

Ventilation Workgroup

Robert Elleman
EPA Region 10

NW-AIRQUEST
June 15, 2016

Members

- **Most active**
 - **Rob Elleman**
 - **Jacob Wolf**
- **Less active**
 - **Mary Fauci**
 - **Paul Rossow**
 - **Phil Swartzendruber, Erik Saganic, Sara Conley**
 - **Everyone in the room right now**

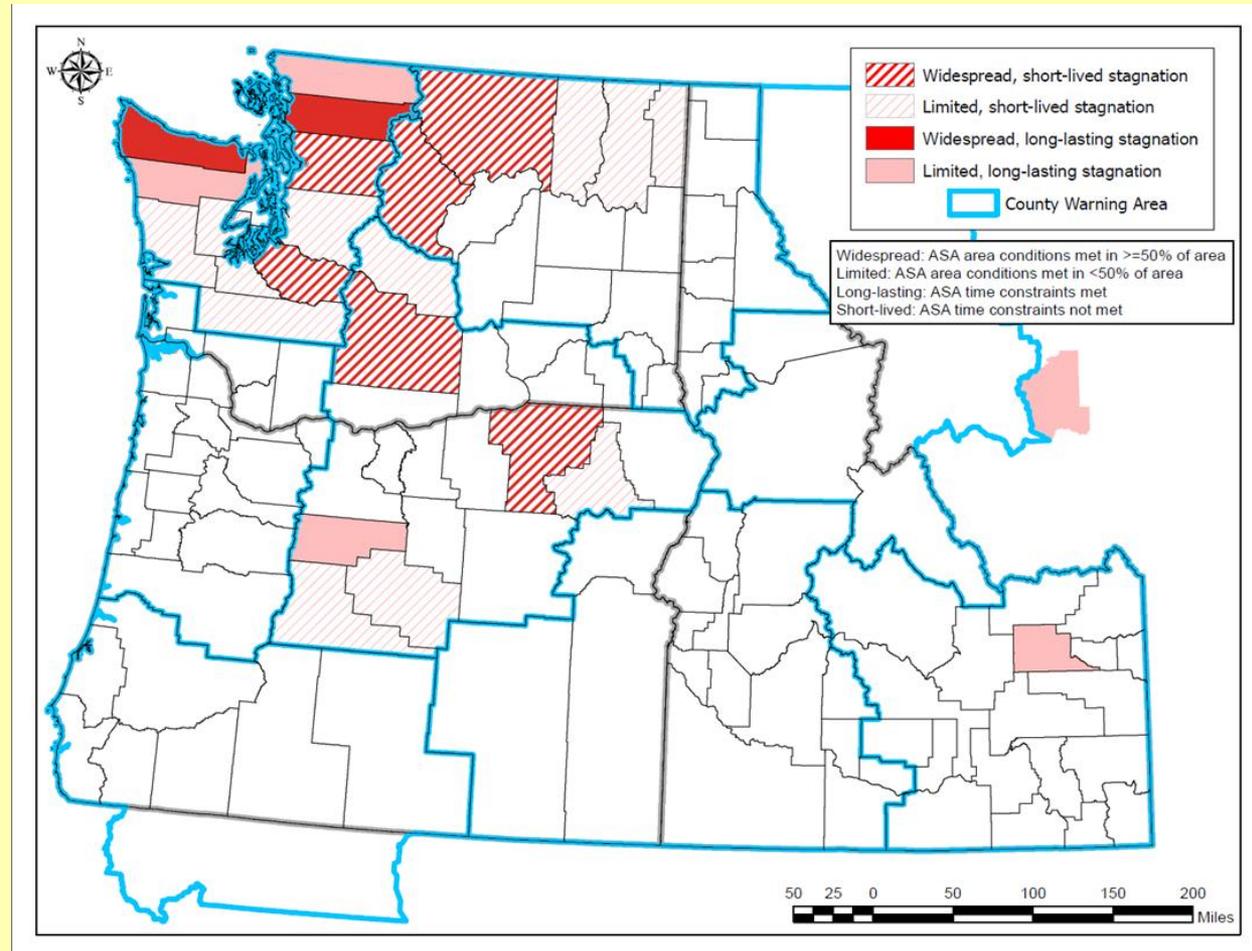
Time-Independent Page



- **It is the default. Have you run into any issues with it?**

Air Stagnation Advisory Graphic

- Still under development....

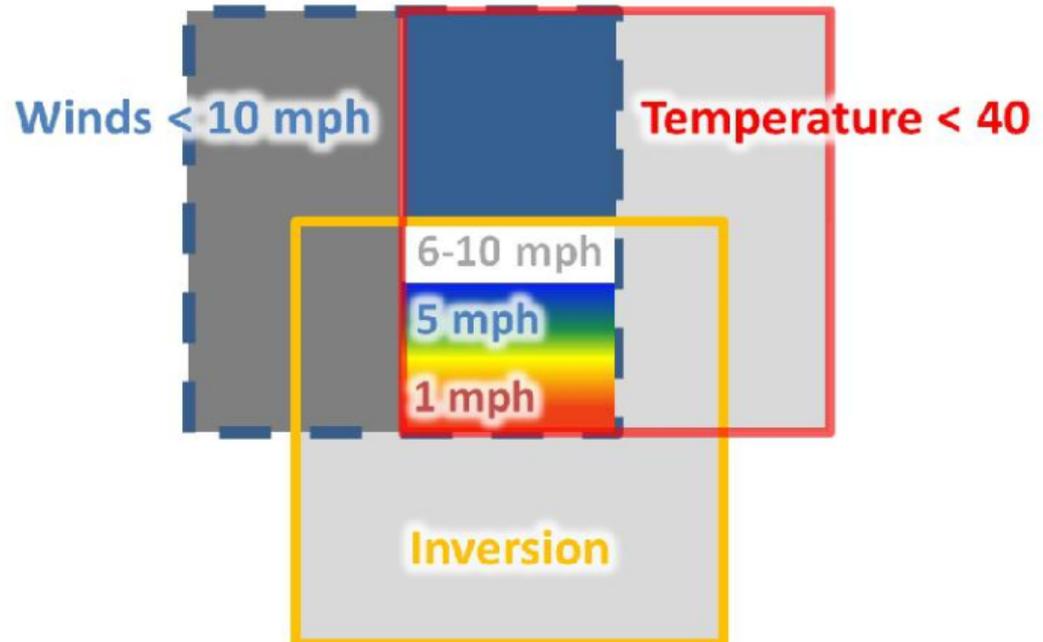


Weak Wind Index

- Hasn't changed this year

The Wood Burning Weak Wind Inversion (aka Weak Wind Index)

The Wood Burning Weak Wind Inversion view is a combination of a critical criterion and a color scheme. It indicates regions where there could be a significant and rapid increase in particulate matter due to residential wood burning. The key parameters being displayed are: (1) the wood burning potential, which becomes significant at temperatures $< 40^{\circ}\text{F}$, (2) weak winds, which can occur when the model forecasts winds less than about 5 mph, and (3) a surface temperature inversion, which requires a Temperature (50m) - Temperature (surface) $> 0.5^{\circ}\text{C}$. Light grey indicates winds in excess of 10 mph, and dark grey indicates temperatures above 40°F even though the winds are less than 10 mph. If neither of those conditions are satisfied, then locations with no surface-based temperature inversion are colored blue. Light grey, dark grey, and blue colors indicate meteorology that is not favorable to wood smoke build-up. If none of those three conditions are satisfied, the locations are colored from light sky blue/cornflower blue (highest winds and better dispersion) to red (lightest winds and least dispersion). Pure blue indicates no inversion is present, while magenta indicates stronger lapse rate (non-inversion).



Deep Stable Layer

- **Has not changed in past year**

Deep Stable Layer

The Deep Stable Layer is a product that displays the percentage of the first 1500 meters of the atmosphere that is under a stable regime. The atmosphere is considered to exhibit a Deep Stable Layer if the percentage of stability in the first 1500 meters (~5000 feet) is greater than or equal to 65%. The scale indicates increasing percentage values of the first 1500 meters from 40% to 100%.

- **Idaho DEQ also has a Low Stable Layer concept. Do we want to implement, and how?**
 - **Pollutants levels will continue to increase overnight if the low stable layer exist at the end of the day**
 - **500m AGL (00Z) was used in Boise**

Experimental Ag Burn Index

- **Now an hourly product.**

Experimental Ag Burn Index

This product forecasts weather conditions related to dispersion of smoke from agricultural burns. It is one piece of information available to smoke management agencies in making burn decisions. The importance of this product in the burn decision depends on the location of interest, other information available at the time, and the particular style of the human forecaster responsible for the burn decision.

It is calculated as an hourly value during the period from 10AM to 6PM:

- **Red:** If either (1) surface wind speeds are predicted to be > 15 mph, (2) wind speeds just below PBL height are predicted to be < 5 mph, OR (3) the maximum mixing height is less than 2000 feet.
- **Yellow:** If not Red and (1) surface wind speeds are predicted to be 10-15 mph, (2) wind speeds just below PBL height are predicted to be 5-10 mph, OR (3) the maximum mixing height is between 2000-3500 feet.
- **Green:** (1) surface wind speeds are predicted to be < 10 mph, (2) wind speeds just below PBL height are predicted to be > 10 mph, AND (3) the maximum mixing height is between > 3500 feet.

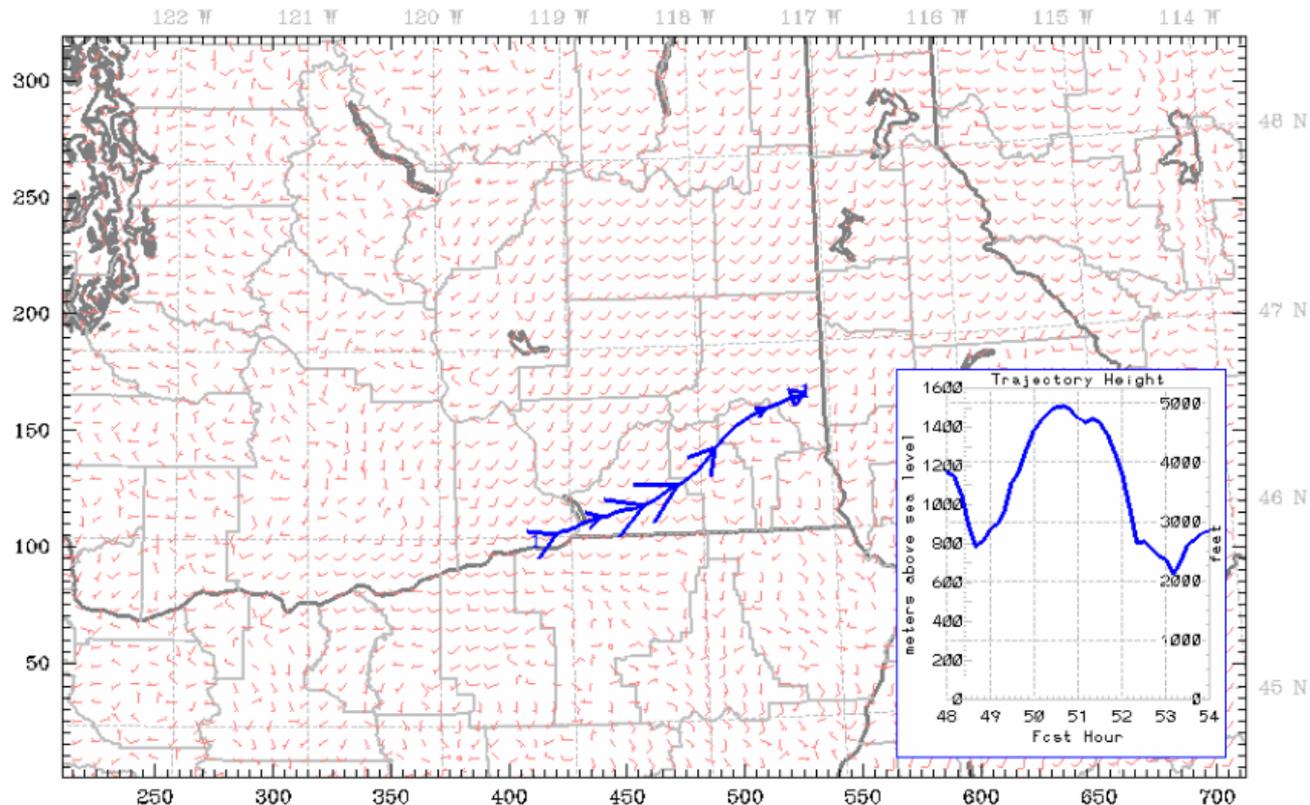
- **Any other changes desired?**

Current Trajectories

4km Other Forward Trajectories	Downtown Seattle from 50 m	1 1/3km Other Forward Trajectories	Downtown Seattle from 50 m
	Tacoma from 50 m		Tacoma from 50 m
	Everett from 50 m		Everett from 50 m
	Anacortes Refineries at 50 m		Nippon Co-Gen Plant at 50 m
	Downtown Portland from 50 m		Anacortes Refineries at 50 m
	Downtown Boise from 50 m		Downtown Portland from 50 m
	Nezperce ID from 50 m		Nezperce ID from 50 m
	Omak WA from 50 m		Omak WA from 50 m
	Pendleton OR from 50 m		Pendleton OR from 50 m
	Warm Springs OR from 50 m		Warm Springs OR from 50 m
Plummer ID from 50 m	Plummer ID from 50 m		
4km Back Trajectories	to North Bend at 50 m	1 1/3km Back Trajectories	to North Bend at 50 m
	to Mud Mtn/Enumclaw at 50 m		to Mud Mtn/Enumclaw at 50 m
	to SeaTac at 20 m		to SeaTac at 20 m
	to Swinomish Reservation at 50 m		to Swinomish Reservation at 50 m
	to Ellensburg at 50 m		to Port Angeles Fire Station at 100 m
	to Wenatchee at 50 m		to Ellensburg at 50 m
	to Yakima at 50 m		to Wenatchee at 50 m
	to Toppenish WA at 50 m		to Yakima at 50 m
	to Walla Walla at 200 m		to Toppenish WA at 50 m
	to Pullman WA at 100 m		to Walla Walla at 200 m
	to Boise ID at 50 m		to Pullman WA at 100 m
	to Pocatello ID at 50 m		to Kamiah ID at 50 m
	to Kamiah ID at 50 m		to Pinehurst ID at 50 m
	to Pinehurst ID at 50 m		to Portland OR at 50 m
	to Salmon ID at 50 m		to Bend OR at 50 m
to Portland OR at 50 m	to Klamath Falls OR at 50 m		
to Bend OR at 50 m			
to Klamath Falls OR at 50 m			

Improvement to Trajectory Graphics

UW WRF-GFS Pullman WA - 1.33km Traj
Fcst: 54 h Valid: 18 UTC Thu 16 Jun 16 (11 PDT Thu 16 Jun 16)
Wind(kts) and Trajectory ending at 100m AGL
Trajectories from hour 48.000 to 54.000



Meteograms, Time Goes Left to Right

PacNW WRF-GFS 4 km Forecast Meteograms

Initialization Time: 2016061412 UTC | 05:00 PDT Tue 14 Jun 2016

Location: Pullman,WA 46.74N,117.1W

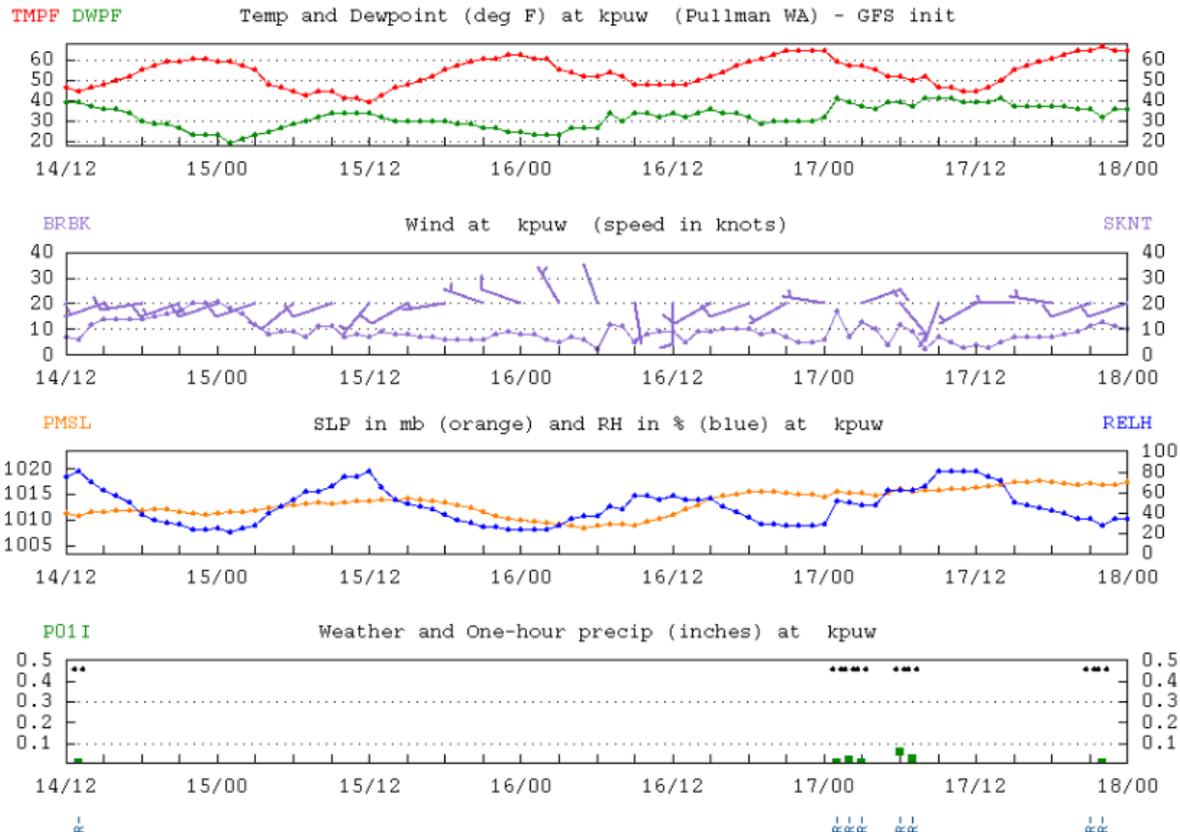
[Select a New Location, Domain, or Product](#)

Domain: 4 km

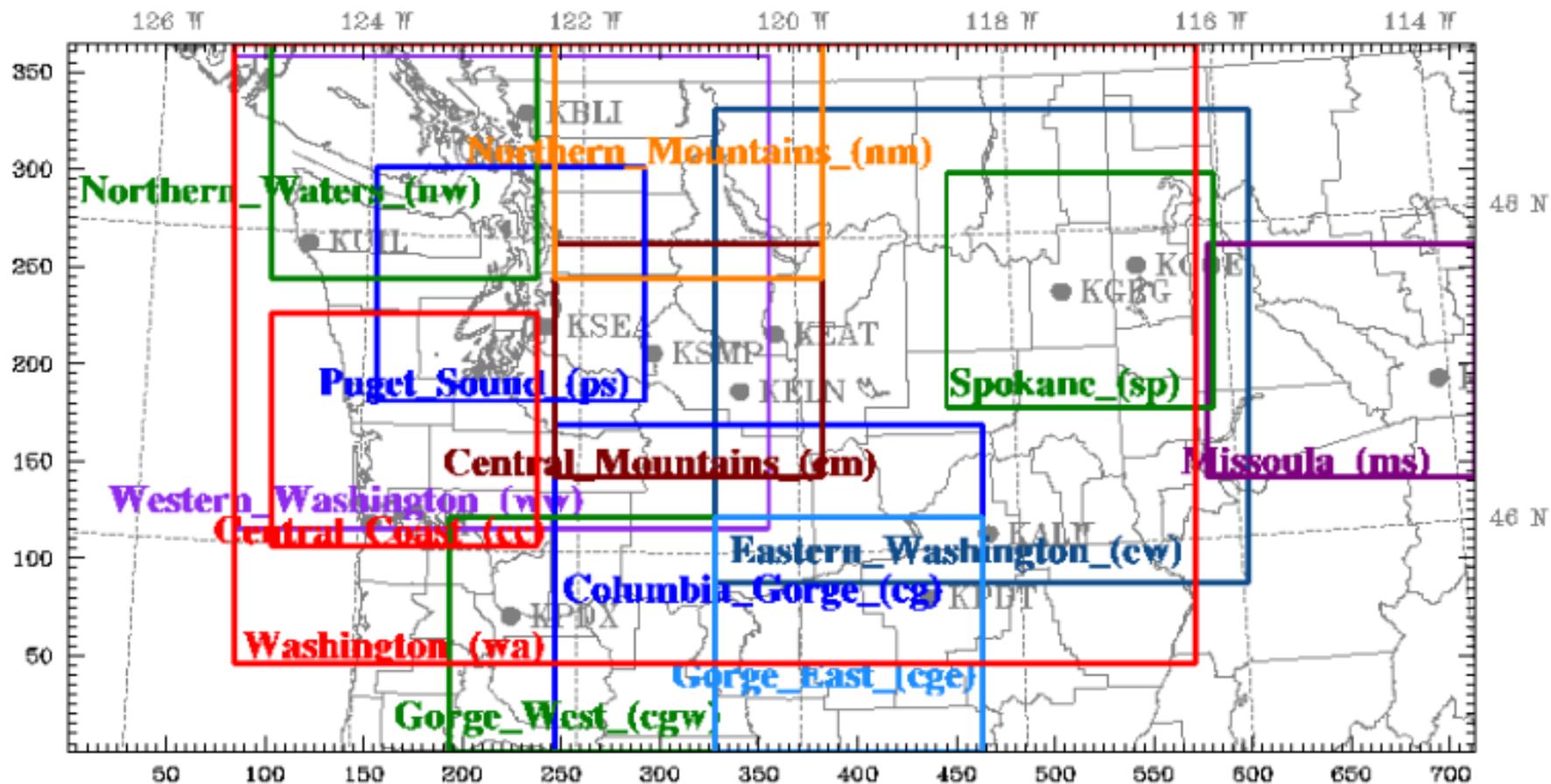
[Loop all 4 km Meteograms](#)

Left: Forecast Hour 0 05:00 PDT Tue 14 Jun 2016 [Run-independent link \(always shows latest available version\)](#)

Right: Forecast Hour 84 17:00 PDT Fri 17 Jun 2016



4/3 km Subdomains



On the Fly Graphics

- http://www.atmos.uw.edu/wrfrt/on_the_fly_plots/

