

**CALPUFF Modeling Course Outline**  
**Washington, D.C. Area**  
**May 9 - 11, 2007**

**Wednesday, May 9 - Day 1 – Morning**

1. OVERVIEW (8:30 am - 12:00 noon)
  - 1.0 Introduction
  - 1.1 Background
    - 1.1.1 Puff vs. Plume Models
    - 1.1.2 Comparison with other EPA models
    - 1.1.3 Regulatory Status
  - 1.2 CALPUFF modeling system overview
  - 1.3 Major features of the CALPUFF modeling system
    - 1.3.1 Geophysical & meteorological preprocessors
    - 1.3.2 Meteorological modeling
    - 1.3.3 Dispersion modeling
    - 1.3.4 Postprocessing & display

BREAK (10:00 am - 10:15 am)

- 1.4 Summary of data requirements
  - 1.4.1 Minimum data requirements
  - 1.4.2 Advanced data inputs
- 1.5 Computer requirements
- 1.6 Typical applications and uses of the model

LUNCH (12:00 - 1:00 pm)

**Wednesday, May 9 - Day 1 – Afternoon**

- 1.7 Ongoing and future developments (1:00 pm – 2:00 pm)
  - 1.7.1 Technical advances
  - 1.7.2 Ease-of-use considerations
  - 1.7.3 Evaluation studies
  - 1.7.4 On-line datasets and links
2. HANDS-ON COMPUTER EXERCISES (2:00 pm - 5:00 pm)
  - 2.1 Installation of the software and new GUIs
  - 2.2 Overview of Graphical User Interfaces (GUIs)
    - 2.2.1 Menu commands
    - 2.2.2 Online Help system
    - 2.2.3 Utilities, ISC3 conversion program
  - 2.3 Test case simulations
    - 2.3.1 Sample model files and standard model test simulations
    - 2.3.2 No-Observations simulation (Sydney case study)

**CALPUFF Modeling Course Outline**  
**Washington, D.C. Area**  
**May 9 - 11, 2007**

**Thursday, May 10 - Day 2 – Morning**

3. TECHNICAL DESCRIPTION OF CALMET (8:30 am - 10:15 am)
  - 3.1 Wind fields
    - 3.1.1 Initial guess field
      - Interpolation
      - Vertical extrapolation
      - Bias parameters
      - Use of prognostic wind fields (MM5, RUC, Eta, RAMS datasets)
    - 3.1.2 Diagnostic wind module (Step 1 adjustments)
      - Initial guess field
      - Kinematic effects
      - Terrain blocking
      - Slope flows
    - 3.1.3 Objective analysis (Step 2 adjustments)
      - Interpolation
      - Vertical extrapolation
      - Influence parameters
      - Smoothing
      - O'Brien adjustment
      - Divergence minimization
  - 3.2 Boundary layer modules
    - 3.2.1 Overland boundary layer formulation
    - 3.2.2 Overwater boundary layer formulation
  - 3.3 Surface friction velocity
  - 3.4 Monin-Obukhov length
  - 3.5 Convective velocity scale
  - 3.6 Mixing height
  - 3.7 Stability class
  - 3.8 Precipitation and cloud data

BREAK (10:15 am – 10:30 am)



