

COMET Module Requirement

WPC International Desks (NWS/NOAA)

Each student must complete **seven (7)** COMET Modules as part of WMO certification by the penultimate week of the training. It is required that one module is completed for each of the following categories:

SOUTH AMERICAN DESK

1. Climatology
2. Numerical Weather Prediction
3. Public support
4. Satellite
5. Synoptic Meteorology
6. South American Meteorology
7. Tropical Meteorology

TROPICAL DESK

1. Climatology
2. Numerical Weather Prediction
3. Public support
4. Satellite
5. Synoptic Meteorology
6. Tropical Meteorology
7. Tropical Meteorology

Module access: From any PC/laptop via <https://www.meted.ucar.edu/>. The COMET website requires the creation of a free account and requires names of supervisors. You can refer Michel Davison or Jose Galvez for this.

Grade for Certification: The desks require 70%. In case of not reaching 70%, the module can be repeated as many times as desired until the passing grade is reached.

Submission of information to the instructors: The certificate with the grade must be sent via email to both instructors.

Module List per Category

The modules marked (†) are considered relevant to the training. However, any module from the category can be chosen.

1. Climatology (Climatología)

- Climate Change and Regional Impacts
- Climate Change and Extreme Weather
- Climatology for the Operational Forecaster
- The El Niño-Southern Oscillation (ENSO) Cycle
- †ENSO and Beyond
- MJO, Equatorial Waves, and Tropical Cyclogenesis
- Introduction to Climatology
- Monitoring the Climate System with Satellites
- Introduction to Climate Models
- Introduction to Statistics for Climatology
- The Amazon Rain Forest and Climate Change
- †The Madden-Julian Oscillation Life Cycle
- The Role of the MJO in Oceanic and Atmospheric Variability
- Understanding Drought
- Using Climatological Products in Common Operations

2. Numerical Weather Prediction (Predicción Numérica)

- [Effective Use of High-Resolution Models](#)
- [Effective Use of NWP in the Forecast Process: Introduction](#)
- [How Satellite Observations Impact NWP](#)
- [How Models Produce Precipitation and Clouds - version 2](#)
- [Intelligent Use of Model-Derived Products - version 2](#)
- [Model Fundamentals - version 2](#)
- [†Operational Models Matrix: Characteristics of Operational NWP Models](#)
- [Preparing to Evaluate NWP Models](#)
- [Ten Common NWP Misconceptions](#)

3. Public Support (Apoyo al público)

- [†Anticipating Hazardous Weather and Community Risk, 2nd Edition](#)
- [Community Hurricane Preparedness, 2nd Edition](#)
- [Customer Impacts: Forecasting Fog and Low Stratus](#)
- [†Flash Flood Processes](#)
- [Hurricane Strike](#)
- [The Impact of Weather on Air Traffic Management](#)

4. Satellite (Satélite)

- [†Basics of Visible and Infrared Remote Sensing](#)
- [Creating Meteorological Products from Satellite Data](#)
- [†Feature Identification Using Environmental Satellites](#)
- [†Multispectral Satellite Applications: RGB Products Explained](#)
- [†Polar Satellite Products for the Operational Forecaster: Microwave Analysis of Tropical Cyclones](#)
- [Satellite Feature Identification: Blocking Patterns](#)
- [†Satellite Feature Identification: Cyclogenesis](#)
- [Satellite Feature Identification: Conveyor Belts](#)
- [Volcanic Ash: Observation Tools and Dispersion Models](#)
- [Volcanic Ash: Introduction](#)
- [Volcanic Ash: Volcanism](#)
- [†Vorticity Maxima and Comma Patterns](#)
- [Vorticity Minima and Anticomma Patterns](#)
- [WMO Regional Satellite Workshop](#)

5. Synoptic Meteorology (Meteorología Sinóptica)

- [†A Convective Storm Matrix: Buoyancy/Shear Dependencies](#)
- [Dynamically Forced Fog](#)
- [EUMeTrain's Synoptic Textbook](#)
- [EUMeTrain's Manual of Synoptic Satellite Meteorology](#)
- [†Flash Flood Processes: International Edition](#)
- [Flood Forecasting Case Study: International Edition](#)
- [†Isentropic Analysis](#)
- [†Jet Streams](#)
- [†Jet Streak Circulations](#)
- [†Mesoscale Convective Systems: Squall Lines and Bow Echoes](#)
- [Nighttime Radiation and Cooling of the Lower Atmosphere](#)
- [Principles of Convection I: Buoyancy and CAPE](#)

- Principles of Convection III: Shear and Convective Storms
- Quantitative Precipitation Forecasting Overview
- S-290 Unit 5: Temperature and Relative Humidity Relationships
- †Should Synopticians Worry About Climate?
- Skew-T Mastery
- Synoptic Weather Considerations: Forecasting Fog and Low Stratus
- Thermally-forced Circulation I: Sea Breezes
- Thermally-forced Circulation II: Mountain/Valley Breezes
- †Tropical Mesoscale Convective Systems

6. South America Meteorology (Meteorología de Sudamérica)

- Antarctica: Challenging Forecasts for a Challenging Environment
- VLab's Conceptual Models for Southern Hemisphere
- †Tropical-Extratropical Air Mass Interactions in South America

7. Tropical Meteorology (Meteorología Tropical)

- †African Easterly Waves
- †Conceptual Models of Tropical Waves
- Introduction to Tropical Meteorology, 2nd Edition, Chapter 1: Introduction
- Introduction to Tropical Meteorology, 2nd Edition, Chapter 2: Tropical Remote Sensing Applications
- †Introduction to Tropical Meteorology, 2nd Edition, Chapter 3: Global Circulation
- Introduction to Tropical Meteorology, 2nd Edition, Chapter 4: Tropical Variability
- Introduction to Tropical Meteorology, 2nd Edition, Chapter 5: The Distribution of Moisture and Precipitation
- †Introduction to Tropical Meteorology, 2nd Edition: Chapter 7: Synoptic and Mesoscale Systems
- †Introduction to Tropical Meteorology, 2nd Edition, Chapter 8: Tropical Cyclones
- Introduction to Tropical Meteorology, 2nd Edition, Chapter 9: Observations, Analysis, and Prediction
- Topics in Tropical Meteorology
- Tropical Cyclone Intensity Analysis
- Tropical Mesoscale and Local Circulations
- †Tropical Severe Local Storms

Others: Aviation

- Atmospheric Dust
- Basic Terminal Forecast Strategies
- Forecasting Dust Storms - Version 2
- Forecasting Aviation Icing: Icing Type and Severity
- Fog: Its Processes and Impacts to Aviation and Aviation Forecasting
- Fog and Stratus Forecast Approaches
- Forecasting Radiation Fog
- Gap Winds
- Local Influences on Fog and Low Stratus
- Low-Level Coastal Jets
- Mountain Waves and Downslope Winds
- Radiation Fog
- Topics in Precipitation Type Forecasting

- Tropical Fog: A Look at Fog That Impacts Aviation in Guyana
- Volcanic Ash: Impacts to Aviation, Climate, Maritime Operations, and Society
- West Coast Fog
- Writing Effective TAFs
- Writing Effective TAFs in the Caribbean
- Writing TAFs for Convective Weather, 2nd Edition
- Writing TAFS for Ceilings and Visibility
- Writing TAFs for Winds and LLWS

Others: Radar

- Caribbean Radar Cases
- Caribbean Radar Products
- Satellite Feature Identification: Atmospheric Rivers
- Radar Signatures for Severe Convective Weather
- Weather Radar Fundamentals