



AIRPACT

Emissions Inventory Workgroup

Topics:

- New AIRPACT Emissions Inventory
- Model Performance Results (Dec 2019)



NW-AIRQUEST Mtg.
Feb 6, 2020

New Emissions Inventory

EPA 2014 NEI v2 used as basis for AIRPACT-6 Emissions Inventory

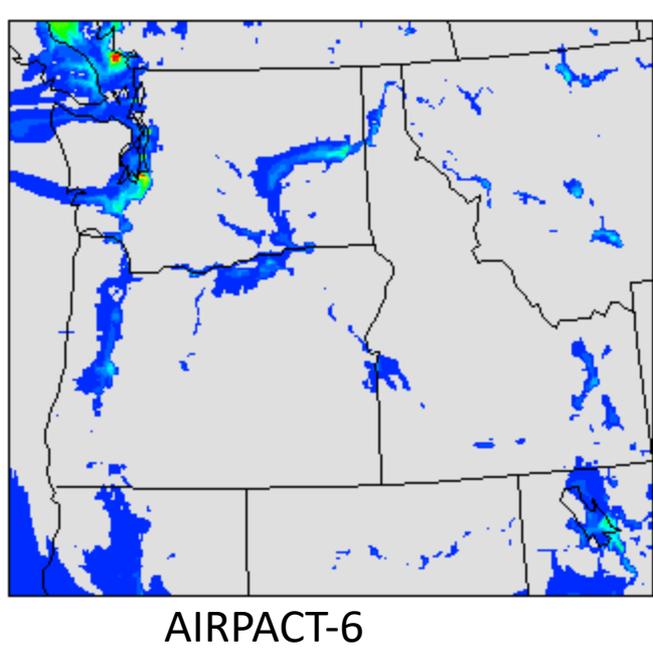
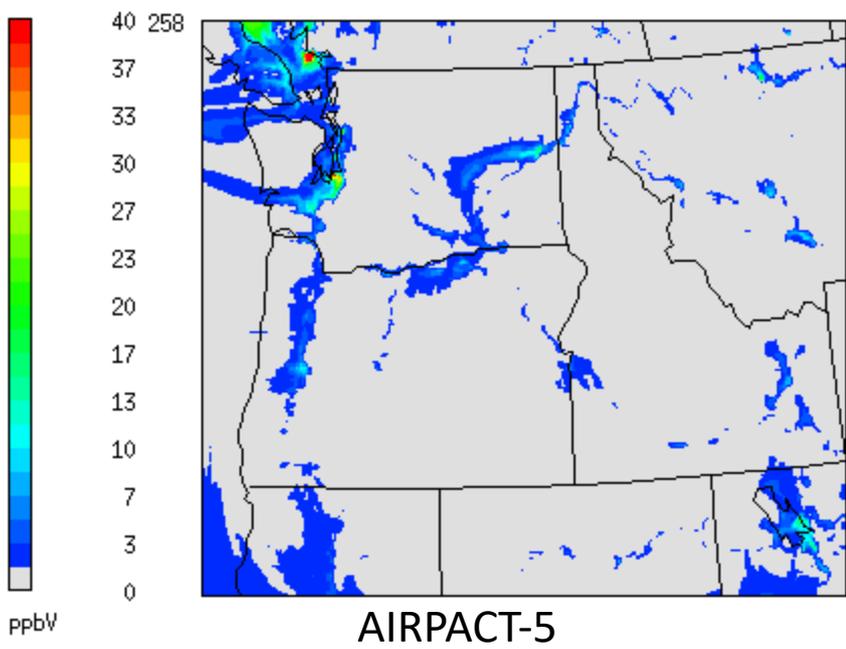
- Updates to RWC for Idaho based on Regional Haze comments
- Updates to RWC for Washington (draft 2017)
- Livestock Waste (Point) carried forward from AIRPACT-5
- MOVES and NONROAD projected to 2019
- 2016 Point Sources used (EPA MP)
- 2015 Canada data for point and nonpoint

Newer version of SMOKE (4.5)

- Requires (as distributed) Intel nodes
- New version of SMOKE-MOVES (includes hotelling and new SCCs)

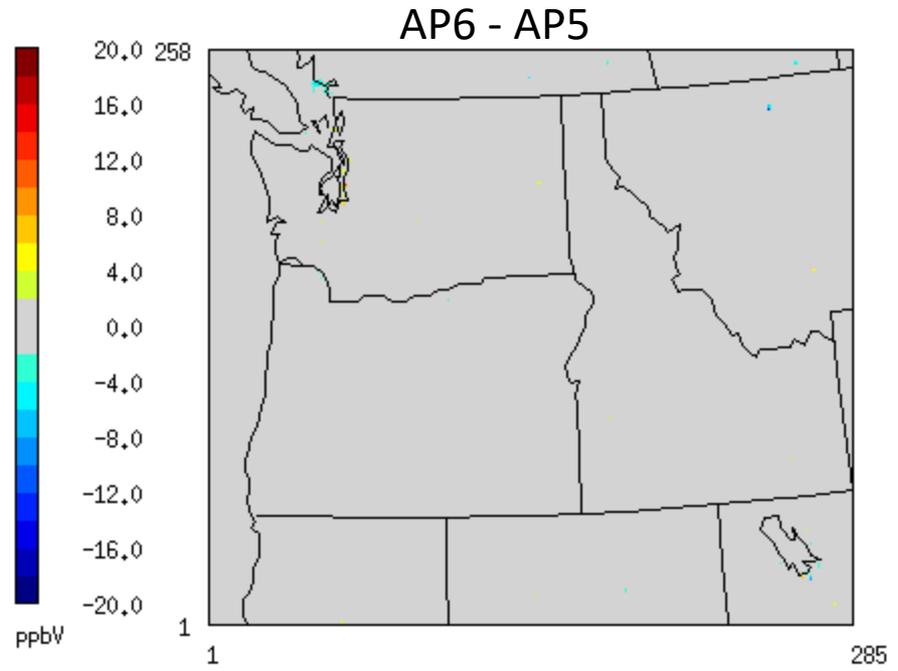
CMAQ Simulations

- Dec 1-7, 2019
- Same fire, BCON, biogenics, and CMAQ version as AIRPACT-5
- Note that area fugitive dust was excluded from western WA/OR in AIRPACT-5 runs, but included in AIRPACT-6

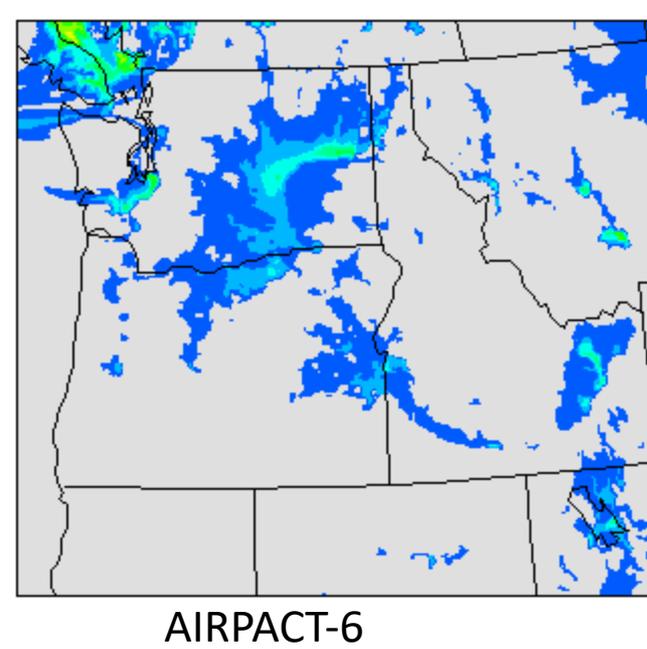
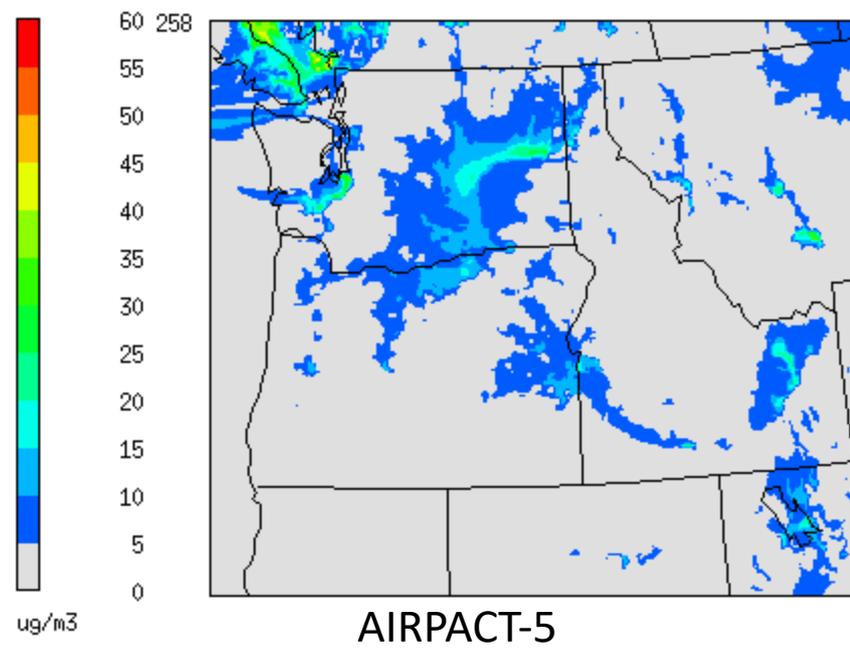


NOx

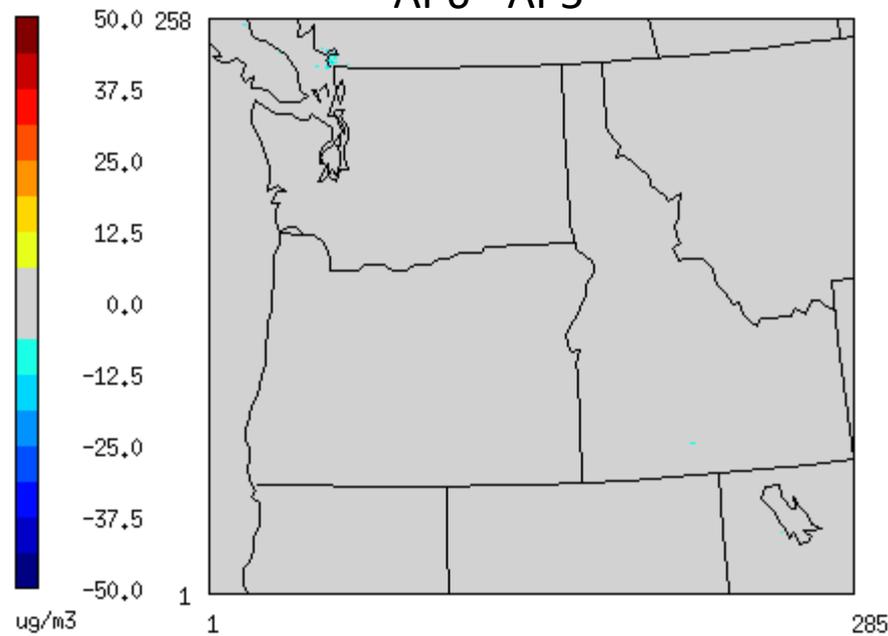
Dec 1 – 7, 2019



December 1, 2019 8:00:00 GMT
Min= -15.1 at (249,232), Max= 13.2 at (62,198)



AP6 - AP5



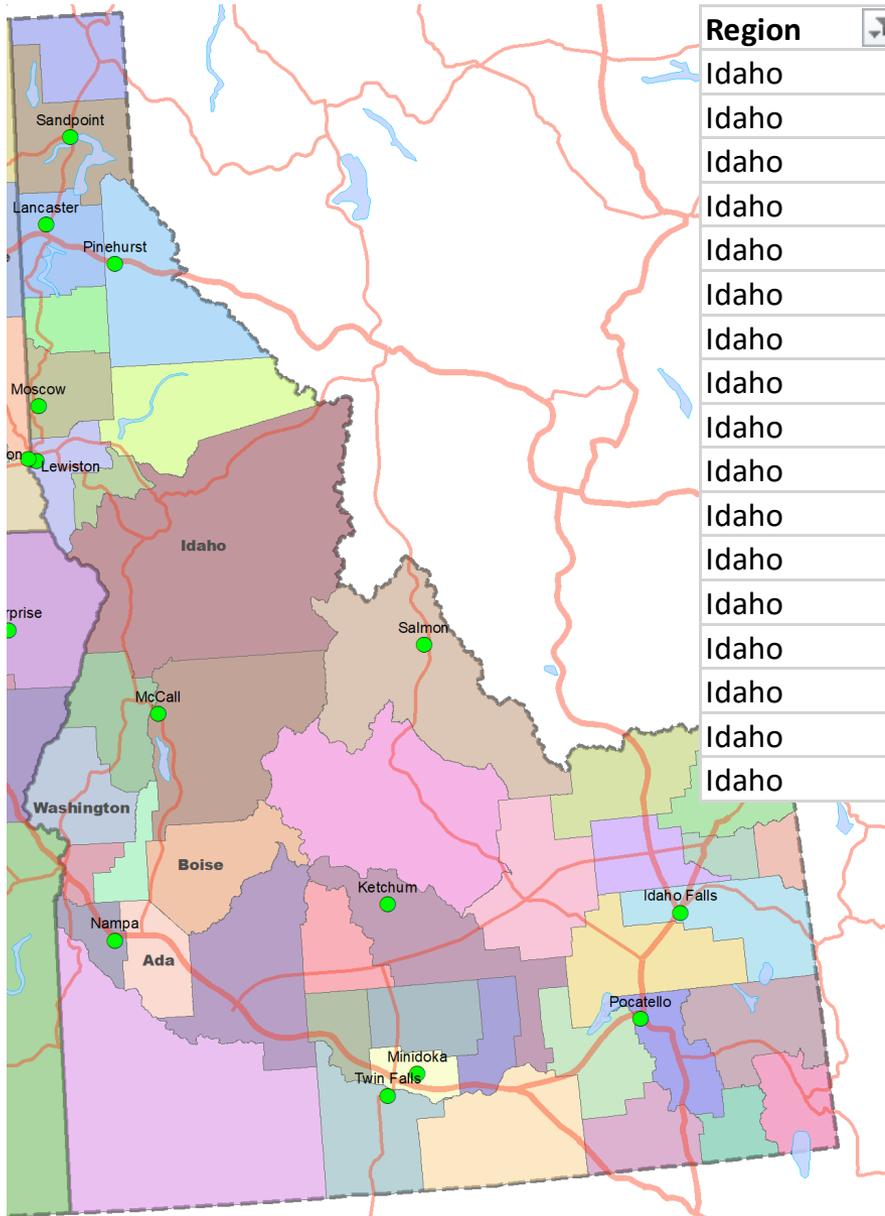
December 1, 2019 8:00:00 GMT

Min= -17,6 at (54,244), Max= 5,6 at (138,1)

PM2.5

Dec 1 – 7, 2019

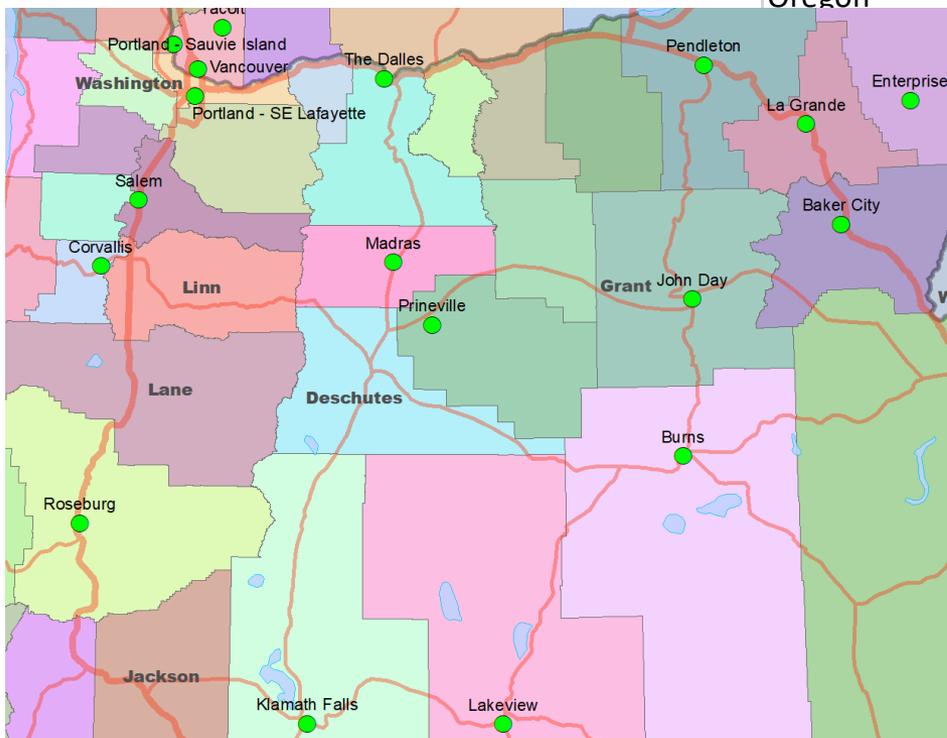
Average PM2.5



Region	Location	AP5	AP6	OBS
Idaho	ID - Ada Co.	25.9	10.5	10.5
Idaho	ID - Bennewah Co.	3.1	1.6	11.8
Idaho	ID - Boise Co.	2.0	1.8	15.2
Idaho	ID - Idaho Co.	3.6	1.8	10.9
Idaho	ID - Idaho Falls / Penford	21.3	11.6	9.8
Idaho	ID - Ketchum	2.6	1.9	3.5
Idaho	ID - Lancaster	18.3	6.9	13.0
Idaho	ID - Lewiston	8.5	2.3	7.0
Idaho	ID - McCall	3.0	1.9	15.7
Idaho	ID - Minidoka National Historic Site	7.6	5.7	4.9
Idaho	ID - Moscow	7.8	3.3	3.8
Idaho	ID - Nampa Fire Station	25.6	9.5	11.5
Idaho	ID - Pinehurst	3.9	1.7	22.6
Idaho	ID - Pocatello Garrett and Gould	13.5	7.7	8.7
Idaho	ID - Salmon PM2.5	2.2	1.3	18.4
Idaho	ID - Sandpoint U of I	8.9	4.1	14.9
Idaho	ID - Twin Falls PM25	20.1	9.5	8.2

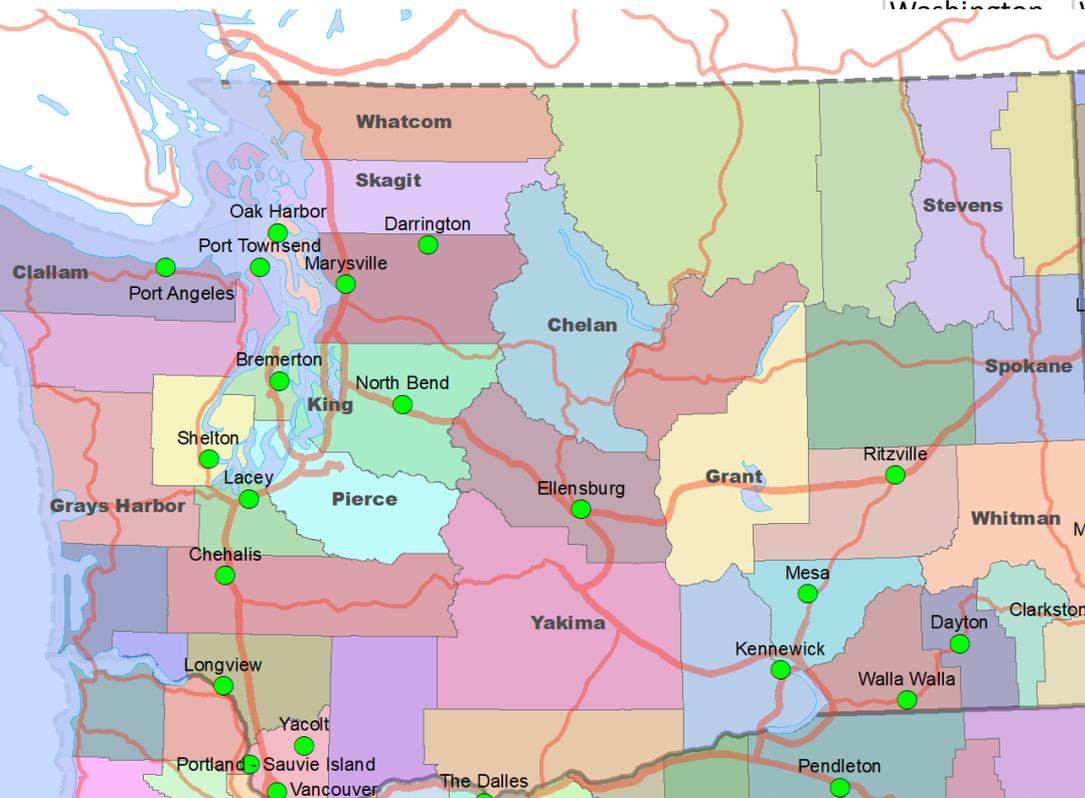
Average PM2.5

Region	Location	AP5	AP6	OBS
Oregon	OR - Baker City - Forest Service	7.4	4.3	12.2
Oregon	OR - Burns - Washington St.	4.3	2.6	14.3
Oregon	OR - Corvallis - Circle Blvd.	32.4	21.6	17.7
Oregon	OR - Deschutes Co.	9.4	4.0	14.5
Oregon	OR - Enterprise - US Forest Service	4.8	2.8	10.9
Oregon	OR - Jackson Co.	6.5	3.6	9.8
Oregon	OR - John Day Dayton St	2.3	1.2	13.7
Oregon	OR - Josephine Co.	8.0	3.8	12.3
Oregon	OR - Klamath Falls - Peterson School	7.5	3.6	10.5
	OR - La Grande Hall & N Sts	6.5	3.6	7.8
	OR - Lakeview - Center & M	2.8	1.8	13.5
	OR - Lane Co.	21.8	13.3	20.5
	OR - Linn Co.	16.4	11.5	19.3
	OR - Madras - Westside School	8.2	4.8	28.0
	OR - Pendleton - McKay Creek	14.1	9.0	13.9
	OR - Portland - Sauvie Island	20.4	13.3	10.5
	OR - Portland - SE Lafayette	30.8	16.9	17.0
	OR - Prineville - Davidson Park	4.7	2.2	19.9
	OR - Roseburg - Garden Valley Blvd.	9.7	5.2	14.9
	OR - Salem - State Hospital	43.7	27.8	19.7
	OR - The Dalles - Cherry Heights	17.3	10.7	21.4
	OR - Washington Co.	37.8	19.7	16.9



Average PM2.5

Region	Location	AP5	AP6	OBS
Washington	WA - Bremerton-Spruce Ave	19.8	14.1	9.1
Washington	WA - Chehalis-Market Blvd	12.5	12.0	11.2
Washington	WA - Chelan Co.	9.7	7.6	14.0
Washington	WA - Clallam Co. (rural)	4.5	3.0	3.2
Washington	WA - Clarkston-13th St	4.4	2.3	7.7
Washington	WA - Darrington-Fir St	4.6	2.7	12.3
Washington	WA - Dayton-W Main	6.3	3.7	15.6
Washington	WA - Ellensburg-Ruby St	11.7	10.8	17.1
Washington	WA - Grant Co.	12.1	11.6	10.8
Washington	WA - Grays Harbor Co.	5.2	4.3	8.1
Washington	WA - Kennewick-Metaline	20.6	15.9	14.6
Washington	WA - King Metro	24.3	20.1	9.6
Washington	WA - Lacey-College St	21.0	15.5	10.7
Washington	WA - Longview-30th Ave	16.2	11.5	13.8
Washington	WA - Marysville-7th Ave	21.8	13.6	15.0
Washington	WA - Mesa-Pepoit Way	13.1	11.2	12.8
Washington	WA - North Bend-North Bend Way	4.9	3.1	2.8
Washington	WA - Oak Harbor-SW 6th	13.9	10.2	3.1
Washington	WA - Okanogan Co.	4.6	4.2	19.0
Washington	WA - Pierce Co.	20.5	15.5	12.2
Washington	WA - Port Angeles-E 5th St	13.7	8.7	10.4
Washington	WA - Port Townsend-San Juan	11.0	8.6	8.2
Washington	WA - Ritzville-Alder St	5.5	4.9	7.7
Washington	WA - Shelton-W Franklin	10.6	11.6	11.6
Washington	WA - Skagit Co.	11.7	9.0	2.9
Washington	WA - Spokane Co.	15.7	8.9	12.7
Washington	WA - Stevens Co.	6.2	5.1	14.6
Washington	WA - Vancouver-NE 84th Ave	29.9	18.2	22.4
Washington	WA - Walla Walla-12th St	15.2	11.9	15.3
Washington	WA - Whatcom Co.	15.1	10.4	5.3
Washington	WA - Whitman Co.	4.2	3.0	5.7
Washington	WA - Yacolt-Yacolt Rd	4.1	2.8	12.7
Washington	WA - Yakima Co.	20.7	16.5	20.0



Average PM2.5

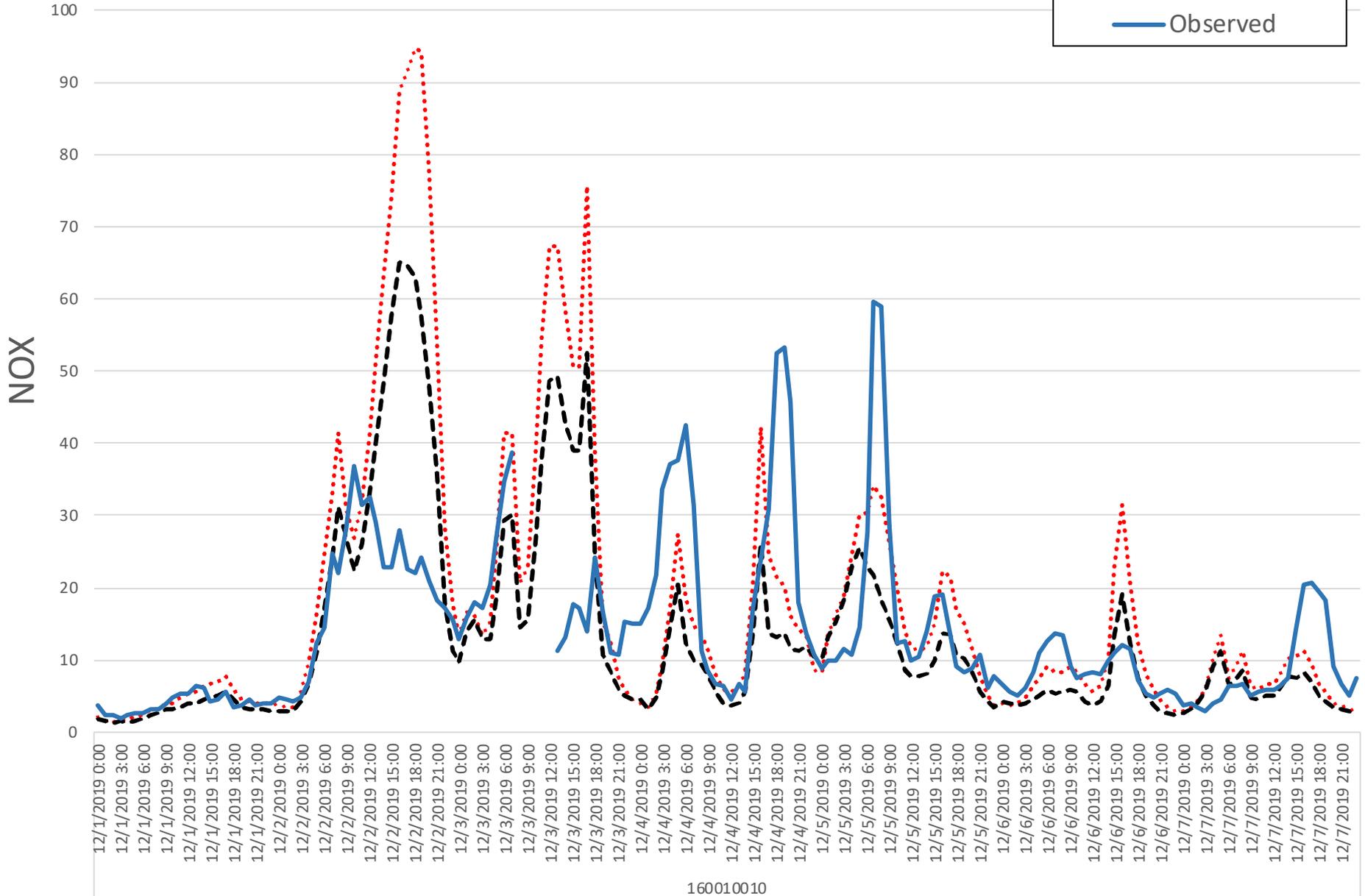
Region	Location	AP5	AP6	OBS
Border States	California	7.3	4.1	12.2
Border States	Canada	21.6	13.9	7.4
Border States	Montana	8.3	3.1	10.2
Border States	Utah	22.5	14.0	20.7

*MT Point Data Incomplete

Average NOx / CO / SO₂

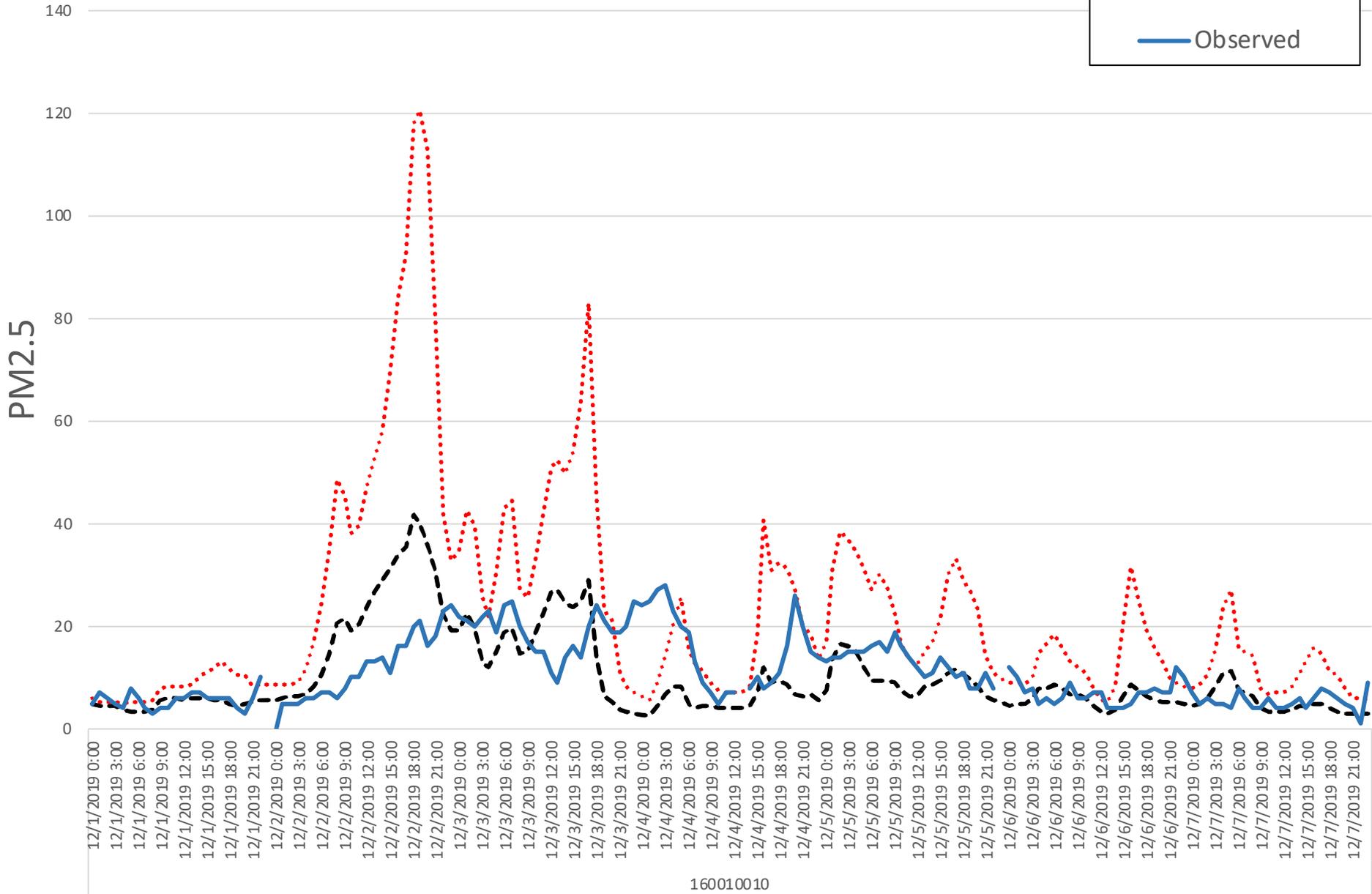
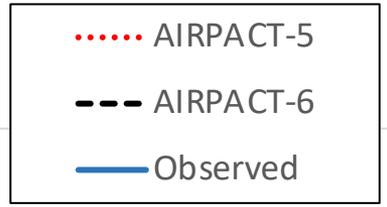
		CO			NOx			SO ₂		
		AP5	AP6	OBS	AP5	AP6	OBS	AP5	AP6	OBS
Canada										
101005	Abbotsford Airport	470	306	156				0.6	0.3	0.2
105301	Langdale Elementary							1.1	0.9	-1.6
Idaho										
160010010	St. Lukes Meridian	331	207	181	17.3	12.6	13.9	0.6	0.2	0.0
Montana										
300310017	West Yellowstone Park	97	97	160	0.6	1.0	0.9			
Oregon										
410510080	Portland - SE Lafayette				28.4	20.1	28.3	0.9	0.5	0.5
410670005	Portland Near Road				40.5	28.3	48.2			
Utah										
490050007	Smithfield				7.8	6.7	14.0			
490110004	BV				42.7	37.3	58.3			
490353006	Hawthorne	1017	738	317	65.7	67.4	59.1	1.6	0.5	0.8
490353010	Rose Park	691	500	216	49.5	38.0	38.3	2.5	0.6	0.2
490353013	Herriman #3				12.9	13.0	30.3			
490450004	Erda				6.1	6.0	13.2			
490494001	Lindon - Provo	406	307	267	21.2	21.7	36.3			
490495010	Spanish Fork				13.7	16.8	23.9			
490571003	Harrisville				26.6	31.5	45.5			
Washington										
530090013	Cheeka Peak	159	146	138				0.3	0.3	0.0
530330030	Seattle-10th & Weller	1199	704	544	82.3	73.9	60.4			
530330080	Seattle-Beacon Hill	899	587	322				4.1	4.3	0.7
530530024	Tacoma-S 36th St				32.2	26.0	48.9			
530570011	Anacortes-202 Ave							1.5	0.9	0.5

St. Lukes Meridian

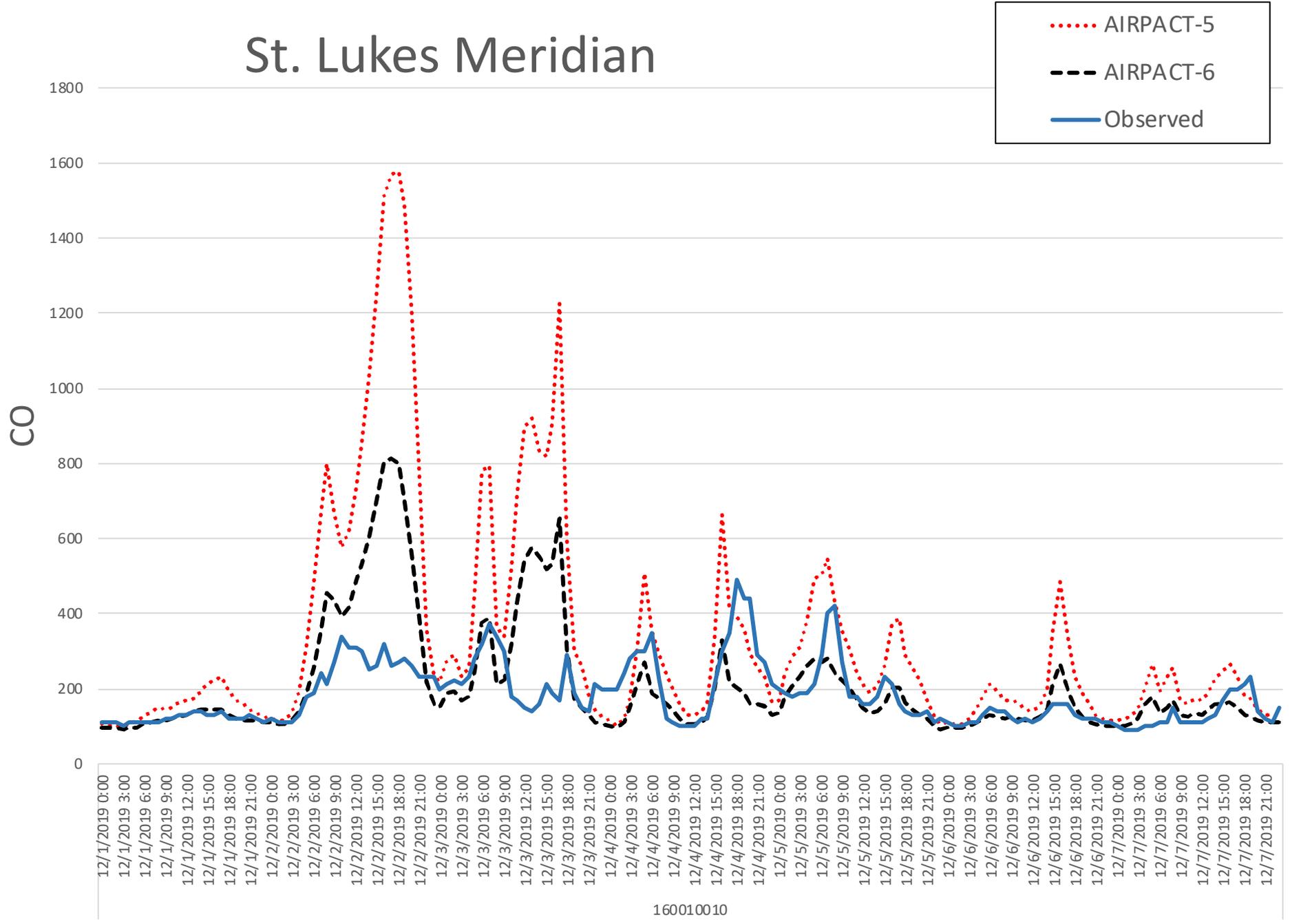


160010010

St. Lukes Meridian



St. Lukes Meridian



160010010

New Emissions Inventory

What's Next?

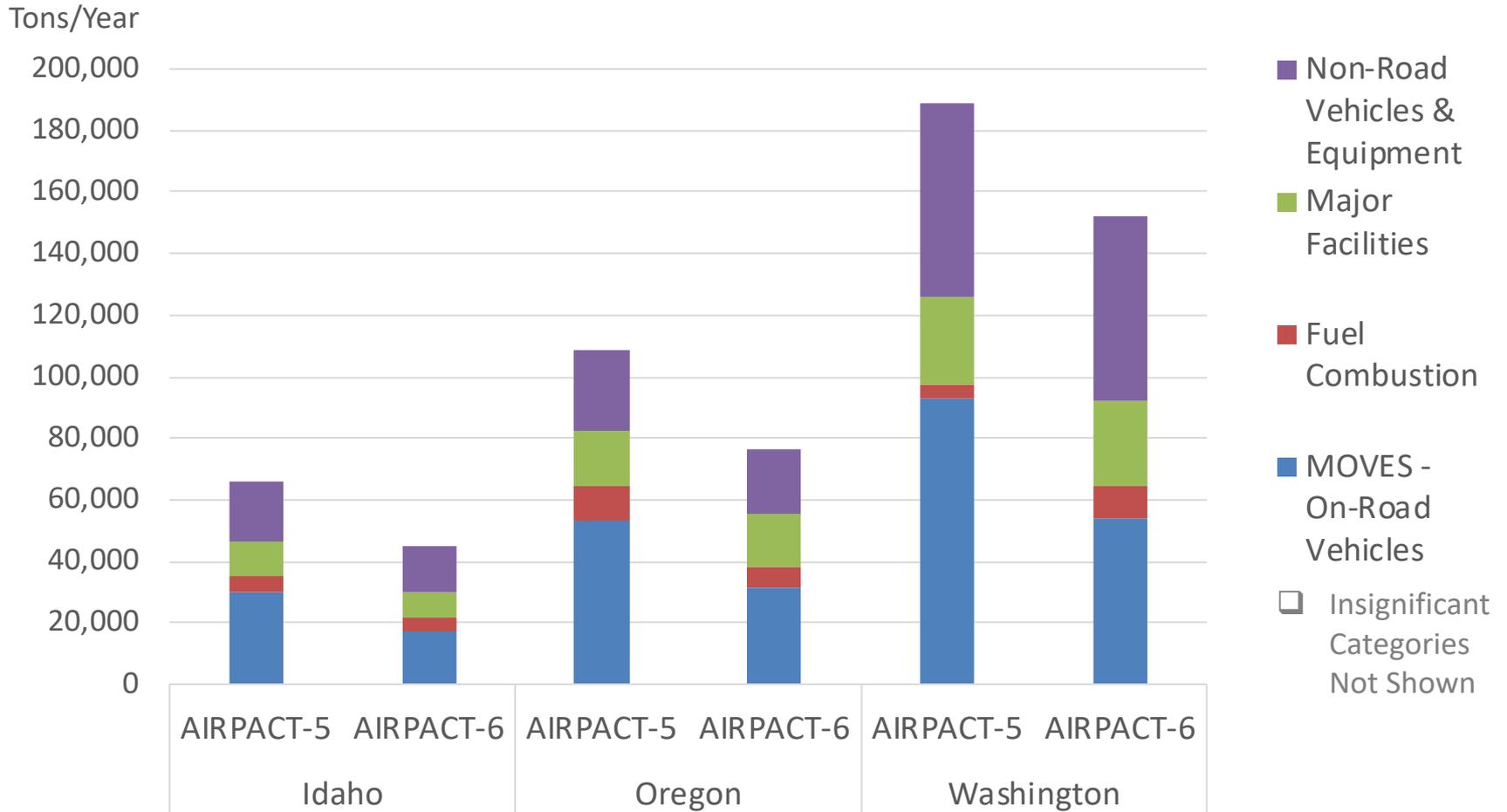
Do we need more test runs?

Should we “game” the RWC surrogate for mountain valley towns?

How should we install the new EI into the AIRPACT forecast?

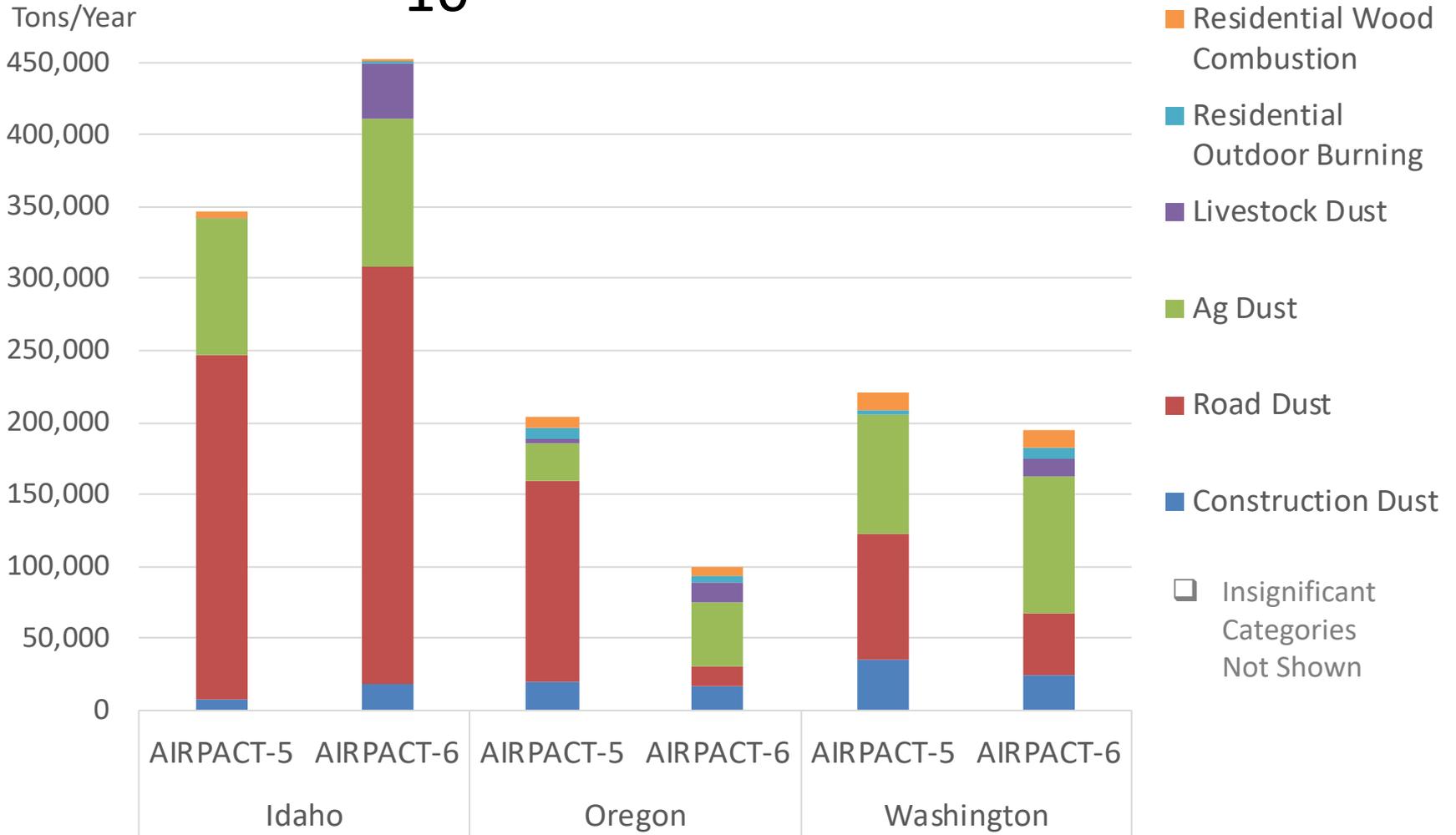
Note: supplemental slides from previous meeting do not include all final updates for AIRPACT-6

NOx Annual Emissions



* AIRPACT-6 "MOVES" emissions are best guess

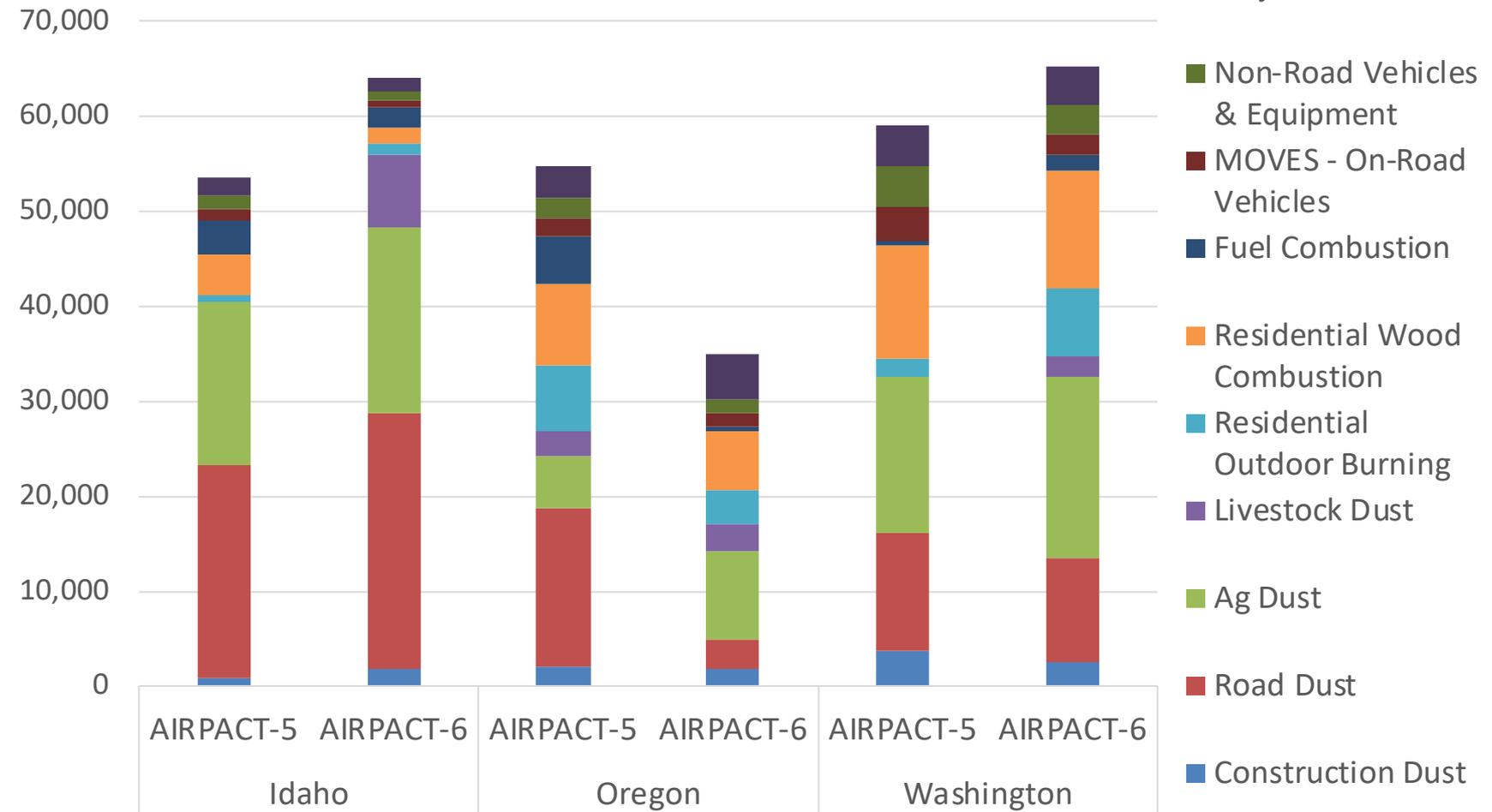
PM₁₀ Annual Emissions



* AIRPACT-5 “Livestock Dust” included for Oregon

PM_{2.5} Annual Emissions

Tons/Year



* AIRPACT-6 "MOVES" emissions are best guess

* AIRPACT-6 "RWC" for Oregon from NEI

□ Insignificant Categories Not Shown