



## Canadian Urban Environmental Health Research Consortium

CANUE Metadata NO<sub>2</sub> LUR National Annual Adjustment  
2018-01-25

### DATA SET INFORMATION

Data Set Title:	<b>National Nitrogen Dioxide (NO<sub>2</sub>) Regression-based estimate, adjusted annually with national factor</b>
Description:	<p>The national NO<sub>2</sub> (ppb) land use regression model was developed from 2006 national air pollution surveillance (NAPS) monitoring data, following methods reported in Hystad et al. (2011) (see required citation below). Background and regional components were estimated in the LUR using satellite-derived NO<sub>2</sub> estimates and geographic variables, while local scale variation was modeled using deterministic gradients. The final LUR model includes: road length within 10 km; 2005-2011 satellite NO<sub>2</sub> estimates; area of industrial land use within 2 km; and summer rainfall. This model explained 73% of the variation in NAPS measurements with a root mean square error (RMSE) of 2.9 ppb. Local scale variation was modeled using deterministic gradient from the literature and kernel density measures and added to the final LUR model results to produce the final NO<sub>2</sub> estimates in this dataset.</p> <p>Dr. Perry Hystad (Oregon State University) produced the final estimates for all unique locations of DMTI Spatial Inc. single link postal codes active at any time between 1983 and 2015.</p> <p>The model estimates represent NO<sub>2</sub> concentrations circa 2006, although satellite data from 20015-2011 were incorporated. Annual measured NO<sub>2</sub> levels from National Air Pollution Surveillance monitoring stations have been used to adjust the estimated levels for 1984 through 2011 (See NO<sub>2</sub> National Temporal Adjustment Method, in Supporting Documentation).</p>
Theme Keywords:	NO <sub>2</sub> , nitrogen dioxide, land use regression, air quality
Place Keywords:	Canada, national
Data preparation date:	2018-1-25
File Names	NO2LUR_NA_YY.csv
File Type:	Comma separated values (.csv)
Beginning Date:	1984
End Date:	2011
Sampling Frequency of Data:	Circa 2006
Number of Data Files:	28
File Size	Between 10 MB and 16 MB, total size for all files is 358 MB
Data Sources:	
Spatial Resolution:	Individual 6-digit postal code locations
Detection Range or Limit:	N/A
Log of Changes:	N/A
Maintenance Description:	
<b>GEOSPATIAL REFERENCE</b>	
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 NO <sub>2</sub> estimates 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	
Data Comment:	N/A	
SUPPORTING DOCUMENTATION		
Additional documentation:	<a href="#">Hystad Canada NO2 LUR description.pdf</a>	
	NO <sub>2</sub> National Annual Adjustment Method.pdf (IN PREPARATION)	
DATA DICTIONARY		
Field Name:	Description	Data Type
POSTALCODE_Y Y	6 digit postal code with no space between the FSA and LDU. (i.e. L1R2H2).	Text
NO2LUR06_NA_01	Original modelled annual average concentration (ppb) at postal code	Numeric
NO2LURYY_NA_02	Nationally adjusted annual concentration (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:	Dr. Perry Hystad	
Email:	<a href="mailto:perry.hystad@oregonstate.edu">perry.hystad@oregonstate.edu</a>	
Phone:		
First Name:	Perry	
Last Name:	Hystad	
Affiliated Organization:	Oregon State University	
City:	Corvallis	
Prov/State:	Oregon	
Country:	USA	



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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 (<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 Use and Sharing 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 Use and Sharing Agreement.</p> <p>Data can be shared within a project team with those members and Collaborators who have access to a Research Data Centre (RDC) or are affiliated with an academic institution 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 resulting from the use of these data:</p> <ul style="list-style-type: none"> <li>[1] Hystad P, Setton E, Cervantes A, Poplawski K, Deschenes S, Brauer M, et al. 2011. Creating National Air Pollution Models for Population Exposure Assessment in Canada. Environ. Health Perspect. 119:1123–1129; doi:10.1289/ehp.1002976.</li> <li>[2] CanMap Postal Code Suite v2015.3. [computer file] Markham: DMTI Spatial Inc., 2015.</li> </ul>
<p>Acknowledgment:</p>	<p>Include the following acknowledgements:</p> <ul style="list-style-type: none"> <li>1. Nitrogen dioxide data were indexed to DMTI Spatial Inc. postal codes , were provided by CANUE (Canadian Urban Environmental Health Research Consortium);</li> <li>2. Nitrogen dioxide data used by CANUE were provided by: Dr. Perry Hystad, Oregon State University.</li> </ul>



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