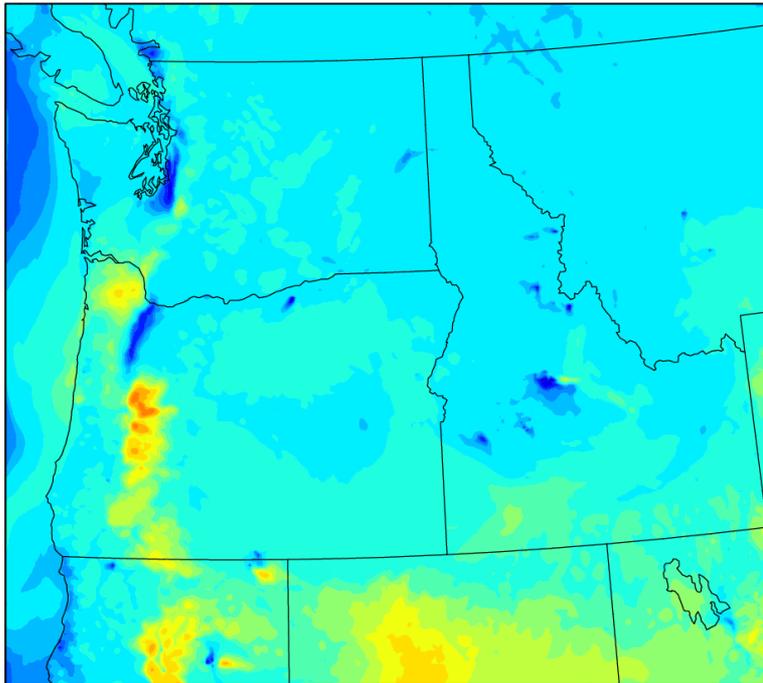# Fires in AIRPACT-4

- As of June 1, 2013, AIRPACT-4 has been setup to include fires within the simulation domain using:
  - SMARTFires v1 for fire location and size
  - BlueSky Framework v3.2.0 with
    - FCCS fuel loading,
    - CONSUME for consumption
    - FEPS For time rate
    - FEPS for emissions
    - FEPS for plume rise
  - SMOKEv2.7 to generate 4-dimensional (x,y,z,t) CMAQ-ready files
- Transport of fire pollutants from outside of the AIRPACT-4 domain is considered via chemical boundary conditions from MOZART-4, which uses FINN (Wiedinmyer et al., 2011)
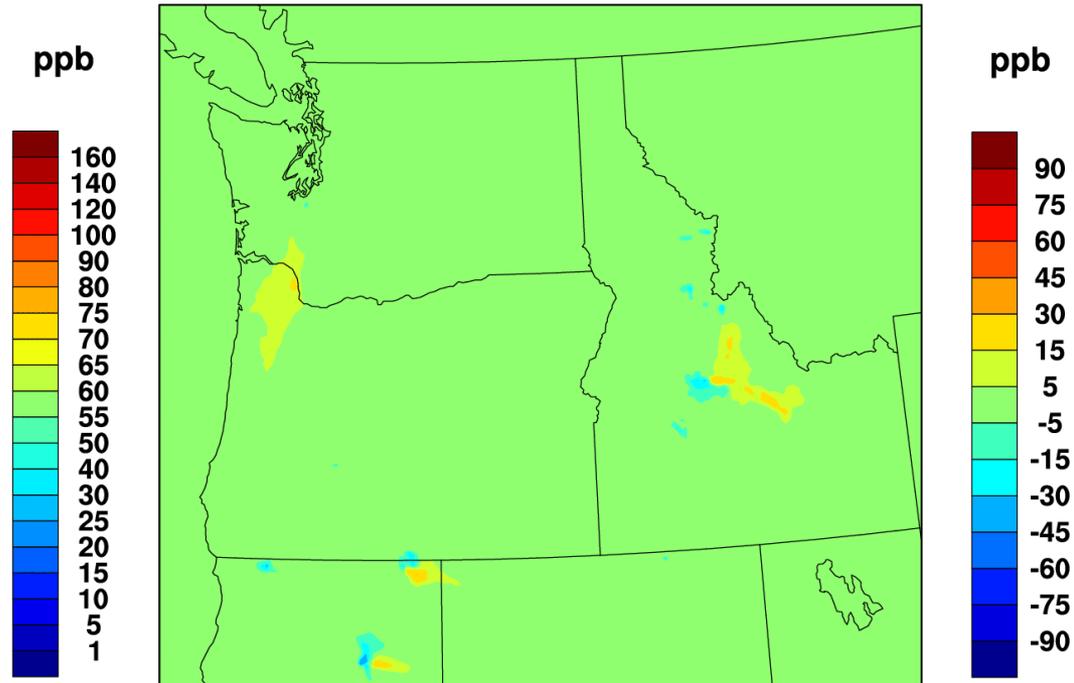
8-Hr O$_3$ Concentrations
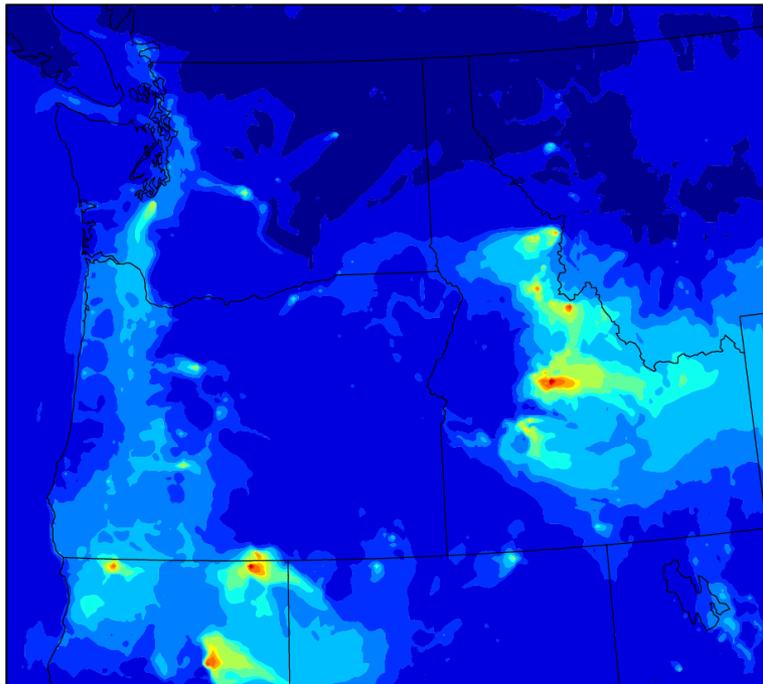# With Fires vs. No Fires

With Fires

20120815 17:00:00 PST

ppb

| 160 |
| 140 |
| 120 |
| 100 |
| 90 |
| 80 |
| 75 |
| 70 |
| 65 |
| 60 |
| 55 |
| 50 |
| 40 |
| 30 |
| 25 |
| 20 |
| 15 |
| 10 |
| 5 |
| 1 |

With Fires minus No Fires

20120815 17:00:00 PST

ppb

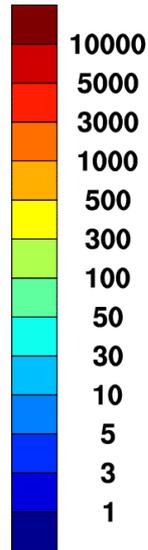| 90 |
| 75 |
| 60 |
| 45 |
| 30 |
| 15 |
| 5 |
| -5 |
| -15 |
| -30 |
| -45 |
| -60 |
| -75 |
| -90 |

24-Hr PM$_{2.5}$ Concentrations
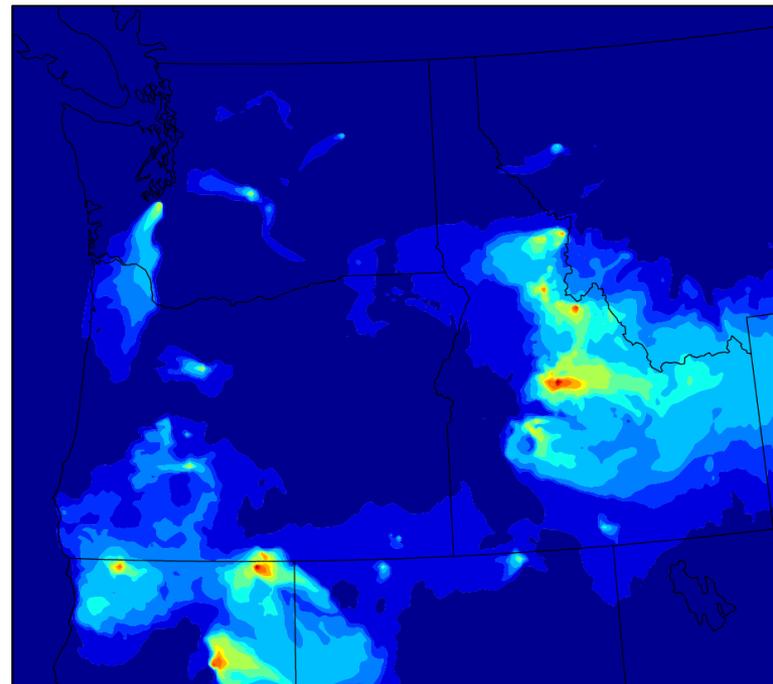## With Fires vs. No Fires

With Fires

20120815 01:00:00 PST

With Fires minus No Fires

20120815 01:00:00 PST

µg/m^3

	10000
	5000
	3000
	1000
	500
	300
	100
	50
	30
	10
	5
	3
	1

µg/m^3

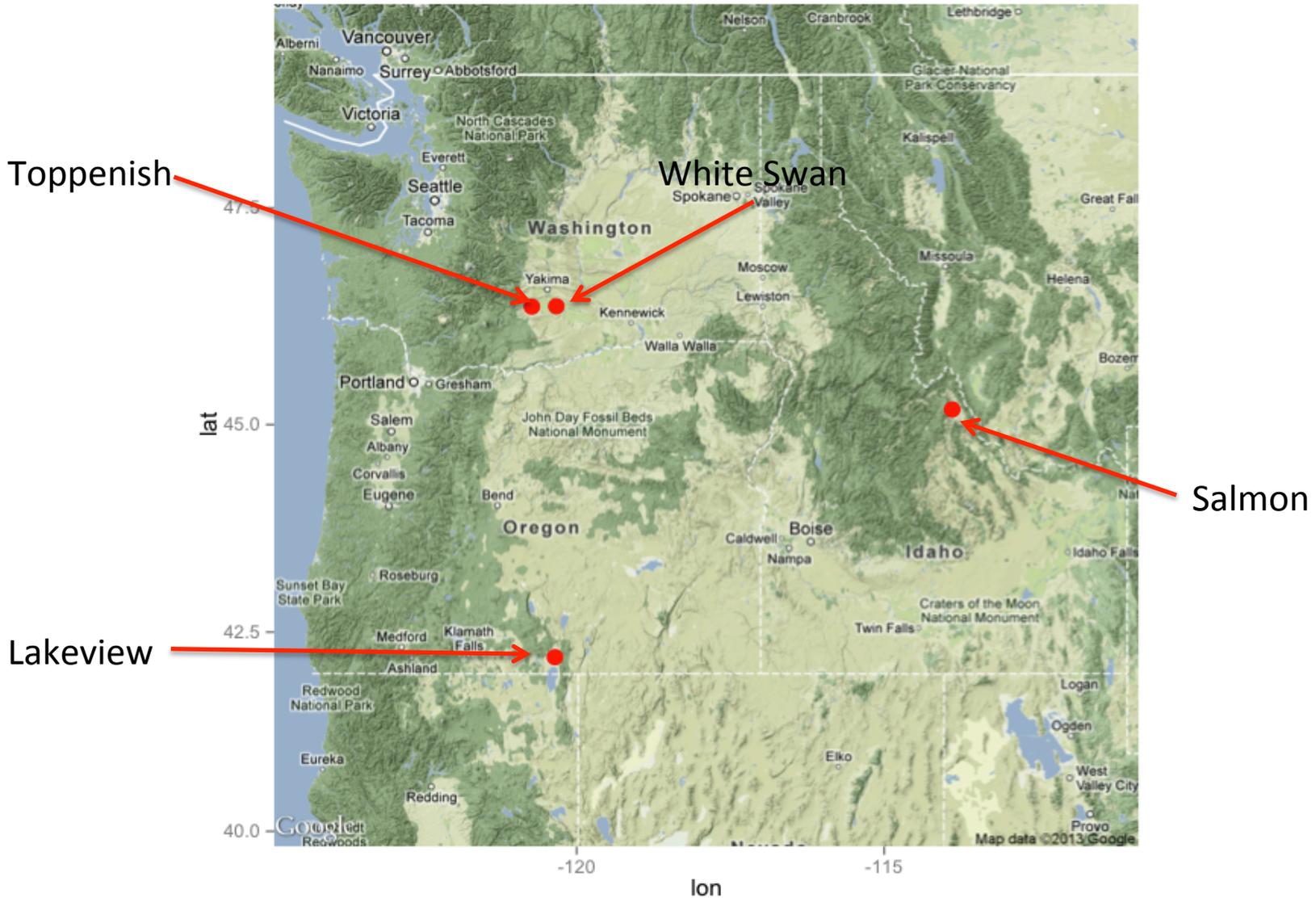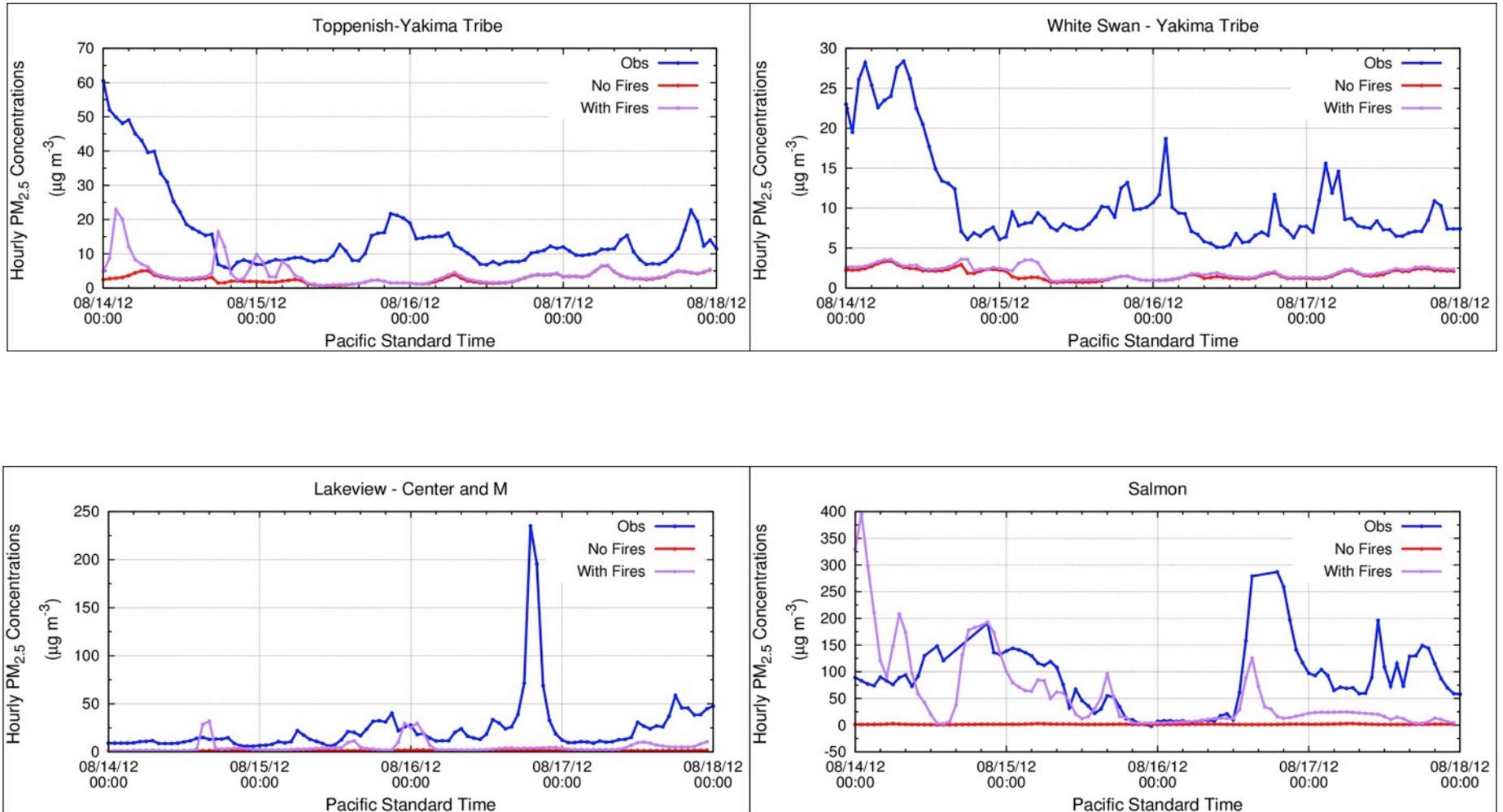|	
	10000
	5000
	3000
	1000
	500
	300
	100
	50
	30
	10
	5
	3
	1
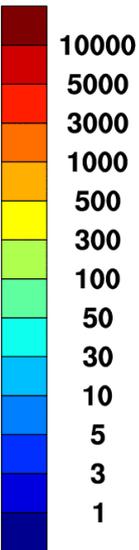
AIRPACT-4 vs. AIRNow Observations

AIRPACT-4 vs. AIRNow Observations
No Fires vs. With Fires

Future Work

- Systematic analysis of $PM_{2.5}$ and O_3:
  - July, 2012: minimal fires
  - August – September, 2012: large fire influences