



# Canadian Urban Environmental Health Research Consortium

CANUE Metadata Annual Ozone 2018-01-25

## DATA SET INFORMATION

Data Set Title:	<b>CHRONOS and GEM-MACH modelled ground-level ozone (O<sub>3</sub>) annual concentration- Environment and Climate Change Canada</b>
Description:	Hourly ground-level ozone (O <sub>3</sub> ) concentrations were estimated with CHRONOS (Canadian Hemispherical Regional Ozone and NO <sub>x</sub> System) model from 2002 to 2009, and with GEM-MACH (Global Environmental Multi-scale Modelling Air Quality and Chemistry) model from 2010 to 2015, by Environment and Climate Change Canada staff. Estimates incorporate ground-level observation data. Please note that Environment and Climate Change Canada (ECCC) provides data air quality data directly - see the ECCC End Use Licence.pdf file referenced above under Supporting Documentation.  These datasets were used by CANUE staff to calculate values of annual mean concentration of O <sub>3</sub> , for all postal codes in Canada for each year from 2002 to 2015 (DMTI Spatial, 2015).
Theme Keywords:	O <sub>3</sub> , ground level ozone, air quality, chemical transport model
Place Keywords:	Canada national
Data preparation date:	2017-10-01
File Names	O3CHG_A_YY.csv, where YY is the last two digits of a specific year
File Type:	Comma separated values (.csv)
Beginning Date:	2002
End Date:	2015
Sampling Frequency of Data:	Annual
Number of Data Files:	14
File Size	Individual year files are approximately 50 to 60 MB in size, all files total 746 MB in size.
Data Sources:	Files provided by Environment and Climate Change Canada, Air Quality Research Division, under the Open Government License (open.canada.ca)
Spatial Resolution:	Data generated with the CHRONOS model (2002 - 2009) have a resolution of 21km; data generated with the GEM-MACH model (2010 - 2015) have a resolution of 10km.
Detection Range or Limit:	N/A
Log of Changes:	2018-01-25: Field name O3CHGY_ PCODE changed to POSTALCODEYY. 2018-01-25: Replaced blanks in numeric fields with -9999. 2018-11-15: Added warm season average, annual and warm season average of daily 8-hour maximum, and recalculated annual average using thresholds for data completeness. See Data Completeness.pdf in Supporting Documentation.
Maintenance Description:	Indices for subsequent years will be added when available.

## GEOSPATIAL REFERENCE

Geographic Coverage	Canada
West Bounding Coordinate	N/A
East Bounding Coordinate	N/A
North Bounding Coordinate	N/A
South Bounding Coordinate	N/A
Geometry Type:	N/A
Point Data Source:	N/A
Coordinates have Z values:	N/A
Geographic Coordinate System:	N/A
Datum	N/A
Unit:	N/A



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## QUALITY ASSESSMENT

QA/QC procedures:	CANUE did not assess the quality of the O <sub>3</sub> data. Users should review the documentation provided in the recommended citation, and in the supporting documentation listed below.
Geographic Coordinate Positional Accuracy:	These metrics can be linked to the corresponding annual postal codes files for mapping and analysis purposes, using the 6-digit postal code as a unique identifier in both files. Refer to the following metadata file for additional information on opportunities for assessing the spatial representativeness of postal code locations when these metrics are linked:  <a href="#">CANUE Metadata Postal Codes.pdf</a>
Vertical Positional Accuracy:	N/A
Attribute Accuracy:	N/A
Data Validity :	NoData = -9999 (for numeric fields).
Associated Files:	N/A
Data Comment:	N/A

## SUPPORTING DOCUMENTATION

Additional documentation:	<a href="#">ECCC End User Licence.pdf</a>
	<a href="#">Data Completeness.pdf</a>

## DATA DICTIONARY

Field Name (YY = last two digits of specific year of data)	Description	Data Type
POSTALCODEYY	6-digit postal code with no space between the FSA and LDU. (i.e. L1R2H2).	Text
O3CHGY_01	Annual average (ppb)	Numeric
O3CHGY_02	Warm season (May-Sept) average (ppb)	
O3CHGY_03	Annual average of the highest rolling 8-hour average per day (ppb)	
O3CHGY_04	Warm season (May-Sept) average of the highest rolling 8-hour average per day (ppb)	Numeric

## DATA SET CONTACTS

Data Support:	Contact CANUE via the email below.
Email:	<a href="mailto:info@canue.ca">info@canue.ca</a>
Affiliated Organization:	CANUE (Canadian Urban Environmental Health Research Consortium) Dalla Lana School of Public Health, University of Toronto
Website:	<a href="http://www.canue.ca">www.canue.ca</a>
City:	Toronto
Prov/State:	Ontario
Country:	Canada
Exposure Data Source Contact:	Environment and Climate Change Canada / Air Quality Research Division
Email:	Didier.Davignon@canada.ca OR Sylvain.Menard@canada.ca
Phone:	
First Name:	
Last Name:	
Affiliated Organization:	ECCC AQRD
City:	Toronto
Prov/State:	Ontario
Country:	Canada



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## DATA USE CONDITIONS

<p>Conditions of Use:</p>	<p>The Data User is REQUIRED:</p> <ul style="list-style-type: none"> <li>(i) to acknowledge data sources listed under Acknowledgement(s);</li> <li>(ii) cite the publication(s) listed under Recommended Citation(s) as the providers and source of these data when using them in support of research, analysis, operations, policy decision or any other undertaking including publication; and</li> <li>(iii) complete and sign the CANUE Data Use and Sharing Agreement (available at <a href="http://canue.ca/data/">http://canue.ca/data/</a>), in which the name and signature of the researcher/analyst who takes responsibility for ensuring all conditions are met.</li> </ul>
<p>Data Sharing Restrictions:</p>	<p>These data files are provided solely for the purposes stated in the CANUE Data Sharing and Use Agreement and should not be re-distributed for any reason. These data also contain proprietary postal code data and may only be used for the project named in the CANUE Data Sharing and Use Agreement.</p> <p>Data can be shared only within a project team for the exclusive purposes of teaching, academic research and publishing, and/or planning of educational services in accordance to DMTI End User Agreement associated with the Spatial Mapping Academic Research Tools (SMART) Program.</p>
<p>Required Citation:</p>	<p>Include the following references in any publications, reports or presentations resulting from the use of these data:</p> <ul style="list-style-type: none"> <li>[1] Environment and Climate Change Canada, 2017. Air Quality Research Division, Toronto, Canada. Data files: CHRONOS_Ground-Level_O3_NA_2002.nc to CHRONOS_Ground-Level_O3_NA_2009.nc inclusive, generated July 2017.</li> <li>[2] Environment and Climate Change Canada, 2017. Air Quality Research Division, Toronto, Canada. Data files: GEMMACH_Ground-Level_O3_NA_2010.nc to GEMMACH_Ground-Level_O3_NA_2015.nc inclusive, generated July 2017.</li> <li>[3] Robichaud A, Ménard R. Multi-year objective analyses of warm season ground-level ozone and PM 2.5 over North America using real-time observations and Canadian operational air quality models. Atmospheric Chemistry and Physics. 2014 Feb 17;14(4):1769-800.</li> <li>[4] Robichaud A, Ménard R, Zaitseva Y, Anselmo D. Multi-pollutant surface objective analyses and mapping of air quality health index over North America. Air Quality, Atmosphere &amp; Health. 2016 Nov 1;9(7):743-59.</li> </ul>
<p>Acknowledgment:</p>	<p>Include the following acknowledgements:</p> <ul style="list-style-type: none"> <li>1. Calculated ozone metrics indexed to DMTI Spatial Inc. postal codes were provided by CANUE (Canadian Urban Environmental Health Research Consortium)</li> </ul>