

1. Introduction and Roll Call

Participants	
Affiliation	Name
AmerenUE	Ken Anderson
East-West Gateway Coordinating Council	Mike Coulson
Illinois Environmental Protection Agency	Rob Kaleel
Illinois Environmental Protection Agency	Jeff Sprague
Illinois Environmental Protection Agency	Steve King
Missouri Department of Natural Resources	Wendy Vit
Missouri Department of Natural Resources	Calvin Ku
Missouri Department of Natural Resources	Jeff Bennett
Environmental Protection Agency Region VII	Bret Anderson
Missouri Department of Natural Resources	Kelen Shostak
Missouri Department of Natural Resources	Dawn Froning

Please note that several handouts were given at the January 25, 2005 meeting and will be posted on the St. Louis ozone/PM2.5 SIP Development website. The details contained within each handout are not explicitly included in the following write-up with the exception of specific comments surrounding the content of the slides.

2. Status of MM5 Modeling

Each of the four modeling hubs have initiated their BASE_1 MM5 episodes as follows:

Episode Days Modeled for Base_1			
<i>Modeling Hub</i>	<i>Ramp Up Days</i>	<i>Episode Days</i>	<i>Spin Down Day</i>
MDNR	June 15, 16, 17, 18	June 19, 20, 21, 22, 23	June 24
Region VII	July 9, 10, 11, 12	July 13, 14, 15, 16	July 17, 18
AMERENUE	Jul 28, 29, 30, 31	August 1, 2, 3, 4	August 5, 6
IEPA	Jan 24, 25, 26, 27	Jan/Feb 28, 29, 30, 31, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	February 12, 13, 14
<i>Modeled Year:2002</i>			

AmerenUE has completed the MM5 runs for Jul/Aug episode and will start to evaluate the results against the performance criteria established by the State of Texas (attached). Anticipated completion dates for the remaining hubs are as follows:

MM5 Status Report				
<i>Modeling Hub</i>	<i>Episode</i>	<i>Run Time</i>	<i>% Complete</i>	<i>Anticipated Completion Date</i>
MDNR	June 15-24, 2002	84 Hours Per Day	60%	Mid-February
Region VII	July 9-18, 2002	82 Hours Per Day	20%	Early to Mid-February
AMERENUE	July 28-Aug. 6, 2002	57 Hours Per Day	100%	Complete

IEPA	Jan 24-Feb 14, 2002	55 Hours Per Day	58%	Late January to Early February
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Upon completion of the MM5 for each of four episodes, each modeling hub will be responsible for the dissemination of his/her outputs to the remainder of the group. Because differing emission and photochemical models are being evaluated, the MM5 output will be post-processed using three differing post-processors: MM5 to EMS, MM5 to CAMx, and MCIP.

Second, each modeling hub will be required to perform an evaluation of the meteorological outputs to ensure that the data is acceptable for use in both emissions and photochemical processing. An MM5 performance document will be drafted and include the analysis performed by each hub.

Third, EPA Region VII noted that the cumulus parameterization in MM5 for the fine grid should have been “turned off” in the Base1 analysis in order to allow the model to explicitly model cumulus variables. AmerenUE is conducting a sensitivity run to determine what impact the cumulus options have on model performance and will report the results to the group. EPA Region VII is performing its Base1 run without cumulus parameterization while the remaining group members are using cumulus parameterization.

Given the extended run times, a suggestion was made that two-way nesting could be performed on the 36- and 12-kilometer grids with a nest-down to the 4-kilometer grid in the event that additional meteorological modeling is necessary.

In order to determine model performance, it was agreed that METSTAT should be executed on a St. Louis sub-domain within the 4-kilometer and 12-kilometer domains. The MM5 workgroup will determine what domain size is appropriate.

In addition, METSTAT currently evaluates the surface layer. The group determined that an additional analysis of the upper layers data might prove beneficial in determining the performance of the model. Region VII noted that Matthew Johnson developed a program that evaluated upper air predictions versus the observational data collected at observing sites. The MDNR will contact the State of Iowa to determine if this evaluation program can be made available to the MM5 modeling group members.

Lastly, Region VII will provide a ppt presentation on additional MM5 graphics to the workgroup.

3. Discussion-Setup of CMAQ/CAMx Modeling

IEPA proposed a vertical profile for the emissions and photochemical models. The grid structure is composed of 16 vertical layers whose resolution becomes coarser as the height above the ground increases.

IEPA also presented a straw man domain for use in the emissions and photochemical models whose 36- and 12-kilometer dimensions have been decreased. The 4-kilometer grid size remained the same. It is requested that the 36 and 12 km grids for emission/air quality model be kept as close to the MM5 domains. An evaluation will be needed to determine the computing resources for large domains.

Members of the group requested additional review time and agreed that a conference call could be held to discuss what form the photochemical domains might take. In the interim, the emission modelers will process emissions on the larger MM5 domains. It was also suggested that some performance analyses could be conducted in order to determine how much computational time is needed to execute a single model episode using the following domain configurations:

1. Use the current MM5 domain configuration,
2. Use a small 4-kilometer grid w/emphasis placed on St. Louis,
3. No 4-kilometer domain.

The results obtained from this analysis may help to determine what domain configuration produces the best results in a favorable amount of time.

CMAQ and CAMx benchmark runs will also be performed in order to establish a working modeling system at each hub and to determine if consistent results can be obtained across the board. The MDNR will develop and distribute the CMAQ and CAMx modeling systems and execution scripts to the group within 2 weeks (CENRAP will be releasing 36-kilometer emissions data w/2-weeks). If the CENRAP data is not available within two weeks, the database developed by LADCO will be used instead.

4. Discussion-Status of the Emissions Modeling

The emissions group has not received emissions data from either RPO at this time. It is anticipated that LADCO will be releasing an interim version of the Base J inventory within the next two weeks. This inventory will include emission corrections to the Missouri inventory. The final Base J inventory will not be available until sometime in May due to mobile source component. The final mobile sources inventory will include the use of TDM in major urban areas including St. Louis. CENRAP is anticipating releasing its emission inventory

within the next two weeks. This inventory, however, will not include Midwest RPO's information.

The integration of the LADCO and CENRAP inventories was discussed at great length and it was determined that in the future, the final inventory should include the most accurate data for both Missouri and Illinois. In addition, 2002 inventory should be used for adjacent states upwind of the St Louis nonattainment area. Other corrections will be made, provided the data is available within a timeframe that allows for the successful completion of the modeling study. It is anticipated that contractual assistance will be required in order to merge or incorporate the inventory improvements provided by each RPO.

The growth and control factors developed by Pechans for LADCO are available now. We also need to include Missouri growth and control factors in the future year (2009) inventory.

It is requested that emission modelers from Missouri and Illinois to work together to develop a reasonable work plan that includes a draft schedule.

5. Discussion-Modeling Contract

The MDNR noted that a RFP for contractual assistance had been posted and proposals are under review at this time. It is anticipated that the contractor who is awarded the contract will aid in the development of the base case inventories and will provide technical assistance to the modeling evaluation. The grant money is slated for use between February and July of 2005.

6. Discussion-Timeline

The timeline will be updated to reflect that separate base year and control inventories will be produced. The timing of these inventories will differ slightly. In addition, the annual PM2.5 run will be added.

7. Action Items

The following is a list of items that are to be addressed prior to the next meeting:

1. MM5 Post-processing
 - a. Establish Performance Criteria
 - b. Establish Statistical Evaluation Region Focused on St. Louis
 - c. Provide MM5 Outputs in Formats Accepted by SMOKE, EMS, and CAMx
 - d. Request Upper Air Evaluation Program from Iowa
 - e. Draft MM5 Performance Document

- f. Report Sensitivity Results (Cumulus Parameterization)
2. Develop Emissions Modeling Outline and Timeline
3. CMAQ and CAMx Benchmark Runs
 - a. Prepare and conduct benchmark runs using 2002 emission inputs (36 km) from CENRAP.
 - b. Plan B – conduct benchmark runs using Base I inventory provided by MWRPO.

8 Future Meeting Dates

The next meeting is tentatively scheduled for March 8, 2005 at 10:00 a.m.