

# Satellite Meteorology Education Resources from COMET: What's New?

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The COMET Program

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*AMS Annual Meeting, Seattle*

Multispectral Satellite Applications:  
RGB PRODUCTS EXPLAINED

**BEGIN**

- METED Home
- COMET Home
- Print Version
- Download Version
- Module Quiz
- User Survey
- Contributors
- Tech Notes

Volcanic eruption of Mt Nyamuragira    Dust outbreak from Northern Africa    Fires over the Korean Peninsula

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<ul style="list-style-type: none"> <li>Aviation Weather</li> <li>Climate</li> <li>Coastal Weather</li> <li>Convective Weather</li> <li>Emergency Mgmt</li> <li>Environment &amp; Society</li> <li>Fire Weather</li> <li>Fog and Low Stratus</li> <li>Hydrology /Flooding</li> <li>Marine Met/Oceans</li> <li>Mesoscale Met</li> <li>Mountain Met</li> <li>NWP (Modeling)</li> <li>QPF/QPE (Precip)</li> <li>Radar Meteorology</li> <li>Satellite Meteorology</li> <li>Space Weather</li> <li>Tropical/Hurricanes</li> <li>Winter Weather</li> <li>Other</li> <li>List of all Modules</li> </ul>	<ul style="list-style-type: none"> <li>Outreach Program</li> <li>SOOs</li> <li>WCMs</li> <li>Northern Latitudes</li> <li>ESRC</li> <li>NPOESS Userport</li> <li>Broadcast Met</li> <li>K-12 and the Public</li> <li>Higher Education</li> <li>Int'l Warning Systems</li> <li>CALMet</li> </ul> <div style="background-color: #0056b3; color: white; text-align: center; padding: 2px; font-weight: bold;">RESOURCES</div> <ul style="list-style-type: none"> <li>Accounts/Registration</li> <li>Registration FAQ</li> <li>Downloads</li> <li>Module Quizzes</li> <li>Outside Links</li> <li>Spanish Resources</li> </ul>	<ul style="list-style-type: none"> <li>Residence and Virtual Courses</li> <li>Distance Courses</li> </ul> <div style="background-color: #0056b3; color: white; text-align: center; padding: 2px; font-weight: bold;">CASES</div> <ul style="list-style-type: none"> <li>NorLatMet Cases</li> <li>NWP Cases</li> </ul> <div style="background-color: #0056b3; color: white; text-align: center; padding: 2px; font-weight: bold;">ABOUT MetEd</div> <ul style="list-style-type: none"> <li>Contact Us</li> <li>Support</li> <li>Legal Notices</li> <li>Mission and Sponsors</li> <li>COMET Awards</li> <li>Subscribe to Updates</li> <li>What's new</li> <li>Coming soon</li> </ul>

### Of Special Interest

**The Social COMETeer**

Do you have a Facebook account? Interested in connecting with other COMET/MetEd users? Visit, connect and share on [COMET's Facebook group page](#).

And for those of you that are avid photographers, we recently set up a [COMETwX Flickr group](#) to share images. We're always looking for good shots to include in our modules and here's a great way to share your photos with us and the rest of the COMET community.



**Are you going mobile? We're thinking about it...**



We're experimenting with [Mobile MetEd](#), a version of MetEd with links to our print versions for viewing content on low-bandwidth with small screens. It's a work in progress but feel free to visit our latest incarnation at: <http://meted.ucar.edu/>

### What's New?



**Media Added to MetEd Search**  
We've linked our search results to our database of images and animations used in our modules. We currently have close to 8000 items in the media database available for searching. Check it out and grab the content you need to enhance your own presentations.

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### Recent Publications

[RSS](#)



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- [Determining Plausible Forecast Outcomes](#)
- [Unit Hydrograph Theory: International Edition](#)
- [Understanding the Hydrologic Cycle: International Edition](#)
- [Environmental Satellite Resource Center \(ESRC\) version 2.0](#)
- [Writing TAFS for Ceilings and Visibility](#)
- [River Ice Processes - Short Version](#)
- [Multispectral Satellite Applications: RGB Products Explained](#)

# MetEd Registration Statistics

## Date 2011

Total Registered Users	>#
Total International Users	> #
Total Countries (includes Dependencies and Territories)	> 200
Total Universities	> #
Hours of Instruction	> 600



# Module Topic Areas

## Aviation



## Climate



## Coastal Weather



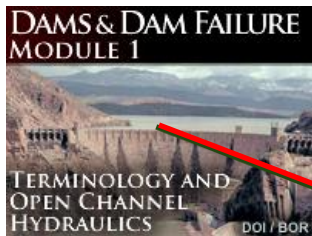
## Environmental Education



## Fire



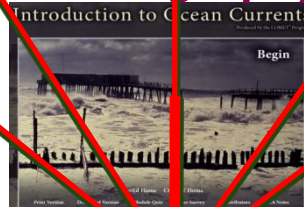
## Hydrometeorology



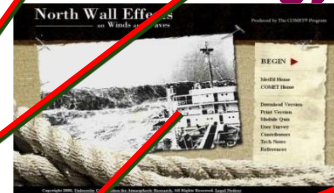
## International Activities



## Marine Met & Oceanography



## Mesoscale Meteorology



## Northern Latitudes



## Satellite Meteorology



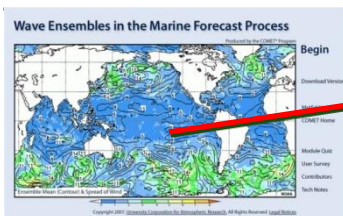
## Tropical Meteorology



## Space Weather



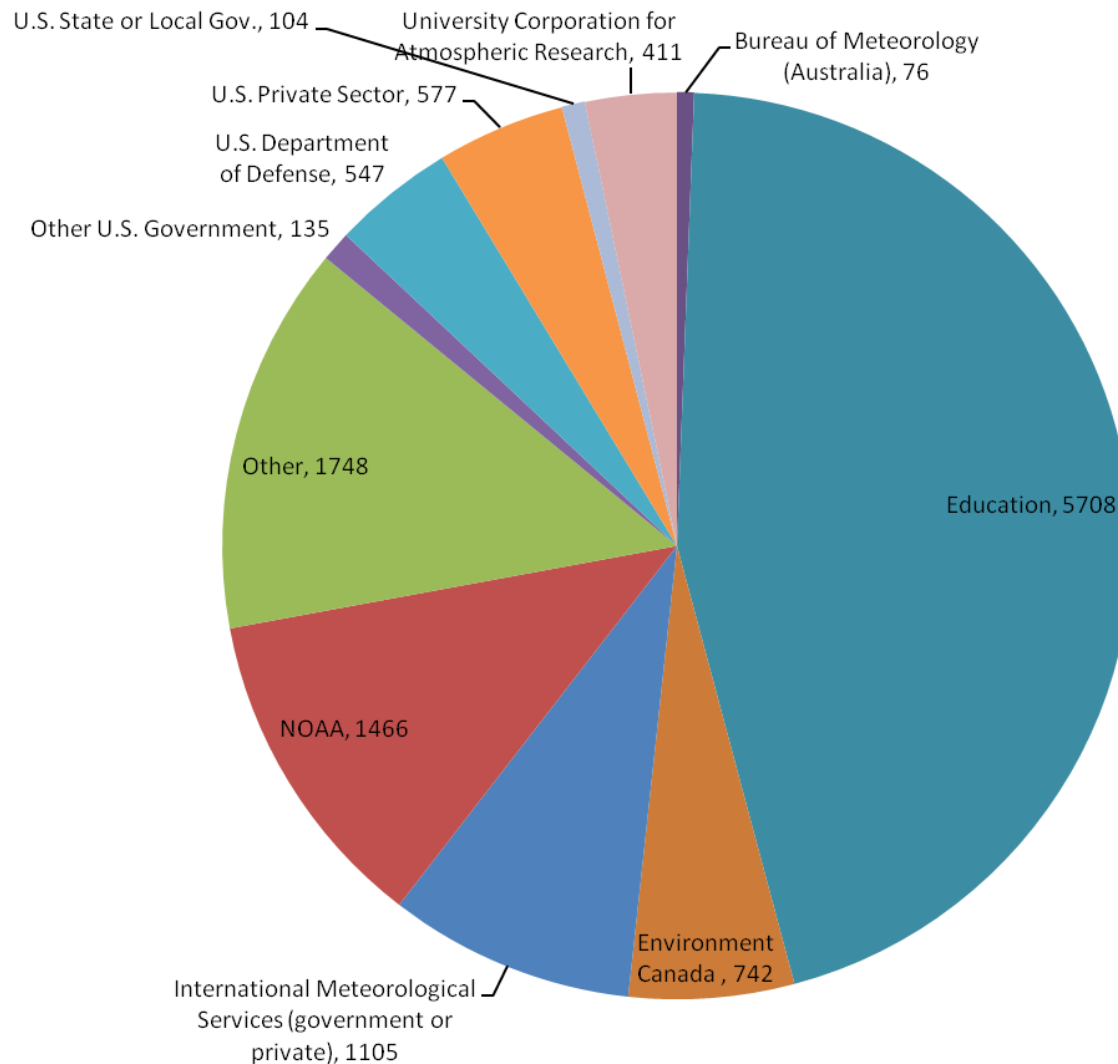
## Numerical Weather Prediction



## Road Weather



# FY10 Satellite Module Usage



# COMET Modules on Satellite Topics

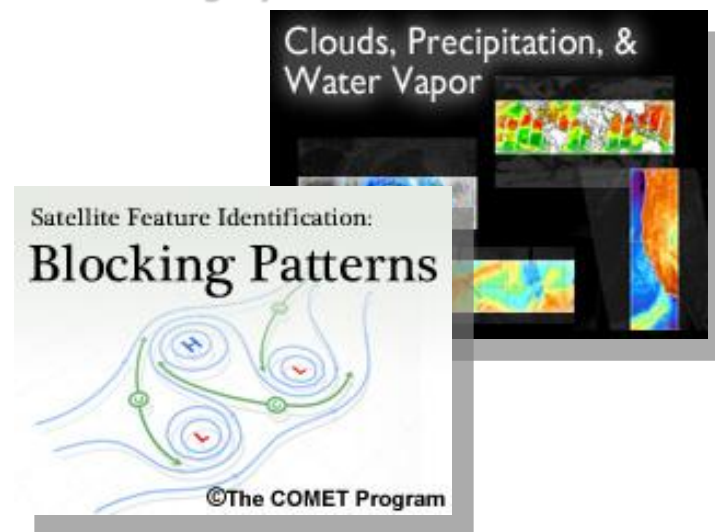
- Advanced Satellite Sounding: The Benefits of Hyperspectral Observation
- Advances in Microwave Remote Sensing: Ocean Wind Speed and Direction
- An Introduction to POES Data and Products
- **An Introduction to the EUMETSAT Polar System**
- Blowing Snow: Baker Lake, Nunavut, Canada 04-10 February 2003
- Creating Meteorological Products from Satellite Data
- **Deformation Zone Analysis**
- **Deformation Zone Diagnosis**
- **Deformation Zone Distribution**
- Determining Visibility
- Dust Enhancement Techniques Using MODIS and SeaWiFS
- Dynamic Feature Identification: The Satellite Palette
- Feature Identification Exercises: Clouds, Snow, and Ice Using MODIS
- Feature Identification Using Environmental Satellites
- Forecasting Dust Storms
- FORMOSAT-3/COSMIC
- **GOES-R: Benefits of Next-Generation Environmental Monitoring**
- Imaging with NPOESS VIIRS: A Convergence of Technologies and Experience
- **Introduction to Tropical Meteorology, Tropical Remote Sensing Applications**
- **Jason-2: Using Satellite Altimetry to Monitor the Ocean**





# COMET Modules on Satellite Topics

- **Microwave Remote Sensing: Overview**
- **Microwave Remote Sensing: Clouds, Precipitation, and Water Vapor**
- **Microwave Remote Sensing: Land and Ocean Surface Applications**
- **Microwave Remote Sensing Resources**
- **Multispectral Satellite Applications: Monitoring the Wildland Fire Cycle**
- **Multispectral Satellite Applications: RGB Products Explained** (*Newest satellite publication!*)
- NexSat: Preparing Users for the NPOESS/VIIRS Era
- Operational Satellite Derived Tropical Rainfall Potential (TRaP)
- Polar Satellite Products for the Operational Forecaster (POES) Module 1: POES Introduction
- Polar Satellite Products for the Operational Forecaster (POES) Module 2: Microwave Products and Applications
- Polar Satellite Products for the Operational Forecaster (POES) Module 3: Case Studies
- Polar Satellite Products for the Operational Forecaster (POES) Module 4: Soundings
- Polar Satellite Products for the Operational Forecaster: Microwave Analysis of Tropical Cyclones
- **Recognition and Impact of Vorticity Maxima and Minima in Satellite Imagery**
- Remote Sensing of Land, Oceans, and Atmosphere with MODIS
- Remote Sensing of Ocean Wind Speed and Direction:  
An Introduction to Scatterometry
- Remote Sensing Using Satellites
- **Satellite Feature Identification: Blocking Patterns**
- **Satellite Feature Identification: Ring of Fire**
- Satellite Meteorology: GOES Channel Selection
- Satellite Meteorology: Introduction to Using the GOES Sounder

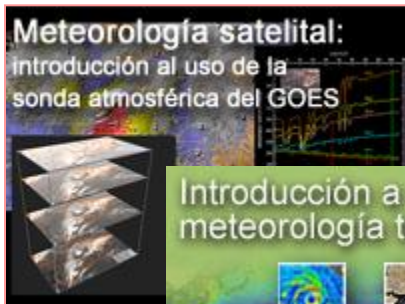
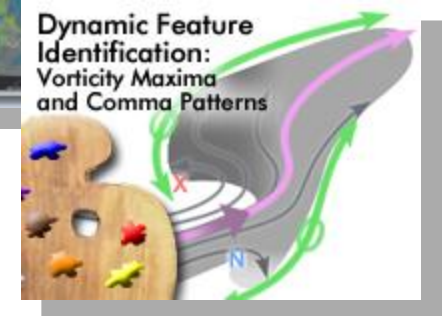
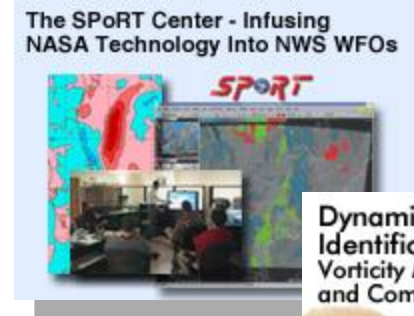


# COMET Modules on Satellite Topics

- The SPoRT Center – Infusing NASA Technology Into NWS WFO
- **Toward and Advanced Sounder on GOES?**
- Visible and Infrared Dust Detection Techniques
- **Vorticity Maxima and Comma Patterns**
- **Vorticity Minima and Anticomma Patterns**

## Translated Modules

- 17 en Español , 9 en Francais





# 2010 Publications



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resources: list of all modules

## List of all MetEd Modules

Add when dust is here

Showing 76 of 387 modules. View modules by topic using the dropdown menu in the Topic column.

Publication Date	Module Title	Topic - Satellite Meteorology	Level	Language
2010-08-18	<b>Jason-2: Uso de altimetria satelital en observaciones oceánicas</b> <a href="#">Launch Module</a> <a href="#">Description</a> ... <a href="#">Quiz</a> <a href="#">Download</a> <a href="#">Print version</a>	Climate Marine Meteorology/Oceans Satellite Meteorology	1	spanish
2010-08-17	<b>Identificación de estructuras dinámicas: Máximos de vorticidad y estructuras en coma</b> <a href="#">Launch Module</a> <a href="#">Description</a> ... <a href="#">Quiz</a> <a href="#">Download</a> No print version	Aviation Weather Satellite Meteorology	3	spanish
2010-08-17	<b>Aplicaciones satelitales multiespectrales: explicación de los realces RGB</b> <a href="#">Launch Module</a> <a href="#">Description</a> ... <a href="#">Quiz</a> <a href="#">Download</a> <a href="#">Print version</a>	Satellite Meteorology	2	spanish
2010-06-22	<b>Multispectral Satellite Applications: RGB Products Explained</b> <a href="#">Launch Module</a> <a href="#">Description</a> ... <a href="#">Quiz</a> <a href="#">Download</a> <a href="#">Print version</a>	Satellite Meteorology	2	english
2010-01-26	<b>Toward an Advanced Sounder on GOES?</b> <a href="#">Launch Module</a> <a href="#">Description</a> ... <a href="#">Quiz</a> <a href="#">Download</a> <a href="#">Print version</a>	Convective Weather NWP (Modeling) Satellite Meteorology	1	english

# The Satellite Palette – Newest Releases

**Dynamic Feature Identification:  
The Satellite Palette**

Currently available topics in the **Dynamic Feature Identification** series.

English	Français
<a href="#">Introduction to the Satellite Palette</a>	<a href="#">Minimums de tourbillon et configurations en virgule miroir</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz</a></li></ul>
<a href="#">The "Ten" Commandments of the Satellite Palette</a>	<a href="#">Maximums de tourbillon et configurations en virgule</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz</a></li></ul>
<a href="#">Vorticity Maxima and Comma Patterns</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	<a href="#">Analyse d'une zone de déformation</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz</a></li></ul>
<a href="#">Vorticity Minima and Anticomma Patterns</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	<a href="#">Diagnostic d'une zone de déformation</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz</a></li></ul>
<a href="#">Deformation Zone Analysis</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	<a href="#">Distribution de la zone de déformation</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz</a></li></ul>
<a href="#">Deformation Zone Diagnosis</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	
<a href="#">Deformation Zone Distribution</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	
<a href="#">Ring of Fire</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	
<a href="#">Blocking Patterns</a> <ul style="list-style-type: none"><li>• <a href="#">Quiz Link</a></li></ul>	
<a href="#">Deformation Zone Conceptual Model Guide</a> (development on hold)	

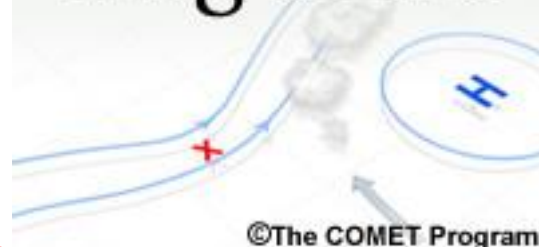
**Workshop Material**

[OPMET Pacific Case | \(en français\)](#)  
Used at the 7th Operational Meteorology Workshop: Nowcasting and Remote Sensing in Canada, Toronto Feb 27 – March 3, 2006. The material posted here for this workshop is not intended to be used as a stand-alone web module.

## Satellite Feature Identification: Blocking Patterns



## Satellite Feature Identification: Ring of Fire



- [http://www.meted.ucar.edu/norlat/sat\\_features/](http://www.meted.ucar.edu/norlat/sat_features/)  
Coming soon: "Short Waves and Cyclogenesis"

# GOES-R: Benefits of Next-Generation Environmental Monitoring

➤ *Includes 2 sections: Overview & Environmental Monitoring*

➤ **GOES-R benefits and the ability to monitor 13 unique hazards and phenomena**

**Each topic includes:**

- **Background and Needs (general public)**
- **Capabilities and Benefits (decision makers)**
- **Technical Improvements (forecasters)**

The screenshot displays the GOES-R website interface. At the top, a navigation bar includes links for Home, Overview, Environmental Monitoring, and Resources. The main heading reads "GOES-R: Benefits of Next-Generation Environmental Monitoring". Below this, there are two featured sections: "GOES-R Mission" showing a satellite in space, and "Instruments" and "Satellite System and Services" showing satellite components and ground stations. A secondary navigation bar is also present. The main content area features a grid of 13 categories, each with a representative image: Hurricanes, Volcanoes, Severe Thunderstorms, Lightning, Cloud Icing, Fires, Precipitation & Floods, Low Clouds & Fog, Coastal & Marine, Land Cover, Air Quality, Climate, and Space Weather. The "Lightning" category includes the text "NASA MSFC".



# Toward an Advanced Sounder on GOES?

## Approach:

- Recorded interviews from several meteorologists and respected satellite experts, to...
- Speak directly to the user community (forecasters) and decision makers
- Reiterate the “current state of affairs”, impacts, and need for an advanced sounder in GEO orbit
- State the potential for significant contributions
- Understand the urgency for GEO HS observation

The screenshot displays a video player interface for a presentation titled "Toward an Advanced Sounder on GOES?". The presentation content includes:

- Introduction** (0:24 / 2:07)
- Hyperspectral Observation**
  - Intro to Hyperspectral Observations
  - What is Hyperspectral Observation?
  - Why Use Hyperspectral Observations?
- GOES-R With ABI**
- Hyperspectral Potential For GOES-R**
- Urgency**

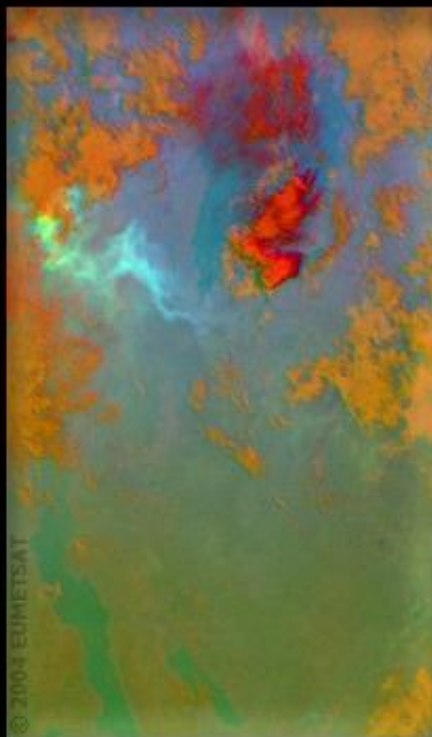
The "Urgency" slide features a map of the Americas with the text "GOES-R Proposed Hyperspectral Sounder Coverage" and "2,895,292 soundings". A quote at the bottom reads: "should have been a national priority".

Expert profiles shown in the video include:

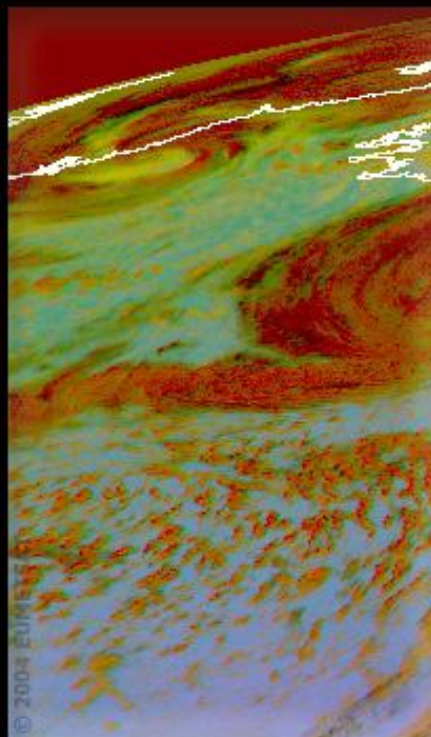
<b>Dan Bikos:</b> Scientist, CIIRA/Colorado State University	<b>Paul Menzel:</b> Senior Scientist and Distinguished Professor, University of Wisconsin
<b>Jeff Braun:</b> Researcher and Former NWS Forecaster, CIIRA/Colorado State University	<b>Tim Schmit:</b> Scientist, NOAA/NESDIS
<b>John Knaff:</b> Scientist, NOAA/NESDIS	<b>Bill Smith:</b> Distinguished Professor, Hampton University

# Most Recent Satellite Module, June 2010

## Multispectral Satellite Applications: RGB PRODUCTS EXPLAINED



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Volcanic eruption of Mt Nyamuragira



© 2004 EUMETSAT  
Dust outbreak from Northern Africa



Fires over the Korean Peninsula

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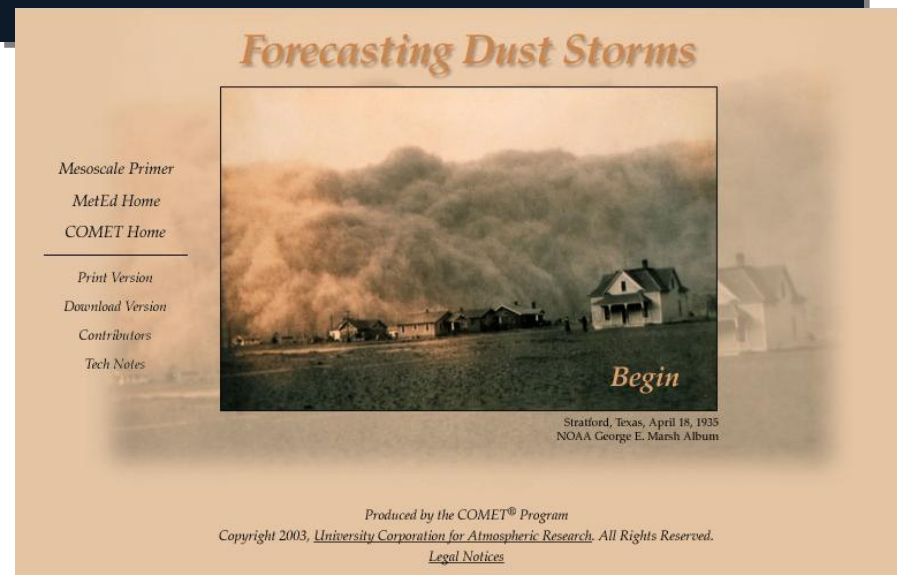
# Module Updates & Adaptations In Progress

1. **Satellite Meteorology:  
GOES Channel Selection**
  - Improvements to GOES-N/O/P (13/14/15) data and data availability



2. **Forecasting Dust Storms**
  - Update satellite detection techniques & more modeling information

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new?**





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Registration is required to take COMET modules and quizzes.

Registration is easy. Just provide some information about yourself. There is no charge for accessing any of our materials.

By registering, your quiz scores will be stored in your personal record. In addition, a printable certificate of completion will be generated for each passing score you achieve. You need cookies enabled to use the modules and quizzes on this site.

For questions about privacy, see the [COMET Registration Privacy Policy](#). This site also complies with the [UCAR Privacy Policy](#). Only with your authorization, quiz results may be shared with your supervisor, instructor, or other person whose e-mail address you specify.

For more information about registration, security, and troubleshooting, read the [Registration Information](#) page.

### New User Registration

Not a member?

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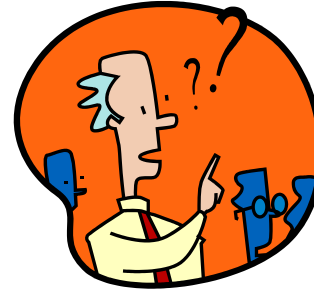
## Upcoming Activities

### **Anticipate satellite-specific training modules for FY11:**

- Climate Monitoring from Satellites
- *NPP on the Road to JPSS*
- Benefits of Satellite to the Transportation Industry
- and other topics to be determined

# Questions?

**abshire@ucar.edu**



**URLs:**

- **<http://meted.ucar.edu>**
- **[http://meted.ucar.edu/topics\\_satellite.php](http://meted.ucar.edu/topics_satellite.php)**