

TSS Orientation and Updates to Monitoring and Emissions Express Tools since May 19-20

[\(https://views.cira.colostate.edu/tssv2/\)](https://views.cira.colostate.edu/tssv2/)

June 23, 2020

Regional Haze Modeling and Projections Results Meeting June 23 and 25, 2020

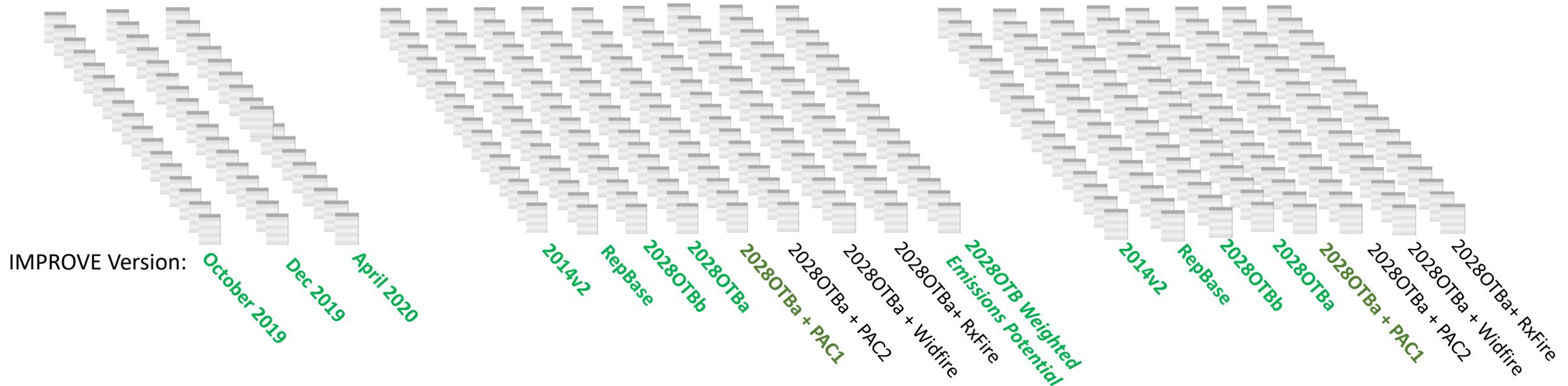


Tasks in green font are now available on the TSS Express Tools. PAC1 results will be presented June 25.

Monitoring

Emissions Scenarios

Model Scenarios



ure | views.cira.colostate.edu/tssv2/Express/VisTools.aspx

WRAP Technical Support System Search Logout

ANALYSIS DATA HELP

Analysis and Planning
These links provide access to a variety of tools that may be useful to Western States and Tribes for assessing air quality in Federal Class I areas.
The links in this menu are also contained in the [Regional Haze Planning Steps Guide](#).

Monitoring
Ambient Express Tools
Haze Analysis Tools
Trend Analysis
Air Quality Summaries

Emissions
Emissions Express Tools
Q/D Analysis
WEP / AOI
< Item Placeholder >

Modeling
Modeling Express Tools
Modeling Scenarios
< Item Placeholder >
< Item Placeholder >

TSS Monitoring and Emissions Express Tools were reviewed on May 19-20 webinars

<http://www.wrapair2.org/events.aspx>

WRAP Technical Support System (TSS) Navigation:

views.cira.colostate.edu/tssv2/

WRAP Technical Support System

ANALYSIS DATA HELP



Rocky Mountain National Park

NOTICE

The TSS website is currently under heavy development and is not ready for final review or use. The content, navigation, styling, layout, and all other aspects of the website are currently unfinished and subject to change at any time.

UPDATES

New tools: A suite of new Modeled Data Analysis - Express Tools for quickly analyzing a variety of modeling data is now available. June 15, 2020

New tools: A suite of new Emissions Data Analysis - Express Tools for quickly analyzing annual emissions data is now available. May 08, 2020

New tools: A suite of new Ambient Data Analysis - Express Tools for quickly analyzing IMPROVE monitoring data is now available. April 21, 2020

COVID-19 Update: Although development and operations are now being conducted according to the relevant social-distancing guidelines, work continues unabated on the TSS database and website with no significant impacts to progress. April 13, 2020

TOOLS

RHR2 vs. Impairment Model-To-Obs

Source Apportionment Images

Emissions Review Emissions Map

Query Wizard Site Browser

Visibility Summary

Wet Deposition Summary

Dry Deposition Summary

O₃ High-4 5yr Avg O₃ W126 5yr Avg

PAGE TAGS

lowd about updates events

air quality data modeling

MONITORING MODELING EMISSIONS DOCUMENTATION

WRAP Storyboard
A storyboard presentation about the unique visibility challenges throughout the West...

Class I Area Summaries
Summary tables for monitoring, emissions contributions, and modeled visibility progress...

RHR Planning Steps
A user's guide to technical tools supporting Regional Haze State implementation plans...

Visibility Express Tools
Evaluate modeled aerosol light extinction composition and trends at Class I Areas...

Emissions Express Tools
Evaluate modeled emissions data by pollutant and source category at Class I Areas...

Modeling Express Tools
View and analyze air quality modeling results from multiple scenarios at Class I Areas...

or:

views.cira.colostate.edu/tssv2/

WRAP Technical Support System

ANALYSIS DATA HELP

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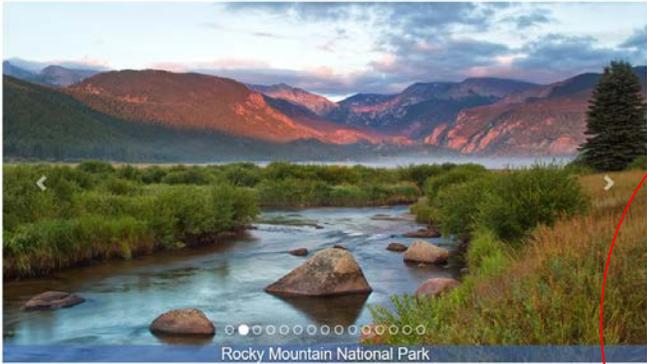
Emissions
Emissions Express Tools
Q/D Analysis
WEP / AOI (Interim)
< Item Placeholder >

Modeling
Modeling Express Tools
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< Item Placeholder >
< Item Placeholder >

WRAP Technical Support System

ANALYSIS DATA HELP

Account



Rocky Mountain National Park

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MONITORING MODELING EMISSIONS DOCUMENTATION

Tool matrix changed

Updated TSS Navigation Tools:



Ambient Data Analysis - Express Tools

The "express" tools below provide the quickest and easiest way to generate data products. They are designed with minimal UI in order to be simple below corresponds to a single tool that produces a unique report. Make your selections from the dropdown menus and then click the Submit button.

Ambient Data Analysis - Summary Charts

#	Product	Filters	URL	Actions
1	CIA 5-year Extinction Composition	State: Colorado Group: Most Impaired Days	🔗	Submit
2	CIA Annual Extinction Composition	State: Colorado Parameter: 7 selected Group: Most Impaired Days Start Year: 2000 End Year: 2018	🔗	Submit
3	CIA Daily Extinction Composition	State: Colorado Parameter: 7 selected Group: Most Impaired Days End Year: 2018	🔗	Submit
4	URP Glidepath - M.I.D. or Clearest	IMPROVE Site: YELL2 Parameter: DV Group: Most Impaired Days	🔗	Submit
5	URP Glidepath - M.I.D. and Clearest	IMPROVE Site: YELL2 Parameter: DV	🔗	Submit

Ambient Data Analysis - Summary Tables

#	Product	Filters	URL	Actions
1	State Deciview Trends, all CIAs	State: Colorado Group: Most Impaired Days	🔗	Submit
2	State Extinction Trends, per CIA	State: Colorado Group: Most Impaired Days	🔗	Submit



Emissions Data Analysis - Express Tools

The "express" tools below provide the quickest and easiest way to generate data products. They are designed with minimal UI in order to be simple below corresponds to a single tool that produces a unique report. Make your selections from the dropdown menus and then click the Submit button.

Emissions Data Analysis - Charts

#	Product	Filters	URL	Actions
1	WRAP Emissions Summary	Scenario: 3 selected Parameter: NOx Sector: 14 selected	🔗	Submit
2	WRAP Emissions Summary - One Sector	Scenario: 3 selected Parameter: NOx Sector: ptegu	🔗	Submit
3	WRAP Emissions Summary - Pie Chart	Parameter: NOx Sector: 14 selected	🔗	Submit

Emissions Data Analysis - Tables

#	Product	Filters	URL	Actions
1	WRAP State Emissions Summary	State: Colorado Parameter: NOx	🔗	Submit

- Brief introductory paragraph added to each Express Tools page
- 10-digit "product code" removed
 - Still visible when "mousing over" product name for reference
- Timestamping / product versioning notations to be added soon

TSS Monitoring Express and Emissions Express Tools: Revisions since May 19-20 webinars

Monitoring: since Dec. 2019, update across IMPROVE-related CIRA databases feeding TSS/IWDW/FED:

- Relocated sites with merged trends 2000-18 that may still need state follow-up (HALE/HACR, ZION/ZICA, TUXE/KPBO)
- Relocated sites that have merged trend complete (SYCA_RHTS)
- Sites with so much missing data that have to point at a nearby site (SIAN -> TONT)
- Sites with 2018 data substitutions (AGTI, SYCA, HOOV, IKBA)
- Clearest days 2064 natural condition

Emissions: changes since May:

- RepBase EGU were double counted in May version of TSS Emissions Tables. Tables have been corrected. EGU were not double counted in model runs.
- CA emissions have been reprocessed, in use for 2028OTBa Source Apportionment modeling. No changes in total 2028 CA mass emissions. TSS emissions charts and tables for 2014/RepBase and 2028OTB a & b still to be updated.
- ND O&G point source projections were over-counted in OTB / PAC1, will be revised for PAC2 modeling, emissions tools
- Updated Weighted Emissions Potential (WEP) / Area of Influence (AoI) analysis and browser

Revisions in process in response to feedback

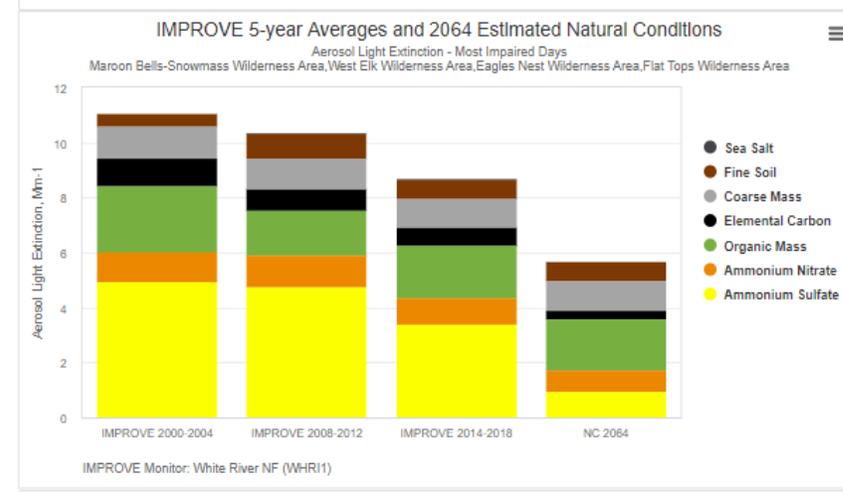
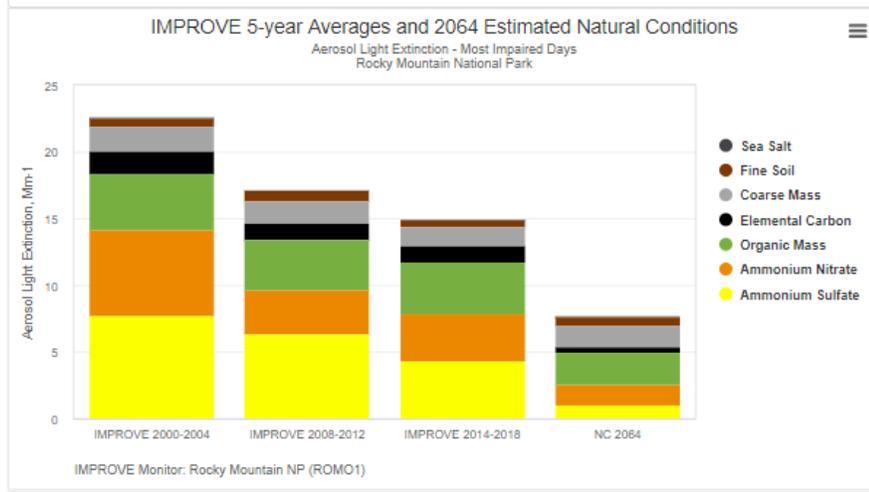
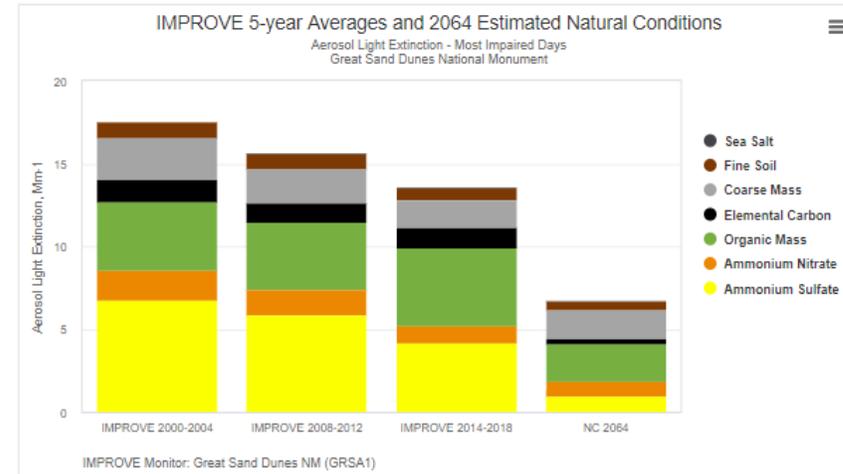
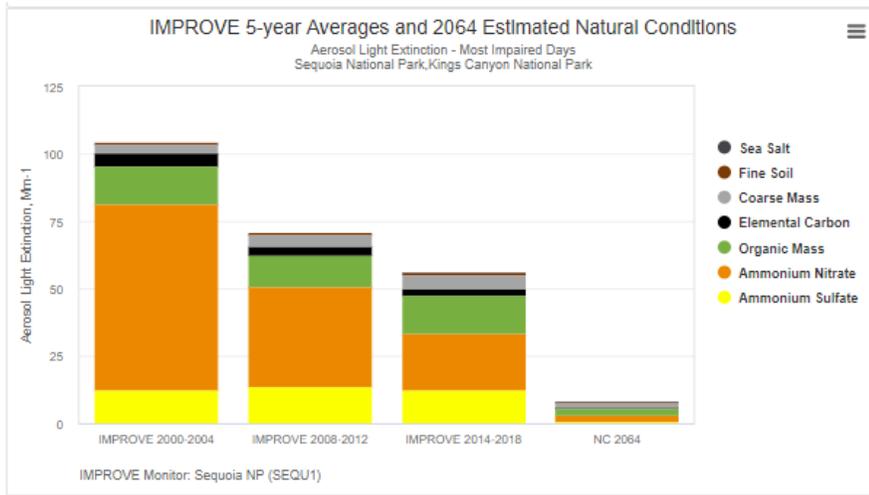
- Batch Class I area charts and tables by state
- WRAP to notify as data in charts and tables are stable (SIP-ready)
- Add Tribal Class I areas



#	Product	Filters	URL	Actions
1	CIA 5-year Extinction Composition	State: Colorado Group: Most Impaired Days	🔗	<input type="button" value="Submit"/>

May 2020: Select charts for more than 1 Class I area

June 2020 version: Select charts by State



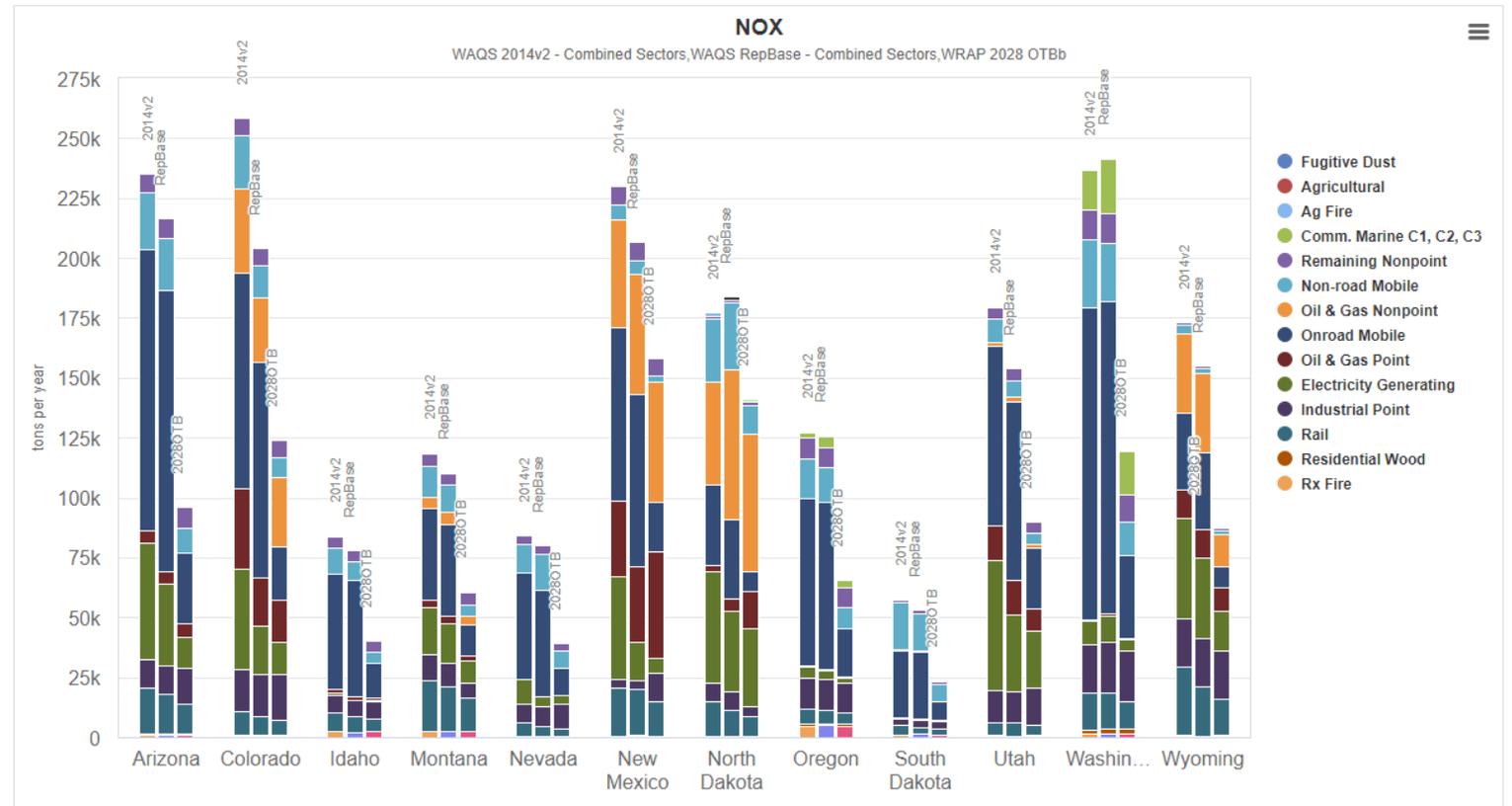


#	Product	Filters	URL	Actions
1	WRAP Emissions Summary	Scenario: 3 selected Parameter: NOX Sector: 14 selected	%	<input type="button" value="Submit"/>

June 2020 version:

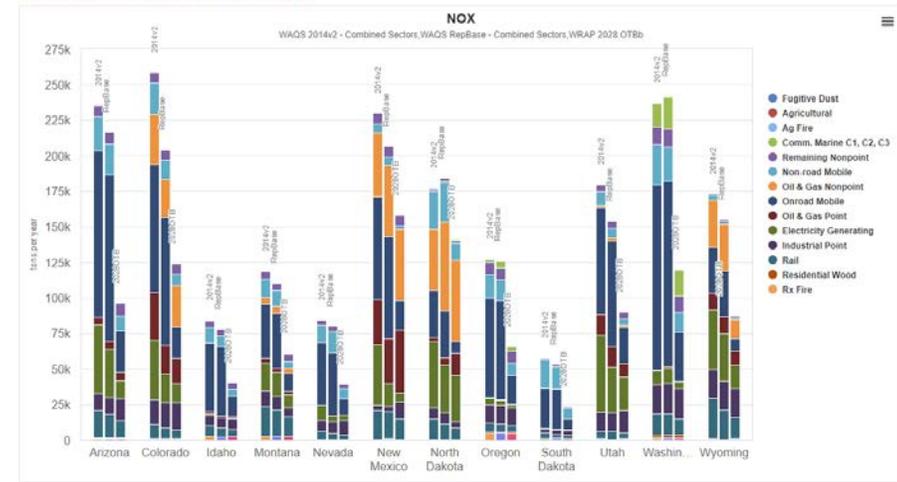
- Ag fire and Wildland Prescribed Fire added to Anthropogenic emissions charts
- CA emissions will be added

State Emissions by Sector and Scenario [?](#)



#	Product	Filters	URL	Actions
1	WRAP Emissions Summary	Scenario: 1 selected Parameter: NOx Sector: 11 selected	%	Submit

State Emissions by Sector and Scenario



Data can be downloaded below chart, except AK, CA, HI

Final Chart Data:

Export to xlsx | Export to csv | Export to txt

ScenarioLabel	ParamCode	SectorCode	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	North Dakota	Oregon	South Dakota	Utah	Washington	Wyoming
2014v2	NOx	afidust	0	0	0	0	0	0	0	0	0	0	0	0
2014v2	NOx	ag	0	0	0	0	0	0	0	0	0	0	0	0
2014v2	NOx	ag_flaming	42	96	417	632	5	34	1187	384	348	19	479	51
2014v2	NOx	cmv_c1c2c3	0	0	0	0	0	0	0	2125	0	1	16767	0
2014v2	NOx	nonpt	7921	7209	4595	5041	3287	7649	8456	1194	1275	4846	12050	1023
2014v2	NOx	nonroad	23521	22355	10885	13174	12295	6078	16759	19294	9669	28398	3576	3576
2014v2	NOx	np_oilgas	15	35373	5	4616	11	45355	43237	33	398	1811	0	33102
2014v2	NOx	onroad	117227	89776	48314	38220	44052	33305	69994	27996	74643	130500	32017	32017
2014v2	NOx	pt_oilgas	5221	33694	1198	2820	269	31437	2702	421	435	14636	445	12073
2014v2	NOx	ptegu	48757	41596	1360	19685	10123	43071	46410	4697	87	54497	10023	41686
2014v2	NOx	ptnonipm	11763	17613	7368	10628	8067	3720	7734	12621	2824	13086	20242	20433
2014v2	NOx	rail	19285	9833	7429	21312	5742	19766	14758	6485	3794	5646	15202	28606
2014v2	NOx	rvc	427	446	201	177	181	197	126	676	154	189	1530	82
2014v2	NOx	rxfire	1078	667	2480	2448	96	530	391	4875	1119	596	1662	696
2028OTB	NOx	afidust	0	0	0	0	0	0	0	0	0	0	0	0
2028OTB	NOx	ag	0	0	0	0	0	0	0	0	0	0	0	0
2028OTB	NOx	ag_flaming	42	96	417	632	5	34	1187	384	348	19	479	51
2028OTB	NOx	cmv_c1c2c3	0	0	0	0	0	0	0	2958	0	0	17877	0
2028OTB	NOx	nonpt	8724	7230	4706	4960	3323	7105	1196	8341	1276	4706	11883	1025
2028OTB	NOx	nonroad	10341	8462	4449	4639	7082	3037	12200	8898	6881	4741	13886	1366
2028OTB	NOx	np_oilgas	7	29023	10	3783	4	50103	57258	11	319	1427	0	13677
2028OTB	NOx	onroad	29389	22097	14401	12767	11255	20601	8051	20080	7592	25539	34366	8923
2028OTB	NOx	pt_oilgas	5514	17494	1244	2439	186	44292	15858	381	435	9163	631	9691
2028OTB	NOx	ptegu	13188	13356	265	9435	3892	5997	32516	1821	246	23848	4701	16355
2028OTB	NOx	ptnonipm	14702	19183	7526	5859	10146	11909	4144	12753	3090	15692	21005	20405
2028OTB	NOx	rail	12704	6103	4814	13988	3297	14458	8244	4680	2237	4164	11631	15057
2028OTB	NOx	rvc	391	496	220	194	209	217	136	677	166	208	1807	90
2028OTB	NOx	rxfire	1078	667	2480	2448	96	530	391	4875	1119	596	1662	696
RepBase	NOx	afidust	0	0	0	0	0	0	0	0	0	0	0	0
RepBase	NOx	ag	0	0	0	0	0	0	0	0	0	0	0	0
RepBase	NOx	ag_flaming	42	96	417	632	5	34	1188	384	348	19	479	51
RepBase	NOx	cmv_c1c2c3	0	0	0	0	0	0	0	4761	0	0	22708	0
RepBase	NOx	nonpt	8261	7215	4596	5040	3295	7647	1195	8459	1276	4848	12054	1024
RepBase	NOx	nonroad	21986	13463	7805	10868	15451	5717	28060	14142	15506	7029	24509	2281
RepBase	NOx	np_oilgas	9	26987	12	5660	3	50064	62190	15	468	1806	0	33168
RepBase	NOx	onroad	117227	89776	48314	38220	44052	33305	69994	27996	74643	130500	32017	32017
RepBase	NOx	pt_oilgas	5263	20152	1405	2820	215	31199	5187	424	435	14611	754	11857
RepBase	NOx	ptegu	33814	20158	269	16595	16218	4280	33477	3612	165	31879	10926	33324
RepBase	NOx	ptnonipm	11856	17687	6891	9849	8129	3742	7753	12766	2828	13107	21346	20438
RepBase	NOx	rail	16963	7924	6334	18448	4351	19252	10720	5897	2780	5263	15002	20356
RepBase	NOx	rvc	382	461	207	183	189	204	130	677	159	195	1807	85
RepBase	NOx	rxfire	995	517	1995	2562	91	574	593	4961	1445	572	1614	606

WEP/AOI Analysis - June 17, 2020

Weighted Emissions Potential (WEP) and Area of Influence (AOI) products utilizing 2028 emissions estimates, based on rules and permits presently "on the books", are being made available for Regional Haze planning uses, for the Class I areas in the contiguous region of Western, Midwestern and Great Plains states. The analysis was performed for the Most Impaired Days (MID) during each year of the 5-year period from 2014 through 2018 at 76 IMPROVE monitoring sites representing the 116 Class I Areas (CIAs) in the 13 WESTAR-WRAP region contiguous and neighboring states. The analysis methods and available products are described below.

Data and Methods

IMPROVE Data for Most Impaired Days

The MID (impairment group 90) at each IMPROVE site during 2014 to 2018 were extracted from the IMPROVE Impairment Daily Budgets dataset dated April 20, 2020 (sia_impairment_daily_budgets_4_20_2.csv). The extinction due to ammonium sulfate (Amm_SO4), ammonium nitrate (Amm_NO3), organic aerosol (OA) and elemental carbon (EC) mass on each MID was extracted for use in the extinction weighted residence time analysis.

Some of the WESTAR-WRAP region IMPROVE sites had missing MID data:

- The Sycamore Canyon (SYCA) IMPROVE site in Arizona was moved during the 2014-2018 5-year period so the combined MID for the two SYCA sites are from a synthetic site record called SYCA_RHTS. This site record was used to obtain a complete 5-year record.
- The Sierra Ancha Wilderness Area (SIAN) IMPROVE site in AZ has insufficient IMPROVE data for 3-years (2016-2018) to calculate the MID, so the WEP/AOI analysis was based on just two-years of back trajectory data (2014-2015). We recommend that the analysis products for the nearby Tonto National Monument (TONT) AZ IMPROVE site be used for SIAN as this site has a complete 2014-2018 5-year record of MID.
- Point Reyes National Seashore (PORE) and Trinity (TRIN) CA IMPROVE sites had insufficient data for 2016 so the WEP/AOI was based on only 4-years of MID (2014, 2015, 2017, 2018).

HYSPLIT Back Trajectory Modeling

The Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model^{[1][2]} was used to calculate 72-hour back trajectories arriving on each of the MID at four times per day (6:00, 12:00, 18:00, 24:00 local standard time) and at four heights above the ground (100 m, 200 m, 500 m and 1,000 m). The archived NAM hybrid sigma-pressure gridded (NAMS)

meteorological data for 2014 to 2018 was downloaded from the NOAA Air Resources Laboratory FTP server^[3] for use in HYSPLIT model. The NAMS data is output hourly and covers the Contiguous U.S. at 12 km resolution.

Emissions

Gridded area and facility level point source emissions of light extinction precursors from the WRAP 2028 On-the-Books (OTB) emissions scenario were used to calculate WEP. The following aggregated source sectors were used for the analysis:

- TOTAL_ANTHRO - All anthropogenic emissions
- PT_EGU - Electric generating unit emissions
- PT_NON_EGU - Point source emissions from industrial activities
- OG_AREA_POINT - Oil and Gas area and point sources (Upstream and Midstream)
- NON_POINT - Low-level area source emissions including non-point, agricultural, residential wood combustion, and fugitive dust emissions
- ON-ROAD - On-road mobile source emissions
- NON-ROAD - Off highway mobile source emissions including non-road, airport, commercial marine (C1, C2, and C3), and rail sources

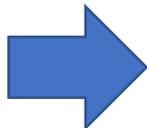
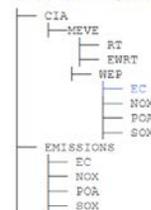
WEP/AOI Products

The WEP/AOI analysis products are available for 76 IMPROVE sites that represent 116 Class I areas in the 13 WESTAR-WRAP region contiguous and neighboring states in the western U.S. The results are calculated for the 12WUS2 modeling domain aggregated to 36-kilometer resolution. Plots are provided for the 100m and 1000m trajectory heights and for a combined analysis in which data from all four trajectory heights are aggregated (All). The products include:

- Plots of residence time (RT), extinction weighted residence time (EWRT), and WEP for each CIA
- Plots of the gridded 2028 OTB emissions used in the WEP analysis for each of the source sectors described (EMISSIONS)
- Excel spreadsheets of facility-level NOx and SO₂ emissions and the corresponding WEP at each CIA (RANK_POINT)

The RT, EWRT, WEP, and EMISSIONS plots are provided at the following link using the directory structure shown below. Descriptions of each product are provided in the following sections. The Mesa Verde National Park (MEVE) is used as an example.

WEP/AOI Image Browser



Weighted Emissions Potential/Area of Influence

WEP/AOI products are available for 76 IMPROVE sites that represent the potential contribution of 2028 emissions for 116 Class I areas (CIAs) in the 13 WRAP contiguous and neighboring states in the western U.S. For each Class I area there are four directories containing the various analysis products:

1. **EWRT** = Extinction Weighted Residence Time
2. **RANK_POINT** = Rank Point
3. **RT** = Residence Time
4. **WEP** = Weighted Emissions Potential

For more information, please refer to the [Interim WEP/AOI Analysis Summary](#).

< Select a folder... >

Weighted Emissions Potential/Area of Influence

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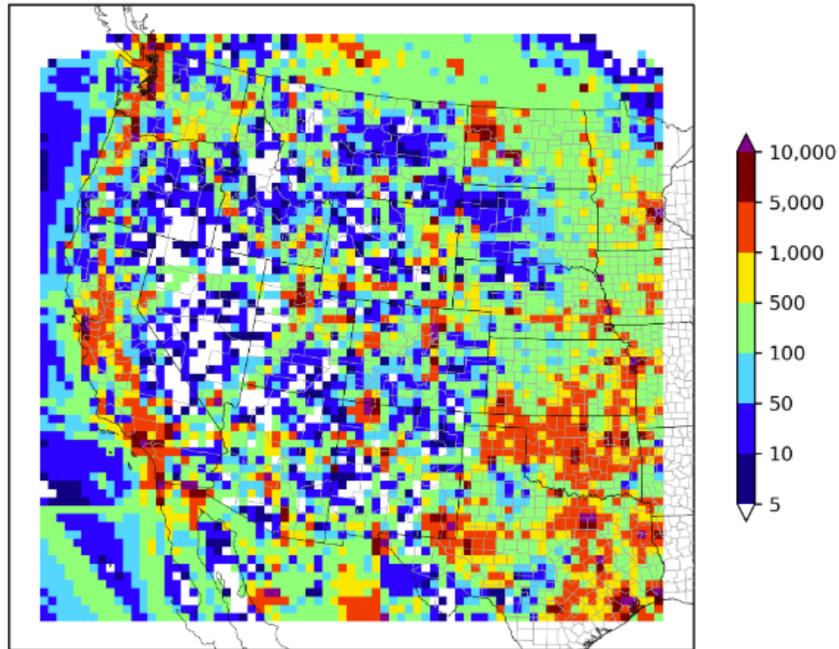
EMISSIONS NOX

Choose an image (7 available): Animate

- 2028OTB_annual_emis_NON-POINT_NOX.png
- 2028OTB_annual_emis_NON-ROAD_NOX.png
- 2028OTB_annual_emis_OG_AREA_POINT_NOX.png
- 2028OTB_annual_emis_ON-ROAD_NOX.png
- 2028OTB_annual_emis_PT_EGU_NOX.png
- 2028OTB_annual_emis_PT_NON-EGU_NOX.png
- 2028OTB_annual_emis_TOTAL_ANTHRO_NOX.png

Folder: http://vice.cira.colostate.edu/files/wdw/platforms/WRAP_2014/WEP_AOI/EMISSIONS/NOX/
 Image: 2028OTB_annual_emis_TOTAL_ANTHRO_NOX.png

2028OTB Gridded Annual Emissions
Total Anthro. NOX (tons/year)



Weighted Emissions Potential/Area of Influence

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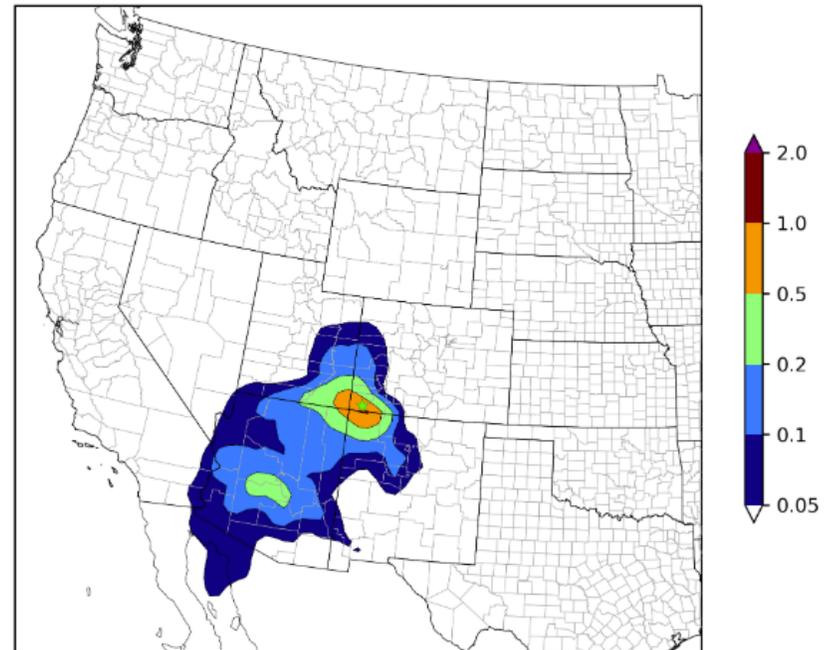
CIA MEVE RT

Choose an image (3 available): Animate

- RT_1000m.png
- RT_100m.png
- RT_All.png

Folder: http://vice.cira.colostate.edu/files/wdw/platforms/WRAP_2014/WEP_AOI/CIA/MEVE/RT/
 Image: RT_All.png

MEVE1 - 20% Most Impaired Days - All
Residence Time (%)





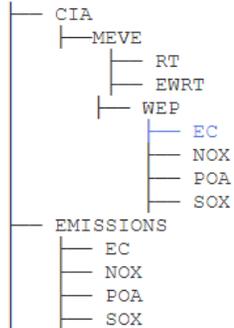
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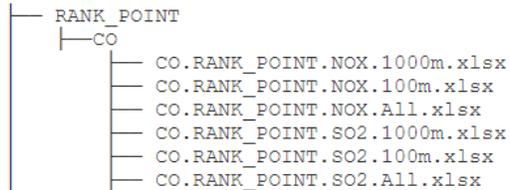


WEP/AOI Image Browser



The facility-level RANK_POINT results for NOx and SO₂ are provided spreadsheets. The results for the IMPROVE monitors in each state are

[RANK_POINT files](#)



← → ↻ Not secure | views.cira.colostate.edu/files/iwdw/platforms/WRAP_2014/RANK_POINT/CO/

views.cira.colostate.edu - /files/iwdw/platforms/WRAP_2014/RANK_POINT/CO/

[To Parent Directory]

6/17/2020	9:25 AM
6/17/2020	9:24 AM
6/17/2020	9:26 AM
6/17/2020	9:26 AM
6/17/2020	9:24 AM
6/17/2020	9:27 AM

FacilityID	FacilityName	Latitude	Longitude	State	NAICS	NAICSDesc	NOX_tpy	ij	distance	WRT_NO3	overD	NOVRTxQ	NCWEP_NO3
2	4417311 HOLCIM (US) INC. PORTLAND PLANT	38.387	-105.019	CO	327310	Cement M	1811.1	47030	85183.28	2006.506	21.261	3633983	42660.75
3	4367811 PUBLIC SERVICE CO - COMANCHE PLT	38.208	-104.575	CO	221112	Fossil Fuel	1688.123	48030	98116.79	1998.089	17.205	3373020	34377.6
4	12862411 GCC RIO GRANDE - PUEBLO CEMENT PLANT	38.129	-104.607	CO	327310	Cement M	848.908	48030	91237.17	1998.089	9.304	1696193	18591.04
5	4392711 COLORADO SPRINGS UTILITIES - NIXON PLT	38.633	-104.707	CO	221112	Fossil Fuel	1513.048	48031	122774.9	996.307	12.324	1507461	12278.25
6	7197711 Four Corners Power Plant	36.687	-108.478	0.0	221112	Fossil Fuel	4060.388	38026	284905	854.506	14.252	3469626	12178.19
7	7735111 TUCSON ELECTRIC POWER CO - SPRINGVILLE	34.318	-109.163	AZ	221112	Fossil Fuel	5857.51	36019	498780.4	779.134	11.744	4563785	9149.887
8	4350411 CF & I STEEL L P	38.232	-104.612	CO	331110	Iron and S	365.129	48030	96856.66	1998.089	3.77	729559.4	7532.361
9	6281811 Bonanza	40.086	-109.285	0.0	221112	Fossil Fuel	5721.713	38037	416166.5	417.188	13.749	2387028	5735.751
10	6534211 EG HILL COMPRESSOR	36.494	-101.464	TX	486210	Pipeline Tr	1983.186	55024	382738.7	1033.06	5.182	2048749	5352.868
11	1148 Chaco Gas Plant	36.483	-108.12	NM	21112	0.0	1098.6	39025	267481	1272.946	4.107	1398458	5228.254
12	7230311 Kutz Canyon Processing Plant	36.67	-107.962	NM	21112	0.0	751.587	40026	244891.7	1474.988	3.069	1108582	4526.823
13	2043911 RAKHRA MUSHROOM FARM CORP	37.505	-105.842	CO	111411	Mushroom	12.281	45028	37322.6	13737.54	0.329	168705.6	4520.198
14	4207711 Laramie River Station	42.109	-104.881	WY	221112	Fossil Fuel	8173.336	49042	487907.1	269.646	16.752	2203904	4517.058
15	4391711 COLORADO SPRINGS UTILITIES- MARTIN DRAKE	38.825	-104.833	CO	221112	Fossil Fuel	1562.179	48032	135410.3	381.059	11.537	595282.4	4396.138
16	1158 Kutz Canyon Processing Plant	36.669	-107.954	NM	21113	0.0	677.3	40026	244355.2	1474.988	2.772	999009	4088.348
17	3167611 Sunflower Electric - Holcomb	37.931	-100.972	KS	221112	Fossil Fuel	2499.435	57028	397727.6	624.887	6.284	1561865	3926.972
18	5050511 PacifiCorp- Hunter Power Plant	39.173	-111.029	UT	221112	Fossil Fuel	10001.83	33035	503288	192.865	19.873	1929002	3832.8
19	7766511 NPPD Gerald Gentleman Station	41.081	-101.142	NE	221112	Fossil Fuel	8808.41	57038	526749.1	191.188	16.722	1684065	3197.092
20	2136511 PUBLIC SERVICE CO ALAMOSA PLT	37.46	-105.895	CO	221112	Fossil Fuel	10.065	45028	44120.67	13737.54	0.228	138266.1	3133.817
21	3552 Blanco Compressor C & D Station	36.733	-107.962	NM	48621	Pipeline Tr	504	40026	241574	1474.988	2.086	743393.7	3077.292
22	7231911 Harvest Pipeline - San Juan Gas Plant	36.731	-107.968	NM	21112	0.0	494.508	40026	242096.8	1474.988	2.043	729393.1	3012.817
23	14939211 Ignacio Gas Plant	37.145	-107.784	0.0	211112	Natural G	243.1	40027	209084.6	2492.875	1.163	606017.8	2898.434
24	1839711 TRI STATE GENERATION CRAIG	40.463	-107.591	CO	221112	Fossil Fuel	2998.383	42037	351104.5	337.5	8.54	1011953	2882.199
25	17768411 Midway Compressor Station	37.092	-107.576	0.0	211111	Crude Peti	187.9	41027	193839.5	2943.8	0.969	553140	2853.599

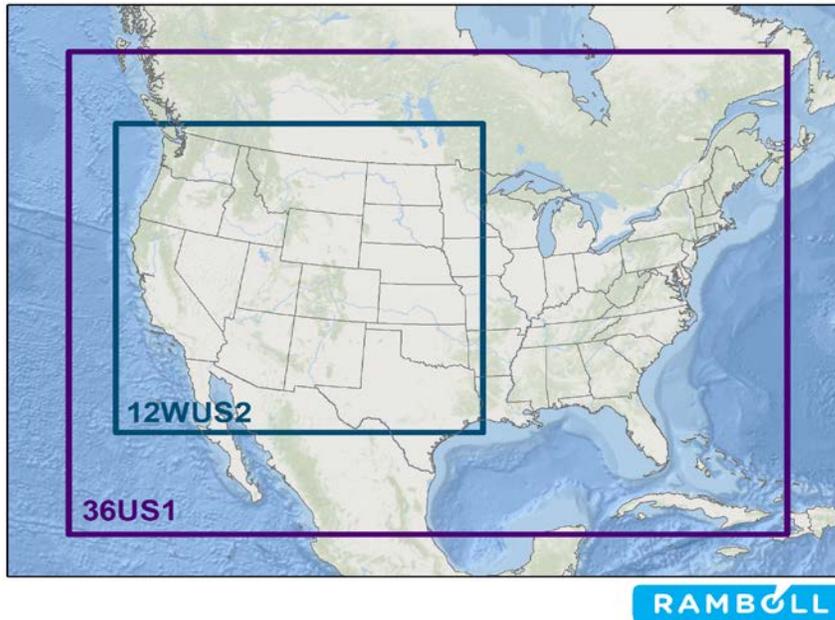
WRAP Technical Support System June 23 drive through



June 23, 2020

Second half of today's webinar focuses on Modeling and Projection tools

WRAP CAMx 12-km and 36-km domains



views.cira.colostate.edu/tssv2/Express/ModelingTools.aspx



WRAP Technical Support System

ANALYSIS ▾ DATA ▾ HELP ▾

Modeled Data Analysis - Express Tools

The "express" tools below provide the quickest and easiest way to generate data products. They are designed with minimal UI in order to be simple below corresponds to a single tool that produces a unique report. Make your selections from the dropdown menus and then click the Submit button

Modeled Data Analysis Charts

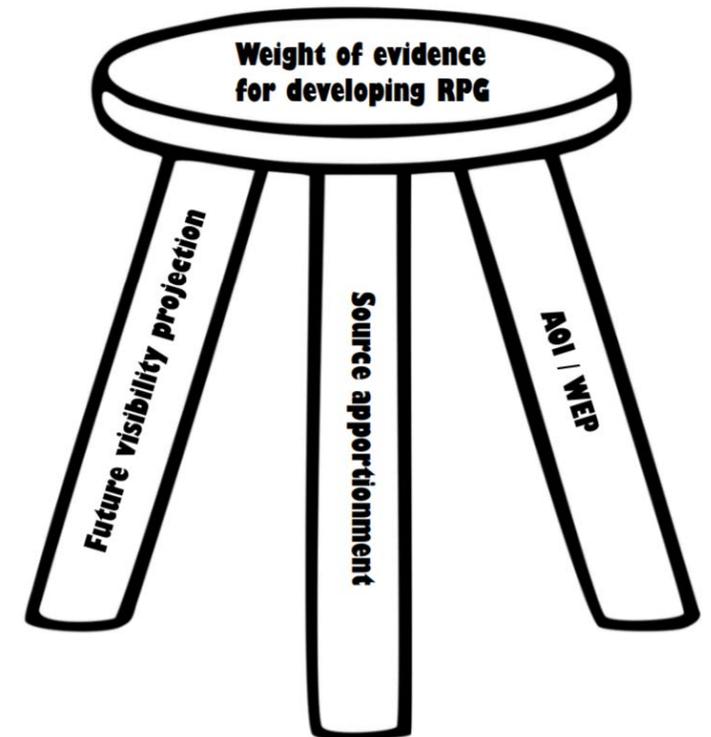
#	Product	Filters	URL	Actions
1	Annual Extinction MPE (N scenarios) DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Model Scenario: 2014v2 ▾	🔗	Submit
2	Daily Extinction MPE (N scenarios) DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Model Scenario: 2 selected ▾	🔗	Submit
3	Visibility Projection Methods - Extinction DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Model Scenario: 2014v2 ▾	🔗	Submit
4	URP glidepath with visibility projections DRAFT	IMPROVE Site: YELL2 ▾ Parameter: DV ▾	🔗	Submit
5	Light Extinction by Source, Horizontal Bars DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Parameter: 7 selected ▾	🔗	Submit
6	Light Extinction by Source, Vertical Bars DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Parameter: 7 selected ▾	🔗	Submit
7	Total Source Contributions by Pollutant DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Parameter: 7 selected ▾	🔗	Submit
8	Daily Modeled Source Contributions DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Parameter: AmmSO4 ▾	🔗	Submit
9	Daily Modeled Extinction Composition DRAFT	State: Colorado ▾ Group: Most Impaired Days ▾ Model Scenario: RepBase ▾	🔗	Submit

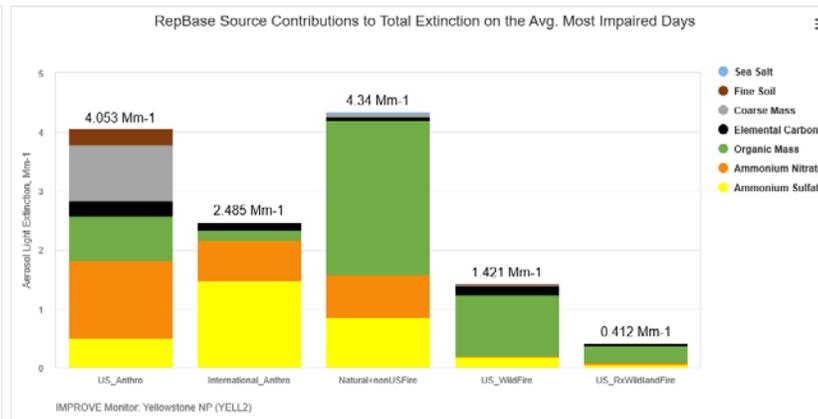
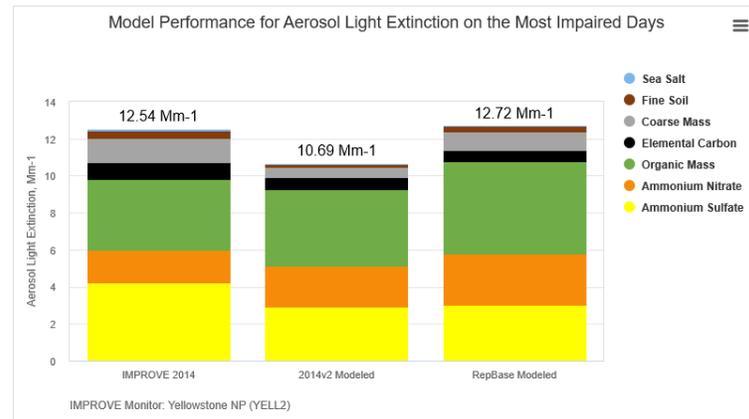
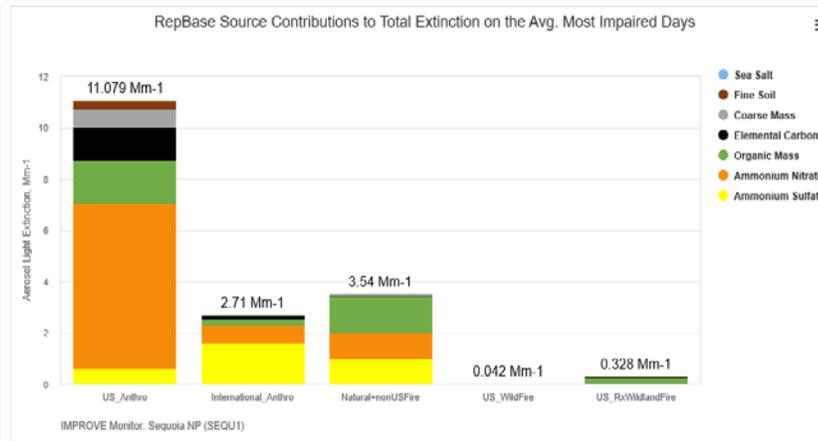
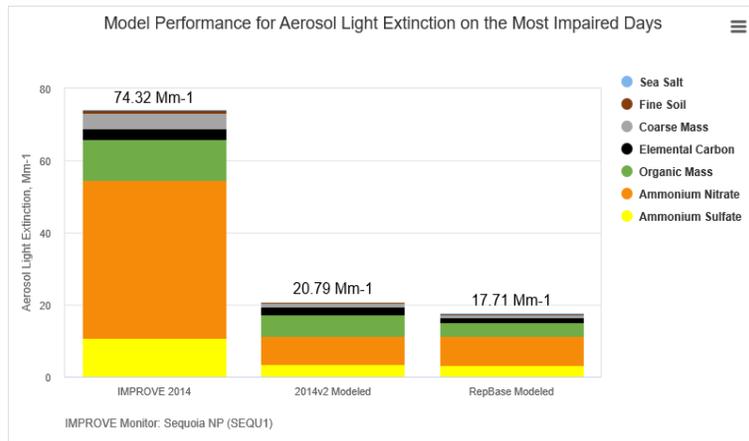
Will add Summary Tables and additional results as available

June 23, 2020 WRAP Modeling Webinar is a preview for June 25th web meeting that will review methodologies and demonstrate how to use data from these tools for Regional Haze SIP Planning

Weight of Evidence for Developing Reasonable Progress Goals using WRAP Modeling Products

- Future Visibility projection
 - How does haze respond to changes in potential future emissions controls? – [Ralph Morris](#)
 - Using Dynamic Modeling to define the visibility response to changes in US Anthropogenic emissions – [Gail Tonnesen](#)
- Source apportionment (photochemical grid model)
 - What are the contributions from international or wildland prescribed fire emissions? – [Mike Barna](#)
 - Which states and sectors are contributing to haze? – [Kevin Briggs](#)
- Weighted Emissions Potential – [Ross Beardsley and Tom Moore](#)
 - For 2014-2018 most impaired days, use back trajectories to define residence time for upwind geographic areas – Area of Influence
 - Weight residence time by extinction (AmmNO₃ or AmmSO₄) - EWRT
 - Weighted Emissions Potential – Weight EWRT by emissions divided by distance – leads to AOI map showing key grid cells
 - Rank upwind point sources





Modeled Data Analysis - Express Tools

The *express* tools below provide the quickest and easiest way to generate data products. They are designed with minimal UI in order to be simple and intuitive to operate. Each item (row) below corresponds to a single tool that produces a unique report. Make your selections from the dropdown menus and then click the Submit button to generate your results.

Modeled Data Analysis Charts

#	Product	Filters	URL	Actions
1	Annual Extinction MPE (N scenarios) DRAFT	State: Wyoming Group: Most Impaired Days Model Scenario: 2 selected		Submit
6	Light Extinction by Source, Vertical Bars DRAFT	State: Wyoming Group: Most Impaired Days Parameter: 7 selected		Submit

WRAP Modeling Uncertainties

- Boundary Conditions (SO₄): International and natural emissions
- Fire (OC, EC, SO₄): emissions and transport
- Model Performance (NO₃, Coarse Mass)