



REGIONAL AIRSHED DEVELOPMENT IN WESTERN CANADA

Current and Future Objectives

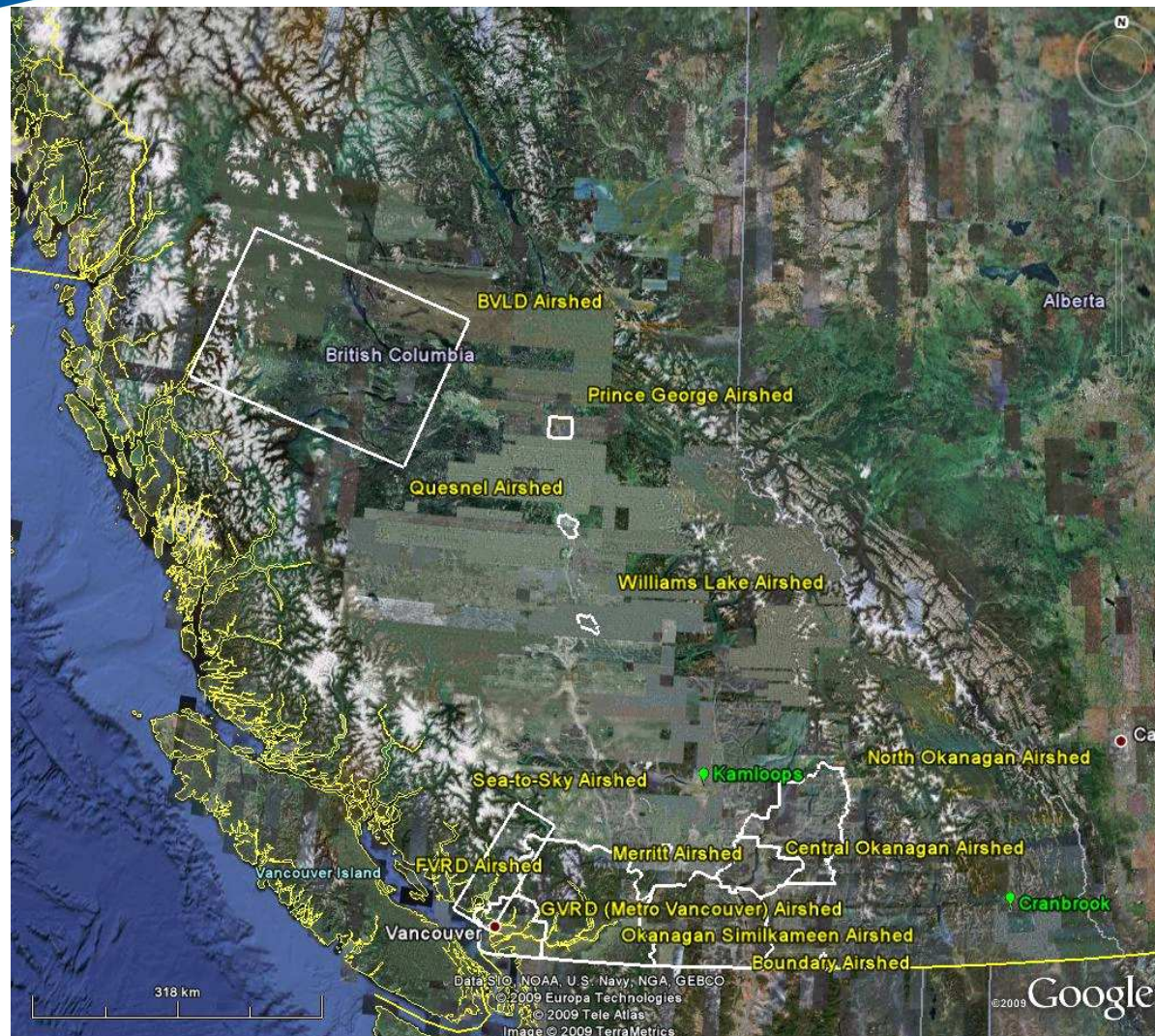
What is an Airshed?

- An area, bounded by topographical features, within which airborne contaminants can be retained for an extended period.
- An airshed is a part of the atmosphere that behaves in a coherent way with respect to the dispersion of emissions. It typically forms an analytical or management unit.
- Is a defined, geographical region within which air quality can be monitored and managed.

Local Solutions to Air Quality Issues

- Air quality management planning takes a systematic approach to improving or maintaining air quality.
- A relatively recent approach is that of developing local solutions to local air quality problems.
- This approach takes place within a defined region or volume of air sometimes bounded by topography, sometimes by political, or survey boundaries.
- These volumes of air or are referred to as airsheds and in may be thought of as management units.

Airsheds in British Columbia



Characteristics of B.C. Airsheds

- Most fall within classic definition of airsheds - i.e. they have well defined topographic boundaries.
- Tendency for air to become trapped in valleys under poor meteorological conditions.
- During such conditions, concentrations of pollutants in the airshed may rise to unacceptable levels, potentially impacting human health and the environment.

All Shapes and Sizes

- There are 13 established airsheds in B.C. - (other regions taking first steps)
- Metro-Van (Lower Fraser Valley) airshed contains a pop of close to 2.3 million and has an area of approximately 14,000 km²
 - 27 monitoring stations
- Bulkley Valley Lakes District is the largest in B.C. with an area 35,000 km² but has a population of only 30,000.
 - 4 continuous stations monitor fine particulate matter

Principal Air Quality Issues in B.C.

- Excluding large urban areas, issues are associated chiefly with fine particulates ($PM_{2.5}$).
- Main sources are combustion products:
 - Industrial sources related to lumber industry
 - beehive burners
 - Forestry - burning slash
 - Agricultural burning
 - Home heating (wood stoves)
 - Road dust

Management Strategies and Resources

- Founded on local committees chaired by local Govt. representative and staffed by multi-stakeholder groups.
- Public involvement through outreach programs
- Technical support, funding and guiding principles provided by Provincial Government (Ministry of Environment and Ministry of Healthy Living and Sport).
 - Online guidance and web based tools to assist in airshed development.

Characteristics of Alberta Airsheds

- Primarily defined by survey boundaries.
- Though there are some local exceptions, topographic “trapping” of pollutants is not a significant issue.
- Monitoring networks pre-date airshed zones.
 - Industry air quality monitoring since the 1970s.
 - SIA formed in 1974
 - Station locations formed the basis of today's airshed monitoring networks.
- As in B.C., airshed development began in the mid-1990s.

Growth of Airsheds in Alberta

1995-1996
5%



1997-1998
23%



1999-2002
30%



2003-2004
32%



2005-2006
34%



2007-2008
46%



Airsheds in Alberta



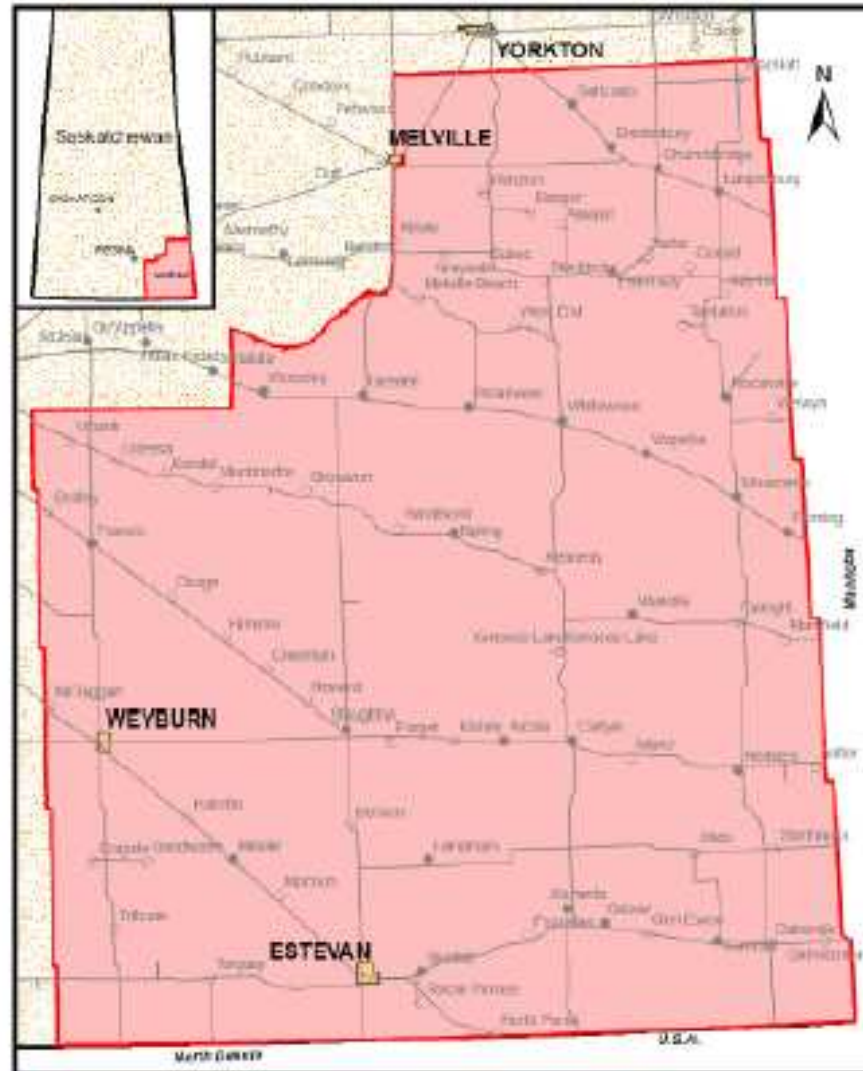
Principal Air Quality Issues in Alberta

- SO_2 and H_2S were the historical bad actors in Alberta. Characteristic odours and both chronic and acute toxic effects of each were well known.
- Monitoring of these substances was used principally as a means to regulate industrial emissions.
- Focus has shifted away from compliance to human and environmental health concern. Newer airsheds have a predominantly pro-active role.
 - Though industry approvals (permits) still contain compliance clauses related to monitoring

Strategies and Resources

- *CASA*, (est. 1994), is a multi-stakeholder partnership of Alberta Govt., industry and NGOs.
- Developed a framework for airshed management founded on:
 - Consensus based, collaborative approach
 - User pay principle (funding primarily from industry)
- Technical and financial support from Alberta Environment.
- Airshed development linked to Alberta's land use management framework (November 2009).

Airsheds in Saskatchewan



SESAA 2007 ... More to Come

- Southeast Saskatchewan Airshed Association formed 2005 - officially launched 2007
 - Founded on a consensus-based forum
 - "Proven successful in other jurisdictions"
 - Planned for adoption in other regions of the province.
 - "Ambient air quality data will provide a management tool to help keep clean air clean".
 - <http://www.gov.sk.ca/news?newsId=8457f0d8-a7cb-45aa-ac1c-2bffc68028fe>

Summary

- Airsheds first developed late 1990s
 - Principally as a framework in which to improve air quality
 - Early actions taken to reduce regional emissions
 - Industry, forestry, agriculture, domestic
 - Substantial improvements realized followed by a shift in focus to maintaining good air quality and subsequent more modest improvements
- Airshed growth and development continues
 - Recognizing that continued population growth will impact current air quality; keep clean air clean
 - Expect continued airshed expansion (federal initiatives) to help support objectives of sustainability.