

Ambient (Outdoor) Air Quality Monitoring in Manitoba

What is Air Quality Monitoring?

Air is the everyday term for the atmosphere which is made up of an intermixed layer of nitrogen, oxygen and other trace gases. Ambient (outdoor) air quality monitoring is the measuring and analyzing of the pollutants in the air to determine the health and safety of the outdoor air.

Where do we measure air quality in Manitoba?

Currently, there are five permanent air monitoring stations in Manitoba that feed into an air monitoring system - two in Winnipeg (65 Ellen St. and 299 Scotia St.) and one each in Brandon (Assiniboine Community College), Flin Flon (143 Main St.) and Thompson (408 Thompson Drive N). There is also a temporary station located in Winnipeg at Kavanagh Park. Temporary monitoring stations can be set-up for short-term periods to conduct special surveys and investigations. These stations use complex instruments that take real-time hourly measurements that are monitored and analyzed for trends by the provincial and federal governments. The equipment is standard across all jurisdictions and provided by Environment and Climate Change Canada.

Information about air quality is made available to the public through the Air Quality Health Index (AQHI). The AQHI transforms all these measurements taken from the stations into a single number or index that represents the measured quality of air. It also provides information about any risks related to that level within the index and makes recommendations that can help individuals make decisions that may protect their health. For more information on the AQHI, please visit [Understanding Air Quality Health Index messages](#).

What is being measured?

Since each area of our province is unique, each air monitoring station measures different parameters and reports on the parameters that it is measuring on a real-time hourly basis*. The following is a list of some of the parameters that you will see measured:

- Ozone (O₃)
- Particular Matter <2.5µm or Fine particles (PM_{2.5}) or Sharp (PM_{2.5S})
- Particular Matter <10 µm (PM₁₀)
- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Nitric Oxide (NO)
- Sulphur Dioxide (SO₂)
- Ammonia (NH₃)
- Wind direction (WD)
- Wind Speed (WS)

In addition, there are a number of other pollutants that are sampled and analyzed by Environment and Climate Change Canada to determine if there are metals (ex. lead) in the air.

Here are the units of measurements that are used:

ppm: means parts per million

ppb: means parts per billion

($\mu\text{g}/\text{m}^3$): means microgram per cubic meter

Deg: means degree

Kph: means kilometer per hour

**If an instrument requires repair and or calibration you may not be able to see the real-time hourly data on the Manitoba Air Quality Program's website.*

How are air quality measurements interpreted?

Air quality data, after undergoing rigorous quality assurance/quality control, is compared to existing Manitoba and national guidelines to determine if Manitoba has acceptable levels of specific parameters. A complete listing of the Manitoba Objectives and Guidelines for Various Air Pollutants is available by visiting: https://www.gov.mb.ca/sd/envprograms/airquality/pdf/criteria_table_update_july_2005.pdf

For example, for particulate matter ($\text{PM}_{2.5}$), the Manitoba air quality standard is not to exceed $30 \mu\text{g}/\text{m}^3$ (24-hour average). For ground level ozone, the Manitoba air quality objective is not to exceed 65 ppb (8-hour average).

Manitoba Air Quality Program releases reports on specific parameters (ex. $\text{PM}_{2.5}$ and ozone), which can be found on the website.

How can I access the Manitoba real-time air quality data?

The real-time air quality data from the six stations can be found at www.manitobaairquality.ca. This data is in raw form and assistance may be required in interpreting the data. For further information on this data, please contact the Manitoba Air Quality Program by email at ECEPM@gov.mb.ca or phone at (204) 945-0675.

How does Manitoba's air quality compare to other areas in Canada?

Manitoba generally has good air quality. Poorer air quality tends to occur because of exceptional events (ex. wildfire smoke) and transboundary pollutants from south of the border or other Canadian provinces. Localized issues such as stubble burning or building fires may affect monitors if they are near the fire. For more information on air quality in other areas of Canada visit: <https://ccme.ca/en/air-quality-report>