

**Minutes of the BAAQMD 2004 SIP Modeling Advisory Committee (MAC)
Fourth Meeting**

**The fourth meeting of the MAC was held on
Wednesday, October 30, 2002, at 1:00 p.m.
at the District office, fourth floor west conference room.**

Attendees: see sign-up listing attached

Agenda: Posted with these minutes on project web site
(www.environ.org/project.html; click on "Bay Area Air Quality Management District"; enter user name and password)

Next meeting: December 18, 2002 (1:00pm at BAAQMD)

Presented overhead/.ppt presentations: presentation by District staff will be included in the next revision of the project Modeling Protocol and can be found on the project web site (Transport of Ozone Precursors to Other Areas; Air Parcel Trajectories)

Handouts: Agenda; Minutes from last meeting (from Project Web site); Third Draft of project Modeling Protocol (dated October 2002 – from Project Web site).

Discussion items:

Agenda -- No additional agenda items were added.

Approval of minutes from last meeting -- Comments/corrections to last meeting minutes: no comments or revisions offered by attendees. Peter Hess suggested that given the short lead time, MAC participants may e-mail any comments or corrections to Environ in the next several days, after which the minutes will be considered final.

Project Status Summary and Meeting Objectives

Dave Souten led off the meeting with a short discussion on the meeting objectives; that is, to get preliminary MAC agreement on the ranking of modeling episodes based on information that is currently known about data availability from CARB and analyses conducted by the District.

Episode Selection

Dave Souten led off by listing the current top four potential modeling episodes:

- CCOS July 30 – Aug 2, 2000
- CCOS June 14-15, 2000

- July 11-12, 1999
- July 9-10, 2002

Steve Soong presented the latest District analyses of the four episodes, primarily involving HYSPLIT 24- and 48-hour back-trajectories from peak ozone sites outside the Bay Area (Sacramento, Fresno, and Bakersfield). The trajectories were based on wind flow at 50 m altitude according to EDAS 40-km resolution data from NOAA.

The July 1999 episode indicated a large proportion of transport from the Bay Area to Sacramento, some transport into the northern San Joaquin Valley (SJV), and little to the southern SJV. The June 2000 episode indicated no obvious transport from the Bay area into these downwind basins. The July/August 2000 episode showed a northern Bay Area to Sacramento route, and a southern Bay Area to Fresno route. The July 2002 episode again indicated some transport from the northern Bay Area into Sacramento; however the bulk of transport routes from the Bay Area headed into the eastern Monterey District. Transport in the SJV indicated along-valley flow, and no significant contributions from the Bay Area. In summary, transport to Sacramento seems to be fairly common on a 24-hour basis, while the SJV requires 48-hour transport due to distance and the much weaker winds in the SJV during such episodes.

Steve Ziman wanted everyone to understand that this is a screening-level analysis, that it's entirely qualitative and that no definitive conclusions regarding inter-basin contributions should be drawn from it.

Episode Selection

There was significant discussion on this topic. The following only touches on the highlights:

- We need to meet the project timeline; 2 CCOS episodes will be modeled at minimum (Martien).
- Whatever number of episodes are selected, U.S. EPA will need to see the rationale for the episode selection (Bohnenkamp).
- If additional funding can be found, and depending on what CARB can provide in the way of emissions data (in particular) and meteorology (secondarily), we can add new episodes as appropriate; but the decisions will need to be made soon (Souten).
- CCOS was designed to evaluate transport – such analyses/modeling will be carried out by CARB and their contractors; an episode outside of CCOS should be chosen for the Bay Area work, depending on which offers maximum data availability (Ziman).
- 2002 probably has more ambient data, it represents a good hit in the Bay Area, and includes regionally high ozone (Nunes).
- Several profilers in 1999 may have been down; don't know about the status of profilers in 2002. However, there are no current plans for CARB to develop a

2002 inventory, but they are looking at 1999 (may be available by the end of December 2002) (DaMassa).

- The July 1999 episode includes a weekend, which all other three episodes do not (DeMandel).
- Maybe we don't need to model a weekend day specifically, just plug in a weekend emissions inventory to see how the model responds (Altshuler).
- The 2002 episode is similar to June 2000 episode in character (at least in the Bay Area – a single high spike in Livermore). We probably do not want to add another episode that is so similar to one already selected. The 2002 episode is being seriously considered by the Sacramento District in their modeling (it's a very good episode for them), so maybe that episode is better addressed under the Sacramento SIP revision effort (Emery). In so doing, the Sacramento area could benefit from the Bay Area technical work and the Bay Area could benefit from work supported by Sacramento AQMD (Souten). But Sacramento SIP revision schedule is, as yet, undefined, so may be too late for use in Bay Area SIP (Souten).
- A table should be developed that clearly lays out all of the issues by episode, including pros/cons, data availability, weekend/weekday, ozone levels, met/transport, etc. (Ziman).
- We (District with ENVIRON review/input) will develop such a table. In the meantime, the priority is for 3 modeling episodes (in this order; Souten):

CCOS July 30 – Aug 2, 2000

CCOS June 14-15, 2000

July 11-12, 1999

The 1999 episode will remain a “probable” episode pending further information from the CARB on data availability and their schedule for incorporating into their programs. Unless new information arises that clearly indicates a need for the 2002 episode, we are not considering it further (Souten). (No dissensions).

Meteorological Modeling

Meteorological Data Availability (DaMassa) –

July/August 2000: is in final QA for vertical profilers (other data ready). PG&E data have been incorporated into the surface dataset. These will be made available to CARB contractors and Craig Tremback within 1-2 weeks.

September 2000 is CARB's next priority for QA work. The June 2000 episode will follow, possibly available in December. Regarding the July 1999 episode, CARB is sorting out their priorities. CARB staff will work with the District to build a July 1999 episode database; more discussions on schedule/timing will take place in the next couple of weeks.

Bob Bornstein mentioned that he contacted Pt. Magu regarding availability of MM5 data. They have not run MM5 since the 1997 SCOS period, and have no plans for additional runs.

Modeling Status (Emery) –

Craig Tremback is undertaking RAMS runs but is finding problems associated with the high resolution (both vertical and horizontal). It is requiring that RAMS be run with very small time steps to handle convection off of very steep slopes along the eastern Sierras and around Death Valley. He is considering a terrain smoothing approach to solve the problem. Craig would like to know if the CARB/NOAA team has run into this problem, and how they are handling it. Don't know about NOAA's experience on this issue under the current San Joaquin Valley JPA effort (DaMassa), but CARB has seen this in past internal work (DaMassa). Craig is running with various vertical grid structures to study the problem. One solution is to reduce the size of the 4-km grid to cover the key areas of concern for air quality modeling. Performance in replicating wind flow patterns in the Bay Area seems to be quite promising. We will examine ways in which we can address this, but it may end up that we do not spend a lot of time and money trying to resolve information in an area that has no technical bearing on the Bay Area SIP revision process (Souten).

Emissions

Emissions Data Availability (DaMassa) –

CARB draft inventory for July/August 2000 has been sent to Jim Wilkinson. Jim confirmed that the database is in the format he needs for processing into model-ready format (can be done in as little as one week). This inventory will be "finalized" in early December (based on updates from various agencies in Ca), and made available in December to this project.

The September episode is CARB's next priority for emission inventory development. The June episode should be available in mid-late December. As for July 1999, CARB needs to discuss their priorities, and will work out with the District team over the next few weeks.

There remains a small issue of whether CARB will develop inventories for each day to be modeled by the District team. Currently, the July/August inventory does not include July 28, which is one of our spin up days. CARB will consider providing inventories for all days.

Shipping Emissions (Wilkinson/Bornstein) –

Issue of how to cooperate with port directors to obtain needed information. In their work in the South Coast Air Basin, CARB assembled a group of technical reps from each port; we may need to consider a similar approach. Also, what level of detail is

necessary for modeling (an example of 3 tiers of detail were described)? We need to define how important shipping emissions are to the base case replication, to balance technical detail with resources/schedule. Should we start with a screening analysis?

Peter Hess mentioned the San Francisco Marine Exchange; it maintains a very detailed and large database on trips, anchoring, etc. out to 3 miles offshore. It tracks activity in/out of various ports. Two key contacts were mentioned: Michael Murphy at the District, and Martin Johnson at CARB.

We will discuss recommendations on a shipping emissions approach next meeting. We should have more contacts and information by then.

Refinery Emissions (Hess) –

The District has hourly refinery upset/flaring emission estimates (above what is reported in standard inventory) for June 11-16 and July 27 – August 3, 2000. It includes NO_x, organics, CO, PM from several events. The data have been sent to ENVIRON team and CARB. The refineries have been very cooperative in supplying these data. CARB is expected to include this information in the base year and future year inventories that it provides to the Bay Area SIP revision team (Souten).

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