

## FIRST ATTEMPT THE NATIONAL AIR QUALITY MODELING OF MEXICO, PRELIMINARY RESULTS

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**Abstract:** In order to evaluate the impact of several control strategies at national level in future plans, we have installed and executed the modelling system MM5/SMOKE/CAMx and taking advantage the first Mexico's National Emissions Inventory (MNEI) base year 1999. From of simulation we have got the first results for regions with air quality problems such as such as the Metropolitan Area of Mexico City (MAMC), the Metropolitan Area of Toluca (MAT), the Metropolitan Area of Guadalajara (MAG) and the Metropolitan Area of Monterrey (MAM).

This paper focus the results of model performance evaluation using the available observations in Mexico and the graphical and statistical measures recommended from the EPA Guideline (EPA, 1991). The air quality modelling domains used five domains and four months (February, May, August and November of 1999) the details can be consulted at Iniestra, 2007.

We construct ozone time series (graphical measure) for the four months to compare the ozone daily timing with the observation trend and also estimated three particular statistics for ozone photochemical model performance evaluation. These statistics are the unpaired peak accuracy (UPA), the normalized bias (NB), and the normalized gross error (NGE) and its three performance goals for ozone modelled.

Our results show the timing of simulated diurnal cycles is generally consistent with the observations in the most of the regions analyzed. In respect to the statistical measures to indicate the overestimation or underestimation, in general the ozone concentration was underestimated in all the regions but the lowest performance was in MAMC (Mexico city) and the others regions have better performance. The low performance to reproduce the ozone concentration could indicate an underestimation of the VOC and NO<sub>x</sub> emissions from the inventory; in fact another simulation studies has found the same concern particularly in the MAMC (Tie, 2007). The next research will be the sensitivity analyst to try adjusting the numbers of emission for each region.