

Preparing the Nation to Respond to Space Weather Events

Dr. Genene Fisher

Senior Advisor for Space Weather

NOAA National Weather Service

Space Weather Enterprise Forum

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NOAA
National Weather Service
Space Weather Prediction Center

THE NATION'S
OFFICIAL SOURCE
OF SPACE WEATHER
ALERTS AND WARNINGS

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

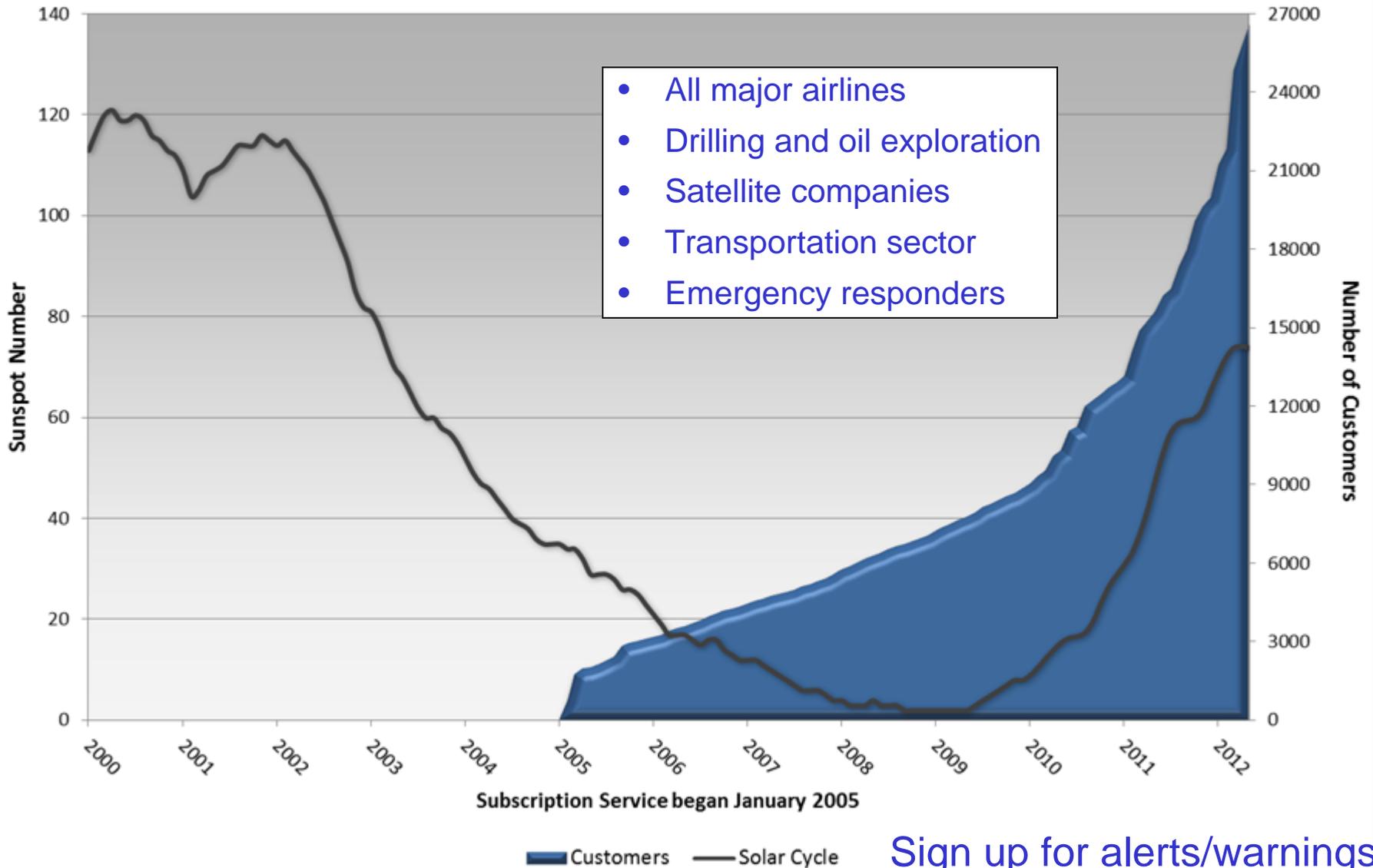


Outline

- **Customers & Service Trends**
- **Improving Operational Services for a Weather Ready Nation**
- **Interagency activities**
- **International collaborations**



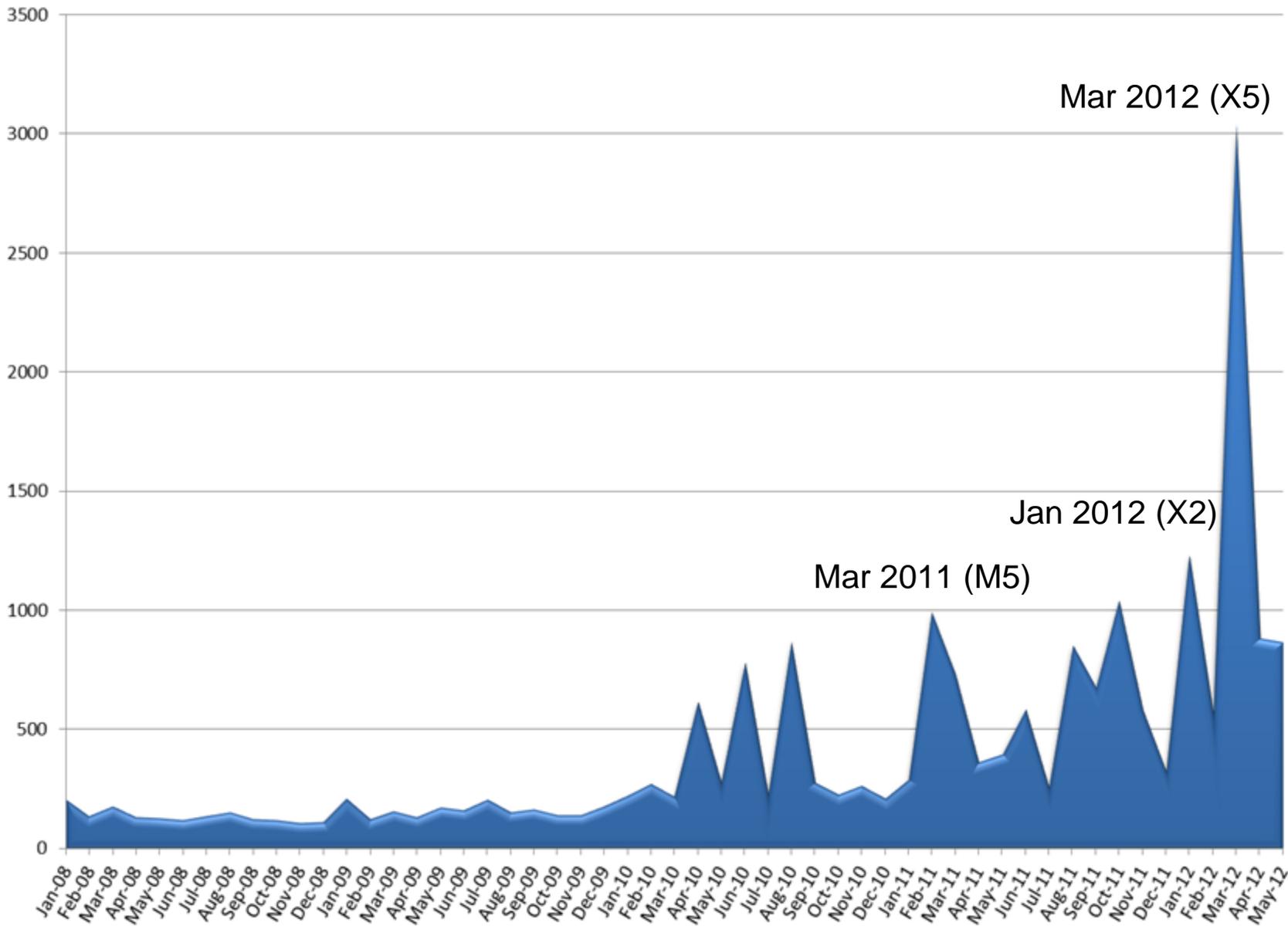
Customer Growth SWPC Product Subscription Service



Sign up for alerts/warnings
at www.spaceweather.gov

New SWPC Product Subscription Registrations by Month

Number of Registrations



NOAA's commitment to improved operations

New Models and Products

- **Model transition**

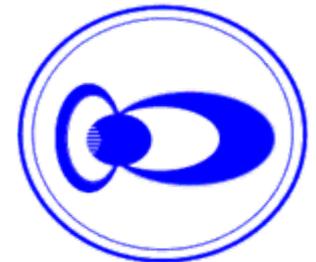
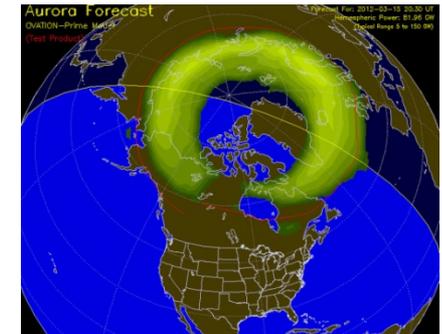
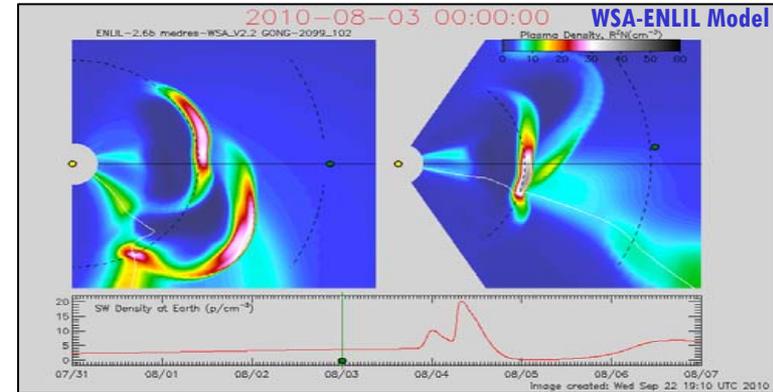
- WSA-Enlil model
- Ovation – auroral forecast model

- **Space Weather Prediction Testbed**

- Geospace Model
- The Whole Atmosphere Model

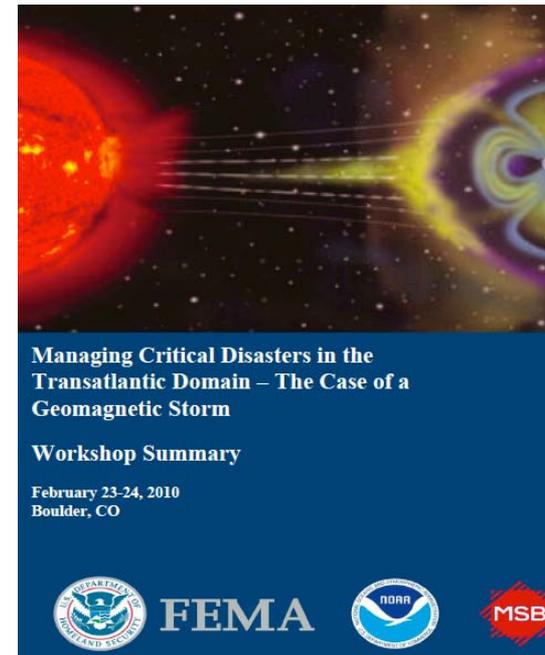
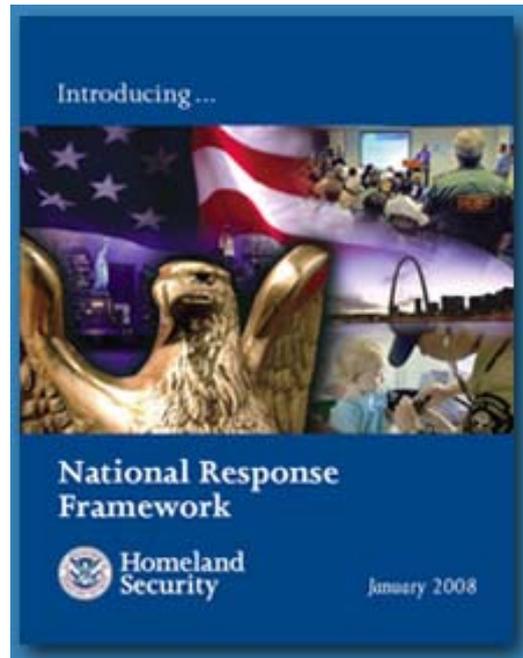
- **Upgrade operational product suite – critical new data sets**

- Geomagnetic Storm Products
- USGS and INTERMAGNET data
- International Partners – magnetometer data



Contributing to Federal Level Activities

- Space weather being addressed at all levels of government.
- Government working on ways forward to develop and implement mitigation strategies to safeguard critical infrastructure from the impacts of severe space weather.



Contributing operational support to national and state exercises on space weather

• National & State Exercises

- Table top exercises to discuss space weather and how to incorporate into planning documents

• Emergency Planning

- Integrating into plans and procedures
- Training
- Response and preparation documentation



National Oceanic and Atmospheric Administration Space Weather Prediction Center (NOAA)
&
New Jersey Office of Homeland Security & Preparedness (OHSP)
Presents
Solar Weather Trends and Impacts on Critical Infrastructure

Date: Thursday, March 1, 2012
Time: 9:00 am – 12:00 pm
Location: NJ Office of Homeland Security & Preparedness
1200 Negron Drive Hamilton, NJ 08691



2011 Virginia Emergency Response Team Exercise (VERTEX)

Space Weather Workshop

- The overarching purpose of the 2011 (VERTEX) series is to develop and test a statewide strategy to respond to and manage the effects of Geomagnetically Induced Currents on the Commonwealth's electrical power and communications systems,



Severe Space Weather Threats to the National Electric Grid

Briefings from Workshops and Exercises Preparing for Long-Term Grid Outages

U.S. Capitol Visitor Center
Congressional Auditorium & Atrium

6 October 2011



FloridaDisaster.org
Florida Division of Emergency Management
Public | Business | EM Community | Organization

Prepare and Stay Aware! FL Hazard U

[Training / Events Home](#) > More Information

Exercise Information page

[Summary](#)
[Point of Contact](#)
[Participant List](#)
[Standby List](#)
[Apply for this Exercise](#)

Name	Energy Assurance State-wide Geomagnetic Storm Table Top Exercise
	This exercise will include presentations on geomagnetic storms, their potential effects, and how we predict and monitor them as well as a scenario to exercise our preparedness and response.

Education & Outreach

- National Space Weather Portal
- NWS Training Center just released module for NWS Weather Forecast Offices
- WMO Space Weather Product Portal
 - WMO Training Modules developed via NWS Training Center (2013)
- Social Media – Visit SWPC on Facebook
- Overhaul of SWPC Web Page – in progress
- Training developed via COMET
 - SWx Basics Module
 - SWx Impacts on Aviation Module



National Space Weather Portal

www.spaceweather.gov/portal



National Space Weather Program
Unified National Space Weather Portal

Welcome Products/Services Research Infrastructure Data Outreach Programs International Commercial

Reports

AGENCY PARTICIPANTS



Welcome

The Unified National Space Weather Portal provides a gateway to access federally funded space weather information, services, and activities. It connects to a system of existing portals and websites, providing national information to enhance understanding.

This portal was developed through the National Space Weather Program (NSWP) as part of the Unified National Space Weather Capability. The NSWP is an interagency initiative to speed improvement in space weather services and prepare the country to deal with technological vulnerabilities associated with the space environment.



- Coordinated through the National Space Weather Program
- Provides a gateway to access federally funded space weather information, services, and activities
- Connects to a system of existing portals and websites, providing national information to enhance understanding

Unified National Space Weather Portal

Welcome Products/Services Research Infrastructure Data Outreach Programs International Commercial Reports

AGENCY PARTICIPANTS



Products and Services

There are several organizations providing space weather products and services. Authoritative Space Weather Operational Prediction Centers have the mission to be the official source for space weather predictions for the Nation: NOAA is the civilian source and Air Force is the military source. Specialized Space Weather Service Providers offer a variety of products for specific audiences.

Authoritative Space Weather Operational Prediction Centers

[NOAA Space Weather Prediction Center](#)

[DoD - Air Force Weather Agency](#)

Specialized Space Weather Service Providers

[NASA Space Weather Laboratory](#)

[USGS geomagnetism real time data](#)

[Air Force Research Laboratory](#)

[NASA Integrated Space Weather Analysis System \(ISWA\)](#)

International

[World Meteorological Organization \(WMO\) product portal](#)

Unified National Space Weather Portal

- Welcome
- Products/Services**
- Research
- Infrastructure
- Data
- Outreach
- Programs
- International
- Commercial
- Reports

AGENCY PARTICIPANTS



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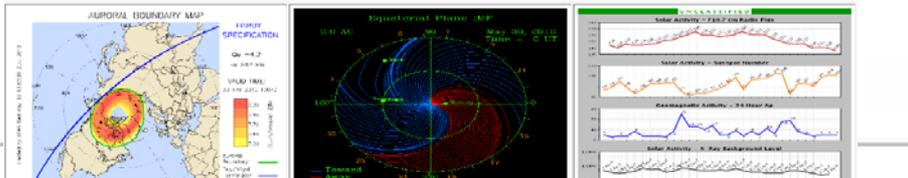
[World Meteorological Organization \(WMO\) product portal](#)

https://weather.afwa.af.mil/weather/spaceweather.html

SPACE WEATHER

<p>Why Space Weather Matters</p> <p>Headquarters U.S. Air Force <i>30th High Flyer Flight, 18th</i></p> <p>Space Weather Workshop 2012 Air Force Weather Activities</p> <p>Col John B. Grooms, PhD, AF Deputy Director of Weather AF/3049 25 April 2012</p> <p>This Briefing is Approved for Public Release</p>	<p>Contacts</p> <p>55th Wing Public Affairs 1209 Washington Square, Suite 221 Offutt Air Force Base, NE 68113</p> <p>Com/1: (402) 294-3663 DSN: 271-3663 E-Mail: afwapa@offutt.af.mil</p>	<p>Space Weather Training</p> <p>Run As Slide Show Once Opened</p> <p>Approved for Public Release April 2012</p>
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Current Products



Increased Global Interaction

- ***NOAA engaged in many international activities with many organizations***

World Meteorological Organization

Working together in weather, climate and water

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[LIST OF TOPICS](#)

[LINKS](#)

[CLIMATE STATISTICS](#)

Space Weather Product Portal

[Programmes](#) > [Space](#) > [Space Weather](#) > [Product Catalogue](#)

Space Weather Product Portal

The Space Weather Product portal offers two ways of accessing products, either by product category or by providing organization. The *Search by Product Category* leads to selected product collections on local pages of the providing organizations with links to the products.

Search by Product Category

Please select a domain and the product category to see what product collections are available from the different sources.



△ Ionospheric

- » HF communications
- » Total Electron Content
- » Ionospheric irregularities

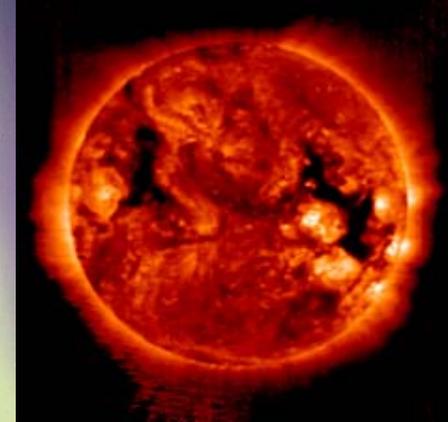
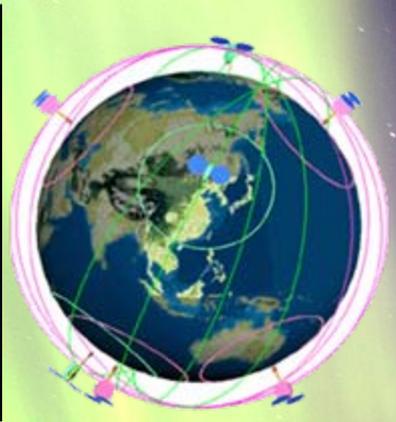
▼ Geomagnetic

▼ Energetic Particles

▼ Solar and interplanetary

Ionospheric > HF communication

Source	Product collection
IPS (Australia)	HF communications products
NICT (Japan)	HF communication products Japan
NOAA (USA)	HF communication products



Global Impact – Global Challenge – Global Response

Provide the *right* information... in the *right* format...
at the *right* time... to the *right* people...
to make the *right* decisions!

