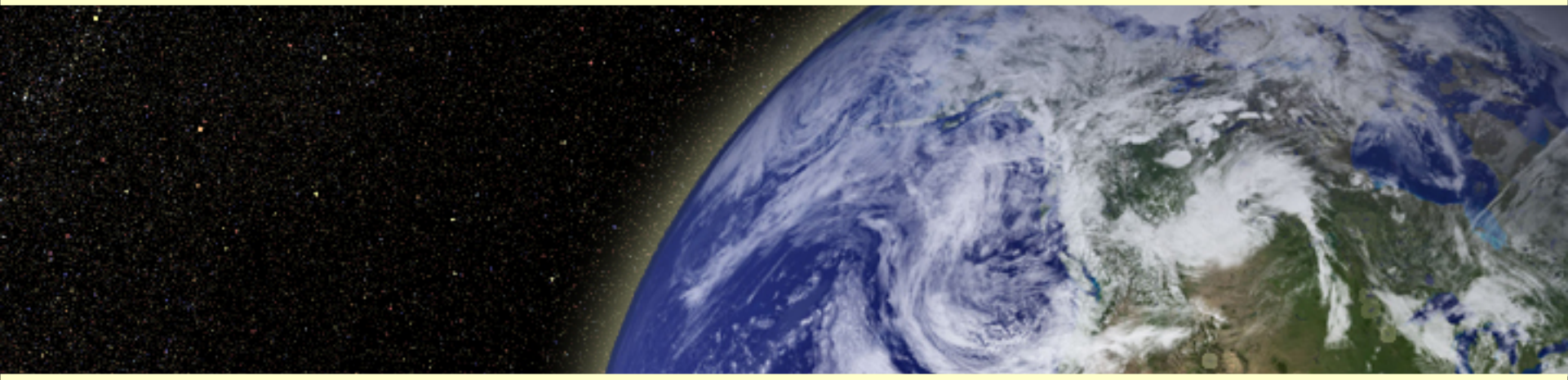
NOAA Satellite Update and McIDAS at ESPC

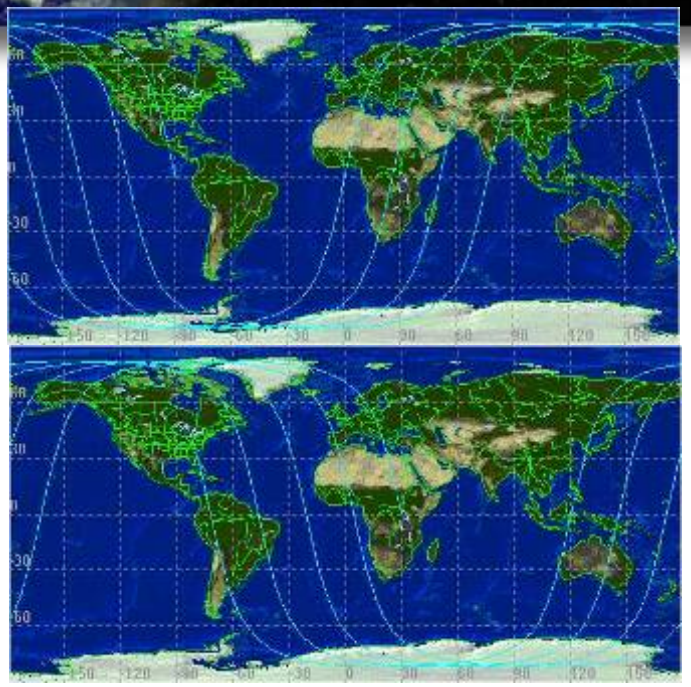


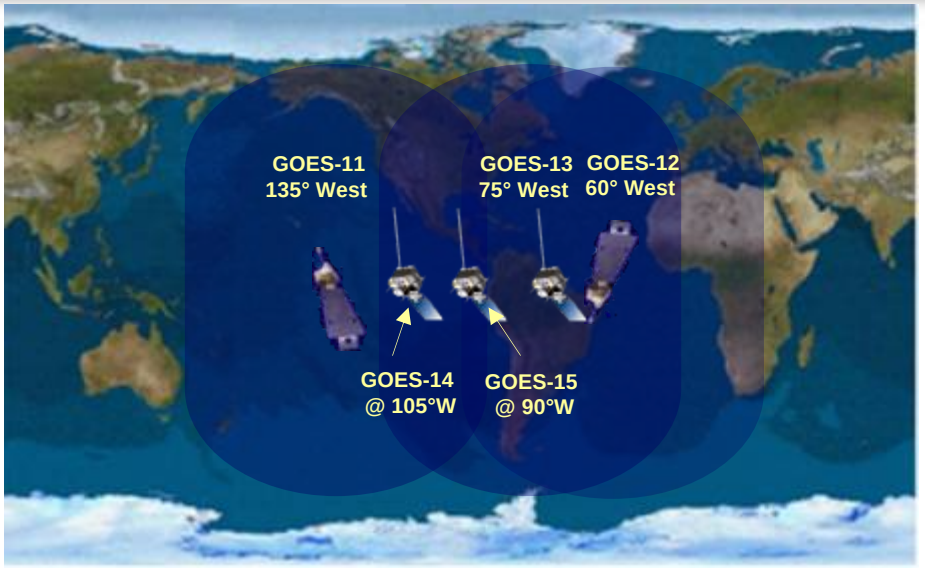
Brian Hughes
User Services Team Lead
Satellite Products and Services Division
NOAA/NESDIS Office of Satellite Products and Operations
2010 McIDAS Users' Group Meeting, Madison, WI

NOAA Satellite Program Overview

2 p.m. Orbit

10 a.m. Orbit





- Two polar operational satellites; one in morning and one in afternoon orbit
- Launch upon failure of imager or sounder
- Continuity of operations since early 1960s
- Since May 2007, NOAA using EUMETSAT satellite operationally for mid-morning orbit through NOAA/EUMETSAT partnership

- Two operational geostationary satellites
- On-orbit spare
- GOES-13 became GOES-East on 4/14/10
- Continuity of operations since 1974

DOC/NOAA is the U.S. civil operational environmental satellite agency

Note: Satellites are labeled with letters on the ground and changed to numbers on orbit

Operations Overview

Geostationary Operational Environmental Satellites (GOES)

- Provide continuous monitoring of North and South America, and Atlantic and Eastern Pacific Oceans
- Primary source of data for short term forecasting, especially of severe weather such as tropical storms

Polar-orbiting Operational Environmental Satellites (POES)

- Provides world-wide coverage every 12 hours
- Directly broadcasts data to users worldwide
- Primary source of data for longer term weather prediction, global environmental monitoring, and long-term predictions

Defense Meteorological Satellite Program (DMSP)

- Department of Defense satellite operated by NOAA
- Provides world-wide coverage every 12 hours
- Directly broadcasts data to Department of Defense users

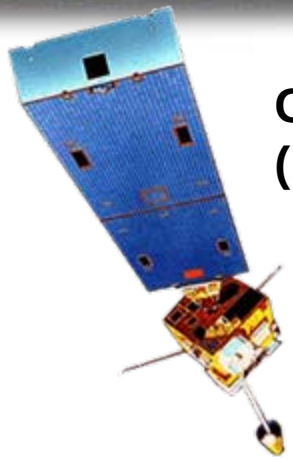
Ocean Surface Topography Mission (OTSM) Jason-2

- Joint NOAA, NASA, CNES, EUMETSAT effort
- provides sea surface heights for determining ocean circulation, climate change and sea-level rise

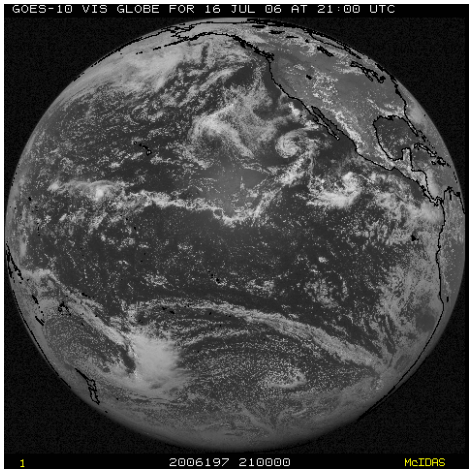
Non-NOAA Data *(NASA, Foreign Governments)*

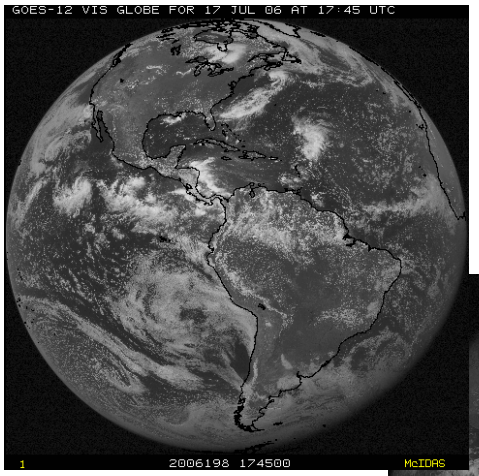
Current GOES Configuration

Operational

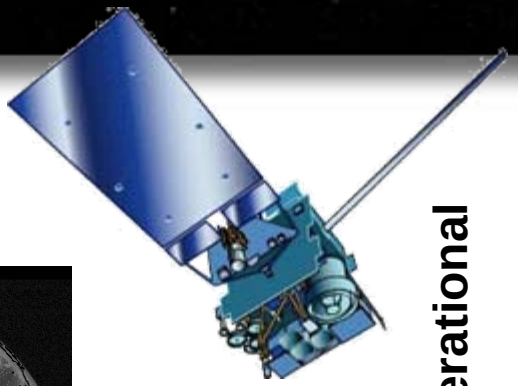


GOES-11
(135W)



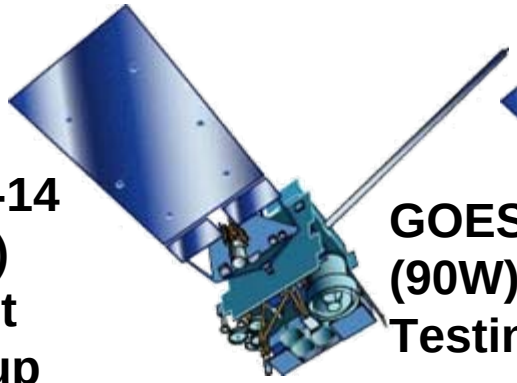


GOES-13
(75W)

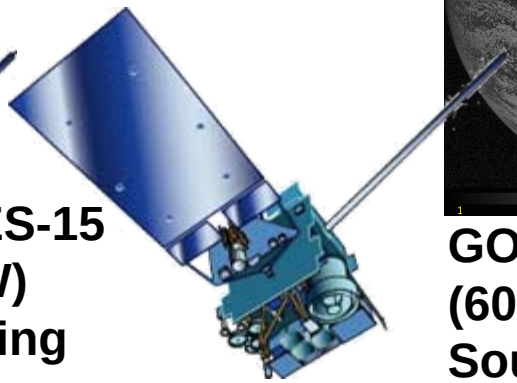


Operational

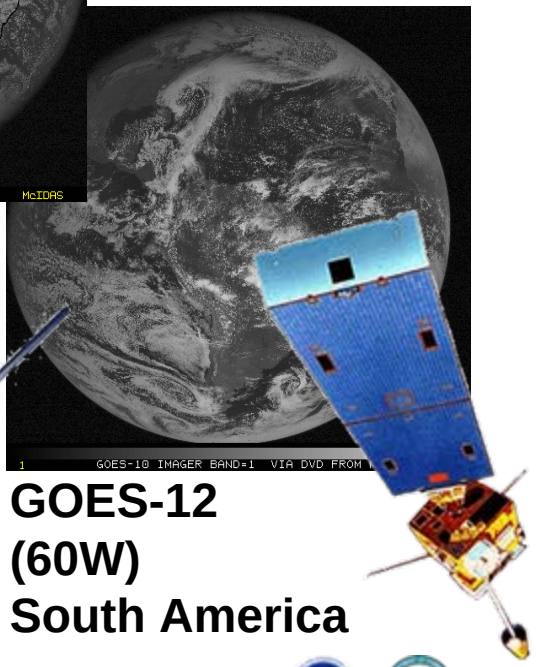
Very healthy GOES constellation.



GOES-14
(105W)
In-orbit
Back-up



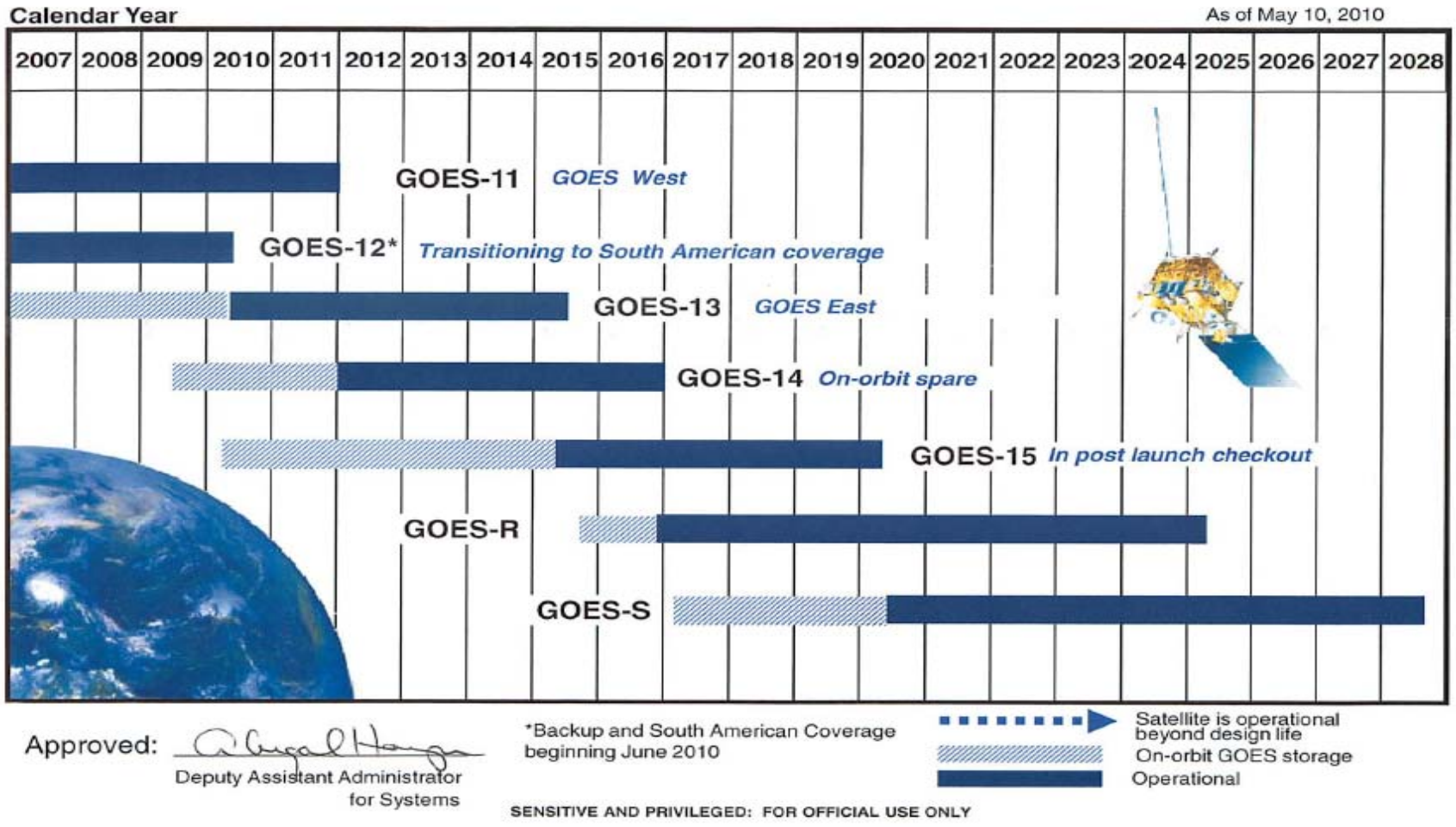
GOES-15
(90W)
Testing



GOES-12
(60W)
South America

On 11/1/10, GOES-15 will takeover SEM and XRS ops

Operational GOES Updates



GOES I/M to N/P

GOES-8 to -12

- First series using 3-axis gyro stabilization
- GOES-11 finishing out GOES-West mission
  - Last to have the 12 μm imager band until GOES-R (volcanic ash)
- GOES-12 recently moved to 60°W for South America

GOES-13 to -15

- New spacecraft bus allowing better navigation and radiometric accuracy
- Operates through eclipse
- Narrower WV band and increased resolution in 13.3 μm (-14, -15)
- Modified GVAR format (-14, -15)

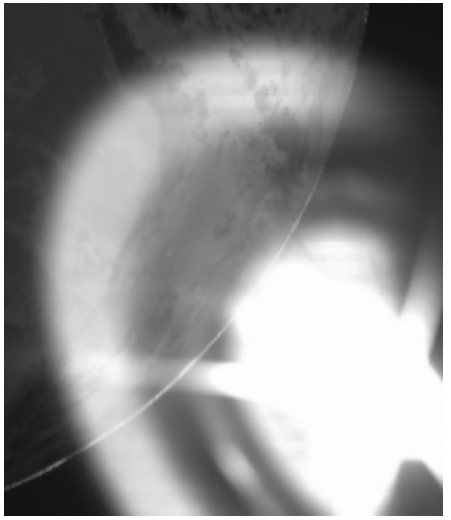
GOES-13 Schedules and Eclipse

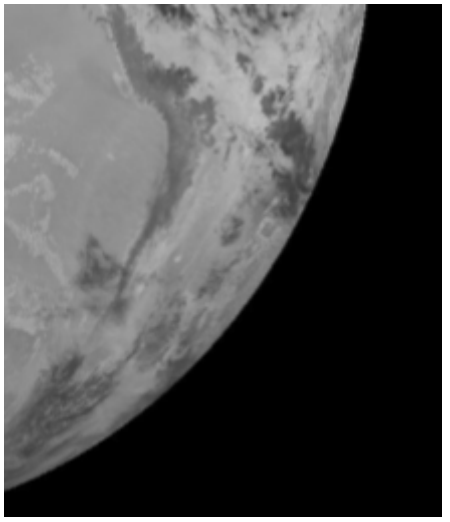
GOES-13 operates with a slightly modified schedule:

- GOES-East housekeeping moved from 1834Z to 1534Z

Eclipse and “Stray Light Zone” (SLZ) Ops:

- GOES-13 currently performing Partial Frame scans (imager) when the Sun is within 6 degrees.
- NOAA/NASA and ITT working on an algorithm that would “clean” stray light from imagery:
  - Currently testing products such as Fire, CSBT, and other products that depend on band 2



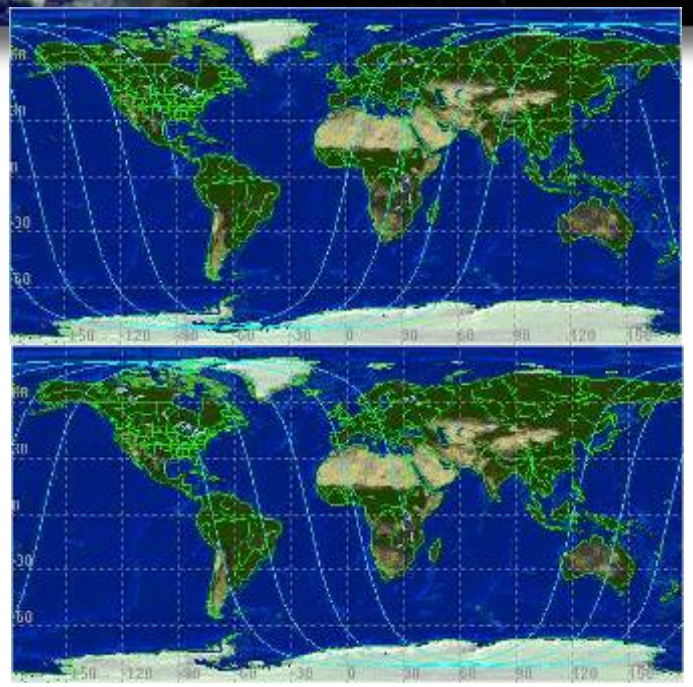


7

Current POES Configuration

2 p.m. Orbit

10 a.m. Orbit



- Two polar operational satellites; one in morning and one in afternoon orbit
- Continuity of operations since early 1960s
- Since May 2007, NOAA using EUMETSAT satellite operationally for mid-morning orbit through NOAA/EUMETSAT partnership

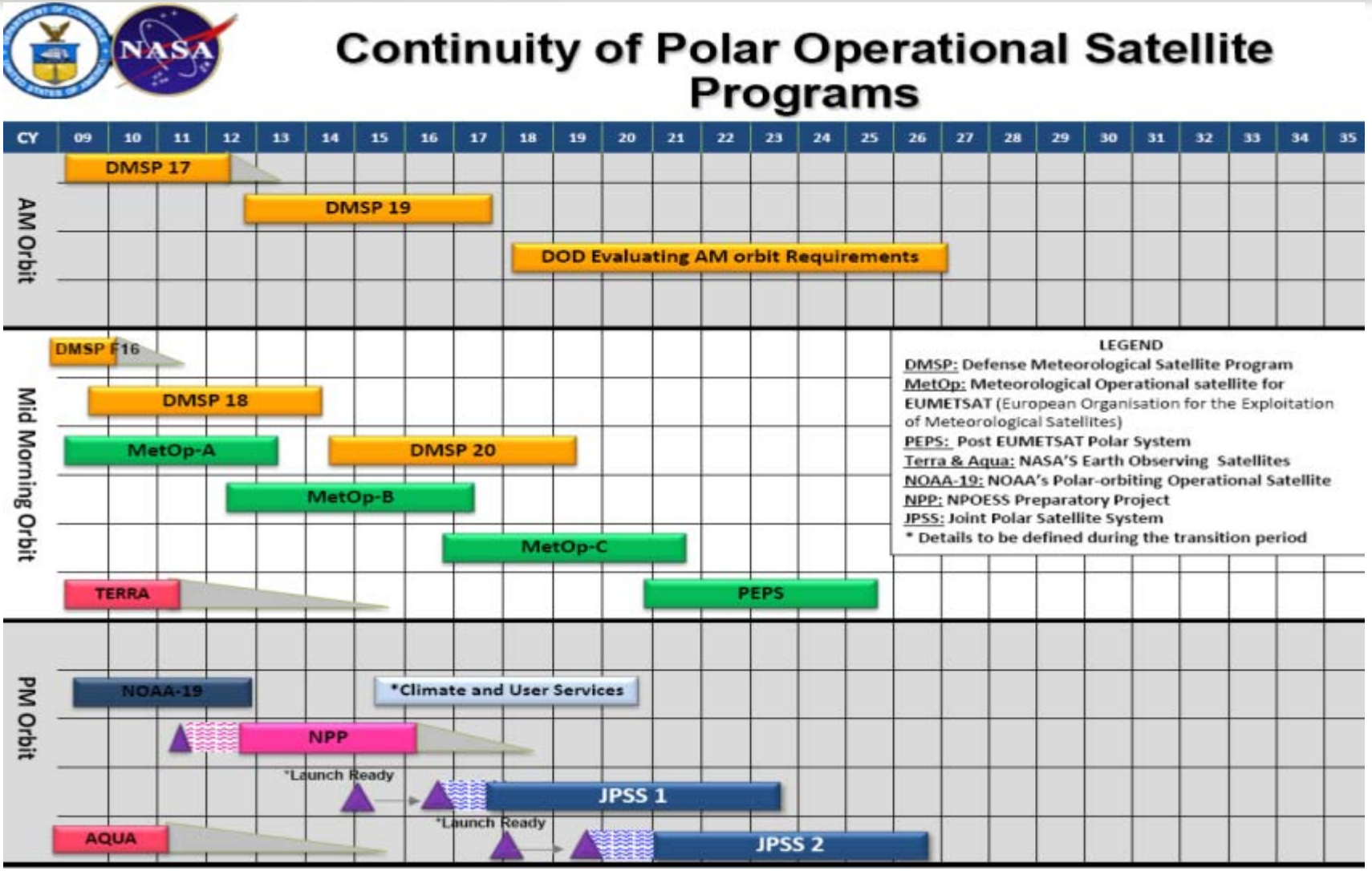
Satellite	Metop-A	NOAA-15	NOAA-16	NOAA-17	NOAA-18	NOAA-19
Launch Date	Oct 2006	May 1998	Sept 2000	June 2002	May 2005	Feb 2009
Operational Date	May 2007	Dec 1998	Mar 2001	Oct 2002	Aug 2005	June 2009
Status	AM primary	AM secondary	PM secondary	AM backup	PM secondary	PM Primary

http://www.oso.noaa.gov/poesstatus/

http://www.wmo.int/pages/prog/sat/GOSleo.html#CurrentLEO

Valid as of June, 2009

Operational POES Updates



Geostationary Satellites

Polar Orbiting Satellites

MTSAT-2 (DOMSAT)

MSG (DOMAST via Wallops)

Meteosat-7 (landline)

GOES-11, 12, 13, 14, 15

NOAA-15, 16, 17, 18, 19

Metop-A

NASA Terra, Aqua

DoD DMSP

NOAA Satellite Operations Facility, Suitland, MD

"Raw" Data Various Ways

Polar Acquisition Stations for POES, MetOp, EOS

- **Wallops, VA**
- **Fairbanks, AK**
- **Gilmore Creek, AK**
- **Svalbard**
- **Honolulu, HI**
- **Miami, FL**
- **Australia**
- **Monterey, CA**
- **NASA DAACs**

Processed data, products, and services

Partners and Customers

Public

Office of Satellite and Product Operations (OSPO)

Office of Satellite and Product Operations (OSPO): Merges the functions of the Office of Satellite Operations (OSO) and Office of Satellite Data Processing and Distribution (OSDPD) as of October 10, 2010. The core functions of OSPO include:

- Control of NOAA's Satellite Constellations
- Management of the Enterprise of the Ground Systems for Command and Control, Data Ingest, Product Generation and Distribution (Environmental Satellite Processing and Distribution System – ESPDS) and Critical Infrastructure Protection (CIP)
- Operational support of NOAA's satellite products and services, including interactive products and SARSAT
- Joint command of NOAA's Ice Center
- Management of integration of NPP, JPSS, and GOES-R future systems

Office of Satellite and Product Operations (OSPO)

Director
E/SPO
Kathy Kelly

Admin Officer
Linda Brown

Assistant Director
CAPT Mark Moran

Special Projects
Selina Nauman

Corporate Services
E/SPOx1
Keith Amburgey

Deputy Director
E/SPO
Ajay Mehta

MOD
E/SPO2
Ron Mahmot
Deputy: Linda Stathoplos

- Operations (E/SPO11) Steve Schaffer
- Support (E/SPO12) Mike Settles
- Systems (E/SPO13) Alva Barnette
- Engineering (E/SPO14) Cindy Hampton
- IT Services (E/SPO15) Andre Hammond

Wallops CDA
E/SPO2
Doug Crawford

- Operations (E/SPO21) Al McMath
- Support (E/SPO22) Stephen Howard
- Systems Engineering (E/SPO23) Bob Clark

Fairbanks CDA
E/SPO3
Larry Ledlow (acting)

NOAA Ice Center
E/SPO4
Sharolyn Young

SPSD
E/SPO5
Dave Benner
Deputy: Tom Renkevens

- Satellite Products (E/SPO51) Ricky Irving
- Satellite Analysis (E/SPO52) Davida Streett
- Direct Services (E/SPO53) Chris O'Connors

Acronyms

CDA – Command and Data Acquisition

MOD – Mission Operations Division

SPSD – Satellite Products and Services Division

Direct Service Operations

Emergency Managers Weather Information Network (EMWIN):

- NOAA satellites relay critical information to users across the country.
  - http://www.weather.gov/emwin/index.htm

Low Resolution Image Transmission (LRIT):

- NOAA satellites are used to relay satellite and weather products to users in remote locations, that do not have landlines or internet connections.
  - http://www.noaasis.noaa.gov/LRIT/

Data Collection:

- NOAA satellites are used to collect and relay scientific data from around the globe.
  - http://www.noaasis.noaa.gov/DCS/ http://www.noaasis.noaa.gov/ARGOS/

Search and Rescue:

- NOAA satellites are used to relay distress alerts from aviators, mariners and land-based users.
  - http://www.sarsat.noaa.gov/

Geonetcast Americas

- Data from NOAA for diverse societal benefits including agriculture, energy, health, climate, weather, disaster mitigation, biodiversity, water resources, and ecosystems.
  - http://www.geonetcastamericas.noaa.gov/index.html

User Services*

The Satellite Products and Services Division serves as the **primary interface with the user community of environmental satellite data and products**:

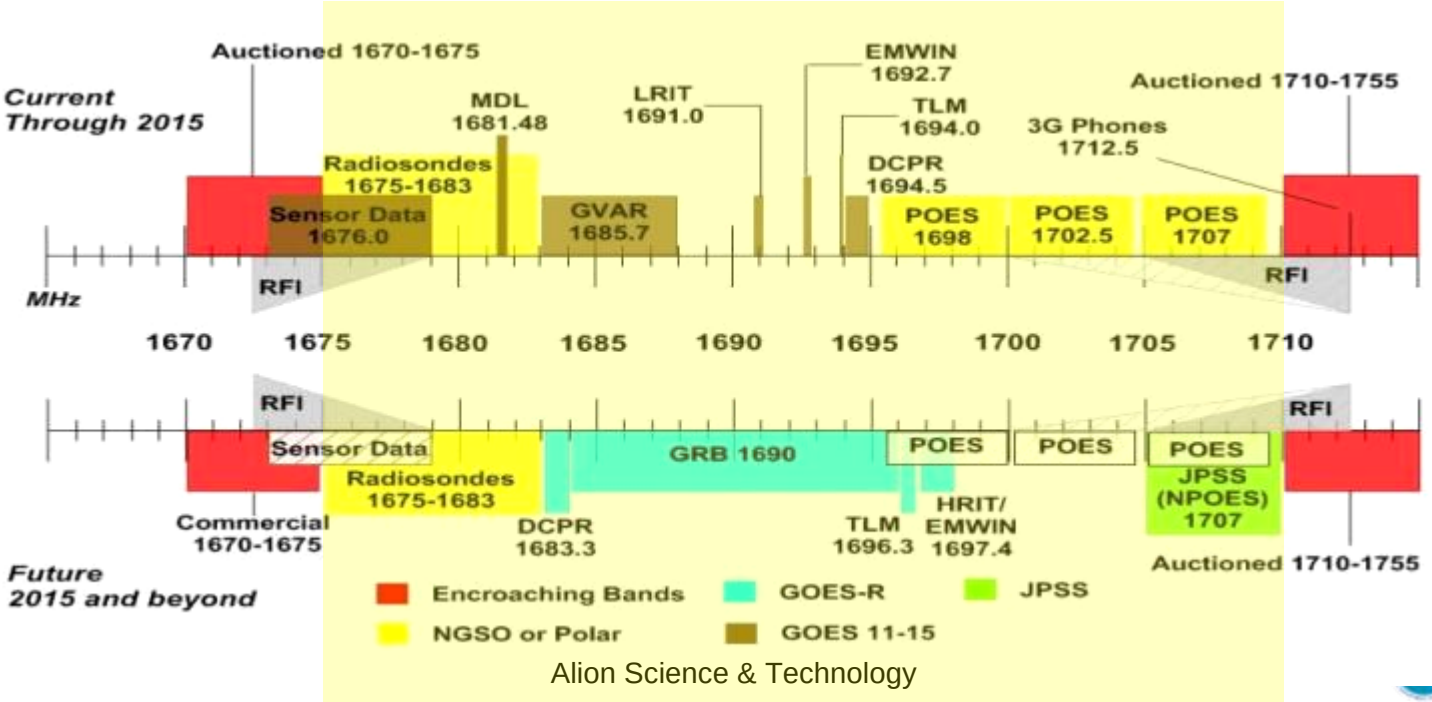
- *Provides* realtime notifications to users and stakeholders of any type of activity affecting product ingest, processing or distribution
- *Maintains* “One Stop Shop” Help Desk responsible for the monitoring of many operational OSDPD products and services.
- *Serves* as the conduit of information between users and the Product Area Leads (PALs).
- *Enhances* the knowledge transfer between OSDPD and stakeholders.

- Actively engaging users, stakeholders, potential customers, and the public.
- Soliciting feedback from existing users on our performance
- Continually assessing user requirements.
- Briefing users on the process to set up new or enhances satellite products and services
- Exploring the use of Web 2.0 technologies such as YouTube and Twitter: *www.twitter.com/noaa_osdpd*

FCC Radio Spectrum Notice

FCC released Public Notice 10-123 on 6/4/10

- **Covers the use of spectrum in the 1675 – 1710 MHz range**
- **Affects NWS radiosondes and GOES/POES downlinks**
  - **GVAR**
  - **HRPT**
  - **EMWIN, LRIT, DCS**
  - **http://fjallfoss.fcc.gov/ecfs/proceeding/view?z=ryjse&name=10-123**



15

McIDAS at ESPC

- Over 20 SDIs at NSOF and Wallops OBF:
  - GOES-East, West, spare (-15)
  - MTSAT
  - GOES Ingest and NOAAPORT Interface (GINI)

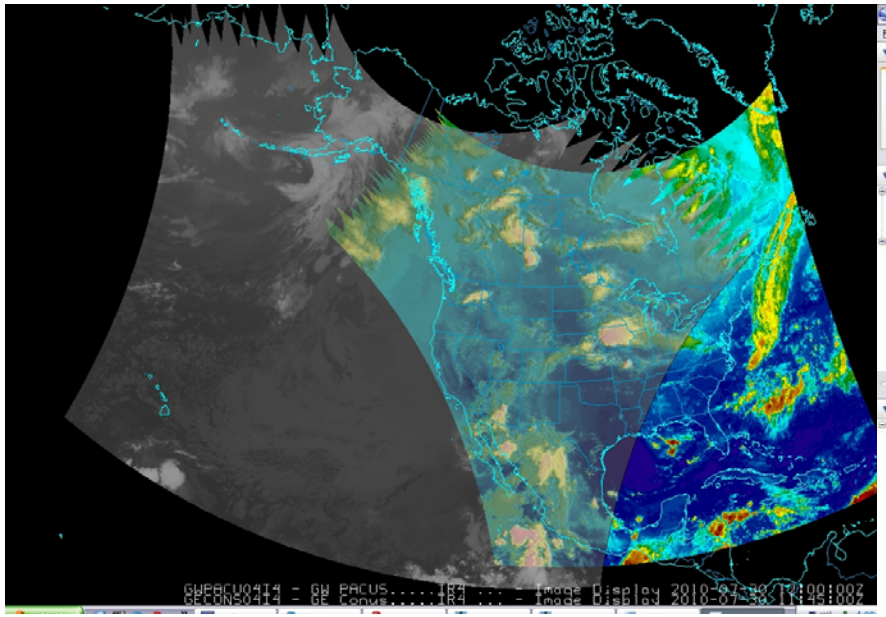
- Over 20 High Performance Workstations in Satellite Analysis Branch:
  - -X for realtime analysis, product generation, and QA/QC
  - RHEL 5 Linux on Intel x86
  - Many “home grown” programs in Fortran, .PGM, BATCH

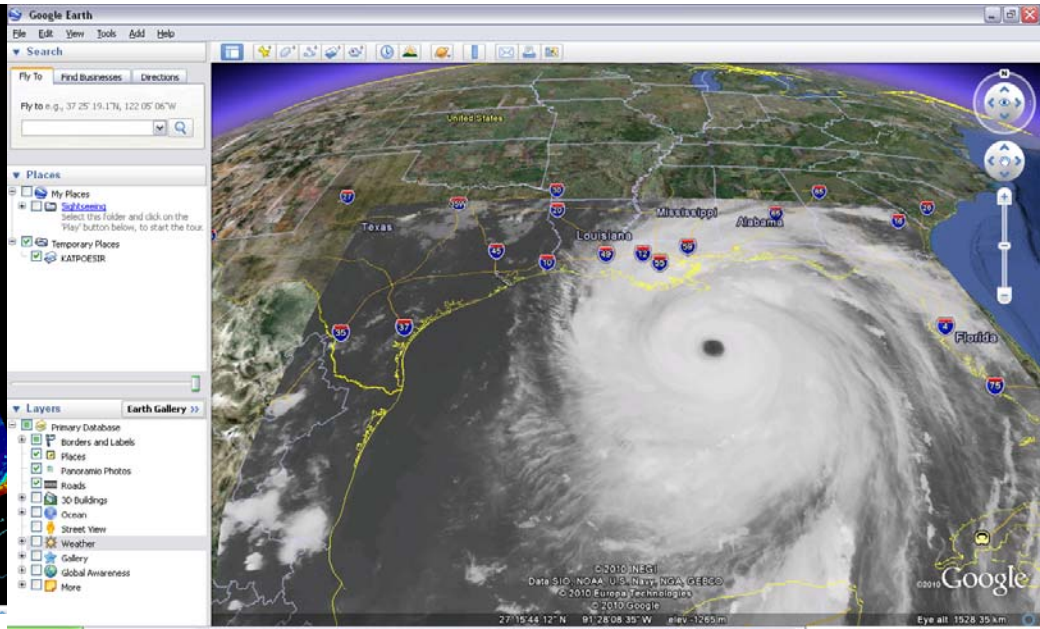
- ESPC Product Generation/Distribution:
  - IBM P6 Series with Linux Partitions
  - Migration from Intel to IBM completed in 2008 (byte flipping)
  - GINI running on SGI IRIX

McIDAS at ESPC

Advantages of McIDAS at ESPC:

- The ADDE protocol allows for many users accessing single systems with one port (112)
- Common legacy (and future?) formats for satellite remote sensing data (GOES and POES) and ancillary information for research and ops
- Simple and quick visualization and UI customization (McIDAS-V makes remapping, overlays, sampling, other tasks much easier!)
- Platform independence of McIDAS-V

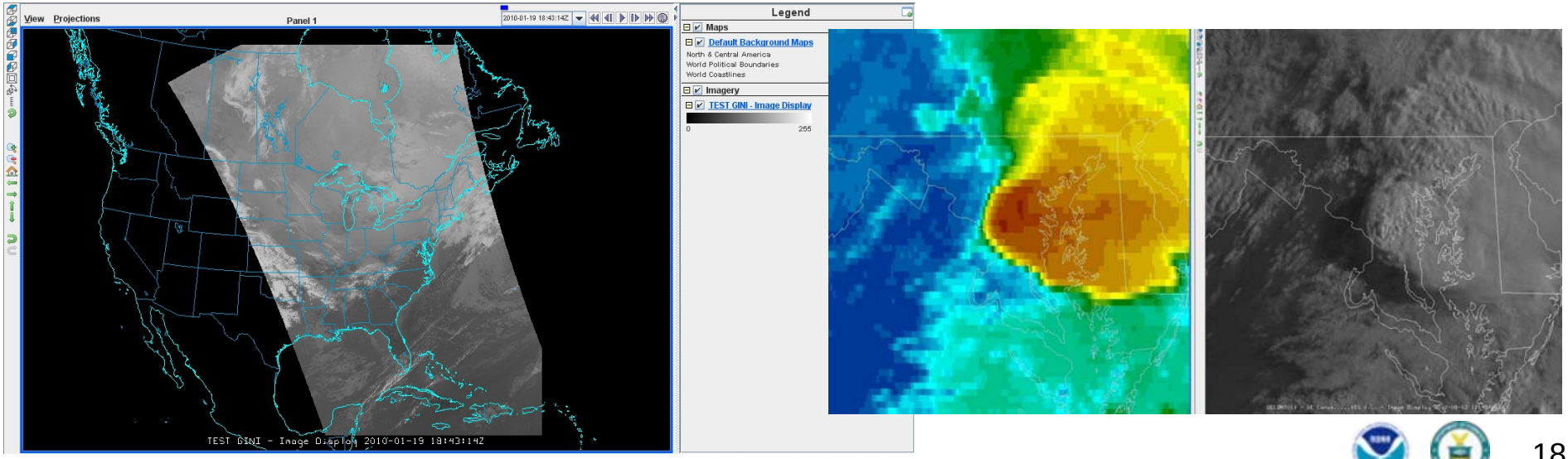




McIDAS at ESPC

Challenges at ESPC:

- Maintaining efficient access to servers for operations
- “Version-itis” between systems (GINI still running v.2005!)
- Additional customer requirements for advanced formats (GIS, KMZ)
- McIDAS-V Testing and Evaluation:
  - Performance
  - Functionality and carry over of –X commands used for years
  - Migration of software from –X to –V



2011 NOAA Satellite Direct Readout Conference

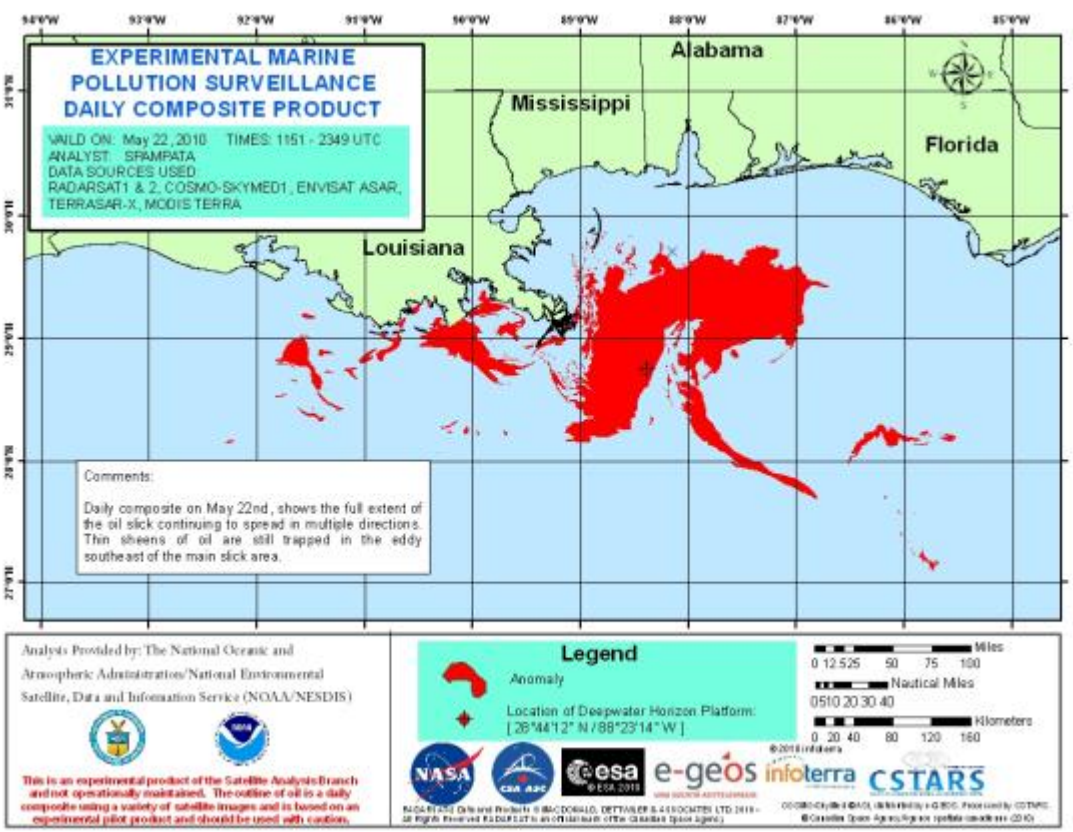
The focus of the conference will be on current GOES and POES data access, distribution, and preparing users for the upcoming changes to NOAA satellite programs. We will present users with information on APT, HRPT, GVAR, ARGOS DCS, GOES DCS, LRIT, EMWIN, GEONETCast Americas and other NOAA systems. We will also review the upcoming GOES-R and Joint Polar Satellite System (JPSS) Programs.

- April 4-8, 2011
- Hilton Miami Airport Hotel, Miami, FL
- directreadout.noaa.gov

"Real-time Access for Real-time Applications"

Backup Slides

Experimental Marine Pollution Surveillance Report



SAB product depicting oil spill location for May 22. MODIS, ENVISAT and RADARSAT imagery used.

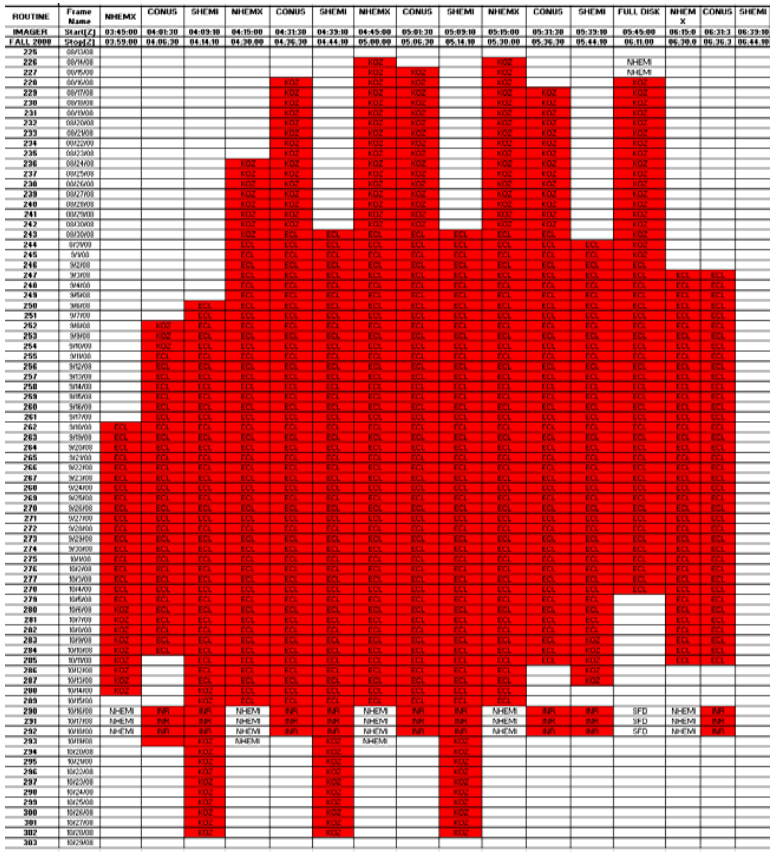
New Users of SAB Oil Location Products

- ***Many new additional NOAA users especially in NOS, NESDIS and ICC***
- ***United States Geological Survey (USGS)***
- ***Pentagon***
- ***National Geospatial-Intelligence Agency (NGA)***
- ***Dept of the Interior headquarters (info source for briefings of the Secretary of the Interior)***
- ***Department of Homeland Security***

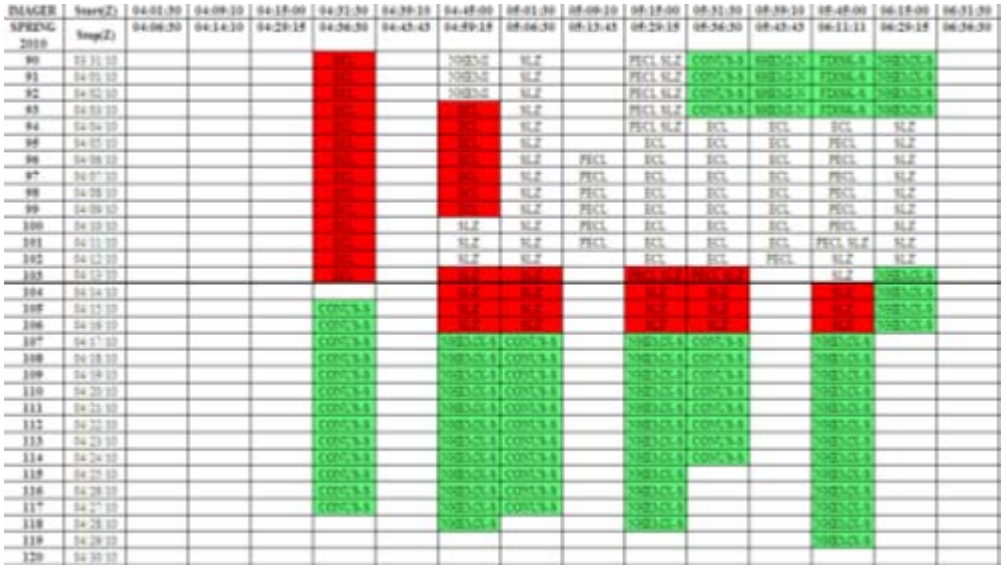
http://www.ssd.noaa.gov/PS/MPS/deepwater.html

Differences in Imager cancellations: GOES-12 and GOES-13

KOZ plus Eclipse cancellations (GOES-12 @ 75°W, KOZ @ 6° Sun)

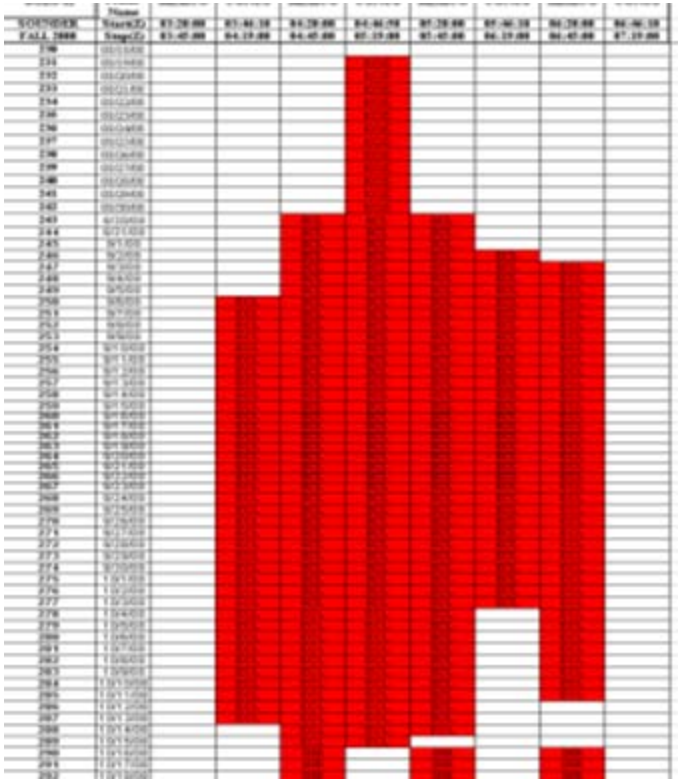


Actual Spring 2010 cancellations on GOES-13 for KOZ only, including partial frame scans (in green)



Differences in Sounder cancellations: GOES-12 and GOES-13

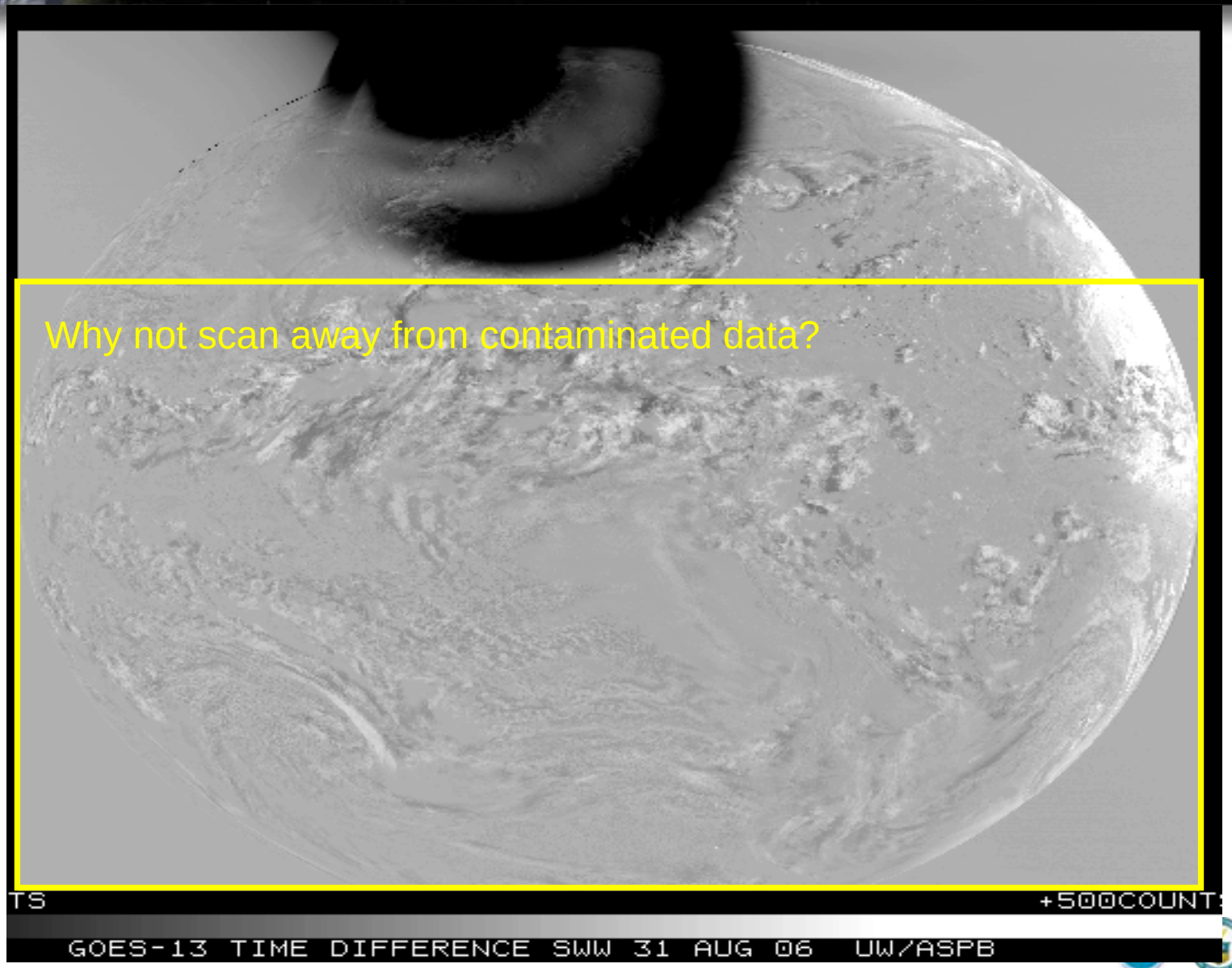
KOZ plus Eclipse cancellations (GOES-12 @ 75°W, KOZ @ 6° Sun)



Actual Spring 2010 cancellations on GOES-13 for KOZ only

GOES-E	Frame Name	MEX/HURD	NUS/ASO	MEX/HURD	NUS/ASO	MEX/HURD	NUS/ASO	MEX/HURD	NUS/ASO	NATLANT
SOUNDER	Start(Z)	03:20:00	3:46:10	4:20:00	4:46:10	5:20:00	5:46:10	6:20:00	6:46:10	8:20:00
SPRING 2010	Stop(Z)	03:41:06	4:15:38	4:41:06	5:15:38	5:41:06	6:15:38	6:41:06	7:15:38	8:41:06
90	03/31/10				ECL	PECL SLZ	ECL	PECL		ECL
91	04/01/10				ECL	ECL	ECL	PECL		ECL
92	04/02/10				ECL	ECL	ECL			ECL
93	04/03/10				ECL	ECL	ECL			ECL
94	04/04/10				ECL	ECL	PECL SLZ			ECL
95	04/05/10				ECL	ECL	PECL SLZ			ECL
96	04/06/10				ECL	ECL	PECL SLZ			ECL
97	04/07/10				ECL	ECL	PECL SLZ			ECL
98	04/08/10				ECL	ECL	PECL SLZ			ECL
99	04/09/10				ECL	ECL	PECL SLZ			ECL
100	04/10/10			GMEX late	PECL SLZ	ECL	PECL SLZ			ECL
101	04/11/10			GMEX late	PECL SLZ	ECL	SLZ			ECL
102	04/12/10			GMEX late	PECL SLZ	ECL	SLZ			ECL
103	04/13/10			GMEX late	SLZ	ECL	SLZ			ECL
104	04/14/10				SLZ	SLZ	SLZ			
105	04/15/10				SLZ	SLZ	SLZ			
106	04/16/10				SLZ	SLZ	SLZ			
107	04/17/10				SLZ					
108	04/18/10				SLZ					
109	04/19/10				SLZ					
110	04/20/10				SLZ					
111	04/21/10				SLZ					
112	04/22/10				SLZ					
113	04/23/10				SLZ					
114	04/24/10				SLZ					
115	04/25/10				SLZ					
116	04/26/10									
117	04/27/10									
118	04/28/10									

GOES-13 Schedules and Eclipse



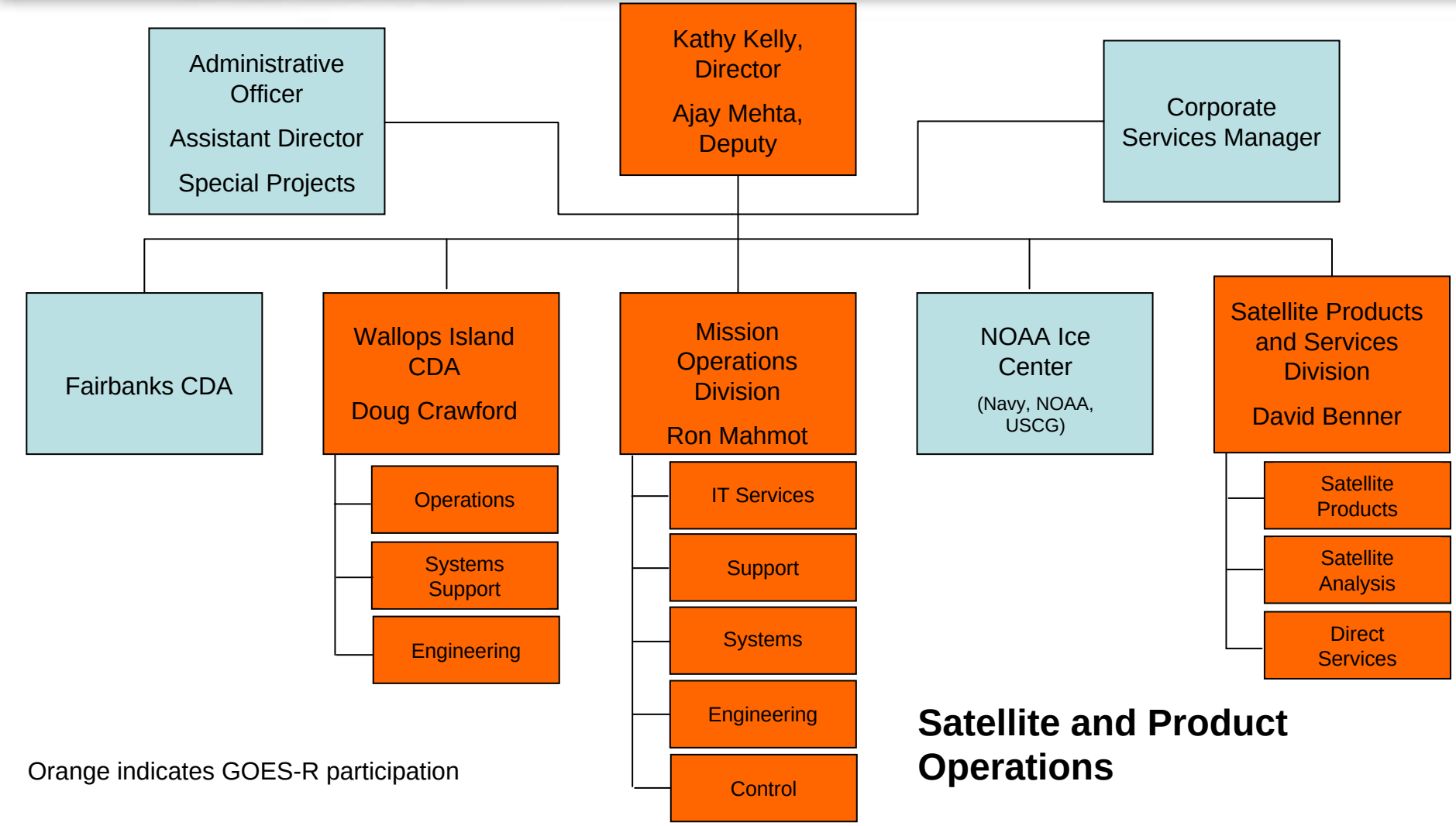
GOES Current Series Plans - Summary

- GOES-11 as GOES-West until late 2011
- GOES-12 serving over South America
- GOES-14 tested and set as spare at 105°W with XRS in operation
- GOES-15 (launched 3/4/10) at 90°W to undergo Science Testing beginning August 7, 2010.
- GOES-R scheduled for launch n.e.t. October 2015.

Research to Operations

- **User Request:** Users can identify a need for new or improved observations or products.
- **Mature Science Development:** Scientists can identify maturing scientific development or algorithm thought to provide significant user benefit.
- **NOAA *Program/NESDIS Project Manager Directed Project:*** NOAA/NESDIS program or project managers can provide requirements to develop new or improved products. These acquisition managers formulate plans to acquire the new products
- An integrated product team (IPT) will be formed to coordinate the development process, and submitted to the Satellite Products and Services Review Board for funding.

Office of Satellite Products and Operations (OSPO)



Orange indicates GOES-R participation

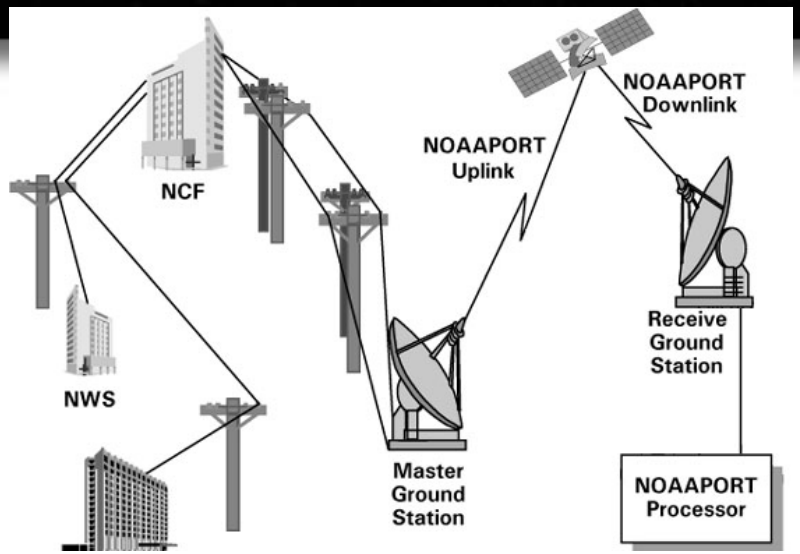
Satellite and Product Operations

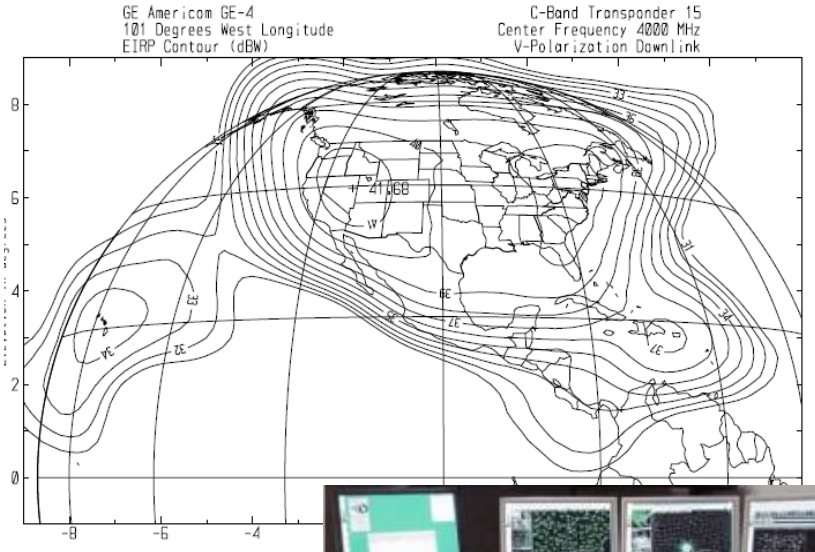
Product PD Operations - AWIPS

NOAAPORT Distribution

http://www.weather.gov/noaaport/html/noaaport.shtml

- ***Main User – NWS / AWIPS***
- Satellite Broadcast Network (SBN)
  - Provides broadcast and reliable multicast data transmission to field sites.
    - Transmitted data includes: Centrally collected radar data, GOES imagery, NCEP model data, field observations, and watches and warnings
  - DVB-S
    - Single channel solution.
    - Linearly scalable up to 43 Mbps
- **Satellite Data on NOAAPORT limited to remapped CONUS and AK, HI, PR with subset of sounder bands**





“Snapshot” of SSD Users

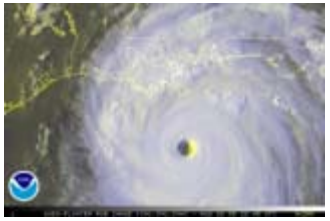
Major Users:

- NWS National Centers for Environmental Prediction (NCEP): HPC, OPC, TPC, SPC, NCO, AWC, EMC, CPC, SWPC
  - N-AWIPS, AWIPS, Direct Broadcast, sFTP, Internet, ADDE
- NWS Weather Forecast Offices and River Forecast Centers
  - AWIPS and Internet
- National Ocean Service (NOS), National Marine Fisheries Service (NMFS)
  - Internet and sFTP
- DoD, DoI, DoT, USDA, EPA, NASA, FEMA, NTSB, USGS
  - Shared Processing (DAPE), Internet, sFTP, Direct Broadcast, NOAAPORT, ADDE
- International: EUMETSAT, ECMWF, UKMET
  - Direct Broadcast, Internet, ADDE

“Snapshot” of SSD Users

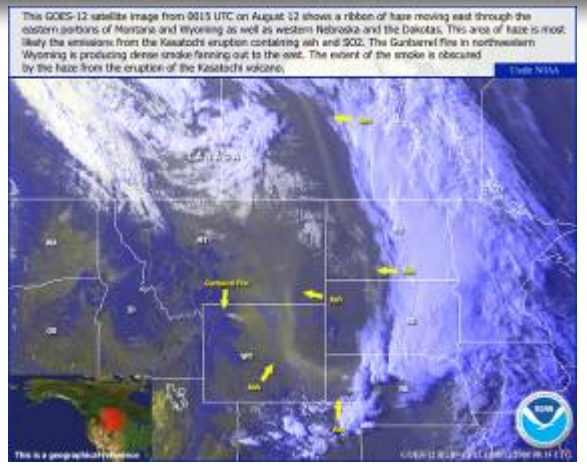
Major Users:

- Private Industry: WSI, WSC, Meteorologix, Accu-Weather, Unisys, Baron, IPS Meteostar, airlines (Domestic and Int’l, and Cargo)
  - Direct Broadcast, NOAAPORT, Internet, ADDE
- Universities and Cooperative Institutes
  - Direct Broadcast, NOAAPORT, Internet, ADDE
- International Meteorological Services: Central and South America, New Zealand, France; Research institutions, Volcanic Ash Advisory Centers. Media and Private Users
  - Direct Broadcast, NOAAPORT, GeoNetCast
- General Public
  - Internet, ADDE
  - Public demand for GOES imagery during a land falling hurricane can account for as much as 300 million “hits” per week, and over 10 Tb of data served!

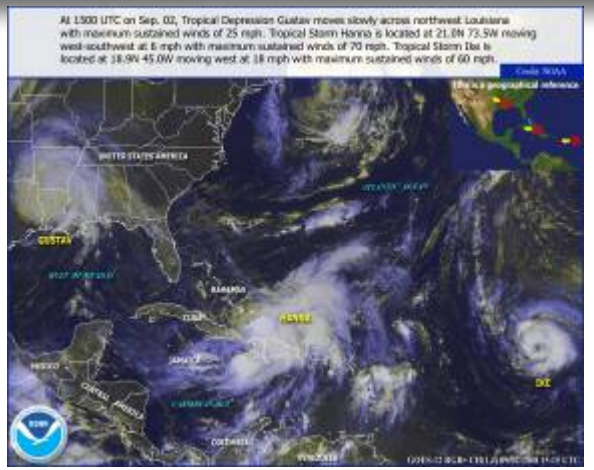


Satellite Data Products

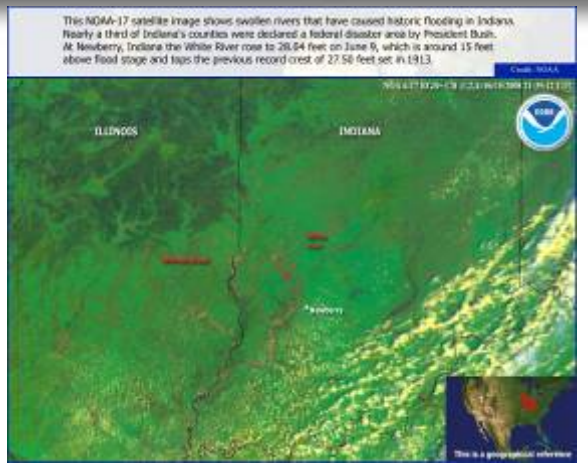
http://www.osdpd.noaa.gov/



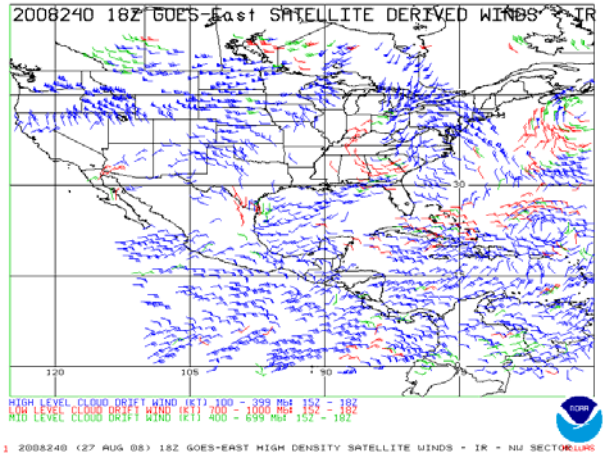
Volcanic Ash & Fires



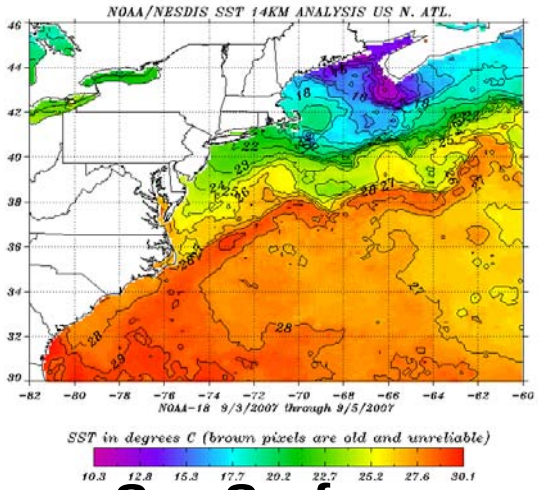
Hurricanes



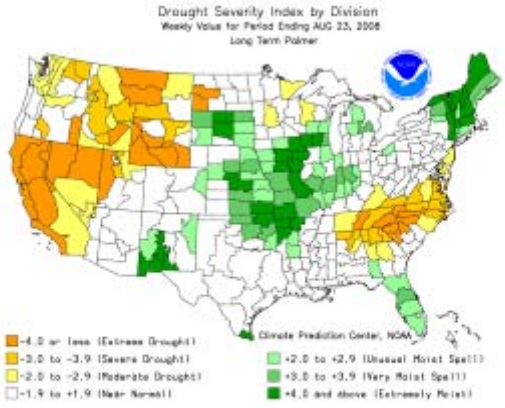
Midwest Floods



Wind Speed/Direction



Sea Surface Temperature



Drought Monitoring

Product Operations

"RAW" Imagery Data

GOES-13
GOES-11
MTSAT-2
NOAA-15
NOAA-16
NOAA-17
NOAA-18
NOAA-19
Metop-A
Meteosat-9
Meteosat-7
Other NASA

ESPC Processing

"Ancillary" Data Input

RADAR Data
Model Data
Forecast Data
Surface Data
Upper Air Data
Profiler Data
RAOB/Radiosonde Data
Ship Reports
Pilot Reports
Buoy Reports

Applications (subset)

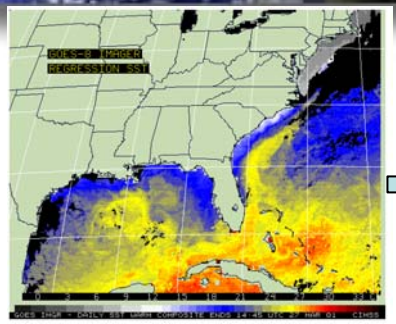
Global Geostationary Satellite Imagery
Tropical Cyclone Analysis
Volcanic Ash Detection and Tracking
Fire Monitoring and Analysis
Flash Flood Analysis
Satellite Imagery for AWIPS
Winds
ASOS Satellite Cloud Project
Sounding-Derived Products
Snow Cover
Special Events Imagery

Products (sampling)

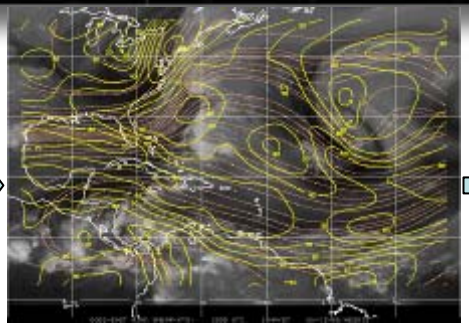
GOES-13, GOES-11, MTSAT-2, Met-9. and Met-7 Remaps
GOES-13 and GOES-11 High Density Winds
GOES-13 and GOES-11 ASOS SCP
GOES-13 and GOES-11 DPI
GOES-13 and GOES-11 Soundings
GOES-13 and GOES-11 IFFA
GOES-13 and GOES-11 Product Archive (NCDC)
NOAA-15, 16, 17, 18, 19 Derived SNOW-IMS
GINI: AWIPS Predefined Digitally Remapped Sector Products
SSM/I WINDS, Rain Rate, Total Precipitation Water, Snow
POES Passes and Composites
SSM/I Composites
GOES SST

For more product/application information, see the Satellite Product End to End Doc (SPEEDS) at: http://www.ngdc.noaa.gov/speeds/

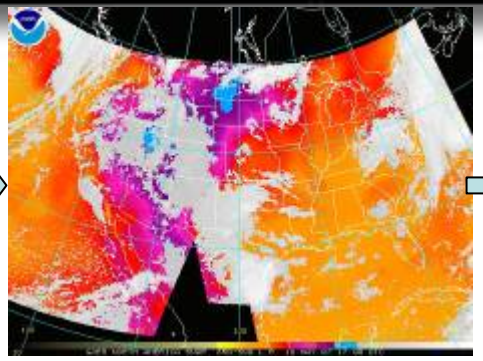
Satellite Products and the Benefit to Society

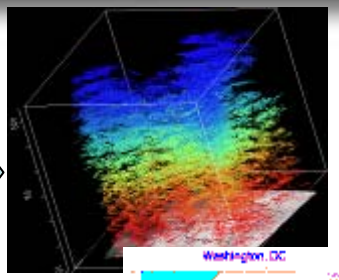


Satellites measure radiant energy

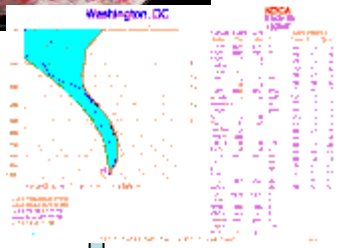


Algorithms use satellite data to create products





Environmental products distributed to users

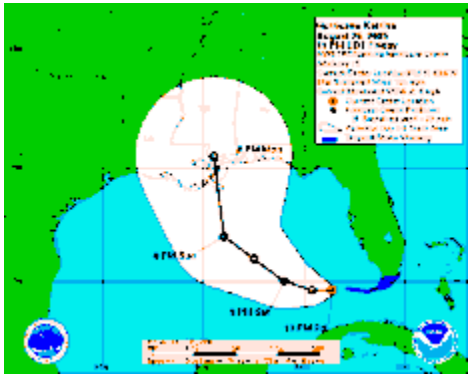


Using these products to construct a “picture” of the environment. These datasets are input into complex computer model simulations of the atmosphere

Users input products into computer model simulations of the atmosphere

Using satellite data and models together, forecasters can accurately predict environmental conditions

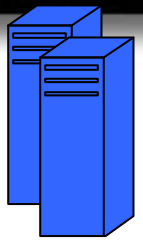
Putting all the data together, scientists can better warn the public of pending disasters



ESPC Product Distribution

ESPC Processing

SAB Analysis



GOES Ingest and NOAAPort Interface (GINI)

NOAAPort/AWIPS
NWS

IBM SATEPSDIST Servers

(ADDE and FTP)

NWS/NCEP
DOD
STAR
SAB
Universities
Private Industry

Data Distribution Server (DDS)

NWS/NCEP/EMC
ECMWF
UKMET
STAR
DOD

Dell Blade Servers (Linux)

NWS/NCEP
DOD
STAR
SAB
Universities
Private Industry

User Services

Maintaining information portals to enhance the flow of information between OSDPD/SSD and users:

- Updated web page with FAQ, contacts, and archive of all notifications
- E-mail lists, GTS bulletins, Twitter, RSS feeds (Twitter: ***@noaa_osdpd***)
- Acquiring Help Desk/CRM Tools with user "portals" for instant access to information
- Integrating web based information delivery pages with existing SOCC status charts
- Involved in the development and deployment of the Satellite Product End to End Documentation System (SPEEDS)

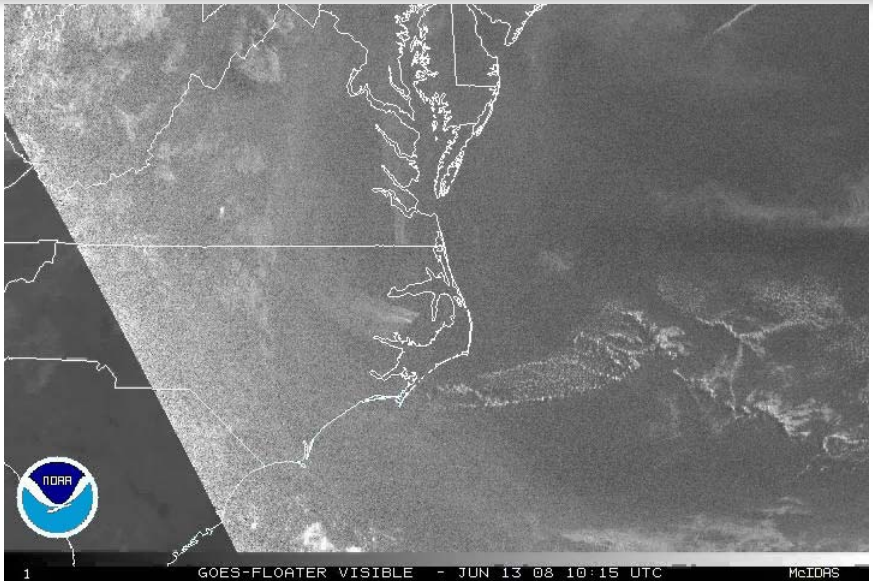
www.osdpd.noaa.gov

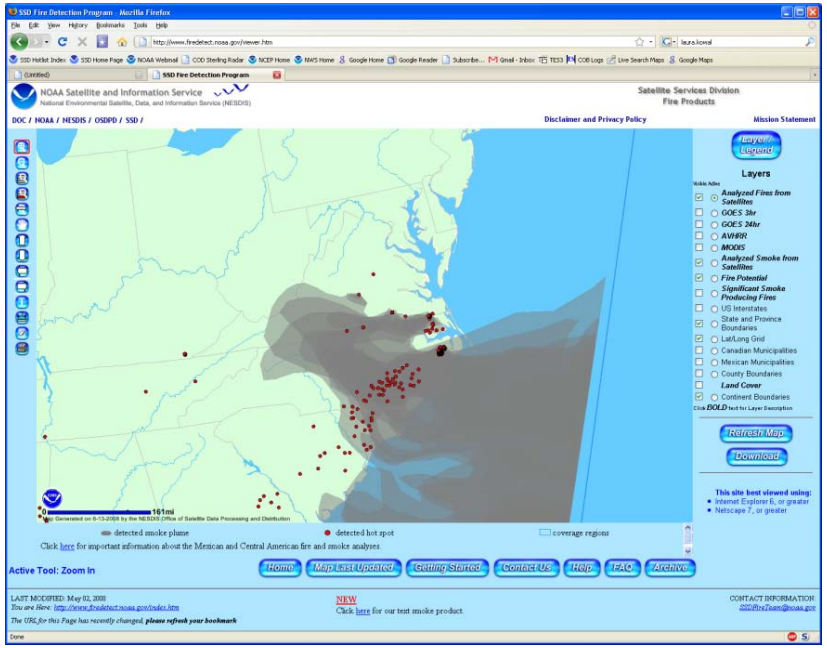
www.oso.noaa.gov

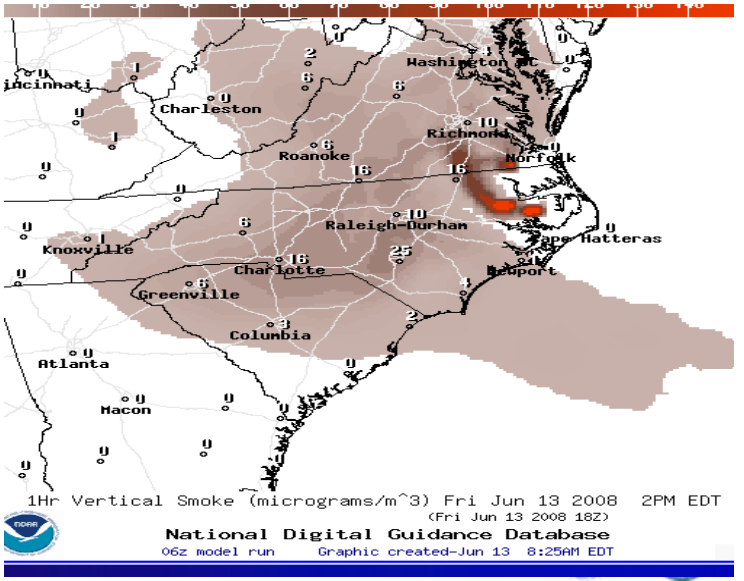
Smoke and Fire Detection

GOES and POES imagery, products, and analyses support State and Federal firefighting programs by detecting and tracking areas of smoke, and detecting and monitoring large wildfires.

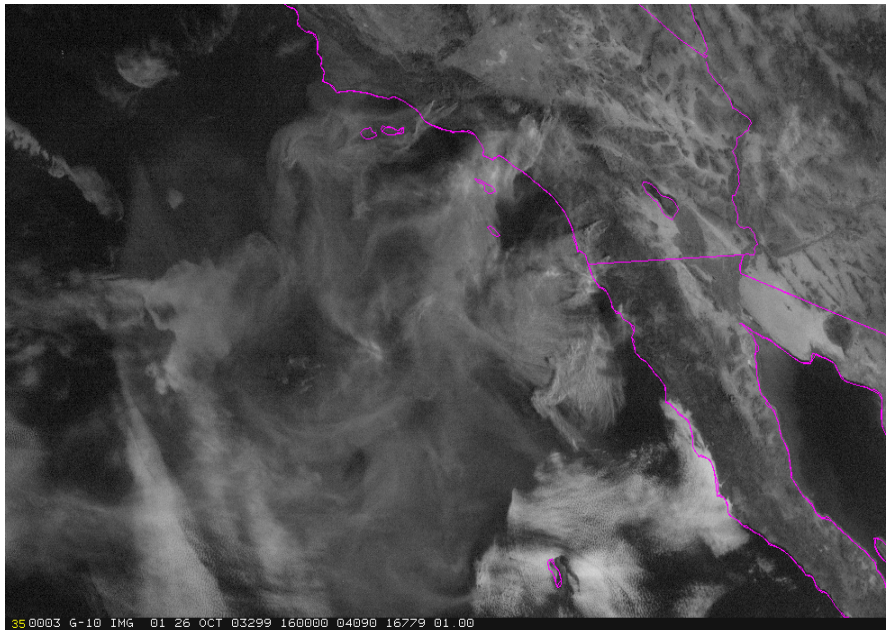
Analysis of smoke and fire, performed 2x/day, sent to field centers and input into local weather models to forecast AQ.



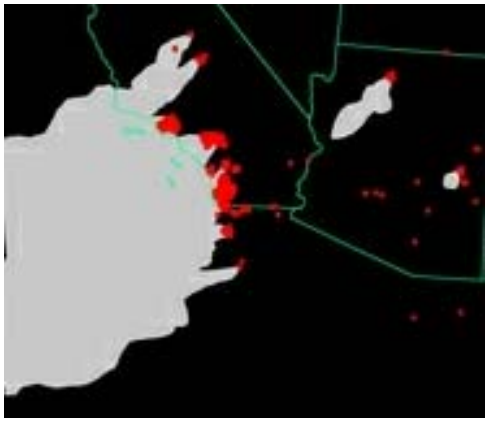


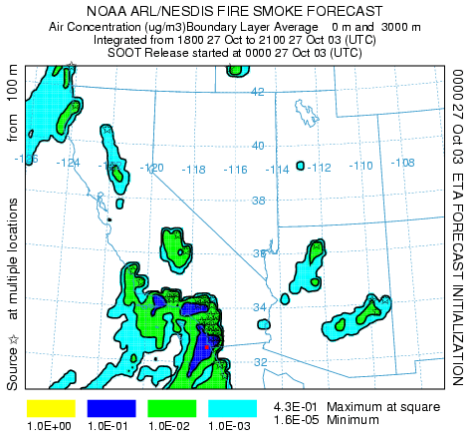


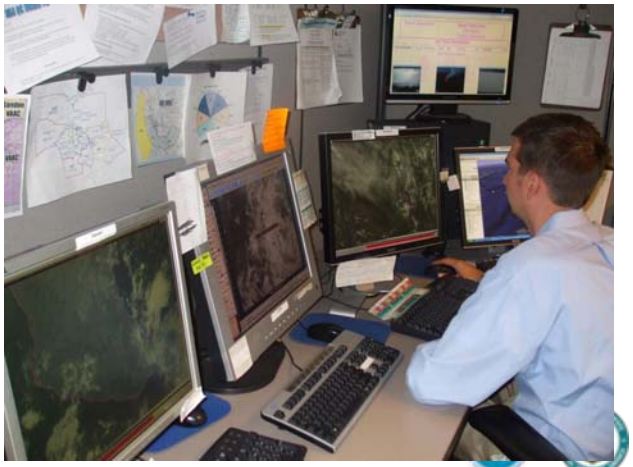
Southern California Wildfires



Infrared and visible sensors on board Geostationary and low Earth orbiting satellites can detect heat signatures such as fires, and show the aerial extent of smoke from those fires. Smoke locations are derived from the measurements, then sent to the National Weather Service as input into regional and local Air Quality models.







OSPO/NIC Sea Ice Products
www.natice.noaa.gov

PRODUCTS

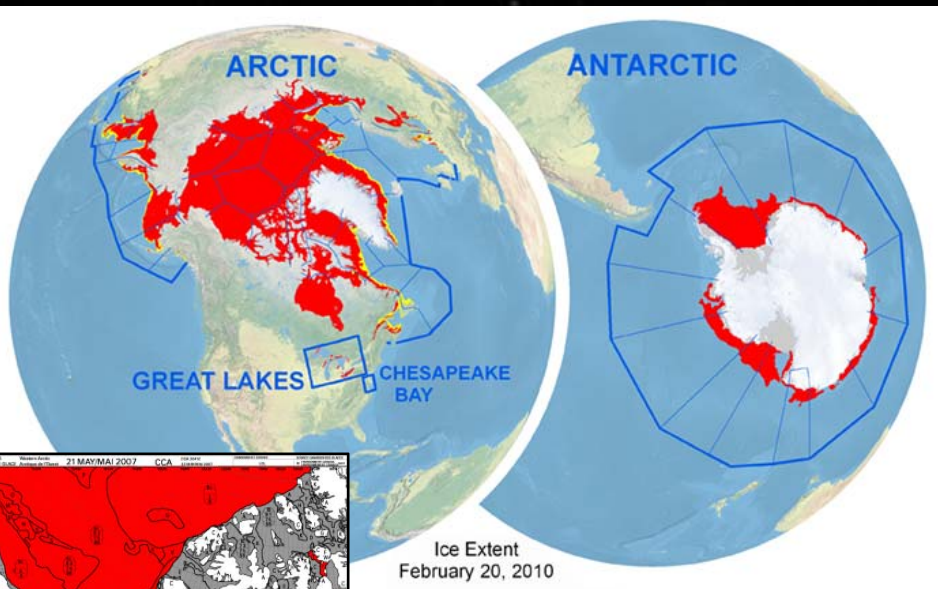
Ice Charts for Northern and Southern Hemispheres

Sea Ice Forecast and Outlooks

Daily Ice Concentration

Iceberg Tracking

Special Support for Government Ships



Among known CUSTOMERS

National Weather Service – Alaska Region

NOAA Pacific Marine Environmental Laboratory

North American Ice Service (NAIS)

US SUBFOR

Arctic Submarine Lab

US Coast Guard District Office 17

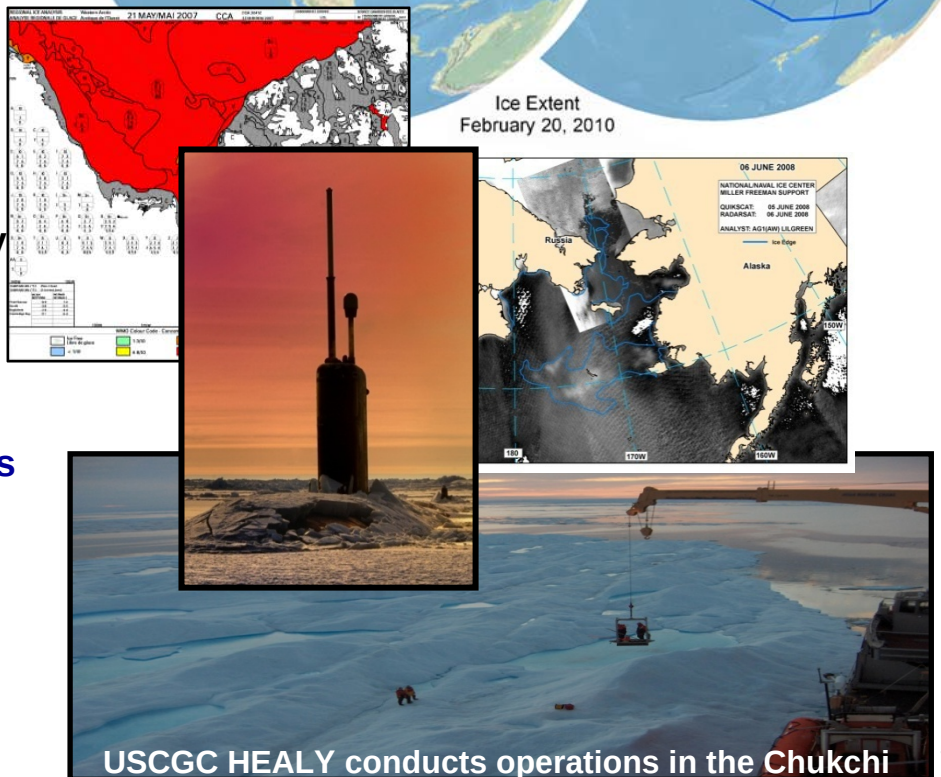
Arctic Research Consortium of the United States (ARCUS)

US Mineral Management Service

Private Companies

University and Research Groups

Foreign Governments



USCGC HEALY conducts operations in the Chukchi

OSPO/NIC Snow and Ice Product (IMS)

NOAA / National Weather Service Support

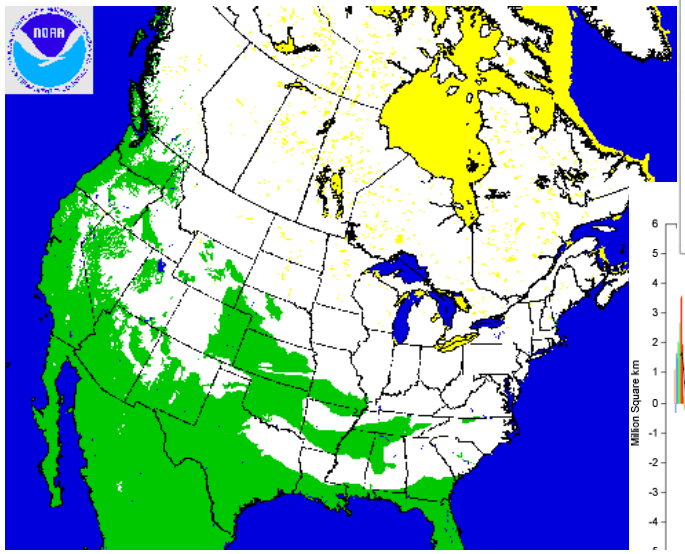
ASSIMILATED IN MOST NWP MODELS WORLD WIDE

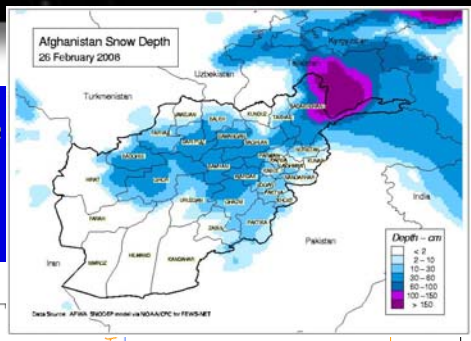
Primary Customers

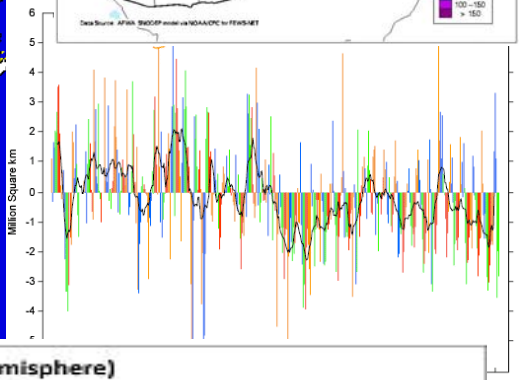
NOAA NWS NCEP Environmental Modeling Center (EMC)
Climate Prediction Center (CPC)

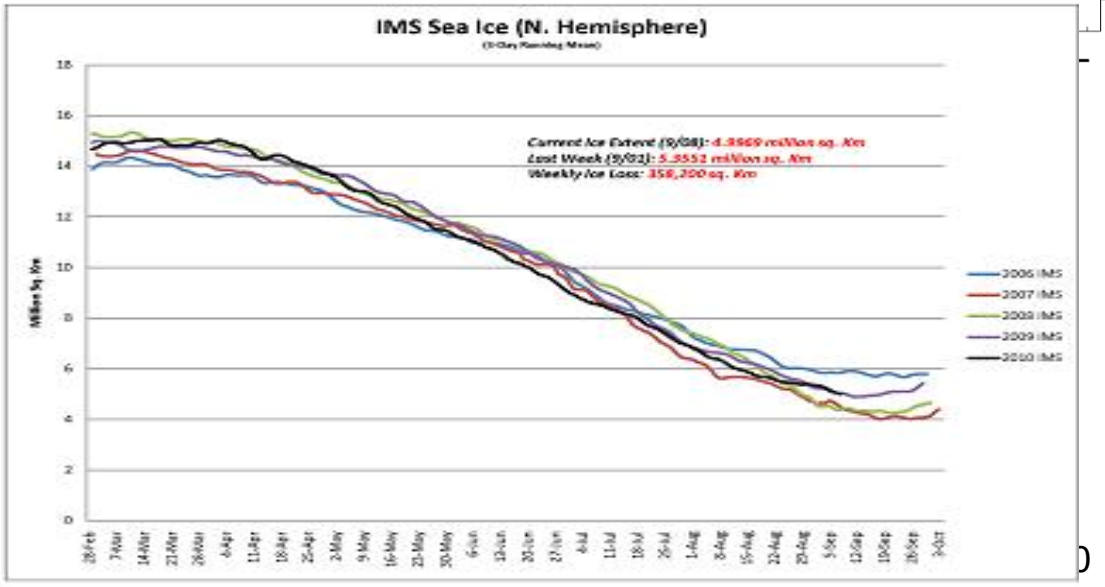
Known Secondary Customers

US Army, US Air Force, US Navy, Dept of State, USDA, NOAA SSD, NOAA NWS field offices, US DoT, Environment Canada, EMCWF, UK Met, Numerous Universities, Weather Channel, CNN, AccuWeather, private companies, and many general public users.









ESPC Access to Data and Products

GINI (GOES Ingest and NOAAPORT Interface)

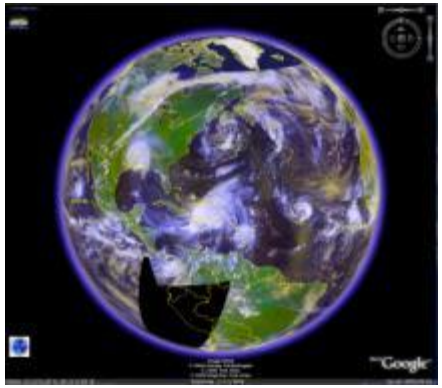
- McIDAS powered remapped satellite data distributed to NWS for display on AWIPS
- Derived products (i.e. GOES/POES Sounding Products) generated external to GINI distributed via GINI
- Available from NWS Broadcast and via McIDAS from select Unidata sites

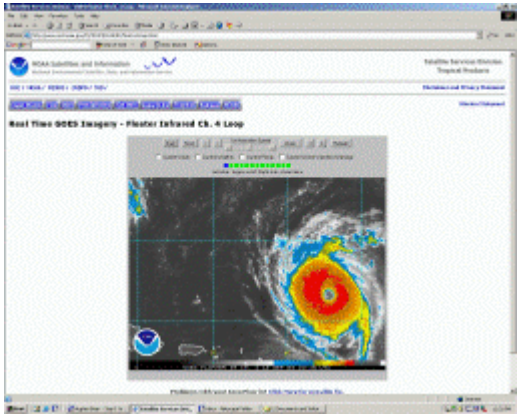
ReBroadcast Services: GeoNETCAST, NOAAPORT

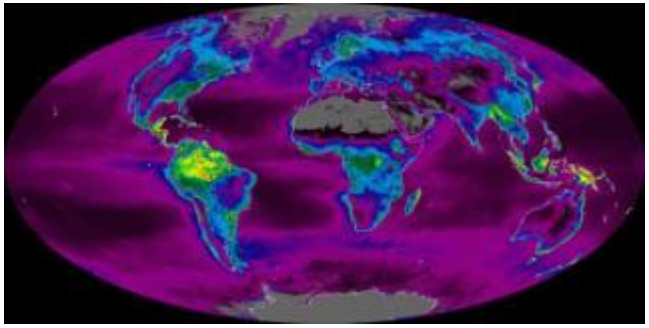
- GVAR, LRIT, EMWIN, DCS, SARSAT
- HRPT, VHF, APT, ARGOS

Internet Distribution (Web, FTP, ADDE)

- www.osdpd.noaa.gov (links to GIS, JPG, KMZ files)
- Satepsanone.nesdis.noaa.gov (HTTP and FTP) – download binary files (AREA)
- ADDE: PUB on satepsanone.nesdis.noaa.gov – public McIDAS







ESPC Access to Data and Products

SATEPSDISTx (1-7) – McIDAS ADDE Based – Registration Required

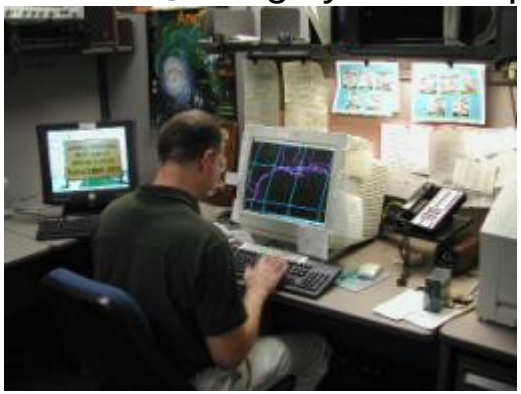
- Serves real time and remapped imagery from GOES, POES, MTSAT, Meteosat-9/7, NASA/EOS
- Serves Derived products from GOES, POES, DMSP, TRMM
- Serves Model and InSitu (observations, forecasts) Data

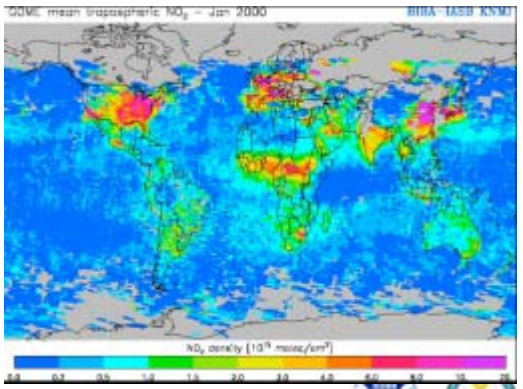
DDS – Registration Required

- AIX server delivers primarily polar products for use in polar derived product and for assimilation into NWP
- Level 1b and various Level 2 products (BUFR, Text)

DAPE (SPP)

- Data exchange of Air Force, Navy, NESDIS, NWS
  - Largely derived products such as from SSM/I, GOES Winds





Satellite Products on AWIPS/NOAAPORT

GOES Products

- Cloud and Moisture Imagery (visible, IR, water vapor, 3.9 μm, select sounder bands) over CONUS, North America, Northern Hemisphere
- Sounder Derived Imagery (TPW, LI, Skin-T, CTP, ECA) over CONUS
- Sounder Profiles (hourly)
- Low Cloud Base
- Satellite Precipitation Estimates (auto and manual)
- Derived winds from visible, IR, Water Vapor, 3.9 μm

POES Products

- Blended TPW and % of Normal (POES, GOES, GPS)
- Microwave Rain Rate from AMSU and SSMIS
- POES Sounder Profiles
- ASCAT Scatterometer Winds

Future Products

- POES Visible and Infrared from AVHRR
- Blended Rain Rate (POES, GOES)
- MODIS Derived Products (currently available as part of GOES-R PG)