

Air Quality Trends in and Around the Columbia Gorge Scenic Area

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Air Sciences Inc.
Sponsored by Klickitat County

Klickitat County with Air Sciences have been active participants in the Gorge AQ study since the initial stages of the project.



Introduction

- No recent analysis of the long term AQ trends in the region.
- Therefore, Klickitat County sponsored a study to look at the long term AQ trends in and around the Columbia Gorge Scenic Area to add to the current knowledge base of the project.



What we did

- Compiled existing long-term AQ data from local agencies and plotted trends
- All data publicly available
 - Oregon DEQ 2004 and 2005 Annual Reports
 - For Washington, used EPA's Aerometric Information Retrieval System (AIRS) database.
 - For IMPROVE sites, used Interagency Monitoring of Protected Visual Environments (IMPROVE) database and the Visibility Information Exchange Web System (VIEWS).



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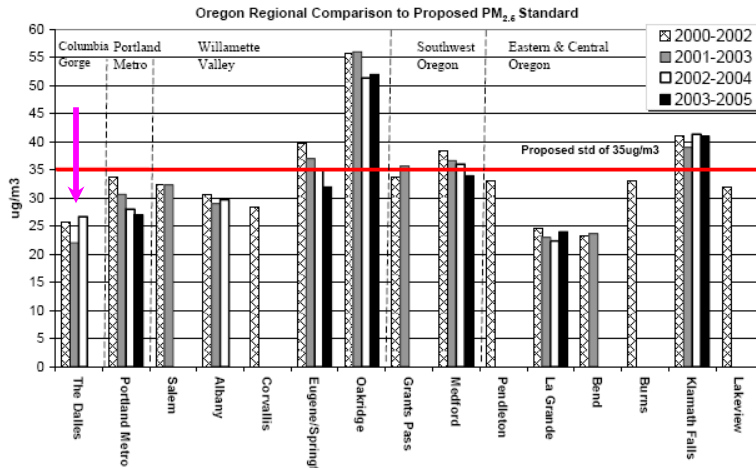
Parameters Considered

- For urban area sites:
 - Looked at NO₂, PM₁₀, PM_{2.5}, ozone, and light scattering
- For Regional Haze (IMPROVE) sites
 - Looked at best, middle, and worst 20% day extinction (haziness)



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PM_{2.5} Across Oregon

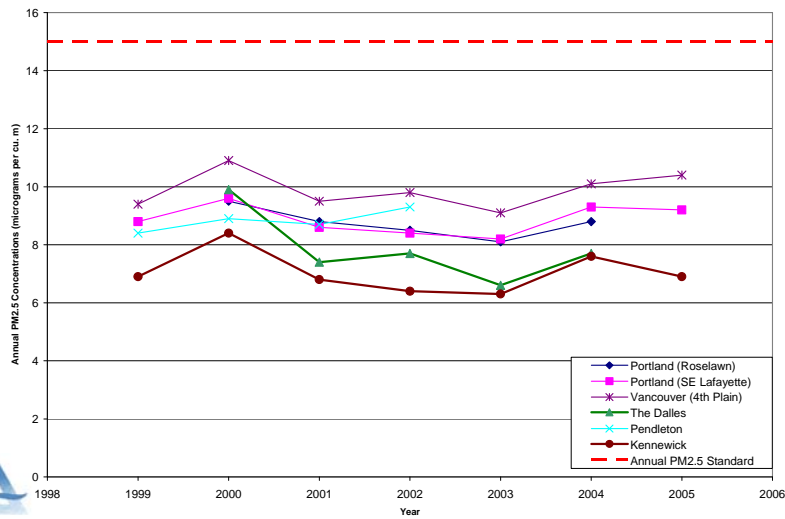


1. Based on maximum 3 yr aver. of 98th Percentile using filter data
 2. Many cities do not have 3yr averages after 2002 because of resource reallocation and funding cuts

From: 2005 DEQ Annual Report

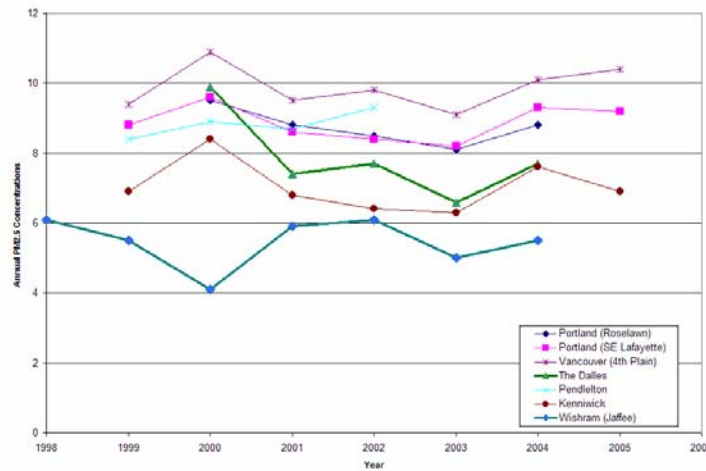
AIR

Annual PM_{2.5}



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Annual PM_{2.5}




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Regional Haze (IMPROVE) Network

- Monitoring to support Regional Haze Rule (RHR) with numerous new sites installed in 2000 and 2001.
- Most sites are in Class-I areas (National Parks and Wilderness areas), however there are a few sites in non Class-I areas (e.g., Puget Sound, Columbia River Gorge, Spokane Indian Reservation).


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NW IMPROVE Sites Considered

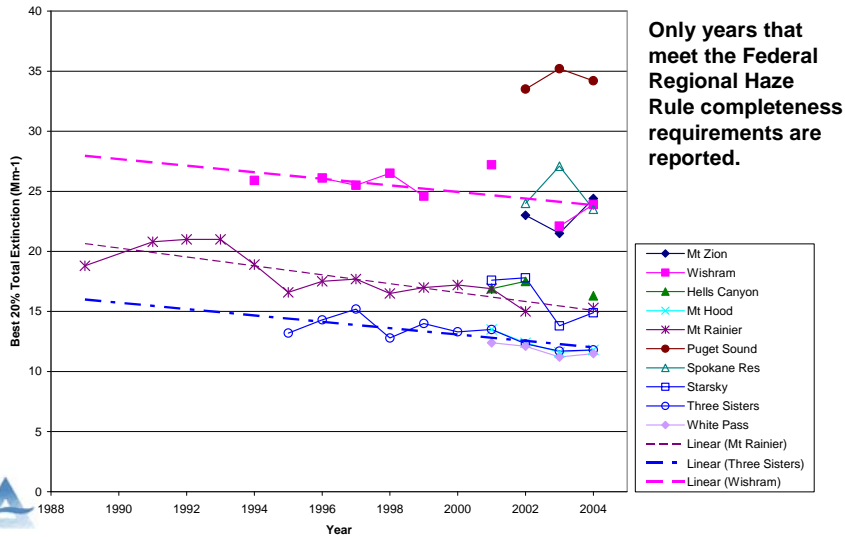
Station	Type	Data Period
Puget Sound (WA, urban site)	Urban	1996 to present
Wishram (WA) east side of CRG	Non-Class-I	1993 to present
Mt. Zion (WA) west side of CRG	Non-Class-I	1996-1998, 2001 to present
Spokane Indian Reservation (WA)	Non-Class-I	2001 to present
Hells Canyon (OR)	Remote Class-I	2000 to present
Mt. Hood (OR)	Elevated Class -I	2000 to present
Mt. Rainier (WA)	Elevated Class -I	1988 to present
Starsky (OR, Eagle Cap)	Elevated Class -I	2000 to present
Three Sisters (OR)	Elevated Class-I	1993 to present
White Pass (WA, Mt. Adams, Goat Rocks)	Elevated Class-I	1993 to present

Yellow- new station since 2000

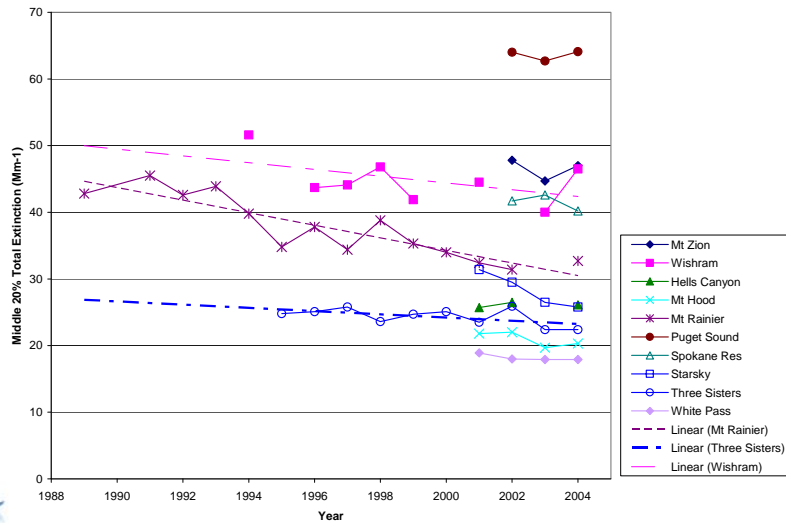
Green- long term data record



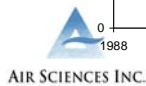
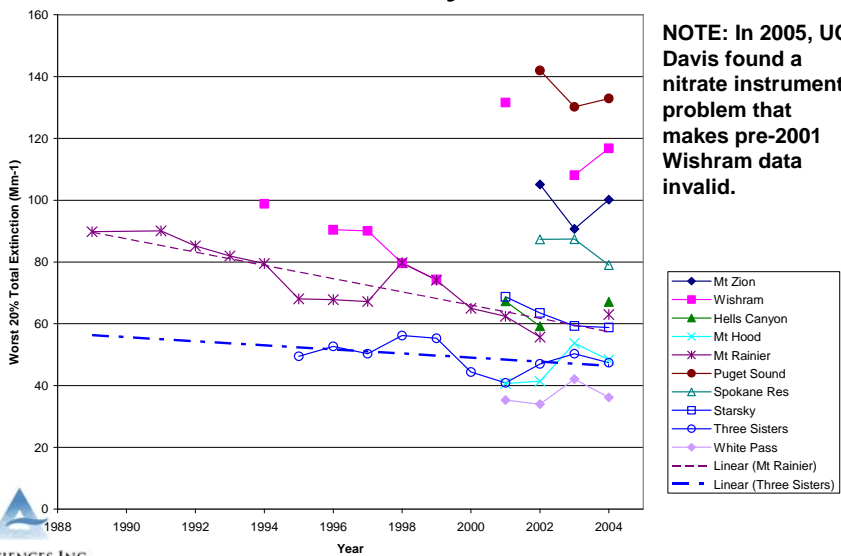
Best 20% Day Extinction



Middle 20% Day Extinction



Worst 20% Day Extinction



Context to Gorge Study

- Places Gorge sites in context to rest of region.
 - Between urban and Class-I areas
 - Low elevation versus high elevation
- Provides long-term trend information for Gorge and other regional stations.



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Conclusions

- All long term (> 7 years) stations show a downward (improving) trend in AQ.
- Shorter term stations (3 to 7 years) are either flat or show a downward trend.
- No station shows an long term upward trend
NOTE: Since 1990, PDX/Vancouver Metro area has seen ~40% increase in population and vehicle miles traveled (VMT).
- Wishram and Mt. Zion extinctions are between urban sites and high elevation Class-I area sites.



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Questions?

