Canadian Urban Environmental Health Research Consortium

CANUE Metadata PM2.5 DALb Browser August 2019

DATA SET INFORMATION	
Data Set Title:	**UPDATED VERSION: Fine Particulate Matter (PM2.5) North American Estimates - Atmospheric Composition Analysis Group at Dalhousie University**
Description:	We estimate ground-level fine particulate matter (PM2.5) total and compositional mass concentrations over North America by combining Aerosol Optical Depth (AOD) retrievals from the NASA MODIS, MISR, and SeaWIFS instruments with the GEOS-Chem chemical transport model, and subsequently calibrated to regional ground-based observations of both total and compositional mass using Geographically Weighted Regression (GWR) as detailed in the references. Data are provided at 3-year running averages, labelled as the last year included (i.e., average of 1998, 1999 and 2000 is labelled as 2000) These annual 0.01 x 0.01 degree gridded surface datasets were used by CANUE staff to assign values of annual mean concentration of PM2.5, for all postal codes in Canada for each year from 2000 to 2016 (DMTI Spatial, 2015).
Theme Keywords:	PM2.5, fine particulate matter, air quality, satellite monitoring, chemical transport model, gridded
Place Keywords:	Canada national
Data preparation date:	2019-05-02
File Names	pm25dalb_a_YY.csv, where YY is the last two digits of a specific year
File Type:	Comma separated values (.csv)
Beginning Date:	2000
End Date:	2016
Sampling Frequency of Data:	Annual
Number of Data Files:	17
File Size	Individual files range from 13 MB to 15 MB in size, all files total 240 MB in size.
Data Sources:	North American Estimates with Ground-Monitor Based Adjustment (V4.NA.02), DMTI Spatial Inc. postal codes. See Supporting Documentation.
Spatial Resolution:	0.01° × 0.01°(~ 1 km)
Detection Range or Limit:	N/A
GEOSPATIAL REFERENCE	
Geographic Coverage	Canada
West Bounding Coordinate	-140.875303 dd
East Bounding Coordinate	-52.654112 dd
North Bounding Coordinate	76.410808 dd
South Bounding Coordinate	41.735230 dd
Geometry Type:	Point
Coordinates have Z values:	No
Geographic Coordinate System:	GCS_WGS_1984
Datum	D_WGS_1984
Unit:	Decimal degrees

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QUALITY ASSESSMENT	
QA/QC procedures:	CANUE did not assess the quality of the PM2.5 data. Users should review the supporting documentation and any recommended citations.
Geographic Coordinate Positional Accuracy:	These metrics are linked to the corresponding annual postal codes files for mapping and analysis purposes. Refer to the postal code metadata file in Supporting Documentation for more information.
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	
Source Data Link:	http://fizz.phys.dal.ca/~atmos/martin/?page_id=140
Additional Information:	CANUE PM25 Version Comparison.pdf

DATA DICTIONARY

Field Name (YY = last two digits of specific year of data)	Description	Data Type
POSTALCODEYY	6-digital postal code with no space between the FSA and LDU. (i.e. L1R2H2).	Text
province	Province code (AB, BC, MB, NB, NL, NS, NT, NU, ON, PE, QC, SK, YT)	Text
latitude	Latitude in decimal degrees	Numeric
longitude	Longitude in decimal degrees	Numeric
pm25dalbYY_01	Annual average PM2.5 concentration in micrograms per cubic meter (ug/m^3)	Numeric

DATA SET CONTACTS	
Data Support:	Contact CANUE via the email below.
Email:	info@canue.ca
Affiliated Organization:	CANUE (Canadian Urban Environmental Health Research Consortium)
	Dalla Lana School of Public Health, University of Toronto
Website:	www.canue.ca
City:	Toronto
Prov/State:	Ontario
Country:	Canada
Exposure Data Source Contact:	Principal Investigator
Email:	Aaron.van.Donkelaar@dal.ca
Phone:	902-494-1820
First Name:	Aaron
Last Name:	van Donkerlaar
Affiliated Organization:	Department of Physics and Atmospheric Science, Dalhousie University
City:	Halifax
Prov/State:	Nova Scotia
Country:	Canada

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DATA USE CONDITIONS	
Conditions of Use:	The Data User is REQUIRED: (i) to acknowledge data sources listed under Acknowledgement(s); (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 (iii) complete and sign the CANUE Data Use and Sharing Agreement (available at http://canue.ca/data/), in which the name and signature of the researcher/analyst who takes responsibility for ensuring all conditions are met.
Data Sharing Restrictions:	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. 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.
Required Citation	Include the following references in any publications resulting from the use of these data: [1] van Donkelaar, A., R. V. Martin, et al. (2019). Regional Estimates of Chemical Composition of Fine Particulate Matter using a Combined Geoscience-Statistical Method with Information from Satellites, Models, and Monitors. Environmental Science & Technology, 2019, doi:10.1021/acs.est.8b06392. [Link] [2] CanMap Postal Code Suite v2015.3. [computer file] Markham: DMTI Spatial Inc., 2015.
Acknowledgment:	Include the following acknowledgements: 1. PM2.5 metrics, indexed to DMTI Spatial Inc. postal codes , were provided by CANUE (Canadian Urban Environmental Health Research Consortium)