Supporting Upper-level Earth Sciences Coursework at Universities: Supplemental Laboratory Packages and Webinars from The COMET® Program



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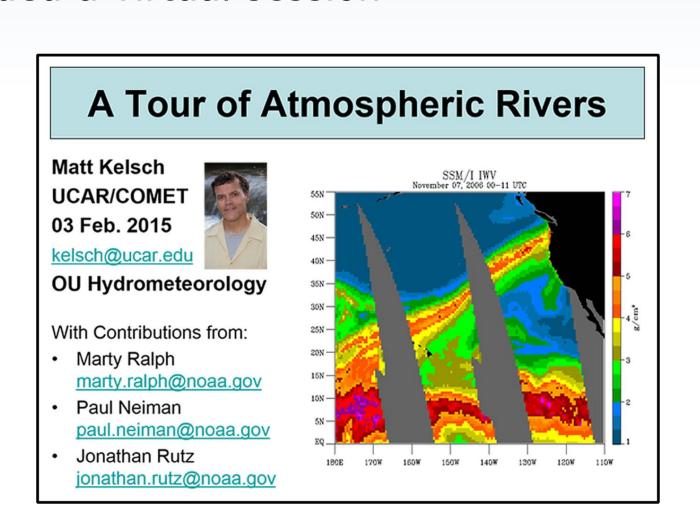
Hydrometeorology Webinar Overview

In spring 2015, the University of Oklahoma's upper-level hydrometeorology course included a virtual session

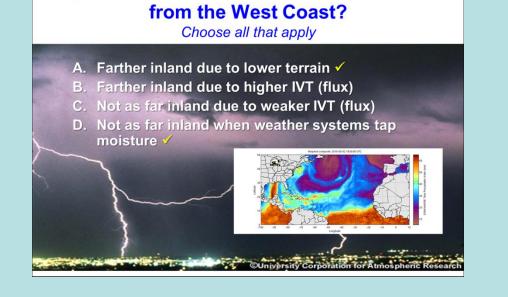
on Atmospheric Rivers. This flat-fee, 90-minute interactive webinar was conducted using GoToWebinar.

The presentation served as a pilot session for larger UCAR and COMET initiatives that will support university classrooms beyond their use of freely-available modules from MetEd, as well as an

opportunity for students to engage with UCAR/NCAR scientists and NOAA contributors.



Webinar Features



Fundamental Concepts Linked to Latest Research

COMET instructors and meteorologists consulted with leading AR researchers in NOAA and NCAR, integrating the newest findings into the presentation.

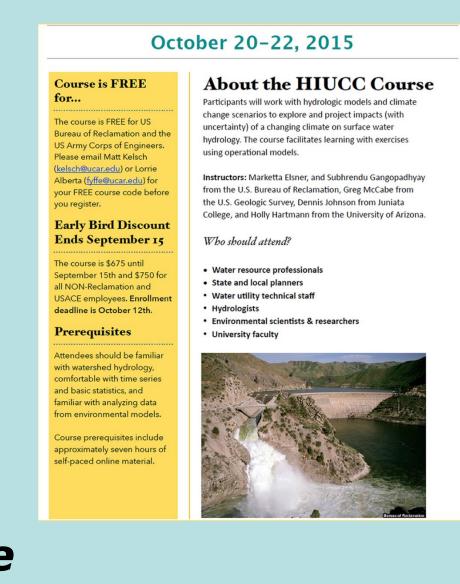
Interactive Polling Questions and Expert Q&A

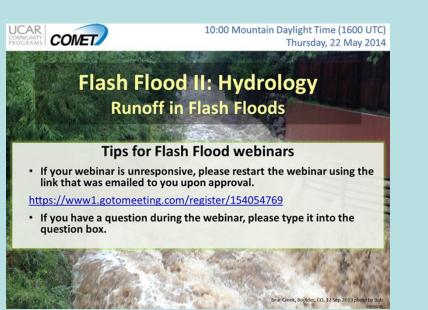
Instructors administered real-time polling questions to gauge student understanding and opinion. Questions were asked and answered via the chat window during the webinar, and in a post-presentation, expert Q&A session. Current AR events were also discussed.

Similar Offerings

Webinar Series & Virtual Courses for Fee

Over the last two years COMET has added series of webinars and virtual courses, which include robust course websites and technical support, for fees. Presenters include COMET staff as well as leading content-area experts from across the globe.





Stand-alone Webinars

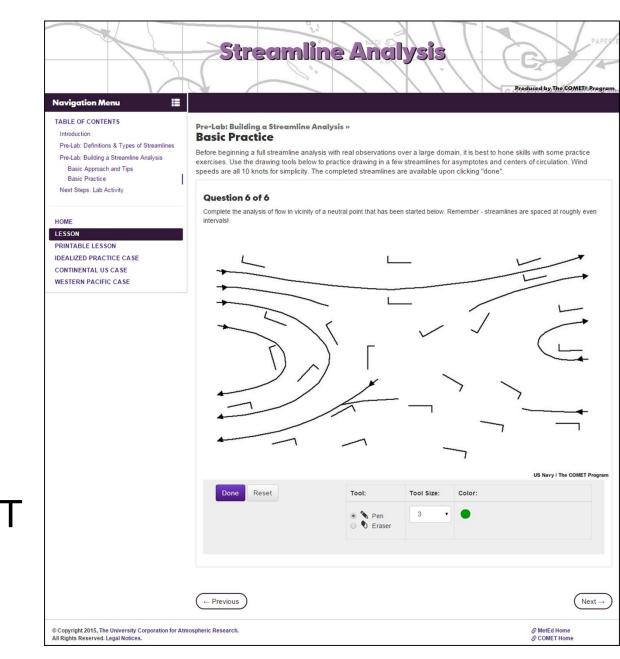
Other stand-alone webinars for fee have been consumed by students, a variety of geoscience professionals, as well as the public at large.

Synoptic Lab Series Overview

In another pilot effort to broaden UCAR and COMET's support of University classrooms, the fall semester of 2015

saw the University of Oklahoma's senior-level synoptic meteorology laboratory course using supplementary lab activities developed by COMET.

Students paid a laboratory fee to access a virtual course website that included 6 new COMET lab modules, along with customized sets of existing COMET module materials and relevant current weather data and links.





The labs contained multiple sections to give background to those less familiar with the content, allow practice of analysis and diagnosis methods, and test understanding via formal classroom exercises.

Preliminary feedback suggests that lab content and interactive tools were well-received, yet feelings were more mixed on appropriate pricing and format. COMET continues to work with its advisory panel and executive board to determine future improvements, pricing and availability.

Lab Module Features

Background and Pre-Lab Interactivity

Each module contains topical background material embedded with interactive questions to test student understanding. HTML5 drawing tools and labeling systems allow the student to practice various types of analysis before completing the formal classroom lab exercise.

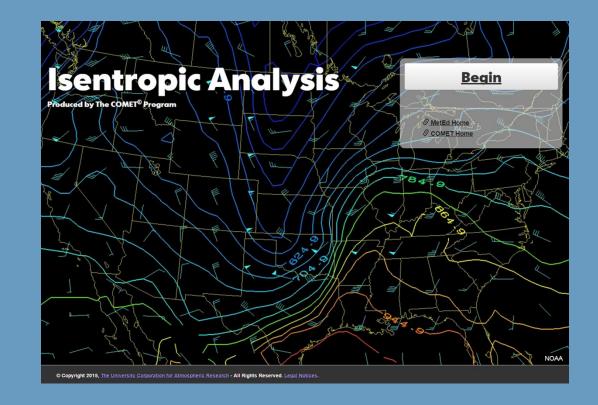
Classroom Lab Printouts and Question Sets

Print-quality map and case data sets for analysis, written question sets, or both are available for work in the classroom. Instructors can choose to assign any number of the case studies/map collections and their questions.

Solution Sets

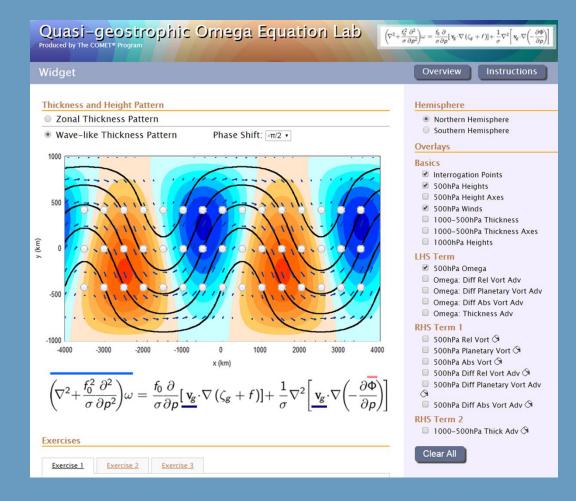
Fully-analyzed maps and written solutions sets accompany each lab module.

Selected Labs in Series



Isentropic Analysis

This lab covers the fundamentals of isentropic thinking and allows students to analyze pressure and moisture advection on isentropic surfaces, and compare their results to standard isobaric chart methods.



QG Omega Equation Lab

This widget features interactive adjustment of the right and lefthand terms of the QG Omega equation. Question sets explore how the variables interact to produce ascent and descent for different phase shifts of 500hPa and 1000hPa waves.



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Satellite Vorticity and Deformation Analysis

This lab allows students to explore and practice identifying vorticity centers and deformation zones using satellite water vapor imagery with online drawing tools and hand analysis.