The Canadian Urban Environmental Health Research Consortium

Canue Metadata - Neighborhood Noise

2021-07-12

DATA SET INFORMATION

Dataset Code: NHNSE_AVA_YY

Description:

Estimated noise levels in five Canadian cities were produced by a national team of researchers at the University of Montreal, Ryerson University, Dalhousie University, University of Toronto, the University of British Columbia, Public Health Ontario, the Montreal Regional Department of Public Health and the Department of Public Health of Monteregie, Longueuil. Two approaches were used: land use regression (LUR) and random forest (RF) models. Geographic predictor variables (e.g., proximity to airports, railways and traffic, population density, vegetation, etc.) around noise monitoring locations are used in both approaches to predict the measured level of noise. Results for each method are included in the dataset, although the research team notes that the RF model performed better than the LUR model. See details in the Supporting Documentation. Estimates are available for Vancouver (circa 2003), Toronto (circa 2016-2018), Montreal (circa 2010-2014, Longueuil (circa 2017), and Halifax (circa 2010). The research team used the model results to produce noise level estimates for postal code locations in each city. CANUE staff linked the estimates to annual postal code files from 1991 to 2019. IMPORTANT NOTE: The researchers report that estimated levels best represent the spatial pattern of noise within each city, rather than an accurate measure that would be suitable for analysis of recommended noise level thresholds. Also, the estimated levels represent different time periods in each city. As such, data users should consider using categories of exposure based on the data, as well as the estimated levels provided. Data users should also consider the time periods of the city-specific model results and how these relate to their study approach.

Keywords: noise

Place Keywords: |Vancouver|Toronto|Montreal|Longueuil|Halifax

GEOSPATIAL REFERENCE

Upper Left Corner: 65.14N , -141.02W
Lower Right Corner: 41.68N , -52.62W
Coordinate System: GCS_WGS84 - EPSG:4326
Geometry Type: POINT - Units: Decimal Degree
Geometry Data Source: DMTI Spatial Inc. (postal codes)

QUALITY ASSESSMENT

QA/QC Procedures:

CANUE did not assess the quality of the noise data provided. Users should review the documentation provided in the recommended citation, and in the supporting documentation listed.

Geographic Coordinate Positional Accuracy:

These metrics are 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.

Vertical Positional Accuracy: N/A
Attribute Accuracy: N/A
Data Validity: NoData = -9999 (for numeric fields) - NoData=null (for category fields) - Data insufficient to calculate value = -1111
Associated Files:

Data Comment:

DATA SOURCE

Data Source

Spatial Resolution: Postal code

Data Preparation Date: 2021-05-31

Beginning Date: 1991

End Date: 2019

Sampling Frequency of Data:

Years Available:
1991 - 1992 - 1993 - 1994 - 1995 - 1996 - 1997 - 1998 - 1999 - 2000 - 2001 - 2002 - 2003 - 2004 - 2005 - 2006 - 2007 - 2008 - 2009 - 2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019

MAINTENANCE

Description:

File Type: Comma separated values(.csv)

File Size:

Number of Data Files: 29

DATA USE CONDITIONS

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

(iii) complete and sign the CANUE Data Use and Sharing Agreement 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.

Include the following references in any publications resulting from the use of these data:

[1] Liu Y, Goudreau S, Oiamo T, Rainham D, Hatzopoulou M, Chen H, Davies H, Tremblay M, Johnson J, Bockstael A, Leroux T, Smargiassi A. Comparison of land use regression and random forests models on estimating noise levels in five Canadian cities. Environ Pollut. 2020 Jan;256:113367. doi: 10.1016/j.envpol.2019.113367. Epub 2019 Oct 10. PMID: 31662255.

[2] CanMap Postal Code Suite . [computer files] Markham: DMTI Spatial Inc., 2015, 2016, 2017, 2018 and 2019.

Include the following acknowledgements:

[1] Estimated noise metrics, indexed to DMTI Spatial Inc postal codes, were provided by the Canadian Urban Environmental Health Research Consortium (CANUE).

SUPPORT DOCUMENTATION

1 - Comparison of land use regression and random forests models on estimating noise levels in five Canadian cities. (https://canue.ca/wp-content/uploads/2021/05/Liu-et-al-Noise-2019.pdf)

2 - Supplemental Information - Comparison of land use regression and random forests modelling on estimating noise levels in five Canadian cities. (https://canue.ca/wp-content/uploads/2021/05/Liu-et-al-Noise-Supplemental-Info-2019.pdf)

3 - Postal Code metadata (https://canue.ca/wp-content/uploads/2019/09/CANUE-Browser-Metadata-PostalCodes.pdf)

VARIABLES

YY_01 - Municipality

YY_02 - estLEQ_RF

YY_03 - estLEQ_LUR

YY_04 - est_Year

SUPPORT CONTACT

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CANUE (Canadian Urban Environmental Health Research Consortium)
Dalla Lana School of Public Health, University of Toronto

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DATA SOURCE CONTACT

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