

DOC/NOAA/NWS

# External Space Weather Data Store (E-SWDS) Data Dictionary

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This document contains the access method definition, data description, type, range, units, retention, and source documentation for each data set provided by the Space Weather Prediction Center's External Space Weather Data Store (E-SWDS) program.

## Contents

Advanced Composition Explorer (ACE) satellite .....	4
1. Magnetometer (MAG) – Magnetic Field Vectors .....	4
2. Solar Isotope Spectrometer (SIS) – High Energy Particle Fluxes.....	7
3. Solar Wind Electron, Proton, and Alpha Monitor (SWEPAM) – Solar Wind Ions .....	10
4. Electron, Proton, and Alpha Monitor (EPAM) – Energetic Ions and Electrons .....	12
5. Derived/Predicted.....	20
6. Location .....	21
Geostationary Operational Environmental Satellites (GOES) I-M Series .....	22
1. Space Environment Monitor (SEM) – X-ray Sensor (XRS).....	22
2. Space Environment Monitor (SEM) – Magnetometer .....	24
3. Space Environment Monitor (SEM) – Energetic Particle Sensor (EPS) and High Energy Proton and Alpha Detector (HEPAD) .....	25
4. Tracking status .....	30
5. Housekeeping .....	31
6. Events .....	32
7. Location .....	34
Polar Orbiting Environmental Satellites (POES) – NOAA-15,-16,-17,-18 and METOP-02 .....	35
1. Space Environment Monitor (SEM) 2 – Total Energy Detector (TED).....	35
2. Space Environment Monitor (SEM) 2 – Total Energy Detector (TED) and Medium Energy Proton and Electron Detector (MEPED).....	36
3. Polar Pass .....	38
4. Hemispheric Power Information .....	39
Alerts, Warnings, Watches, and Summaries .....	40
1. Alert product codes, description, and possible effects.....	40

2. Alerts, Warnings, Watches, and Summaries issued .....	40
Forecasts.....	42
1. Solar and Geophysical Forecast.....	42
2. 3-day predictions .....	42
3. Flare probabilities.....	47
4. Magnetometer.....	48

## Advanced Composition Explorer (ACE) satellite

### Instruments:

#### 1. Magnetometer (MAG) – Magnetic Field Vectors

Documentation: <http://www.ssg.sr.unh.edu/mag/ACE.html>

1-second data:

View name: **ace\_mag\_1s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
numpts	Number of data points used	bit	[0,1]	
gse_bx	Magnetic Field in X-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_by	Magnetic Field in Y-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_bz	Magnetic Field in Z-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_lat	ACE spacecraft position in GSE latitude	4-byte float	[-90.,90.]	degrees
gse_lon	ACE spacecraft position in GSE longitude	4-byte float	[0.,360.]	degrees
gsm_bx	Magnetic Field in X-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_by	Magnetic Field in Y-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_bz	Magnetic Field in Z-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_lat	ACE spacecraft position in GSM latitude	4-byte float	[-90.,90.]	degrees
gsm_lon	ACE spacecraft position in GSM longitude	4-byte float	[0.,360.]	degrees
bt	ACE IMF total field from averaged components	4-byte float	[0.,1000.]	nanoTesla

16-second averaged data:

View name: **ace\_mag\_16s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data – tagged at beginning of 16-second time interval <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
numpts	Number of data points used in average	1-byte int	[0,16]	
gse_bx	Magnetic Field in X-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_by	Magnetic Field in Y-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_bz	Magnetic Field in Z-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_lat	ACE spacecraft position in GSE latitude	4-byte float	[-90.,90.]	degrees
gse_lon	ACE spacecraft position in GSE longitude	4-byte float	[0.,360.]	degrees
gsm_bx	Magnetic Field in X-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_by	Magnetic Field in Y-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_bz	Magnetic Field in Z-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_lat	ACE spacecraft position in GSM latitude	4-byte float	[-90.,90.]	degrees
gsm_lon	ACE spacecraft position in GSM longitude	4-byte float	[0.,360.]	degrees
bt	ACE IMF total field from averaged components	4-byte float	[0.,1000.]	nanoTesla

1-minute averaged data:

View name: **ace\_mag\_1m**

Data Retention: 81 days

Column name	Description	Type	Range	Units
time_tag	Time of data – tagged at beginning of 1-minute time interval <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
numpts	Number of data points used in average	1-byte int	[0,60]	
gse_bx	Magnetic Field in X-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_by	Magnetic Field in Y-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_bz	Magnetic Field in Z-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_lat	ACE spacecraft position in GSE latitude	4-byte float	[-90.,90.]	degrees
gse_lon	ACE spacecraft position in GSE longitude	4-byte float	[0.,360.]	degrees
gsm_bx	Magnetic Field in X-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_by	Magnetic Field in Y-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_bz	Magnetic Field in Z-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_lat	ACE spacecraft position in GSM latitude	4-byte float	[-90.,90.]	degrees
gsm_lon	ACE spacecraft position in GSM longitude	4-byte float	[0.,360.]	degrees
bt	ACE IMF total field from averaged components	4-byte float	[0.,1000.]	nanoTesla

1-hour averaged data:

View name: **ace\_mag\_1h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data – tagged at beginning of 1-hour time interval <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
numpts	Number of data points used in average	2-byte int	[0,3600]	
gse_bx	Magnetic Field in X-	4-byte	[-1000.,1000.]	nanoTesla

	direction GSE Cartesian coordinates	float		
gse_by	Magnetic Field in Y-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_bz	Magnetic Field in Z-direction GSE Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gse_lat	ACE spacecraft position in GSE latitude	4-byte float	[-90.,90.]	degrees
gse_lon	ACE spacecraft position in GSE longitude	4-byte float	[0.,360.]	degrees
gsm_bx	Magnetic Field in X-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_by	Magnetic Field in Y-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_bz	Magnetic Field in Z-direction GSM Cartesian coordinates	4-byte float	[-1000.,1000.]	nanoTesla
gsm_lat	ACE spacecraft position in GSM latitude	4-byte float	[-90.,90.]	degrees
gsm_lon	ACE spacecraft position in GSM longitude	4-byte float	[0.,360.]	degrees
bt	ACE IMF total field from averaged components	4-byte float	[0.,1000.]	nanoTesla

## 2. Solar Isotope Spectrometer (SIS) – High Energy Particle Fluxes

- Documentation: [http://www.srl.caltech.edu/ACE/CRIS\\_SIS/sis.html](http://www.srl.caltech.edu/ACE/CRIS_SIS/sis.html)

32-second data:

View name: **ace\_sis\_32s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_p10	Data status flag for Integral Proton Flux > 10 MeV <sup>2</sup>	1-byte int	[0,9]	
dsflag_p30	Data status flag for Integral Proton Flux > 30 MeV <sup>2</sup>	1-byte int	[0,9]	
numpts_p10	Number of data points used for Integral Proton Flux > 10 MeV	1-byte int	[0,1]	
numpts_p30	Number of data points used for Integral Proton Flux > 30 MeV	1-byte int	[0,1]	
p_gt_10	Integral Proton Flux > 10 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV
p_gt_30	Integral Proton Flux > 30 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV

5-minute data:

View name: **ace\_sis\_5m**

Data Retention: 81 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_p10	Data status flag for Integral Proton Flux > 10 MeV <sup>2</sup>	1-byte int	[0,9]	
dsflag_p30	Data status flag for Integral Proton Flux > 30 MeV <sup>2</sup>	1-byte int	[0,9]	
numpts_p10	Number of data points used for Integral Proton Flux > 10 MeV	1-byte int	[0,10]	
numpts_p30	Number of data points used for Integral Proton Flux > 30 MeV	1-byte int	[0,10]	
p_gt_10	Integral Proton Flux > 10 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV
p_gt_30	Integral Proton Flux > 30 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV



1-hour data:

View name: **ace\_sis\_1h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_p10	Data status flag for Integral Proton Flux > 10 MeV <sup>2</sup>	1-byte int	[0,9]	
dsflag_p30	Data status flag for Integral Proton Flux > 30 MeV <sup>2</sup>	1-byte int	[0,9]	
numpts_p10	Number of data points used for Integral Proton Flux > 10 MeV	1-byte int	[0,113]	
numpts_p30	Number of data points used for Integral Proton Flux > 30 MeV	1-byte int	[0,113]	
p_gt_10	Integral Proton Flux > 10 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV
p_gt_30	Integral Proton Flux > 30 MeV	4-byte float	[1.0e-5, 1.0e+5]	particles/cm <sup>2</sup> *s*ster*MeV

### 3. Solar Wind Electron, Proton, and Alpha Monitor (SWEPAM) – Solar Wind Ions

Documentation: <http://swepam.lanl.gov/>

1-minute data:

View name: **ace\_swepam\_1m**

Data Retention: 81 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
dens	Proton density	4-byte float	[1.e-5,200.]	particles/cm <sup>3</sup>
speed	Bulk wind speed	4-byte float	[200.,2000.]	km/s
temperature	Proton temperature	4-byte float	[1.e+4,1.e+7]	Degrees K
vx	Vector Velocity X-direction in GSE	4-byte float	[-200.,200.]	km/s
vy	Vector Velocity Y-direction in GSE	4-byte float	[-200.,200.]	km/s
vz	Vector Velocity Z-direction in GSE	4-byte float	[-200.,200.]	km/s
err_count	Error count	1-byte int	[0,99]	

64-second data:

View name: **ace\_swepam\_64s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
dens	Proton density	4-byte float	[1.e-5,200.]	particles/cm <sup>3</sup>
speed	Bulk wind speed	4-byte float	[200.,2000.]	km/s
temperature	Proton temperature	4-byte float	[1.e+4,1.e+7]	Degrees K
vx	Vector Velocity X-direction in GSE	4-byte float	[-200.,200.]	km/s
vy	Vector Velocity Y-direction in GSE	4-byte float	[-200.,200.]	km/s

vz	Vector Velocity Z-direction in GSE	4-byte float	[-200.,200.]	km/s
err_count	Error count	1-byte int	[0,99]	

1-hour averaged data:

View name: **ace\_swepam\_1h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag	Data status flag <sup>2</sup>	1-byte int	[0,9]	
dens	Proton density	4-byte float	[1.e-5,200.]	particles/cm <sup>3</sup>
speed	Bulk wind speed	4-byte float	[200.,2000.]	km/s
temperature	Proton temperature	4-byte float	[1.e+4,1.e+7]	Degrees K
vx	Vector Velocity X-direction in GSE	4-byte float	[-200.,200.]	km/s
vy	Vector Velocity Y-direction in GSE	4-byte float	[-200.,200.]	km/s
vz	Vector Velocity Z-direction in GSE	4-byte float	[-200.,200.]	km/s
err_count	Error count	1-byte int	[0,99]	

#### 4. Electron, Proton, and Alpha Monitor (EPAM) – Energetic Ions and Electrons

Documentation: <http://sd-www.jhuapl.edu/ACE/EPAM/>

32-second averaged data:

View name: **ace\_epam\_32s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_de1	Data status flag for de1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_de4	Data status flag for de4 <sup>2</sup>	1-byte int	[0,9]	
numpts_de1	Number of data points used in average for de1	1-byte int	[0,8]	
numpts_de4	Number of data points used in average for de4	1-byte int	[0,8]	
de1	LEMS120 differential e flux (38-53 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster*MeV
de4	LEMS120 differential e flux (175-315 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster*MeV
dsflag_p1	Data status flag for p1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2	Data status flag for p2 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p3	Data status flag for p3 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4	Data status flag for p4 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5	Data status flag for p5 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6	Data status flag for p6 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7	Data status flag for p7 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8	Data status flag for p8 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1	Number of data points used in average for p1	1-byte int	[0,32]	
numpts_p2	Number of data points used in average for p2	1-byte int	[0,32]	
numpts_p3	Number of data points used in average for p3	1-byte int	[0,32]	
numpts_p4	Number of data points used in average for p4	1-byte int	[0,32]	
numpts_p5	Number of data points used in average for p5	1-byte int	[0,32]	
numpts_p6	Number of data points used in average for p6	1-byte int	[0,16]	
numpts_p7	Number of data points used in average for p7	1-byte int	[0,16]	
numpts_p8	Number of data points used in average for p8	1-byte int	[0,16]	

p1	LEMS120 differential p flux p1 47-68 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2	LEMS120 differential p flux p2 68-115 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3	LEMS120 differential p flux p3 115-195 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p4	LEMS120 differential p flux p4 195-321 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5	LEMS120 differential p flux p5 321-587 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6	LEMS120 differential p flux p6 587-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7	LEMS120 differential p flux p7 1.06-1.90 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8	LEMS120 differential p flux p8 1.90-4.80 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_fp6p	Data status flag for fp6p <sup>2</sup>	1-byte int	[0,9]	
numpts_fp6p	Number of data points used in average for fp6p	1-byte int	[0,16]	
fp6p	LEMS120 differential p flux fp6p 761-1220 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6p_ratio	LEMS120 Anisotropy Index	4-byte float	[0,2]	
fp6ps1	LEMS120 differential p flux fp6p sector1	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps2	LEMS120 differential p flux fp6p sector2	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps3	LEMS120 differential p flux fp6p sector3	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps4	LEMS120 differential p flux fp6p sector4	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps5	LEMS120 differential p flux fp6p sector5	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps6	LEMS120 differential p flux fp6p sector6	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps7	LEMS120 differential p flux fp6p sector7	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps8	LEMS120 differential p flux fp6p sector8	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_p1_30	Data status flag for p1_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2_30	Data status flag for p2_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p3_30	Data status flag for p3_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4_30	Data status flag for p4_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5_30	Data status flag for p5_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6_30	Data status flag for p6_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7_30	Data status flag for p7_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8_30	Data status flag for p8_30 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1_30	Number of data points used in average for p1_30	1-byte int	[0,8]	
numpts_p2_30	Number of data points used in average for p2_30	1-byte int	[0,8]	

numpts_p3_30	Number of data points used in average for p3_30	1-byte int	[0,8]	
numpts_p4_30	Number of data points used in average for p4_30	1-byte int	[0,8]	
numpts_p5_30	Number of data points used in average for p5_30	1-byte int	[0,4]	
numpts_p6_30	Number of data points used in average for p6_30	1-byte int	[0,4]	
numpts_p7_30	Number of data points used in average for p7_30	1-byte int	[0,4]	
numpts_p8_30	Number of data points used in average for p8_30	1-byte int	[0,4]	
p1_30	LEMS30 differential p flux p1 47-65 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2_30	LEMS30 differential p flux p2 65-112 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3_30	LEMS30 differential p flux p3 112-187 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p4_30	LEMS30 differential p flux p4 187-310 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5_30	LEMS30 differential p flux p5 310-580 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6_30	LEMS30 differential p flux p6 580-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7_30	LEMS30 differential p flux p7 1.06-1.91 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8_30	LEMS30 differential p flux p8 1.91-4.75 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV

5-minute averaged data:

View name: **ace\_epam\_5m**

Data Retention: 81 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_de1	Data status flag for de1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_de4	Data status flag for de4 <sup>2</sup>	1-byte int	[0,9]	
numpts_de1	Number of data points used in average for de1	1-byte int	[0,52]	
numpts_de4	Number of data points used in average for de4	1-byte int	[0,52]	
de1	LEMS120 differential e flux (38-53 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
de4	LEMS120 differential e flux (175-315 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_p1	Data status flag for p1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2	Data status flag for p2 <sup>2</sup>	1-byte int	[0,9]	

dsflag_p3	Data status flag for p3 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4	Data status flag for p4 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5	Data status flag for p5 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6	Data status flag for p6 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7	Data status flag for p7 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8	Data status flag for p8 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1	Number of data points used in average for p1	1-byte int	[0,208]	
numpts_p2	Number of data points used in average for p2	1-byte int	[0,208]	
numpts_p3	Number of data points used in average for p3	1-byte int	[0,208]	
numpts_p4	Number of data points used in average for p4	1-byte int	[0,208]	
numpts_p5	Number of data points used in average for p5	1-byte int	[0,208]	
numpts_p6	Number of data points used in average for p6	1-byte int	[0,104]	
numpts_p7	Number of data points used in average for p7	1-byte int	[0,104]	
numpts_p8	Number of data points used in average for p8	1-byte int	[0,104]	
p1	LEMS120 differential p flux p1 47-68 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2	LEMS120 differential p flux p2 68-115 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3	LEMS120 differential p flux p3 115-195 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p4	LEMS120 differential p flux p4 195-321 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5	LEMS120 differential p flux p5 321-587 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6	LEMS120 differential p flux p6 587-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7	LEMS120 differential p flux p7 1.06-1.90 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8	LEMS120 differential p flux p8 1.90-4.80 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_fp6p	Data status flag for fp6p <sup>2</sup>	1-byte int	[0,9]	
numpts_fp6p	Number of data points used in average for fp6p	1-byte int	[0,104]	
fp6p	LEMS120 differential p flux fp6p 761-1220 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6p_ratio	LEMS120 Anisotropy Index	4-byte float	[0,2]	
fp6ps1	LEMS120 differential p flux fp6p sector1	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps2	LEMS120 differential p flux fp6p sector2	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps3	LEMS120 differential p flux fp6p sector3	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV

fp6ps4	LEMS120 differential p flux fp6p sector4	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps5	LEMS120 differential p flux fp6p sector5	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps6	LEMS120 differential p flux fp6p sector6	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps7	LEMS120 differential p flux fp6p sector7	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps8	LEMS120 differential p flux fp6p sector8	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_p1_30	Data status flag for p1_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2_30	Data status flag for p2_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p3_30	Data status flag for p3_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4_30	Data status flag for p4_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5_30	Data status flag for p5_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6_30	Data status flag for p6_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7_30	Data status flag for p7_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8_30	Data status flag for p8_30 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1_30	Number of data points used in average for p1_30	1-byte int	[0,52]	
numpts_p2_30	Number of data points used in average for p2_30	1-byte int	[0,52]	
numpts_p3_30	Number of data points used in average for p3_30	1-byte int	[0,52]	
numpts_p4_30	Number of data points used in average for p4_30	1-byte int	[0,52]	
numpts_p5_30	Number of data points used in average for p5_30	1-byte int	[0,26]	
numpts_p6_30	Number of data points used in average for p6_30	1-byte int	[0,26]	
numpts_p7_30	Number of data points used in average for p7_30	1-byte int	[0,26]	
numpts_p8_30	Number of data points used in average for p8_30	1-byte int	[0,26]	
p1_30	LEMS30 differential p flux p1 47-65 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2_30	LEMS30 differential p flux p2 65-112 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3_30	LEMS30 differential p flux p3 112-187 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p4_30	LEMS30 differential p flux p4 187-310 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5_30	LEMS30 differential p flux p5 310-580 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6_30	LEMS30 differential p flux p6 580-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7_30	LEMS30 differential p flux p7 1.06-1.91 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8_30	LEMS30 differential p flux p8 1.91-4.75 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV



1-hour averaged data:

View name: **ace\_epam\_1h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
dsflag_de1	Data status flag for de1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_de4	Data status flag for de4 <sup>2</sup>	1-byte int	[0,9]	
numpts_de1	Number of data points used in average for de1	1-byte int	[0,576]	
numpts_de4	Number of data points used in average for de4	1-byte int	[0,576]	
de1	LEMS120 differential e flux (38-53 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
de4	LEMS120 differential e flux (175-315 keV)	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_p1	Data status flag for p1 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2	Data status flag for p2 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p3	Data status flag for p3 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4	Data status flag for p4 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5	Data status flag for p5 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6	Data status flag for p6 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7	Data status flag for p7 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8	Data status flag for p8 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1	Number of data points used in average for p1	1-byte int	[0,2304]	
numpts_p2	Number of data points used in average for p2	1-byte int	[0,2304]	
numpts_p3	Number of data points used in average for p3	1-byte int	[0,2304]	
numpts_p4	Number of data points used in average for p4	1-byte int	[0,2304]	
numpts_p5	Number of data points used in average for p5	1-byte int	[0,2304]	
numpts_p6	Number of data points used in average for p6	1-byte int	[0,1152]	
numpts_p7	Number of data points used in average for p7	1-byte int	[0,1152]	
numpts_p8	Number of data points used in average for p8	1-byte int	[0,1152]	
p1	LEMS120 differential p flux p1 47-68 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2	LEMS120 differential p flux p2 68-115 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3	LEMS120 differential p flux p3 115-195 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV

p4	LEMS120 differential p flux p4 195-321 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5	LEMS120 differential p flux p5 321-587 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6	LEMS120 differential p flux p6 587-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7	LEMS120 differential p flux p7 1.06-1.90 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8	LEMS120 differential p flux p8 1.90-4.80 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_fp6p	Data status flag for fp6p <sup>2</sup>	1-byte int	[0,9]	
numpts_fp6p	Number of data points used in average for fp6p	1-byte int	[0,1152]	
fp6p	LEMS120 differential p flux fp6p 761-1220 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6p_ratio	LEMS120 Anisotropy Index	4-byte float	[0,2]	
fp6ps1	LEMS120 differential p flux fp6p sector1	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps2	LEMS120 differential p flux fp6p sector2	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps3	LEMS120 differential p flux fp6p sector3	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps4	LEMS120 differential p flux fp6p sector4	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps5	LEMS120 differential p flux fp6p sector5	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps6	LEMS120 differential p flux fp6p sector6	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps7	LEMS120 differential p flux fp6p sector7	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
fp6ps8	LEMS120 differential p flux fp6p sector8	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
dsflag_p1_30	Data status flag for p1_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p2_30	Data status flag for p2_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p3_30	Data status flag for p3_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p4_30	Data status flag for p4_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p5_30	Data status flag for p5_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p6_30	Data status flag for p6_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p7_30	Data status flag for p7_30 <sup>2</sup>	1-byte int	[0,9]	
dsflag_p8_30	Data status flag for p8_30 <sup>2</sup>	1-byte int	[0,9]	
numpts_p1_30	Number of data points used in average for p1_30	1-byte int	[0,572]	
numpts_p2_30	Number of data points used in average for p2_30	1-byte int	[0,572]	
numpts_p3_30	Number of data points used in average for p3_30	1-byte int	[0,572]	
numpts_p4_30	Number of data points used in average for p4_30	1-byte int	[0,572]	
numpts_p5_30	Number of data points used	1-byte int	[0,284]	

	in average for p5_30			
numpts_p6_30	Number of data points used in average for p6_30	1-byte int	[0,284]	
numpts_p7_30	Number of data points used in average for p7_30	1-byte int	[0,284]	
numpts_p8_30	Number of data points used in average for p8_30	1-byte int	[0,284]	
p1_30	LEMS30 differential p flux p1 47-65 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p2_30	LEMS30 differential p flux p2 65-112 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p3_30	LEMS30 differential p flux p3 112-187 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p4_30	LEMS30 differential p flux p4 187-310 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p5_30	LEMS30 differential p flux p5 310-580 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p6_30	LEMS30 differential p flux p6 580-1060 keV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p7_30	LEMS30 differential p flux p7 1.06-1.91 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV
p8_30	LEMS30 differential p flux p8 1.91-4.75 MeV	4-byte float	[1.e-5,1.e+8]	particles/cm <sup>2</sup> *s*ster* MeV

## 5. Derived/Predicted Planetary K

Documentation: <http://www.swpc.noaa.gov/rpc/costello/index.html>

### 15-minute data:

View name: **ace\_pred\_15m**

Data Retention: 81 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
kp	Predicted value of Kp	4-byte float	[0.,9.]	
kpq	Quality Flag for Predicted value of Kp <sup>3</sup>	1-byte int	[0,9]	

### 3-hour data:

View name: **ace\_derived\_3h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
kp	Derived 3-hour Kp	4-byte float	[0.,9.]	
kpq	Quality flag for Derived 3-hour Kp <sup>4</sup>	1-byte int	[0,9]	

## 6. Location

1-hour data:

View name: **ace\_loc\_1h**

Data Retention: 365 days

Column name	Description	Type	Range	Units
time_tag	Time of data <sup>1</sup>	Date/time	<sup>5</sup>	
xgse_pos	X-Position in GSE coordinates	4-byte float	[0.,300.]	earth Radii (Re)
ygse_pos	Y-Position in GSE coordinates	4-byte float	[-200.,200.]	earth Radii (Re)
zgse_pos	Z-Position in GSE coordinates	4-byte float	[-200.,200.]	earth Radii (Re)
xgci_pos	X-Position in GCI Reference coordinates	4-byte float		km
ygci_pos	Y-Position in GCI Reference coordinates	4-byte float		km
zgci_pos	Z-Position in GCI Reference coordinates	4-byte float		km

## Geostationary Operational Environmental Satellites (GOES) I-M Series

Instruments:

### 1. Space Environment Monitor (SEM) – X-ray Sensor (XRS)

Documentation: <http://rsd.gsfc.nasa.gov/goes/text/databook/section05.pdf>

3-second data:

View names: **goes10\_3s, goes11\_3s, goes12\_3s**

Data Retention: 60 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 x-ray data <sup>1</sup>	Date/time	<sup>5</sup>	
x_short	GOES-10,11,12 Short X-ray flux (0.4 - 5 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>
x_long	GOES-10,11,12 Long X-ray flux (1 - 8 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>

1-minute averaged data:

View names: **goes10\_1m, goes11\_1m, goes12\_1m**

Data Retention: 60 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 x-ray data <sup>1</sup>	Date/time	<sup>5</sup>	
x_short	GOES-10,11,12 Short X-ray flux (0.4 - 5 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>
x_long	GOES-10,11,12 Long X-ray flux (1 - 8 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>
x_ratio	GOES-10,11,12 ratio of short/long X-ray flux	4-byte float	[0,1]	

5-minute averaged data:

View names: **goes10\_5m, goes11\_5m, goes12\_5m**

Data Retention: 120 days

<b>Column name</b>	<b>Description</b>	<b>Type</b>	<b>Range</b>	<b>Units</b>
time_tag	Time of data for GOES-10,11,12 x-ray data <sup>1</sup>	Date/time	<sup>5</sup>	
x_short	GOES-10,11,12 Short X-ray flux (0.4 - 5 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>
x_long	GOES-10,11,12 Long X-ray flux (1 - 8 angstroms)	4-byte float	$[10^{-9}, 10^{-3}]$	W/m <sup>2</sup>
x_ratio	GOES-10,11,12 ratio of short/long X-ray flux	4-byte float	[0,1]	

## 2. Space Environment Monitor (SEM) – Magnetometer

Documentation: <http://rsd.gsfc.nasa.gov/goes/text/databook/section05.pdf>

1-minute averaged data:

View names: **goes10\_1m, goes11\_1m, goes12\_1m**

Data Retention: 60 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 magnetometer <sup>1</sup>	Date/time	<sup>5</sup>	
hp	GOES-10,11,12 Magnetic parallel component	4-byte float	[-1400.,1400.]	nano Tesla
he	GOES-10,11,12 Magnetic earthward component	4-byte float	[-1400.,1400.]	nano Tesla
hn	GOES-10,11,12 Magnetic normal eastward component	4-byte float	[-1400.,1400.]	nano Tesla
ht	GOES-10,11,12 Magnetic total field component	4-byte float	[-1400.,1400.]	nano Tesla

5-minute averaged data:

View names: **goes10\_5m, goes11\_5m, goes12\_5m**

Data Retention: 120 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 magnetometer <sup>1</sup>	Date/time	<sup>5</sup>	
hp	GOES-10,11,12 Magnetic parallel component	4-byte float	[-1400.,1400.]	nano Tesla
he	GOES-10,11,12 Magnetic earthward component	4-byte float	[-1400.,1400.]	nano Tesla
hn	GOES-10,11,12 Magnetic normal eastward component	4-byte float	[-1400.,1400.]	nano Tesla
ht	GOES-10,11,12 Magnetic total field component	4-byte float	[-1400.,1400.]	nano Tesla



### 3. Space Environment Monitor (SEM) – Energetic Particle Sensor (EPS) and High Energy Proton and Alpha Detector (HEPAD)

Documentation: <http://rsd.gsfc.nasa.gov/goes/text/databook/section05.pdf>

1-minute averaged data:

View names: **goes10\_1m, goes11\_1m, goes12\_1m**

Data Retention: 60 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 energetic particles <sup>1</sup>	Date/time	<sup>5</sup>	
e1	GOES-10,11,12 Electrons > 0.6 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
e2	GOES-10,11,12 Electrons > 2 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
e3	GOES-10,11,12 Electrons > 4 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
p1	GOES-10,11,12 Telescope Protons 0.7-4 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p2	GOES-10,11,12 Telescope Protons 4-9 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p3	GOES-10,11,12 Telescope Protons 9-15 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p4	GOES-10,11,12 Dome Protons 15-40 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p5	GOES-10,11,12 Dome Protons 38-82 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p6	GOES-10,11,12 Dome Protons 84-200 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p7	GOES-10,11,12 Dome Protons 110-900 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)

5-minute averaged data:

View names: **goes10\_5m, goes11\_5m, goes12\_5m**

Data Retention: 120 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-	Date/time	<sup>5</sup>	

	10 energetic particles <sup>1</sup>			
e1	GOES-10,11,12 Electrons > 0.6 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
e2	GOES-10,11,12 Electrons > 2 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
e3	GOES-10,11,12 Electrons > 4 MeV	4-byte float	[0.,10 <sup>15</sup> ]	#/sec
p1	GOES-10,11,12 Telescope Protons 0.7- 4 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p2	GOES-10,11,12 Telescope Protons 4-9 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p3	GOES-10,11,12 Telescope Protons 9-15 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p4	GOES-10,11,12 Dome Protons 15-40 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p5	GOES-10,11,12 Dome Protons 38-82 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p6	GOES-10,11,12 Dome Protons 84-200 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p7	GOES-10,11,12 Dome Protons 110-900 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p8	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Protons 330- 420 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p9	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Protons 420- 510 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p10	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Protons 510- 700 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
p11	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Protons >700 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
a1	GOES-10,11,12 Telescope Alpha Particles 4-10 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a2	GOES-10,11,12 Telescope Alpha Particles 10-21 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)

a3	GOES-10,11,12 Telescope Alpha Particles 21-61 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a4	GOES-10,11,12 Dome Alpha Particles 60-160 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a5	GOES-10,11,12 Dome Alpha Particles 160-260 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a6	GOES-10,11,12 Dome Alpha Particles 330-500 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a7	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Alphas 2560- 3400 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
a8	GOES-10,11,12 High Energy Proton and Alpha Detector (HEPAD) Alphas >3400 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
ce1	GOES-10,11,12 Electron Flux > 0.6 MeV	4-byte float	[0.,10 <sup>15</sup> ]	e/(cm <sup>2</sup> *s*sr)
ce2	GOES-10,11,12 Electron Flux > 2 MeV	4-byte float	[0.,10 <sup>15</sup> ]	e/(cm <sup>2</sup> *s*sr)
ce3	GOES-10,11,12 Electron Flux > 4 MeV	4-byte float	[0.,10 <sup>15</sup> ]	e/(cm <sup>2</sup> *s*sr)
cp1	GOES-10,11,12 Corrected Telescope Protons 0.7-4 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp2	GOES-10,11,12 Corrected Telescope Protons 4-9 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp3	GOES-10,11,12 Corrected Telescope Protons 9-15 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp4	GOES-10,11,12 Corrected Dome Protons 15-40 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp5	GOES-10,11,12 Corrected Dome Protons 38-82 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp6	GOES-10,11,12 Corrected Dome Protons 84-200 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cp7	GOES-10,11,12 Corrected Dome Protons 110-900 MeV.	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)

cpgt1	GOES-10,11,12 Corrected Protons >1 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt5	GOES-10,11,12 Corrected Protons >5 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt10	GOES-10,11,12 Corrected Protons >10 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt30	GOES-10,11,12 Corrected Protons >30 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt50	GOES-10,11,12 Corrected Protons >50 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt60	GOES-10,11,12 Corrected Protons >60 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt100	GOES-10,11,12 Corrected Protons >100 MeV	4-byte float	[0.,10 <sup>7</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpgt350	GOES-10,11,12 Corrected Protons >350 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
cpgt420	GOES-10,11,12 Corrected Protons >420MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr*MeV)
cpeq5	GOES-10,11,12 Corrected Protons 5 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpeq15	GOES-10,11,12 Corrected Protons 15 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpeq30	GOES-10,11,12 Corrected Protons 30 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpeq50	GOES-10,11,12 Corrected Protons 50 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpeq60	GOES-10,11,12 Corrected Protons 60 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
cpeq100	GOES-10,11,12 Corrected Protons 100 MeV	4-byte float	[0.,10 <sup>5</sup> ]	p/(cm <sup>2</sup> *s*sr)
ca1	GOES-10,11,12 Corrected Telescope Alpha Particles 4-10 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
ca2	GOES-10,11,12	4-byte	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)

	Corrected Telescope Alpha Particles 10-21 MeV	float		
ca3	GOES-10,11,12 Corrected Telescope Alpha Particles 21-61 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
ca4	GOES-10,11,12 Corrected Dome Alpha Particles 60-160 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
ca5	GOES-10,11,12 Corrected Dome Alpha Particles 160-260 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
ca6	GOES-10,11,12 Corrected Dome Alpha Particles 330-500 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
cagt2560	GOES-10,11,12 Corrected Alpha Particles 2560-3400 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)
cagt3400	GOES-10,11,12 Corrected Alpha Particles >3400 MeV	4-byte float	[0.,10 <sup>5</sup> ]	a/(cm <sup>2</sup> *s*sr*MeV)

#### 4. Tracking status

View name: **goesi\_tracking\_status**

Data Retention: no history retained. The latest status is available

<b>Column name</b>	<b>Description</b>	<b>Type</b>	<b>Range</b>	<b>Units</b>
Instrument	Instrument sensor on GOES I-series satellite	String	'Magnetometer' 'X-rays' 'Protons' 'Electrons'	
PrimarySat	The Primary GOES I-series satellite for a particular instrument sensor	1-byte integer	10,11,12	
SecondarySat	The Primary GOES I-series satellite for a particular instrument sensor	1-byte integer	10,11,12	
TertiarySat	The Primary GOES I-series satellite for a particular instrument sensor	1-byte integer	10,11,12	

## 5. Housekeeping

Documentation: ?

5-minute averaged data:

View names: **goes10\_5m, goes11\_5m, goes12\_5m**

Data Retention: 60 days

Column name	Description	Type	Range	Units
time_tag	Time of data for GOES-10,11,12 housekeeping <sup>1</sup>	Date/time	<sup>5</sup>	
ssd_sngl1	GOES-10,11,12 (HEPAD) Solid State Detector single channel #1 count rate	4-byte float	[0.,1.0e+5]	counts/sec
ssd_sngl2	GOES-10,11,12 (HEPAD) Solid State Detector single channel #2 count rate	4-byte float	[0.,1.0e+5]	counts/sec
ssd_sngl3	GOES-10,11,12 (HEPAD) Solid State Detector single channel #3 count rate	4-byte float	[0.,1.0e+5]	counts/sec
ssd_sngl4	GOES-10,11,12 (HEPAD) Solid State Detector single channel #4 count rate	4-byte float	[0.,1.0e+5]	counts/sec
ssd_sngl5	GOES-10,11,12 (HEPAD) Solid State Detector single channel #5 count rate	4-byte float	[0.,1.0e+5]	counts/sec

## 6. Events

### 6.1. X-rays

Documentation: ?

View names: **goesi\_xray\_events**

Data Retention: 60 days

Column name	Description	Type	Range	Units
curr_time	Time of observation <sup>1</sup>	Date/time	<sup>5</sup>	
sat_num	GOES-10,11,12 satellite number	1-byte integer	[10,12]	
begin_time	Begin Time of event <sup>1</sup>	Date/time	<sup>5</sup>	
max_time	Time of event where maximum flux was reached <sup>1</sup>	Date/time	<sup>5</sup>	
end_time	End Time of event <sup>1</sup>	Date/time	<sup>5</sup>	
current_xrlong	Value of the long (1-8 A) x-ray flux at the Current Time	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
begin_xrlong	Value of the long (1-8 A) x-ray flux at the Beginning of the flare	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
max_xrlong	Value of the long (1-8 A) x-ray flux at the time when the flare reached peak flux	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
end_xrlong	Value of the long (1-8 A) x-ray flux at the End of the flare	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
current_xrshort	Value of the short (.5-4 A) x-ray flux at the Current Time	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
begin_xrshort	Value of the short (.5-4 A) x-ray flux at the Beginning of the flare	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
max_xrshort	Value of the short (.5-4 A) x-ray flux at the End of the flare	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
end_xrshort	Value of the short (.5-4 A) x-ray flux at the time when the flare reached peak flux	4-byte float	[1.e-1, 1.e-10]	Watts/m <sup>2</sup>
max_temp	Maximum Temperature of the flare in Kelvin	4-byte float	[6.,20.]	LOG <sub>10</sub> (Kelvin)
max_emission_meas	Maximum Emission Measured from the flare	4-byte float	[42.,60.]	LOG <sub>10</sub> (cm <sup>-3</sup> )
current_xratio	Ratio of short x-rays to long x-rays at the Current Time	4-byte float	[1.e-5, 0.999]	
begin_xratio	Ratio of short x-rays to long x-	4-byte float	[1.e-5,	



	rays at the Begin Time of the flare		0.999]	
max_xratio	Ratio of short x-rays to long x-rays at the Time of the peak flux of the flare	4-byte float	[1.e-5, 0.999]	
end_xratio	Ratio of short x-rays to long x-rays at the End Time of the flare	4-byte float	[1.e-5, 0.999]	
integrate_long_flux	Long x-ray flux integrated over the time of the flare	4-byte float	[1.e-1, 1.e-10]	Joules/m <sup>2</sup>
integrated_short_flux	Short x-ray flux integrated over the time of the flare	4-byte float	[1.e-1, 1.e-10]	Joules/m <sup>2</sup>
xray_class	Class of the flare 1e-8 <= A < 1e-7 <= B < 1e-6 <= C < 1e-5 <= M < 1e-4 <= X	Variable 5-byte char	[A1.0, X1000.0]	

## 7. Location

Documentation: ?

View names: **goesi\_satellite\_locations**

Data Retention: 120 days

<b>Column name</b>	<b>Description</b>	<b>Type</b>	<b>Range</b>	<b>Units</b>
time_tag	Time of observation <sup>1</sup>	Date/time	<sup>5</sup>	
goes_10	GOES-10 longitude position calculated from orbital elements	1-byte integer	[0,180]	degrees west longitude
goes_11	GOES-11 longitude position calculated from orbital elements	1-byte integer	[0,180]	degrees west longitude
goes_12	GOES-12 longitude position calculated from orbital elements	1-byte integer	[0,180]	degrees west longitude

## ***Polar Orbiting Environmental Satellites (POES) – NOAA-15,-16,-17,-18 and METOP-02***

Instruments:

### 1. Space Environment Monitor (SEM) 2 – Total Energy Detector (TED)

Documentation: [http://poes.ngdc.noaa.gov/docs/sem2\\_docs/2006/SEM2v2.0.pdf](http://poes.ngdc.noaa.gov/docs/sem2_docs/2006/SEM2v2.0.pdf)

View name: **poes\_ted**

Data Retention: all data available

<b>Column name</b>	<b>Description</b>	<b>Type</b>	<b>Range</b>	<b>Units</b>
time_tag	Time of data for TED data <sup>1</sup>	Date/time	<sup>5</sup>	
satnum	POES satellite number for TED record	2-byte char	[02,15,16,17,18]	
pp_num	Polar pass number for TED record	2-byte int	[0,31]	
rec	Number of records	2-byte int	[1,?]	
flux	TED Energy Flux	4-byte float	[0.,700.]	milliwats/m <sup>2</sup>
ss_lat	POES spacecraft latitude	4-byte float	[-90.,90.]	deg
ss_lon	POES spacecraft longitude	4-byte float	[0.,360.]	deg
fofl_lat	POES spacecraft latitude	4-byte float	[-90.,90.]	deg
fofl_lon	POES spacecraft longitude	4-byte float	[0.,360.]	deg
dipml	??	4-byte float	??	??
corml	??	4-byte float	??	??
mlt	Magnetic Local Time	4-byte float	[0.,360.]	deg
prot_pct	TED Percent Protons	2-byte int	[0,100]	
char_e_energy	TED Characteristic electron energy	8-byte int	[0,20000]	eV
char_p_energy	TED Characteristic proton energy	8-byte int	[0,20000]	eV

## 2. Space Environment Monitor (SEM) 2 – Total Energy Detector (TED) and Medium Energy Proton and Electron Detector (MEPED)

16-second data:

View names: **poes15\_16s**, **poes16\_16s**, **poes17\_16s**, **poes18\_16s**, **metop02\_16s**

Data Retention: 27 days

Column name	Description	Type	Range	Units
time_tag	Time of data for NOAA-15 16-second data <sup>1</sup>	Date/time	<sup>5</sup>	
sc_lat	NOAA-15 spacecraft latitude	4-byte float	[-90.,90.]	deg
sc_lon	NOAA-15 spacecraft longitude	4-byte float	[0.,360.]	deg
fofl_lat	NOAA-15 spacecraft latitude	4-byte float	[-90.,90.]	deg
fofl_lon	NOAA-15 spacecraft longitude	4-byte float	[0.,360.]	deg
l_value	L-value	4-byte float	[0.93,19.99]	
mlt	Magnetic Local Time	4-byte float		deg
ns_dir	NOAA-15 Satellite North or South Bound	2-byte char	[NB,SB]	
pa0	NOAA-15 MEPED 0 deg telescope PA	4-byte float	[-180.,180.]	deg
pa90	NOAA-15 MEPED 90 deg telescope PA	4-byte float	[-180.,180.]	deg
mep_tel_e1_0	NOAA-15 >30 keV electrons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_e2_0	NOAA-15 >100 keV electrons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_e3_0	NOAA-15 >300 keV electrons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p1_0	NOAA-15 30 - 80 keV protons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p2_0	NOAA-15 80 - 250 keV protons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p3_0	NOAA-15 250 - 800 keV protons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p4_0	NOAA-15 800 - 2500	4-byte	[0.,2.x10 <sup>6</sup> ]	counts/s

	keV protons (0 deg)	float		
mep_tel_p5_0	NOAA-15 2500-6900 keV protons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p6_0	NOAA-15 >6900 keV protons (0 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_e1_90	NOAA-15 >30 keV electrons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_e2_90	NOAA-15 >100 keV electrons (90 deg )	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_e3_90	NOAA-15 >300 keV electrons (90 deg )	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p1_90	NOAA-15 30 - 80 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p2_90	NOAA-15 80 - 250 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p3_90	NOAA-15 250 - 800 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p4_90	NOAA-15 800 - 2500 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p5_90	NOAA-15 2500-6900 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_tel_p6_90	NOAA-15 >6900 keV protons (90 deg)	4-byte float	[0.,2.x10 <sup>6</sup> ]	counts/s
mep_omni_p6	NOAA-15 16 - 70 MeV omni protons	4-byte float	[0.,5.x10 <sup>5</sup> ]	counts/s
mep_omni_p7	NOAA-15 37 - 70 MeV omni protons	4-byte float	[0.,5.x10 <sup>5</sup> ]	counts/s
mep_omni_p8	NOAA-15 70 - 235 MeV omni protons	4-byte float	[0.,5.x10 <sup>5</sup> ]	counts/s
mep_omni_p9	??	4-byte float	[0.,5.x10 <sup>5</sup> ]	counts/s
ted_flux	NOAA-15 TED Energy Flux	4-byte float	[0.,700]	milliwatts/m <sup>2</sup>
ted_char_e_energy	NOAA-15 TED Characteristic electron energy	8-byte int	[0,20000]	eV
ted_char_p_energy	NOAA-15 TED Characteristic proton energy	8-byte int	[0,20000]	eV
pct_e_contrib	NOAA-15 Percent electron contribution	4-byte float	[0.,100.]	

### 3. Polar Pass

Documentation: [http://poes.ngdc.noaa.gov/docs/sem2\\_docs/2006/SEM2v2.0.pdf](http://poes.ngdc.noaa.gov/docs/sem2_docs/2006/SEM2v2.0.pdf)

View name: **poes\_polar\_pass**

Data Retention: all data available

Column name	Description	Type	Range	Units
time_tag	Time of data for Polar Pass <sup>1</sup>	Date/time	<sup>5</sup>	
satnum	POES satellite number	2-byte char	[02,15,16,17,18]	
pp_num	Polar pass number	2-byte int	[0,31]	
inclin	Inclination			
nrec	Number of records			
power	Estimated Hemispheric Power	4-byte real	[0.,1000.]	GigaWatts
activity	Auroral Activity Index	2-byte int	[1,10]	
bnorm	Normalizing Factor	4-byte real	[0.,10.]	
hemisphere	Hemisphere of Satellite	1-byte char	[N,S]	
ns_dir	Satellite North or South Bound	2-byte char	[NB,SB]	
center_time				

## 4. Hemispheric Power Information

Documentation: [http://poes.ngdc.noaa.gov/docs/sem2\\_docs/2006/SEM2v2.0.pdf](http://poes.ngdc.noaa.gov/docs/sem2_docs/2006/SEM2v2.0.pdf)

View name: **poes\_hemispheric\_pwr**

Data Retention: all data available

Column name	Description	Type	Range	Units
time_tag	Time of data for Hemispheric Power <sup>1</sup>	Date/time	<sup>5</sup>	
satnum	POES satellite number	2-byte char	[02,15,16,17,18]	
hemisphere	Hemisphere of Satellite	1-byte char	[N,S]	
power	Estimated Hemispheric Power	4-byte real	[0.,1000.]	GigaWatts
activity	Auroral Activity Index	2-byte int	[1,10]	
bnorm	Normalizing Factor	4-byte real	[0.,10.]	

## Alerts, Warnings, Watches, and Summaries

### 1. Alert product codes, description, and possible effects

Documentation: <http://www.swpc.noaa.gov/alerts/AlertsTable.html>

View name: **alert\_names**

Data Retention: all data available

Column name	Description	Type	Range	Units
product_id	Alert, Warning, Watch, or Summary code	50-byte char	select product_id from alert_names	
product_name	Alert, Warning, Watch, or Summary description	Variable length char	select product_name from alert_names	
possible_system_effects	Possible System Effects of the event	Variable length char	select possible_system_effects from alert_names	

### 2. Alerts, Warnings, Watches, and Summaries issued

Documentation: <http://www.swpc.noaa.gov/alerts/>

View name: **alerts**

Data Retention: 2 days

Column name	Description	Type	Range	Units
time_tag	Time Alert, Warning, Watch, or Summary was issued <sup>1</sup>	Date/time	<sup>5</sup>	
product_message	Alert, Warning, Watch, or Summary message	Variable length char		
product_id	Alert, Warning, Watch, or Summary code	50-byte char	select product_id from alert_names	
product_name	Alert, Warning, Watch, or Summary description	Variable length char	select product_name from alert_names	
possible_system_effects	Possible System	Variable	select	



	Effects of the event	length char	possible_system_effects from alert_names	
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## Forecasts

### 1. Solar and Geophysical Forecast

Documentation: <http://www.swpc.noaa.gov/ftpdir/forecasts/RSGA/README>

View name: **solar\_geophysical\_forecast**

Data Retention: 2 days

Column name	Description	Type	Range	Units
time_tag	Time Alert, Warning, Watch, or Summary was issued <sup>1</sup>	Date/time	<sup>5</sup>	
product_message	Alert, Warning, Watch, or Summary message	Variable length char		

### 2. 3-day predictions

Documentation: <http://www.swpc.noaa.gov/wwire.html#swxdaypre>

View name: **three\_day\_predictions**

Data Retention: all data available

Column name	Description	Type	Range	Units
Afr1day	Predicted daily geomagnetic A-index for Fredericksburg for first Forecast day	4-byte int	[0,500]	
Afr2day	Predicted daily geomagnetic A-index for Fredericksburg for second Forecast day	4-byte int	[0,500]	
Afr3day	Predicted daily geomagnetic A-index for Fredericksburg for third Forecast day	4-byte int	[0,500]	

Cclass1day	Probability forecast of the occurrence of one or more C-class x-ray events for first Forecast day.	2-byte int	[0,100]	
Cclass2day	Probability forecast of the occurrence of one or more C-class x-ray events for second Forecast day.	2-byte int	[0,100]	
Cclass3day	Probability forecast of the occurrence of one or more C-class x-ray events for third Forecast day.	2-byte int	[0,100]	
Mclass1day	Probability forecast of the occurrence of one or more M-class x-ray events for first Forecast day.	2-byte int	[0,100]	
Mclass2day	Probability forecast of the occurrence of one or more M-class x-ray events for second Forecast day.	2-byte int	[0,100]	
Mclass3day	Probability forecast of the occurrence of one or more M-class x-ray events for third Forecast day.	2-byte int	[0,100]	
Xclass1day	Probability forecast of the occurrence of one or more X-class x-ray events for first Forecast day.	2-byte int	[0,100]	
Xclass2day	Probability forecast of the occurrence of one or more X-class x-ray events for second Forecast day.	2-byte int	[0,100]	
Xclass3day	Probability forecast of the occurrence of one or more X-class x-ray events for third Forecast day.	2-byte int	[0,100]	
Protons1day	Probability forecast of a significant proton event	2-byte int	[0,100]	

	at satellite altitudes (at least 10 pfu at energies greater than 10 MeV) for first Forecast day			
Protons2day	Probability forecast of a significant proton event at satellite altitudes (at least 10 pfu at energies greater than 10 MeV) for second Forecast day	2-byte int	[0,100]	
Protons3day	Probability forecast of a significant proton event at satellite altitudes (at least 10 pfu at energies greater than 10 MeV) for third Forecast day	2-byte int	[0,100]	
Forecast1day	First Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
Forecast2day	Second Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
Forecast3day	Third Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
HighActive1day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index =4 for the first Forecast day.	4-byte int	[0,100]	
HighActive2day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index =4 for the second Forecast day.	4-byte int	[0,100]	
HighActive3day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index =4 for the third Forecast day.	4-byte int	[0,100]	
HighMinor1day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index =5 for the first Forecast day.	4-byte int	[0,100]	
HighMinor2day	Probability forecast of geomagnetic conditions	4-byte int	[0,100]	

	for high latitudes where at least one 3-hour K index =5 for the second Forecast day.			
HighMinor3day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index =5 for the second Forecast day.	4-byte int	[0,100]	
HighMajor1day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index > 6 for the first Forecast day.	4-byte int	[0,100]	
HighMajor2day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index > 6 for the second Forecast day.	4-byte int	[0,100]	
HighMajor3day	Probability forecast of geomagnetic conditions for high latitudes where at least one 3-hour K index > 6 for the second Forecast day.	4-byte int	[0,100]	
MidActive1day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =4 for the first Forecast day.	4-byte int	[0,100]	
MidActive2day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =4 for the second Forecast day.	4-byte int	[0,100]	
MidActive3day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =4 for the second Forecast day.	4-byte int	[0,100]	

MidMinor1	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =5 for the first Forecast day.	4-byte int	[0,100]	
MidMinor2	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =5 for the second Forecast day.	4-byte int	[0,100]	
MidMinor3	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index =5 for the third Forecast day.	4-byte int	[0,100]	
MidMajor1day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index >6 for the first Forecast day.	4-byte int	[0,100]	
MidMajor2day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index >6 for the second Forecast day.	4-byte int	[0,100]	
MidMajor3day	Probability forecast of geomagnetic conditions for middle latitudes where at least one 3-hour K index >6 for the third Forecast day.	4-byte int	[0,100]	
Tencm1day	Predicted daily values of the 10.7 cm flux for first Forecast day.	2-byte int	[60,300]	sfu
Tencm2day	Predicted daily values of the 10.7 cm flux for second Forecast day.	2-byte int	[60,300]	sfu
Tencm3day	Predicted daily values of the 10.7 cm flux for third Forecast day.	2-byte int	[60,300]	sfu

PolarCap	A 24-hour forecast of a polar cap absorption (PCA) event. The PCA forecasts are color coded.	Variable 15-byte char	[Green, Yellow, Red, In Progress]	
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### 3. Flare probabilities

Documentation: <http://www.swpc.noaa.gov/wwire.html#swxdaypre>

View name: **flare\_probabilities**

Data Retention: all data available

Column name	Description	Type	Range	Units
Forcast1day	Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
Cprob	Probability forecast of the occurrence of one or more C-class x-ray flares for the day listed	2-byte int	[0,100]	
Mprob	Probability forecast of the occurrence of one or more M-class x-ray flares for the day listed	2-byte int	[0,100]	
Xprob	Probability forecast of the occurrence of one or more X-class x-ray flares for the day listed	2-byte int	[0,100]	
Pprob	Probability forecast of a flare that will cause a significant proton event at satellite altitudes (at least 10 pfu at energies greater than 10 MeV)	2-byte int	[0,100]	

## 4. Magnetometer

Documentation: <http://www.swpc.noaa.gov/wwire.html#swxdaypre>

View name: **magnetometer\_forecast**

Data Retention: all data available

Column name	Description	Type	Range	Units
Forecast1day	Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
Forecast2day	Second Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
Forecast3day	Third Forecast Day <sup>1</sup>	Date/time	<sup>5</sup>	
TypeFcst	Type of forecast. M1 = middle latitude K-index for first Forecast day; M2 = middle latitude K-index for second Forecast day; M3 = middle latitude K-index for third Forecast day; H1 = High latitude K-index for first Forecast day; H2 = High latitude K-index for second Forecast day; H3 = High latitude K-index for third Forecast day.	2-byte char	[M1, M2, M3, H1, H2, H3]	
K1	Predicted 3-hour K-index for 00-03 UTC.	1-byte int	[0-9]	
K2	Predicted 3-hour K-index for 03-06 UTC.	1-byte int	[0-9]	
K3	Predicted 3-hour K-index for 06-09 UTC.	1-byte int	[0-9]	
K5	Predicted 3-hour K-index for 09-12 UTC.	1-byte int	[0-9]	
K4	Predicted 3-hour K-index for 12-15 UTC.	1-byte int	[0-9]	
K6	Predicted 3-hour K-index for 15-18 UTC.	1-byte int	[0-9]	



K7	Predicted 3-hour K-index for 18-21 UTC.	1-byte int	[0-9]	
K8	Predicted 3-hour K-index for 21-24 UTC.	1-byte int	[0-9]	
AIndex	Predicted Planetary A-index	2-byte int	[0-500]	