NOAA's Satellite Services Program – Environmental Satellite Processing Center (ESPC)

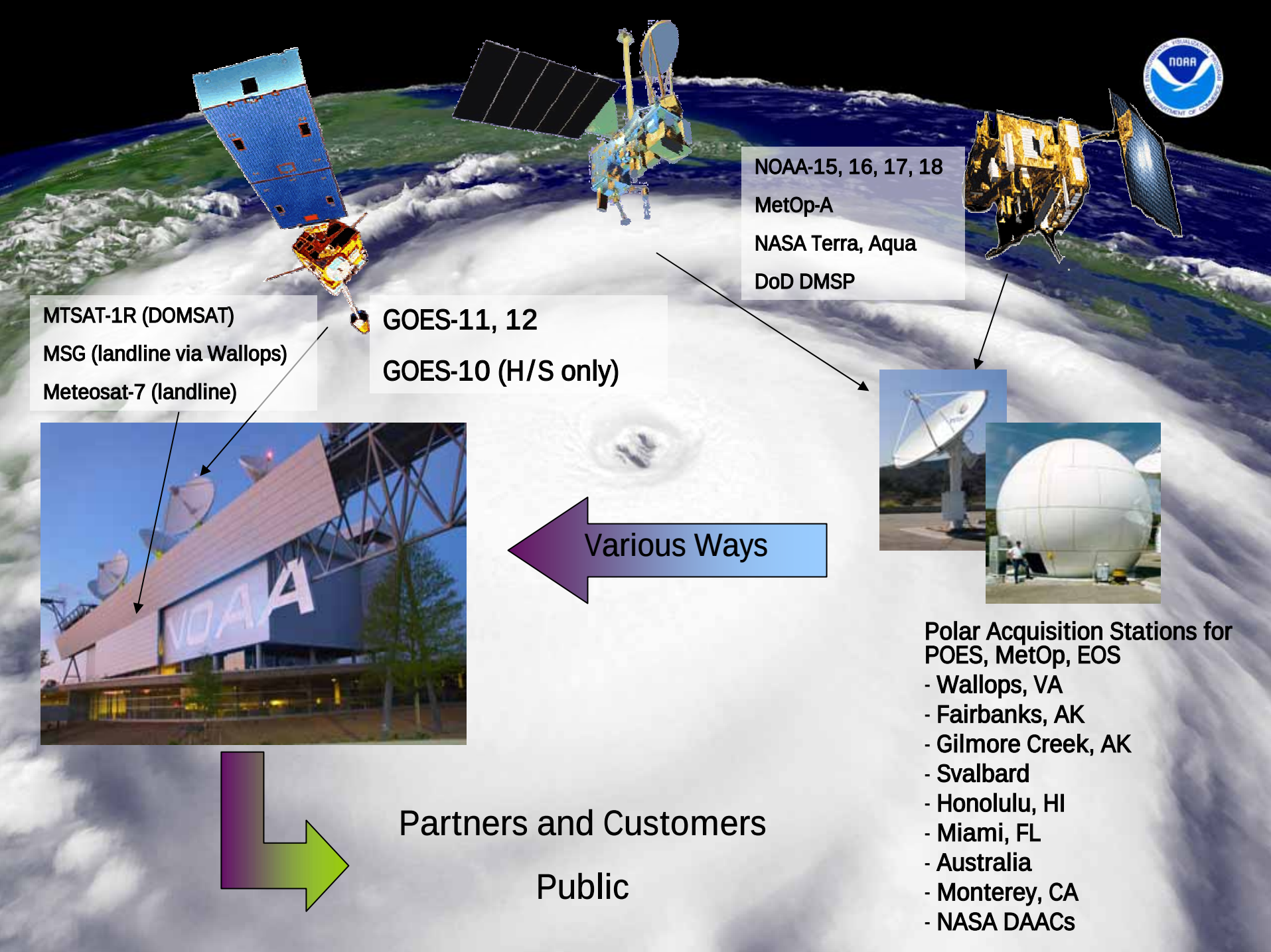
Brian Hughes, ESPC Operations Manager/Physical Scientist

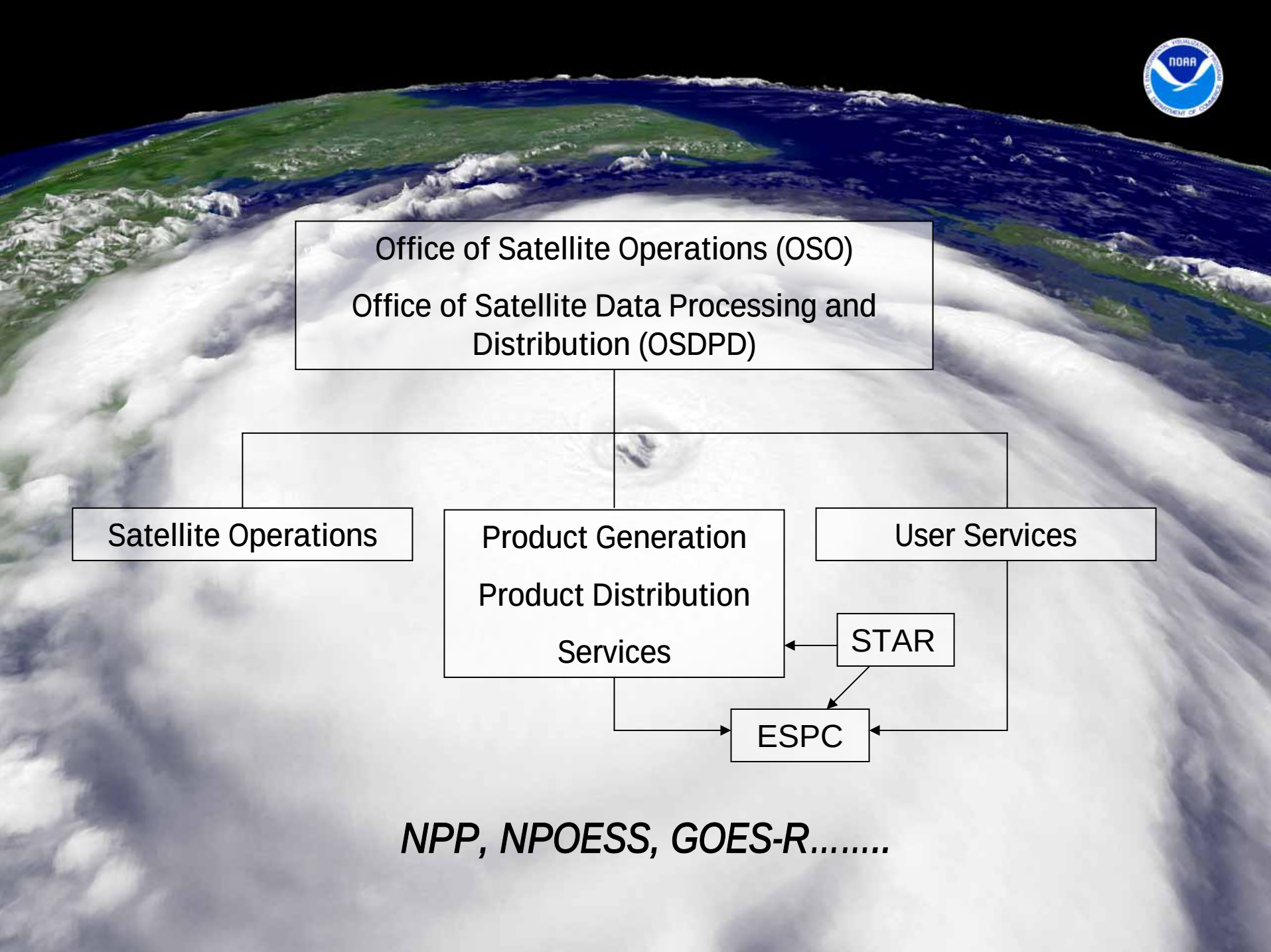
2007 McIDAS Users' Group Meeting

October 16-18, 2007

Madison, WI

- ESPC was created in 2005 after the contracts for the Central EnvironMental Satellite Computer System (CEMSCS) and the SATellite Environmental Processing System (SATEPS) were merged together.
- The NESDIS Office of Satellite Operations (OSO)/Data Processing and Distribution (OSDPD) manages the ESPC.
- ESPC is headquartered at the NOAA Satellite Operations Facility (NSOF) in Suitland, MD and the NOAA Science Center/World Weather Building in Camp Springs, MD.


NOAA-15, 16, 17, 18
MetOp-A
NASA Terra, Aqua
DoD DMSP
MTSAT-1R (DOMSAT)
MSG (landline via Wallops)
Meteosat-7 (landline)
GOES-11, 12
GOES-10 (H/S only)
Various Ways
Partners and Customers
Public
Polar Acquisition Stations for POES, MetOp, EOS
- Wallops, VA
- Fairbanks, AK
- Gilmore Creek, AK
- Svalbard
- Honolulu, HI
- Miami, FL
- Australia
- Monterey, CA
- NASA DAACs


Office of Satellite Operations (OSO)
Office of Satellite Data Processing and Distribution (OSDPD)
Satellite Operations
Product Generation
Product Distribution
Services
User Services
STAR
ESPC
NPP, NPOESS, GOES-R.....

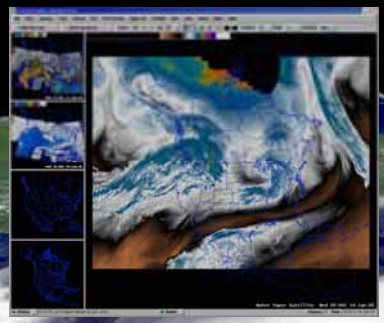
Office of Satellite Data Processing and Distribution (OSDPD)

- Information Processing Division
  - Computer Operations (24x7 monitoring, Help Desk)
  - Enterprise IT Architecture
  - ESPC Contract Management
- Program Management Division
  - Planning, Programming, Budget, and Execution System (PPBES)
- Satellite Services Division
  - Products and Services
  - User Services
  - Interaction with STAR (R2O)

Satellite Services Division (SSD)

Serves as the primary interface between NOAA and our partners, customers, and users of NOAA's operational satellite data products and services. These high quality products are either automated, human generated, or a man/machine mix and are distributed to users in a timely fashion. SSD also provides scientific expertise in the field of remotely sensed environmental applications, and works closely with the research community in the development of such products. SSD provides management of unique satellite based services such as Data Collection and Search and Rescue (SARSAT).

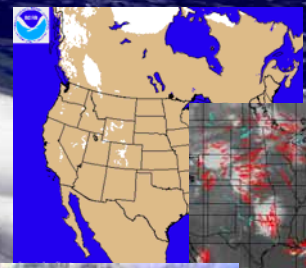
Product Implementation Branch	Satellite Analysis Branch	Direct Services Branch
Product Area Leads	Hazard Analysis	SARSAT
Integrating Tools	Satellite data and product verification	Argos/DCS
Product Development w/STAR	Interaction with NWS/NCEP	Direct Readout
Application Validation	Operational Development	NOAASIS

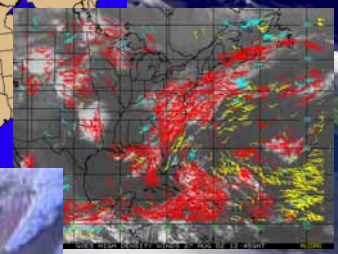


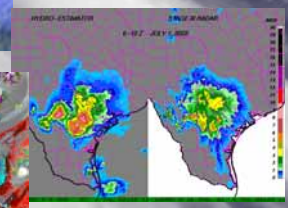
AWIPS Users (NOAAPort)

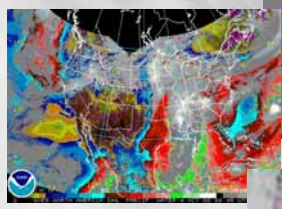
GVAR ingest

GOES Ingest/NOAAPort Interface (GINI)

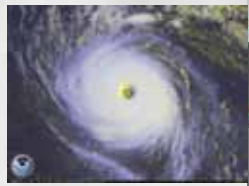








McIDAS SDI



Environmental Applications

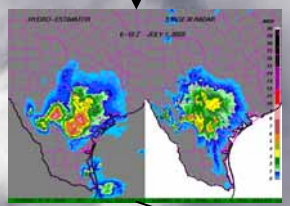
Product Implementation Branch

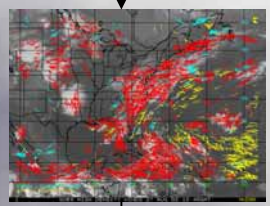
McIDAS for automated processing and serving of satellite data and products

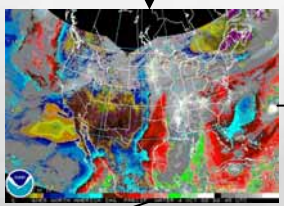
Interaction with STAR for product tailoring, updates, calibration, formats, etc.

Product Oversight Panel (POP)

Integrated Product Teams (IPT)



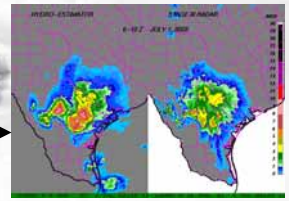


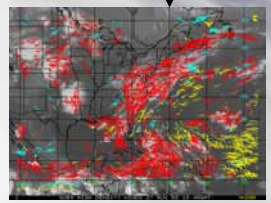


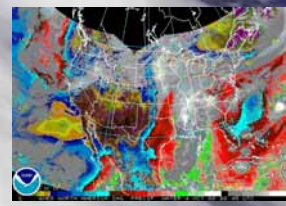
Users

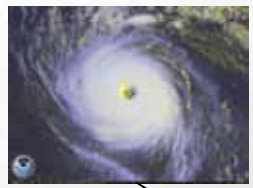
Satellite Analysis Branch

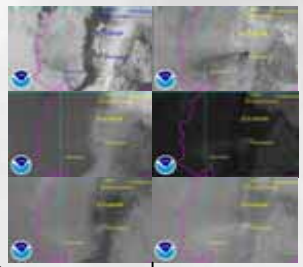
McIDAS for interactive analyses and interpretive products, focused mission for hazards

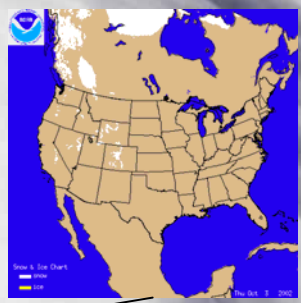












SPE

Trop DT

TRaP

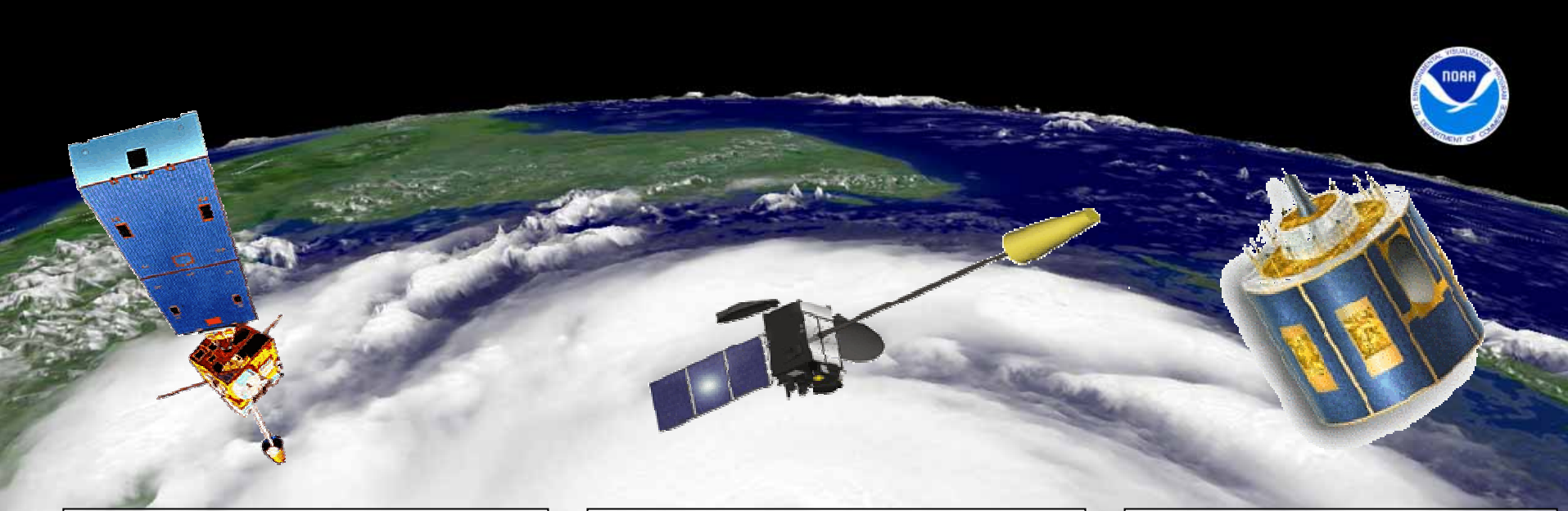
VAA

HMS

IMS

OSEI

AODT



GOES-12: East at 75° W

GOES-11: West at 135°
- 12 μm channel

GOES-13: On Orbit Spare at 105° W

GOES-10: South American Coverage at 60° W
- H/S only

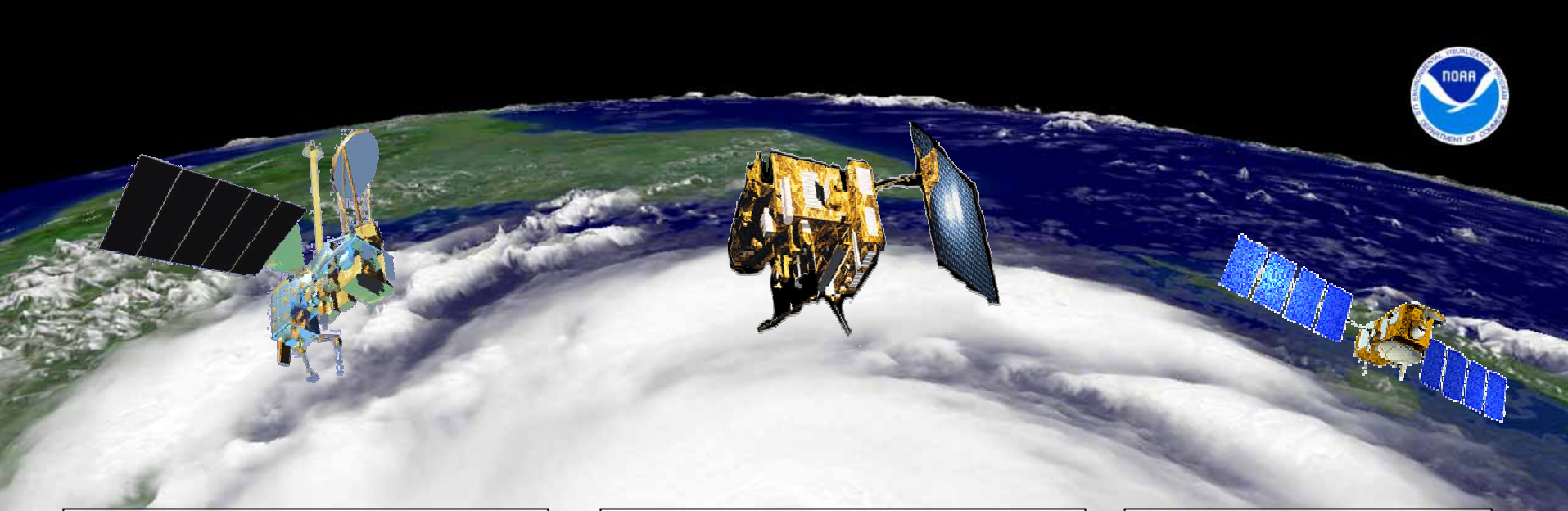
MTSAT-1R: Pacific at 140° E
- Now HRIT Only via DOMSAT from Hawaii

MSG-2: Europe/Africa at 0°
- 12 band SEVIRI

Meteosat-7: Asia/India at 57° E

FY-2C: backup/dev at 105° E

Kalpana-1: backup/dev at 74° E



METOP-A: AM Primary

NOAA-18: PM Primary

NOAA-17: AM Backup

NOAA-16: PM Backup

NOAA-15: AM Secondary

DMSP F-13

DMSP F-14

DMSP F-15

DMSP F-16

NASA Terra

NASA Aqua

SeaWIFS

CORIOLIS/WindSat

Jason-2

GOES-O: April 08

- 4 km 13.3 μm

GOES-P: April 09

GOES-R: 2014

- ABI, GLM, UPS

GOES-S: 2016

- ABI, HES

Jason-2: June 2008

NOAA-N': Feb 09

NPP: September 2009

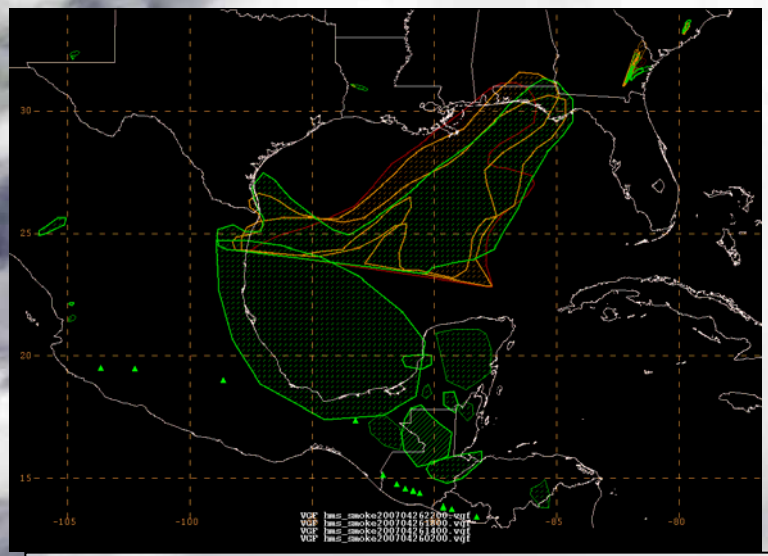
NPOESS C1: 2013

NPOESS C2: 2015

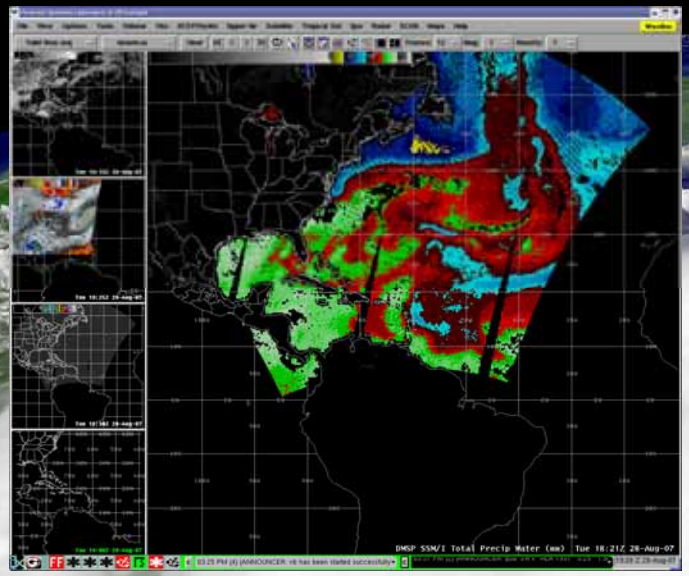
Successful GOES-13 launch May 24, 2006

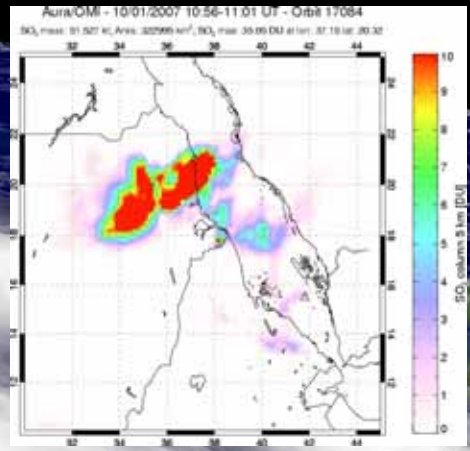
New product initiatives including multiple output formats for diverse types of systems: GIS, N-AWIPS (VGF), Google Earth, among others.

Analysis of Volcanic Ash from multiple sources converted into Google Earth (KML/KMZ) files



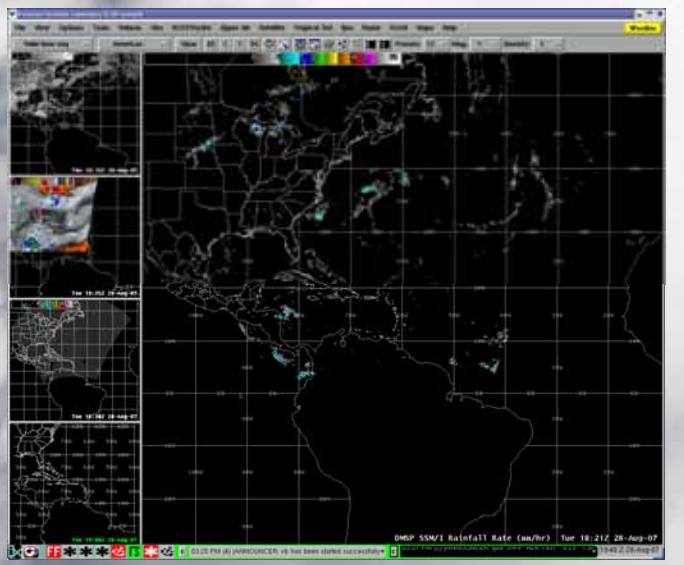
Analysis of smoke converted into shapefile (for GIS) and VGF for N-AWIPS users





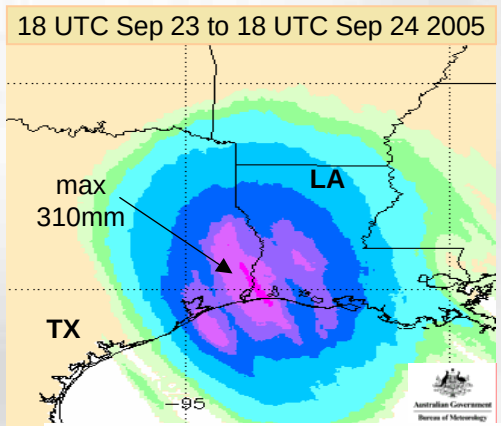
SO2 products from OMI

Polar Microwave and Vis/IR composites in NOAAPort

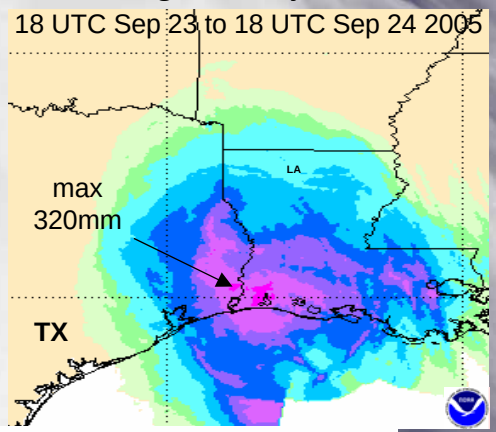


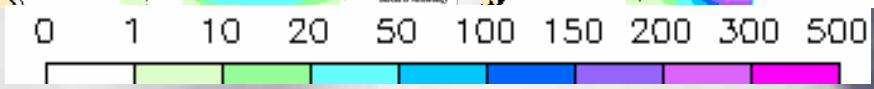
Development of the Ensemble Tropical Rainfall Potential (e-TRaP)

Multi-satellite 24h *e*-TRaP

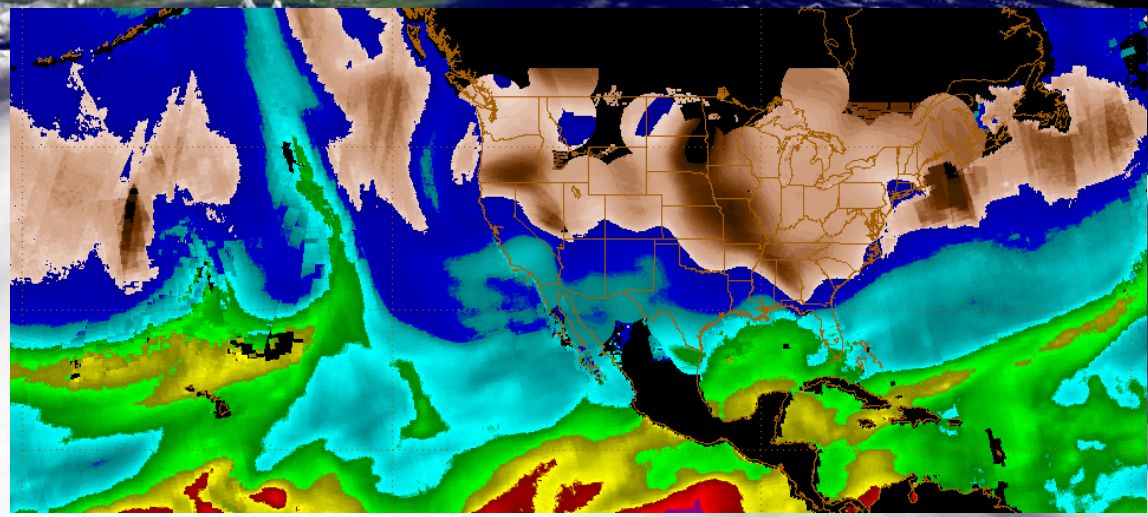


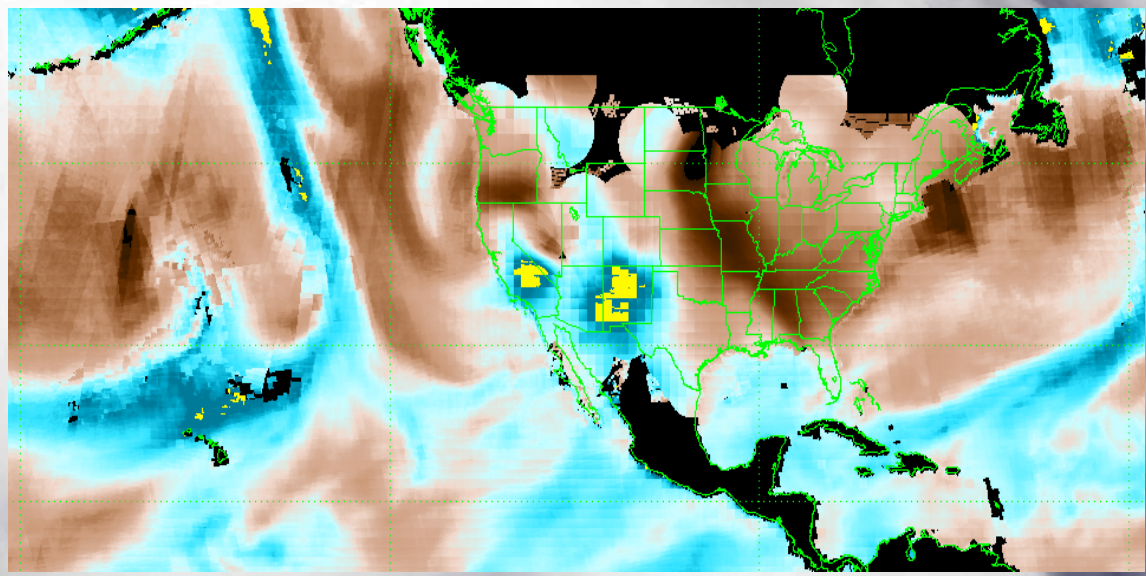
Stage IV analysis



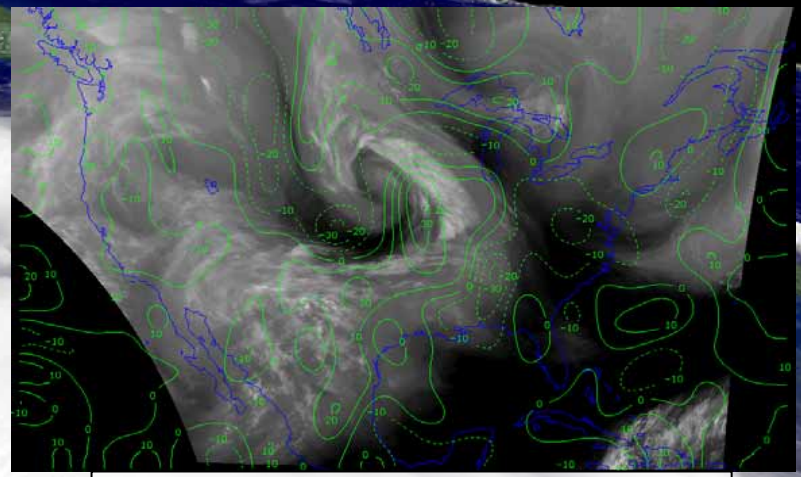


Blended Total Precipitable Water (TPW) global view from AMSU, SSM/I, and GPS

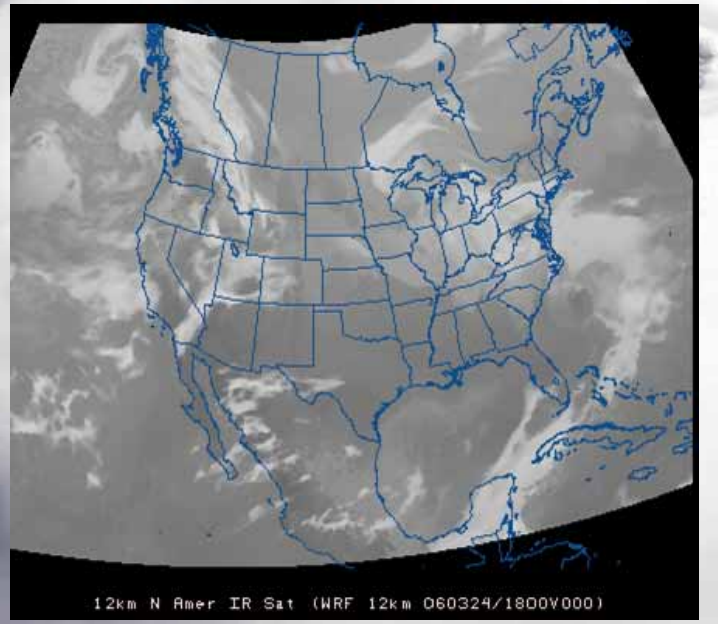




Satellite Analysis Branch collaborations with our research partners at STAR-CIMSS, NWS-NSSL, and NWS-NCEP

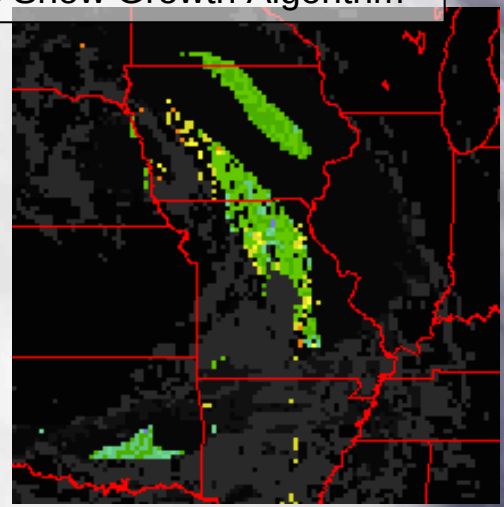


SAB-CIMSS collaboration on Wind Divergence Algorithm



SAB-NCEP collaboration on synthetic satellite imagery from NWP radiances

SAB-CIMSS-NSSL collaboration on Dendridic Snow Growth Algorithm



Future Endeavors:

More blending of satellite sources, model, and in-situ data

More automation of hazard (volcano, fires, ice, precip) signature detection through the use of multiple satellites, instruments, and observations: SO2, Infrasonics, Multispectral IR, ground and pilot observations, GOES/POES blending.

Increased collaboration with the research community, especially with the increase in the number of instruments and channels available to users: NPP, GOES-R, NPOESS (leveraging off of the NDE, creating a “GDE”?)

Increased outreach and training of partners and users, especially in light of new satellites, instruments, and products. Increased web based training: COMET, VISIT.