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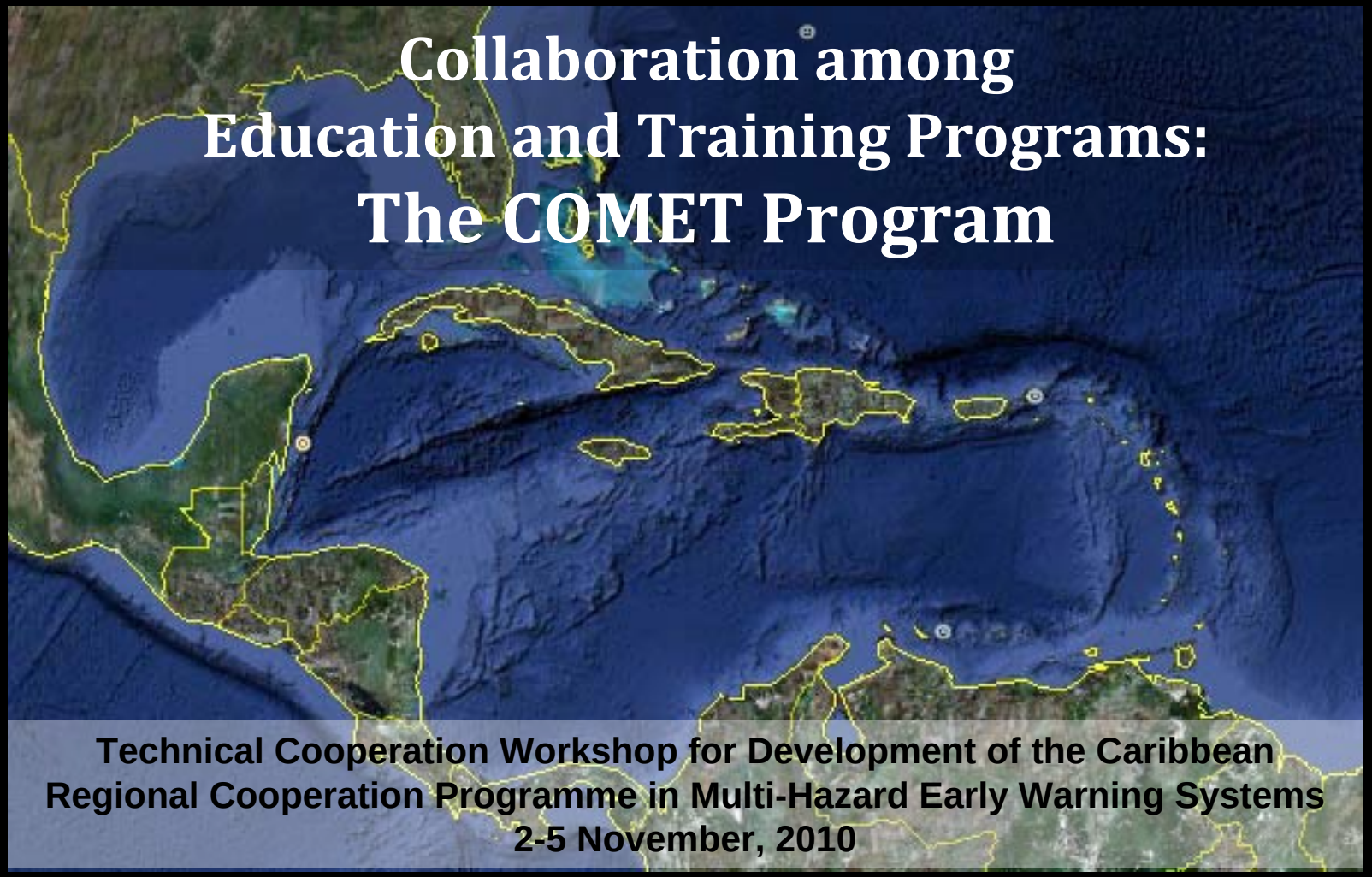
Collaboration among Education and Training Programs: The COMET Program



Technical Cooperation Workshop for Development of the Caribbean Regional Cooperation Programme in Multi-Hazard Early Warning Systems
2-5 November, 2010

COMET 20th Anniversary

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COMET 20th Anniversary

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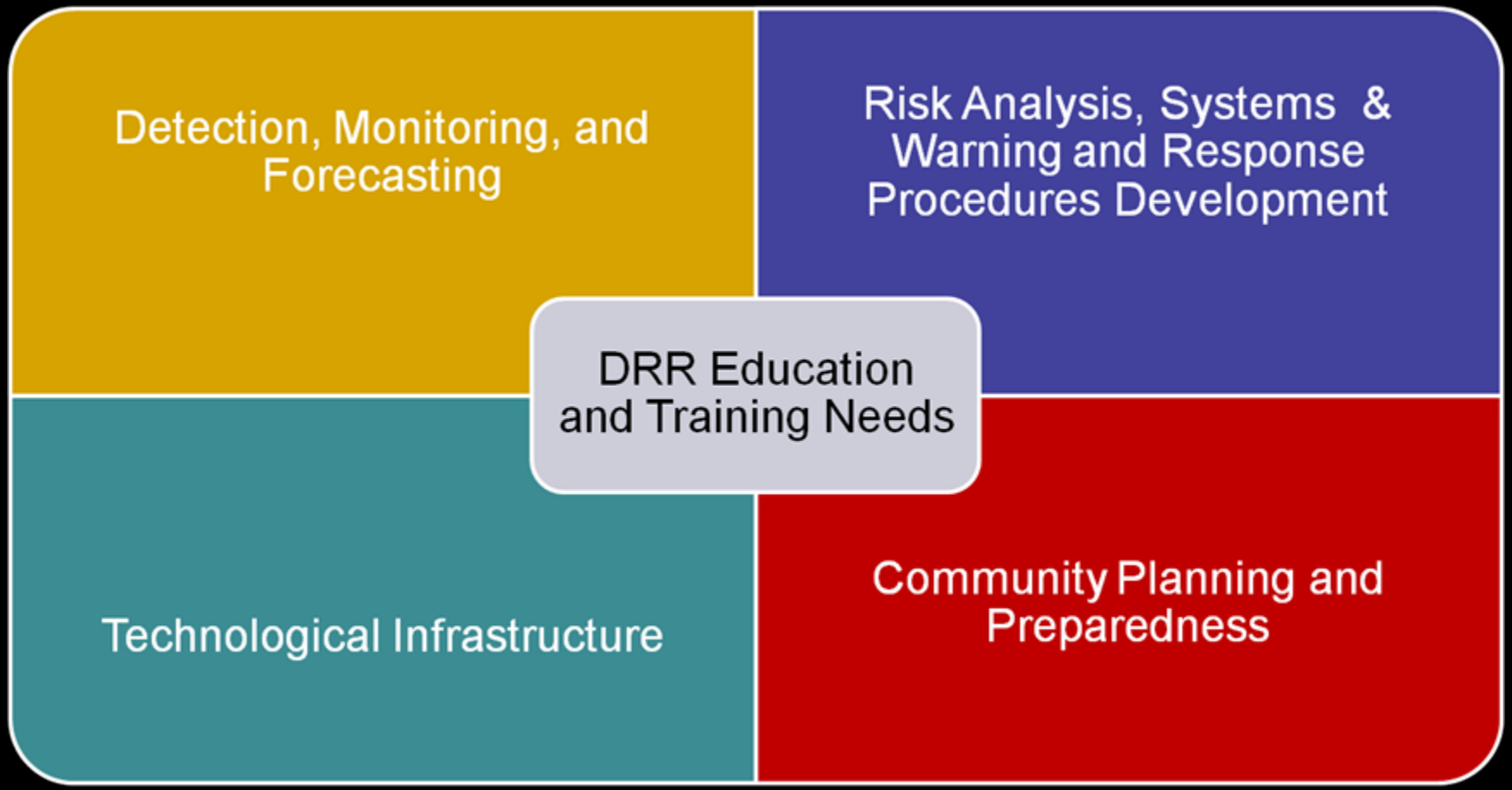

A wide range of disciplines!

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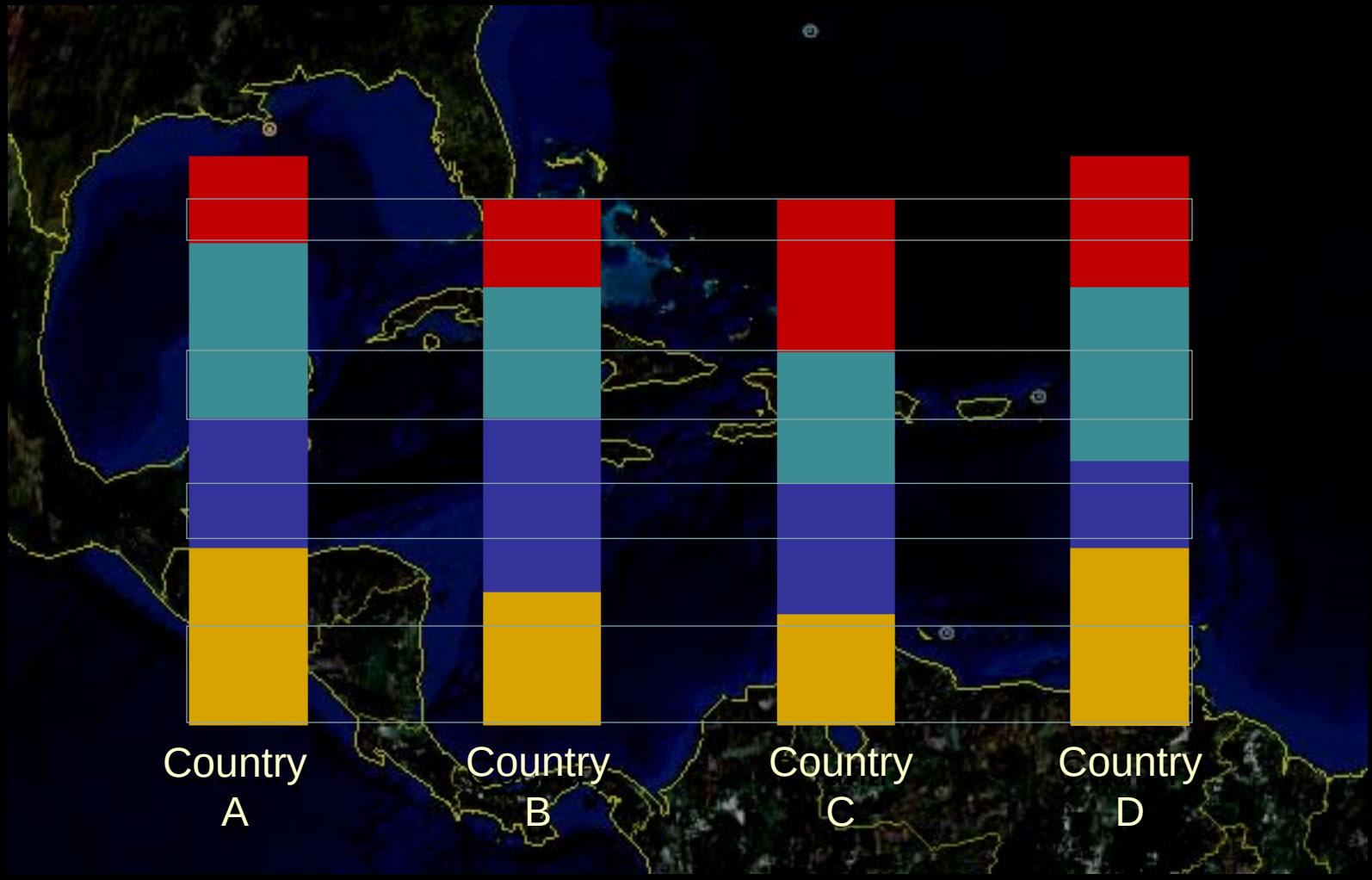
Unique National Education and Training Needs



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COMET Sponsors and Partners

NOAA

- National Weather Service
- National Environmental Satellite Data Information Service
- National Polar-orbiting Operational Environmental Satellite Systems

Military

- Naval Meteorology and Oceanography Command
- Air Force Air Weather Agency

International and Other

- Meteorological Service of Canada
- Australian Bureau of Meteorology
- EUMETSAT
- National Environmental Education Foundation

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COMET Fast Facts

- Staff of 42, variety of disciplines
- Annual budget $6.5 million
- 1,135 universities have participated in COMET activities since 1990
- 600 hours of online distance learning
- 162, 000 registered MetEd users world-wide
- 10 weeks of residence courses and virtual courses

COMET 20th Anniversary

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Our Formula

Sound Science

+

Innovative Instructional Design

+

Outstanding Graphics

+

Operational Focus

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COMET Modules By Topic as of October 2010

Topic	Modules	Approximate Content Hours
Aviation Weather	44	121
Climate	24	32
Coastal Weather	25	39
Convective Weather	32	93
Emergency Management	22	52
Environment & Society	20	44
Fire Weather	34	42
Fog & Low Stratus	26	57
Hurricane/Tropical	31	63
Hydrology/Flooding	52	67
Marine Meteorology/Oceans	44	70
Mesoscale Meteorology	34	77
Mountain Meteorology	17	29
NWP (Modeling)	73	140
Other	25	62
QPF (Precipitation)	20	28
Radar Meteorology	5	14
Satellite Meteorology	81	126
Space Weather	8	27
Winter Weather	43	94

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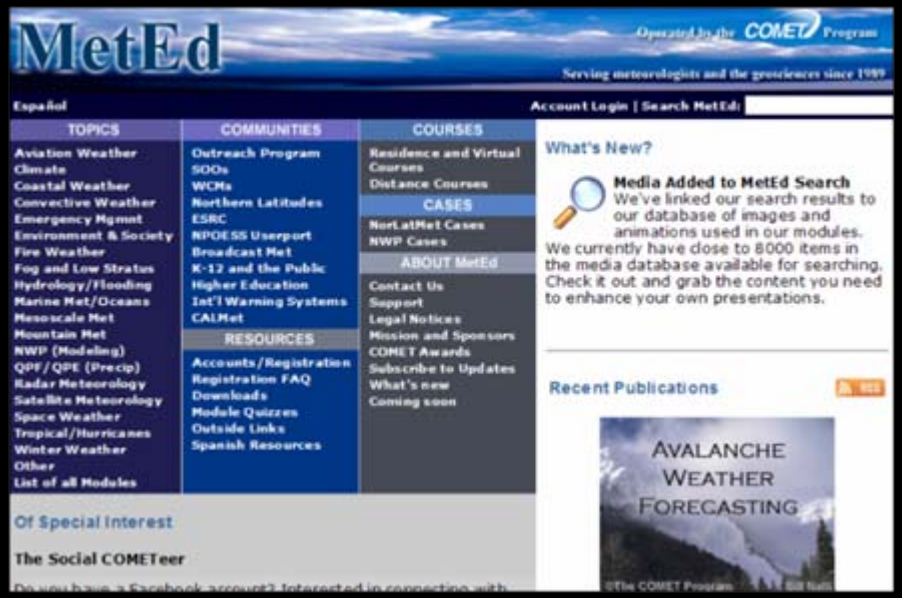


MetEd en español

www.meted.ucar.edu/index_es.htm

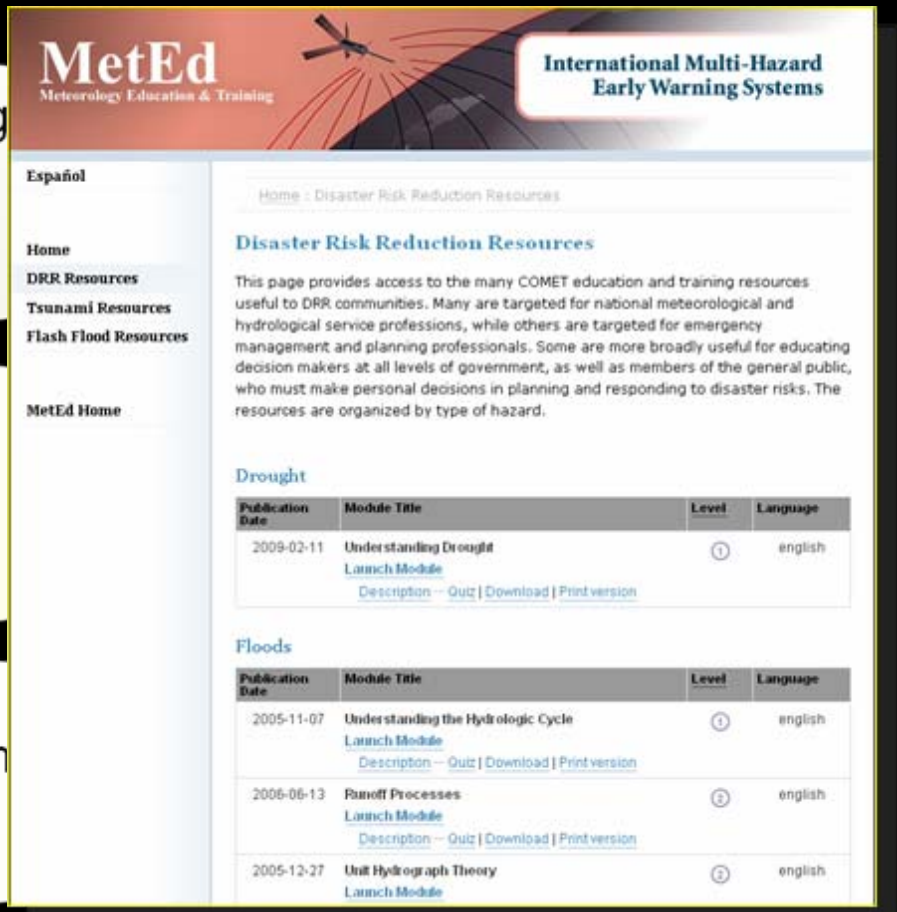
COMET Websites

COMET® DRR Resources

Offers dozens of education and training modules via the International Multi-Hazards Early Warning Systems site on MetEd.

Designed for NMHS and Emergency Management professions, as well as government decision makers and the general public.

Many modules available in both English and Spanish, some in French.



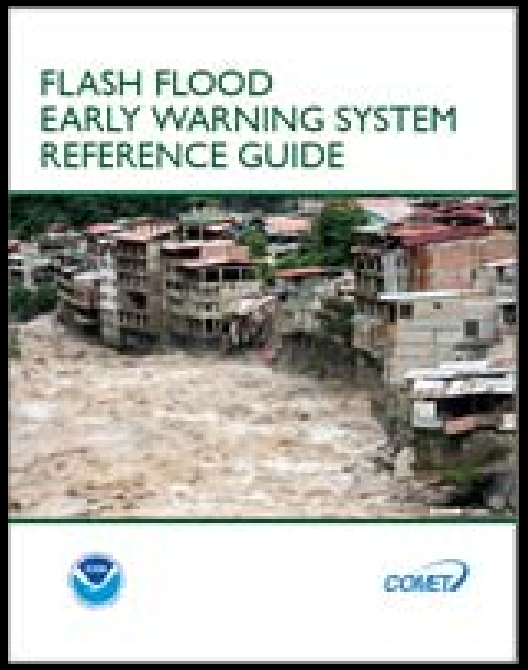
http://www.meted.ucar.edu/hazwarnsys/index.php

Flash Flood Early Warning System Reference Guide

Developed by NOAA in partnership with

Describes best practices and recommendations

Provides an overview of the operational and organizational requirements within a multi-hazard early warning system context



Available today

Emergency Manager Training

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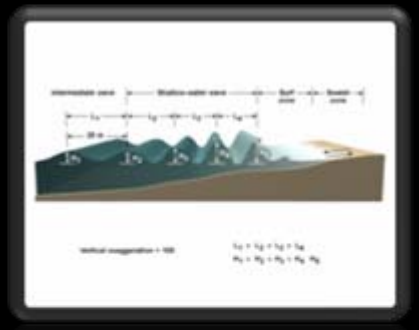
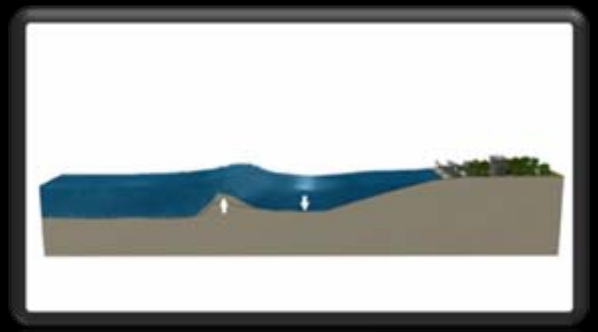
Tsunami Education and Training





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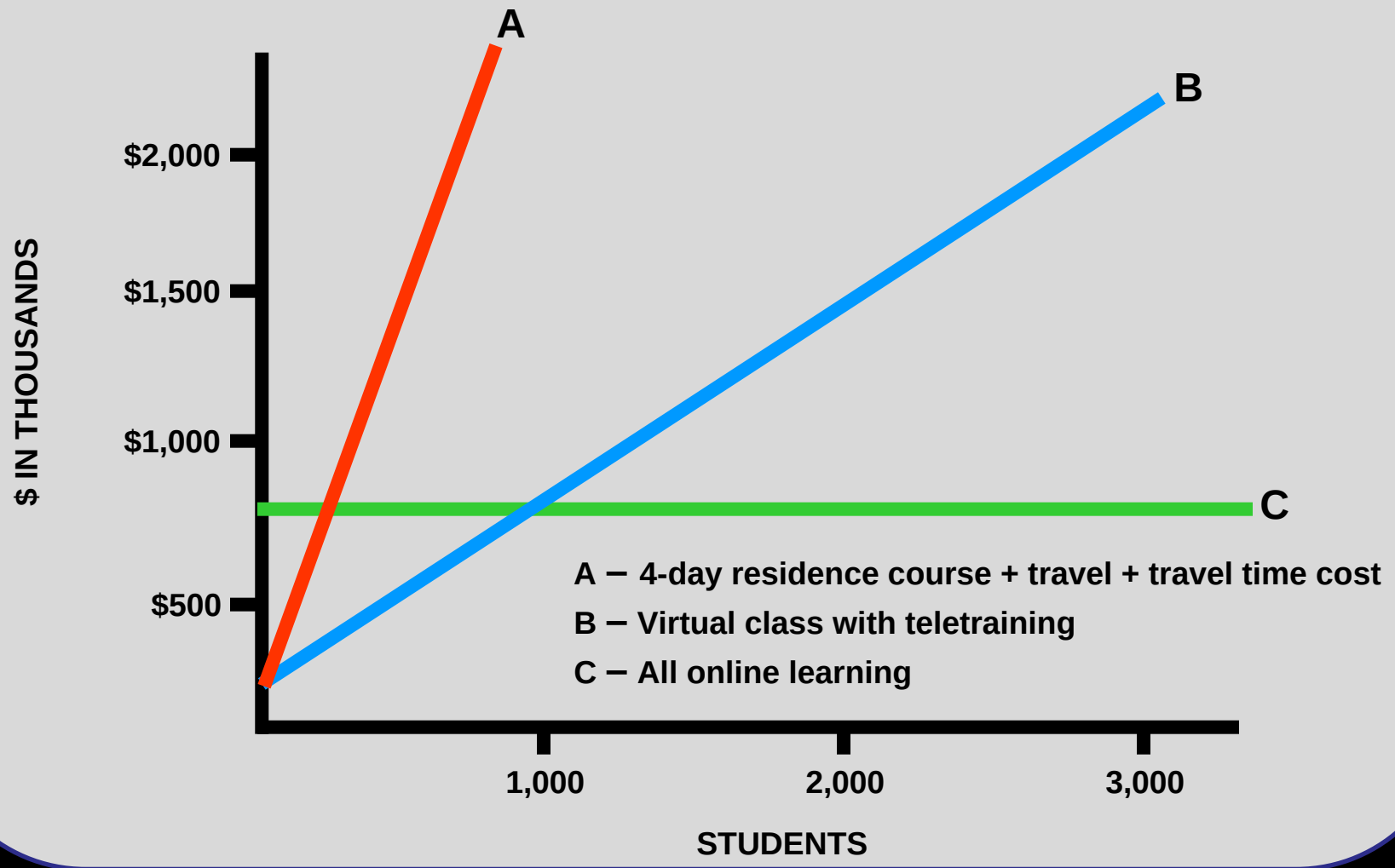
Why Distance Learning?



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Distance Learning Advantages

- Persistent
- Consistent
- Cost-effective (especially for large audiences)
- Scalable
- Flexible
- Adaptable

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Using MetEd Training

Users can store their records of module completions and quiz scores—and receive certificates.

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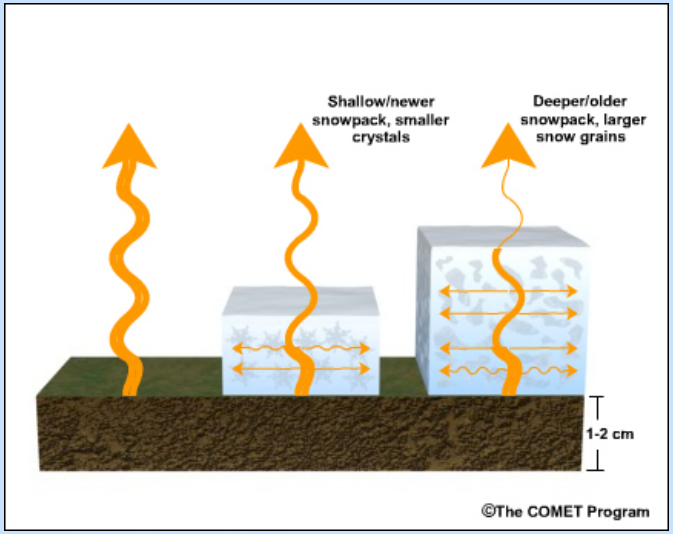
Reusing COMET Materials

3.2.2 Attenutation by Scattering

Snow cover and its properties have a strong influence on the amount of microwave radiation reaching a satellite sensor. Ice has a very different structure than liquid water and most soil and rock. For this reason, the upwelling radiation emitted by the sub-snow surface is altered significantly by changes in the snowpack over time. Understanding how microwave emissions correspond to the dynamics of the snowpack allows us to probe beneath the surface.

In this visualization, we can see how snow grains, which form as the snowpack ages and/or deepens, are large enough to become effective scatterers of microwave radiation. Snow grains are ice crystals that undergo a transition (or metamorphosis) from snowflakes to larger particles through a thermodynamic process that begins almost immediately after snowflakes accumulate on the ground. As the snowpack ages, snow grains become more dominant than snow crystals and grow in size, making them even more effective scatterers. Due to this scattering effect, snow covered soil appears to emit far less microwave energy (and appears colder when looking at brightness temperatures) than bare soil at the same temperature.



(Click to view animation)

Use COMET “Print Versions” to easily grab graphics, animations, and text.

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Adapting COMET Modules

MULTISPECTRAL SATELLITE APPLICATIONS: MONITORING THE WILDLAND FIRE CYCLE

Produced by The COMET® Program

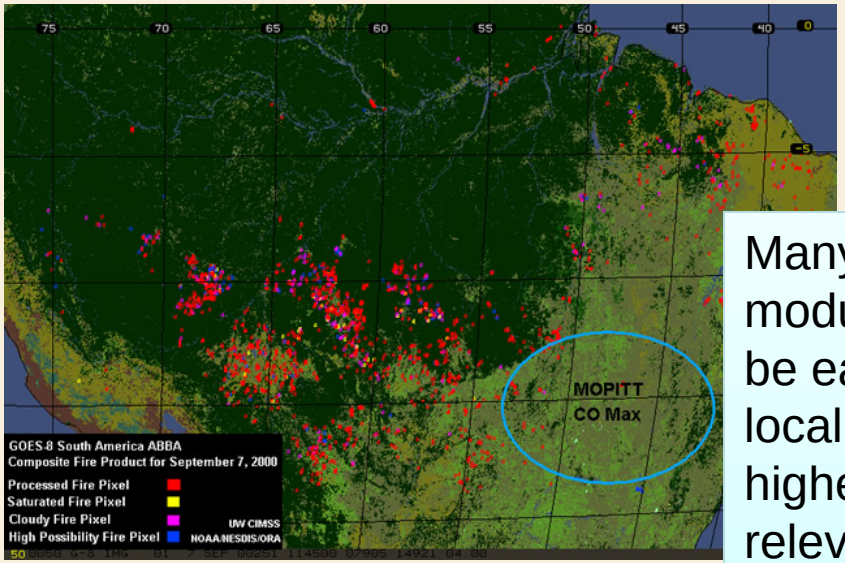
Section 4: Fire Detection and Monitoring

4.11 WFABBA and MODIS Rapid Response System

1:08 / 1:21

Locator Map

- Automated systems (e.g., WFABBA) are used to monitor large areas
- Routinely detect hundreds of fires at a time
- Animation depicts detected fires over a 24-hour period against a land cover map
- Loop starts at night when can see red dots representing the fires, but not smoke; during daytime, smoke appears
- WFABBA products are available every 15 to 30 minutes
- WFABBA generates fire data for the Western Hemisphere
- Provides raw data for estimating smoke emissions, which enables smoke transport to be forecast



Many COMET modules can be easily localized for higher relevance in other regions of the world.

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Summary

- Cooperative ventures can meet even large needs
- COMET offers over 600 hours of free material
- Materials borrowed or adapted
- COMET has capacity to develop new or custom DL materials and workshops
- 20 years experience with international and interagency collaboration

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Contacts

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Senior Project Manager/
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The COMET® Program

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Distance Learning vs. Classroom Learning An Ongoing Comparison

- Recent meta-analysis* of 232 comparison research studies from 1985 to 2002 showed
  - Small effect *favoring* DL in achievement of learning objectives
  - Small effect favoring classroom learning on attitude toward instruction
  - Variability was wide on both measures
    - Indicates quality course design is more important than medium

* Bernard, R. M., et al. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research*, 74(3), 379-439.

What is Elearning?

- Can be synchronous or asynchronous
- Delivered via the internet
- Computer-based instruction

Features of Online Multimedia Instruction

- Self-paced
- Individualized path
- Every student is forced to interact
- Instruction is available anytime, anywhere
- Instruction has longevity to reach a large audience without ongoing delivery costs

An Option: The Virtual Course

Synchronous Instruction on the Internet

Blended with Computer Based Instruction

The Future: Enhanced Design

- Simulations
  - Put the learner in a realistic environment
  - Use computer gaming for instruction
- Decision Support
  - Assist the Mayor of New Orleans to choose the path of least regret for the next hurricane like Katrina
- Risk Management
  - Provide a wide range of potential outcomes
- Teach response to rare events
  - Expand the range of familiar situations

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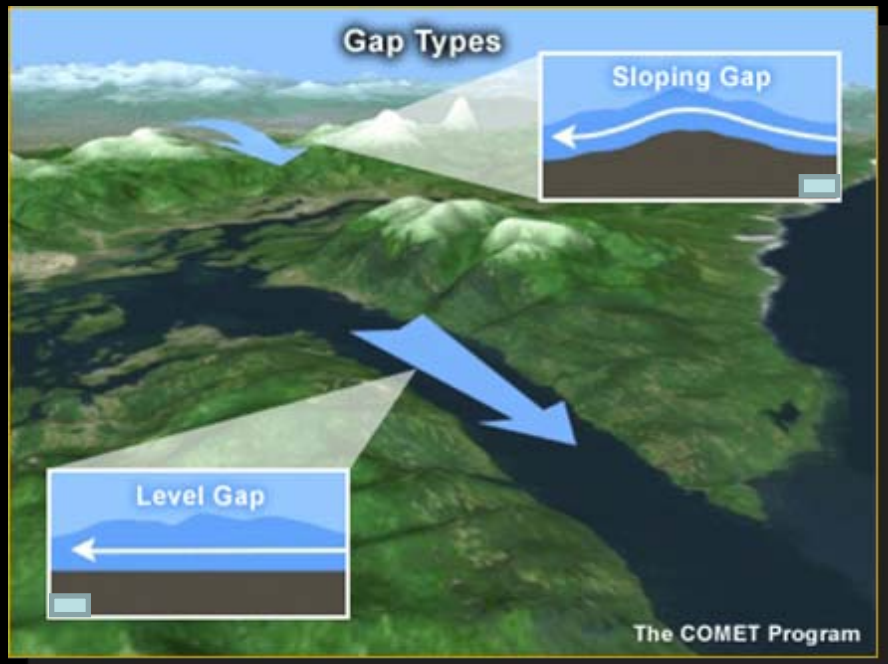
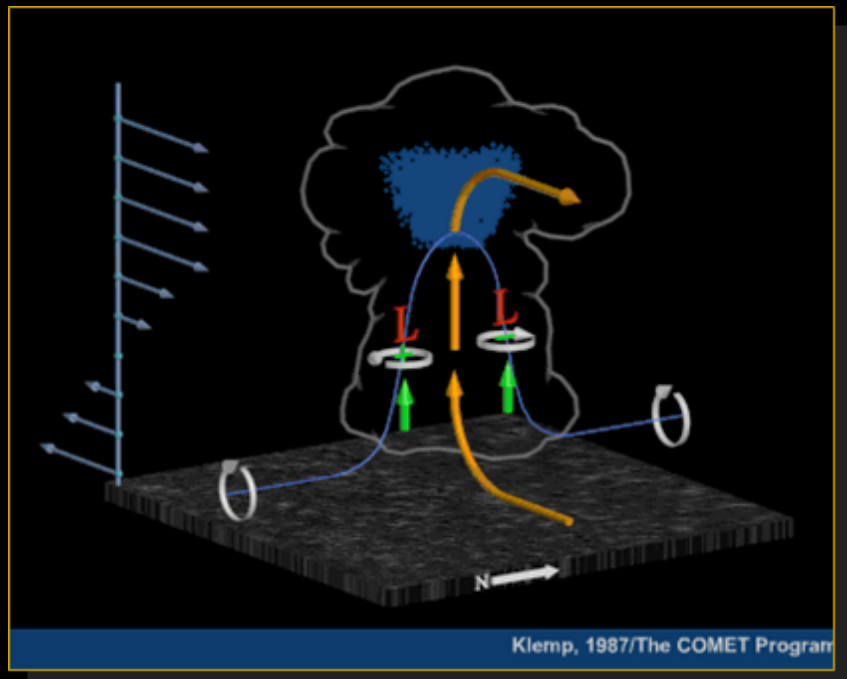
Outstanding Graphics





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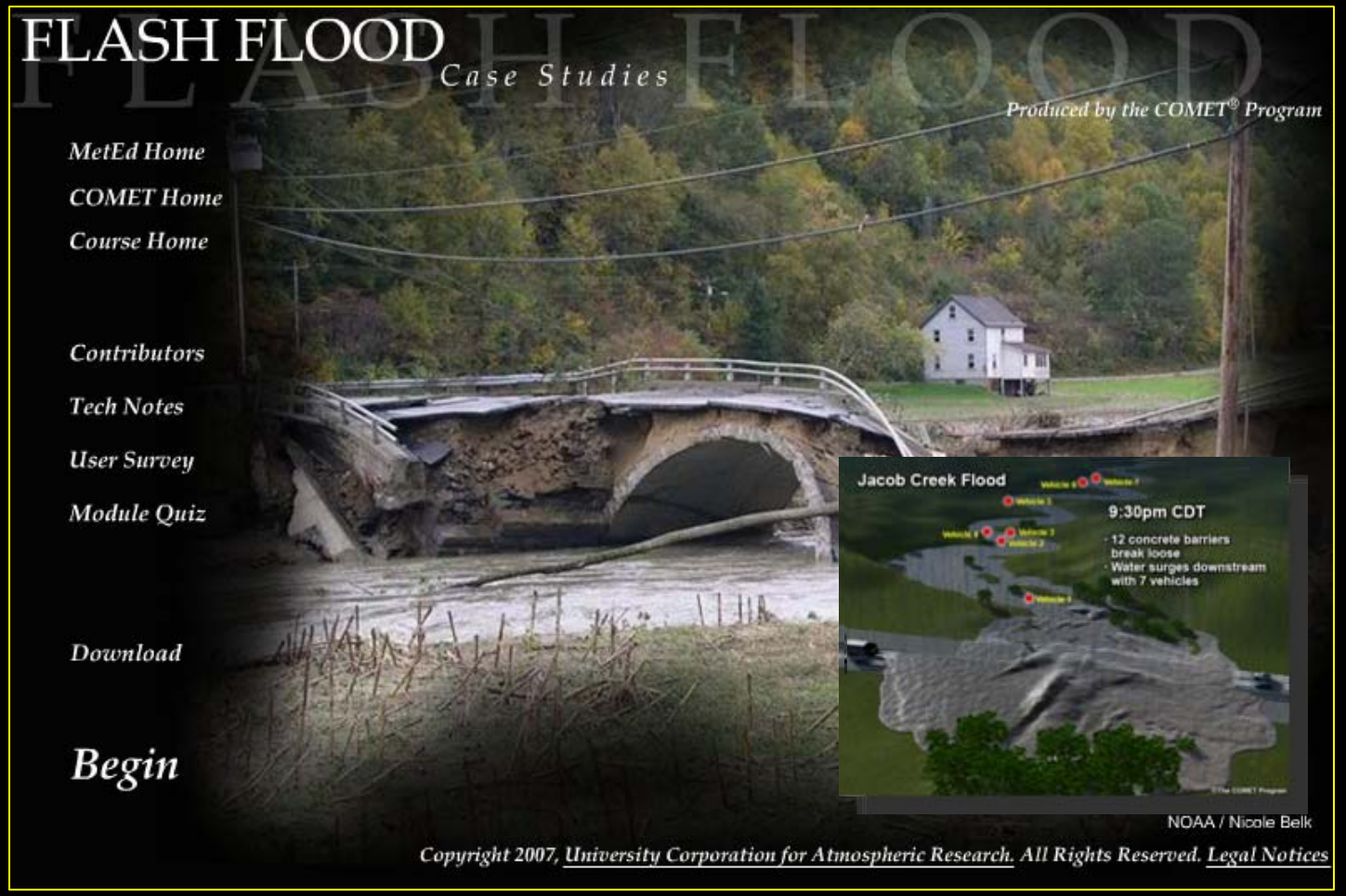
Operational Focus



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Case Studies

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Distance Learning Courses

Unit 3: Creating the Forecast

- Fire Weather Climatology | Quiz

  description (click to show/hide)

- Stability, Smoke Management, and Fire Weather Forecasting | Quiz

  description (click to show/hide)

- Fire Model Matrix | No Quiz

  description (click to show/hide)

- Fire Behavior | Quiz

  description (click to show/hide)

- Mesoscale Meteorology Effects on Fire Behavior | Quiz

  description (click to show/hide)

- Fire Weather Grid Techniques: Relative Humidity and Dewpoint Temperature | Quiz

  description (click to show/hide)

Unit 4: Issuing Fire Weather Forecasts - *Optional*

- Fire Weather Forecasting: Clear Communications | Quiz

  description (click to show/hide)

Virtual Conference

All NWS employees taking the S-591 course as a requirement for their position, must participate in the virtual conference. For more information on the conference, please contact your Regional Fire Weather Program Manager.

NOTE TO NWS and other NOAA EMPLOYEES: The modules in this course are available in the NWS Learning Center (https://doc.learn.com/noaa/nws). Please access the module quizzes through that system in order to get credit.

The Future

- New Technologies
  - Mobile Devices
  - Social Media
  - Variety of distribution venues

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Virtual Courses

The COMET Virtual Classroom

Operated by the COMET Program

You are not logged in. (Login)

Welcome to the NEW COMET® Program's new Classroom website

Resources and Links

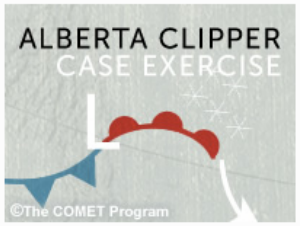
COMET/METED Links

- COMET Home
- MetEd Home
- Classroom Archives

Copyright Disclaimer Notice

Latest MetEd publication

Alberta Clipper Case Exercise



This case study focuses on a snow and blowing snow event in the Canadian prairies and US northern high plains on

The COMET Classroom website is used in support of COMET residence and virtual courses. Unless you've been invited to enroll in a course, access is restricted. Course dates are listed on the right hand side of the page and descriptions can be found by clicking on the title. Access to past COMET courses hosted on the old website can be found via the "COMET Classroom Archives" link on the left hand side of the page.

Course categories

2010 Courses

COMET Courses

- COMET/MSC Winter Weather Residence Course 2010
- Flash Flood/QPE Residence Course 2010
- 2010 Satellite Curriculum Development Workshop
- COMAP Residence Course 2010
- QPF for Hydrologic Modeling Virtual Course 2010
- Boundary Layer Symposium 2010

2009 Courses

COMET Courses

- COMET/MSC Winter Weather Residence Course 2009
- Climate Variability and Change Virtual Course 2009 (CVCVC)
- QPF Virtual Course

Calendar

January 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Upcoming Events

Climate Variability and Change Virtual Course (CVCVC) 2010
Monday, February 8, 08:00 AM
» *Friday, February 12, 04:00 PM*

Flash Flood/QPE Residence Course 2010
Tuesday, March 9, 08:00 AM
» *Thursday, March 11, 04:00 PM*

2010 Satellite Curriculum Development Workshop
Tuesday, May 18, 01:00 PM
» *Friday, May 21, 05:00 PM*

COMAP Residence Course 2010
Monday, June 7, 08:00 AM

Myth 1

- Distance learners don't work as hard as classroom students

Truth

- Distance learning activities can be designed to include substantial challenge and require a high degree of effort

33

Myth 2

- Distance learning students and instructors feel isolated

Truth

- Always-available online communications and social networking tools can make online learning MORE socially engaging for MORE students

34

Myth 3

- Teaching at a distance always takes more time

Truth

- Instructors can establish time constraints and limit one-to-one communication with group discussion tools

35

Myth 4

- Distance learning instructors don't know whether students are learning

Truth

- The Internet supports many ways for students to demonstrate their learning

36

Myth 5

- Distance learning students don't get sufficient feedback

Truth

- Students often ask more questions and get more rapid feedback in distance learning

37

Seven Principles Of Good Practice

Good instructional practice

- Encourages student-faculty contact
- Encourages cooperation among students
- Encourages active learning
- Gives prompt feedback
- Emphasizes time on task
- Communicates high expectations
- Respects diverse talents and learning styles

38