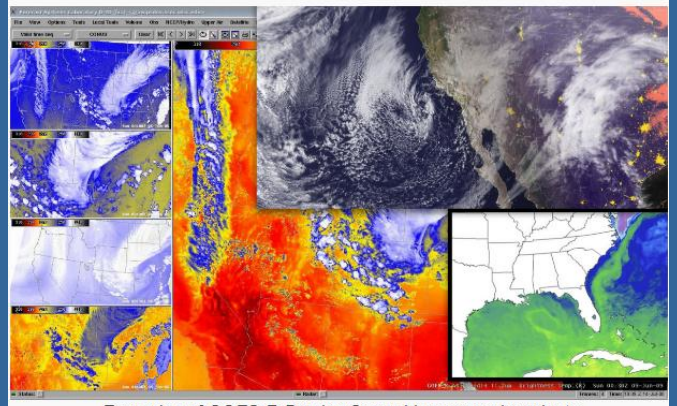
Training in NOAA Satellite Proving Ground

Anthony Mostek and LeRoy Spayd
NOAA/NWS/Training Division
With
Jim Gurka and Tim Schmit
NOAA/Satellite & Information Service



Examples of GOES-R Proving Ground images and products

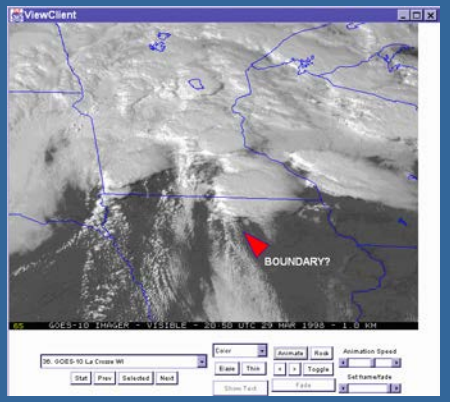
GOES-R Satellite Proving Ground Mission Statement

The Geostationary Operational Environmental Satellite (GOES-R) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems…

AMS
January 2013

Key Points for Satellite Training

- ✓ Integral to Satellite Programs/Goals
- ✓ Satellite Training Community
- ✓ Satellite (GOES-R) Proving Ground
- ✓ Polar Satellites (JPSS/NPP) Included
- ✓ Training Summary

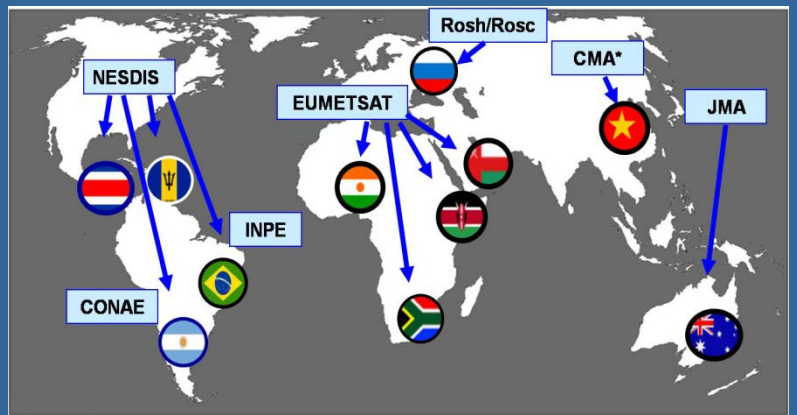


Training Community

- Dedicated NWS Training Division with 3 Branches
- Partners in NOAA - -
  Cooperative Institutes & Programs
- With US Agencies (DOD, NASA, FEMA, …)

Training Community

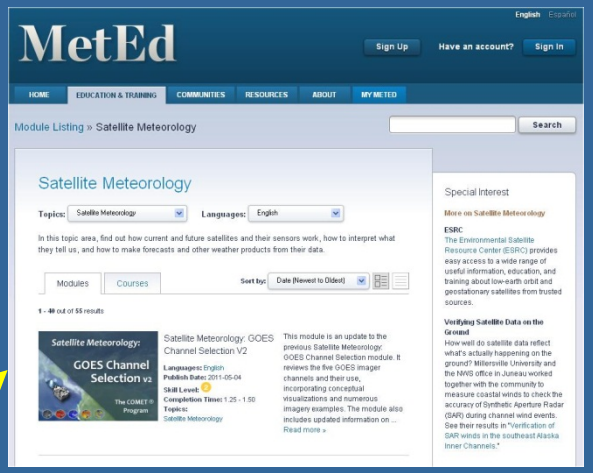
- International Collaboration
  - WMO Space Programme Virtual Laboratory, Centres of Excellence (Argentina, Barbados, Brazil, Costa Rica, …), Canada, EUMETSAT, and more…



Working Together for Satellite Training

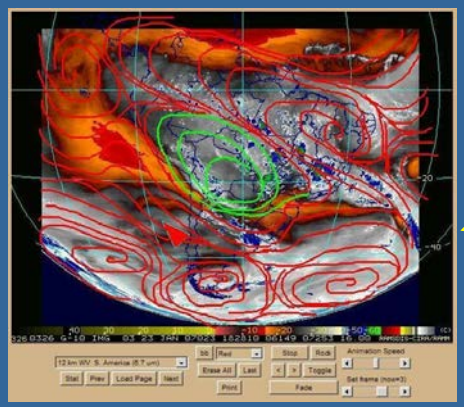
VISIT (CIRA/CIMSS)

NOAA Partners
EUMETSAT, DOD,
NASA, Canada,…



UCAR/COMET

Satellite
Proving
Ground



WMO (Virtual Lab)

NWS Training
Division

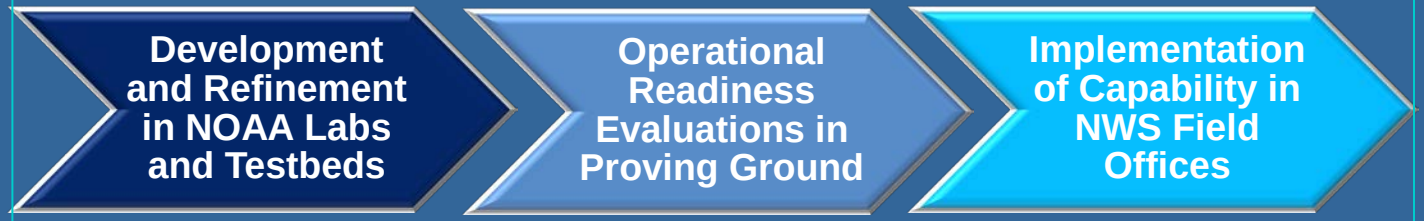
Users & Developers

Training in GOES-R Proving Ground (PG)

- PG is both a source and sink for training
  - Participants must be trained in order to provide a meaningful evaluation of products
  - The PG provides a rich source of new training material

NWS Operations Proving Ground Mission

To advance the processes and skill sets needed to generate, deliver, and communicate weather information by evaluating end-to-end service delivery in a realistic operational setting.



To authenticate candidate capabilities, it is essential to involve core partners; test local, regional, and national linkages; assess impact on workload, workflow, and other human factors; and obtain objective validation of our DSS effectiveness and associated risk communication messaging.

opg
Operations Proving Ground

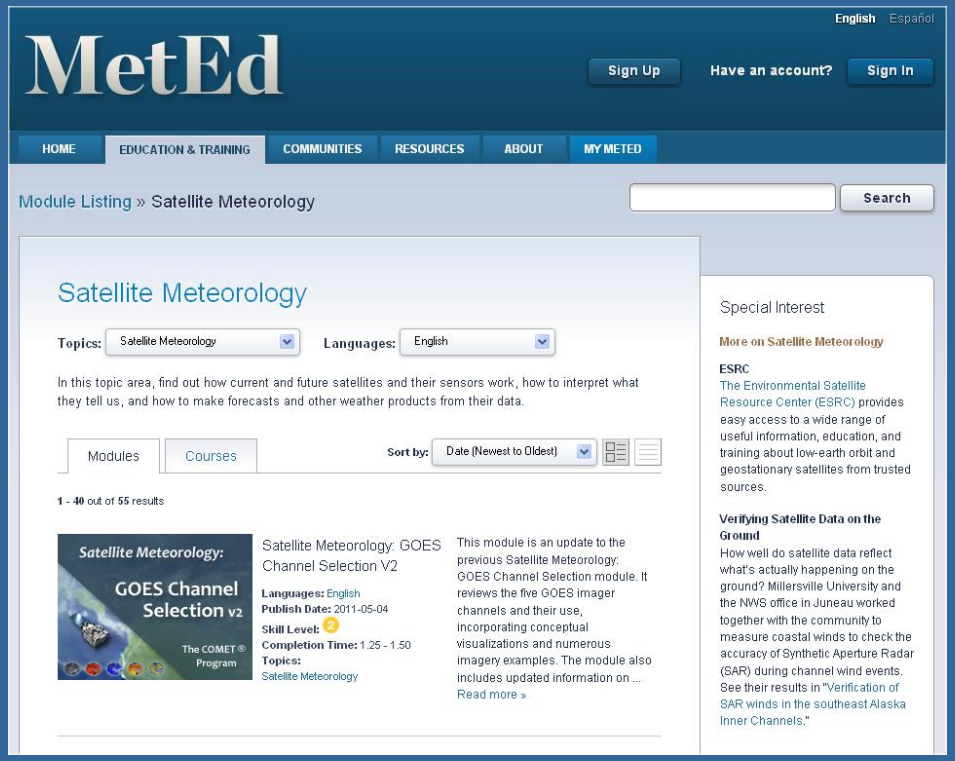
Proving Ground CIMSS

UW/CIMSS NOAA Proving Ground Decision Support Products								
Product	Contact	Training		AWIPS Setup	Web Quicklooks	Satellite Platform	WFO Testbed Feedback	Product Type
		VISIT	PPT					
Convective Initiation(UWCI)	Wayne Feltz	X	X	X	X	GOES Imager	HWT, AWC, PR	Product Variant
Overshooting Top (OTTC) and Enhanced-V	Wayne Feltz Kris Bedka	X	X			GOES Imager, MODIS/AVHRR	HWT, HLT	AWG Proxy
WRF Simulated Radiances (ABI Simulated Radiances)	Justin Sieglaff		pdf		X		HWT	Risk Reduction
WildFire ABBA (WFABBA)	Chris Schmidt				X	GOES Imager	HWT	AWG Proxy
NearCast	Ralph Petersen	X	X	X	X	GOES Imager, GOES Sounder	HWT	Risk Reduction
Cloud Mask	Andrew Heidinger		X		X	GOES Imager, MODIS (Adaptable to any imager)	AAWU, AWC, HLT, PR, OPC	AWG Proxy
Cloud Height	Andrew Heidinger		X	Contact Researcher	X	GOES Imager, AVHRR (Adaptable to any imager)	AAWU, AWC, HLT, PR, OPC	AWG Proxy
Volcanic Ash	Mike Pavolonis	X	X			MODIS, SEVIRI	AAWU, AWC, HLT, PR	AWG Proxy
Low Clouds, Cloud Type, Fog	Mike Pavolonis		X Quick Facts	Contact Researcher		MODIS-Alaska, GOES-CONUS	AAWU, AWC, HLT, HWT	AWG Proxy
SO_2	Mike Pavolonis					MODIS	AAWU, AWC	AWG Proxy

Proving Ground CIRA

Product	Contact	Related Training	Data Display	WFO / Testbed Feedback	Product Type	Usage
GeoColor Imagery	Steve Miller	Product Description	AWIPS web	WFO	New Imagery / Visualization Technique	Visualization
MODIS Simulated True Color Imagery	Steve Miller	Product Description	web	WFO	New Product	Visualization
GOES Low Cloud / Fog Imagery	Don Hillger	Product Description COMET	AWIPS web	WFO	Product Variant	Cloud determination
MODIS Cirrus Detection	Steve Miller	Product Description	AWIPS web	WFO	New Product	Cloud determination
Orographic Rain Index (ORI)	Steve Miller	Product Description	AWIPS web	HWT	New Product	Rainfall
Marine Stratus Cloud Climatology	Cindy Combs	Product Description VISIT student guide		WFO	New Product	Cloud determination
GOES Blowing Dust	Don Hillger	Product Description COMET COMET EUMETSAT training	AWIPS web	HWT	Product Variant	Volcanic Emissions / Dust
MODIS Based Blowing Dust	Steve Miller	Product Description COMET COMET EUMETSAT training	AWIPS web	HWT	Product Variant	Volcanic Emissions / Dust
MODIS Cloud / Snow Discriminator	Steve Miller	Product Description COMET	AWIPS web	WFO	Product Variant	Snow / Cloud determination
MODIS Cloud Layers & Snow Cover Discriminator	Steve Miller	Product Description COMET	AWIPS web	WFO	Product Variant	Snow / Cloud determination
GOES Snow / Cloud Discriminator (3-color technique)	Don Hillger	Product Description COMET	web	WFO	Product Variant	Snow / Cloud determination
GOES Volcanic Ash (PCI)	Don Hillger	Product Description VISIT student guide EUMETSAT training	web	HWT	Product Variant	Volcanic Emissions / Dust
MODIS Volcanic Ash	Steve Miller	Product Description VISIT student guide EUMETSAT training	web	HWT, AWC	Product Variant	Volcanic Emissions / Dust
MODIS Vegetation (NDVI)	Steve Miller	Product Description EUMETSAT training	web	WFO	New Product	Vegetation
SPC Hail Probability	Dan Lindsey	Product Description	N-AWIPS web	SPC Spring Experiment	New Product	Severe Thunderstorm

COMET METED


English Español
MetEd
Sign Up
Have an account?
Sign In
HOME
EDUCATION & TRAINING
COMMUNITIES
RESOURCES
ABOUT
MY METED
Module Listing » Satellite Meteorology
Search
Satellite Meteorology
Topics: Satellite Meteorology
Languages: English
In this topic area, find out how current and future satellites and their sensors work, how to interpret what they tell us, and how to make forecasts and other weather products from their data.
Modules
Courses
Sort by: Date (Newest to Oldest)
1 - 40 out of 55 results
Satellite Meteorology: GOES Channel Selection v2
The COMET® Program
Satellite Meteorology: GOES Channel Selection V2
Languages: English
Publish Date: 2011-05-04
Skill Level:
Completion Time: 1.25 - 1.50
Topics:
Satellite Meteorology
This module is an update to the previous Satellite Meteorology: GOES Channel Selection module. It reviews the five GOES imager channels and their use, incorporating conceptual visualizations and numerous imagery examples. The module also includes updated information on ...
Read more »
Special Interest
More on Satellite Meteorology
ESRC
The Environmental Satellite Resource Center (ESRC) provides easy access to a wide range of useful information, education, and training about low-earth orbit and geostationary satellites from trusted sources.
Verifying Satellite Data on the Ground
How well do satellite data reflect what's actually happening on the ground? Millersville University and the NWS office in Juneau worked together with the community to measure coastal winds to check the accuracy of Synthetic Aperture Radar (SAR) during channel wind events. See their results in "Verification of SAR winds in the southeast Alaska Inner Channels."


English Español
MetEd
Sign Up
Have an account?
Sign In
HOME
EDUCATION & TRAINING
COMMUNITIES
RESOURCES
ABOUT
MY METED
Module Listing » Satellite Meteorology
Search
Satellite Meteorology
Topics: Satellite Meteorology
Languages: English
In this topic area, find out how current and future satellites and their sensors work, how to interpret what they tell us, and how to make forecasts and other weather products from their data.
Modules
Courses
Sort by: Date (Newest to Oldest)
1 - 40 out of 51 results
SATELLITE PRECIPITATION PRODUCTS FOR HYDROLOGICAL MANAGEMENT IN SOUTH AFRICA
AN ASMET PROJECT
ASMET: Satellite Precipitation Products for Hydrological Management in Southern Africa
Languages: English
Publish Date: 2011-10-27
Skill Level:
Completion Time: .75 - 1.00 h
Topics:
Hydrology/Flooding, Satellite Meteorology
This module introduces a variety of meteorological and hydrological products that can improve the quality of heavy rainfall forecasts and assist with hydrological management during extensive precipitation events in Southern Africa. Among the products are the satellite-based ... Read more »
Special Interest
More on Satellite Meteorology
ESRC
The Environmental Satellite Resource Center (ESRC) provides easy access to a wide range of useful information, education, and training about low-earth orbit and geostationary satellites from trusted sources.
Verifying Satellite Data on the Ground
How well do satellite data reflect what's actually happening on the ground? Millersville University and the NWS office in Juneau worked together with the community to measure coastal winds to check the accuracy of Synthetic Aperture Radar (SAR) during channel wind events. See their results in "Verification of SAR winds in the southeast Alaska Inner Channels."

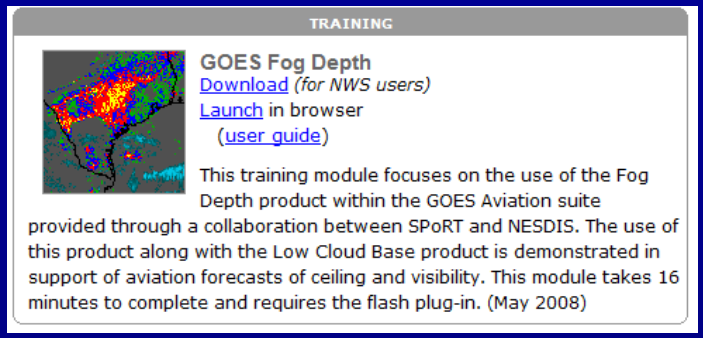
GOES-R:

Benefits of Next-Generation Environmental Monitoring

Training and Education

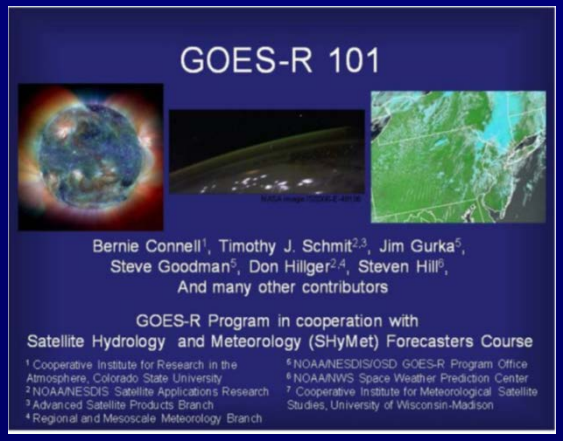
Online Training Modules

- GOES-R: Benefits of Next-Generation Environmental Monitoring (COMET)
- GOES-R 101
- Satellite Hydrology and Meteorology for Forecasters (SHyMet)
- SPoRT product training modules
- Commerce Learning Center



Printed Materials

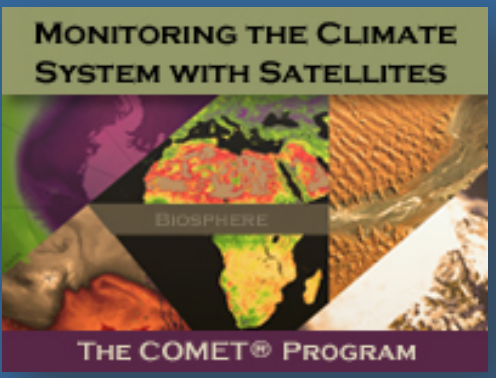
- GOES-R Fact Sheets (17)
- GOES-R Tri-fold

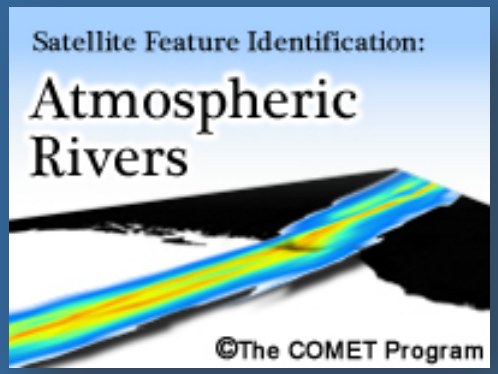


Outreach Projects (with NWSFOs)

- **COMET will reach out to the GOES-R Proving Ground Partners and connect them with university faculty to use current and prototype data products for the purpose of building a bridge from products that are currently available to those that will become available when GOES-R is launched.**

12



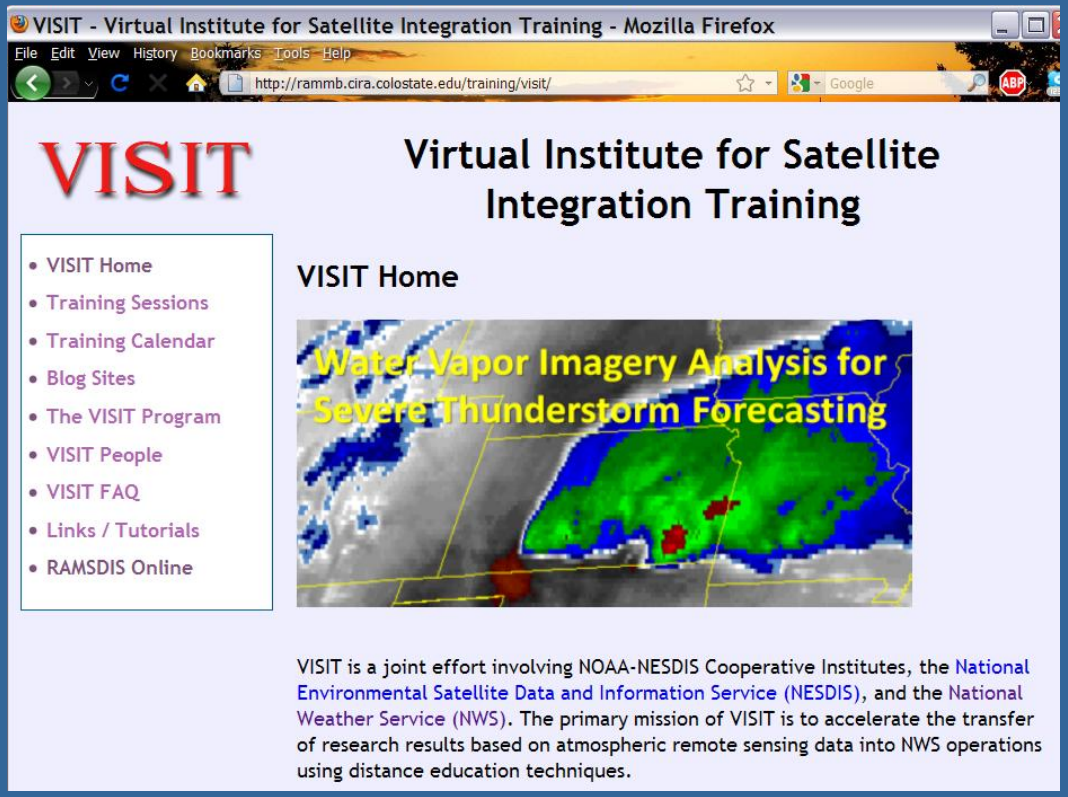


FY12 Satellite-specific Training Modules by COMET with complete or partial NESDIS funding

Funding also supports conference participation to promote the materials and interact with experts

- GOES-R ABI…. 2nd quarter FY13
- *Monitoring the Climate System with Satellites* (with EUMETSAT)
- *Satellite Feature Identification: Atmospheric Rivers* (with MSC)
- *Atmospheric Dust*
- *Microwave Remote Sensing: Overview, 2nd Edition*
- Remote Sensing Using Satellites, 2nd Edition, fall 2012
- Polar-Orbiting Nighttime Applications, work underway
- Monitoring Atmospheric Composition with Satellites (with EUMETSAT) fall 2012
- *Imaging with VIIRS: A Convergence of Technologies and Experience, 2nd Edition*
- *Suomi NPP: A New Generation of Environmental Monitoring Satellites*
- The Environmental Satellite Resource Center Website

VISIT & Satellite HydroMeteorology (SHyMet) Courses



VISIT

Virtual Institute for Satellite Integration Training

FY11-12 Live Training Sessions

Synthetic Imagery in Forecasting Orographic Cirrus (January 2011)

Synthetic Imagery in Forecasting Severe Weather (February 2011)

Objective Satellite-Based Overshooting Top and Enhanced-V Anvil Thermal Couplet Signature Detection (February 2011)

Volcanoes and Volcanic Ash Part 2 (March 2011)

GOES-15 Becomes GOES-West (December 2011)

VISIT Satellite Chats (short, interactive discussions, Q&A, monthly since February 2012)

- **Topics:**
- **Fog and Low-Cloud Detection from Satellite (2-22-2012)**
- **Water Vapor Imagery (3-21-2012)**
- **Satellite Related Severe Weather Products (4-25-2012)**
- **Fire Weather Imagery and Products (5-23-2012)**
- **Mesoscale Convective Vortices (6-27-2012)**

Synthetic Imagery in Forecasting Low Clouds and Fog (April 2012)

Pseudo GOES Lightning Mapper (May 2012)

Tropical Cyclone Intensity Model Guidance Used by NHC (June 2012, updated)

Tropical Cyclone Track Model Guidance Used by NHC (June 2012, updated)

Convective Cloud Top Cooling, UW Convective Initiation Algorithm (July 2012)

VISIT

Additional Live VISIT Training Sessions in 2011, 2012

TROWAL Identification (winter weather satellite application)
UW Nearcasting Product (for severe weather)
Morphed Total Precipitable Water Detection (MIMIC)
POES and AVHRR Data in AWIPS
UW Convective Initiation Products (GOES-based CI Algorithm)
Convective Downbursts
GOES Imagery for Forecasting Severe Weather
Water Vapor Imagery Analysis for Severe Weather
Mesoscale Convective Vortices
Basic Satellite Interpretation in the Tropics
Basic Satellite Principles
Interpreting Satellite Signatures
Satellite Interpretation of Orographic Clouds
Utilizing GOES Imagery to Forecast Winter Storms – Part 1, 2
CIMSS Regional Assimilation System – Forecast Satellite Imagery in AWIPS
Cyclogenesis: Analysis Using Geostationary Satellite Imagery

SHyMet

- Course dedicated to operational satellite meteorology
- Consists of 14 lessons mostly via Web modules and teletraining
- Utilizes training resources available through COMET
- NOAA LMS provides structure to organize components into cohesive lessons
- Course funded by NESDIS

RAMMB
Regional and Mesoscale Meteorology Branch

NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

CIRA
Cooperative Institute for Research in the Atmosphere

Cooperative Research Program | Office of Research and Applications/Center for Satellite Applications and Research

VISIT

SHyMet

University of Wisconsin-Madison Space Science and Engineering Center
Cooperative Institute for Meteorological Satellite Studies

Satellite Hydrology and Meteorology (SHyMet)

- SHyMet Home
- SHyMet Intern Course
- Overall SHyMet Distance Training
  - Introduction
  - Target Audience
  - Training Topics
- Key Contributors
- Sponsors

A new course dedicated to operational satellite meteorology

Main Objective

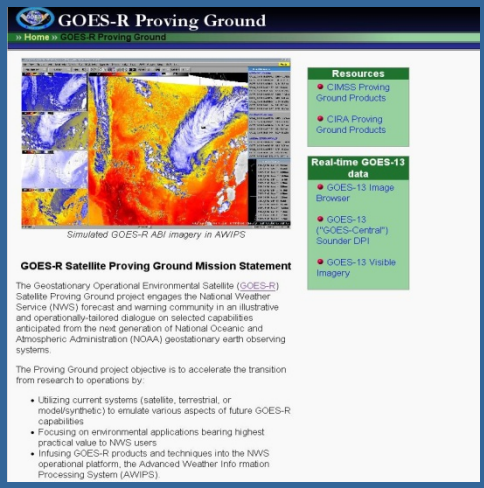
To prepare National Oceanic and Atmospheric Administration (NOAA) and National Weather Service (NWS) users for the latest polar orbiting and geostationary satellite data and products in the warning and forecast programs with direct links to Government Performance Results Act (GPRA) goals.

Completes end-to-end program cycle for space-based remote sensing as part of NOAA's Strategic Plan for an Integrated Global Environmental Observation and Data Management System and Global Earth Observation System of Systems (GEOSS).

NEW Click here to take the VISIT / SHyMet New Topics Survey

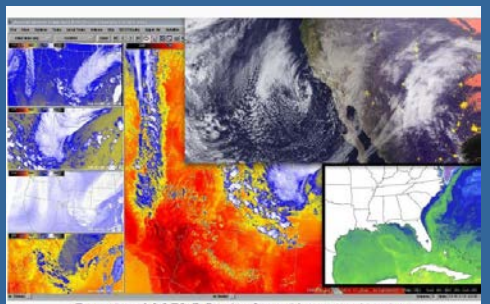
Proving Ground
Advanced Training

- Commerce Learning Center, VISIT, SHyMet and COMET/METED
- Include Quizzes & Evaluations
- Cases (Weather Event Simulator - WES)
- Focus on Human Performance
- For All NOAA Staff
- Expand to International Users



Summary – Training Take Away

- ✓ Collaborative International Training Community
- ✓ Helps NOAA & Partners Meet Their Goals
- ✓ Integral to Proving Ground and GOES-R Success
- ✓ Include Polar Satellites (JPSS/NPP)



Examples of GOES-R Proving Ground images and products

GOES-R Satellite Proving Ground Mission Statement

The Geostationary Operational Environmental Satellite (GOES-R) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems...

Contact Information

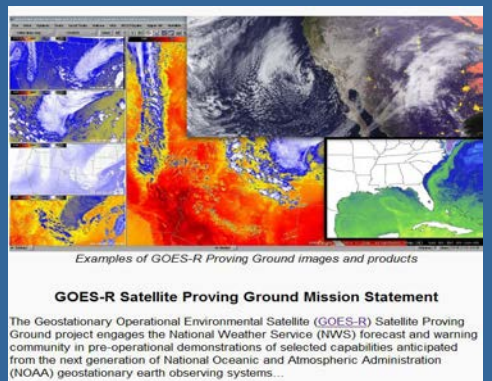
James.Gurka@noaa.gov

VISIT - rammb.cira.colostate.edu/visit/visithome.asp

COMET METED - meted.ucar.edu

Proving Ground –

cimss.ssec.wisc.edu/goes_r/proving-ground.html



Examples of GOES-R Proving Ground images and products

GOES-R Satellite Proving Ground Mission Statement

The Geostationary Operational Environmental Satellite (GOES-R) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems...