Ministry of the Environment, Conservation and Parks

Overview of MECP Air Monitoring Data Review

Presentation to Clean Air Hamilton

May 8, 2023

Natalie Stacey, Abigail Amponsah & Tim Hung

West Central Region Technical Support Section

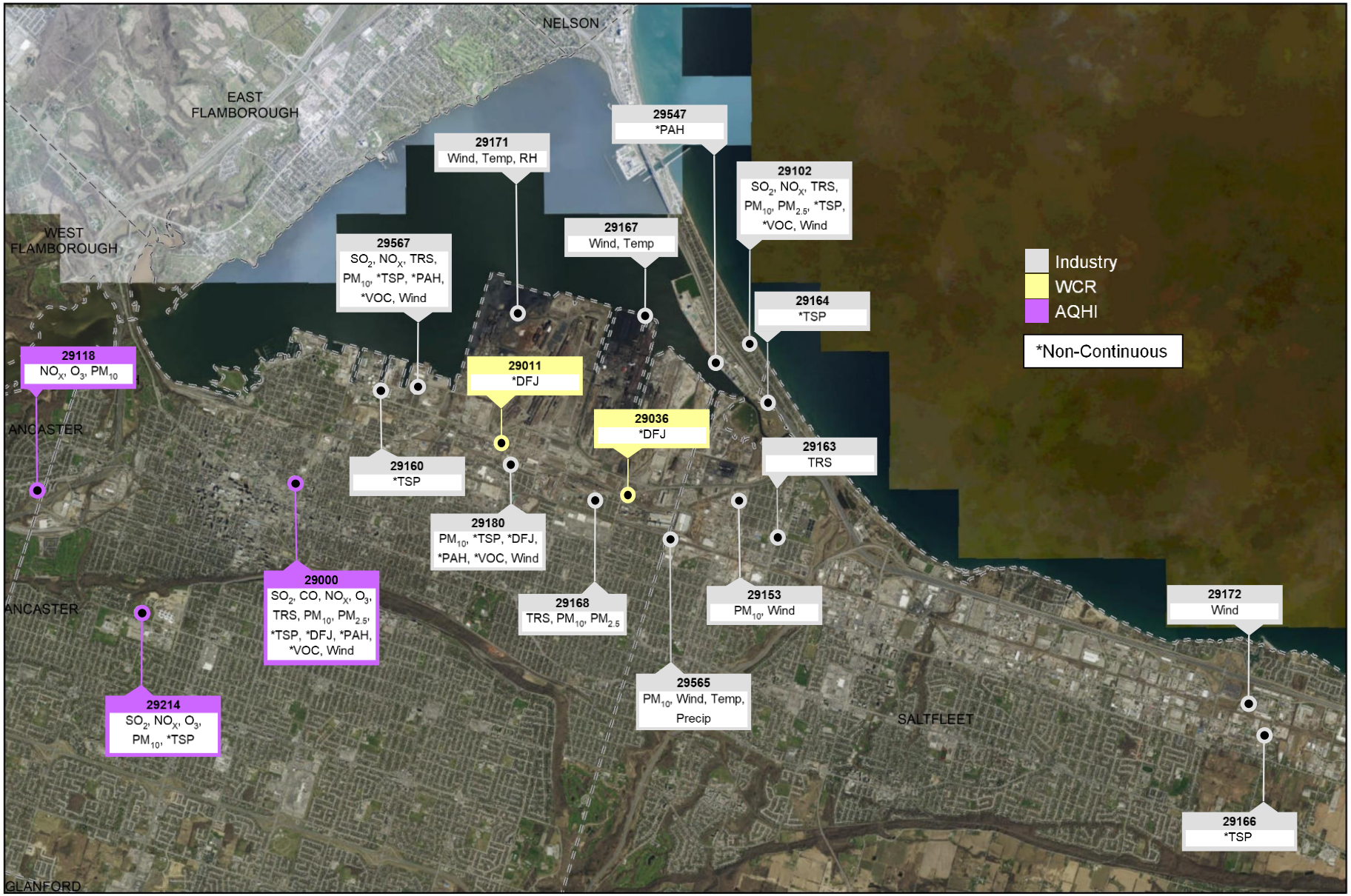
Ontario

Presentation Overview

- Local Air Monitoring in Hamilton Overview and Hamilton Air Monitoring Network
- Ministry WCR Technical Support Section Data Access and Uses
- Publicly Available Data Access and Uses

Local Air Monitoring in Hamilton Overview

Hamilton Air Monitoring Stations



Projection:
Universal Transverse Mercator
Zone 17
False Easting: 500000m
False Northing: 0m
Central Meridian: -81
Scale Factor: 0.9996
Latitude of Origin: 0
1983 North American Datum

0 0.325 0.65 1.3 1.95 2.6 3.25
Kilometres

The maps shown here are for illustration purposes only and are not suitable for site-specific use or applications. Ministry of the Environment provides this information with the understanding that it is not guaranteed to be accurate, correct or complete and conclusions drawn from such information are the responsibility of the user. While every effort has been made to use data believed to be accurate, a degree of error is inherent in all maps. Map products are intended for reference purposes only, and the Ministry of the Environment will accept no liability for consequential and indirect damages arising from the use of these maps. These maps are distributed 'as-is' without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability to a particular purpose or use.

Information provided by the Ministry of the Environment and the Ministry of Natural Resources.
Imagery aquisition - 2010

Published Month Year
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Where is the Data Stored and Who Owns It?

Hamilton Air Monitoring Network (HAMN) Stations

- Owned by HAMN
- Operation, data analysis, storage and reporting is sub-contracted by HAMN to Rotek Environmental
- Rotek Environmental also maintains the HAMN website
- Data and stations are audited by MECP

Air Quality Health Index (AQHI) Stations

- Owned by the Environmental Monitoring and Reporting Branch (EMRB) within MECP
- Continuous monitor operation, data analysis, storage and reporting is performed by EMRB
- Some AQHI Stations are jointly operated between MECP and Environment and Climate Change Canada (ECCC), part of the National Air Pollution Surveillance (NAPS) Program. At these stations, non-continuous data collected are owned by ECCC

Ministry WCR Technical Support Section Air Monitoring Data Access and Uses

How Does WCR Technical Support Section Access Air Monitoring Data?

- Real-Time/Immediate Data Sources:
  - Real-Time Air Quality Alerts
  - HAMN Website with real-time data and 5-min data downloads available within 1-2 hours
  - Air Quality Ontario Website - Provincial Ambient Air Quality Monitoring Network
  - EMRB/ECCC Storm Prediction Centre for measured or forecasted inversion conditions
  - ECCC NAPS website
- Routine/Regulated Data Sources:
  - Monthly HAMN Episode (Exceedance) Reports
  - Quarterly and Annual HAMN Data Reports

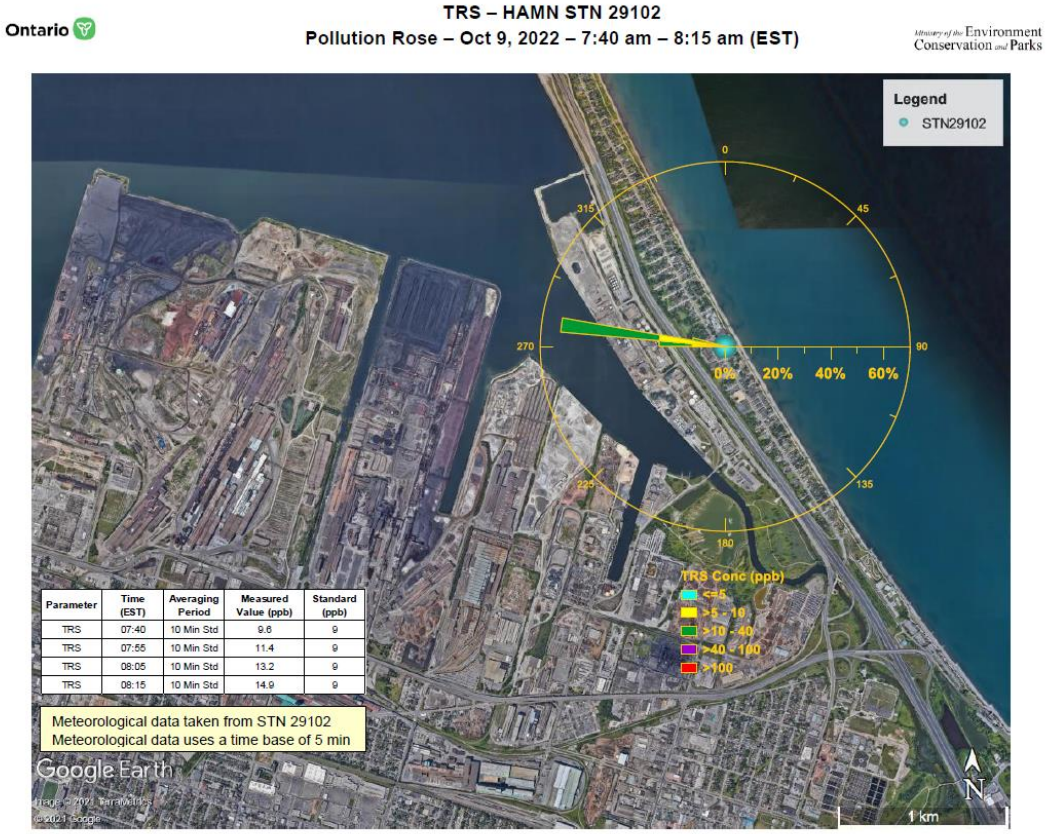
Examples of How WCR Technical Support Evaluates Air Monitoring Data:

Reviewing Exceedances

- Reviewing measured concentration averages based on regulated averaging times; and comparing against regulated standards or guidelines
- Calculating Exceedance Counts
- Calculating Maximum Concentrations
- Generating Wind Roses/Exceedance Maps

Statistical Trend and Data Analysis

- Box Plots
- Time-Series Trend Graphs
- Mann-Kendall Analysis



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How Does WCR Technical Support Use Air Monitoring Data?

Examples of Data Analysis Applications:

- Informing District Office of real-time of elevated concentration/exceedance alerts
- Providing District Office with monthly summary of exceedances, and potential areas/sources of concern
- Supporting District Office requests (including providing comments for ECA and EA applications); supporting abatement and compliance actions; following up on complaints
- Issuing Local Poor Air Quality Notifications (LPAQNs)
- Supporting policy and program initiatives
- Auditing of industry-operated air monitoring, including the HAMN Monitoring Network
- Providing CAH with Supporting Data for Annual Report

How is the Ministry Notified of Exceedances?

- Companies have a general requirement to report any significant "spill" events immediately to the Ministry through the Spills Action Centre (SAC). Spills include abnormal discharges of pollutants to the air.
- Normal releases that surpass Upper Risk Threshold (URT) limits must also be immediately reported to the Ministry in writing.
- In addition, many companies across Hamilton have specific conditions attached to their ECAs or other legal instruments that require monitoring and exceedance reporting at prescribed intervals.
- The public can also notify the Ministry of abnormal releases through SAC. For all other questions or concerns the Hamilton District Office can be contacted.

How Does the Ministry Respond to Exceedances?

1. Exceedance data is assessed to determine the level of exceedance with respect to regulatory guidelines and standards.
2. Efforts are also made to confirm the validity of the exceedance to ensure it is not the result of external factors such as instrument maintenance, malfunction or human error.
3. If meteorological data is available, wind speeds and directions are evaluated (often through a wind rose) and efforts are made to confirm or estimate the source of the exceedance.
4. Depending on the extent and validity of the exceedance, the District Office is immediately notified. Potential responses include: dispatching an officer to the site to investigate the incident, sending a mobile air monitoring van to perform additional monitoring, and/or issuing a Local Poor Air Quality Notification (LPAQN).
5. Depending on the results of the initial investigation, follow-up actions may include: working with identified parties on abatement strategies to reduce the risk of potential impacts, or (for more significant violations) escalating the investigation to the Environmental Investigations and Enforcement Branch (EIEB).

Publicly Available Air Monitoring Data Access and Uses

What Air Monitoring Data is Available to the Public?

- MECP's Air Quality Ontario website posts:
  - Current and past Air Quality Health Index (AQHI)
  - AQHI forecasts
  - Real-time ambient air monitoring data (have not undergone complete QA/QC)
  - Annual *Air Quality in Ontario Report*

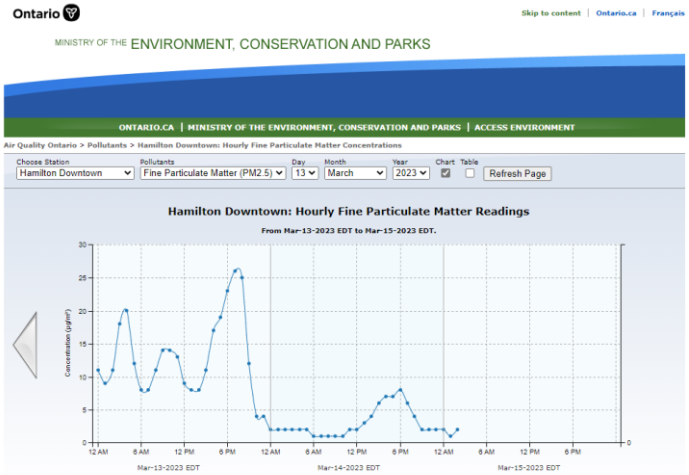
- ECCC National Air Pollution Surveillance (NAPS) Program
  - Non-continuous data at select AQHI stations (finalized data)

- Clean Air Hamilton website:
  - Clean Air Hamilton Annual Reports

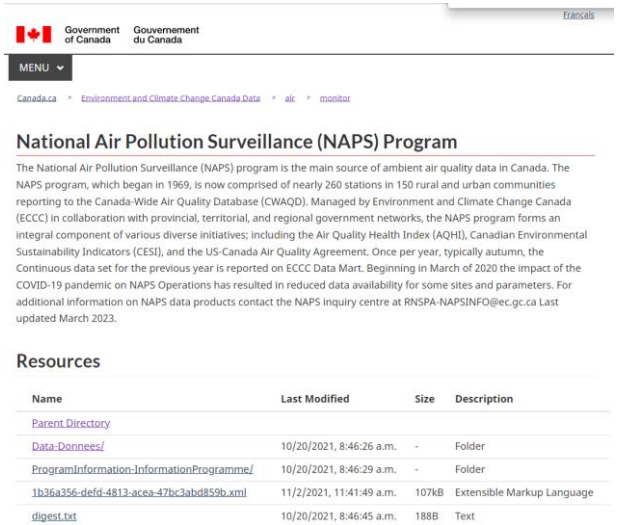
- HAMN website posts:
  - Annual monitoring reports that have been reviewed by MECP
  - Real-time hourly data (have not undergone complete QA/QC)
  - Non-continuous data

How Can it be Accessed and Used?

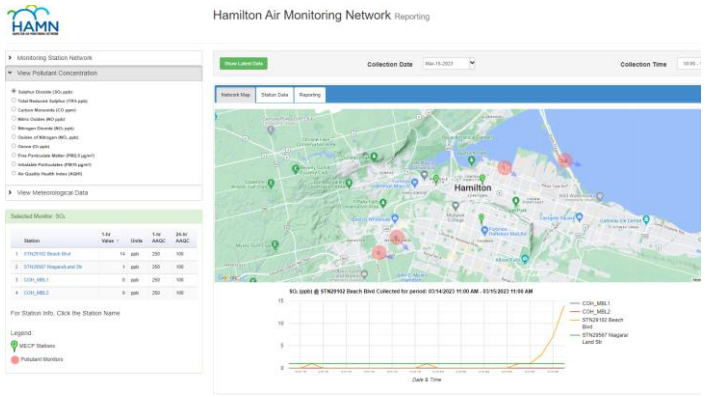
[Air Quality Ontario]



[National Air Pollution Surveillance (NAPS) Program - Environment and Climate Change Canada Data]



[Hamilton Air Monitoring Network - HAMN | Hamilton Air Quality Monitoring and Reporting (hamnair.ca)]



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Questions?

Thank you!