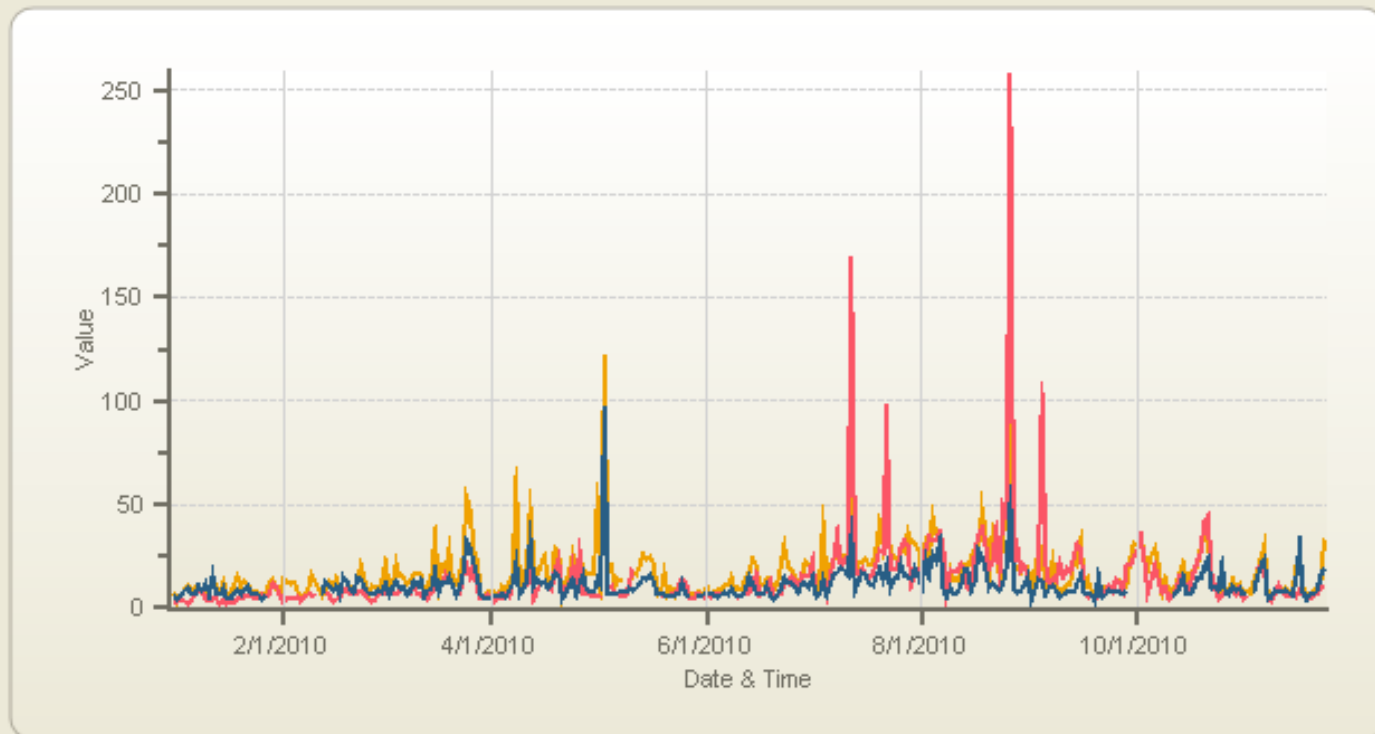


Regional Air Quality Update

Columbia Plateau PM₁₀ Project Annual Meeting
Washington State University, Pullman, WA
December 1, 2010

2010 PM₁₀ Maximum Daily Concentration January 1- November 23

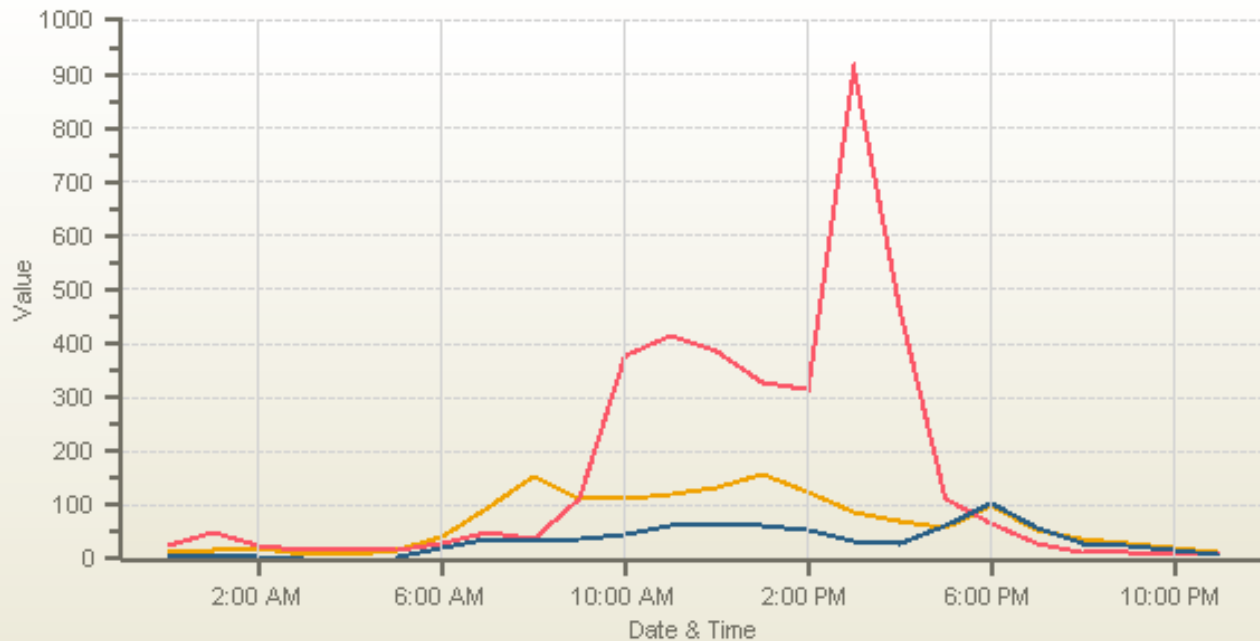
MultiStation: Periodically: 1/1/2010 12:00 AM-11/23/2010 11:00 PM Type: AVG 1 Day



— Burbank-Maple St(TPM10[$\mu\text{g}/\text{m}^3$] (s))) — Cheney-Turnbull(TPM10[$\mu\text{g}/\text{m}^3$] (s)))
— Kennewick-Metaline(TPM10[$\mu\text{g}/\text{m}^3$] (s)))

Wind Event July 12, 2010 PM₁₀ Data

MultiStation: Daily: 7/12/2010 Type: AVG 1 Hr.



— Burbank-Maple St(TPM10[$\mu\text{g}/\text{m}^3$ (s)]) — Cheney-Turnbull(TPM10[$\mu\text{g}/\text{m}^3$ (s)])
— Kennewick-Metaline(TPM10[$\mu\text{g}/\text{m}^3$ (s)])

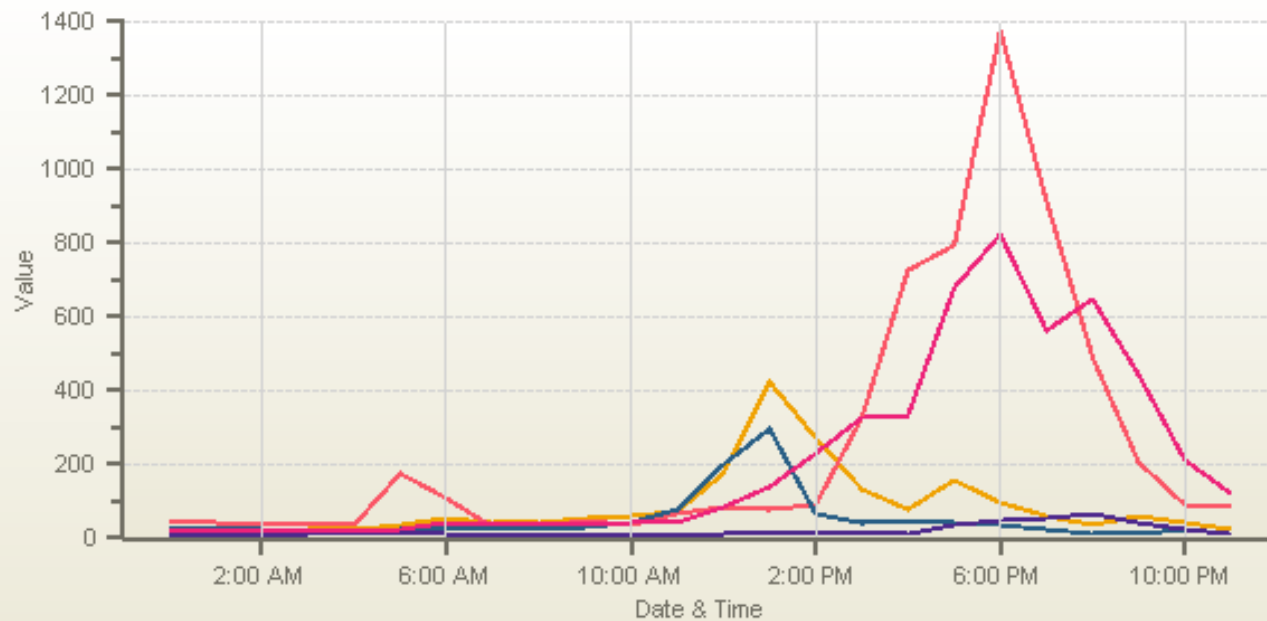
Wind Event July 12, 2010

- Satellite View of Smoke and Dust



Wind Event August 26, 2010 PM Data

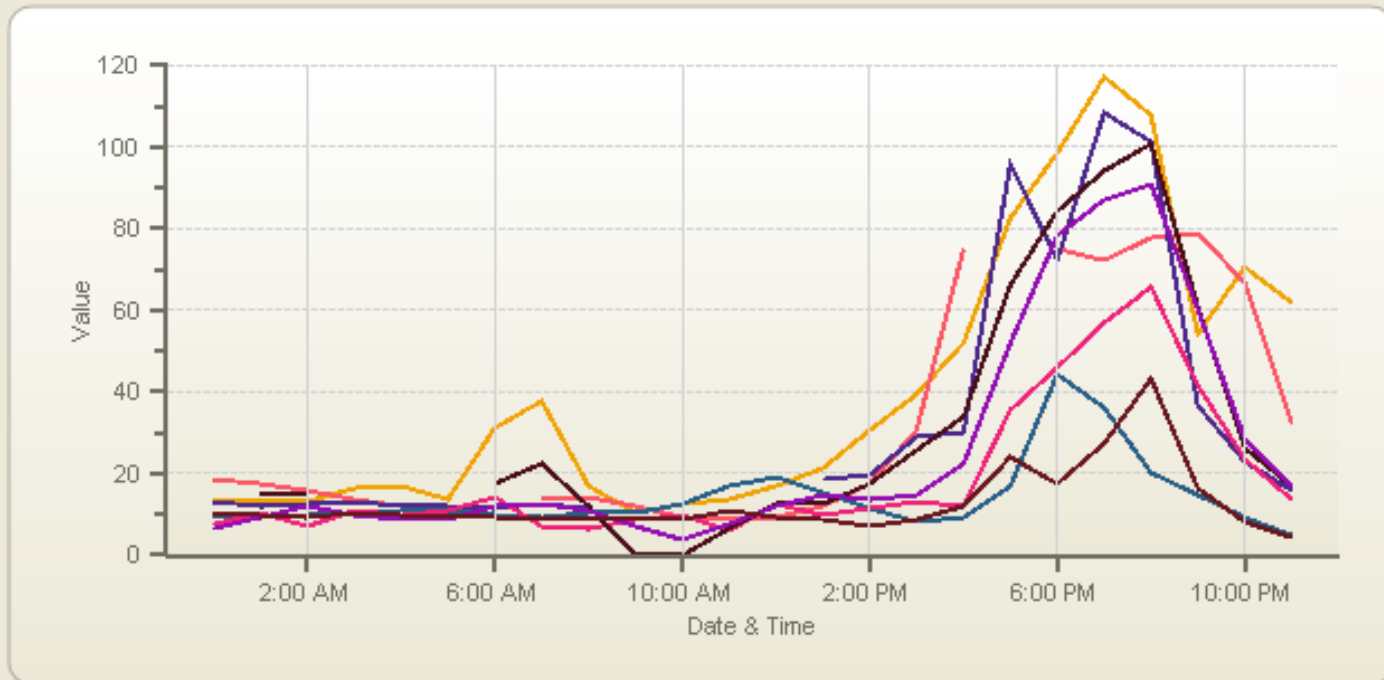
MultiStation: Daily: 8/26/2010 Type: AVG 1 Hr.



— Burbank-Maple St(TPM10[$\mu\text{g}/\text{m}^3$ (s)]) — Cheney-Turnbull(TPM10[$\mu\text{g}/\text{m}^3$ (s)])
— Kennewick-Metaline(TPM10[$\mu\text{g}/\text{m}^3$ (s)]) — Spokane-Augusta Ave(1405-PM2.5[$\mu\text{g}/\text{m}^3$])
— Spokane-Augusta Ave(1405-PM10[$\mu\text{g}/\text{m}^3$])

Wind Event August 26 PM_{2.5} Data

MultiStation: Daily: 8/26/2010 Type: AVG 1 Hr.



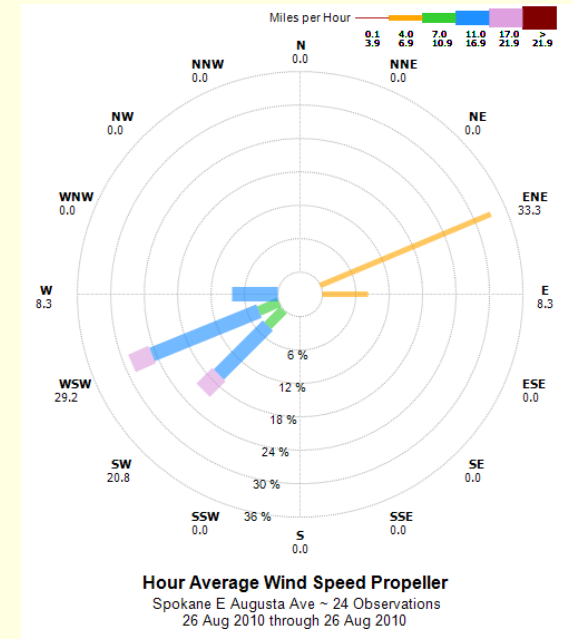
- Airway Heights-W 12th Ave(TPM25[ug/m³])
- Liberty Lake-E Valleyway(NPM25[ug/m³])
- Spokane-Augusta Ave(1405-PM2.5[ug/m³])
- Spokane-E Broadway Ave(TPM25[ug/m³])
- Deer Park-A St(TPM25[ug/m³])
- Spokane-Augusta Ave(TPM25[ug/m³])
- Spokane-College Street(TPM25[ug/m³])
- Spokane-Monroe St(NPM25[ug/m³])

August 26, 2010 Wind Event

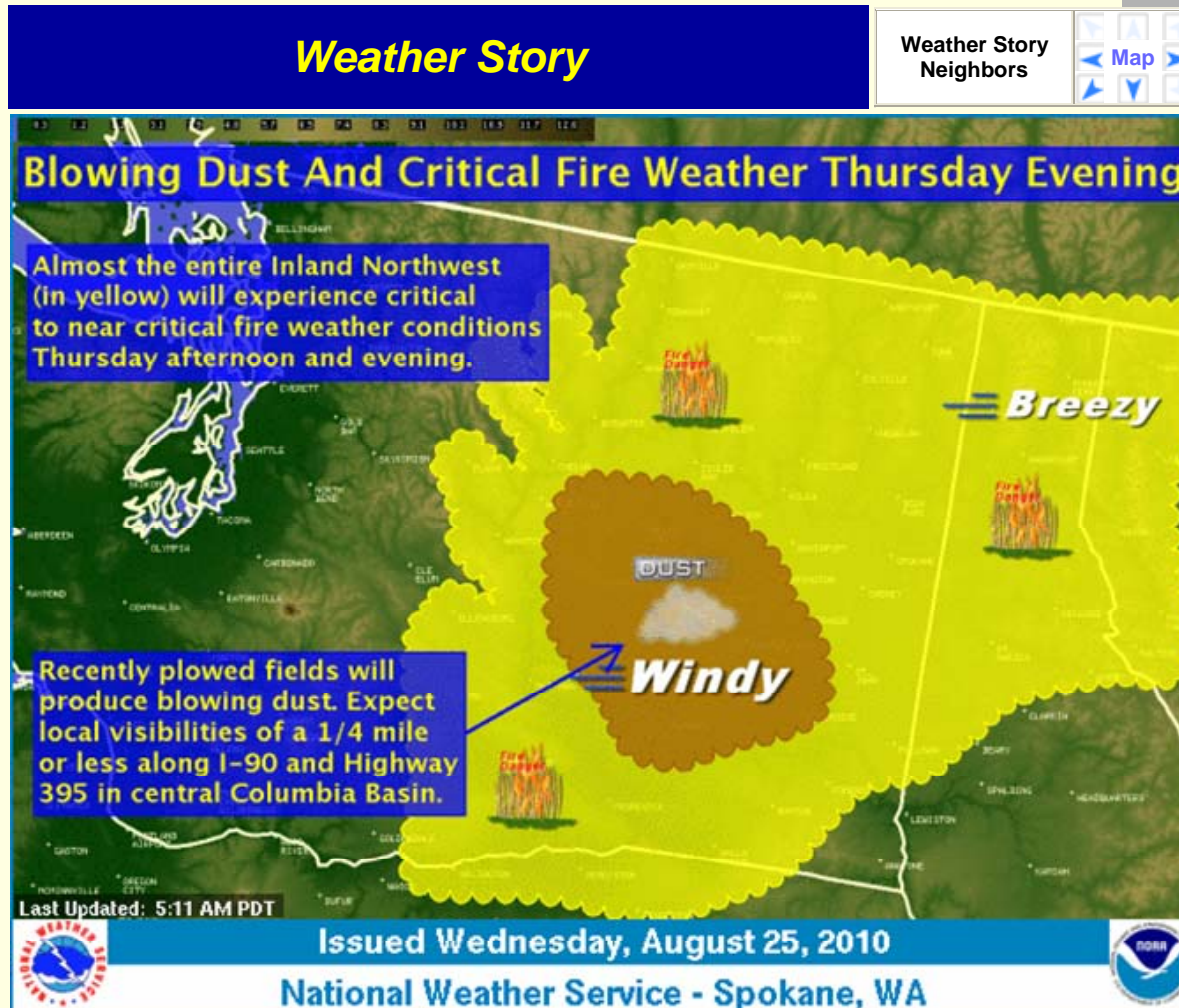
- 2-3 hour delay between front reaching Kennewick then Spokane
- Dust from sources between Spokane and Kennewick
- Smoke impacts from wild land fires

Station: Spokane-Augusta Ave Daily: 8/26/2010 Type: AVG 1 Hr.

Date & Time	Wind Spd S MPH	Wind Dir S Deg	Temp Amb DegF	1405-PM2.5 ug/m^3	1405-PM Coarse ug/m^3	1405-PM10 ug/m^3	1405-Amb Press mmHg	WIND GUST MPH
8/26/2010 12:00 AM	6.1	66	66	7.4	13.5	21	708.9	10.6
8/26/2010 1:00 AM	5.4	61	63.8	10.5	10.9	21.4	708.4	8.41
8/26/2010 2:00 AM	5.8	82	62.4	7	9.9	16.9	708.6	10.15
8/26/2010 3:00 AM	5.2	74	60.6	11	10	21.1	708	10.46
8/26/2010 4:00 AM	5.2	72	59.9	10	8.7	18.7	708.5	9.7
8/26/2010 5:00 AM	6.2	74	58.9	11	13.1	24.2	707.7	10.91
8/26/2010 6:00 AM	4.1	69	59.8	14.4	26.1	40.6	708.3	9.03
8/26/2010 7:00 AM	5.3	78	64.1	7.3	26.7	34	707.6	11.63
8/26/2010 8:00 AM	5.8	71	69.1	6.7	32.2	38.9	707.7	8.85
8/26/2010 9:00 AM	4.5	73	77.5	8.7	27.8	36.6	706.8	9.75
8/26/2010 10:00 AM	8	239	84.4	9.6	31.4	41	707.1	20.44
8/26/2010 11:00 AM	11.8	230	85.4	6.2	36.8	43.1	706.2	22.81
8/26/2010 12:00 PM	14.1	235	86.6	12.6	69.5	82.2	706.5	28.14
8/26/2010 1:00 PM	14.6	245	85.8	9.7	127	136.7	705.8	31.4
8/26/2010 2:00 PM	17.8	235	84.5	11.6	215.9	227.6	706.3	33.42
8/26/2010 3:00 PM	18.3	250	83.5	13	316.7	329.8	705.6	33.59
8/26/2010 4:00 PM	16.5	250	81	11.8	321.5	333.3	706.2	35.16
8/26/2010 5:00 PM	15	271	76.3	35.5	643.2	678.6	706.3	30.42
8/26/2010 6:00 PM	12.8	259	71.9	45.8	776.2	822.1	707.8	25.94
8/26/2010 7:00 PM	14.2	251	67.7	57	503.6	560.7	708.4	30.46
8/26/2010 8:00 PM	12.1	239	62.9	65.6	584.9	650.6	709.9	26.79
8/26/2010 9:00 PM	13	231	60.6	41.6	401.7	443.3	710.2	24.42
8/26/2010 10:00 PM	11.2	240	59	23.5	190	213.5	711.2	25.77
8/26/2010 11:00 PM	9.5	222	57.5	13.5	110.1	123.7	711.7	18.29
Minimum	4.1 (69 Deg)	No Data	57.5	6.2	8.7	16.9	705.6	8.41
MinDate	6:00 AM	1:00 AM	11:00 PM	11:00 AM	4:00 AM	2:00 AM	3:00 PM	1:00 AM
Maximum	18.3 (250 Deg)	No Data	86.6	65.6	776.2	822.1	711.7	35.16
MaxDate	3:00 PM	1:00 AM	12:00 PM	8:00 PM	6:00 PM	6:00 PM	11:00 PM	4:00 PM
Avg	10.1	219	70.3	18.7	187.8	206.6	707.9	20.27
Num	24	24	24	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100
STD	4.5	No Data	10.3	16.6	228.4	242.8	1.6	9.5



Weather Forecast for August 26



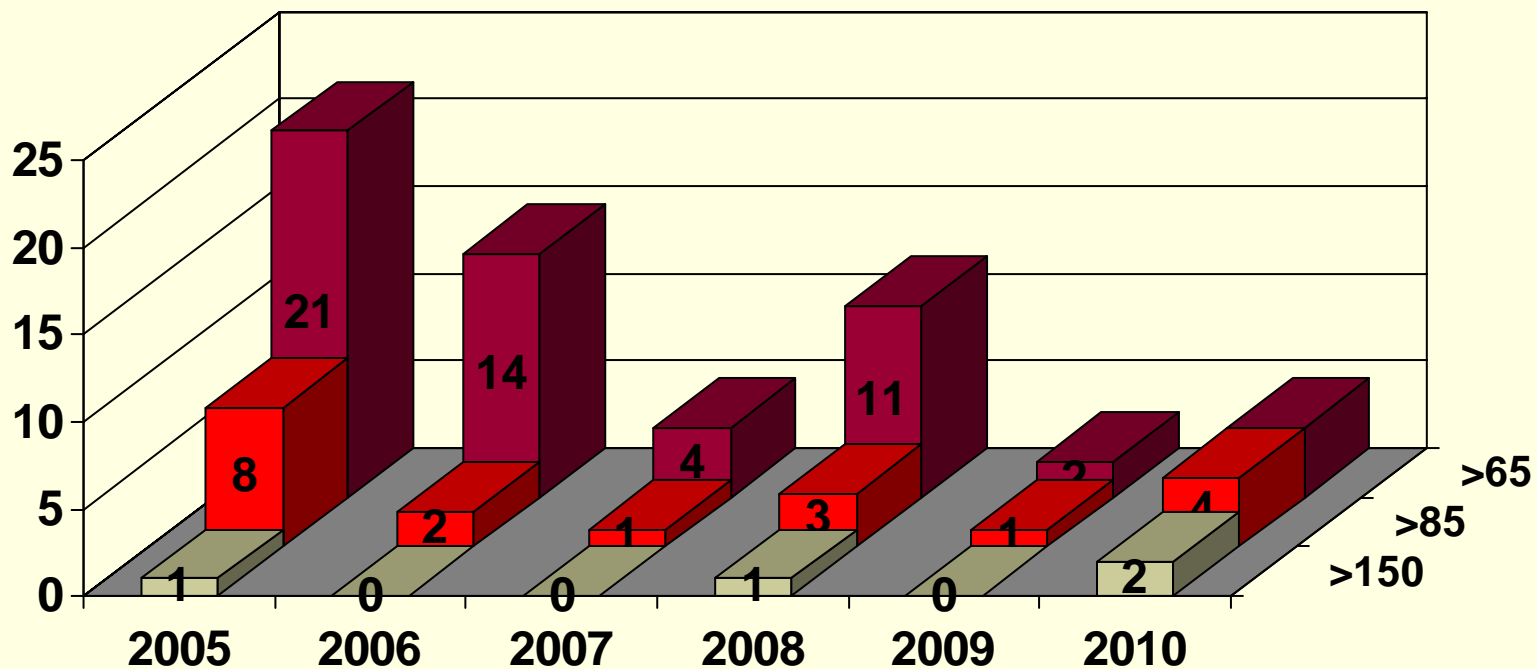
Winds late Thursday afternoon and evening will produce critical to near critical fire weather conditions across almost the entire Inland Northwest. In addition, recently plowed fields will experience considerable blowing dust. Expect visibilities to be locally reduced to a quarter mile or less, particularly along I90 and highway 395 near Moses Lake, Ritzville and Lind.

Changes Coming in the NAAQS

(National Ambient Air Quality Standard)

- PM NAAQS Proposal in February 2011
- PM Proposal Final October 2011
- Speculation base on available documentation
 - Not enough data to support PM_{10-2.5} Standard
 - Studies still show a PM₁₀ Risk
 - Standard will continue to be PM₁₀
 - PM₁₀ will be proposed to be in the 65 to 85 µg/m³ range using the form of the 98th percentile
 - Spokane three year averages:
 - (2007-2009, $56_{(2007)} + 71_{(2008)} + 53_{(2009)}/3 = 60 \mu\text{g}/\text{m}^3$)
 - (2008-2010, $71_{(2008)} + 53_{(2009)} + 44_{(2010)}/3 = 56 \mu\text{g}/\text{m}^3$)

Times Standard Exceeded Based on Possible New NAAQS for Past 6 Years



PM₁₀ Risk

- Studies continue to show an association between short-term exposure to PM and mortality
- Studies do not examine mortality effects attributed to
 - PM size fractions that compose PM₁₀
 - The regional and seasonal differences
- Mortality for all ages ranged from 0.12% (Dominici et al., 2007) to 0.84% (Samoli et al., 2008) per 10 µg/m³ increase in PM₁₀
- A large degree of variability exists between cities when examining city-specific risk estimates.
- Variability in PM₁₀ mortality risk estimates may be due to the difference in the cities analyzed and the potential regional differences in PM composition
- PM₁₀ risk estimates are not confounded by gaseous copollutants

Documentation

- Integrated Science Assessment for PM, December 2009
- Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards, Second External Review Draft, June 2010
- http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_index.html

What does it mean for Air Quality and to the Columbia Plateau PM₁₀ Project?

If the PM₁₀ NAAQS is set between 65 and 85 µg/m³

- More wind event will exceed the standard
- Standard will be exceeded at lower wind speeds or by shorter durations wind events
- More exceptional event requests
 - Simplify the request process
 - Modify the wind event definitions in the "Columbia Plateau Windblown Dust Natural Event Action Plan"
- Continue emphases on **Best Management Practices** to reduce wind blown dust
 - Research & Development
 - Out reach & Education
- Need to put or keep highly wind erodible and marginally productive farmland in CRP