pDs AERMOD Course outline

Why should you attend this technical session?

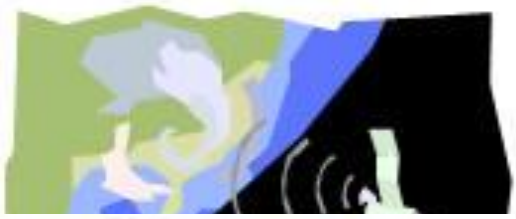
1. In preparation for the future; Use of AERMOD over Australasia is increasing
2. To understand why regulators are switching to AERMOD
3. So that you can answer the question "Why AERMOD?"
4. To acquaint yourself with the new generation model, AERMOD
5. To understand how Australia is resolving the main concerns associated with the adoption of the new generation model, AERMOD.
6. To receive a complimentary copy of pDsAUSMOD-Australian GUI for AERMOD

Target audience: People with or without any experience in air modelling

Day 1

Introduction:

- Introduce US EPA regulatory model – AERMOD
  - Brief theoretical discussion
    - Why it is good?
    - Why it has been adopted as EPA,VIC regulatory model-Other states to follow
    - Structure of AERMOD



Meteorology-Main Driver

- Essential Meteorology for Air Modelling-Refresher Session
- Comparisons and National situation
  - AUSPLUME met Vs AERMOD met
  - Problems (difficulties) and Solutions
- Meteorological Data Processing
  - Generic software AERMET
    - Structure of AERMET
  - How does it fit in Australia / NZ + Asia?
  - USA Vs Australia / NZ + Asia

Solution and Recommendations

- Customised software suitable for Australia
  - pDsAUSMET-our local met processor
- Site-Specific Vs Site-Representative
- Use of other 3D models like TAPM/WRF/MM5 and CALMET to generate required data / parameters

Geophysical Data-Other Sensitive input

Terrain Influence in AERMOD

- **Topography**
  - How AERMOD handle Terrain Features
    - Generic software US EPA AERMAP
      - Terrain Data (Local / Global)
- **Surface Characteristics**
  - Rules of processing
  - Necessity of having Local Databases

Hands-on Exercises on Meteorological data processing for AERMOD

- Reuse of AUSPLUME metfiles
- Supplementary Data (Use of BoM Data)
- Model Generated Data (TAPM/CALMET)

Day 2

Review the work done on Day 1

Other Inputs

- Building Wake Effect
- Pollutant Background
- Averaging Time

Other Available Options

- NOx to NO2 conversion / Ozone limiting (OLM)
- Plume depletion (Dry and Wet)/Deposition (Dry and Wet)
- Urban and Rural Zones
- Emission profiling
- Time Varying Emission

- Use of AREA sources/Handling light winds
- Line Sources/Modelling roads

Output Analysis

- Top 100 Table / Plot files (Highest / 9th Highest)
- Averaging Times – local requirements

How you should handle:

- 3 minute averaging time (for Victoria)
  - Odour modelling/Air Toxics
    - EPA,VIC ruling
    - pDs Approach (Stability Dependent)
  - Peak-to-mean ratio
    - Percentiles

Hands-on Exercises –Preparation of Terrain data for AERMOD

- Use of locally available terrain data (via pDsAUSMOD)

STATs to fulfil local requirements (via pDsPOST)

- Rolling Averages (7 Day,3 Month, 90 Days)
- Percentiles
- Other useful utilities (pDsMAP)

Introduction to US EPA AERMOD

- **AERMOD Pathways**
  - Control Pathway
  - Meteorology Pathway
  - Source Pathway
  - Receptor Pathway
  - Output Pathway

How to Transit from AUSPLUME to AERMOD?

Introduction to AUSMOD (AERMOD/AUSPLUME Suite)

- AUSPLUME Config convertor

AUSMOD DEMO

Hands-on Exercises

1. Fresh case-Stack
2. AUSPLUME Converter/Your model configs
3. Building Wake Effect
    1. How pDs utility programs helping you-pDsMAP
4. Volume and Area Sources
5. Source grouping/Output Analysis
6. Terrain influence
7. Line Sources/Open Pits
    1. Haul Roads
    2. Buoyant Line Sources
8. pDs Utility Programs
    1. pDsMAP
    2. pDsWindRoses-check metfiles

Case Studies