**WRAP Regional Technical Operations Work Group Meeting**

Tuesday, March 2, 2021, 1:30pm-3:30pm MST

[WRAP Regional Technical Operations Work Group Meeting (wrapair2.org)](http://www.wrapair2.org/calendar/viewitem.jsp?&cal_item_id=39192)

**Attendees**

|  |  |
| --- | --- |
| Aislinn Johns | Leah McKinley |
| Amber Potts | Marco Rodriguez |
| Andrew Daffern | Mark Jones |
| Angela Raso | Mary Uhl |
| Anthony Lueck | Michael Madsen |
| Brandon McGuire | Mike Barna |
| Brian Himes | Pascale Warren |
| Carl Brown | Pat Brewer |
| Clayton Takamoto | Phil Allen |
| Colleen Stinson | Rachel Edie |
| Craig Henrikson | Ralph Morris |
| Darla Potter | Rebekka Fine |
| David Stroh | Rene Nsanzineza |
| Dayana Medina | Rhannon Thorton |
| Elias Toon | Rhonda Payne |
| Erik Snyder | Rong Li |
| Gail Tonnesen | Ryan Templeton |
| Glade Sowards | Scott Bohning |
| James Grady | Sig Jaunarajs |
| Jay Baker | Steven McNeece |
| Jennifer Huser | Tejas Shah |
| Karen Williams | Tom Moore |
| Ken Rairigh | Weston Carloss |
| Kevin Briggs | Zheng Li |

**Agenda**

* Welcome, Agenda Review, Roll Call – RTOWG Co-Chairs
* Methodologies and Results Examples – Ralph Morris
  + 2028 Projections - 3 options for selecting a 2028 RPG
  + End-of-Glidepath adjustment options
  + 2002-RepBase2-2028OTBa2 Dynamic Evaluation and Modeling Glidepath of U.S. Anthropogenic reductions
* Discuss topics and schedule for Results meetings in March – Tom and all

**Presentation from Ralph Morris: WRAP Visibility Projection Procedures**

* Fires have a big influence and make RRFs (Relative Response Factors) too stiff – want to reduce the role of fire impacts on future visibility projection and confine to US anthropogenic
* Description of emission sectors for high level source apportionment
* Overview of approach for calculating future year visibility, including RRFs
* SMAT (Software for Modeled Attainment Test) needs to be ‘tricked’ for some of the analyses, since source code not available for modification
* Discussion of fires within RepBase2 v 2014v2
* EPA, EPA wo fire, ModMID – three methods for projecting
* EPA wo fire recommended (and coincidentally best performing with regard to back casting)
* Examples for Yellowstone, Mt Rainier
* Ken Rairigh had some questions on model performance, and location of documents on TSS

**Presentation from Ralph Morris: Procedures for Adjusting URP Glideslope**

* EPA Guidance (2018) allows adjustments to the URP Glidepath to account for contributions from International Anthropogenic Emissions (“International Emissions”) and/or Wildland Prescribed Fires (“Rx Fire”)
* Estimates of International Emissions and/or Rx Fire are added to the 2064 Natural Conditions end-point that reduces the slope of the Glidepath
* Discussion of EPA’s September 2019 report on national regional haze modeling
  + Five methods for accounting for international contribution
  + EPA did not consider Rx fire
* WRAP used ‘brute force’ emissions modification within GEOS-Chem global model to estimate international contribution
* Lots of detail to refine boundary conditions, including ‘international’, ‘US’, ‘natural’, ‘Mexico’, ‘Canada’, and ‘CMV’ (commercial marine vessel)
* Description of five potential methods for adjusting glide slopes (slide 7)
* Choose Methods A (Relative International Emissions) and B (Relative International Emissions plus Rx Fires) with ambient Natural Conditions were retained for implementation on the TSS
* Several examples of results at Class I areas
* Weston Carloss – can you pick and choose adjustments for different for Class I areas? Are you stuck with your choices?

**Presentation from Ralph Morris: Regional Haze Dynamic Evaluation**

* Focus on what we know best – US anthro emissions
* Conduct 2002 CAMx simulation and compare modeled and observed changes in visibility for the Most Impaired Days (MID) between 2000-2004 Baseline (2002) and 2014-2018 Planning Period (RepBase2)
* Want 2002 CAMx simulation to be consistent with RepBase2, 2028OTBa2 (e.g., same meteorology (2014), boundary conditions, fires, et cetera). The change we’re trying to isolate is US anthropogenic emissions, namely changes in NOx and SO2 emissions
* Presentation of 2002, 2014v2, RepBase2, and 2028OTBa2 emissions for SO2, NOx and VOC
* Several examples of Class 1 areas that show reductions in US anthropogenic visibility impacts from 2002 to RepBase2 to 2028OTBa2
* Construct a new glideslope at each CIA using 2002 modeled US anthropogenic impact and zero at 2064
  + Most CIAs meet targets for 2016 and 2028 US anthropogenic goal
* Evaluate three visibility projection methods against observed IMPROVE MID visibility using RepBase2 and 2002DE CAMx modeling results doing backward and forward visibility projections
  + 2002DE backward projections and RepBase2 forward projections

**Next steps**

* Regional Haze Results meeting to review projections and end-of-glidepath adjustments on TSS tools – afternoon of March 9th, information to be distributed. Then another Results meeting in late March.