

Response-to-Comments

"Western Regional Modeling and Analysis Platform Modeling Plan – Phase I: 2014 Platform Development and Shake-Out" dated December 31, 2018

Version: v1.0

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February 2, 2019

| Comment | Response |
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| Comments from Farren Herron-Thorpe from Washington Department of Ecology dated January 2, 2019 | |
| Page 5: "Five additional Work Groups" – I only see 4 listed. | Typo corrected, Five changed to Four. |
| Page 6: "Emissions Inventory and Modeling Subcommittee (EIMS)" – should be Emissions Inventory and Modeling Protocol Subcommittee (EIMPS) | Typo corrected. |
| Page 7: " <u>2014v7.1 Modeling Platform</u> " – It might be worth mentioning that this platform copies many components from the 2011 Modeling Platform. | Not needed as this is implied as EPA platforms build off each other. 2011 platform that was built off 2008 that was built off 2005, etc. |
| Page 10: "AIRPACT" – Could mention that it uses WRF/SMOKE/CMAQ and is run by WSU (with WRF coming from UW). | Information added to AIRPACT discussion. |
| Page 14: "Episode Selection" – Mentions that 2014, 2015, and 2016 were evaluated and then talks about 2017... confusing. Also says 2016 was found to be the most representative but in Section 3 it says 2014 was selected. | This whole section was muddled and re-written. |
| Page 14: "Matric" – should be "Matrix" | Typo corrected. |
| Page 14 and Page 28: "Model for Emissions of Gases and Aerosols in Nature" should be "Model of Emissions of Gases and Aerosols from Nature" (Aerosols <i>in</i> nature could be from any source!) | Typos corrected. |
| Page 15: It's not clear to me if spin-up dates are for both WRF and CMAQ together, or if WRF was spun up already, and then only the PGMs are spun-up for the last 2 weeks of 2013. | Text clarified that it is talking of just spin-up days for PGM models. |
| Page 30: "OMI data are available for 24-hour average time periods" – OMI is on the Aura platform which is part of the Afternoon-Train of satellites, providing once-daily retrievals at | Commenter is correct and reference to 24-hour average is removed. This section was updated to clarify that OMI was used and TOMS data is no longer available. |

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| approximately 1:30 pm LST. 24-hour averages are not possible from OMI data. | |
| Comment: It would be nice if we could get a table of the sources used to create the spatial surrogates. I'm assuming the starting point is the EPA's Spatial Surrogate Workbook... not sure. | This will be provided separately from the revised Modeling Plan. |
| Comments from Kevin Briggs from Colorado Department of Public Health and Environment dated January 16, 2019. | |
| In this section, might also want to mention EPA's December 20, 2018 document, "Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program". | Section 1.3.2 on pp. 6-7 already mentions EPA's December 20, 2018 document. Section re-written so it figures more prominently. |
| Similar question to Farren's, This suggests that o3map can read OMI data. The documentation in the CAMX Support Software says it cannot. Is there a version of O3map that can read OMI data and process it? | Section 4.3.3 on pp. 31 was re-written to be clearer. O3map was developed to read TOMS data in its .txt format. Since 2006 TOMS has been replaced by OMI data that are also available in the .txt format. O3map can read OMI data in this format. See CAMx user's guide (Ramboll, 2018). |
| FYI, NCAR also has a met model evaluation package called MET (i.e. Model Evaluation Tool). METSTAT is also fine to use. | We are aware of NCAR's tool that does many of the same things as METSTAT (comment on section 5.4.1.2 on pp. 37). |
| The BAO tower has been decommissioned since July 31, 2016????? | We are aware that the NCAR BAO tower was shut down the end of July 2016. But the data are available for the 2014 modeling year so are mentioned in the Modeling Plan. |
| Although more important for ozone, does RAMBOLL plan on storing layer data for evaluation? | Comment on section 7.4.5 on pp..9. For the 2014 Shake-Out we will not obtain 3-D output as that will slow-down the runs. |
| Comments received on January 20, 2019. | |
| Section 1.4.1 re Episode selection refers to 2017 which wasn't one of the 3 years studied and says 2016 was most representative. Section 3.2 says 2014 most representative with citation. Please correct inconsistency. | This section was completely re-written as it was not clear in the draft Modeling Plan. |
| Section 1 is abbreviated summary of subsequent sections. I suggest that ends of each sub-Section add reference to subsequent section where more details provided. For example, in Section 1.4.3 it was not clear how many total permutations of WEST12 vs US12 would be run and how model performance would be evaluated. Those questions were answered in Sections 6 and 7, so just referencing Sections 6 and 7 in Section 1.4.3 would be helpful. | Section 1.4 overview of approach was updated as suggested referring to chapters in the Modeling Plan where more details are available. |

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| Sections 1.7 and 8.3 discuss single source modeling, including a PowerPoint presentation in December and a memo in January 2019. Dec 12 delivery occurred. January-ish memo still intended? Explanation of the options for single source modeling is a regional task. Is my understanding correct that the Control Measures subcommittee has recommended that single source modeling be a discretionary task for an individual state to undertake, not a WRAP regional task? | That is our understanding that single-source analysis is up to each individual state. The discussion on single-source screening and visibility modeling will be a separate Memorandum. |
| Section 4.3.1 is not clear how sensitivity analyses will be used to evaluate performance for WEST12 v US 12 and MEAGAN vs BEIS. Reference sections 6 and 7. | A section has been added to discuss how we will select the 12-km meteorological and biogenic emissions based on the PGM model performance evaluation. |
| Section 4.3.5 is not clear if Ramboll or UNC will be running GEOS Chem for 2014 boundary conditions. Did not state that using existing EPA GEOS Chem, so reader could infer this is original run by Ramboll. Please state. | We are using the EPA 2014 GEOS-Chem output. We will not be doing any GEOS-Chem modeling under the Shake-Out study. This issue has been clarified in the Modeling Plan. |
| Figure 5.4 is double screen shot. Crop right side screen shot of email. | We did not see this in our version of the draft Modeling Plan, so did not address this comment. |
| Section 7.1 is not clear. Sounds like 12 months will be run for 10 model permutations but model performance will be done for only 1 month per quarter for 10 permutations. 4 months MPE used to select which 2 permutations to carry forward for full 12 month MPE. Sounds like the 2 final permutations would be re-run before MPE. Why? Adjustments to configurations? Please be sure plan is clear in this section. | Re-wrote Section 7.1 to be clearer. |
| All 10 or 12 permutations will be transferred to CIRA to archive on IWDW; CIRA needs to separately (outside this scope) document how they will archive. What MPE will be readily available vs archived. | The intent is to transfer all the data and MPE products to the IWDW. The WRAP RTOWG or others need to decide what will be made available on the IWDW website. |
| Section 7.5.1: is intent that evaluating WRAP fire plume rise is not part of this initial shakeout but will be deferred to round 2 2014? I don't have an opinion, just looking for clarity. | A fire plume rise sensitivity test is planned while the annual 2014 CMAQ and CAMx Shake-Out runs are in progress. So, their implementation in the platform will have to be in 2014v2. |
| Section 8.3: single source modeling: my understanding is Ramboll is asked to describe options only. Not propose regional scope of work. If this is incorrect, please clarify. | That is correct, Ramboll will put on a webinar (Dec 12, 2018) and prepare a Memorandum on potential single-source visibility screening and modeling approaches but not propose any scope of work. |

Comments from Rodger Ames from CSU (IWDW) received January 18, 2019.

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| Sec. 1.1.2, Pg 2. Refer to MT and Dakotas participation in IWDW-WAQS. | Added reference to MT, ND and SD when referring to WEAQS state participants. |
| Sec. 1.1.3, Pg 2. Mention Western Shakeout Emissions-Met-Air Quality Modeling Coordination Group (can this be referred to as a RTOWG sub committee?) and the IWDW's Coordination and Tracking efforts. | We could not find any reference to this Group on the WRAP website or in the WRAP Workplan. So, don't have any information on. Comment not addressed. |
| Sec. 1.3.5 pg. 9. In addition to IWDW's function as repository for WAQS platforms, mention data display and analysis capabilities, that modeling studies in the IWDW are leveraged for other modeling studies, and that other modeling platforms developed by EPA and state agencies are available from the IWDW. (examples follow in the modeling plan, such as SNOMS data are available on the IWDW and BLM leveraged data for CARMMS) | Expanded discussion of the IWDW to include these activities. |
| Sec. 6.2.2.7 Pg 45. Emission processing QA: Add a QA step to check that EI updates have been incorporated through the emissions processing chain. This can be done programmatically at the county level (as well as state level) for key pollutants and emissions sectors. County values should match within a specified threshold. | Added this step to the emissions QA section. |
| Sec. 8.1, pg 63. We may want to elaborate on the deliverables to the IWDW. I think the actual number of deliverables may end up being more, although it might depend on how you add them up. Maybe we should periodically modify a high-level list of deliverables as we review the tracking document during our regular meeting, and refer to the ongoing development of such a list in the Modeling Plan | We are working with IWDW on details on the deliverables from the Shake-Out study to the IWDW and have a tracking worksheet. The Modeling Plan just includes a high-level mention of the data transfers to the IWDW. |