



Canadian Urban Environmental Health Research Consortium

**CANUE Metadata Night Light V1.0
2017-10-23**

DATA SET INFORMATION

Data Set Title: **DMSP-OLS Night Time Light Time Series**

Description: Nighttime satellite imagery were accessed via Google Earth Engine (https://explorer.earthengine.google.com/#detail/NOAA%2FDMSP-OLS%2FNIGHTTIME_LIGHTS). Version 4 of the DMSP-OLS Nighttime Lights Time Series consists of cloud-free composites made using all the available archived DMSP-OLS smooth resolution data for calendar years. In cases where two satellites were collecting data - two composites were produced. The products are 30 arc second grids, spanning -180 to 180 degrees longitude and -65 to 75 degrees latitude. Several attributes are included - we used stable_lights which represents lights from cities, towns, and other sites with persistent lighting, including gas flares. Ephemeral events, such as fires have been discarded. The background noise was identified and replaced with values of zero.

These data were provided to Google Earth Engine by the National Centers for Environmental Information - National Oceanic and Atmospheric Administration of the United States (see Supporting Documentation).

CANUE staff exported the annual data and extracted values of annual mean nighttime brightness for all postal codes in Canada for each year from 1992 to 2013 (DMTI Spatial, 2015).

Theme Keywords: Satellite monitoring, nighttime, visible lights, annual, DMSP, OLS, brightness

Place Keywords: Canada national

Data preparation date: 7/1/2017

File Names LGTNLT_A_YY.csv, where YY is the last two digits of a specific year

File Type: Comma separated values (.csv)

Beginning Date: 1992

End Date: 2013

Sampling Frequency of Data: Annual

Number of Data Files: 23 files

File Size Individual year files range from 22 MB to 29 MB in size, all files total 570 MB in size.

Data Sources: See Data Description and Supporting Documentation

Spatial Resolution: 30 arc second grid spacing (~ 1 km)

Detection Range or Limit: Data values range from 1-63. Areas with zero cloud-free observations are represented by the value

Log of Changes: N/A

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 DMSP-OLS 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:	
	CANUE Metadata Postal Codes V1.0.pdf	
Vertical Positional Accuracy:	N/A	
Attribute Accuracy:	N/A	
Data Validity :	N/A	
Associated Files:	N/A	
Data Comment:		
SUPPORTING DOCUMENTATION		
Additional documentation:	<p>More information about Version 4 DMSP-OLS Nighttime Lights Time Series is available from:</p> <p>https://explorer.earthengine.google.com/#detail/NOAA%2FDMSP-OLS%2FNIGHTTIME_LIGHTS https://ngdc.noaa.gov/eog/dmsp/downloadV4composites.html https://ngdc.noaa.gov/eog/gcv4_readme.txt</p> <p>Additional applications and technical publications of nighttime lights DMSP/OLS data:</p> <p>[1] Elvidge, C.D., Cinzano, P., Pettit, D.R., Arvesen, J., Sutton, P., Small, C., Nemani, R., Longcore, T., Rich, C., Safran, J., Weeks, J., Ebener, S., 2007, The Nightsat mission concept. International Journal of Remote Sensing, 28(12), 2645 - 2670.</p> <p>[2] NOAA National Centers for Environmental Information. Nighttime Light Publications. NGDC/STP - Defense Meteorological Satellite Program, Boulder, ngdc.noaa.gov/eog/pubs_new.html. Accessed September 20, 2017.</p>	
DATA DICTIONARY		
Field Name (YY = last two digits of specific year of data)	Description	Data Type
LGTNLTY_01	6-digit postal code with no space between the FSA and LDU. (i.e. L1R2H2).	Text
LGTNLTY_02	Nighttime light brightness at postal code	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	



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Exposure Data Source Contact:	For questions relating to DMSP-OLS data in general:
Email:	ncie.info@noaa.gov
Phone:	303-497-6826
First Name:	N/A
Last Name:	N/A
Affiliated Organization:	National Centers for Environmental Information (NCEI)
City:	Boulder
Prov/State:	Colorado
Country:	USA
DATA USE CONDITIONS	
Conditions of Use:	<p>The Data User is REQUIRED:</p> <ul style="list-style-type: none"> (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:	<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, with those members 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>
Required Citation:	<p>Include the following references in any publications resulting from the use of these data:</p> <ul style="list-style-type: none"> [1] Gorelick, N., Hancher, M., Dixon, M., Ilyushchenko, S., Thau, D., & Moore, R. (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sensing of Environment. [2] Defense Meteorological Program (DMSP) Operational Linescan System (OLS) Nighttime Lights Time Series Version 4. Accessed July 2017: https://explorer.earthengine.google.com/#detail/NOAA%2FDMSP-OLS%2FNIGHTTIME_LIGHTS [3] CanMap Postal Code Suite v2015.2. [computer file] Markham: DMTI Spatial Inc., 2015.



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Acknowledgment:

Include the following acknowledgements:

1. DMSP-OLS metrics, indexed to DMTI Spatial Inc. postal codes , were provided by CANUE (Canadian Urban Environmental Health Research Consortium);
2. DMSP-OLS data were provided by the National Centers for Environmental Information at the National Oceanic and Atmospheric Administration (NOAA), via Google Earth Engine.