

Name	Organization	Comments on 2006 Evaluation	Comments on Future Activities
Bill Appleby Mike Howe Doug Steeves	Environment Canada	<ul style="list-style-type: none"> <li>• Quiet year (small sample size) re O3 (avg values in 35-50 microgram<sup>3</sup>) with no exceedences recorded, PM was more prevalent, however several more events did approach but fell short of advisory criteria.</li> <li>• Overall, CMAQ performed very well; patterns on regional scale are good</li> <li>• Double maxima/plumes not as discernable for Atlantic Canada as forecast by CHRONOS</li> <li>• Did not handle diurnal variations consistently well</li> <li>• Bias towards overprediction (10-20 ppb?)</li> <li>• CMC Operations (Veronique Bouchet's group) will be added as an active focus group participant for 2007</li> </ul>	<ul style="list-style-type: none"> <li>• Request expanded model domain to include the province of Newfoundland (Canadian maritimes)</li> <li>• Request Canadian maritimes to be added to zoom features</li> <li>• Need more detail in graphics especially at lower concentrations</li> </ul>
George Bridgers	NC Division of Air Quality	<ul style="list-style-type: none"> <li>• Used 5X for evaluation exclusively</li> <li>• Uses 6Z for forecast guidance and 12Z as sanity check on 6Z.</li> <li>• Fcst for 3 metro areas- Charlotte, Triangle, and Raleigh</li> <li>• Had to hunt thru grids to find peak values.</li> <li>• Scattered convection a real challenge as model very sensitive although spatial patterns looked good</li> <li>• Noted higher PM in many rural areas vs. urban.</li> <li>• Often there are hourly spikes; model was about 5 microgms low for 24 hr avgs and urban core seemed better represented.</li> </ul>	<ul style="list-style-type: none"> <li>• Request peak plots, NDGD maxima plots for calendar day, regional verification for SE (NCEP verify graphics)</li> <li>• Improve representation of PM2.5 low values (0-15)</li> </ul>

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Jeff Stonesifer	City of Albuquerque, Air Quality Division	<ul style="list-style-type: none"> <li>• Summer 2006 Weather               <ul style="list-style-type: none"> <li>❖ Wettest summer on record for Albuquerque</li> <li>❖ A year's worth of precipitation (8+ inches) in less than two months (June 26th – August 24th)</li> <li>❖ Unusually low ozone levels</li> </ul> </li> <li>• Summer 8-Hour Ozone Levels               <ul style="list-style-type: none"> <li>❖ No days with USG (Unhealthy for Sensitive Groups) levels</li> <li>❖ 17/31 July days had good ozone AQI</li> <li>❖ 5/31 July days reached only 65 or 66 PPB which is on the border of good/moderate</li> <li>❖ Only 6 days with 70-80 PPB</li> </ul> </li> <li>• How Did NOAA do?               <ul style="list-style-type: none"> <li>❖ For the period July 4-31, of the 27 days the guidance was available, it predicted the correct 8-hour category (i.e. good/moderate) 22 days.</li> <li>❖ The guidance never showed the USG category in July which is good because we didn't reach USG.</li> <li>❖ For the 2 days with highest levels (76 &amp; 80 ppb), it predicted the correct category.</li> </ul> </li> <li>• Overall Feedback: Dramatic improvement over 2005 guidance</li> </ul>	

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Bill Murphey	Georgia EPD	<ul style="list-style-type: none"> <li>• O3 – 5X underpredicted more than 3X especially during high O3 events</li> <li>• Had 6 code reds where 3x hit 2 and 5X had none.</li> <li>• Main events were June 21-23, July 19, Aug 1.</li> <li>• PM2.5 seemed to improve after Aug 1.</li> <li>• Noted convective feedback and temps too low in NAM.</li> </ul>	<ul style="list-style-type: none"> <li>• Request 24hr avg PM2.5</li> </ul>
Michael Geigert	Connecticut Department of Environmental Protection	<ul style="list-style-type: none"> <li>• Examined 3X (ozone) only</li> <li>• NOAA model missed Stratford (SW) (underpredicted) peaks several times in August for 06Z runs</li> <li>• 50 miles inland AQ much different</li> <li>• Eta CMAQ did very well prior to June 20 switch to WRF</li> <li>• NOAA model located the “Long Island plume” mostly further south and not intense enough (WRF issue??)</li> <li>• Used additional tools to compensate</li> </ul>	<ul style="list-style-type: none"> <li>• Higher resolution for NE would help coastal/land boundary</li> <li>• Capability to contour</li> <li>• Capability to put hourly data into Excel</li> <li>• Simplify feedback form</li> </ul>
Bill Ryan	PSU	<ul style="list-style-type: none"> <li>• Used 9 of 19 monitors for verification (3X, 06Z): Generally CMAQ beating stat model and doing about as well as forecaster</li> <li>• Bias +3.1 ppbv</li> <li>• Correctly forecast Code Orange cases on 14 of 17 days; cost of only 3 false alarms (one was convection)</li> <li>• Underpredicted 2 code Red cases but did not wildly over-predict during heat wave of July 31-August 3</li> <li>• Underpredicted at PNE (urban) and overpredicted at</li> </ul>	<ul style="list-style-type: none"> <li>• Need better resolution on PM panels</li> <li>• Contouring difficult to see due to lack of contrast</li> <li>• Better regional resolution for PM2.5 and need 24h avg O<sup>3</sup>;</li> <li>• Show domain peaks; add contouring lines</li> <li>• Request to add quick way to determine domain peaks</li> </ul>

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		<p>Collier's Mills (exurban)</p> <ul style="list-style-type: none"> <li>• Model did not predict high ozone (&gt; 85 ppbv)</li> <li>• In the same "ballpark": Forecast range overlaps observed range by 5 microg/m<sup>3</sup></li> <li>• Model tended to be available too late for forecast especially 12 Z run for current day forecast. Compared performance of 6Z and 12Z to check how much better the later run is: found 6Z adequate</li> <li>• Noted some spurious ozone maxima over Chesapeake Bay; sometimes these high values stretched into land areas which were suspect, sometimes false and usually ignored</li> <li>• Unable to verify PM<sub>2.5</sub> accurately due to noisy data in continuous monitors and suspect sites not representative of entire area. PM monitors often reliable (out of service or noisy)</li> <li>• Noted diurnal tendency of model PM<sub>2.5</sub> to drop as daytime mixing occurs but monitors data do not show this.</li> <li>• Forecaster used max morning PM values to set level values for rest of day.</li> <li>• High PM<sub>2.5</sub> cases under-predicted: For 36 cases from late July to late August <ul style="list-style-type: none"> <li>❖ Over-predict: 2 cases</li> <li>❖ About right: 19 cases</li> <li>❖ Under-predict: 15 cases</li> </ul> </li> <li>• Likes comment section of feedback form</li> </ul>	<ul style="list-style-type: none"> <li>• Request to add time series for select stations on a regional map</li> <li>• Request to add maps of peak concentrations</li> <li>• Request to add PM 24-averages</li> </ul>

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Joe Sims	AL DEM	<ul style="list-style-type: none"> <li>• Verified next day forecasts for 3 cities (BHM, MOB, HSV).</li> <li>• Used 12z 3x run which was available by 1 pm (Local)</li> <li>• Old forecast rules didn't work much of summer</li> <li>• NAM/CMAQ not as good 2005 although this summer featured 14 events vs. 4 in 2005.</li> <li>• Switch from Eta to WRF in NAM seemed to make CMAQ worse; worst event was Aug 18-20 which model handled well.</li> </ul>	<ul style="list-style-type: none"> <li>• Would like to see model output to 72 hours (helps with weekend forecast)</li> </ul>
Paul Martin	SC Department of Health and Environmental Control Bureau of Air Quality	<ul style="list-style-type: none"> <li>• Slight overprediction in the lee of the Appalachians</li> <li>• Overall ozone build trends verify very well, even along coast</li> <li>• Resolution more localized and concise than 2004/05, especially above 65 ppb level (helps us deciding which monitors to focus on)</li> <li>• O3 events rare-- monitors reach 85 ppb only once or twice a year. Primary tools remain CART and persistence.</li> <li>• Note slight overprediction on 3x while plume resolution good.</li> <li>• Reacts well to nocturnal boundary layer formation.</li> <li>• Does not forecast PM so did not examine test predictions</li> </ul>	<ul style="list-style-type: none"> <li>• Request interactive archive with zooming capability</li> </ul>

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Joe Cassmassi	California	<ul style="list-style-type: none"> <li>• Isoprene fix helped in the later stage of the trend</li> <li>• Filtered the data using 3-day, 5-day and 7-day averages. The trends start to come together around August 1st yet there is a lag in the forecast and a continued tendency to under-predict, particularly during the weekends</li> <li>• Haven't looked at the PM2.5 yet</li> </ul>	
Evan Shipp	San Joaquin Valley APCD	<ul style="list-style-type: none"> <li>• Severely underpredicting ozone and PM concentrations in CA; should not reach operational status until these issues are addressed.</li> <li>• Fire emission important in SJV/CA in general</li> <li>• CO monitoring (some) does not show much fire signal but lack of fire emissions in O3 and PM predictions is consistent with underprediction</li> <li>• Typically 100 exceedences observed each year</li> <li>• Additional verification against higher thresholds will help, not just with USG but also with UH levels</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate real-time fire emissions.</li> <li>• Incorporate available ozonesonde data</li> </ul>
Bryan Lambeth	Texas Commission on Environmental Quality Monitoring Operations Division	<ul style="list-style-type: none"> <li>• Didn't have time to summarize the results, but overall I think they are encouraging. There certainly are some large errors on some days, but most days seem to be fairly close.</li> <li>• I did notice that the ozone background levels along the coast in the NOAA/EPA model never dropped as low as the 15 to 20 ppb we were seeing routinely at times in July and August. The model never seemed to go below about 35 ppb. This is not a major problem, because these are periods when</li> </ul>	

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		<p>ozone levels are well below the standard, but it might indicate that boundary conditions in the model are too high in the SE quadrant.</p> <ul style="list-style-type: none"> <li>• There also was the odd spurious high ozone event that showed up in the Gulf of Mexico on the NOAA/EPA model (although not in the experimental version) around July 9.</li> <li>• The Houston results with the NOAA/EPA model continue to show a severe "ozone hole" during the day, probably due to an incorrect emissions inventory - with much too low HRVOC; the group is working on updating the EI to include this information.</li> </ul>	
Dan Salkovitz	VA	<ul style="list-style-type: none"> <li>• Did well along the corridor north of Richmond</li> <li>• Winchester (rural site): strongly affected by transport (not many sources); only 1 exceedance</li> <li>• Roanoke: important to get feedback from non-urban areas</li> <li>• Norfolk: problem with land-sea interface (sets up ozone gradient) <ul style="list-style-type: none"> <li>○ Only 2 exceedances this year</li> <li>○ July 31 (barely an exceedance ~85 ppb) (NOAA forecast a 68)</li> <li>○ Bay vs. land issues (similar to Bill Ryan's note on spurious maxima over Chesapeake Bay)</li> <li>○ Norfolk tended to have max values in O3 that extended westward from Bay.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Request NDGD chart archive or some ability to recreate graphics in past</li> <li>• Request peak values</li> </ul>

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		<ul style="list-style-type: none"> <li>• Focused mainly on urban areas</li> </ul>	
Terry Rowles	MO	<ul style="list-style-type: none"> <li>• Subjective assessment of observed ozone vs. forecast performance               <ul style="list-style-type: none"> <li>❖ While predictions were good overall, on 7/19 Unhealthy levels were under-predicted for St. Louis and Kansas City.</li> <li>❖ Improvement in isoprene handling should help in Missouri and other high biogenic isoprene states.</li> <li>❖ Underprediction still occurred on 8/17(Kansas City and St. Louis) and 8/18 (St. Louis).</li> </ul> </li> <li>• Brief weather summary               <ul style="list-style-type: none"> <li>❖ This appeared to be a fairly typical ozone conducive summer in Missouri, although the Kansas City area may have had a bit more propensity for extreme ozone than normal on July 19.</li> <li>❖ Overcast conditions several days in St. Louis limited what might have been a more intense ozone season.</li> </ul> </li> </ul>	