

# Water and Climate Training Resources: COMET's MetEd Website

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Depleted Lake in Central Rockies During the Summer Drought of 2002  
Photo by Carlye Calvin

# Climate Change Impact on Water Resources

## The Pilot Project Components:

1. **Web-based narrated multimedia module: *"Preparing Hydro-climate Inputs for Climate Change in Water Resources Planning"***
  - *~4 hours of material*
  - *Includes both a pre-assessment and final quiz*
  - *Available for anyone and everyone to take!*

Two 3-day residence courses in Boulder, Colorado

2. ***"Hydrologic Impacts Under Climate Change"***  
**15-17 January 2013**
3. ***"Crop Irrigation Requirements Impacts Under Climate Change"***  
**5-7 March 2013**



**BEGIN**

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- Contributors
- Technical Notes
- Media Gallery
- Resources

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- COMET Home

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## High level objective:

To increase the ability of technical practitioners (like water resource analysts) to incorporate climate change information in the studies they conduct that inform water and water related resource management decisions.

## Table of Contents

Before you begin, please complete a short pre-assessment.

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Chapter 1: Recognize important terminology and processes for global climate modeling

[Go](#)

Chapter 2: Develop regionally applicable climate projections

**Bias Correction and Spatial Downscaling**

[Go](#)

Chapter 3: Determine climate change scenarios and select associated climate projections

**Five future scenarios**

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Chapter 4: Develop climate-adjusted weather for climate change scenarios

**Used in impacts modeling**

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Chapter 5: Summary and data considerations

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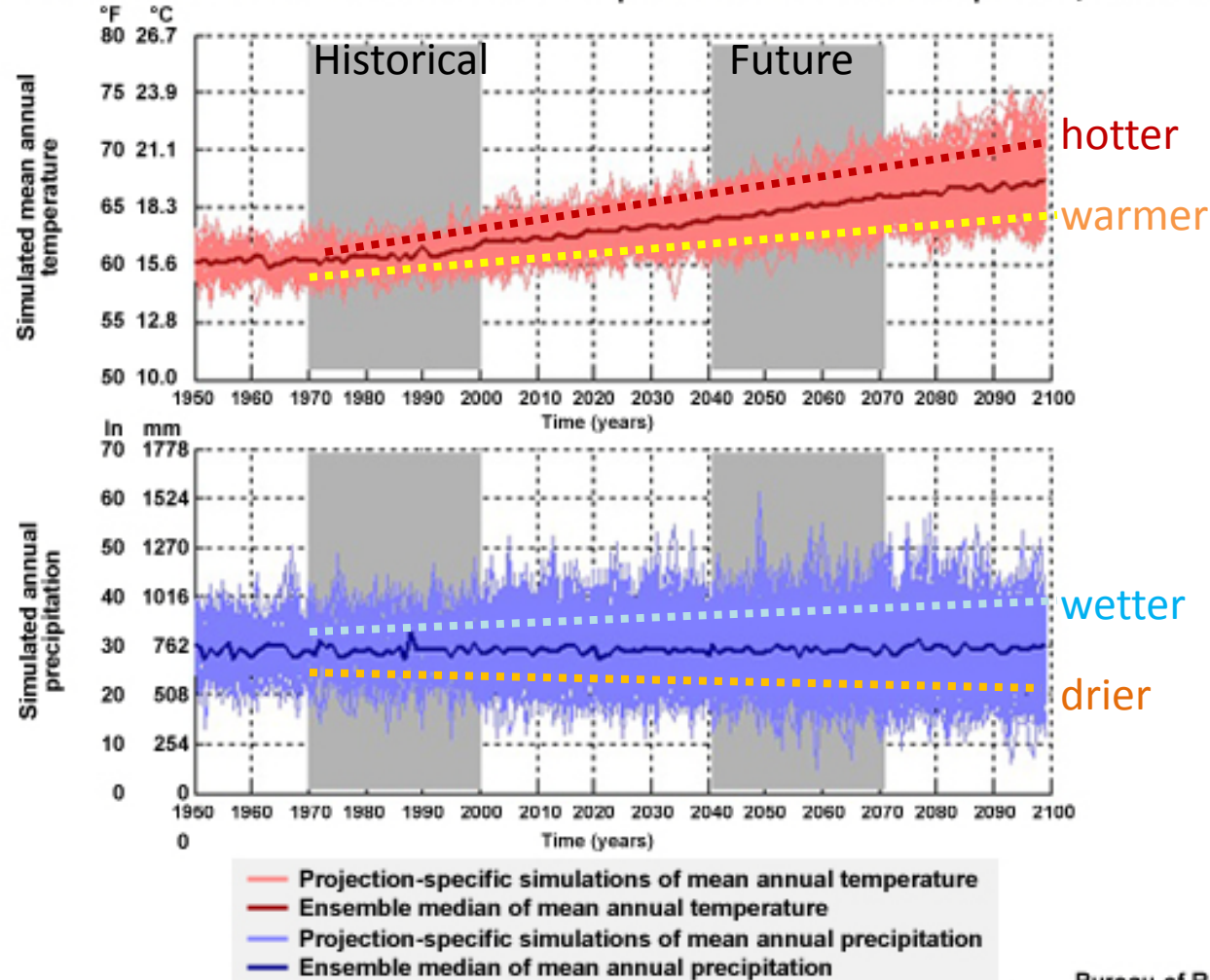
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# Climate Change Scenario Generation (a Range of Possible Outcomes)

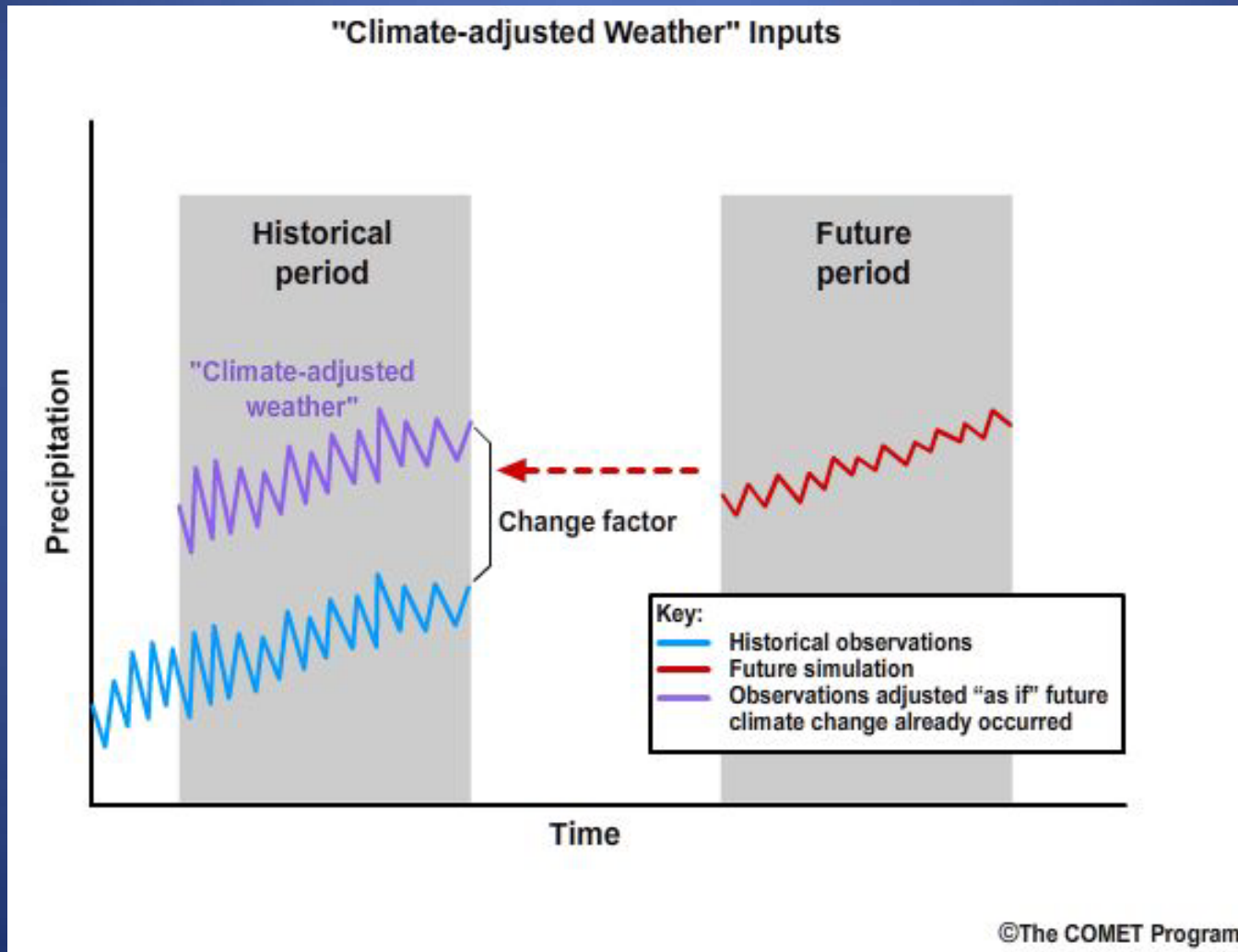
112 Member Ensembles of Mean Annual Temperature and Annual Precipitation, 1950-2099



1. Hotter/Wetter
2. Warmer/Wetter
3. Hotter/Drier
4. Warmer/Drier
5. Central Tendency

# Climate Adjusted Weather

## Input to Impacts Models



# Pilot Residence Course Training Offerings



***Hydrologic Impacts Under Climate Change:*** Evaluate the impacts of climate change on surface water hydrology for use in regional planning studies

***Crop Irrigation Requirements Under Climate Change:*** Evaluate the impacts of climate change on crop irrigation requirements for use in regional planning studies



# Registering and Navigating COMET MetEd

- Register for access to a large variety of free online training modules

The screenshot displays the MetEd website interface. At the top, the 'MetEd' logo is prominent on the left, while 'English' and 'Español' language options are on the right. A yellow box highlights the 'Sign Up' button, which is part of a group including 'Have an account?' and 'Sign In'. Below the header is a navigation bar with tabs for 'HOME', 'EDUCATION & TRAINING', 'COMMUNITIES', 'RESOURCES', 'ABOUT', and 'MY METED'. The main content area features the tagline 'Teaching and Training Resources for the Geoscience Community' and a search bar. A 'Recent Publications' section highlights the 'Jet Streams' module, which includes a description of upper-level jet streams and a 'More Information' link. To the right, a 'What is MetEd?' section explains the site's purpose and includes a video player. At the bottom, a 'Coming Soon' section lists upcoming publications.

English Español

# MetEd

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Teaching and Training Resources for the Geoscience Community

Search

## Recent Publications

### Jet Streams

This module describes the general characteristics of upper-level jet streams (Polar Jet, Subtropical Jet, and Tropical Easterly Jet) and two major tropical low-level wind maxima (Somali Jet, African Easterly Jet). Included are discussions of their formation,...

More Information »

1 2 3 4 5 6 7 8 9 10 See All

### 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.

### Coming Soon

Here are some upcoming publications:



# Finding Training Modules on MetEd

EnglishEspañol


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Teaching and Training Resources for the Geoscience Community

Search

Recent Publications



Jet Streams

This module describes the general characteristics of upper-level jet streams (Polar Jet, Subtropical Jet, and Tropical Easterly Jet) and two major tropical low-level wind maxima (Somali Jet, African Easterly Jet). Included are discussions of their formation,...

More Information »

12345678910See All

News and Updates

Module Ratings and Reviews

Posted on: 2012-09-12

We just added a rating and review feature to our module description pages. And we're excited to hear more from you!


US Weather Community Risk Assessment 2nd Edition

Includes Required Plugins:  
Topics:  
Convective Weather, Emergency Management, Environment and Society, Hydrology/Flooding, Hurricanes, Winter

Other Module Links:  
Print Version  
Download

What is MetEd?

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Coming Soon

Here are some upcoming publications:

- Tropical Mesoscale and Local Circulations
- African Easterly Waves
- Atmospheric Composition

Support Form

Please inform us of any problem that you are having by visiting our Support Form.

Go

# Finding Training Modules on MetEd

# MetEd

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Module Listing » Climate

Climate

Topics: Climate Languages: English

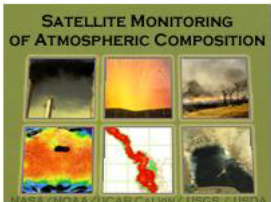
Earth's climate engine is a complex machine. COMET has developed a suite of modules to help you understand some of its bigger cogs. Learn about the El Nino/Southern Oscillation, the Madden-Julian Oscillation, climatology, Arctic ecosystems, and climate change.

Modules

Courses

Sort by: Date (Newest to Oldest)

1 - 30 out of 30 results




**Satellite Monitoring of Atmospheric Composition**

Languages: English  
Publish Date: 2012-11-06  
Skill Level: 1  
Completion Time: 1.00 - 1.25 h  
Topics: Climate, Other, Satellite Meteorology  
(0 reviews)

Satellite Monitoring of Atmospheric Composition

Satellite monitoring of atmospheric composition provides important information for a number of applications, including stratospheric ozone monitoring, long-range pollutant transport, biomass burning, air quality monitoring and forecasting, and climate change. This module ... [Read more »](#)



**Preparing Hydro-climate Inputs for Climate Change in Water Resource Planning**

Languages: English  
Publish Date: 2012-10-25  
Skill Level: 2  
Completion Time: 3.00 - 4.00 h  
Topics: ...

Preparing Hydro-climate Inputs for Climate Change in Water Resource Planning

This module describes the process of selecting the best available climate projection information and using it to develop "climate-adjusted weather" inputs to be used for modeling climate change impacts. These modeled impacts can be used for planning of future water ... [Read more »](#)

### Special Interest

#### More on Climate

- What's going on with El Nino? The latest El Nino/Southern Oscillation updates can be found at NOAA's Earth System Research Laboratory, [here](#).
- Find out about federal government research on climate change and its implications for America at the U.S. Global Change Research Program's home, [here](#).
- Check out some great podcasts on Earth's climate future made by COMET's parent organization UCAR [here](#).
- Learn more about the National Weather Services' Professional Development Series on climate [here](#).
- Find out about the Climate Services offered by NOAA [here](#).
- For the latest research on climate, take a look at the NCAR Earth System Laboratory's Climate and Global Dynamics Division [here](#).

#### COMET Outreach Project

Forecasting severe convective weather during the monsoon in the Southwest U.S. is often difficult, particularly for such strategic forecasting

Or, search for specific topic

From drop down, choose climate

Climate change

Search

# Training Modules on MetEd

## Preparing Hydro-climate Inputs for Climate Change in Water Resource Planning



**Languages:** English

**Publish Date:** 2012-10-25

**Skill Level:** 2

**Completion Time:** 3.00 - 4.00 h

**Includes Audio:** yes

**Required Plugins:** Flash

**Topics:**

Climate, Environment and Society,  
Hydrology/Flooding

**Reviews:**

★★★★★ (1 review)

[Read or add reviews](#)

**BEGIN MODULE**

**Add to Queue**

Your Queue»

**Your Quiz Score**

Not Completed

**Finish Quiz**

**Other Module Links:**

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Description

Media Gallery

Objectives

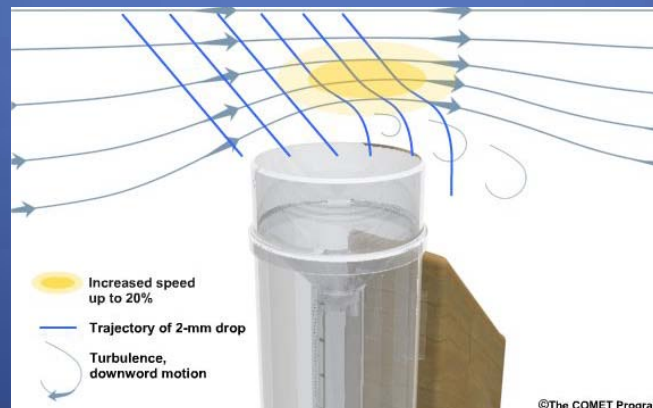
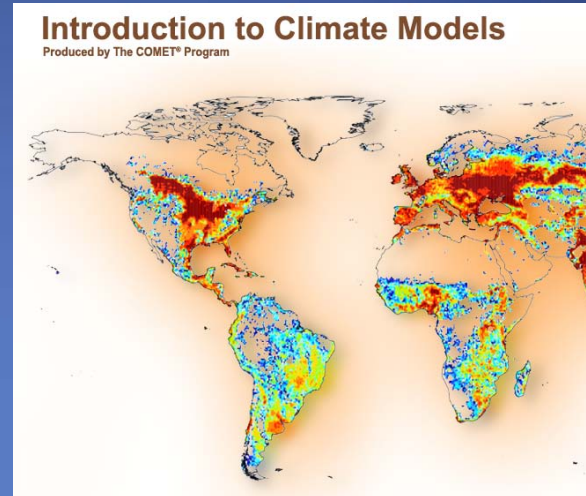
Reviews

Keywords



# Many MetEd Topics, including...

- Climate Topic:
  - How Climate Models Work
  - Climate Change
  - El Nino/La Nina
- Hydrology Topic
  - Basic Hydrologic Sciences (Hydro Cycle, Runoff, Unit Hydrograph,...)
  - Distributed Models
  - Dam Failure
  - Precipitation Measurement
  - Drought





# What's Next?

- Additional training on subtopics of climate change impacts on water resources
  - Sedimentation and River Hydraulics
  - Ecosystem Changes
  - Water Quality
  - Land Cover and Vegetation Changes
- More participation from the multi-agency Climate Change and Assessment Working Group (CCAWG)
  - UCAR
  - Reclamation
  - EPA
  - U.S. Army Corps of Engineers
  - USGS
  - Universities: Climate Regional Integrated Sciences and Assessments (RISA)

## Water and Climate Training Resources

**Thank you for your time.  
Please let us know if you have any questions.  
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