

Introduction to Air Quality Modelling: Course Outline

Time	Topic
8:00 – 8:30	Check in and preparation and computer set-up
8:30 – 9:15	Session 1: Introductions <ul style="list-style-type: none"> • What is dispersion modelling – Inputs / Outputs? • Modelling and Scales (from Local to Global) • Air Quality and Health • State of Air Quality in Canada Air Quality Health Index (AQHI) • Air Quality Standards (Federal, Provincial) • Air Quality Monitoring (Background for Modelling – Alberta, BC) • Alberta and BC Air Quality data for Natural Background • Meteorological and Climate data
9:15 – 10:15	Session 2: Meteorological Concepts <ul style="list-style-type: none"> • Connection of Meteorology to Air Quality? • Boundary Layer Fundamentals <ul style="list-style-type: none"> - Atmospheric Stability - Wind - Terrain - Inversion Layer – Mixing Height • Plume shapes for different stability classes • Fumigation • Terrain and water influence on local meteorology • Geophysical Parameters
10:15 – 10:30	Coffee Break
10:30 -11:45	Session 3: Emission Sources and Dispersion Models <ul style="list-style-type: none"> • Air Dispersion Models Screening and advanced <ul style="list-style-type: none"> - screen models - some basic information about AERMOD inputs/outputs - some basic information about CALMET setting; pre-processors -some basic information about CALPUFF post-processors. - other models. • Complex Modelling for EIA's and bigger projects.

Time	Topic
	<ul style="list-style-type: none"> • Line sources – modelling of conveyors, roads, and railways
11:45 – 12:45	Lunch Break
12:45 – 1:30	<p>Session 4: Modelled Compounds, Sources</p> <ul style="list-style-type: none"> • Modelled Compounds • Sources of emissions Stacks, Area, Volume, Line, Flare Sources <ul style="list-style-type: none"> - building downwash - horizontal releases - combining stacks - variable emission sources - external emission sources • Special Volume source – blasting / explosion
1:30 – 2:30	<p>Session 5: Comparison of Models, Examples, Results Interpretation</p> <ul style="list-style-type: none"> • CALPUFF versus AERMOD • CALPUFF Versus CMAQ • Examples of AERMOD and CALPUFF Projects • Model Output Interpretation • Emissions and Sources parameters
2:30 – 2:45	Break
2:45 – 3:45	<p>Session 6: Some special topics</p> <ul style="list-style-type: none"> • Fog, visible plume, and visibility modelling, • Modelling of odour (good example of model uncertainty) • Modelling of NO_x • Modelling of Flaring in Alberta and BC • Summary of main differences: modelling in Alberta versus BC
3:45 – 4:00	Questions & Answers and Wrap-Up