

Interactive comment on “Regional air-quality forecasting for the Pacific Northwest using MOPITT/TERRA assimilated carbon monoxide MOZART-4 forecasts as a near real-time boundary condition” by F. L. Herron-Thorpe et al.

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The authors speculate that the ground elevation plays a large role in how the surface ozone concentrations change with dynamic CO boundary conditions. To prove such a point, the authors need to provide some statistics on surface sites at different elevations, e.g. at below/above 300 m.

Additional info about surface ozone changes as a result of boundary conditions has been added.

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Is it possible to include some elevated ozone measurements from ozonesonde or MOZAIC ?

We have included a new supplemental section that shows the ozone at AIRNow sites along with the 2-month spring-time 2010 simulations. Although these are not vertical profile data, we believe the range of elevations represented by these sites addresses the referee's concern.

Specific: Page 3700, line 19, "Satellite overpass occurs twice daily at _10:30LT": Does that mean "twice" daily at 10:30am (descending) and 10:30pm (ascending) local time? It needs to be clarified.

Yes, the descriptive text has been added.

Page 3701, line 13, "POET": Does this mean "Precursors of Ozone and their Effects in the Troposphere"?

Yes, the defining text has been added.

Page 3701, line 22, "NRT": Is it "near real-time"? Please spell it out.

Yes, the text has been replaced.

Page 3702, line 8, "07:15": Is this Pacific Standard Time (PST)?

Yes, the text has been replaced.

Page 3702, line 6: What forecast files are needed for Mozart-4 initialization? How are they related to the analysis meteorological files available at 16:00 PST? Please elaborate.

We have modified the statement "... and the forecast files are ready for MOZART-4 initialization at ..." by removing the word "initialization" because MOZART is driven by meteorological files for every time step. Furthermore, we have tried to make it clear that the MOZART simulations are driven by a concatenation of analysis and forecast

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meteorological fields.

Page 3704, line 3, "independent CO profile": Is this the CO profile obtained from model before applying averaging kernel? What does "independent" mean here?

Independent was intended to mean any CO profile that is not an AIRS CO profile, as the averaging kernel can be applied to both modeled and measured profiles. It has been replaced with "model profile" as suggested.

Page 3706, line 4, using-> using.

We believe the referee means to say Page 3705 line 4, sing -> using. This sentence has actually been removed from the current draft.

Page 3707, line 8: Why not show an AIRNow site close to the Salt Lake City in Figure 15?

As mentioned in the text, the changes in the summer simulation were very small in this region of the domain. However, we have included a new supplemental section that shows the ozone at AIRNow sites (including Salt Lake City) for the 2-month spring-time 2010 simulations.

Figure 15: locations of these AIRNow sites need to be provided. For instance, add to Figure 1.

This has been done.

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/12/C2167/2012/acpd-12-C2167-2012-supplement.zip>

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