Linked Data in the Canadian Longitudinal Study on Aging (CLSA)

(Please cross-reference with the Data Checklist)

The CLSA has partnered with the Canadian Urban Environmental Health Research Consortium (CANUE), Health Canada, Environment Canada and other researchers to link (at the individual level) the CLSA dataset to nationwide data on air quality, greenness, neighborhood factors and weather and climate. For additional information on each of these measures, please see the 'Air Pollution and Meteorological Exposure Measurements' Data Support Document on the CLSA website (www.clsa-elcv.ca) and Metadata documentation on the CANUE website (www.canue.ca).

In the CLSA dataset released to users, linked data will be named with a variable name ending in TRM for baseline Tracking participants and COM for baseline Comprehensive participants. This is the same naming convention as was used for other baseline dataset variables. The original variable names from CANUE have been maintained, so that direct comparisons to the metadata documentation can be made.

Measures	Linked data	Data Available	Resolution	Year(s) linked
Air Quality	Nitrogen Dioxide (NO_2) Concentration	Estimated exposures to NO_2 are available from National Air Pollution Surveillance (NAPS) observations and from the national land-use regression (LUR) model.	10 m	2005-2006
	Sulfur Dioxide (SO_2) Concentration	24-hour estimated exposures to SO_2 measured by NAPS stations.	20 km	2011-2015
		3-year running average ground-level SO_2 annual mean concentration estimates from Ozone Monitoring Instrument (OMI) satellite data.	20 km	2011-2015
	Ozone (O_3)	Estimated exposures to O_3 measured by NAPS stations and 8-hour maximum warm season concentrations.	21 km	2002-2009
		Ground-level O_3 annual mean concentration estimates.	10 km	2011-2015
	Fine Particulate Matter ($PM_{2.5}$)	Ground-level $PM_{2.5}$ annual concentration estimate, 3-year running average.	1 km	2012
Greenness	Normalized Difference Vegetation Index (NDVI) - Landsat Time Series	Annual mean NDVI at postal code locations in Canada, and for surrounding areas within 100m, 250m, 500m, and 1km.	30 m	2011 – 2015 (except 2012)
		Growing season (May 1st - Aug 31st) mean NDVI at postal code locations in Canada, and for surrounding areas within 100m, 250m, 500m, and 1km.	30 m	2011 – 2015 (except 2012)
		Annual maximum NDVI at postal code locations in Canada, and for surrounding areas within 100m, 250m, 500m, and 1km.	30 m	2011 – 2015 (except 2012)
Neighborhood factors	Proximity to Roadways	Measure of exposure to traffic-related air and noise pollution within a 200 m radius around the home.	Postal code	2008
	Nighttime Light Time Series	Nighttime satellite imagery was accessed via Google Earth Engine to extract values of annual mean nighttime brightness for all postal codes in Canada.	1 km	2011
	National Material and	The MSDI for all Canadian census dissemination areas (DA) were downloaded July 21, 2017 by CANUE from	DA	2011

Measures	Linked data	Data Available	Resolution	Year(s) linked
Neighbourhood factors	Social Deprivation Indices (MSDI)	the '*Institut national de santé publique du Québec*' (INSPQ) website, and linked to postal codes.		
	Canadian Active Living Environments (Can-ALE) Data	The Can-ALE database is a geographic-based set of measures that represents the active living friendliness of Canadian communities.	DA	2016
Weather and Climate	Base data from the National Climate Data and Information Archive	The data are based on the average from weather stations within 100 km of a six-digit postal code, and include 24-hour mean temperature, relative humidity and maximum 24-hour changes in barometric pressure.	Postal code	2011-2015
	Base data from the Canadian Forest Service of Natural Resources Canada	The base data consist of interpolated daily maximum temperature, minimum temperature and total precipitation for postal code locations across Canada.	Postal code	2011-2015

Abbreviations

Can-ALE	Canadian Active Living Environments database
CANUE	Canadian Urban Environmental Health Research Consortium
COM	Comprehensive Assessment (CLSA In-home interview & Data Collection Site visit)
DA	Dissemination Areas (StatCan census geographic area)
INSPQ	*Institut national de santé publique du Québec*
LUR	Land-use regression
MSDI	National Material and Social Deprivation Indices
NAPS	National Air Pollution Surveillance program
NDVI	Normalized Difference Vegetation Index
NO$_2$	Nitrogen dioxide
O$_3$	Ozone
OMI	Ozone Monitoring Instrument
PM$_{2.5}$	Fine Particulate Matter
SO$_2$	Sulfur Dioxide
TRM	Tracking Assessment (CLSA Telephone interview)