

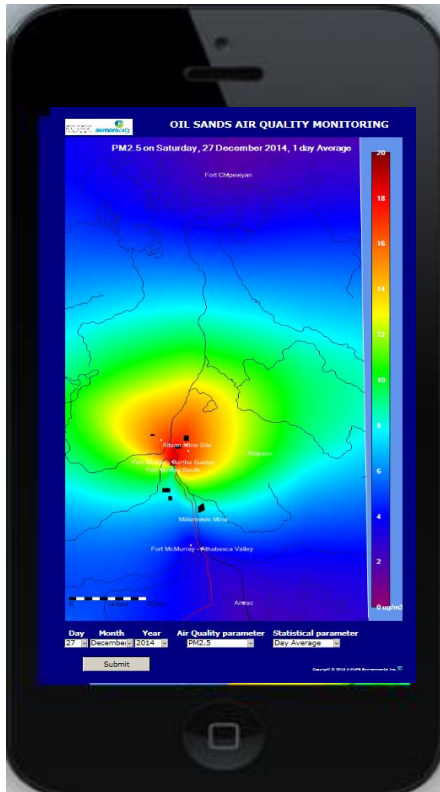
High Resolution Air Mapping Tool for the Oil Sands Region in Alberta

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Daniel Spitzer, A-MAPS Environmental



A - MAPS Environmental Inc.

High Resolution Air Mapping Tool for the Oil Sands Region in Alberta



Smart-phone App

<http://amapsenv.com/AlbertaAQ.aspx>

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WHY?

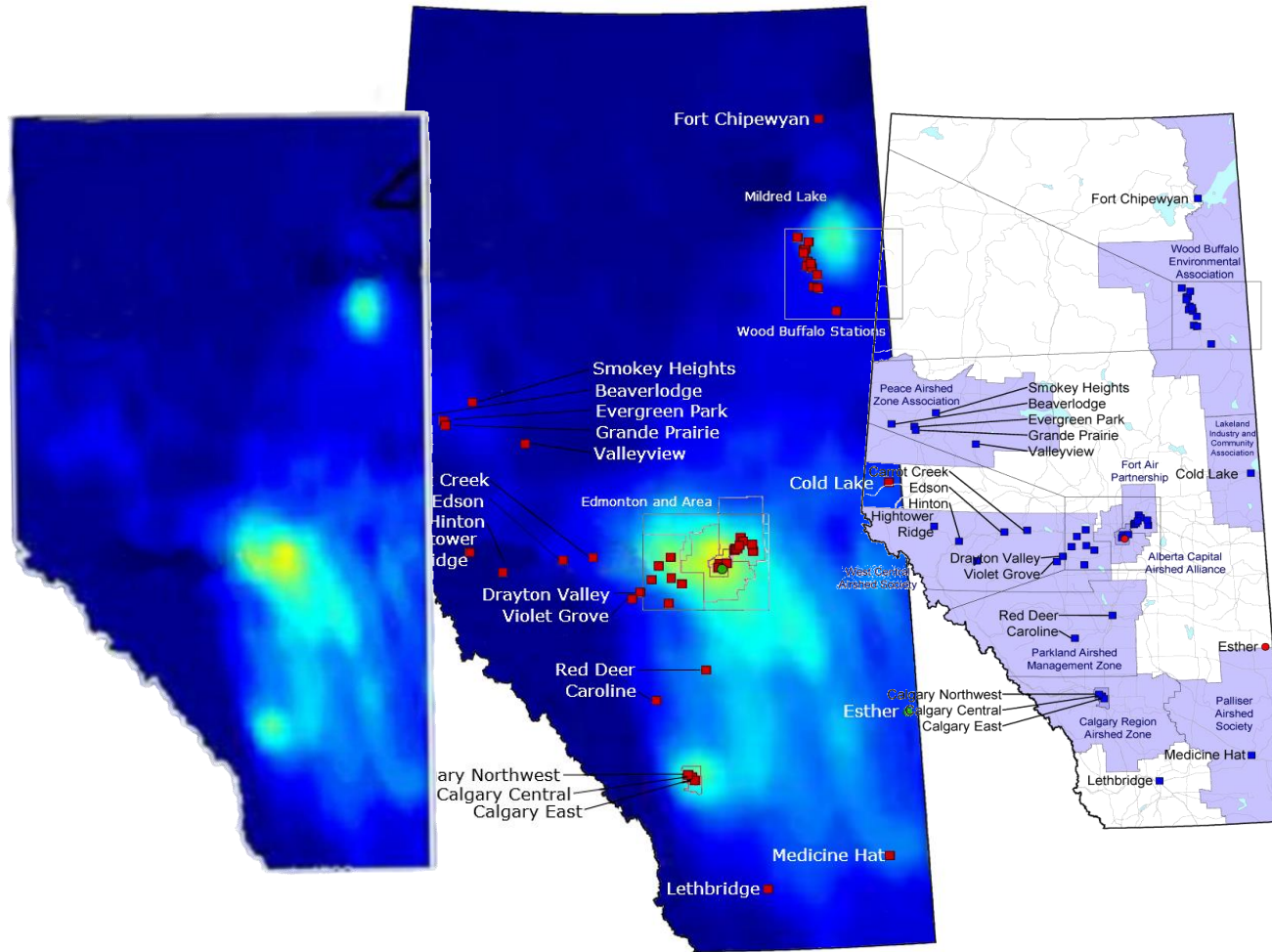
Impacts of air pollution can be assessed only if the information

- **includes the pollutants distribution in mapping formats (GIS) that can be processed and compared with maps of population density and land use (location of schools, sport facilities, senior housing, hospitals etc.),**
- **is timely,**
- **is validated.**

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- **Not enough ground base monitoring stations to cover the entire user needs,**
- **Publicly available good coverage data sources such as satellite imagery can be used to fill in data gaps and connect dots,**

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Richer information (data) provided by combining satellite data with ground based data

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HOW?

INPUTS

Information sources. Data fusion and modeling

- **Earth Observation satellites (OMI, AIRS, MODIS, TROPOMI)**
- **Monitoring networks**
- **Weather information**
- **Dispersion models**
- **Geospatial interpolation models**
- **Forecasting models**

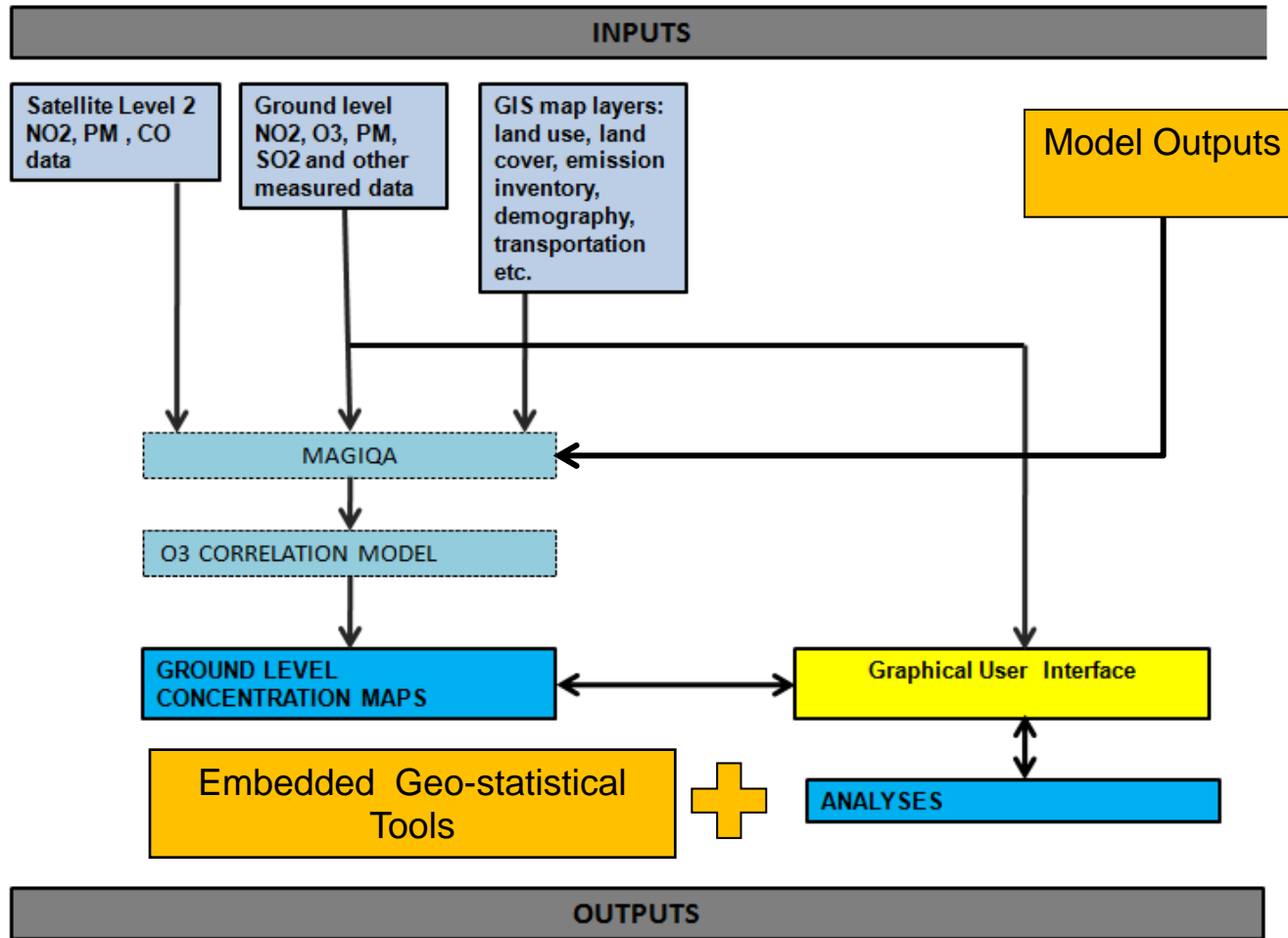
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HOW?

Atmospheric Satellite Earth Observations

- **Nitrogen Dioxide (NO₂)**
- **Aerosol (PM)**
- **Ozone (O₃)**
- **Carbon Oxide (CO)**
- **Sulphur Dioxide (SO₂)**
- **Methane (CH₄)**
- **Carbon Dioxide (CO₂)**

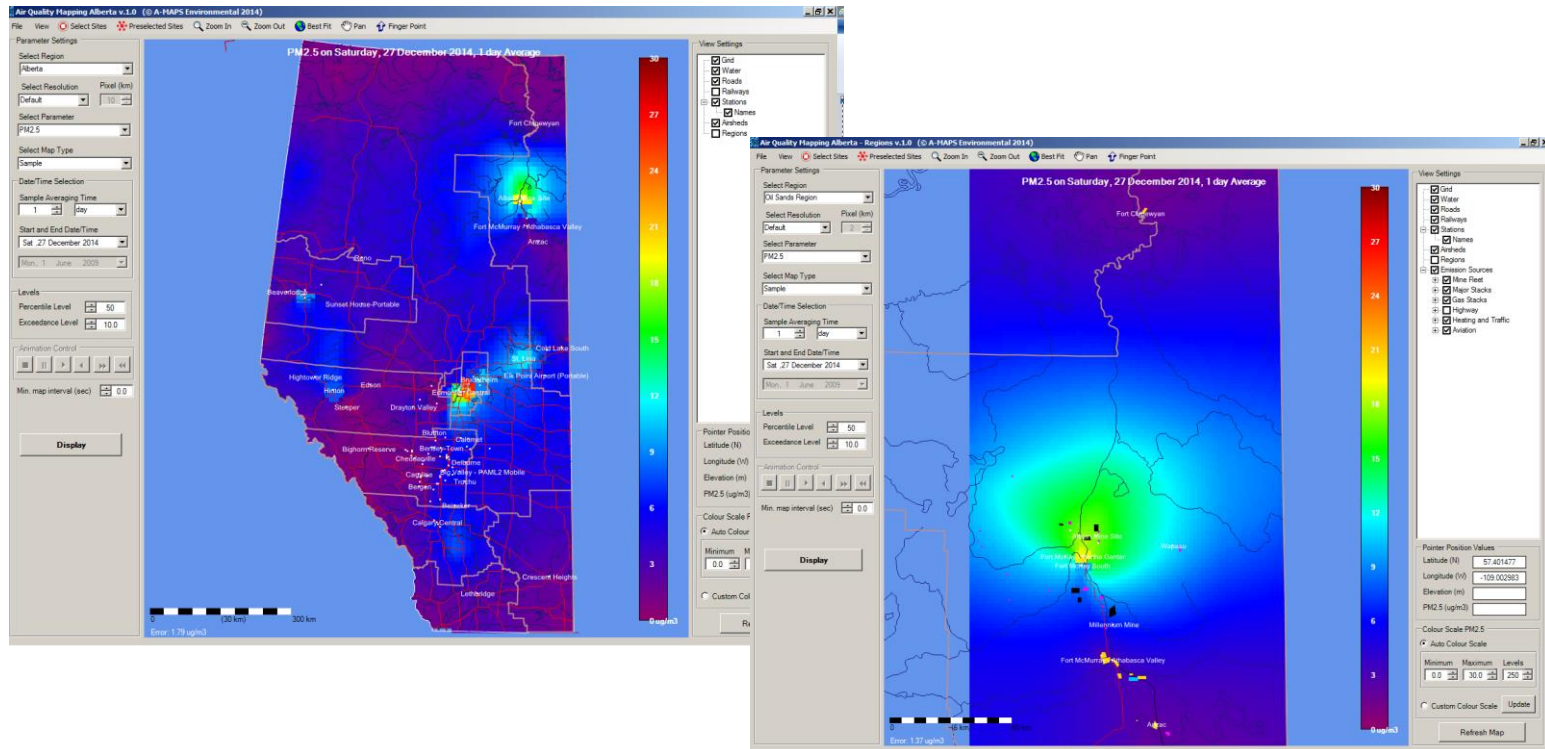
Design and Inputs



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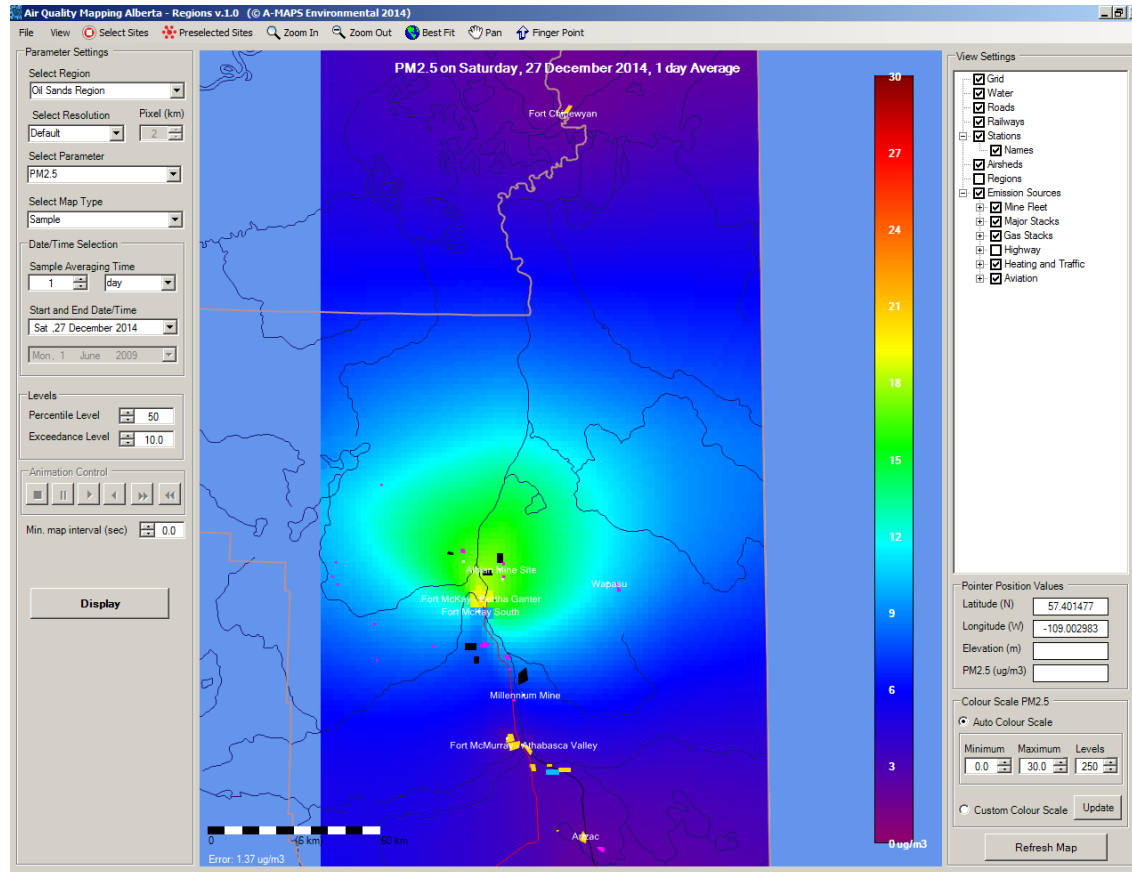
RESULTS

A Suite of Software Applications

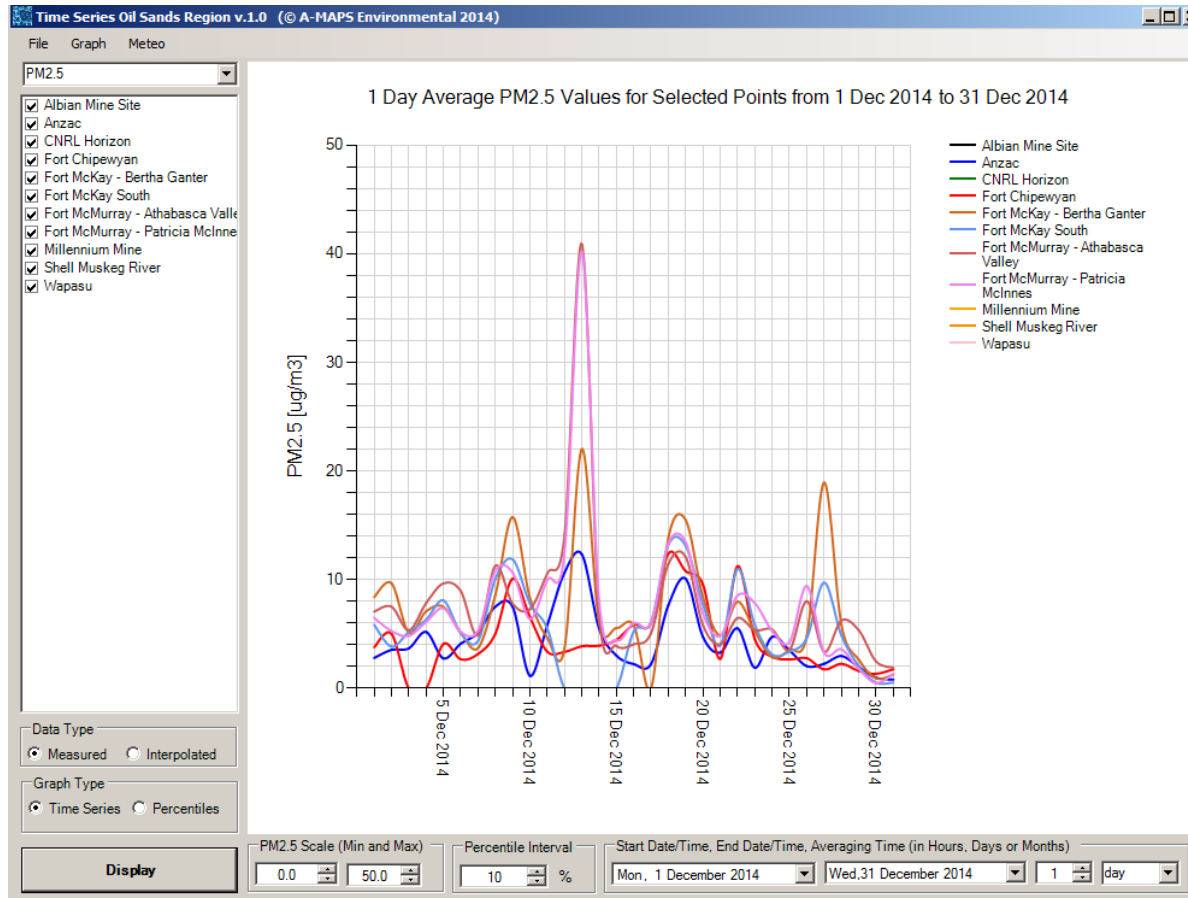


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Mapping and Analysis of AQ Data: Oil Sands

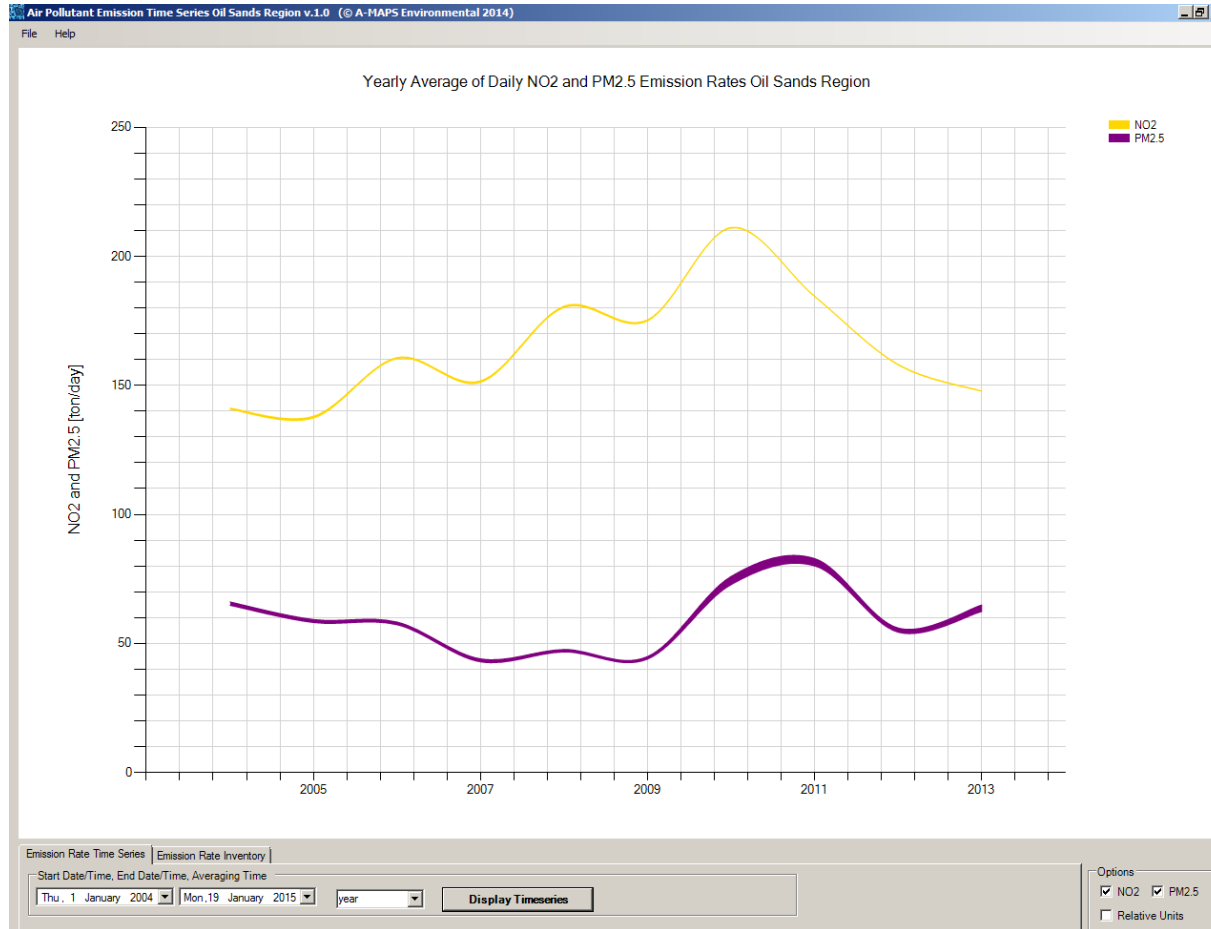


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Time Series

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Emission Rates

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Data Download, Inspection and QC

Update CASA v.1.0 (© A-MAPS Environmental 2014)

Update CASA | Download Quality Controlled Data | Download Last-365-Days Data | Quality Inspection

How to Download Quality Controlled Data?

1. Go to http://CASA_Data_Warehouse.
2. Click on One Parameter at Multiple Stations.
3. Set Collection type: Continuous.
4. Set Start Date (e.g. 1-Jan-2010), and End Date (e.g. 1-Jan-2011).
Note: Selecting Download Time/Date Ranges longer than 1 year is not recommended.
Note: Time/Date Gaps are not allowed. Hence, Time Ranges of Files have to match or overlap.
5. Select Parameter: Carbon Monoxide (CO), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2), Ozone (O3) or PM2.5 Mass (PM2.5).
6. Select Zone: All Zones.
7. Select Station(s): Click on Select All.
8. Click on Run Report.
9. Wait (a few Minutes) until a new Page pops up.
10. Use the Right Mouse Button to select the File. Choose: Save Link as...
11. Save the CSV File (*.csv) to the Pollutant Download Sub-Folder e.g. NO2 to C:\RSDS\AQ Alberta\AQ.Alberta.Regions\Download\NO2\.

CASA
Clean Air Strategic Alliance
Data Warehouse

Data Download Reports
Choose a Report Type:

- Multiple Parameters at One Station
- One Parameter at Multiple Stations

Multiple Parameters at One Station

Collection Type:

Start Date: End Date:

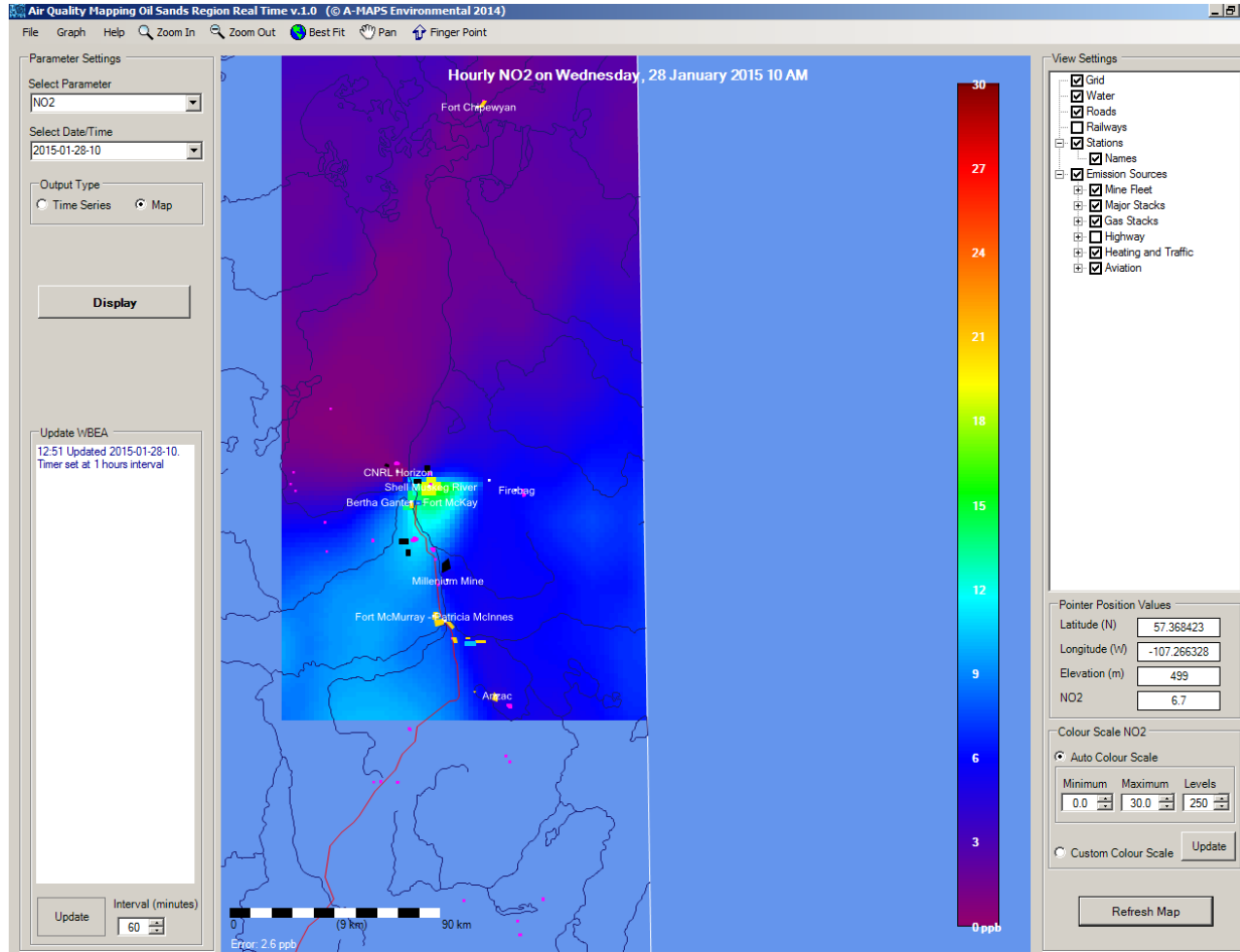
Select Zone: (Optional)

Select Station:

[Close](#)

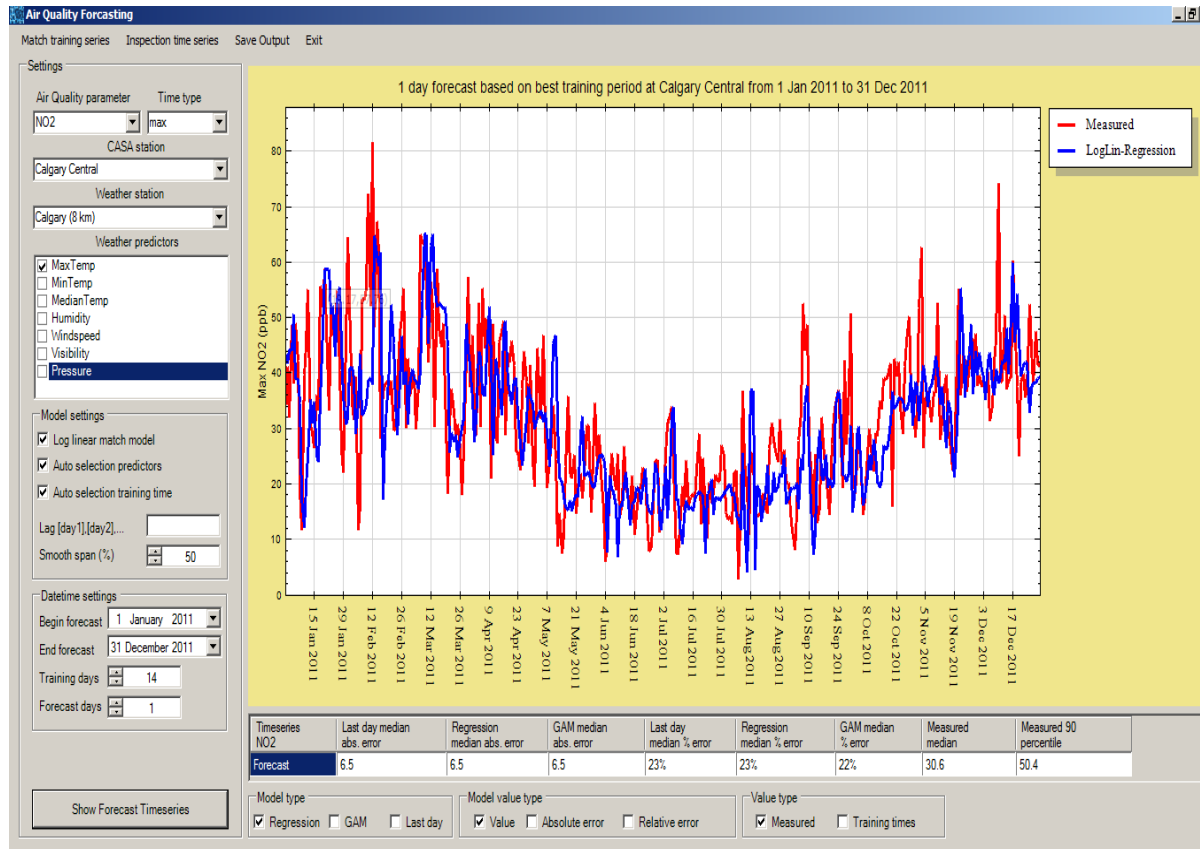
2. CASA Data Warehouse: Click on One Parameter at Multiple Stations.

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Real Time
AQ

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Forecasting
AQ

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Thank You!

Questions?



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