

**United States Department of Commerce  
National Oceanic and Atmospheric Administration (NOAA)**

# **NOAA Meteorological Satellite Update**



**Presented to:  
UN Committee on Peaceful Uses of Outer Space  
Scientific and Technical Subcommittee  
February 19, 2014**

**Presented by: Mark Mulholland  
NOAA Satellite and Information Service (NESDIS)**

# NOAA's Satellites and Data

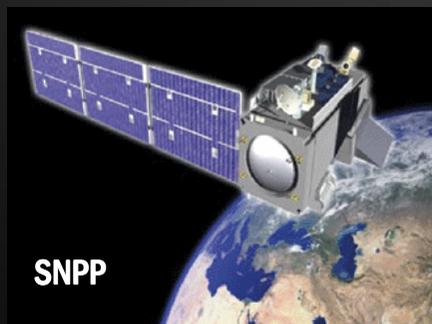
- Support global terrestrial and space weather forecasting
- Enable warnings of severe weather events well in advance
- Enable national and local governments to monitor disasters after they happen and progress of recovery efforts
- Support global resource management of energy, water and food supplies



Spacecraft and instrument photographs courtesy of NOAA's Industrial partners: Lockheed-Martin, Space Systems Loral, Raytheon, Assurance Technology Corporation, Excelis, Northrop Grumman, and Laboratory for Atmospheric and Space Physics

# Current NOAA Satellites

- Geostationary satellites (GOES) — 3 on orbit
- Polar-orbiting satellites (POES & Suomi NPP) — 5 on orbit
- Defense Meteorological Satellite Program (DMSP) — 6 on orbit
- Jason-2 Altimetry satellite — NOAA operates for EUMETSAT



# 24-hour Satellite Operations

**NOAA Satellite Operations Facility  
Suitland, Maryland**



**Wallops Command, Data, and  
Acquisition Station**

**Svalbard Satellite Station  
Kongsberg Satellite Services**



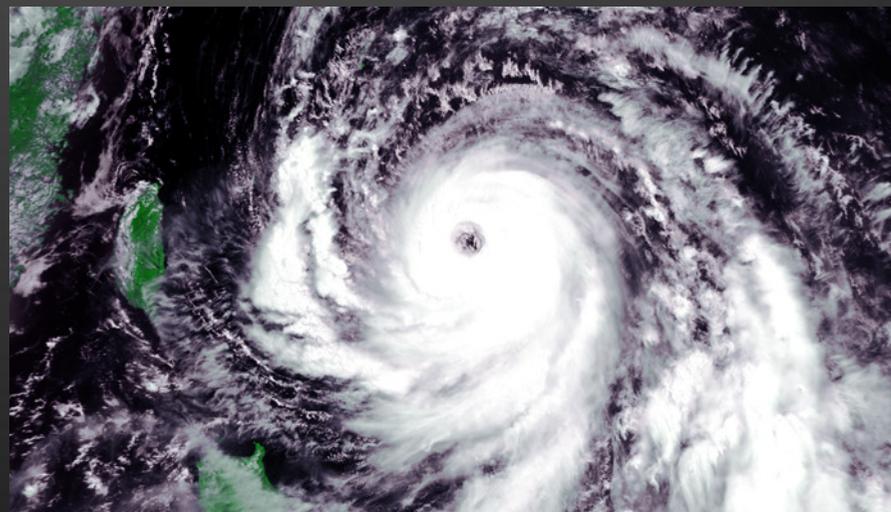
**Fairbanks Command, Data, and  
Acquisition Station**



# NOAA-17 Deactivation



- Launched June 24, 2002, activated in October 2002
- Back-up to EUMETSAT's MetOp-A in May 2007
- Deactivated on April 10, 2013
- Completed over 55,000 orbits
- Traveled over 1.2 billion miles in low earth orbit



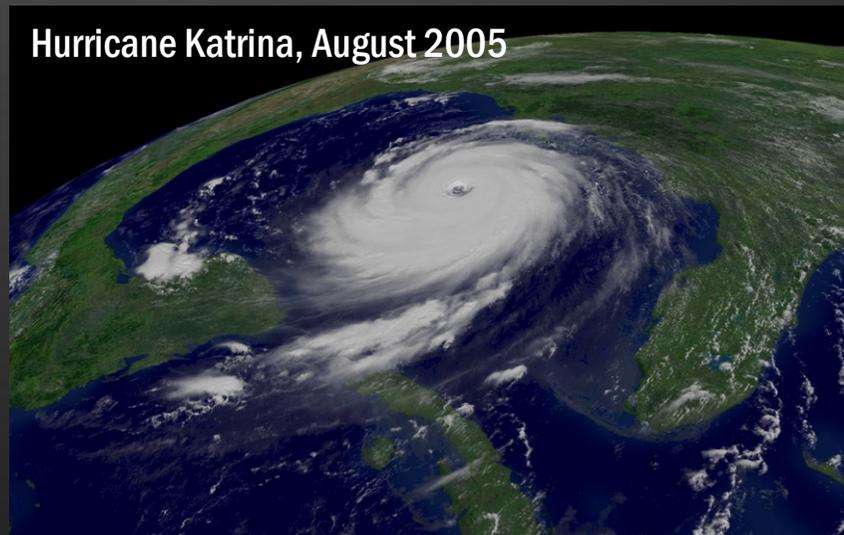
Super Typhoon Man-Yi, July 2007

# GOES-12 Decommissioning



- Launched July 23, 2001
- Began operations on April 1, 2003
- Repositioned to support South America in May 2010
- Decommissioned in August 2013
- South American coverage provided by GOES-13
- Last of third-generation GOES spacecraft

Hurricane Katrina, August 2005



# GOES-R (Early 2016)



Advanced Baseline Imager



GOES-R



Extreme Ultra Violet (EUVS)/  
X-Ray Irradiance Sensors



Geostationary Lightning Mapper



Space Environment In-Situ Suite



Solar Ultraviolet Imager



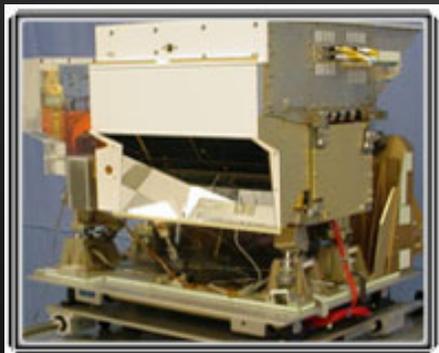
# Joint Polar Satellite System (Early 2017)



Visible Infrared Imaging Radiometer Suite (VIIRS)



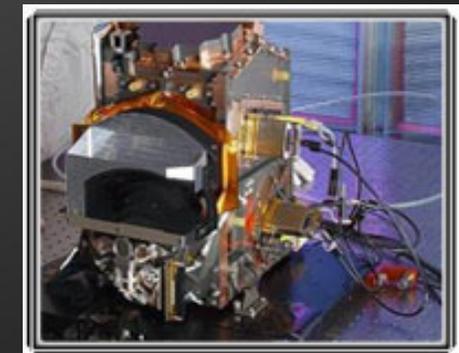
Advanced Technology Microwave Sounder (ATMS)



Cross-track Infrared Sounder (CrIS)



Clouds and Earth's Radiant Energy System (CERES)

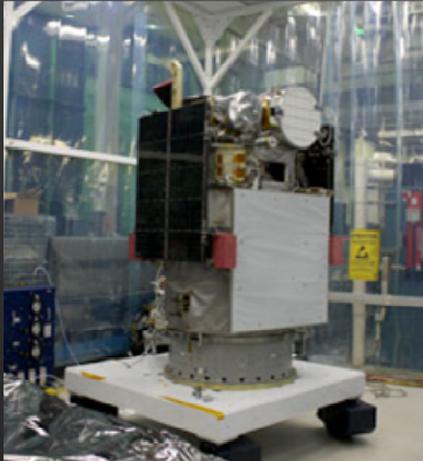


Ozone Mapping and Profiler Suite (OMPS)



# DSCOVR and Jason-3

## DSCOVR



- Deep Space Climate Observer
- Solar Wind Monitoring Spacecraft
- Launch planned for 2015
- Replacing the Advanced Composition Explorer (ACE)
- Positioned at the first Earth-Sun Lagrangian Point (L-1)



- Ocean Surface Topography Mission
- Launch planned for 2015
- Continues NOAA, EUMETSAT, NASA, and CNES partnership



# Significant Events in 2013

- NOAA assumed operational responsibility for Suomi NPP — February 2013
- NOAA Satellite Conference — April 8-12, 2013
  - 45 international attendees from 18 countries
  - Keynote address from Mr. David Grimes, WMO President
- Expanded WMO Space Programme Constellation
  - Geostationary: INSAT 3D (India)
  - Polar orbit: Fengyun 3C (China)
  - Polar orbit: SARAL (India and France)
  - Numerous hosted payloads, cubesats, and nanosats



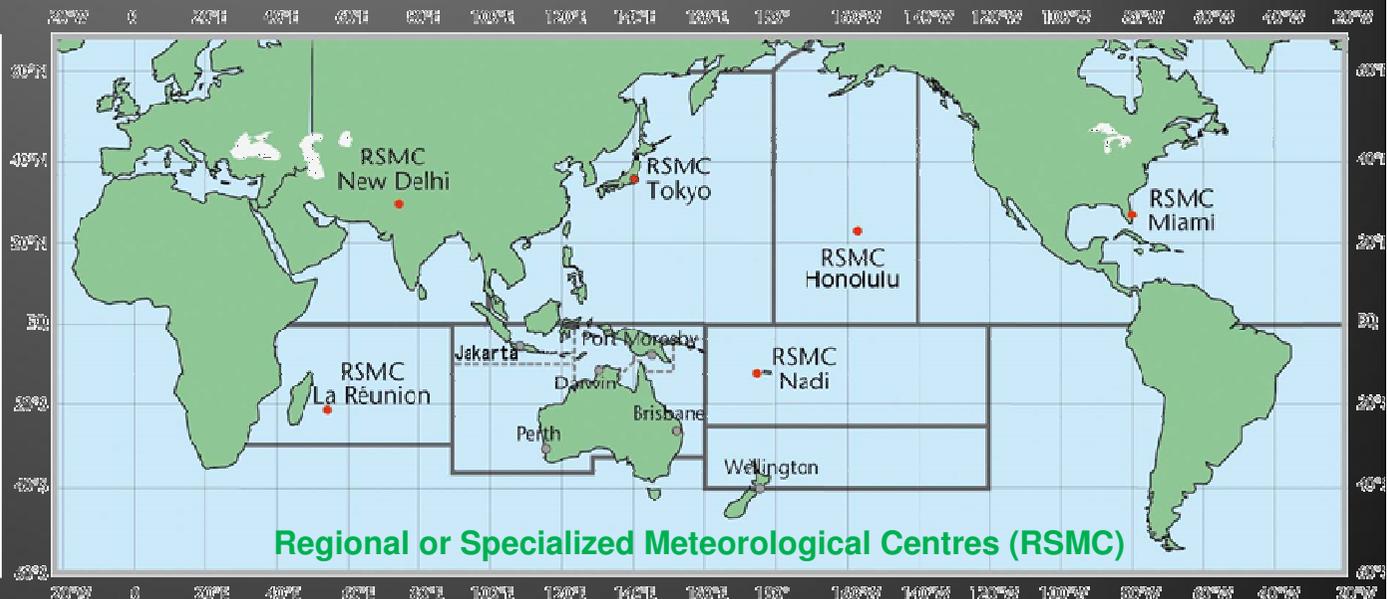
# NOAA's Global Mission



- “Full & open” policy for environmental data
- Leadership and participation in:
  - Committee on Earth Observation Satellites (CEOS)
  - Group on Earth Observations (GEO)
  - Coordination Group for Meteorological Satellites (CGMS)
  - Numerous international partnerships
- Global Producing Center for Long-Range Forecasts
- World Weather Watch



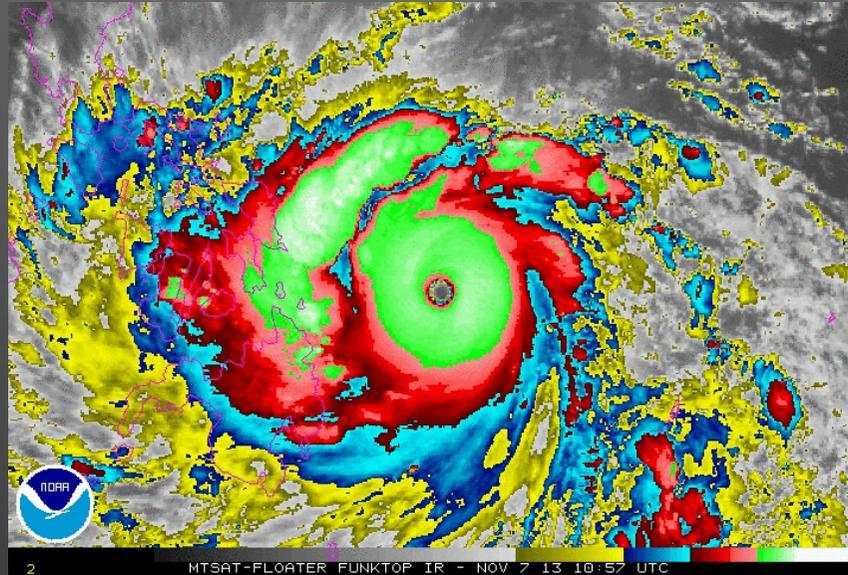
# NOAA's Global Weather Mission



- “Full & open” policy for environmental data
- Participant in many World Meteorological Organization programs
  - Space Programme
  - Global Producing Center for Long-Range Forecasts (GPC-LRF)
  - Regional or Specialized Meteorological Centers (RSMCs)
  - World Weather Watch



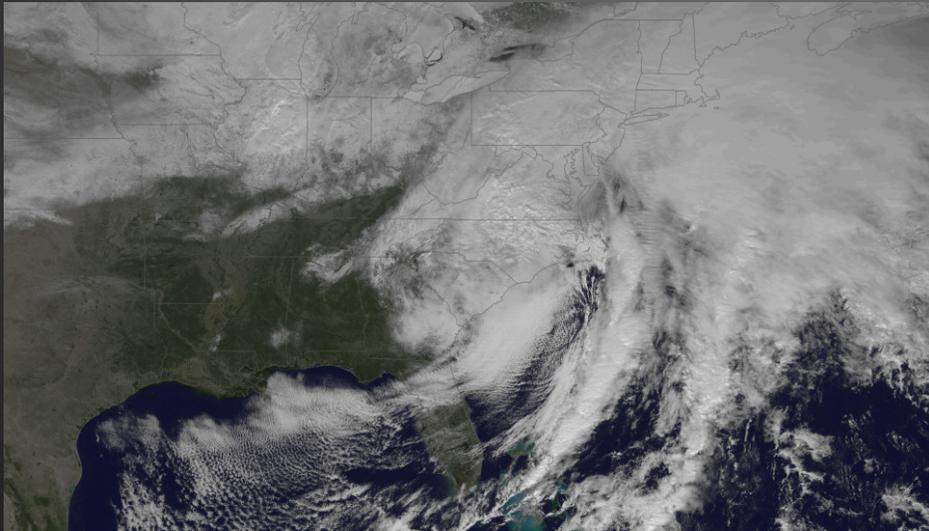
# Super Typhoon Haiyan



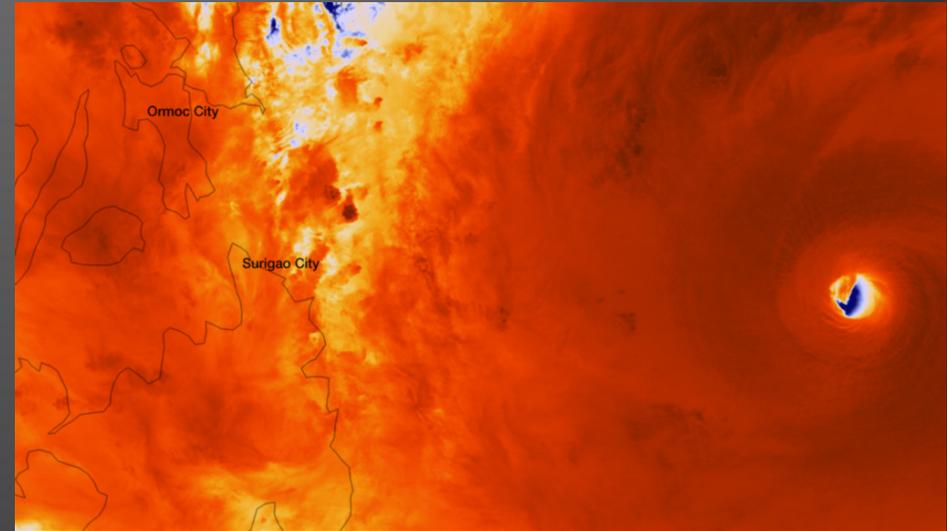
- Backed up Japan Meteorological Agency — received data in near-real time
- Provided “Dvorak Technique” estimates of storm intensity
- Provided numerous polar satellite products
  - Microwave sounding data for real-time intensity observations
  - Suomi NPP day-night band images for accurate tracking at night before eye formed
- National Hurricane Center hosted WMO training, including meteorologists from China and Republic of Korea



# Examples of Suomi NPP Imagery



Winter Storm — North America  
February 13, 2014



Eye of Super Typhoon Haiyan  
November 7



Wildfires North of Sydney  
October 24



# Examples of Suomi NPP Imagery



Chaparrastique Volcano Eruption  
December 29



High Winds in Europe  
December 4



Strong Middle East Winter  
Storm December 15

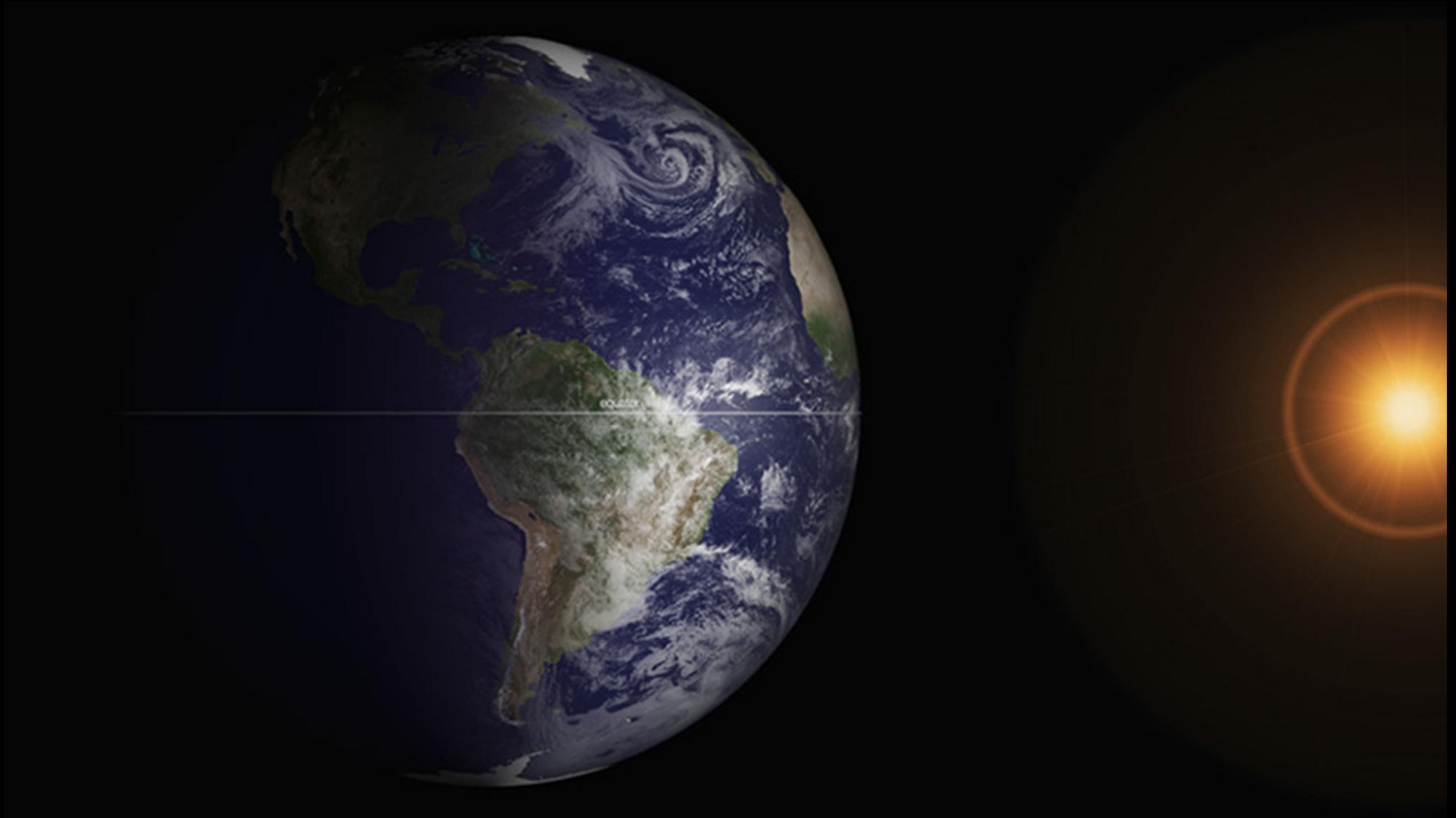


# COSPAS/SARSAT

- 2013: 261 Rescues in U.S. and surrounding waters
  - 140 (and one dog) at sea; 34 from aviation accidents; 87 on land
  - 99 rescues in Alaska
- The future: MEOSAR
  - Near-instantaneous global coverage
  - High redundancy and availability
  - Improved location accuracy
  - First MEOSAR GPS launch in 2020
  - 2013 accomplishments
    - First phase of testing completed
    - MEOSAR Mission Control Center ready for testing



# Thank You!



Spring Equinox — March 30, 2013 (GOES-13)