MetEd Resources at the Ready as Users Prepare for GOES-R+

Wendy Schreiber-Abshire, Patrick Dills, Marianne Weingroff
UCAR's COMET Program

7 January 2015

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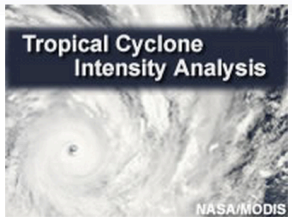

Tropical Cyclone Intensity Analysis

This lesson provides guidance for operational forecasters needing to combine different intensity methods to determine the intensity of a tropical cyclone. Each of the intensity methods is summarized, focusing on both strengths and weaknesses. These methods...

More Information »

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News and Updates

COMET is a Weather-Ready Nation Ambassador

Posted on: 2014-06-05

Earlier this year, COMET was approached by NOAA to help connect the public with the Weather-Ready Nation

What is MetEd?

MetEd is a free collection of learning resources for the geoscience community. Whether you're an experienced meteorologist honing existing skills or a student looking for new topics of interest, we have something for you. Learn more about MetEd in this short video.

AMBASSADOR™ WRN WEATHER-READY NATION

The COMET® Program is a Weather-Ready Nation

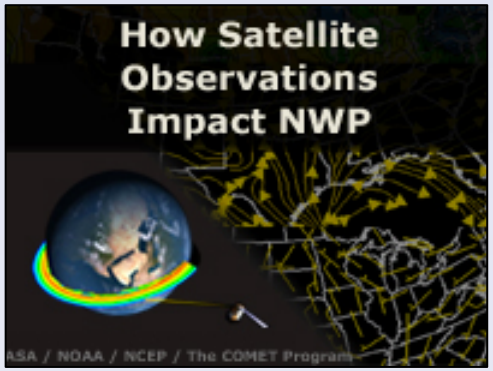
Fast Facts

- **Over 100 Satellite-specific lessons on MetEd, and three multi-lesson courses, one of which is on GOES-R+ (69 English, 25 Spanish, 16 French)**

- **Over 20,000 meaningful English satellite lesson user sessions per year**

NESDIS satellite training activities with the COMET Program attract additional funding and training development specifically in the satellite topic area from both EUMETSAT and the Meteorological Service of Canada

- **<u>Newest</u> satellite publications: "*How Satellite Data Impact NWP*" lesson and a distance learning course: *"GOES-R Satellites Orientation Course"***



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Lesson/Resource Listing »

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or

Topics: Satellite Meteorology

2

Languages: English

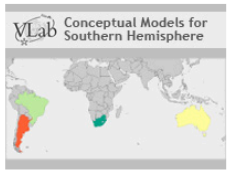
In this topic area, find out how current and future satellites and their sensors work, how to interpret what they tell us, and how to make forecasts and other weather products from their data.

3

Lessons/Resources | Courses

Sort by: Date (Newest to Oldest)

1 – 40 out of 69 results



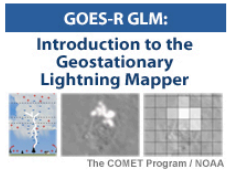
This content is not hosted on MetEd.

VLab's Conceptual Models for Southern Hemisphere

Languages: English
Publish Date: 2014-10-21
Skill Level: 1
Completion Time: 5.00 – 6.00 h
Topics: Satellite Meteorology

(0 reviews)

Conceptual Models for Southern Hemisphere is a joint project between four southern hemispheric regions: Argentina, Australia, Brazil and South Africa. The purpose of the project is to improve warnings and awareness of weather risks through the better understanding of ... Read more »

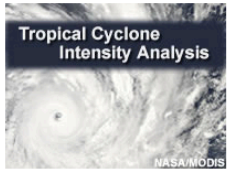


GOES-R GLM: Introduction to the Geostationary Lightning Mapper

Languages: English, Spanish
Publish Date: 2014-09-05
Skill Level: 1
Completion Time: .75 – 1.00 h
Topics: Mesoscale Meteorology, Satellite Meteorology

(1 review)

This extension of the COMET module "GOES-R: Benefits of Next Generation Environmental Monitoring" focuses on the Geostationary Lightning Mapper (GLM) instrument, the satellite's lightning mapper. The GLM will provide continuous lightning measurements over a large ... Read more »

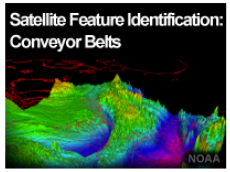


Tropical Cyclone Intensity Analysis

Languages: English
Publish Date: 2014-05-15
Skill Level: 2
Completion Time: 1.50 – 2.00 h
Topics: Satellite Meteorology, Tropical/Hurricanes

(3 reviews)

This lesson provides guidance for operational forecasters needing to combine different intensity methods to determine the intensity of a tropical cyclone. Each of the intensity methods is summarized, focusing on both strengths and weaknesses. These methods include the ... Read more »



Satellite Feature Identification: Conveyor Belts

Languages: English, French
Publish Date: 2014-03-18
Skill Level: 2
Completion Time: .50 – .75 h
Topics: Satellite Meteorology

(2 reviews)

Conveyor belts highlight important atmospheric processes that can be advantageous for making forecasts. They can be used for identifying general temperature patterns, defining the extent of cloud cover, predicting moisture return, evaluating stability, forecasting wind ... 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.

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Lesson/Resource Listing » Description

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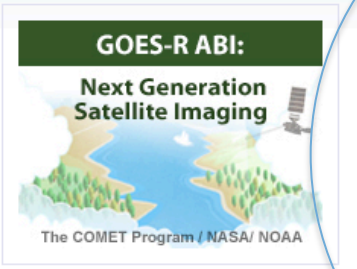
GOES-R ABI: Next Generation Satellite Imaging



Languages: English, Spanish
Publish Date: 2013-02-19
Skill Level: 1
Completion Time: 1.00 - 1.25 h
Includes Audio: yes
Required Plugins: none
Topics:
Satellite Meteorology
Included in Courses:
GOES-R Satellites Orientation Course

Reviews:
(0 reviews)
Read or add reviews

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Take the quiz?
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Share this resource: 17

Description | Objectives | Keywords | Media Gallery | Reviews

This extension of the COMET module "GOES-R: Benefits of Next Generation Environmental Monitoring" focuses on the ABI instrument, the satellite's 16-channel imager. With increased spectral coverage, greater spatial resolution, more frequent imaging, and improved image pixel geolocation and radiometric performance, the ABI will bring significant advancements to forecasting, numerical weather prediction, and climate and environmental monitoring.

The first part of the module introduces the ABI's key features and improvements over earlier GOES imagers. The second section lets users interactively explore the ABI's 16 channels. The third section contains movies that show the advancements that the ABI will bring to the following application areas: convection, flooding, wildfires, land cover, hurricanes, climate, air quality, aviation, fog and low visibility, and coastal and marine. The final section contains additional resources pertaining to the ABI. The module has numerous takeaways, including ten application movies and an interactive spectrum.

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GOES-R ABI: Next Generation Satellite Imaging

Languages: English, Spanish
Publish Date: 2013-02-19
Skill Level: 1
Completion Time: 1.00 – 1.25 h
Includes Audio: yes
Required Plugins: none
Topics:
Satellite Meteorology
Included in Courses:
GOES-R Satellites Orientation Course

Reviews:
(0 reviews)
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Description | Objectives | Keywords | Media Gallery

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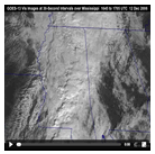

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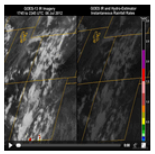
description:
GOES-13 SRSO (Super Rapid Scan Operations) 30-second interval visible imagery showing convection over Mississippi from 16:45:16 to 17:05:52 UTC on 23
More details...



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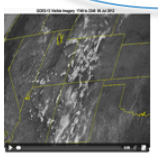
description:
A GOES-13 2-panel animation showing color enhanced infrared imagery (left panel) and infrared with NOAA-NESDIS Hydroestimator instantaneous
More details...



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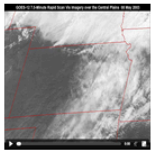
description:
A GOES-13 visible imagery animation of developing convection over the Southwest U.S. from 1745 to 2245 UTC on July 6, 2012.
More details...



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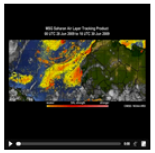
description:
GOES-12 visible imagery 7.5 minute rapid scan animation showing convection developing in advance of cold front and dryline over the Central Plains
More details...



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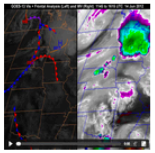
description:
SAL tracking product produced using Meteosat-9 data showing the Saharan air layer moving across the Atlantic Ocean from 28 to 30 June 2009.
More details...



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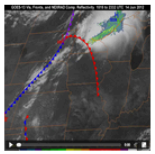
description:
GOES-13 routine 15-minute visible and water vapor imagery with frontal analysis overlay showing the preconvective environment across the Central
More details...



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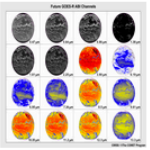

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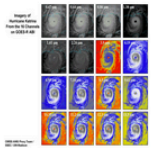

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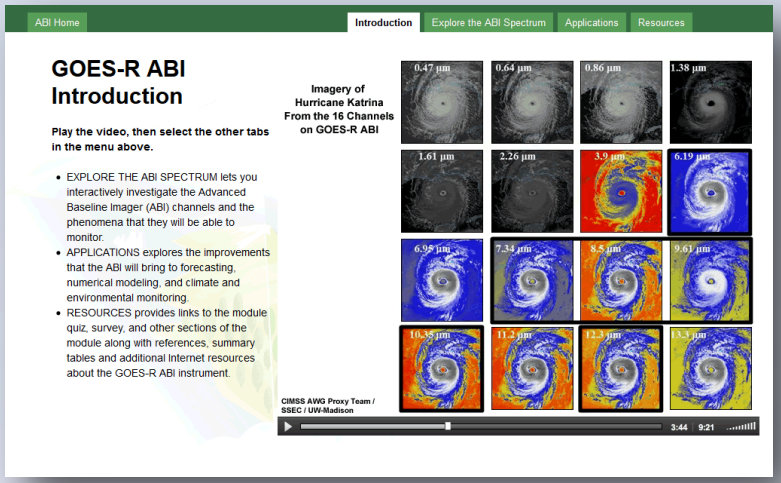
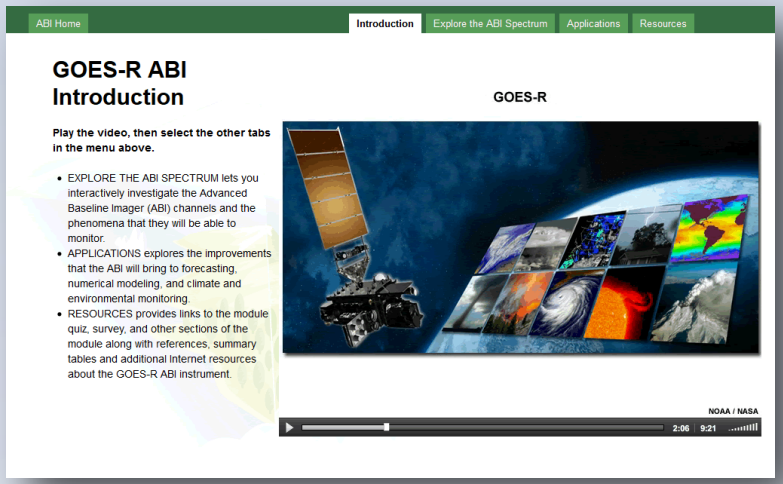
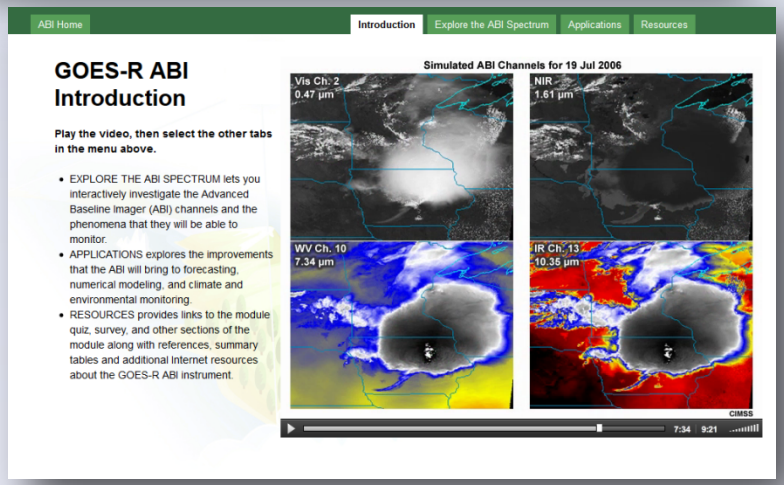
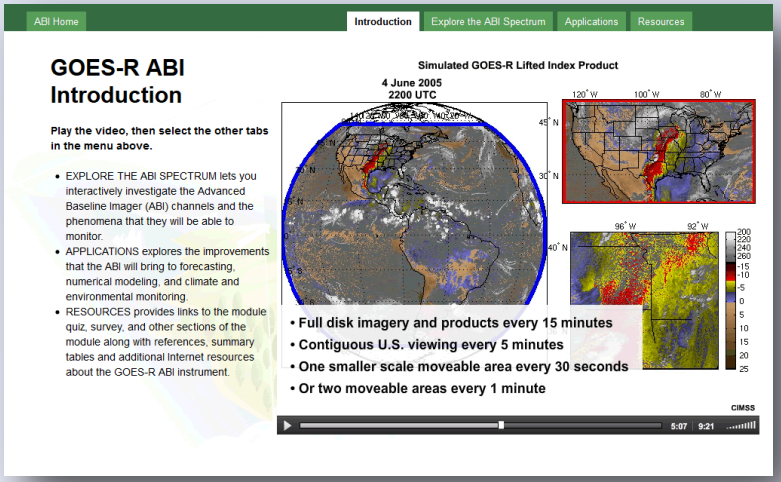
GOES-R ABI: Next Generation Satellite Imaging *(Feb 2013)*

- Key features and improvements



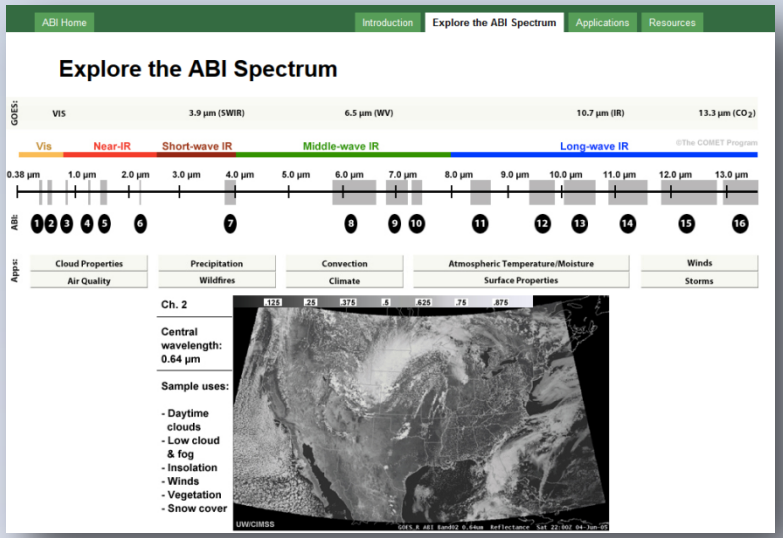


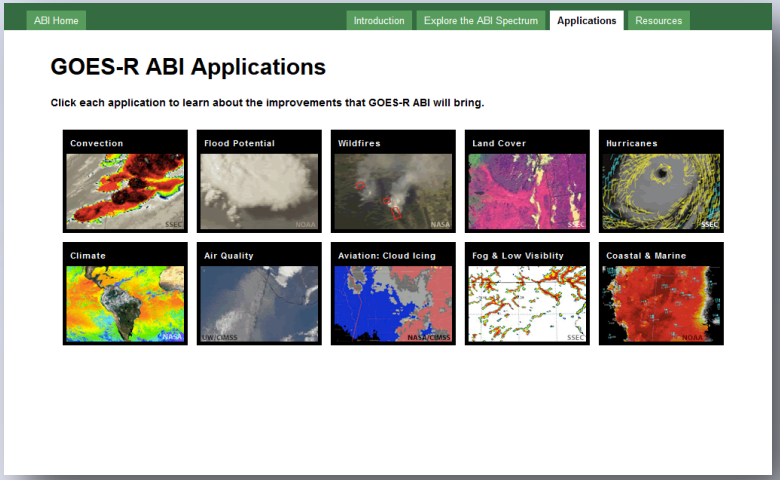


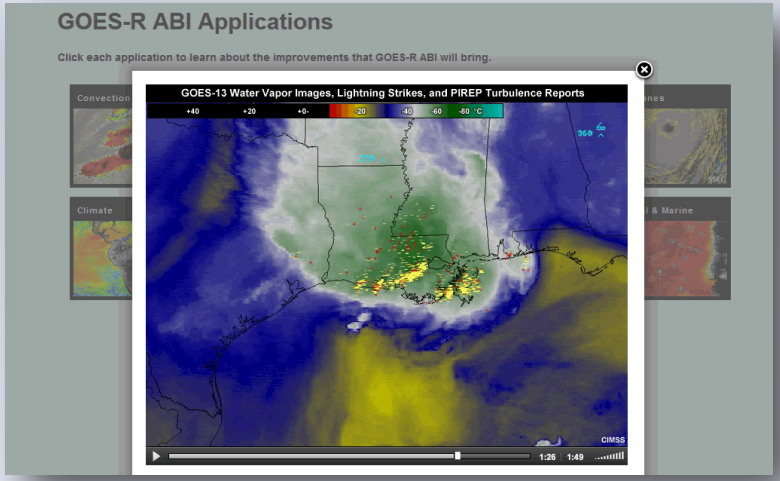


GOES-R ABI: Next Generation Satellite Imaging

- Interactive exploration of ABI's 16 bands, linking bands to observable phenomena
- Movies describing advancements in ten application areas (e.g. analysis, forecasting, NWP, climate and environmental monitoring)

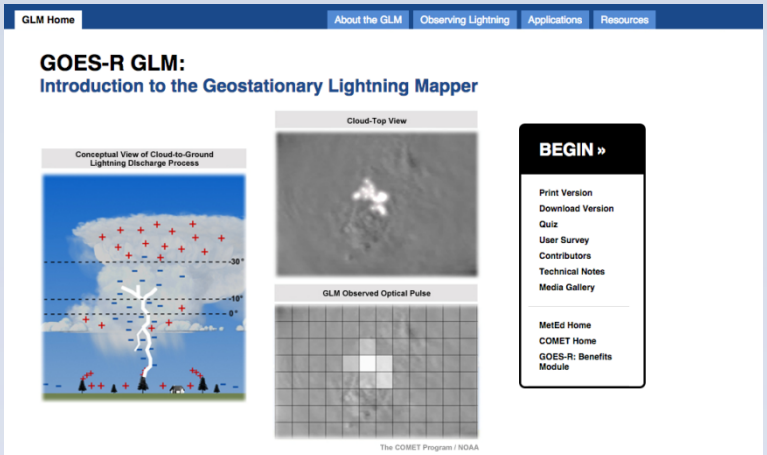


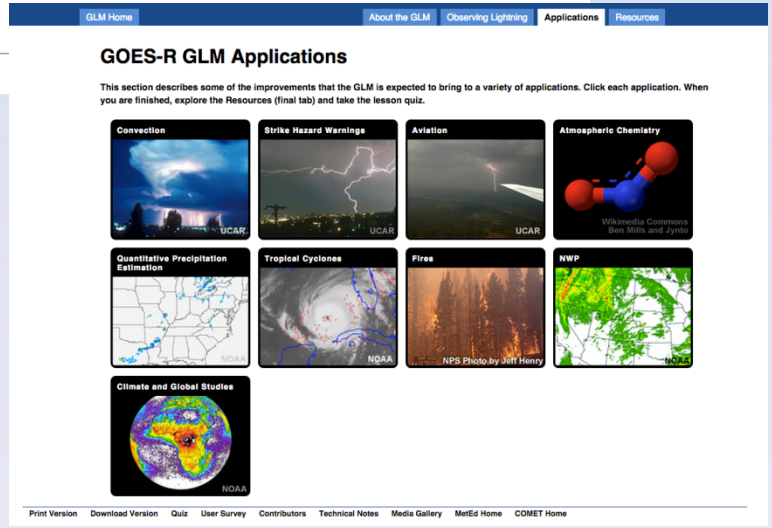


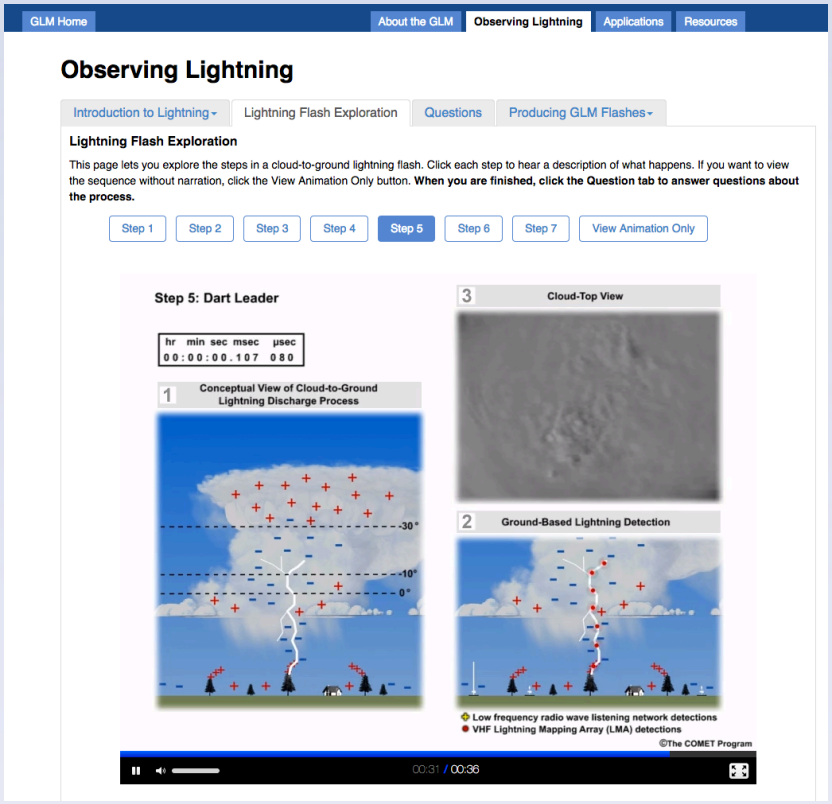


GOES-R GLM: Introduction to the Geostationary Lightning Mapper

- Conceptual exploration of lighting and detection
- Movies describing improvements that the GLM is expected to bring to a variety of applications







Topics: Satellite Meteorology

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.

Lessons/Resources | Courses

Sort by: Title (A – Z)

1 – 4 out of 4 results

Curso de orientación sobre los satélites GOES-R

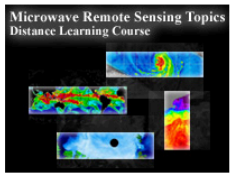
Languages: Spanish, English
Time to Complete: 3–5 h
Topics:

Este curso a distancia brinda a cualquier pronosticador, estudiante, investigador u otra persona interesada la oportunidad de explorar a su propio ritmo las prestaciones, los productos y las aplicaciones que los satélites GOES-R de próxima generación pondrán a nuestra ... Read more »

GOES-R Satellites Orientation Course

Languages: English, Spanish
Time to Complete: 3–4 h
Topics:
Satellite Meteorology

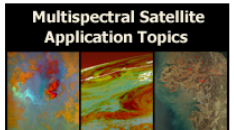
This self-paced distance learning course introduces forecasters, students, researchers, and other interested learners to the capabilities, products, and applications anticipated with the next-generation GOES-R satellites.The three core lessons in this course are: GOES-R: ... Read more »



Microwave Remote Sensing Topics Distance Learning Course

Languages: English
Time to Complete: 4–6 hrs
Topics:
Satellite Meteorology

This self-paced distance learning course provides forecasters, students, researchers, developers, and other interested learners with a foundation in the science, products, and applications of space-based satellite microwave remote sensing. The three core modules that ... Read more »



Multispectral Satellite Application Topics Course

Languages: English
Time to Complete: 6 to 8 hrs
Topics:
Satellite Meteorology, Satellite

This self-paced distance learning course provides forecasters, students, researchers, and other interested learners with a foundation in the products and applications from multispectral satellite observations and various

Special Interest

More on Satellite Meteorology

Did you know that our individual GOES-R+ lessons are organized into their own distance learning course? Learn more on the GOES-R Satellites Orientation Course page.

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Languages: English
Completion Time: 3-4 h
Topics:
Satellite Meteorology

Enrollment Information:

Enroll

Description | Objectives | Overview | Additional Resources

Description

This self-paced distance learning course introduces forecasters, students, researchers, and other interested learners to the capabilities, products, and applications anticipated with the next-generation GOES-R satellites.

The three core lessons in this course are:

- GOES-R: Benefits of Next-Generation Environmental Monitoring
- GOES-R ABI: Next Generation Satellite Imaging
- GOES-R GLM: Introduction to the Geostationary Lightning Mapper

Course Outline

Core Topics/Modules

GOES-R: Benefits of Next-Generation Environmental Monitoring	**Languages:** English, Spanish **Publish Date:** 2008-12-19 **Last Updated On:** 2013-04-18 **Skill Level:** 1	**Topics:** Emergency Management, Satellite Meteorology (2 reviews)
GOES-R ABI: Next Generation Satellite Imaging	**Languages:** English, Spanish **Publish Date:** 2013-02-19 **Skill Level:** 1	**Topics:** Satellite Meteorology (0 reviews)
GOES-R GLM: Introduction to the Geostationary Lightning Mapper	**Languages:** English, Spanish **Publish Date:** 2014-09-05 **Skill Level:** 1	**Topics:** Mesoscale Meteorology, Satellite Meteorology (1 review)

Optional Topics/Modules

Multispectral Satellite Applications: RGB Products Explained Optional	**Languages:** English, Spanish **Publish Date:** 2013-07-08 **Last Updated On:** 2013-07-22 **Skill Level:** 2	**Topics:** Satellite Meteorology (6 reviews)
Multispectral Satellite Applications: Monitoring the Wildland Fire Cycle, 2nd Edition Optional	**Languages:** English **Publish Date:** 2013-06-11 **Skill Level:** 2	**Topics:** Fire Weather, Satellite Meteorology (0 reviews)
How Satellite Observations Impact NWP Optional	**Languages:** English **Publish Date:** 2014-03-12 **Last Updated On:** 2013-06-14 **Skill Level:** 2	**Topics:** Numerical Modeling (NWP), Satellite Meteorology (2 reviews)

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GOES-R Satellites Orientation Course

Languages: English
Completion Time: 3-4 h
Topics:
Satellite Meteorology

Enrollment Information:

Enroll

Description | Objectives | Overview | Additional Resources

Additional Resources

GOES-R Program Home Page
http://www.goes-r.gov
Provides information and resources on the GOES-R Program including the mission, spacecraft, instruments, products, data dissemination and access, education and outreach, meetings, media, publications and much more.

GOES-R Proving Ground
http://www.goes-r.gov/users/proving-ground.html
Provides information on a collaborative effort to test and evaluate simulated GOES-R products before the GOES-R satellite is launched into geostationary orbit. Partners include the GOES-R Program Office, NOAA Cooperative Institutes, a NASA center, NWS Weather Forecast Offices, NCEP National Centers, and NOAA Test Beds across the U.S.

RAMMB: RAMSDIS Online - GOES-R Proving Ground Real-time Products
http://rammb.cira.colostate.edu/ramsdis/online/goes-r_proving_ground.asp
Provides access to a selection of near real time multispectral satellite products produced to emulate capabilities of the next generation GOES-R satellites.

CIMSS/SSEC GOES-R Activities Web Site
http://cimss.ssec.wisc.edu/goes_r/
Contains information and links to various activities in preparation for GOES-R.

CIMSS Satellite Blog
http://cimss.ssec.wisc.edu/goes/blog/
A collection of examples of meteorological satellite imagery and products that are available to (or created by) scientists and researchers at NOAA's Cooperative Institute for Meteorological Satellite Studies (CIMSS), located at the University of Wisconsin - Madison's Space Science and Engineering Center (SSEC). Interesting and/or educational satellite images including multispectral images and applications relevant to current weather events are shown and discussed.

VISIT: SHyMet for Forecasters: GOES-R 101 Training Session
http://rammb.cira.colostate.edu/training/shymet/forecaster_goesr101.asp
An online training session to introduce forecasters to the capabilities of the next generation satellites starting with GOES-R.

NASA SPoRT (Short-term Prediction Research and Transition Center) Web Site
http://weather.msfc.nasa.gov/sport/
Provides information, products, and online lessons on new observations and research for the operational weather community. Includes descriptions of activities related specifically to upcoming GOES-R ABI and GLM products and applications.

EUMETSAT Near Real-Time RGB Products Web Page
http://oiswww.eumetsat.org/IPPS/html/MSG/RGB/
Provides access to near real time multispectral RGB products from the Meteosat geostationary satellites for a variety of meteorological applications. The site includes product descriptions and online tutorials (referred to as "Interpretation Guides").

NASA Earth Observatory Web Site
http://earthobservatory.nasa.gov/Images/
Provides access to multispectral imagery for global events and discoveries related to climate and the environment.

What is a Course?

MetEd courses consist of a selection of lessons in a particular area of interest. When all lessons in a course have been completed, a printable course completion certificate is offered.

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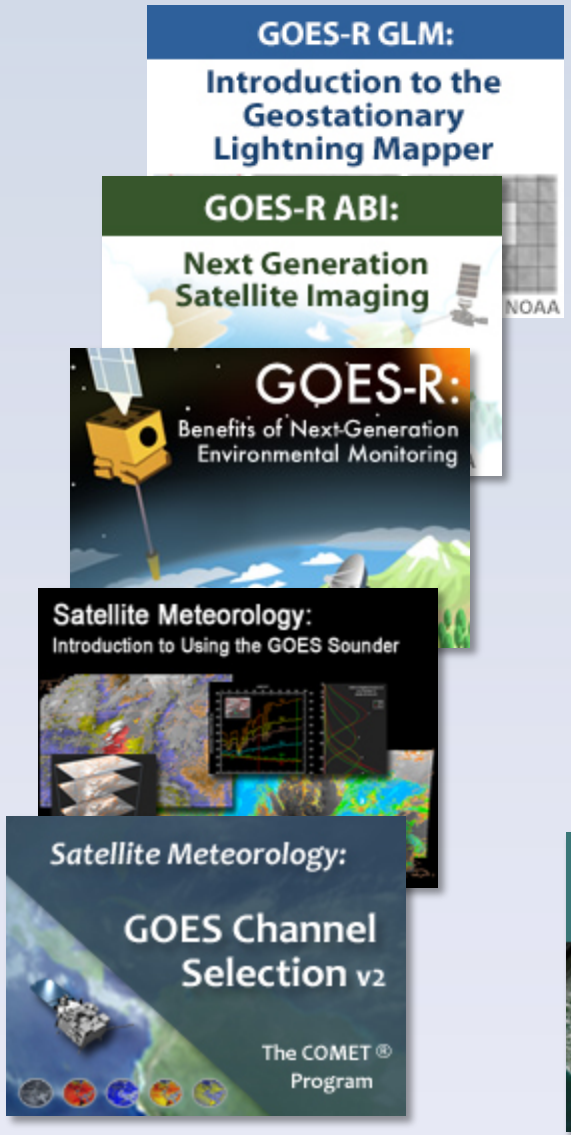
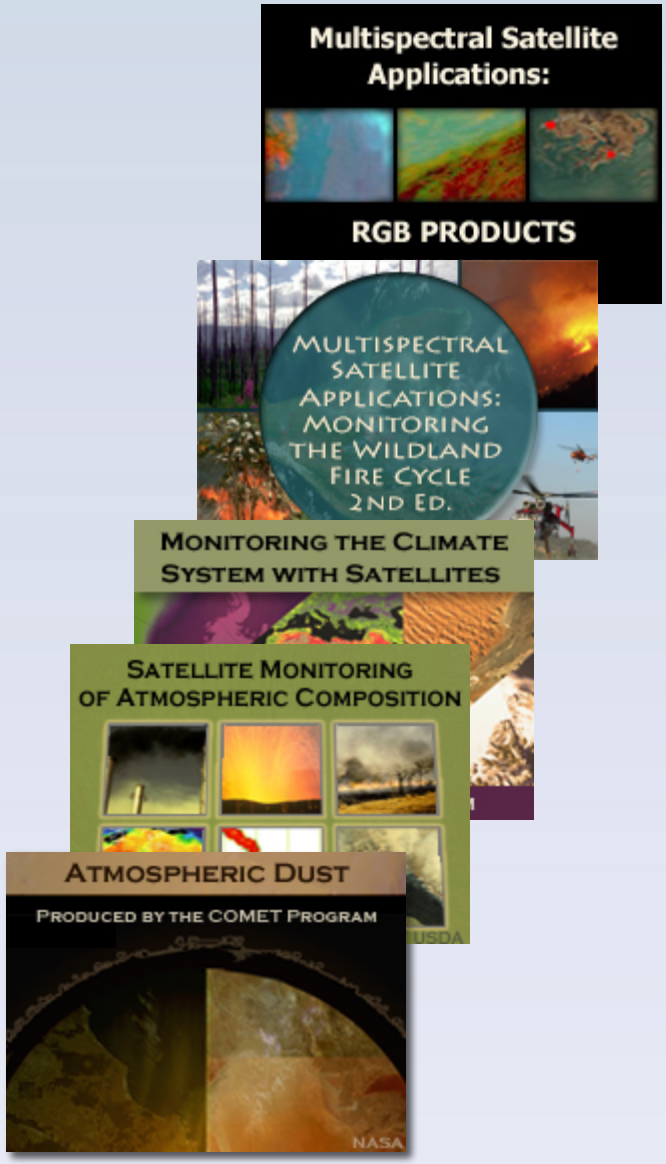
GOES



S-NPP & JPSS

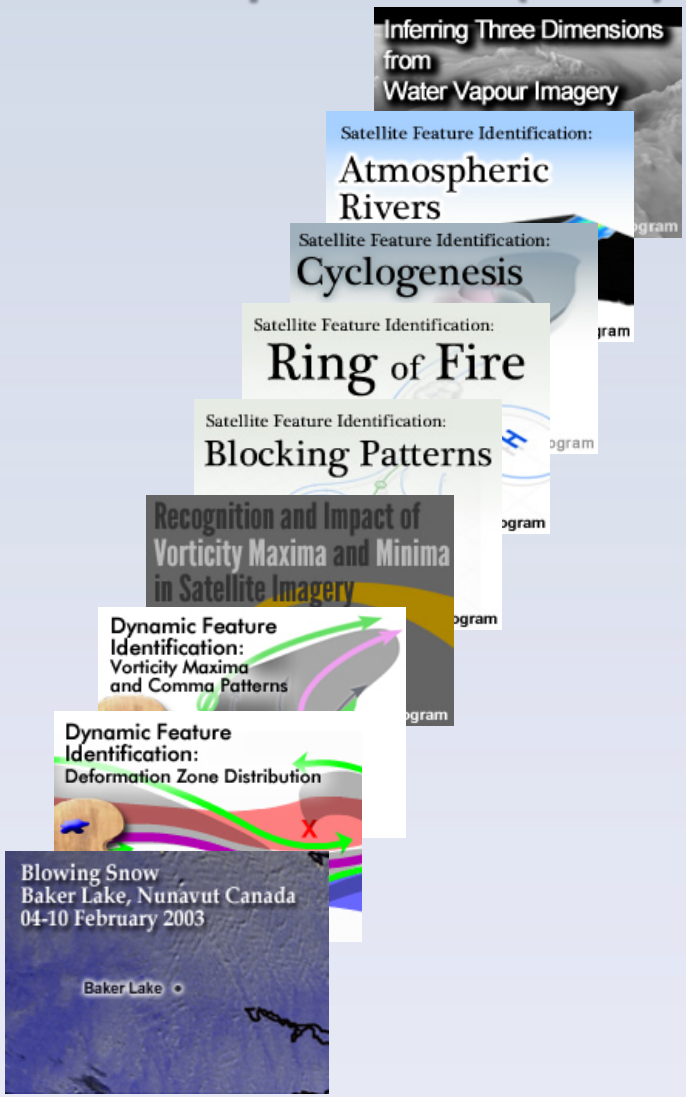
Multispectral Apps



MW Remote Sensing

Atmospheric Sounding

Water Vapour Interpretation (MSC)



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