

AIW Recommendations: EPA Next Steps

R/S/L Workshop

May 16, 2006

Action Items: Categories

- Prioritized items w/ contract \$
 - Bug fixes
 - Model updates
- OAQPS In-house efforts
 - Testing/evaluations
 - Coding for AERMET & AERMAP
- Workgroup Efforts: Longer Term
 - More complex/detailed efforts requiring technical/scientific input and development of action plans

AERMOD: Action Items

- ~40 individual recommendations thus far on AERMOD dispersion model
- Current focus is completion of AERSCREEN and AERSURFACE
- Reviewing items to address . . .
 - Contract resources (iterative prioritization)
 - Need for clarification &/or input from AIW
 - Add to Guide?
 - Need for Guidance?
 - Future consideration
- Action plan response with details and timing

AERMET: Completed Items

Source	Category	Number	Description	Model	Action	Status
AIW	Model Improvements	2	Modify AERMET to use a single executable and to streamline processing of data.	AERMET	Coding change.	DONE
AIW	Model Improvements	18	STAGE1N2 of AERMET should contain an option to read generic upper air data.	AERMET	Add free format option	DONE
AIW	Bugs	6	Using the ISH data (TD-3505) may result in incorrect time stamps. When extracting TD-3505 data, AERMET rounds the time of the observation up to the next hour only if the minute is greater than 50. Therefore, AERMET incorrectly assumes that all observati	AERMET	incorrect time stamps	DONE
AIW	Bugs	7	When extracting TD-3505 data, AERMET only retains the last record for each hour. This causes AERMET to occasionally overwrite good data with missing data flags.	AERMET	overwritten good data from TD-3505	DONE
AIW	Bugs	8	When using the ISH data (TD-3505), the cloud cover may be extracted incorrectly. When AERMET encounters missing data for the ASOS-derived cloud cover (ASKY), it reports the last known value instead of a missing data flag.	AERMET	Coding change.	DONE
AIW	Bugs	4	When the condensed format of NCDC's TD-3505 data is used, AERMET assumes the station elevation is equal to sea level. This results in AERMET setting station pressure equal to sea level pressure when one or the other is missing and needs to be calculated	AERMET	station elevation	DONE; condensed format not recommended for use

AERMET: Items to Resolve

Source	Category	Number	Description	Model	Action	Status
AIW	Mandatory Work	2	Bulk Richardson number: A beta version is included in AERMOD but before we can accept its use generally, additional evaluation is needed. Complete evaluation of modified Bulk Richardson Number Scheme for downwash (10K	AERMET	Bulk Richardson	Need clarification and discussion of necessary steps.
AIW	Model Improvements	10	Develop quality control procedures regarding the processing of meteorological data into AERMET ready format.	AERMET	QA procedures	Need consultation and clarification.
AIW	Model Improvements	26	Allow user-specified sounding time in AERMET.	AERMET	sounding time	Consultation/consensus needed.
AIW	Model Improvements	27	Develop algorithm for localizing NWS data (up-over-down)	AERMET	up-over-down for NWS	Consultation/consensus needed.
AIW	Bugs	2	Modify AERMET to allow input of sigma-v data for use in AERMOD profile file. The present model converts $\sigma\theta$ to σv improperly	AERMET	sigma-v	Review code and make appropriate corrections.
AIW	Bugs	3	AERMET QA does not account for whole missing records it only counts missing data flags. Therefore, the QA summary may be misleading.	AERMET	QA and missing flags	Coding change needed.
AIW	Bugs	5	When using the ISH data (TD-3505) there may be an error reading mixed format files. When the condensed format of NCDC's TD-3505 data is used, AERMET determines the format of the data by analyzing the first record in the file. When the condensed and non-	AERMET	reading mixed format files	Consultation needed; Provide guidance.

AERMAP

Source	Category	Number	Description	Model	Action	Status
AIW	Mandatory Work	6	Upgrade AERMAP to handle 7.5 minute DEM data	AERMAP	Coding change.	DONE
AIW	Model Improvements	3	Add x,y,z receptor option to AERMAP	AERMAP	Coding change.	DONE
AIW	Model Improvements	23	Add an option to include property line receptors and eliminate on-property receptors in AERMAP	AERMAP	receptors in AERMAP	Coding change needed.
AIW	Model Improvements	7	Improve BPIP: The structure that BPIP selects could be a significant distance from the building on which the stack is located and produce lower concentrations (using PRIME) than would be produced using the building on which the stack is located. Also, f	AERMAP	BPIP and PRIME	Consultation/consensus needed.
AIW	Model Improvements	24	Add wind direction dependence for h_c (hill height scale) in AERMAP, similar to BPIP for buildings	AERMAP	hill height scale	Consultation/consensus needed.

OAQPS In-House Efforts

- For example
 - Test/evaluate deposition algorithms in AERMOD (AIW, Mandatory Work #8)
 - Programmer's Guide for AERMOD (AIW, Model tools #5)

Workgroup Efforts: Long-Term

- Gridded MET data
- Area/Volume Sources
- Urban Improvements
- Surface Characteristics
 - Representativeness Issue
 - Guidance