The Canadian Urban Environmental Health Research Consortium

Canue Metadata - Greenness MODIS - Annual Max

2026-03-24

DATA SET INFORMATION

Dataset Code: GRMOD_AMXB_YY

Description:

Normalized difference vegetation index (NDVI) data from the Moderate Resolution Imaging Spectroradiometer (MODIS) onboard the TERRA satellites were accessed via Google Earth Engine. These NDVI data are from the MOD13Q1 V6.1 product. They are provided as 16-Day composites at 250 m spatial resolution for all of Canada as far back as 2000. The best available pixel value from all the acquisitions from the 16 day period is chosen by a data processing algorithm, using low clouds, low view angle, and the highest NDVI/EVI value as criteria. CANUE staff created annual and growing season composites from the 16-day day product and exported the results within the bounding coordinates -148 to -48 degrees longitude and 40 to 83 degrees latitude. Water and cloud masking was performed prior to export, using only pixels meeting summary QA band equal to Good data, use with confidence. These were then used to calculate annual and growing season (defined as May 1st through August 31st) metrics for all 6-digit DMTI Spatial single link postal code locations in Canada, and for surrounding areas within 500 m and 1 km. | Please note that this is an improved and updated version of MODIS data on the CANUE portal. It supersedes the previous CANUE data holding of MOD13Q1 V6.0, which was available for 2000-2017. MOD13Q1 V6.0 was decommissioned by NASA/USGS in July, 2023. Users interested in obtaining the previous data holding may do so by contacting info@canue.ca.

Keywords: greenness - modis terra - ndvi - satellite monitoring - normalized difference vegetation index - annual

Place Keywords: Canada - National

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 MODIS 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) - NoData=null (for category fields) - Data insufficient to calculate value = -1111

Associated Files: N/A

Data Comment:

MOD13Q1 V6.1 includes a summary QA band of which individual pixels meet a range of 4 quality standards. The highest quality is denoted as "Good data, use with confidence". Only pixels meeting this criteria were used other than the following circumstance. In some urban areas (especially near airports) there were no pixels meeting the summary QA band quality, so the dataset was supplemented by using the detailed QA band to include pixels of "produced with good quality" and "no" mixed clouds. Most, but not all, of the gaps were filled and are therefore assigned no data values.

DATA SOURCE

Data Source
MODIS Terra 16-day vegetation indices (MOD13Q1 V6.1), accessed via Google Earth Engine, April 2024; DMTI Spatial Inc (postal codes). See supporting documentation.

Spatial Resolution: 250 meters

Data Preparation Date: 2024-04-01

Beginning Date: 2000

End Date: 2023

Sampling Frequency of Data: Annual

Years Available:
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

MAINTENANCE

Description: N/A

File Type: Comma separated values(.csv)

File Size:

Number of Data Files:

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 (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 the 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] Gorelick, N., Hancher, M., Dixon, M., Ilyushchenko, S., Thau, D., and Moore, R. (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sensing of Environment.
[2] Didan, K. (2021). MODIS/Terra Vegetation Indices 16-Day L3 Global 250m SIN Grid V061 [Data set]. NASA EOSDIS Land Processes Distributed Active Archive Center. [3] CanMap Postal Code Suite (2021). [computer files]. Markham ON: DMTI Spatial Inc.

Include the following acknowledgements:
NDVI metrics, indexed to DMTI Spatial Inc. postal codes , were provided by CANUE (Canadian Urban Environmental Health Research Consortium)

SUPPORT DOCUMENTATION

1 - Postal Code metadata (https://canuedata.ca/docs/CANUE-Browser-Metadata-PostalCodes.pdf)

2 - MOD13Q1 v061 (https://lpdaac.usgs.gov/products/mod13q1v061/)

3 - Google Earth Engine MODIS NDVI data (https://developers.google.com/earth-engine/datasets/catalog/MODIS_061_MOD13Q1)

VARIABLES

GRMODYY_06 - Annual Mean Value at Postal Code

Annual Mean Value at Postal Code (range -1 to 1)

GRMODYY_07 - Annual Mean of Max 500m

Annual Mean of Max 500m (range -1 to 1)

GRMODYY_08 - Annual Mean of Max 1000m

Annual Mean of Max 1000m (range -1 to 1)

GRMODYY_09 - Annual Max of Max 500m

Annual Max of Max 500m (range -1 to 1)

GRMODYY_10 - Annual Max of Max 1000m

Annual Max of Max 1000m (range -1 to 1)

SUPPORT CONTACT

Data Set Support Contact: info@canue.ca

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

WebSite: https://www.canue.ca

Toronto - Ontario - Canada

DATA SOURCE CONTACT

Data Set Support Contact: For questions relating to MODIS data in general:

Email: custserv@usgs.gov

Affiliated Organization:
Department of the Interior, U.S. Geological Survey (USGS)

Sioux Falls - South Dakota - USA