Space Weather as a Global Challenge

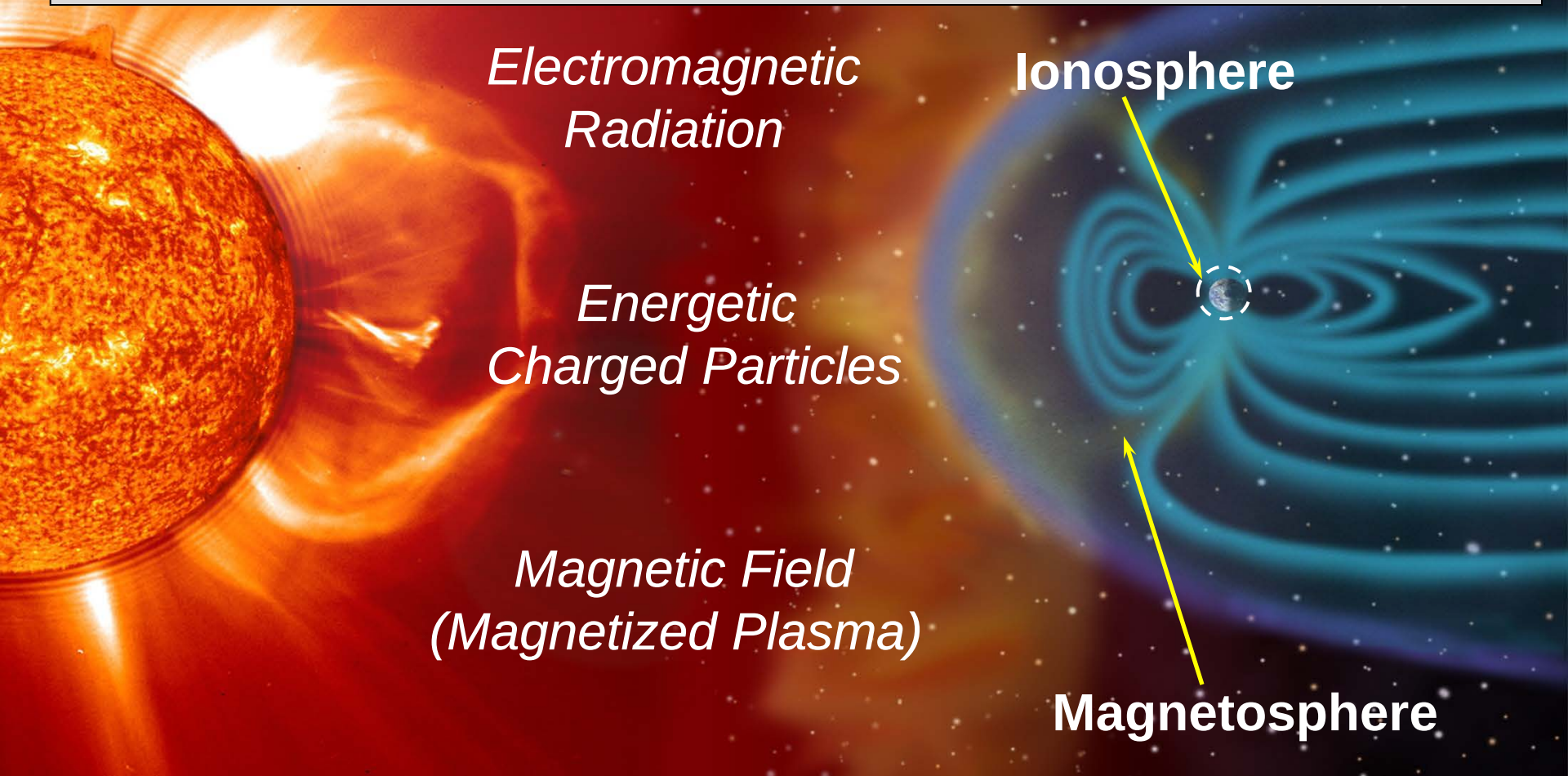
U.S. Government Efforts: Research, Operations, and Preparedness

April 4, 2016

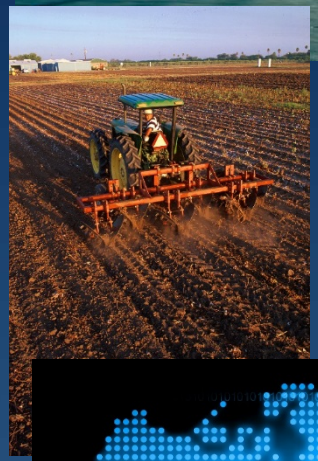
George Marshall Conference Center
U.S. Department of State

What is space Weather

Space weather refers to the variable conditions on the Sun and in space that can influence performance and reliability of space and ground-based technological systems, and endanger life or health.



Severe Space Weather – Societal and Economic Impacts



Impacts occur even with relatively minor activity…

SECTIONS HOME SEARCH **The New York Times** Nov 2015

Solar Storm Knocks Out Flight Control Systems in Sweden

Oct 2014 **THE WALL STREET JOURNAL.**

Home World U.S. Politics Economy Business Tech Markets Opinion Arts Life Real Estate

GENERAL NEWS

Solar Flares From Sunspot Hamper Pilots, Satellites

AR 12192 Has Launched Six Major Solar Flares Toward Earth, Disrupting Navigation Systems and Radio Communications

MENU **TIME**

SPACE

Solar Flare Delays Resupply Mission to International Space Station

It unleashed a level of radiation that could put a rocket at risk

By Noah Rayman | Jan. 08, 2014

Jan 2014

English.news.cn 新华网 NEWS

China

Feb 2011

Solar flare affects shortwave radio communications in southern China

English.news.cn 2011-02-16 00:23:21 Feedback | Print | RSS

BEIJING, Feb. 15 (Xinhua) -- A large solar flare accompanied by electromagnetic storms affected shortwave radio communications in southern China on Tuesday, according to the China Meteorological Administration (CMA).

U.S.News & WORLD REPORT NEWS News, Opini

Solar Flares Likely Knocked Military Satellites Offline

Solar storms earlier this month may have caused military satellites to reboot.

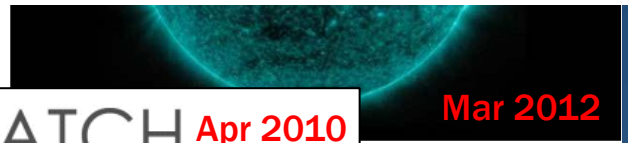
Air Traffic Control Mar 2012

"**Severe solar flare impact** at 2249UTC, initially affecting *Central West Pacific* but by 2400UTC, impact peaked and was affecting all communications. 25 air traffic control messages were delayed."

REUTERS EDITION: UK Jul 2012 SIGN IN | REGISTER Search Reuters

Commodities | Mon Jul 16, 2012 10:37pm BST Related: REGULATORY NEWS

UPDATE 2-NextEra cuts N.H. Seabrook output due to solar activity



Mar 2012

…uld knock out power for some 40 million

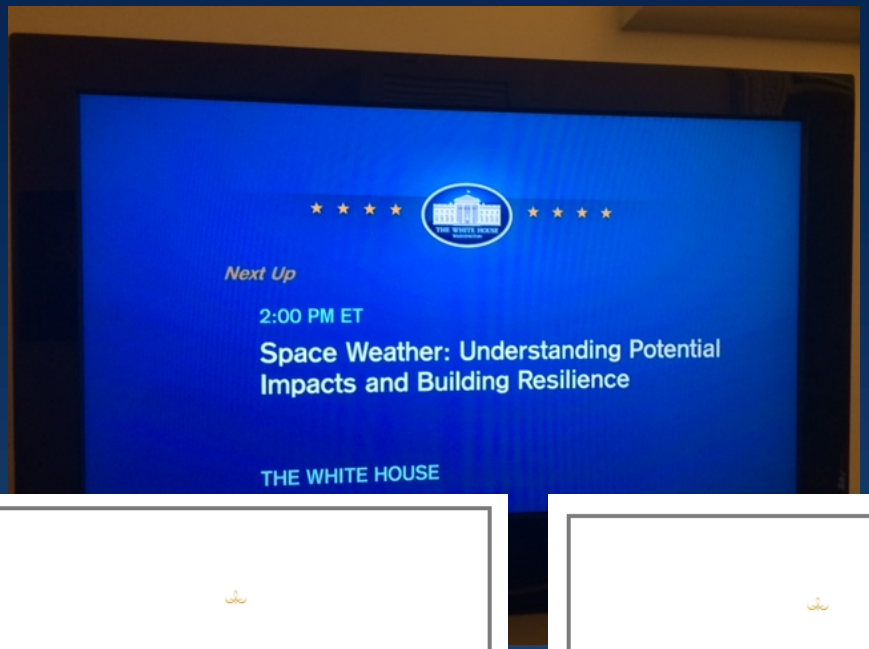
TECHWATCH Apr 2010

Galaxy-15 satellite damaged by solar flare

BROADBAND DSLReports.com login · register Mar 2012

Solar Flares Knock Out LightSquared Satellite

National Space Weather Strategy and Action Plan (Oct 2015)



NATIONAL SPACE WEATHER ACTION PLAN

PRODUCT OF THE

National Science and Technology Council

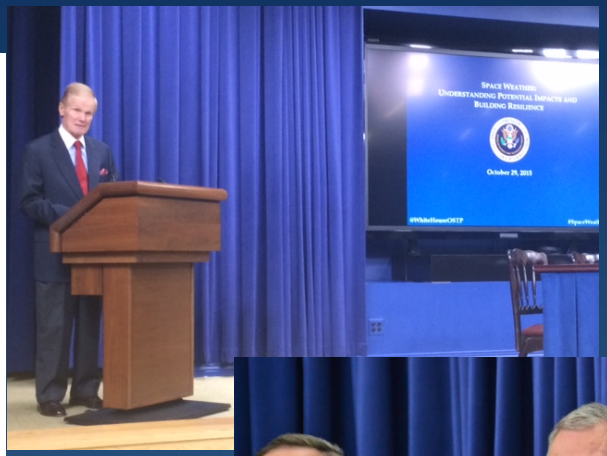
October 2015

NATIONAL SPACE WEATHER STRATEGY

PRODUCT OF THE

National Science and Technology Council

October 2015



Goal 6 - Increase International Cooperation:

- Build international support and policies for acknowledging space weather as a global challenge
- Increase engagement with the international community on observation infrastructure, data sharing, numerical modeling, and scientific research
- Strengthen coordination on space weather products and services
- Promote a collaborative international approach to preparedness for extreme space-weather events

Panel: U.S. Government Efforts: Research, Operations, and Preparedness

- **Steven Clarke,** Director, Heliophysics Division, National Aeronautics and Space Administration
- **Terrance Onsager,** International Activities Lead, Space Weather Prediction Center, National Oceanic and Atmospheric Administration
- **Michael Gremillion,** Chief, Weather Strategic Plans and Interagency Integration Division, U.S. Air Force
- **Jacob Anderson,** Senior Analyst, Office of Infrastructure Protection, Department of Homeland Security