



Surface Characteristics Subgroup

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3 Surface Characteristics Issues Identified by AIWG

1. Parameter determination
2. Representativeness
3. Lack of representative met data



Workplan

Parameter Determination

Goal

Determine appropriate surface characteristics objectively

Objective

Develop recommendations that result in consistent and objective parameter determination

Parameter Determination (cont'd)

Activities

- Evaluate AERSURFACE
- Review current recommendations (previous AIWG)
- Develop additional recommendations, as needed
- Recommend methods to verify AERSURFACE output

Measure of Success

Objective (or nearly) procedure that allows refinement for case-by-case determinations

Representativeness

Goal

Use met data at application site with dissimilar surface characteristics

Objective

Develop procedures and/or criteria to assess and/or address representativeness

Representativeness (cont'd)

Activities

- Review AERMOD sensitivity analyses (OAQPS, other)
- Design and perform modeling analysis:
 - If appropriate, develop
 - ◇ evaluation target criteria for each parameter
 - ◇ recommendations based on the relative importance of a parameter for various source types
 - ◇ “surface characteristic - concentration” relationships determined from OAQPS sensitivity analysis
 - ◇ procedures/options to compensate for marginal representativeness to ensure appropriately conservative concentrations are used for regulatory applications (e.g. alternative design concentrations)

Representativeness (cont'd)

Measures of Success

- Protective of AAQS
- Recommendations promote consistent, objective evaluations and also allows for case-by-case determinations

Lack of Representative Met Data

Goal

Have an alternative method for obtaining representative meteorological data for application site

Objective

- Assist AERMIC in assessing feasibility of a scientifically defensible “up-over-down” method
- Develop justification for resource commitment to evaluate gridded met data

Lack of Representative Met Data (cont'd)

Activities

- "Up-over-down" method
 - ◇ Interface with AERMIC
 - ◇ Review "Adjusting Surface Characteristics"
 - ◇ Evaluate with additional databases
 - ◇ Interpret results to support or discard "up-over-down"

- Gridded Met Data:
 - ◇ Develop position/justification for method
 - ◇ Interface with OAQPS
 - ◇ Possible assistance with evaluation

Lack of Representative Met Data (cont'd)

Measure of Success

“Up-over-down”/gridded met data yields similar impacts to those determined with met tower data



Initial Work

Modeling Analysis/Study

- Focus on “representativeness” issue
- Evaluate AERSURFACE (when beta version is available)
- Assess the effect of dissimilar SC between the application and met sites on model concentrations

Purposes

- Evaluate if the conclusions of the OAQPS sensitivity analysis are applicable to other meteorological databases;
- Develop, if appropriate and feasible, a methodology to apply the surface characteristic-concentration relationships of the sensitivity analysis results;
- Determine the necessity and efficacy of using alternative design concentrations to ensure compliance with ambient air quality standards;
- Develop, if appropriate, recommendations for using alternative design concentrations.

How? compare concentrations from 3 processed met sets

**(1) Application Site
Site Specific Met/SC**

*Representative
Met*

**(2) NWS
Met/SC**

Representative?

**(3) NWS Met/
Site Specific SC**

*If available,
compare
w/actual Data*

**Observed
Concentrations**

Protocol

Under Development...

- met databases (site specific and corresponding NWS)
- source types
- receptor network
- surface characteristics