# *Solar / Geophysics*

## 23 Feb 2015

## Dr. Spinrad Visit

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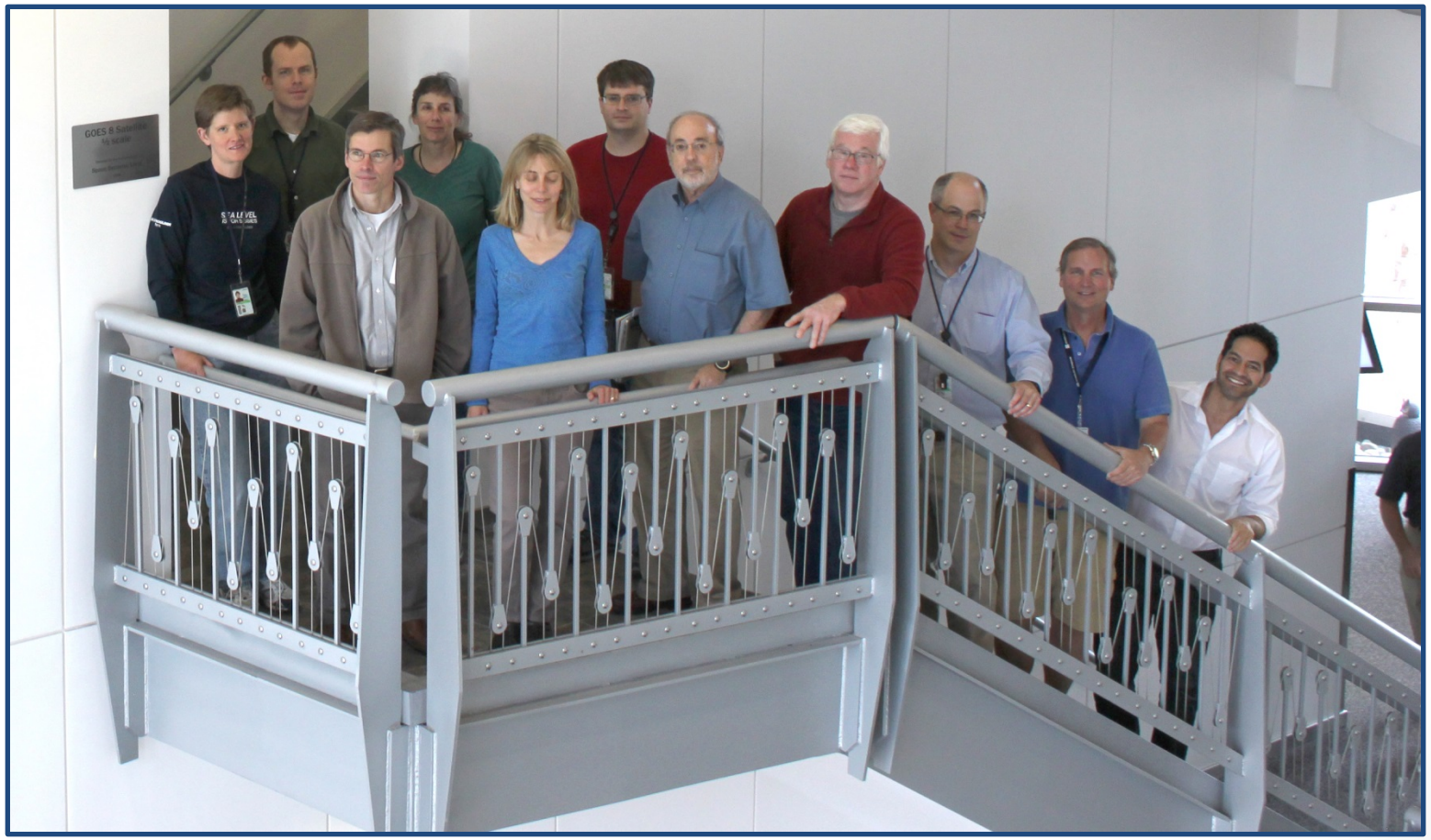
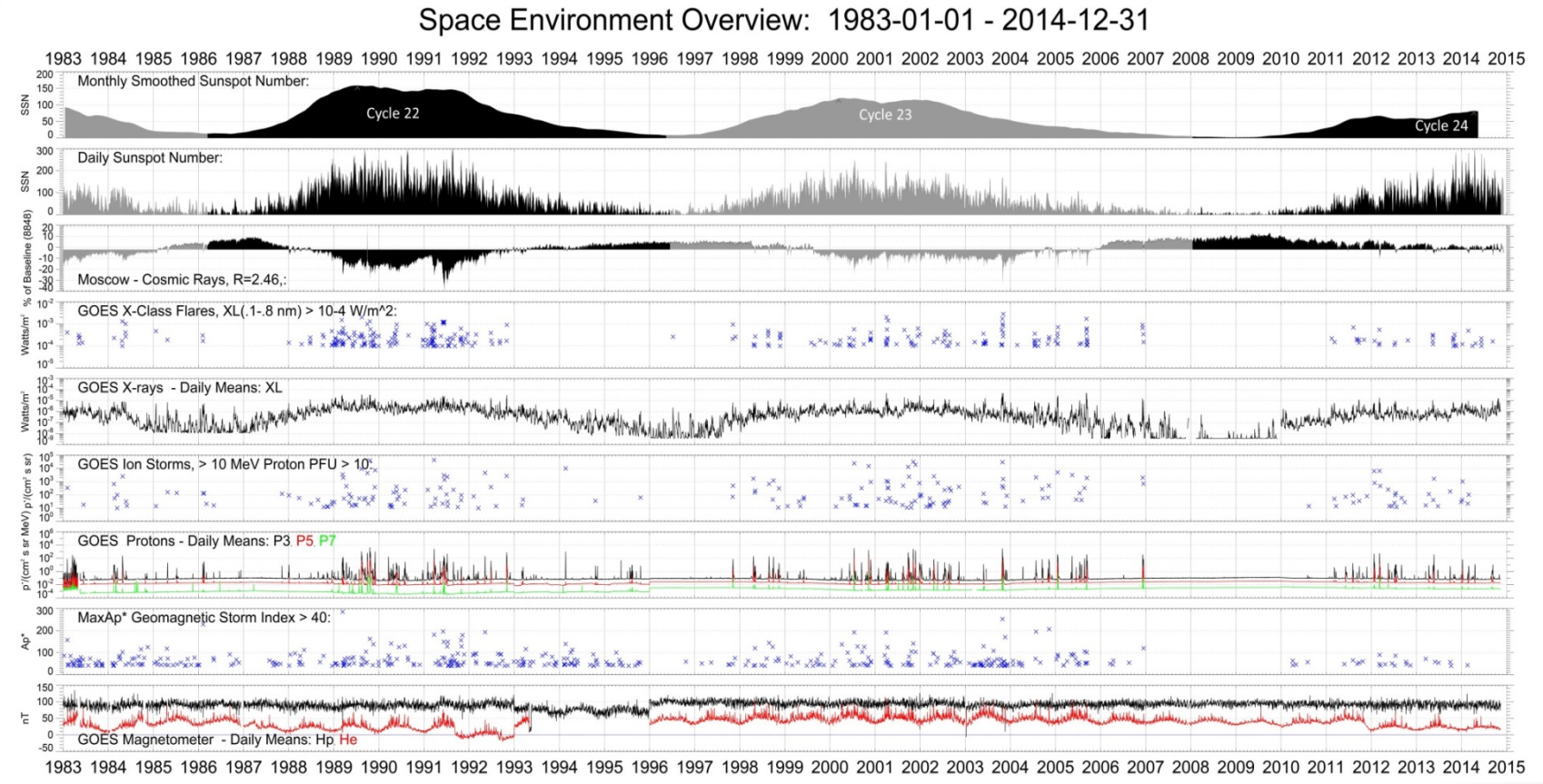
# Solar / Geophysics

## Space Weather Team



# Solar / Geophysics

## Managing NOAA's Space Weather Data




| | Start Date | Max Date | End Date | C-Class Flares | M-Class Flares | X-Class Flares | Ion Storms | Mag Storms Ap* > 40 |
|---|---|---|---|---|---|---|---|---|
| **Solar Cycle 22** | 1986-03 | 1989-07 | 1996-06 | 12,447 | 2,021 | 151 | 73 | 191 |
| **Solar Cycle 23** | 1996-06 | 2000-03 | 2008-01 | 13,102 | 1,437 | 126 | 92 | 158 |
| **Solar Cycle 24 *** | 2008-01 | 2014-04 | TBD | 5,288 | 488 | 35 | 32 | 25 |

- We are far from the end of Solar Cycle 24 so these numbers should be considered a progress report rather than a final grade. Event totals are through November 2014.

http://www.ngdc.noaa.gov/stp/satellite/goes/index.html

# Solar / Geophysics

## DSCOVR Data Stewardship/Archive

**Launch:** 11 February 2015

**Status:** Early-orbit ops (all nominal)

**Current Location:** 820,000 km

**Final Location:** 1,500,000 km (L1)

**Operations:** L+105 days

**Space Weather Sensor Suite**

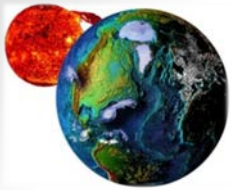
– Plasma-Magnetometer (PlasMag) measures solar wind for space weather predictions.

**Sensors:**

- Magnetometer (magnetic field).
- Faraday cup (positive ions)
- *Electrostatic analyzer (electrons)*

**Archive Status** – Ready to receive, archive and disseminate DSCOVR space weather products.

**Improving scientific data access**



# Solar / Geophysics

## GOES-R Pre-Post Launch Support

**GOES-R Launch:** March 2016

**Space Weather Sensors:**

SUVI – Solar UltraViolet Imager

MAG – Magnetometer

EXIS – EUV and X-Ray Irradiance Sensors

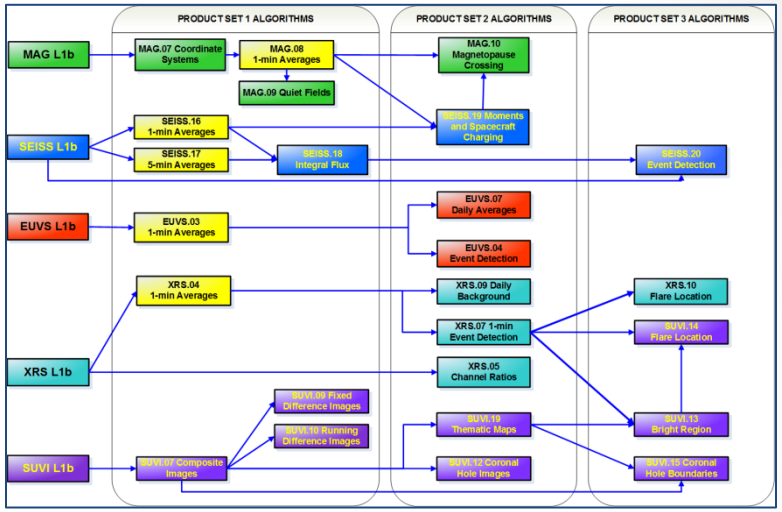
SEISS – Space Environment In-Situ Sensors

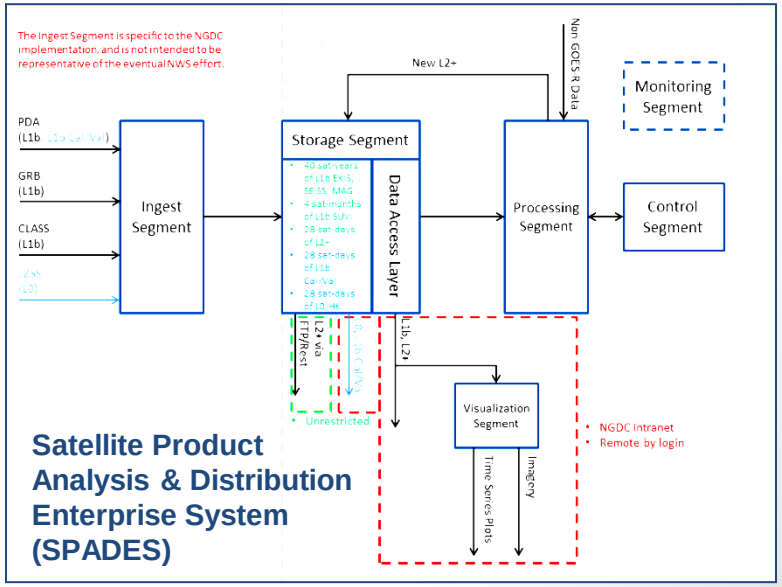
**Assigned Responsibility:**

- Vendor oversight, including calibration
- Pre-launch technical planning
- Post-Launch tests & product assessment
- L1b product calibration/validation
- L2+ algorithm development & demonstration
- Long-term Operations & Maintenance (O&M)
- Data stewardship / archive

**GOES-R / S / T / U – Through 2036**

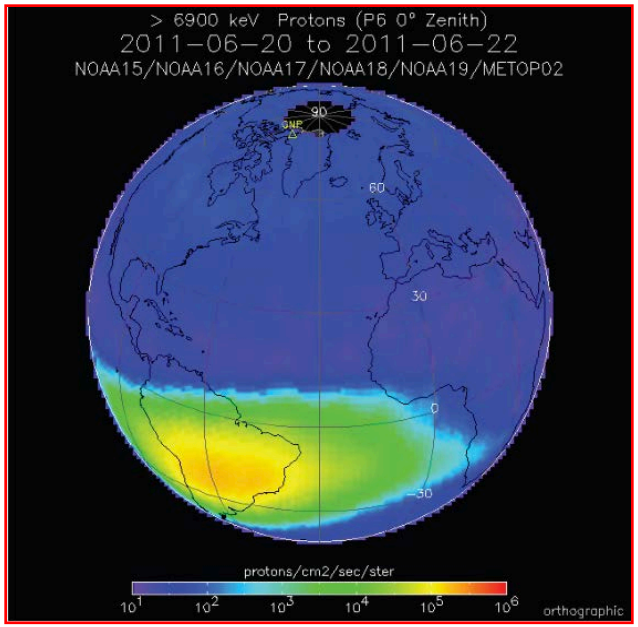
**SPADES PDR (**P/W: Spades2014## )



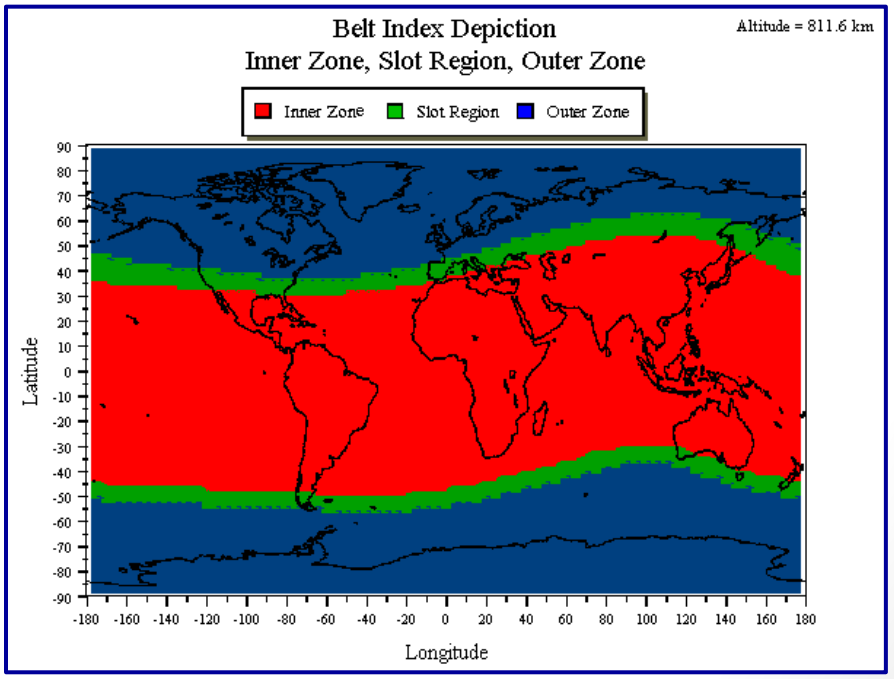
# Solar / Geophysics

## POES/MetOp – Processing / Archive / Products




### Space Environment Monitor (POES/MetOp)

- **Roles and Responsibilities:**
  - ✓ Real-time Data Processing
  - ✓ Daily "Belt Indices" (AFWA)
  - ✓ Archive and Dissemination
  - ✓ Satellite Anomaly Resolution




http://www.ngdc.noaa.gov/stp/satellite/poes/index.html

# Solar / Geophysics

## Satellite Anomaly Support – Environment

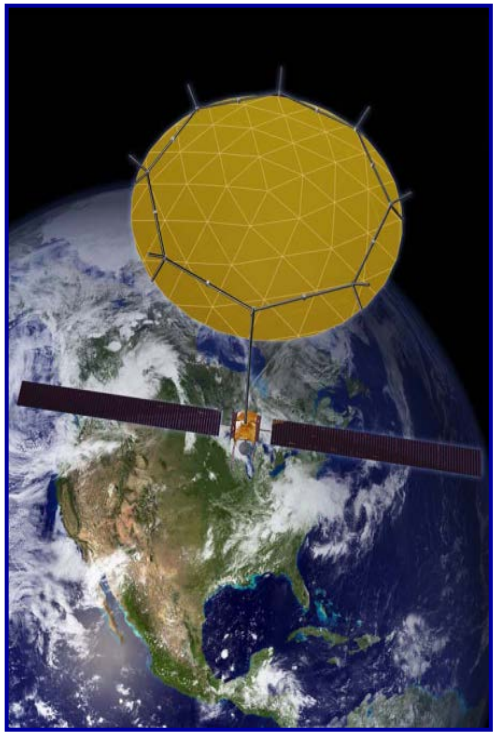
Case 1 – Galaxy-15

Orbit: Geosynchronous

Anomaly Date:
05 April 2010 @09:48

Probable Cause:
***Internal Charging/ESD***

Report



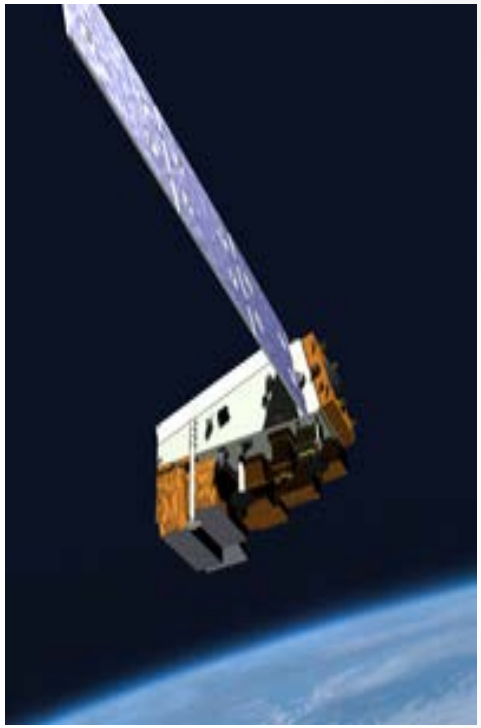
Case 2 – SkyTerra-1

Orbit: Geosynchronous

Anomaly Date:
07 March 2012 @14:43

Probable Cause:
***Single-Event Upset***

Report



Case 3 – NPP/VIIRS

Orbit: Polar LEO

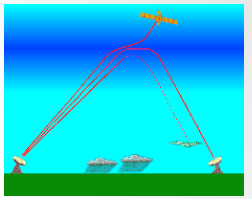
Anomaly Date:
Various

Probable Cause:
***Single-Event Upsets***

Report

# Solar / Geophysics

## Ionospheric Sounder Construction



**Sensor:** Vertical Incidence Pulsed Ionospheric Radar

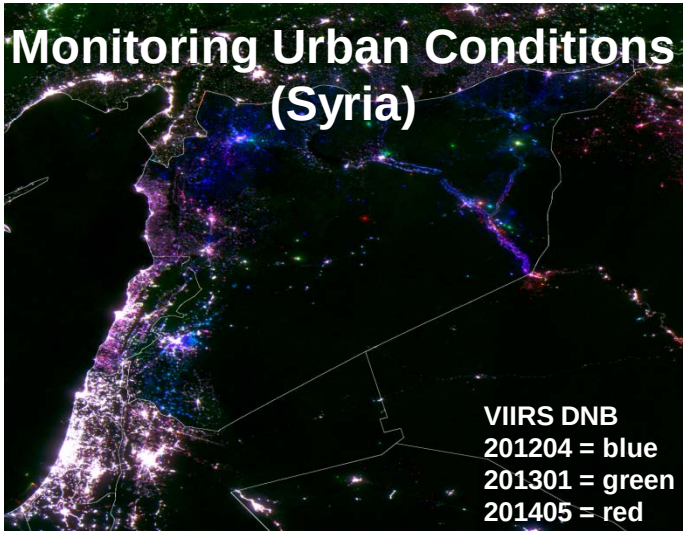
**Location:** Jang Bogo Station (South Korea), Antarctica

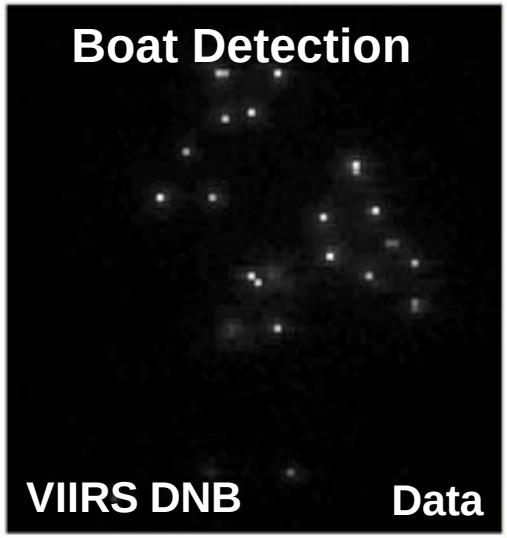

NESDIS News: http://www.nesdis.noaa.gov/news_archives/ionoshere.html

Antarctic Blog: http://ciresblogs.colorado.edu/spaceweather/

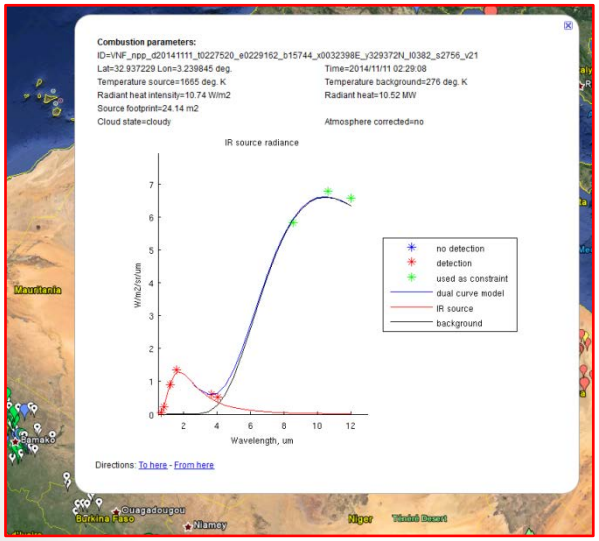
# Solar / Geophysics

## Earth Observations



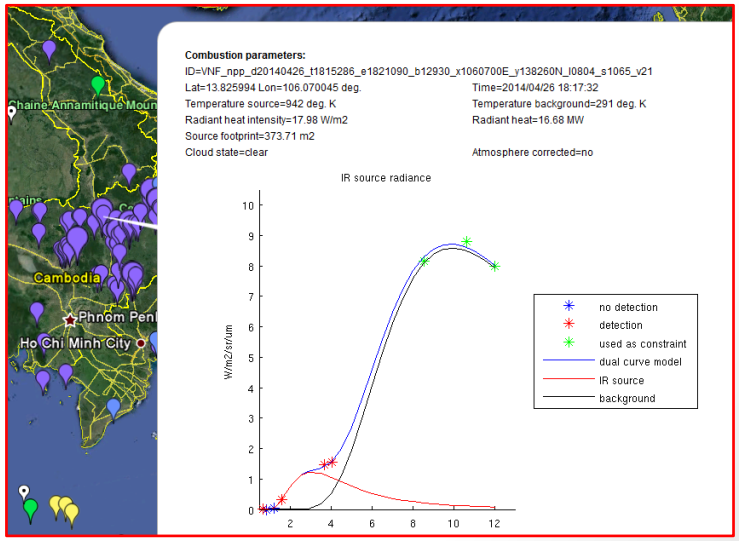




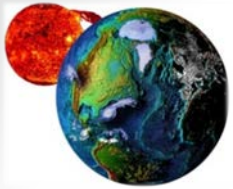

## VIIRS Nightfire Applications

**Global Gas Flaring** ⟵

**Biomass Burning** ⟶




http://ngdc.noaa.gov/eog/



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