



NEWS RELEASE

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Report Assesses Longer-Term Air Quality Trends in the Heartland

A new report by Heartland Air Monitoring Partnership (HAMP) shows how five key substances affect air quality in the [Heartland Airshed](#) over time and how those trends compare to other locations in Alberta, Canada and around the world.

The [Air Quality Trending and Comparison Report](#) focuses on five common air contaminants (parameters), as defined by the federal government: fine particulate matter, ozone, sulphur dioxide, nitrogen dioxide and carbon monoxide. Six of HAMP's 10 monitoring stations were used in the comparison because they monitor for these parameters and have the longest data sets.

Key Findings:

- The biggest changes in air quality typically happen because of major natural events like [wildfires](#) or [winter temperature inversions](#), leading to the Heartland's poorest air quality days overall.
- South and south-west winds lead to slightly higher levels of **fine particulate matter** in the Heartland (commonly during temperature inversions). Fort Saskatchewan and Gibbons have higher levels in particular, because of their proximity to urban areas and their location downwind of the Edmonton Metropolitan Area.
- **Ozone** levels in Alberta are higher in rural areas – in the Airshed this also means rural monitoring stations (Lamont County and Elk Island) record higher levels of ozone.
- **Sulphur dioxide, nitrogen dioxide** and **carbon monoxide** all continue to trend downwards across the province because of improved emissions technologies.
 - Lower sulphur levels in both diesel and gasoline, less flaring from oil and gas wells province-wide and improved industrial technology have all contributed to a decrease in SO₂.
 - Nitrogen dioxide levels are going down, likely due to efficiencies in home heating and vehicle energy use. Compared to the rest of the Airshed, Fort Saskatchewan experiences higher levels as an urban area with more home heating, vehicles and commercial activity.
 - Carbon monoxide has continued to trend downward since 1991 because of improvements in vehicle efficiency and emissions reduction technology.
- To compare local air quality with locations across Canada and around the world, Fort Saskatchewan was selected as representative of the [Airshed](#). The data shows Fort Saskatchewan's ozone, sulphur dioxide, nitrogen dioxide and carbon monoxide levels are comparable to other cities – in most cases with middle range concentrations. Fort Saskatchewan's fine particulate matter levels, however, are among the lowest in the world, reflecting its size as a smaller urban centre than most of the other cities evaluated.

In Summary:

Even though the Heartland has had some very poor air quality days due to wildfire smoke, overall, the [Airshed](#) continues to experience clean air. When a big change in air quality happens, it can almost always be linked to an event occurring over a much larger region. For example, typically when the Heartland experiences elevated fine particulate matter or ozone, other monitoring stations in the Edmonton Metropolitan Area region are recording the same phenomenon.

Learn all of the data findings in the [full report](#). This report updates findings in the first trending and comparison report produced by HAMP in 2019.

About Heartland Air Monitoring Partnership:

Heartland Air Monitoring Partnership monitors the air quality in a [4,500 square kilometre region](#) northeast of Edmonton that includes Alberta's Industrial Heartland. Continuous data is collected 24 hours a day, seven days a week and generated through a live data feed accessible to anyone who visits www.heartlandairmonitoring.org. HAMP air quality monitoring and reporting is guided by a scientific advisory group and driven by national and provincial standards.

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The Five Common Air Contaminants and Their Sources

PM_{2.5} Fine Particulate Matter	Key source: Wildfire smoke. Also emitted from soil, roads, agricultural dust, vehicles, industrial emissions, cigarettes, home heating, fireplaces and barbecues.
O₃ Ozone	*Not caused directly by human activity. Key source: Chemical reactions between oxides of nitrogen and volatile organic compounds (commonly emitted by trees and vegetation), combined with sunlight. Generally lower in urban areas because the nitric oxide found in vehicle emissions destroys ozone (known as ozone scavenging).
SO₂ Sulphur Dioxide	Key source: In Alberta: natural gas processing plants. In the Heartland: most commonly emitted by industrial sources, both inside and outside Airshed boundaries.
NO₂ Nitrogen Dioxide	Key sources: Transportation, oil and gas industry, natural gas combustion, heating fuel combustion (including home heating) and wildfires. Appears as a reddish-brown gas and partially responsible for the "brown haze" often observed over large cities.
CO Carbon Monoxide	Key source: Primarily generated by the incomplete combustion of carbon-based fuels such as gasoline, oil and wood (including forest fires). In urban areas, the major source is vehicle exhaust.