b>		
	<b>BandName</b>	Sector 24, 275.625° Bin Center
	<b>Low</b>	270.0
	<b>High</b>	281.25
<b>Bin</b>		
	<b>BandName</b>	Sector 25, 286.875° Bin Center
	<b>Low</b>	281.25
	<b>High</b>	292.5
<b>Bin</b>		
	<b>BandName</b>	Sector 26, 298.125° Bin Center
	<b>Low</b>	292.5
	<b>High</b>	303.75
<b>Bin</b>		
	<b>BandName</b>	Sector 27, 309.375° Bin Center
	<b>Low</b>	303.75
	<b>High</b>	315.0
<b>Bin</b>		
	<b>BandName</b>	Sector 28, 320.625° Bin Center
	<b>Low</b>	315.0
	<b>High</b>	326.25
<b>Bin</b>		
	<b>BandName</b>	Sector 29, 331.875° Bin Center
	<b>Low</b>	326.25
	<b>High</b>	337.5
<b>Bin</b>		
	<b>BandName</b>	Sector 30, 343.125° Bin Center
	<b>Low</b>	337.5
	<b>High</b>	348.75
<b>Bin</b>		
	<b>BandName</b>	Sector 31, 354.375° Bin Center

<b>Low</b>	348.75
<b>High</b>	360.0
<b>PolarAngleRange</b>	
<b>Low</b>	0.0
<b>High</b>	180.0
<b>Units</b>	°
<b>Bin</b>	
<b>BandName</b>	Pixel 00, 5.625° Bin Center
<b>Low</b>	0.0
<b>High</b>	11.25
<b>Bin</b>	
<b>BandName</b>	Pixel 01, 16.875° Bin Center
<b>Low</b>	11.25
<b>High</b>	22.5
<b>Bin</b>	
<b>BandName</b>	Pixel 02, 28.125° Bin Center
<b>Low</b>	22.5
<b>High</b>	33.75
<b>Bin</b>	
<b>BandName</b>	Pixel 03, 39.375° Bin Center
<b>Low</b>	33.75
<b>High</b>	45.0
<b>Bin</b>	
<b>BandName</b>	Pixel 04, 50.625° Bin Center
<b>Low</b>	45.0
<b>High</b>	56.25
<b>Bin</b>	
<b>BandName</b>	Pixel 05, 61.875° Bin Center
<b>Low</b>	56.25
<b>High</b>	67.5
<b>Bin</b>	
<b>BandName</b>	Pixel 06, 73.125° Bin Center
<b>Low</b>	67.5
<b>High</b>	78.75
<b>Bin</b>	
<b>BandName</b>	Pixel 07, 84.375° Bin Center
<b>Low</b>	78.75
<b>High</b>	90.0
<b>Bin</b>	
<b>BandName</b>	Pixel 08, 95.625° Bin Center
<b>Low</b>	90.0
<b>High</b>	101.25
<b>Bin</b>	
<b>BandName</b>	Pixel 09, 106.875° Bin Center
<b>Low</b>	101.25
<b>High</b>	112.5
<b>Bin</b>	



Uncertainty

**ParticleQuantity**

PhaseSpaceDensity

**EnergyRange****Low**

0.0

**High**

32000.0

**Units**

eV

**Bin****BandName**

Energy 00, Bin Center 6.52 eV

**Low**

5.51

**High**

7.53

**Bin****BandName**

Energy 01, Bin Center 8.54 eV

**Low**

7.53

**High**

9.55

**Bin****BandName**

Energy 02, Bin Center 11.2 eV

**Low**

9.57

**High**

12.83

**Bin****BandName**

Energy 03, Bin Center 14.6 eV

**Low**

12.78

**High**

16.42

**Bin****BandName**

Energy 04, Bin Center 19.1 eV

**Low**

16.4

**High**

21.8

**Bin****BandName**

Energy 05, Bin Center 25.1 eV

**Low**

21.88

**High**

28.32

**Bin****BandName**

Energy 06, Bin Center 32.8 eV

**Low**

28.27

**High**

37.33

**Bin****BandName**

Energy 07, Bin Center 43.0 eV

**Low**

37.39

**High**

48.61

**Bin****BandName**

Energy 08, Bin Center 56.2 eV

**Low**

48.54

**High**

63.86

**Bin****BandName**

Energy 09, Bin Center 73.6 eV

**Low**

63.88

**High**

83.32

**Bin****BandName**

Energy 10, Bin Center 96.3 eV
<b>Low</b>
83.3
<b>High</b>
109.3
<b>Bin</b>
<b>BandName</b>
Energy 11, Bin Center 126.0 eV
<b>Low</b>
109.3
<b>High</b>
142.7
<b>Bin</b>
<b>BandName</b>
Energy 12, Bin Center 165.0 eV
<b>Low</b>
142.8
<b>High</b>
187.2
<b>Bin</b>
<b>BandName</b>
Energy 13, Bin Center 216.0 eV
<b>Low</b>
187.2
<b>High</b>
244.8
<b>Bin</b>
<b>BandName</b>
Energy 14, Bin Center 283.0 eV
<b>Low</b>
245.0
<b>High</b>
321.0
<b>Bin</b>
<b>BandName</b>
Energy 15, Bin Center 370.0 eV
<b>Low</b>
320.6
<b>High</b>
419.4
<b>Bin</b>
<b>BandName</b>
Energy 16, Bin Center 485.0 eV
<b>Low</b>
420.0
<b>High</b>
550.0
<b>Bin</b>
<b>BandName</b>
Energy 17, Bin Center 635.0 eV
<b>Low</b>
550.2
<b>High</b>
719.8
<b>Bin</b>
<b>BandName</b>
Energy 18, Bin Center 831.0 eV
<b>Low</b>
720.0
<b>High</b>
942.0
<b>Bin</b>
<b>BandName</b>
Energy 19, Bin Center 1090.0 eV
<b>Low</b>
945.0
<b>High</b>
1235.0
<b>Bin</b>
<b>BandName</b>
Energy 20, Bin Center 1420.0 eV
<b>Low</b>
1229.0
<b>High</b>
1611.0
<b>Bin</b>
<b>BandName</b>
Energy 21, Bin Center 1860.0 eV
<b>Low</b>
1611.0
<b>High</b>
2109.0

<b>Bin</b>
<b>BandName</b> Energy 22, Bin Center 2440.0 eV
<b>Low</b> 2113.0
<b>High</b> 2767.0
<b>Bin</b>
<b>BandName</b> Energy 23, Bin Center 3190.0 eV
<b>Low</b> 2763.0
<b>High</b> 3617.0
<b>Bin</b>
<b>BandName</b> Energy 24, Bin Center 4180.0 eV
<b>Low</b> 3621.0
<b>High</b> 4739.0
<b>Bin</b>
<b>BandName</b> Energy 25, Bin Center 5470.0 eV
<b>Low</b> 4738.0
<b>High</b> 6202.0
<b>Bin</b>
<b>BandName</b> Energy 26, Bin Center 7160.0 eV
<b>Low</b> 6201.0
<b>High</b> 8119.0
<b>Bin</b>
<b>BandName</b> Energy 27, Bin Center 9370.0 eV
<b>Low</b> 8120.0
<b>High</b> 10620.0
<b>Bin</b>
<b>BandName</b> Energy 28, Bin Center 12300.0 eV
<b>Low</b> 10660.0
<b>High</b> 13940.0
<b>Bin</b>
<b>BandName</b> Energy 29, Bin Center 16100.0 eV
<b>Low</b> 13950.0
<b>High</b> 18250.0
<b>Bin</b>
<b>BandName</b> Energy 30, Bin Center 21000.0 eV
<b>Low</b> 18190.0
<b>High</b> 23810.0
<b>Bin</b>
<b>BandName</b> Energy 31, Bin Center 27500.0 eV
<b>Low</b> 23820.0
<b>High</b> 31180.0
<b>AzimuthalAngleRange</b>
<b>Low</b> 0.0
<b>High</b> 360.0
<b>Units</b> °
<b>Bin</b>
<b>BandName</b> Sector 00, 5.625° Bin Center
<b>Low</b> 0.0

	<b>High</b>	11.25
<b>Bin</b>		
	<b>BandName</b>	Sector 01, 16.875° Bin Center
	<b>Low</b>	11.25
	<b>High</b>	22.5
<b>Bin</b>		
	<b>BandName</b>	Sector 02, 28.125° Bin Center
	<b>Low</b>	22.5
	<b>High</b>	33.75
<b>Bin</b>		
	<b>BandName</b>	Sector 03, 39.375° Bin Center
	<b>Low</b>	33.75
	<b>High</b>	45.0
<b>Bin</b>		
	<b>BandName</b>	Sector 04, 50.625° Bin Center
	<b>Low</b>	45.0
	<b>High</b>	56.25
<b>Bin</b>		
	<b>BandName</b>	Sector 05, 61.875° Bin Center
	<b>Low</b>	56.25
	<b>High</b>	67.5
<b>Bin</b>		
	<b>BandName</b>	Sector 06, 73.125° Bin Center
	<b>Low</b>	67.5
	<b>High</b>	78.75
<b>Bin</b>		
	<b>BandName</b>	Sector 07, 84.375° Bin Center
	<b>Low</b>	78.75
	<b>High</b>	90.0
<b>Bin</b>		
	<b>BandName</b>	Sector 08, 95.625° Bin Center
	<b>Low</b>	90.0
	<b>High</b>	101.25
<b>Bin</b>		
	<b>BandName</b>	Sector 09, 106.875° Bin Center
	<b>Low</b>	101.25
	<b>High</b>	112.5
<b>Bin</b>		
	<b>BandName</b>	Sector 10, 118.125° Bin Center
	<b>Low</b>	112.5
	<b>High</b>	123.75
<b>Bin</b>		
	<b>BandName</b>	Sector 11, 129.375° Bin Center
	<b>Low</b>	123.75
	<b>High</b>	135.0
<b>Bin</b>		
	<b>BandName</b>	Sector 12, 140.625° Bin Center

<b>Low</b>
135.0
<b>High</b>
146.25
<b>Bin</b>
<b>BandName</b>
Sector 13, 151.875° Bin Center
<b>Low</b>
146.25
<b>High</b>
157.5
<b>Bin</b>
<b>BandName</b>
Sector 14, 163.125° Bin Center
<b>Low</b>
157.5
<b>High</b>
168.75
<b>Bin</b>
<b>BandName</b>
Sector 15, 174.375° Bin Center
<b>Low</b>
168.75
<b>High</b>
180.0
<b>Bin</b>
<b>BandName</b>
Sector 16, 185.625° Bin Center
<b>Low</b>
180.0
<b>High</b>
191.25
<b>Bin</b>
<b>BandName</b>
Sector 17, 196.875° Bin Center
<b>Low</b>
191.25
<b>High</b>
202.5
<b>Bin</b>
<b>BandName</b>
Sector 18, 208.125° Bin Center
<b>Low</b>
202.5
<b>High</b>
213.75
<b>Bin</b>
<b>BandName</b>
Sector 19, 219.375° Bin Center
<b>Low</b>
213.75
<b>High</b>
225.0
<b>Bin</b>
<b>BandName</b>
Sector 20, 230.625° Bin Center
<b>Low</b>
225.0
<b>High</b>
236.25
<b>Bin</b>
<b>BandName</b>
Sector 21, 241.875° Bin Center
<b>Low</b>
236.25
<b>High</b>
247.5
<b>Bin</b>
<b>BandName</b>
Sector 22, 253.125° Bin Center
<b>Low</b>
247.5
<b>High</b>
258.75
<b>Bin</b>
<b>BandName</b>
Sector 23, 264.375° Bin Center
<b>Low</b>
258.75
<b>High</b>
270.0
<b>Bin</b>

<b>BandName</b>
Sector 24, 275.625° Bin Center
<b>Low</b>
270.0
<b>High</b>
281.25
<b>Bin</b>
<b>BandName</b>
Sector 25, 286.875° Bin Center
<b>Low</b>
281.25
<b>High</b>
292.5
<b>Bin</b>
<b>BandName</b>
Sector 26, 298.125° Bin Center
<b>Low</b>
292.5
<b>High</b>
303.75
<b>Bin</b>
<b>BandName</b>
Sector 27, 309.375° Bin Center
<b>Low</b>
303.75
<b>High</b>
315.0
<b>Bin</b>
<b>BandName</b>
Sector 28, 320.625° Bin Center
<b>Low</b>
315.0
<b>High</b>
326.25
<b>Bin</b>
<b>BandName</b>
Sector 29, 331.875° Bin Center
<b>Low</b>
326.25
<b>High</b>
337.5
<b>Bin</b>
<b>BandName</b>
Sector 30, 343.125° Bin Center
<b>Low</b>
337.5
<b>High</b>
348.75
<b>Bin</b>
<b>BandName</b>
Sector 31, 354.375° Bin Center
<b>Low</b>
348.75
<b>High</b>
360.0
<b>PolarAngleRange</b>
<b>Low</b>
0.0
<b>High</b>
180.0
<b>Units</b>
°
<b>Bin</b>
<b>BandName</b>
Pixel 00, 5.625° Bin Center
<b>Low</b>
0.0
<b>High</b>
11.25
<b>Bin</b>
<b>BandName</b>
Pixel 01, 16.875° Bin Center
<b>Low</b>
11.25
<b>High</b>
22.5
<b>Bin</b>
<b>BandName</b>
Pixel 02, 28.125° Bin Center
<b>Low</b>
22.5
<b>High</b>
33.75

<b>Bin</b>
<b>BandName</b> Pixel 03, 39.375° Bin Center
<b>Low</b> 33.75
<b>High</b> 45.0
<b>Bin</b>
<b>BandName</b> Pixel 04, 50.625° Bin Center
<b>Low</b> 45.0
<b>High</b> 56.25
<b>Bin</b>
<b>BandName</b> Pixel 05, 61.875° Bin Center
<b>Low</b> 56.25
<b>High</b> 67.5
<b>Bin</b>
<b>BandName</b> Pixel 06, 73.125° Bin Center
<b>Low</b> 67.5
<b>High</b> 78.75
<b>Bin</b>
<b>BandName</b> Pixel 07, 84.375° Bin Center
<b>Low</b> 78.75
<b>High</b> 90.0
<b>Bin</b>
<b>BandName</b> Pixel 08, 95.625° Bin Center
<b>Low</b> 90.0
<b>High</b> 101.25
<b>Bin</b>
<b>BandName</b> Pixel 09, 106.875° Bin Center
<b>Low</b> 101.25
<b>High</b> 112.5
<b>Bin</b>
<b>BandName</b> Pixel 10, 118.125° Bin Center
<b>Low</b> 112.5
<b>High</b> 123.75
<b>Bin</b>
<b>BandName</b> Pixel 11, 129.375° Bin Center
<b>Low</b> 123.75
<b>High</b> 135.0
<b>Bin</b>
<b>BandName</b> Pixel 12, 140.625° Bin Center
<b>Low</b> 135.0
<b>High</b> 146.25
<b>Bin</b>
<b>BandName</b> Pixel 13, 151.875° Bin Center
<b>Low</b> 146.25
<b>High</b> 157.5
<b>Bin</b>
<b>BandName</b> Pixel 14, 163.125° Bin Center
<b>Low</b> 157.5

**High**  
168.75

**Bin**

**BandName**  
Pixel 15, 174.375° Bin Center

**Low**  
168.75

**High**  
180.0

## Parameter #13

**Name**

Sector De-Spin P Value

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_sector\_despin\_burst

**Description**

Sector De-Spin P Value, this Burst

**Caveats**

This Variable records the P-Value used to De-Spin this Burst Sky Map onboard. See the FPI Documents for Details.

**Cadence**

PT0.03S

**RenderingHints****DisplayType**

TimeSeries

**AxisLabel**

DeSpin\_P

**ValueFormat**

I2.2

**ScaleType**

LinearScale

**ValidMin**

0

**ValidMax**

32

**FillValue**

255

**Support****SupportQuantity**

Other

## Parameter #14

**Name**

Electron Sky Map Zenith Angle, Theta

**ParameterKey**

mms1\_des\_theta\_burst

**Description**

Electron Burst Survey Sky Map Zenith Angle, Theta

**Caveats**

Pixel Zenith Angles, i.e., the Polar Angle of the Instrument Look Direction

**Cadence**

PT0.03S

**Units**

°

**UnitsConversion**

0.0174532925&gt;rad

**RenderingHints****AxisLabel**

Theta

**ValueFormat**

E12.2

**ScaleType**

LinearScale

**Structure****Size**

16

**ValidMin**

0.0

**ValidMax**

180.0

**FillValue**

-1.0e+31

**Support****Qualifier**

DirectionAngle.PolarAngle

**SupportQuantity**

Positional

## Parameter #15

**Name**

Electron Sky Map Zenith Angle, Theta, Delta Value

**ParameterKey**

mms1\_des\_theta\_delta\_brst

**Description**

Electron Burst Survey Sky Map Zenith Angle, Theta, Bin Delta Value

**Caveats**

Pixel Zenith Angle Deltas

**Cadence**

PT0.03S

**Units**

°

**UnitsConversion**

0.0174532925&gt;rad

**RenderingHints****AxisLabel**

Delta\_Theta

**ValueFormat**

E10.3

**ScaleType**

LinearScale

**Structure****Size**

16

**ValidMin**

0.0

**ValidMax**

10.0

**FillValue**

-1.0e+31

**Support****Qualifier**

DirectionAngle.PolarAngle

**SupportQuantity**

Positional

## Parameter #16

**Name**

Electron Sky Map Energy

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_energy\_brst

**Description**

Electron Burst Survey Sky Map Parity 0/1 Energy

**Caveats**

Energies (Parity 0/1) in the 64-step FPI Energy Table

**Cadence**

PT0.03S

**Units**

eV

**UnitsConversion**

1.602176565e-19&gt;J

**RenderingHints****AxisLabel**

Energy

**ValueFormat**

E12.2

**ScaleType**

LogScale

**Structure****Size**

32

**ValidMin**

0.0

**ValidMax**

32000.0

**FillValue**

-1.0e+31

**Particle****ParticleType**

Electron

**Qualifier**

Array

**ParticleQuantity**

Energy

## Parameter #17

**Name**

Electron Sky Map Energy, Delta Value

**Set**

Time Series defined by using: EPOCH

**ParameterKey**

mms1\_des\_energy\_delta\_brst

**Description**

Electron Burst Survey Sky Map Energy, Delta Value

**Caveats**

Note that the Deltas are provided to indicate that the FPI is reporting the Energy Bin Centers. The Deltas do not necessarily reflect the Energy Bandwidth that is sampled by the FPI for a given Energy Step.

**Cadence**

PT0.03S

**Units**

eV

**UnitsConversion**

1.602176565e-19>J

**RenderingHints****AxisLabel**

Delta\_Energy

**ValueFormat**

E12.2

**ScaleType**

LogScale

**Structure****Size**

32

**ValidMin**

0.0

**ValidMax**

5000.0

**FillValue**

-1.0e+31

**Particle****ParticleType**

Electron

**Qualifier**

Array

**ParticleQuantity**

Energy