Meteorological Data: Plans for Appendix W Update

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Workgroup and objectives

- Workgroup consisting of OAQPS and key Regional Office staff
- Update Appendix W based on:
  - Advances in the state of the science
  - new observational data resources
  - Interest in the use of prognostic meteorological data

Observational data: App W updates being considered

- Revise guidance in Appendix W on observational meteorological data as needed including but not limited to the following:
  - Data representativeness
  - ASOS 1-minute data and AERMINUTE
    - Captures data "lost" to reporting methodologies
  - AERSURFACE and other tools
    - Calculates surface characteristics in objective manner
    - Coordinate with AERMOD update workgroup
  - AERMINUTE and AERSURFACE have been presented at previous Modeling Conferences and workshops
  - Possible revision to 2000 Meteorological Monitoring Guidance to reflect new instrumentation and promulgation of AERMOD since 2000

Use of prognostic data: App W revisions being considered

- For Appendix W update, allow for the use of prognostic meteorological data in near-field dispersion models
  - Example: WRF
  - Situations where no representative NWS data
    - Coastal situations, complex terrain
  - Costs in site-specific meteorological monitoring
- Develop guidance document on use of prognostic meteorological data
  - Offer specific technical guidance rather than the general guidance in Appendix W
  - Evaluation of prognostic meteorological data to support guidance development
    - Number of years to simulate
    - Representativeness of prognostic data vs. NWS/and or site-specific data in flat and complex terrain
    - Recommendations on evaluation of prognostic data and its suitability for dispersion modeling.

Timeline

- Spring-Summer 2014
  - Determine sections of App. W to edit
  - Determine sources for MMIF evaluations
  - Begin MMIF evaluations
- Fall 2014
  - Edit App. W as appropriate
  - Continue evaluations
  - Begin guidance development for use of prognostic data

Mesoscale Model Interface (MMIF) Tool

- Instances exist where NWS met isn't representative (complex terrain) and on-site met isn't feasible (cost prohibitive)
- MMIF was designed to utilize the abilities of mesoscale meteorological modeling in providing more representative data to dispersion models
  - High-resolution landuse datasets
  - Ability to resolve near-source terrain issues
  - Can provide values for variables that are beyond the scope of current measurement technology (low wind speeds vs calms)
- MMIF uses raw WRF data to generate model-ready inputs for AERMOD, AERMET, SCICHEM, CALPUFF

MMIF Tool

- Current stable beta (3.0) is available on SCRAM
- Works with most recent WRF versions and high-res landuse datasets (e.g., NLCD40)
- Reporting of bugs/issues has slowed significantly from previous versions
  - Update will be made soon (v3.1 beta) for compatibility with new version of SCICHEM, provided by EPRI
  - Initial evaluations (comparison to on-site and NWS met) have been favorable
    - Will continue evaluation as part of App. W update
    - Plans to extract several consecutive years worth of data in various areas across the country
  - EPA currently has 12km WRF data covering CONUS for several years
    - States/RPOs have been provided the most recent 2011 data, and may have finer resolution WRF output available
  - Desire for WRF output (significant disk requirement) or MMIF output? Always option to generate own prognostic meteorology (significant costs).

Questions?