# **Space Weather EOC**

## **SWPC** Latest Reports Docmentation

## Version: 1.0 Updated: 1/11/15 0000 UTC

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### SWEOC ReadMe

<u>Version 1.0 January 11, 2015</u> Initial release. Each report is listed with a Report Header and a Sample Message Content.

#### SWPC ReadMe

Original: December 2, 2009 Updated: January 11, 2015

> Space Weather Prediction Center (SWPC) Latest Solar-Geophysical Data

GOES 14 Primary Satellite for XRS data

December 1, 2009: GOES 14 is the SWPC Primary GOES X-ray Satellite. GOES 11 is the SWPC Primary GOES Satellite for Protons and Electrons.

The following reports had header changes.

Current Space Weather Indices Daily Space Weather Indices Daily Solar Data Daily Particle Data

See details at ftp://ftp.swpc.noaa.gov/pub/

SWPC maintains many more data lists, plots, and displays on-line. For example, older reports of the data in this directory can be found in other directories. See ftp://ftp.swpc.noaa.gov/pub/

- o "Solar Alerts, Forecasts, and Summaries" (forecasts) for text reports.
- o "Indices, Events, and Region Data" (indices) for indices from 1994
- o Most directories contain an README file describing its contents and other Help information.
- o "Historical SWPC Products from 1996" (warehouse) is the SWPC archive

SWPC provides near-real-time and recent data, solar and geomagnetic indices and solar event reports created from preliminary reports. Preliminary data may contain errors or be revised after further review. The historical products in this SWPC Warehouse are the preliminary reports as originally published. SWPC does not encourage the use of preliminary data for research purposes.

Links to archive sites with final data: http://www.swpc.noaa.gov/Data/

Please send comments and questions to SWPC.Webmaster@noaa.gov Report problems to SWPC.CustomerSupport@noaa.gov

### **Alerts and Warnings**

#### **Report Header:**

Sample Message Content:

Space Weather Message Code: SUMSUD Serial Number: 200 Issue Time: 2014 Dec 21 1924 UTC

SUMMARY: Geomagnetic Sudden Impulse Observed: 2014 Dec 21 1916 UTC Deviation: 10 nT Station: FRD www.swpc.noaa.gov/noaa-scales-explanation

#-----

Space Weather Message Code: SUM10R Serial Number: 652 Issue Time: 2014 Dec 20 0238 UTC

SUMMARY: 10cm Radio Burst Begin Time: 2014 Dec 20 0018 UTC Maximum Time: 2014 Dec 20 0024 UTC End Time: 2014 Dec 20 0100 UTC Duration: 52 minutes Peak Flux: 2300 sfu Latest Penticton Noon Flux: 216 sfu www.swpc.noaa.gov/noaa-scales-explanation Description: A 10cm radio burst indicates that the electromagnetic burst associated with

a solar flare at the 10cm wavelength was double or greater than the initial 10cm radio background. This can be indicative of significant radio noise in association with a solar flare. This noise is generally short-lived but can cause interference for sensitive receivers including radar, GPS, and satellite communications.

### **Coded GeoAlerts**

#### **Report Header:**

:Product: GEOALERT :Issued: 2015 Jan 11 0330 UTC # Prepared by the U.S. Dept. of Commerce, NOAA, # Space Weather Prediction Center. #

#### Sample Message Content:

Geoalert WWA011 UGEOA 20401 50111 0330/ 9930/ 11111 20111 30111 99999 UGEOE 20401 50111 0330/ 10/00 99999 UGEOI 20401 50111 0330/ 10/// 10146 21520 3010/ 4///0 50000 66907 71204 80108 90940 99999 UGEOR 20401 50111 0330/ 10/24 11108 12253 20000 30000 41001 50010 60001 38506 01000 12255 20000 30000 44313 50070 60006 34416 01000 12257 20000 30400 45535 50470 60035 44207 18310 12258 20000 30000 43112 50020 60004 12514 01000 12259 20000 30300 45513 50290 60009 23818 16200 12260 20000 30000 43112 50030 60007 40209 01000 12261 20000 30000 47201 50030 60001 25711 00000 12262 20000 30000 43112 50020 60003 31800 01000 99999

### 27 Day Space Weather Outlook Table

#### **Report Header:**

:Product: 27-day Space Weather Outlook Table 27DO.txt :Issued: 2014 Dec 08 0430 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # 27-day Space Weather Outlook Table # Issued 2014-12-08 # # UTC Radio Flux Planetary Largest # Date 10.7 cm A Index Kp Index

#	UTC		Radio Flux	Planetary	Largest
#	Date		10.7 cm	A Index	Kp Index
201	4 Dec	15	170	8	3
201	4 Dec	16	170	8	3

### **45 Day AP Forecast**

**Report Header:** 

Sample Message Content:

45-DAY AP FORECAST 21Dec14 035 22Dec14 018 23Dec14 008 24Dec14 008 25Dec14 008 26Dec14 005 27Dec14 005 28Dec14 005 29Dec14 008 30Dec14 008 45-DAY F10.7 CM FLUX FORECAST 21Dec14 205 22Dec14 205 23Dec14 200 24Dec14 190 25Dec14 185 26Dec14 185 27Dec14 185 28Dec14 180 29Dec14 175 30Dec14 175

### **Geomagnetic Data**

**Report Header:** 

:Product: Geomagnetic Data AK.txt :Issued: 2318 UTC 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # Updated every hour beginning at 0029 UTC. # Values shown as reported, SWPC does not verify accuracy. # Missing Data: -1 # # Geomagnetic A and K indices from the U.S. Geological Survey Stations # # Geomagnetic # Dipole A ----- 3 Hourly K Indices ------Lat Long Index 00-03 03-06 06-09 09-12 12-15 15-18 18-21 21-24 # Station 

2014 Dec 20											
Boulder	N49	W 42	9	3	2	2	2	3	2	2	2
Chambon-la-foret	N	E	-1	2	2	-1	-1	-1	-1	-1	-1
College	N65	W102	2	0	-1	-1	-1	-1	1	0	1

### **Daily Geomagnetic Data**

**Report Header:** 

:Product: Daily Geomagnetic Data DGD.txt :Issued: 2130 UT 10 Dec 2014 # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # # Please send comment and suggestions to SWPC.Webmaster@noaa.gov # # Last 30 Days Daily Geomagnetic Data # # Middle Latitude High Latitude Estimated - Fredericksburg - ---- College ---- --- Planetary ---A K-indices A K-indices A K-indices # # # Date

#	Date		А		K	t−3	Lno	lic	ces	3		А		]	K-:	ind	lio	ces	3		А		F	(-j	nċ	lic	es	3	
201	14 11	22	8	2	2	3	1	2	1	2	3	13	2	2	3	5	2	2	1	2	10	3	2	2	2	2	2	3	4
201	14 11	23	9	1	1	3	3	3	2	2	1	24	2	2	3	6	5	3	3	1	10	2	2	3	3	3	2	3	2

### **Daily Particle Data**

#### **Report Header:**

:Product: Daily Particle Data DPD.txt :Issued: 0223 UT 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # # Last 30 Days Daily Particle Data # GOES-13 Proton Fluence GOES-13 Electron Fluence Neutron --- Protons/cm2-day-sr -- -- Electrons/cm2-day-sr -- Monitor # # # Date >1 MeV >10 MeV >100 MeV >0.8 MeV >2 MeV % of bkgd 

2014 11	21	1.5e+05	1.2e+04	2.8e+03	9.0e+08	2.3e+07	-999.99
2014 11	22	1.2e+05	1.1e+04	2.6e+03	1.2e+09	2.0e+07	-999.99

### **Daily Solar Data**

#### **Report Header:**

:Product: Daily Solar Data DSD.txt :Issued: 2025 UT 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # # Last 30 Days Daily Solar Data # SunspotStanford GOES15Radio SESCAreaSolar X-Ray-----Flux Sunspot10E-6NewMean BkgdX-RayOptical # # # # Date 10.7cm Number Hemis. Regions Field Flux C M X S 1 2 3 

#				Flux	Sunspot	10E-6	New	Mean	Bkgd	Х	-Ra	У		Op	tic	al
#	Date	3		10.7cm	Number	Hemis.	Regions	Field	Flux	C	м	х	S	1	2	3
#																
201	4 11	L 2	21	163	68	1550	0	-999	в7.7	6	0	0	15	0	0	0
201	4 11	L 2	22	167	64	1590	0	-999	в8.6	10	0	0	7	3	0	0

### **Daily Magnetometer Analysis Report**

#### **Report Header:**

	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-00
MEANOOK	42/2	44/2	42/1	40/1	48/2	22/1	11/0	28/1
SITKA	25/2	23/1	28/1	25/1	50/2	18/1	14/0	15/1
3-HOUR AP	12	6	4	5	7	6	3	6
3-HOUR KP	3M	2M	1Z	1P	2Z	2M	1M	2M
24-HOUR AP	7	7	6	6	7	6	6	6

### **Hourly Magnetometer Analysis Report**

#### **Report Header:**

#### Sample Message Content:

	17-20	18-21	19-22	20-23	21-00	22-01	23-02
MEANOOK	13/0	11/0	20/0	25/1	28/1	28/1	15/0
SITKA	16/0	14/0	15/0	17/1	15/1	14/1	10/0
	17-20	18-21	19-22	20-23	21-00	22-01	23-02
3-HOUR AP	3	3	4	5	6	6	4
3-HOUR KP	1M	1M	1Z	1P	2M	2M	1Z
12-HOUR AP	* *	**	**	**	**	**	**
24-HOUR AP	6	6	5	6	6	5	6

#### **#SYNOPTIC VALUE ESTIMATED FROM AVAILABLE DATA**

		19-20	20-21	21-22	22-23	23-00	00-01	01-02
1-HOUR KP		* *	* *	* *	* *	* *	* *	* *
		17-20	18-21	19-22	20-23	21-00	22-01	23-02
RUN 3-HOUR	AP	3	3	4	5	6	6	4
RUN 3-HOUR	KP	1M	1M	1Z	1P	2M	2M	1Z

### **Predicted Sunspot Numbers and Radio Flux**

**Report Header:** 

:Predicted Sunspot Numbers and Radio Flux: Predict.txt :Created: 2014 Dec 08 0400 UTC # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center (SWPC). # Please send comments and suggestions to swpc.webmaster@noaa.gov # # Sunspot Number: S.I.D.C. Brussels International Sunspot Number. # 10.7cm Radio Flux value: Penticton, B.C. Canada. # Predicted values are based on the consensus of the Solar Cycle 24 Prediction Panel. # # See the README3 file for further information. # # Missing or not applicable data: -1 # # Predicted Sunspot Number And Radio Flux Values # With Expected Ranges # -----Sunspot Number----- ----10.7 cm Radio Flux----# # YR MO PREDICTED HIGH LOW PREDICTED HIGH LOW 

#			Sunspot	Number		10.7 cm	Radio	Flux
# ¥	<b>R</b>	MO	PREDICTED	HIGH	LOW	PREDICTED	HIGH	LOW
#								
201	L <b>4</b>	06	79.5	80.5	78.5	144.1	145.1	143.1
201	L <b>4</b>	07	78.4	80.4	76.4	141.8	142.8	140.8

### **Report of Solar Activity Summary**

**Report Header:** 

:Product: Report of Solar-Geophysical Activity :Issued: 2014 Dec 10 2200 UTC # Prepared jointly by the U.S. Dept. of Commerce, NOAA, # Space Weather Prediction Center and the U.S. Air Force. # Joint USAF/NOAA Solar Geophysical Activity Report and Forecast SDF Number 344 Issued at 2200Z on 10 Dec 2014

Sample Message Content:

IA. Analysis of Solar Active Regions and Activity from IB. Solar Activity Forecast: IIA. Geophysical Activity Summary IIB. Geophysical Activity Forecast: III. Event probabilities 21 Dec-23 Dec Class M 85/85/85 Class X 40/40/40 Proton 30/30/30 PCAF green IV. Penticton 10.7 cm Flux Observed 20 Dec 203 Predicted 21 Dec-23 Dec 205/205/200 90 Day Mean 20 Dec 157 V. Geomagnetic A Indices Observed Afr/Ap 19 Dec 006/006 Estimated Afr/Ap 20 Dec 008/008

### **Solar and Geophysical Activity Summary**

**Report Header:** 

:Product: Solar and Geophysical Activity Summary :Issued: 2014 Dec 10 0245 UTC # Prepared jointly by the U.S. Dept. of Commerce, NOAA, # Space Weather Prediction Center and the U.S. Air Force. #

Sample Message Content:

Joint USAF/NOAA Solar and Geophysical Activity Summary SGAS Number 354 Issued at 0245Z on 20 Dec 2014 This report is compiled from data received at SWO on 19 Dec A. Energetic Events Begin Max End Rgn Loc Xray Op 245MHz 10cm Sweep 0931 0944 0954 2242 S19W27 M1.3 1n 2047 2047 2047 160 B. Proton Events: None C. Geomagnetic Activity Summary: The geomagnetic field was quiet. D. Stratwarm: Not Available E. Daily Indices: (real-time preliminary/estimated values) 10 cm 216 SSN 156 Afr/Ap 006/006 X-ray Background C1.2 Daily Proton Fluence (flux accumulation over 24 hrs) GT 1 MeV 1.2e+05 GT 10 MeV 1.5e+04 p/(cm2-ster-day) (GOES-13 satellite synchronous orbit W75 degrees) Daily Electron Fluence GT 2 MeV 1.80e+07 e/(cm2-ster-day)(GOES-13 satellite synchronous orbit W75 degrees) 3 Hour K-indices: Boulder 2 1 3 3 2 3 2 2 Planetary 2 1 2 2 1 2 2 1 F. Comments: None

### **Solar Region Summary**

#### **Report Header:**

:Product: Solar Region Summary :Issued: 2014 Dec 10 0030 UTC # Prepared jointly by the U.S. Dept. of Commerce, NOAA, # Space Weather Prediction Center and the U.S. Air Force. # Joint USAF/NOAA Solar Region Summary SRS Number 344 Issued at 0030Z on 10 Dec 2014 Report compiled from data received at SWO on 09 Dec

#### Sample Message Content:

Joint USAF/NOAA Solar Region Summary SRS Number 355 Issued at 0030Z on 21 Dec 2014 Report compiled from data received at SWO on 20 Dec I. Regions with Sunspots. Locations Valid at 20/2400Z Nmbr Location Lo Area Z LL NN Mag Type 2235 S08W70 266 0070 Hax 02 01 Alpha 2236 N28W43 240 0080 Hax 02 01 Alpha 2239 N14W55 252 0050 Cso 06 05 Beta 2240 N10W18 214 0050 Cao 10 04 Beta 2241 S11W21 216 0660 Ekc 12 12 Beta-Gamma-Delta 2242 S19W44 240 0790 Fkc 16 24 Beta-Gamma-Delta 2244 S05E38 159 0050 Cao 03 03 Beta IA. H-alpha Plages without Spots. Locations Valid at 20/2400Z Dec Nmbr Location Lo 2237 S13W55 252 2238 N01W64 261 2243 N09E14 183 II. Regions Due to Return 21 Dec to 23 Dec Nmbr Lat Lo

### Weekly Highlights and Forecasts

**Report Header:** 

:Product: Weekly Highlights and Forecasts :Issued: 2014 Dec 08 0430 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/weekly.html # Weekly Highlights and Forecasts # Highlights of Solar and Geomagnetic Activity 01 - 07 December 2014

Sample Message Content:

Highlights of Solar and Geomagnetic Activity 08 - 14 December 2014

NOTE: A power and communications outage, which began on 13 December 2014 at approximately 1200 UTC and lasted until approximately 14 December 2014 at 0101 UTC, resulted in the loss of ACE and GOES spacecraft data as well as ground-based magnetometer data.

### **Advisory Outlook**

#### **Report Header:**

:Product: Advisory Outlook advisory-outlook.txt :Issued: 2014 Dec 08 0430 UTC # # Prepared by the Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov #------Official Space Weather Advisory issued by NOAA Space Weather Prediction Center Boulder, Colorado, USA

SPACE WEATHER ADVISORY OUTLOOK #14-49 2014 December 7 at 9:29 p.m. MST (2014 December 8 0429 UTC)

\*\*\*\* SPACE WEATHER OUTLOOK \*\*\*\*

Summary For December 1-7

Sample Message Content:

Official Space Weather Advisory issued by NOAA Space Weather Prediction Center Boulder, Colorado, USA

SPACE WEATHER ADVISORY OUTLOOK #14-50 2014 December 14 at 6:55 p.m. MST (2014 December 15 0155 UTC)

\*\*\*\* SPACE WEATHER OUTLOOK \*\*\*\*

Summary For December 8-14

A G1 (minor) geomagnetic storm was observed on 12 December. R1 (minor) radio blackouts were observed on 13 and 14 December. No S1 (minor) or greater space radiation events were observed, although 10 MeV proton flux at geosynchronous orbit was enhanced on 14 December, with a maximum flux of 2.5 pfu.

Outlook For December 15-21

R1 or greater radio blackouts are possible throughout the forecast period. There is a chance for G1 (minor) storm conditions on 28 Dec through 09 Jan in response to recurrent high speed solar wind features. There is a slight chance for an S1 (minor) or greater space radiation event through the forecast period.

### **Current Space Weather Indices**

#### **Report Header:**

:Product: Current Space Weather Indices curind.txt :Issued: 2014 Dec 10 2334 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # # Current Space Weather Indices :Solar Radio Flux: 2014 Dec 10 # Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton 1000 # 0400 1700 1700 2000 2300 2300

#### Sample Message Content:

:Solar\_Radio\_Flux: 2014 Dec 21 # Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton # 1700 0400 1000 1700 2000 2300 2300 245 -1 -1 -1 -1 -1 -1 -1 410 -1 -1 -1 -1 -1 -1 :Energetic\_Particle\_Flux: 2014 Dec 21 0225 UT # # Current Readings # GOES-13 Proton Flux GOES-13 Electron Flux GOES15 GOES13 Neutron # ----- Protons/cm2-s-sr ------Electrons/cm2-s-sr - X-ray Location Monitor >1 MeV >10 MeV >100 MeV >0.8 MeV >2 MeV West # flux cts/min 3.18e+00 2.22e-01 3.42e-02 9.03e+03 1.30e+02 C5.7 75 -1 :Geomagnetic\_Values: 2014 Dec 21 # 

### **Space Weather Event Reports**

**Report Header:** 

:Product: Space Weather Event Reports dayevt.txt :Issued: 2014 Dec 10 0245 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # space Weather Event Reports # :Energetic\_Solar\_Events: 2014 Dec 09 #Begin Max End Rgn Loc Xray Op 245MHz 10cm Sweep

Sample Message Content:

:Energetic\_Solar\_Events: 2014 Dec 20
#Begin Max End Rgn Loc Xray Op 245MHz 10cm Sweep
0011 0028 0055 2242 S21W24 X1.8 3b 120 2300 II
0831 0831 0831 130
1834 1834 1834 100
1837 1837 1837 100

### **Daily Space Weather Indices**

#### **Report Header:**

:Product: Daily Space Weather Indices dayind.txt :Issued: 2014 Dec 10 1816 UT # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # Daily Space Weather Indices

Sc	olar_Indices:	2014 Dec 09											
#	SWO Sunspot	Penticton Rad	lio 90-da	y Radio	GOES-	15	X-ra	y St	anf	0	rd	Sol	ar
#	Number	Flux 10.7cm	ı Flux	10.7cm	Bkgd	Fl	ux	М	ean	. 1	Fie	ld	
	80	140	1	52	в8	.3			-	9	99		
#													
::	Solar_Region_I	Data: 2014 Dec	: 09										
#								Flares		-			
#	Sunspot Area	New	Spott	ed	х-	ray			Opt	i	cal		
#	10E-6 Hemis.	Regions	Regi	on	C	м	х	S	1		2	3	4
	510	1	5		12	0	0	14	3		0	0	0
#													
: :	Solar_Radio_F	lux: 2014 Dec	09										
#	Learmont	th San Vito	Sag Hill	Penticton	Pen	tic	ton	Paleh	ua	]	Pen	tic	ton
#	0400	1000	1700	1700		200	0	23	00			2	300

### **Summary of Space Weather Observations**

**Report Header:** 

:Product: Summary of Space Weather Observations dayobs.txt :Issued: 2014 Dec 10 0030 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # # Summary of Space Weather Observations # :Solar\_Region\_Summary: 2014 Dec 09 # Region Location Sunspot Characteristics # Helio Spot Spot Mag. # Num Lat.,CMD Long. Area Extent class count class

Sample Message Content:

:Solar\_Region\_Summary: 2014 Dec 20
# Region Location Sunspot Characteristics
# Helio Spot Spot Mag.
# Num Lat.,CMD Long. Area Extent class count class
2235 S08W70 266 70 2 HAX 1 A
2236 N28W43 240 80 2 HAX 1 A

### **3 Day Space Weather Predictions**

#### **Report Header:**

:Product: 3-day Space Weather Predictions daypre.txt :Issued: 2014 Dec 10 2200 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center # Product description and SWPC contact on the Web # http://www.swpc.noaa.gov/wwire.html # # 3-day Space Weather Predictions # 2014 Dec 11 2014 Dec 12 2014 Dec 13 :Prediction\_dates: :Geomagnetic\_A\_indices: A\_Fredericksburg 8 6 11 A Planetary 8 5 15 # # Predicted 3-hour Middle latitude k-indices :Pred\_Mid\_k: Sample Message Content: :Prediction dates: 2014 Dec 21 2014 Dec 22 2014 Dec 23 :Geomagnetic A indices: A\_Fredericksburg 22 15 7 35 18 8 A\_Planetary # # Predicted 3-hour Middle latitude k-indices :Pred\_Mid\_k: Mid/00-03UT 2 2 4 # Predicted 3-hour High latitude k-indices :Pred High k: High/00-03UT 1 4 2 2 High/03-06UT 4 2 # Probability of Geomagnetic conditions at Middle Latitude :Prob Mid: Mid/Active 30 40 15 Mid/Minor Storm 30 20 5 Mid/Major-Severe\_Storm 20 5 1 # # Probability of Geomagnetic conditions at High Latitudes :Prob\_High: High/Active 10 10 20 High/Minor\_Storm 25 25 25 High/Major-Severe\_Storm 65 60 20 # Polar Cap Absorption Forecast :Polar\_cap: green # # Solar :10cm flux: 205 200 205 #

```
:Whole_Disk_Flare_Prob:
```

35
<b>4</b> 0
30
Ρ
1
1

### **Forecast Discussion**

**Report Header:** 

:Product: Forecast Discussion :Issued: 2014 Dec 10 1230 UTC # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Solar Activity

Sample Message Content:

.24 hr Summary... Solar activity began the period at high levels as Region 2242 (S19W44, Fkc/beta-gamma-delta) produced an X1/3b flare at 20/0028 UTC. .Forecast... Solar activity is expected to be at moderate (R1-R2/Minor-Moderate) levels with a chance for further X-class flaring (R3-Strong or greater) Energetic Particle .24 hr Summary... The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels. The greater than 10 MeV proton flux was at background levels. .Forecast... The greater than 2 MeV electron flux is expected to be at normal to Solar Wind .24 hr Summary... Solar wind parameters continued at nominal levels throughout the period. Solar wind speeds ranged from 318 km/s to 406 km/s. The total field remained relatively steady near 6 nT, while the Bz component was variable between +/- 6 nT. Phi angle was oriented in a positive (away) sector. .Forecast... Solar wind parameters are expected to become enhanced on day one (21 Dec) as the first of two CMEs is expected to impact the geomagnetic field. This CME is not likely to have significant impacts at Earth as it is expected to only be a glancing blow from the 17 Dec CME. A second CME, this one from 18 Dec, is expected by midday on day one. Solar wind speeds reaching the 650-750 km/s range are estimated with the arrival of this CME. A disturbed solar wind environment is expected to continue into day two (22 Dec) as CME effects linger. Geospace .24 hr Summary... The geomagnetic field was quiet. .Forecast... The geomagnetic field is expected to continue at mostly quiet

blow from the 17 Dec CME is expected to become geoeffective.

conditions through the beginning of day one (21 Dec), when a glancing

Unsettled to active periods with a chance for minor storm periods (G1-Minor) is expected to dominate late on day one, lasting into day two (22 Dec). This storm could also cause minor to major storming (G1-G2, Minor-Moderate) as it impacts the Earths magnetosphere. Unsettled to active periods are expected to persist through the majority of day three 23 Dec).

### **Geomagnetic Forecast**

#### **Report Header:**

:Product: Geomagnetic Forecast :Issued: 2014 Dec 10 2205 UTC # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # NOAA Ap Index Forecast Observed Ap 09 Dec 015 Estimated Ap 10 Dec 009 Predicted Ap 11 Dec-13 Dec 008-005-015

NOAA Geomagnetic Activity Probabilities 11 Dec-13 Dec

Sample Message Content:

NOAA Ap Index Forecast Observed Ap 19 Dec 008 Estimated Ap 20 Dec 008 Predicted Ap 21 Dec-23 Dec 035-018-008

NOAA Geomagnetic Activity Probabilities 21 Dec-23 Dec Active 20/30/15 Minor storm 25/35/05 Moderate storm 30/10/01 Strong-Extreme storm 10/05/01 NOAA Kp index forecast 21 Dec - 23 Dec Dec 21 Dec 22 Dec 23 00-03UT 2 5 03-06UT 2 4 3

2

#### **3 Day Forecast**

**Report Header:** 

:Product: 3-Day Forecast :Issued: 2014 Dec 10 1230 UTC # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # A. NOAA Geomagnetic Activity Observation and Forecast

The greatest observed 3 hr Kp over the past 24 hours was 4 (below NOAA Scale levels). The greatest expected 3 hr Kp for Dec 10-Dec 12 2014 is 3 (below NOAA Scale levels).

NOAA Kp index breakdown Dec 10-Dec 12 201

Sample Message Content:

A. NOAA Geomagnetic Activity Observation and Forecast

The greatest observed 3 hr Kp over the past 24 hours was 3 (below NOAA Scale levels). The greatest expected 3 hr Kp for Dec 21-Dec 23 2014 is 6 (NOAA Scale G2).

NOAA Kp index breakdown Dec 21-Dec 23 2014

	Dec 21	Dec 22	Dec 23
00-03UT	2	5 (G1)	3
03-06UT	2	4	2
06-09UT	3	3	2
09-12UT	4	3	2
12-15UT	5 (G1)	3	2
15-18UT	5 (G1)	2	2
18-21UT	5 (G1)	2	2
21-00UT	6 (G2)	3	2

Rationale: A solar transient (CME) arrival will bring minor (G1) to moderate (G2) levels of geomagnetic activity from midday on 21 Dec lingering until early on 22 Dec.

B. NOAA Solar Radiation Activity Observation and Forecast

Solar radiation, as observed by NOAA GOES-13 over the past 24 hours, was below S-scale storm level thresholds.

Solar Radiation Storm Forecast for Dec 21-Dec 23 2014

Dec 21 Dec 22 Dec 23 S1 or greater 30% 30% 30%

Rationale: There is a chance for an S1 (minor) or greater solar radiation storm from activity associated with Regions 2242 and 2241.

C. NOAA Radio Blackout Activity and Forecast

Radio blackouts reaching the R3 levels were observed over the past 24 hours. The largest was at Dec 20 2014 0030 UTC

Radio Blackout Forecast for Dec 21-Dec 23 2014

	Dec 21	Dec 22	Dec 23
R1-R2	85%	85%	85%
R3 or greater	40%	40%	40%

Rationale: R1-R2 (minor-moderate) solar activity is expected from Regions 2242 and 2241, with an ongoing chance for an R3 (strong) or greater event from these large, complex regions.

### **WWV Geophysical Alert Messages**

**Report Header:** 

:Product: Geophysical Alert Message www.txt :Issued: 2014 Dec 10 2115 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Weather Prediction Center #

Sample Message Content:

# Geophysical Alert Message
#
Solar-terrestrial indices for 20 December follow.
Solar flux 203 and estimated planetary A-index 9.
The estimated planetary K-index at 0000 UTC on 21 December was 3.

Space weather for the past 24 hours has been strong. Radio blackouts reaching the R3 level occurred.

Space weather for the next 24 hours is predicted to be moderate. Geomagnetic storms reaching the G2 level are likely. Radio blackouts reaching the R1 level are expected.

### 7 Day Solar Radio Data

#### **Report Header:**

:Product: Solar Radio Data 7day\_rad.txt :Issued: 2332 UTC 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # Units: 10^-22 W/m^2/Hz # Missing Data: -1 # # Daily local noon solar radio flux values - Updated once an hour # Freq Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton MHZ 0500 UTC 1200 UTC 1700 UTC 1700 UTC 2000 UTC 2300 UTC 2300 UTC

2014 Dec 15									
245	23	20	22	-1	-1	22	-1		
410	50	46	50	-1	-1	50	-1		
610	81	-1	85	-1	-1	84	-1		

### 30 Day Solar Radio Data

#### **Report Header:**

:Product: Solar Radio Data 30day\_rad.txt :Issued: 2342 UTC 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # Units: 10^-22 W/m^2/Hz # Missing Data: -1 # # Daily local noon solar radio flux values - Updated once an hour # Freq Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton MHZ 0500 UTC 1200 UTC 1700 UTC 1700 UTC 2000 UTC 2300 UTC 2300 UTC

2014 Dec 15									
245	23	20	22	-1	-1	22	-1		
410	50	46	50	-1	-1	50	-1		
610	81	-1	85	-1	-1	84	-1		

### 45 Day Solar Radio Data

#### **Report Header:**

:Product: Solar Radio Data 45day\_rad.txt :Issued: 2342 UTC 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # Units: 10^-22 W/m^2/Hz # Missing Data: -1 # # Daily local noon solar radio flux values - Updated once an hour # Freq Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton MHZ 0500 UTC 1200 UTC 1700 UTC 1700 UTC 2000 UTC 2300 UTC 2300 UT

2014 Dec 15									
245	23	20	22	-1	-1	22	-1		
410	50	46	50	-1	-1	50	-1		
610	81	-1	85	-1	-1	84	-1		

### **Solar Radio Flux Values**

#### **Report Header:**

:Product: Solar Radio Data rad.txt :Issued: 2342 UTC 10 Dec 2014 # # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Please send comments and suggestions to SWPC.Webmaster@noaa.gov # Units: 10^-22 W/m^2/Hz # Missing Data: -1 # # Daily local noon solar radio flux values - Updated once an hour # Freq Learmonth San Vito Sag Hill Penticton Penticton Palehua Penticton MHZ 0500 UTC 1200 UTC 1700 UTC 1700 UTC 2000 UTC 2300 UTC 2300 UT

2014 Dec	20						
245	44	49	65	-1	-1	-1	-1
410	64	51	66	-1	-1	-1	-1
610	90	-1	89	-1	-1	-1	-1
1415	-1	159	137	-1	-1	133	-1
2695	228	199	191	-1	-1	176	-1
2800	-1	-1	-1	205	203	-1	199
4995	262	233	240	-1	-1	237	-1
8800	321	345	352	-1	-1	361	-1
15400	594	618	602	-1	-1	613	-

### **Daily Solar Radio Burst Values**

**Report Header:** 

:Product: radio\_bursts.txt :Created: 2014 Dec 10 2340 UT # Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center # Send comments and questions to SWPC.Webmaster@noaa.gov # # Updated every 30 minutes. See http://www.swpc.noaa.gov/ftpmenu/lists/radio.html # # Radio Bursts in Last 45 days # 10cm (2695MHz) Bursts >=100% above background, # 245MHz Bursts > 100 flux units, # 245MHz Radio Noise Storms, # Type II, and Type IV Sweep Frequency Bursts. # Peak Flux Solar Wind Date Start Max End Obs Q Type Freq or Sweep Speed Reg# # 

#												
2014	12	20	0018	0024	0100	LEA	G	RBR	2695	2300		2242
2014	12	20	0045	0045	0045	LEA	G	RBR	245	120		2242
2014	12	20	0050	////	0107	PAL	C	RSP	025-075	II/1	900	2242