# DESCRIPTION OF SPATIAL DISTRIBUTION TECHNIQUES RELATED TO 1995 CRITERIA AIR CONTAMINANT EMISSIONS

## 1ST DISTRIBUTION – EMISSIONS FROM AREA, MOBILE AND OPEN SOURCES:

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| All SIC | ---- | ---- | Provincial emissions from all sectors were spatially distributed using about 30 socio-economic statistics associated to Enumeration Areas (EA) from the 1996 Census. | 1996 Census Enumeration Area boundaries correspond to about 49361 different census areas across Canada. Coverage projected in Lambert Conformal Conic projection. |

## 2ND DISTRIBUTION – EMISSIONS FROM POINT SOURCES => PLANTS, AIRPORTS AND MARINE DOCKS SECTORS:

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| All pertinent SIC | ---- | ---- | Simple point distribution based on latitude/longitude of plant | Latitude/longitude associated to each point |
| 40 : Air Transportation | 45115 | Landing and Take-off for all other major airports | Simple point distribution based on latitude/longitude of airports | Latitude/longitude associated to each point |
| 380 : Marine Transportation | 45403 | Marine Dockside Activities | Simple point distribution based on latitude/longitude of marine docks | Latitude/longitude associated to each point |

## 3TH DISTRIBUTION – UPDATES OF AREA AND OPEN SOURCES EMISSIONS => ROAD TRANSPORTATION AND ROAD DUST SECTORS:

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| 670 : Tire Wear | 15111 | Tire Wear | Provincial Gridded Road (road type and surface) and Weather Information (annual precipitation conditions) was generated using a National Road Network and the 1995 Meteorological data. Mobile emissions and dust from paved and unpaved roads were then spatially distributed over the country using these gridded road data and mileage information (based on the type of vehicle and the province). Thus, those types of emissions can only be found where roads exist. | The data is aggregated by provincial 10km grids (25km grid for the Northwest Territories) in Lambert Conformal Conic |
| 350 : Light-Duty Gasoline Trucks | 45600 | Light-Duty Gasoline Trucks | | |
| 280 : Heavy-Duty Gasoline Trucks | 45601 | Heavy-Duty Gasoline Trucks | | |
| 330 : Light-Duty Diesel Trucks | 45603 | Light-Duty Diesel Trucks | | |
| 270 : Heavy-Duty Diesel Vehicles | 45604 | Heavy-Duty Diesel Trucks | | |
| 340 : Light-Duty Diesel Vehicles | 45605 | Light-Duty Diesel Vehicles | | |
| 360 : Light-Duty Gasoline Vehicles | 45890 | Gasoline Powered Automobiles | | |
| 410 : Motorcycles | 45891 | Gasoline Powered Motorcycles | | |
| 680 : Unpaved Roads | 45893 | Dust from Un-paved Roads | | |
| 520 : Paved Roads | 45911 | Dust from Paved Roads | | |

## 4TH DISTRIBUTION – UPDATES OF AREA SOURCES EMISSIONS => MARINE SECTORS:

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| 380 : Marine Transportation | 45400 | Other Underway Activities | Provincial Marine Corridors for domestic and international movements were defined using specific marine and dockside areas. Delimitation of provincial corridors was based on provincial and international boundaries; the 200-mile limit was used as the international boundary. All provincial area sources emissions related to dockside and underway activities were spatially allocated within these corridors. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |
| 380 : Marine Transportation | 45403 | Dockside Areas Activities (some docks have no associated latitude/longitude due to the fact that they are considered as areas) | | |

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| 380 : Marine Transportation | 45402 | Ferry Activities | Provincial Ferry Corridors that correspond to buffered "ferry routes" between two locations (ports) were generated. All emissions related to ferry activities were distributed within these corridors. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |

**5TH DISTRIBUTION – UPDATES OF AREA SOURCES EMISSIONS => RAILROAD SECTORS:**

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| 610 : Rail Transportation<br>480 : Other Industries | 45310<br>32600 | Railroad Activities<br>Railroad Rolling Stock Industry | Provincial Railroad Corridors were generated using a national line railroad network. These corridors correspond to 250-meter provincial buffers and were created evenly across the country regardless of the traffic movement.<br>All emissions related to rail transportation and railroad rolling stock industry were distributed along these railroad corridors in order to restrict emissions within specific boundaries. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |

**6TH DISTRIBUTION – UPDATES OF AREA SOURCES EMISSIONS => FOREST FIRES AND BURNING SECTORS:**

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| 570 : Prescribed Burning<br>220 : Forest Fires | 4120<br>5120 | Prescribed burning<br>Forest Fires From Other Forestry Services | Provincial Forest Fires known areas (polygons) in combination with a 1995 Satellite image were used to generate a national coverage of known burnt areas for 1995.<br>All emissions related to Prescribed burning, Open Fires and Forest fires from other forestry services were distributed within these areas. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |

**7TH DISTRIBUTION – UPDATES OF AREA SOURCES EMISSIONS => AIRCRAFT SECTORS:**

| RPT | SIC | SIC DESCRIPTION | METHOD AND GIS SURROGATE DATA USED IN PROCESS | RESOLUTION OF GIS SURROGATE DATA |
|---|---|---|---|---|
| 40 : Air Transportation | 45111 | Heavy Jets Domestic and Int'l Inflight Activities | Provincial Flight Corridors were generated based on best-known flight routes from major airlines for domestic and international movement. Delimitation of provincial fligh corridors was based on provincial and international boundaries; the 200-mile limit was used as the international boundary.<br>All emissions related to Heavy Jets Domestic and Int'l Inflight activities were distributed within these corridors. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |
| 40 : Air Transportation | 45112 | Light and Medium Jets Domestic Inflight Activities | Provincial Flight Corridors were generated based on best-known flight routes from major airlines for domestic movement.<br>Delimitation of provincial fligh corridors was based on provincial and international boundaries; the 200-mile limit was used as the | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |

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|---|---|---|---|---|
| | | | international boundary.<br>All emissions related to Light and Medium Jets Domestic Inflight activities were distributed within these corridors. | |
| 40 : Air Transportation | 45113 | Other Aircraft Activities | 50 kilometer provincial buffers were generated using a point dataset of minor airports locations. All emissions related to Other Aircraft activities were distributed within these corridors. | Polygons in Lambert Conformal Conic projection with a resolution of 250 meters. |