# NEO (NASA Earth Observations)

http://neo.sci.gsfc.nasa.gov/

&

# NASA Earth Observatory

http://earthobservatory.nasa.gov/

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October 1, 2004 00:00 to November 1, 2004 00:00
September 1, 2004 00:00 to October 1, 2004 00:00
August 1, 2004 00:00 to September 1, 2004 00:00
July 1, 2004 00:00 to August 1, 2004 00:00
June 1, 2004 00:00 to July 1, 2004 00:00

- **What is NEO?**
  - A collection of global NASA satellite data imagery that can be easily accessed and utilized by a variety of users and applications
  - Address the needs of data users who do not posses the expertise or tools to handle raw data

**Target Audiences**

- Formal & informal educators
- Museums & Science Centers
- Science communicators

- **Why come to NEO?**
  - Images for publication/poster
  - Images for external application
    - e.g., Google Earth, WMS, planetarium
  - Perform basic analysis (education)

- **NEO holdings**
  - 50+ global datasets
  - Daily, weekly, and monthly composites
  - Most 0.1 degree (3600x1800)
  - Imagery produced by science teams, data processing facilities to NEO specification
    - MODIS groups, NSIDC, NOAA, NASA Langley, Goddard DISC

# NEO development for 2010

- Focus on supporting “spheres”
  - Science on a Sphere (53 installations, 12 this year)
  - Magic Planet, Global Microscope, etc.
  - best distribution point for NASA datasets to public



AGU


GEO-VII

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# http://neo.sci.gsfc.nasa.gov/

For more information:

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NASA Earth Observatory : Home

http://earthobservatory.nasa.gov/

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# Earth Observatory

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## Image of the Day

Avachinsky Volcano, Kamchatka Peninsula

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## Natural Hazards

Unique Imagery

Severe Storms

Floods

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## Global Maps

Net Primary Productivity

## Features

Notes from the Field Blog: Real-time Observations of Greenland's Under-ice Environment (ROCUE)

During the spring of 2011, the ROCUE project is examining the nature and cause of short-term ice velocity changes near Swiss Camp, Greenland by observing interactions between the ice sheet, the atmosphere and the bed.

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Flying on a high-altitude aircraft on the brink of space, the MABEL instrument is helping scientists to simulate measurements from NASA's next ice-observing satellite, ICESat-2.

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## Blogs

May 18
Second Time's the Charm

May 13
Odds and Ends: Morgan City, Louisiana, 1973

May 11
Map of the Ancient Mississippi

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Satellite images showing how our world—forests, oceans, cities, even the Sun—has changed in recent decades.

Blue Marble
Composite satellite images of the entire Earth.

Experiments
Hands-on educational activities.

Visible Earth
A catalog of NASA images and animations of our home

# Earth Observatory Group: May 2011 At-a-glance

## Most Popular Image

**Flooding in Memphis**
Acquired May 10, 2011, this natural-color image shows flooded and conditions along the Mississippi River in Memphis, Tennessee.
http://tinyurl.com/663r3ol

## Team Highlights

- Supported requests for flood imagery from a number of emergency response agencies (DHS/FEMA, U.S. Coast Guard, affected states) and media outlets; collaborated with the USGS and the EO-1 teams to obtain near-real time (and pre-flood where possible) imagery from the Landsat 5 and EO-1 satellites.
- Kevin Ward was an invited panelist and presenter of NEO (NASA Earth Observations) at the Science on a Sphere Users Collaborative Network Workshop in Chicago, IL.
- Rob Simmon presented and hosted a workshop on data visualization at the International Symposium on Remote Sensing of the Environment (ISRSE) in Sydney, Australia.
- Holli Riebeek represented the Earth Observatory at the Goddard Open House.

## In the Media

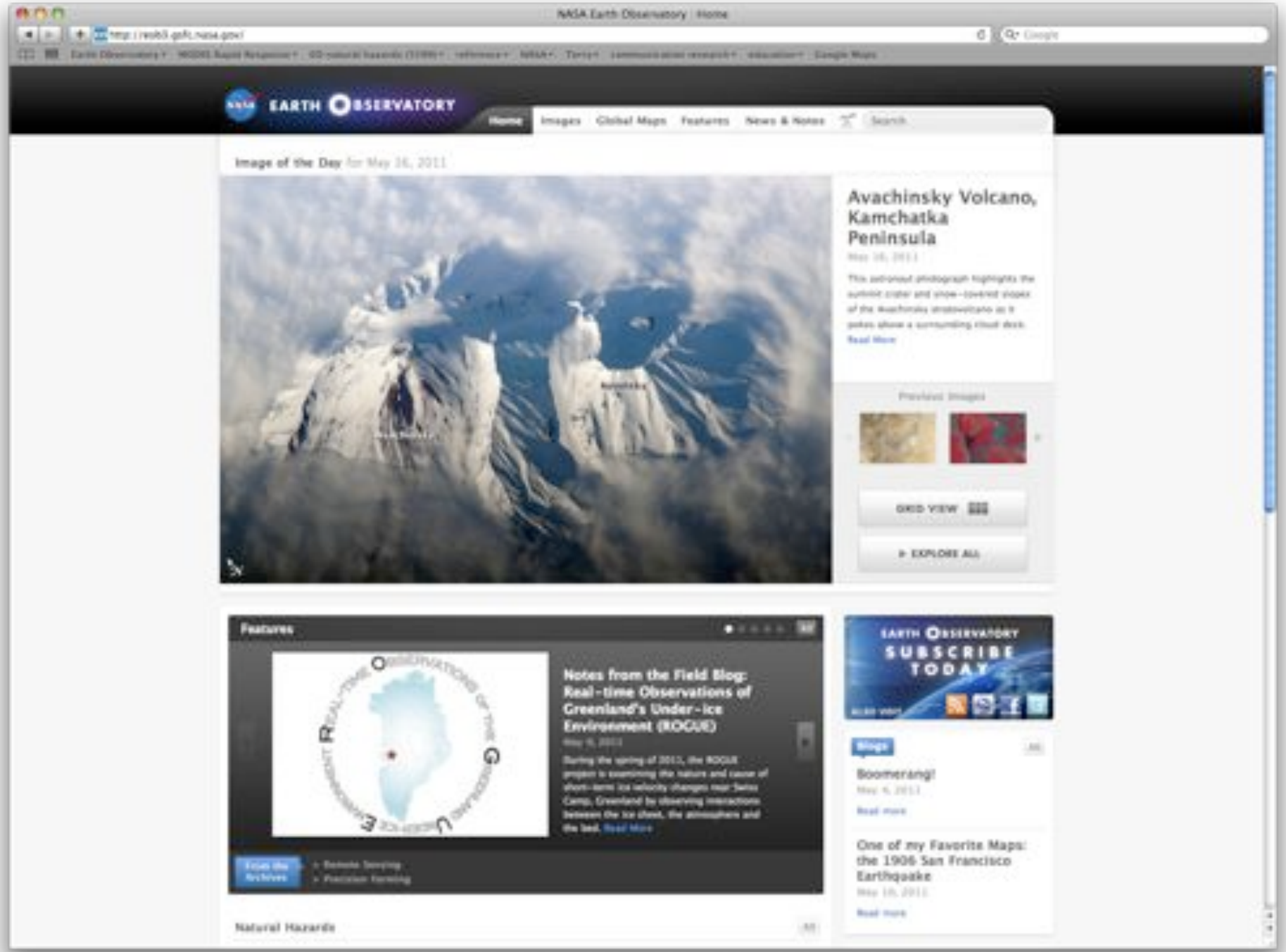
*The Weather Channel*
Temperature extremes related to TX wildfires


*John King (CNN)*
Mississippi River flooding


*The Situation Room (CNN)*
Mississippi /Ohio River flooding

# Images featured on the EO in 2010

- MODIS (both Terra & Aqua): 52%
- EO-1/ALI: 14%
- Landsats: 8%
- ISS: 6%
- all other sources: 20%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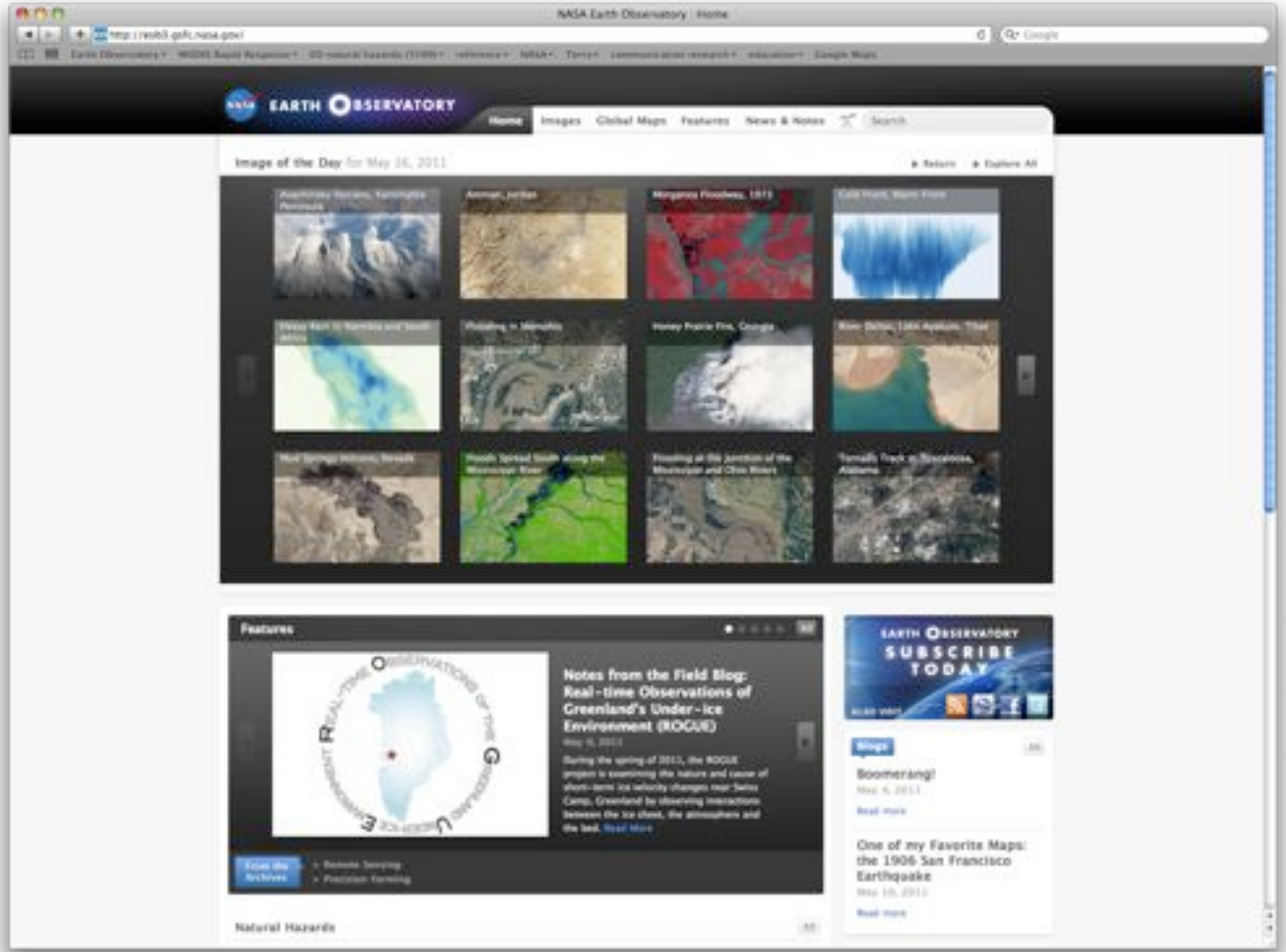
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From the Archives

- Remote Sensing
- Precision Farming

## Natural Hazards

May 11, 2011
Gobi Desert Dust Storm

May 8, 2011
Dust Storm in the Sahara Desert

May 8, 2011
Flooding along the Richelieu River, Quebec

May 8, 2011
Honey Prairie Fire, Georgia

May 4, 2011
Haze over the Sichuan Basin

May 4, 2011
Dust over the Persian Gulf

## Global Maps

Aerosol Optical Depth

Aerosol Size

Carbon Monoxide

Chlorophyll

Cloud Fraction

Fire

## the 1906 San Francisco Earthquake

May 10, 2011

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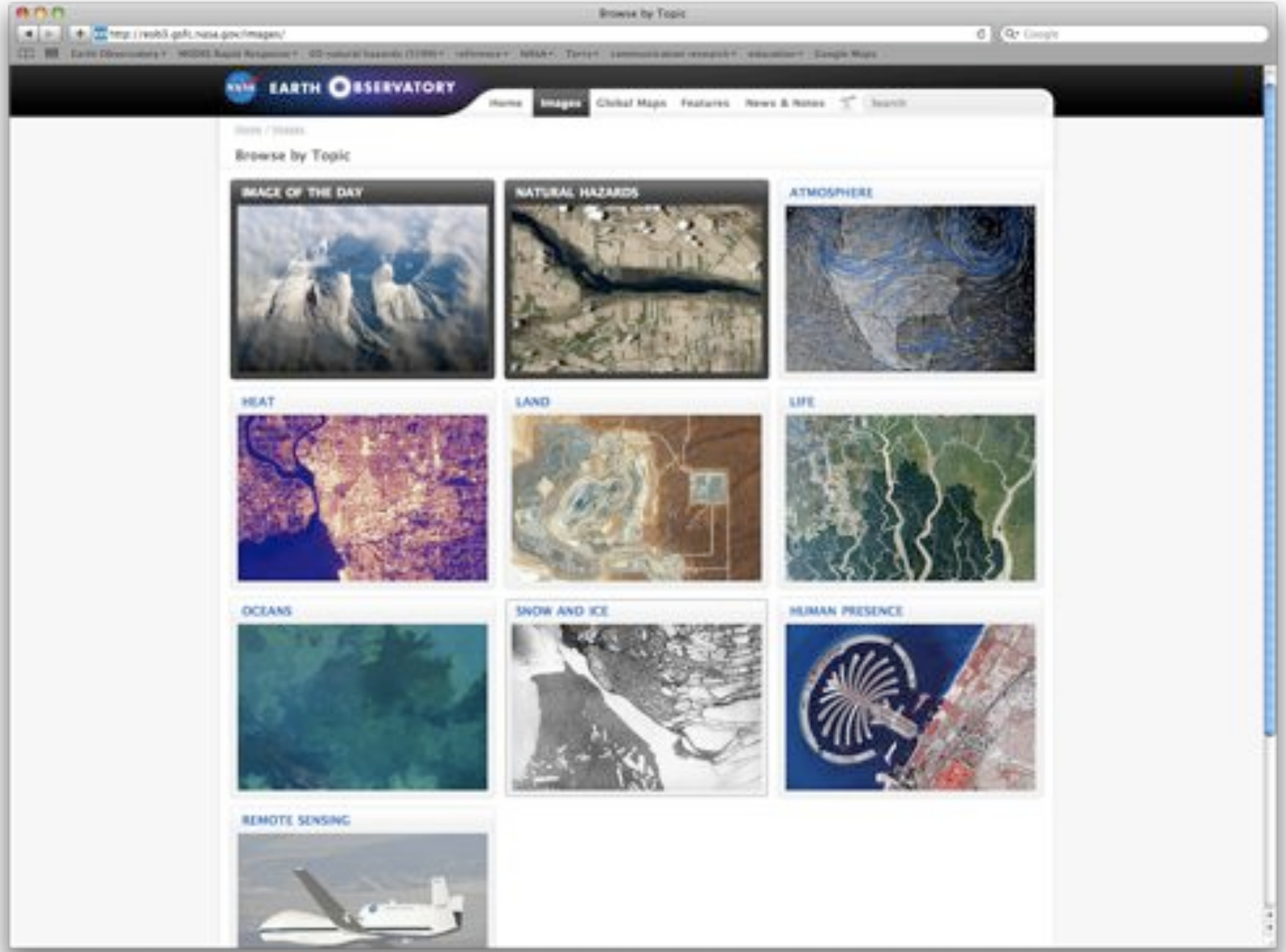
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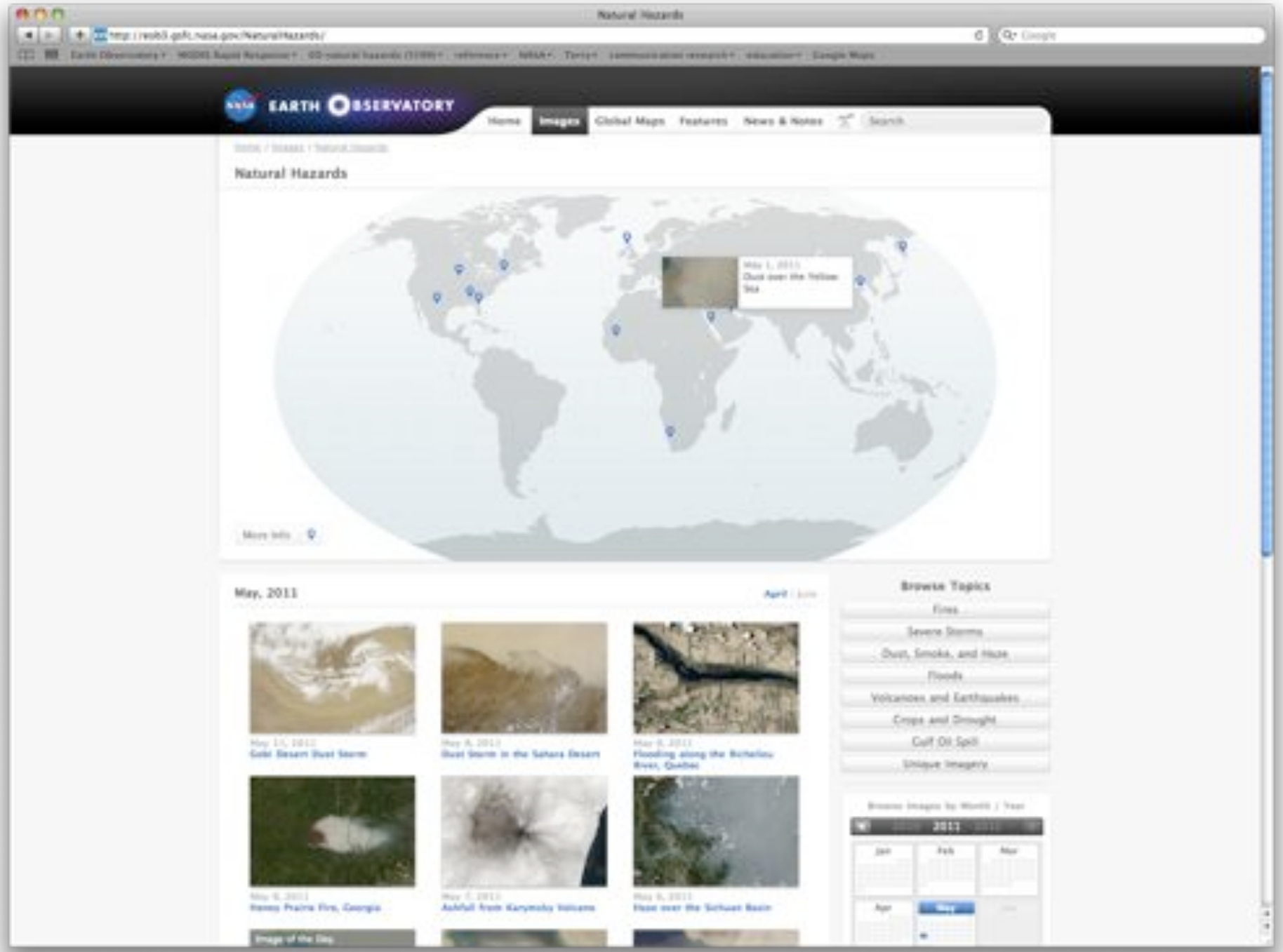
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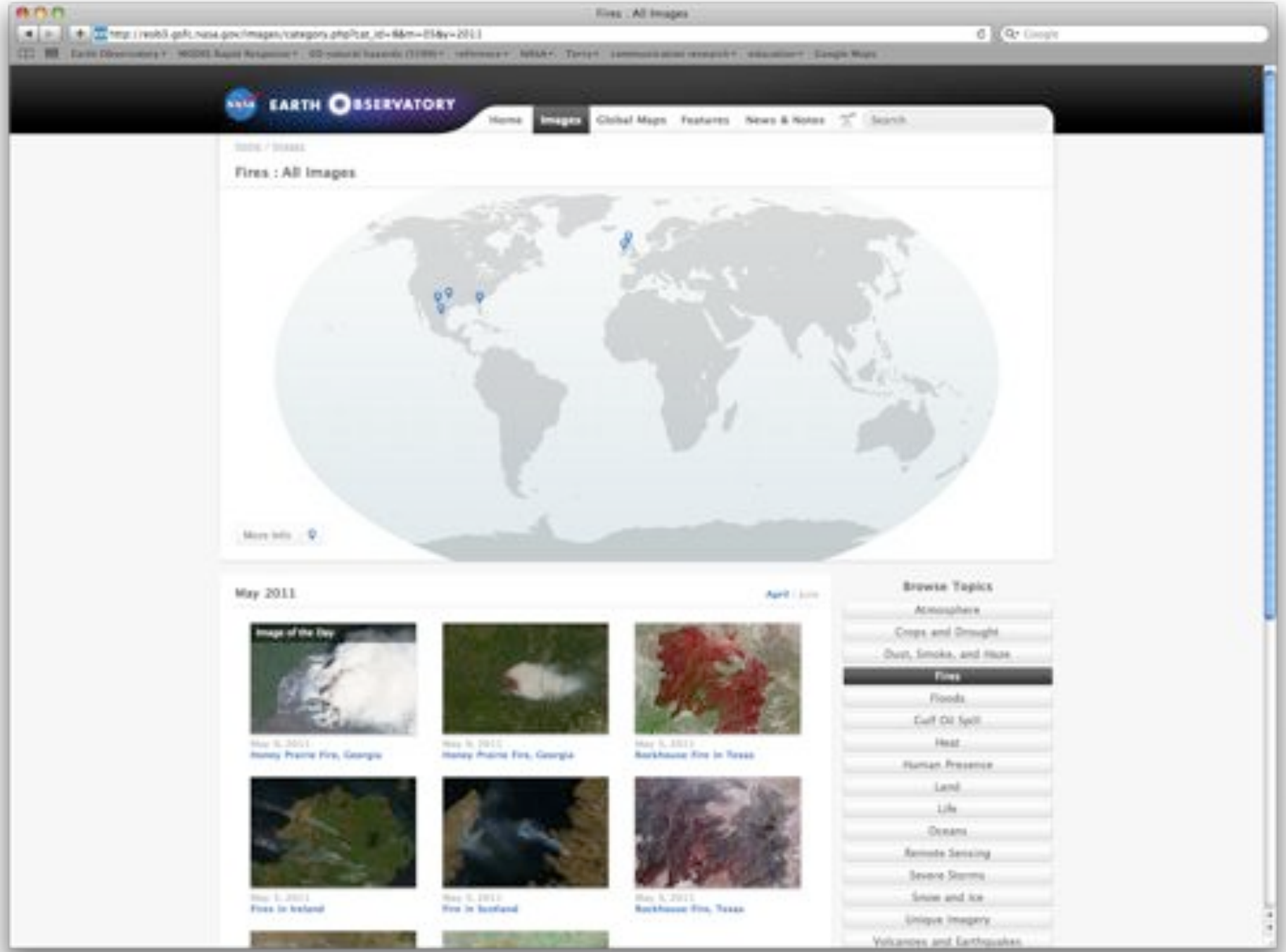
Crops and Drought
Gulf Oil Spill
Unique Imagery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Global Maps

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# Global Maps

NASA satellites give us a global view of what's happening on our planet. To explore how key parts of Earth's climate system change from month to month, click on one of the maps below.

Aerosol Optical Depth

Aerosol Size

Carbon Monoxide

Chlorophyll

Cloud Fraction

Fire

Land Surface Temperature

Land Surface Temperature Anomaly

Net Primary Productivity

Net Radiation

Sea Surface Temperature

Sea Surface Temperature Anomaly

Aerosol Optical Depth & Fire : Global Maps

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Global Maps

# Aerosol Optical Depth & Fire

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Fire

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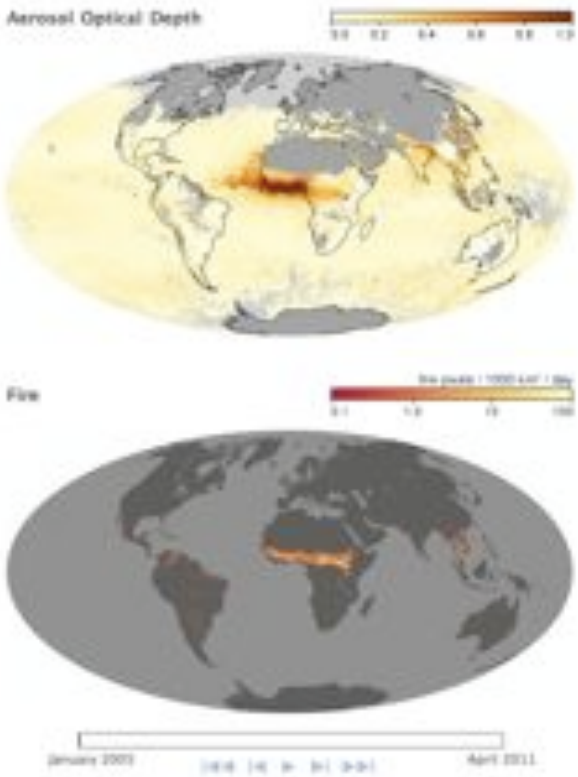


Download a Quicktime animation of this comparison (5 MB)

**Aerosol Optical Depth & Fire**

In addition to gases and clouds, Earth's atmosphere contains tiny liquid and solid particles called aerosols. Aerosols influence air quality and public health, and they can influence climate by reflecting or absorbing sunlight and by changing where and when clouds form. Aerosols include sea salt, dust, and volcanic ash, as well as soot, sulfates, and other particles produced by people burning fossil fuels. Natural and human-caused fires are also significant sources of aerosols.

The aerosol maps show average monthly aerosol amounts around the world based on observations from the MODIS sensor on NASA's Terra satellite. Satellite measurements of aerosols, called aerosol optical thickness, are

Features

http://eob3.gsfc.nasa.gov/features/

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## Latest Features


### Notes from the Field Blog: Real-time Observations of Greenland's Under-ice Environment (ROGUE)

May 9, 2011

During the spring of 2011, the ROGUE project is examining the nature and cause of short-term ice velocity changes near Swiss Camp, Greenland by observing interactions between the ice sheet, the atmosphere and the bed. Read More

### Heavy Rains and Dry Lands Don't Mix: Reflections on the 2010 Pakistan Flood

April 6, 2011

Unusual atmospheric conditions brought exceptional rain to Pakistan in the summer of 2010, causing the country's worst flooding in modern history. Read More

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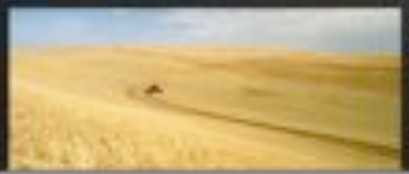

### Precision Farming

January 19, 2001

The U.S. Department of Agriculture, NASA, and NOAA are among key agencies contributing to precision farming revolution. The goal is to improve farmers' profits and harvest yields while reducing the negative impacts of farming on the environment that come from over-

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### Experiments

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Results for: **Oceans**

### As the Seasons Change, Will the Plankton?

February 17, 2011

To understand the planet's biggest food source—phytoplankton—and perhaps its most important sink for carbon dioxide, you've got to get out on the water. Read More

### World of Change: Global Temperatures

December 9, 2010

The world is getting warmer, whatever the cause. According to an analysis by NASA scientists, the average global temperature has increased by about 0.8°Celsius (1.4° Fahrenheit) since 1880. Two-thirds of the warming has occurred since 1975. Read More

### The Water Cycle

October 1, 2010

Landscape sculptor. Climate driver. Life supporter. Water is the most important molecule on our planet. Read More

### Gulf of Mexico Oil Slick Images: Frequently Asked Questions

July 21, 2010

This FAQ explains why oil is more obvious in some satellite images than others and why the Earth Observatory doesn't post new images of the oil slick every day. Read More

### What are Phytoplankton?

July 16, 2010

Microscopic plant-like organisms called phytoplankton are the base of the marine food web, and they play a key role in removing carbon dioxide from the air. Read More

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Composite satellite images of the entire Earth. Read More

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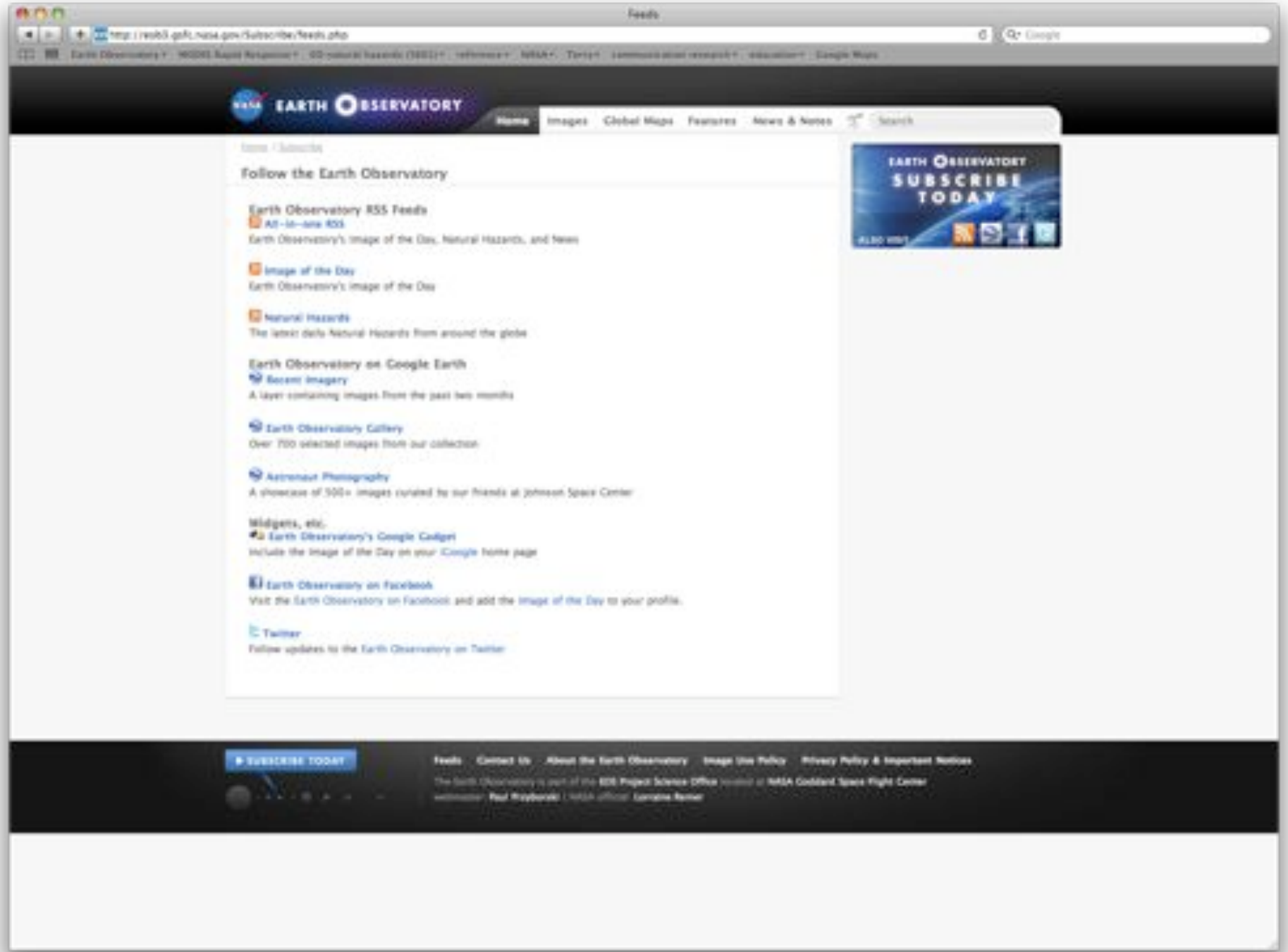
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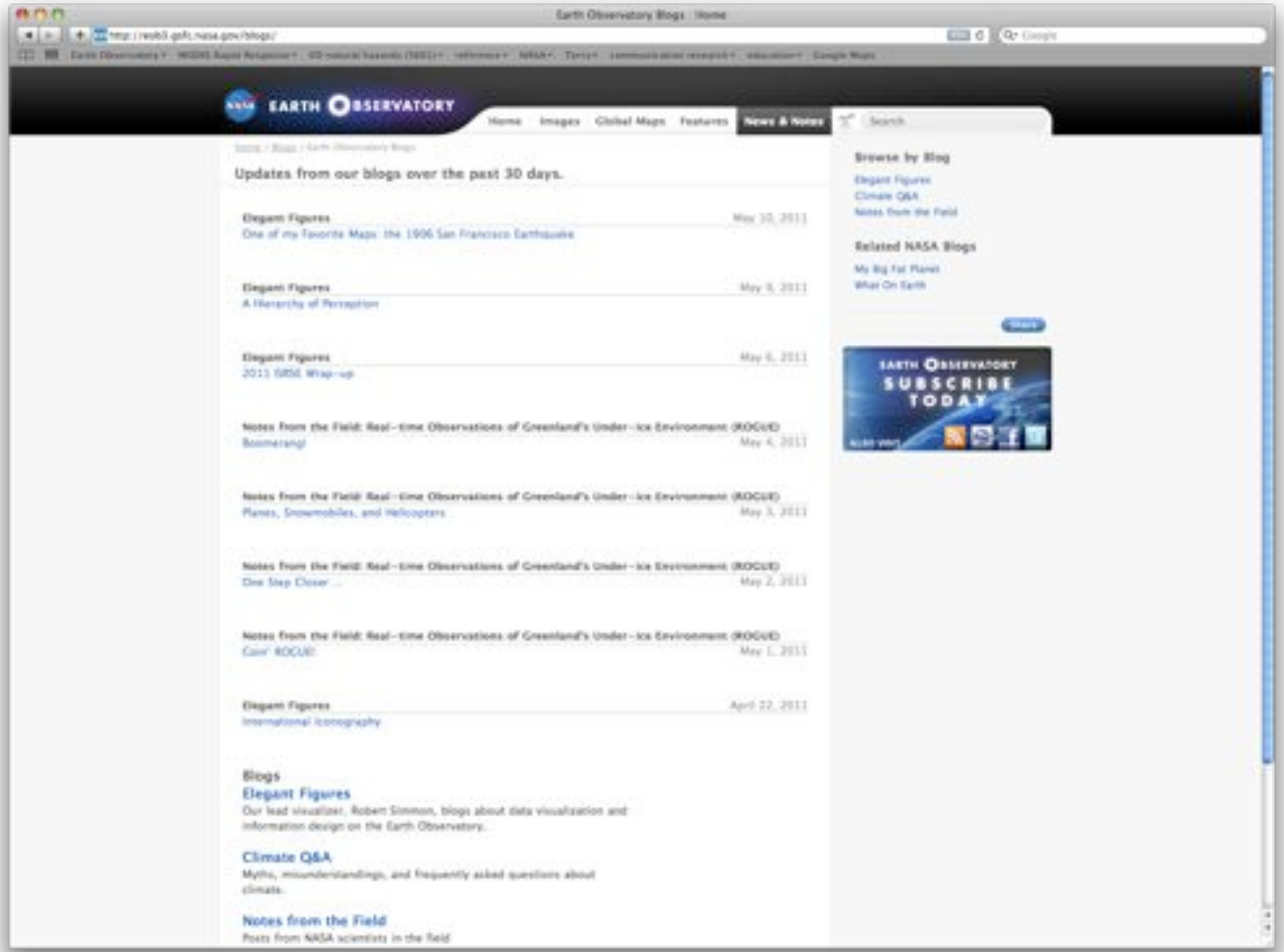
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# Boomerang!

May 4th, 2011 by Tom Neumann

May 3, 2011

Your trusty correspondents, Tom (left) and Matt (right), on the way to Swiss Camp! Credit: NASA

When thrown properly, a boomerang will always come back to the thrower. (When thrown improperly, it ends up over the neighbor's fence where a dog chews on it, and you don't get your boomerang back, but that is another story for another day.) This afternoon, Matt and I enjoyed what is known as a boomerang - after an hour and a half flight to Swiss Camp, we weren't able to land, and so returned to Kangerlussuaq for the night. Perhaps I'm getting ahead of myself.

The weather observations from Swiss Camp reported by Dr. Koni Steffen (who is already out at Swiss Camp, the lucky guy) revealed high winds all morning, up to 40 kts. Far too windy for the Twin Otter to safely land. Consequently, the Twin Otter went elsewhere to pick up cargo from another science group. Matt and I watched the weather carefully during the day, and tried to get some productive work done.

Around 2 p.m. local time, the report from Koni was that the winds had died down, and the weather was improving. After additional reports at 3 p.m. and 4 p.m., the pilots decided it sounded good enough to fly north and check it out. Matt and I helped the cargo crew load the plane with our remaining bags, boxes, and pipes and head north to Swiss Camp.

Notes from the Field

Browse by Expedition

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Operation Icebridge, Arctic 2011
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The Western Siberia Expedition 2010
Urban Aerosols: Who CARES?
Global Hawk Pacific (GLOPAC)
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North Woods, Maine 2009
Journey to Galapagos
Expedition to Siberia 2007
Siberia 2008 Kolyuykar River Expedition

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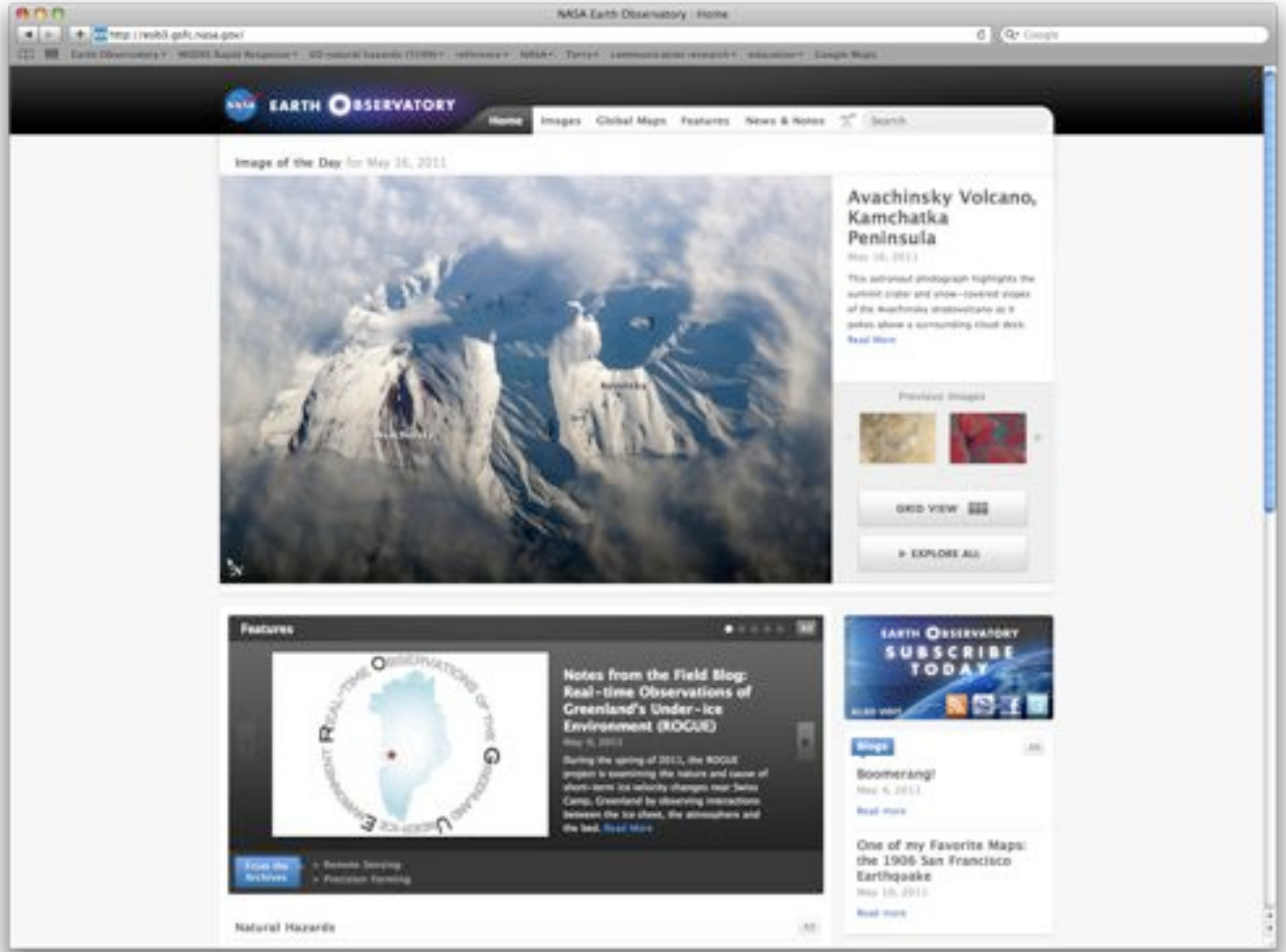
- Blogs – Notes from the Field, Climate Q&A
- Images – science highlights, images
- Features – broad or significant research

Contact Mike Carlowicz at
michael.j.carlowicz@nasa.gov

# The Core Team

- Kevin Ward - team leader, developer
- Michael Carlowicz – editor
- Rob Simmon - lead visualizer
- Holli Riebeek – writer
- Michon Scott – writer
- Jesse Allen – visualizer
- Paul Przyborski – system admin., developer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