



07-20-2015



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Earth Observations for Informing Disaster Risk and Response to Drought, Wildfire, and Flooding in Mexico

Overview and Access of Population and Nightlight Data

May 8, 2023



Objectives

- By the end of this presentation, you will have an overview of and access to:
 - A gridded world population data product
 - Satellite imagery indicating night lights





Population Data

Gridded Population of World Version 4.11 (GPWv4.11)

[NASA-SEDAC-GPWv4.11](#)

- Derived from population inputs from 13.5 million national and sub-national administrative units
- Provides population counts for 2000, 2005, 2010, 2015, and 2020, consistent with national and sub-national census
- The data are also categorized according to gender and age for 2010.
- Spatial resolution: Number of people per $\sim 1 \text{ km}^2$. (30 arc seconds)
- Data can be downloaded from the SEDAC site as country shapefile and ESRI data format.

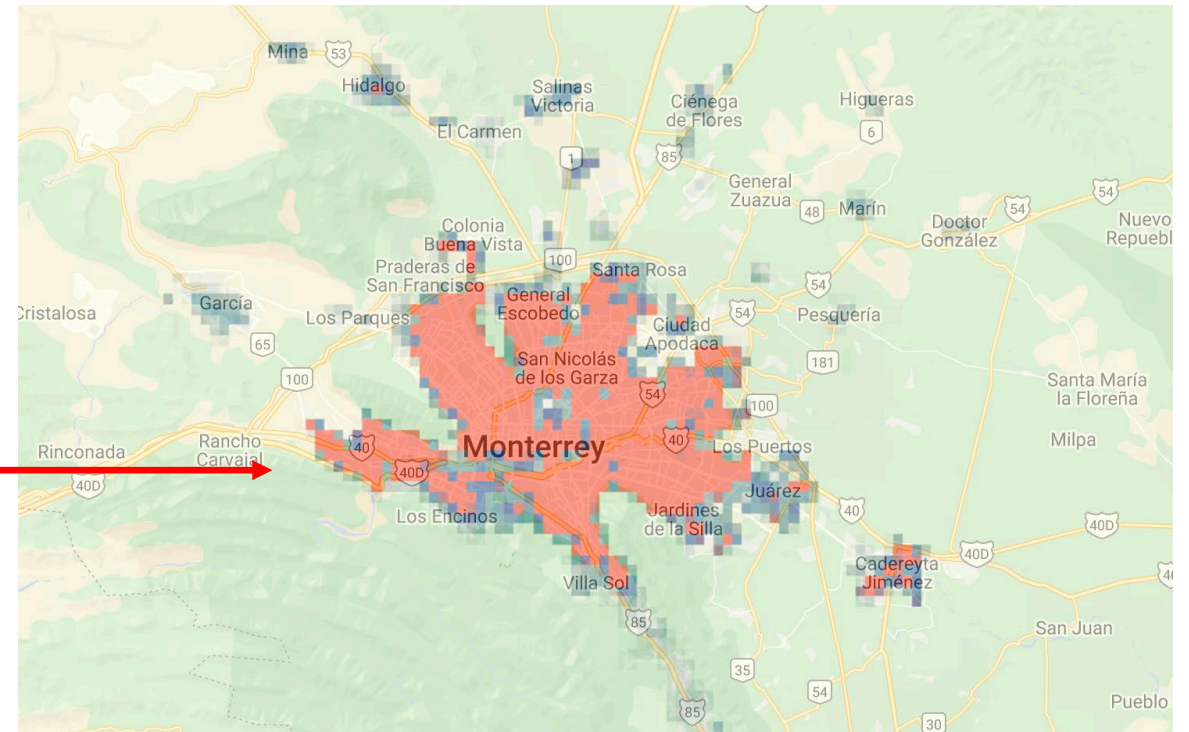
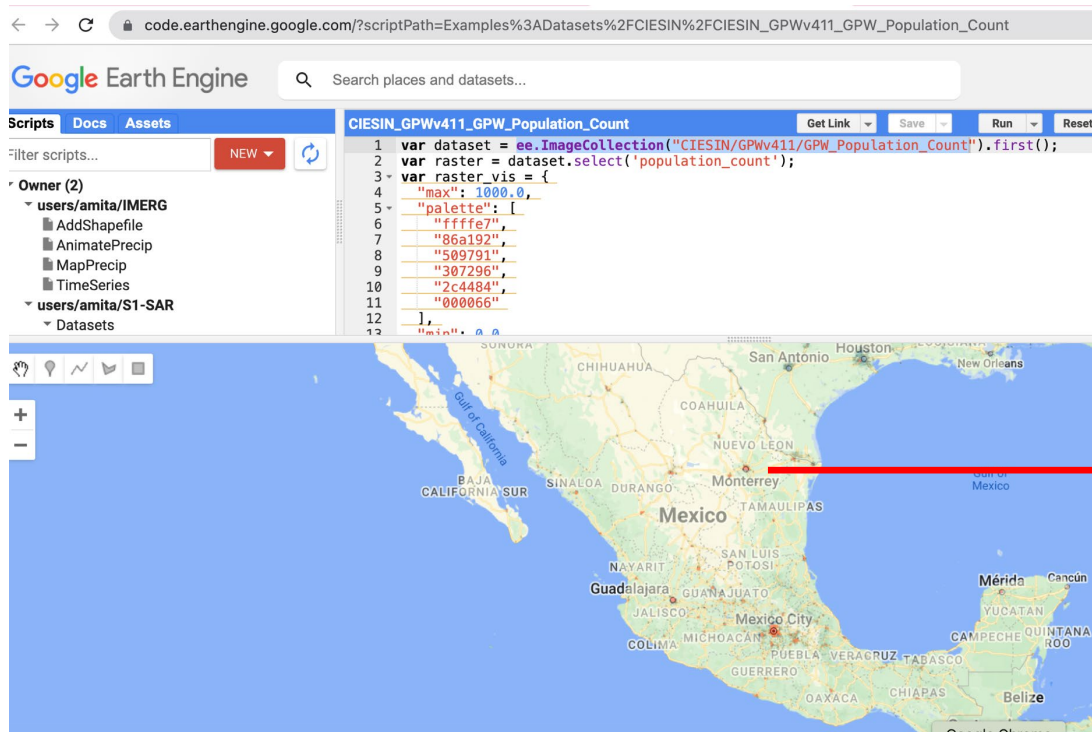
Reference: Center for International Earth Science Information Network - CIESIN - Columbia University. 2018. Gridded Population of the World, Version 4 (GPWv4): Population Count, Revision 11. Palisades, New York: NASA Socioeconomic Data and Applications Center (SEDAC). <https://doi.org/10.7927/H4JW8BX5>.



Gridded Population of World Version 4.11 Population Count Data Access

GEE dataset:

- [CIESIN GPWv411 GPW Population Count](#)





Night Light Images

VIIRS Nighttime Lights Product

<https://ladsweb.modaps.eosdis.nasa.gov/missions-and-measurements/products/VNP46A2/>

- Derived from a Day-Night Band (DNB) sensor available from Visible Infrared Imaging Radiometer Suite (VIIRS) onboard SNPP and JPSS.
- Provides global daily measurements of nocturnal visible and near-infrared (NIR) light (*panchromatic sensor covering wavelength range from 500 nm to 900 nm)
- The VIIRS DNB is sensitive to very low light conditions, suitable for tracking power outages.
- One of the VIIRS DNB-based datasets is moonlight-and atmosphere-corrected Nighttime Lights (NTL) product – this product is called VIIRS/NPP Gap-Filled Lunar BRDF-Adjusted Nighttime Lights.

Reference: Roman et al., 2019, DOI: 10.5067/VIIRS/VNP46A2.001

*Sensor with single band covering entire visible and NIR spectrum



VIIRS Nighttime Lights Product

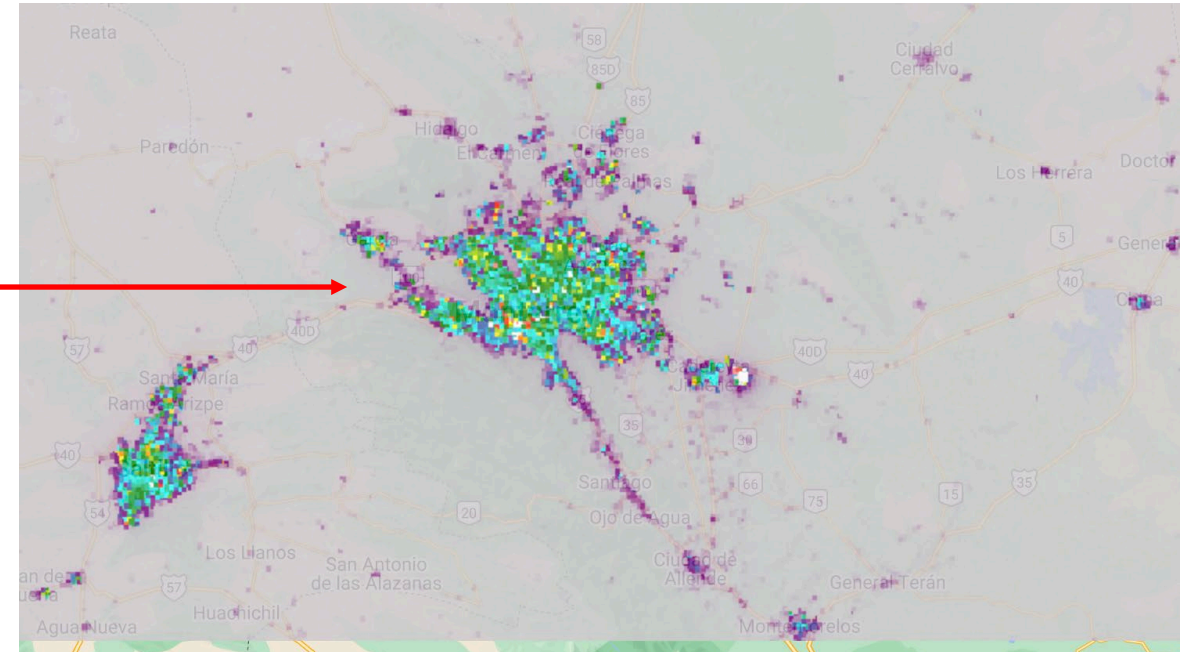
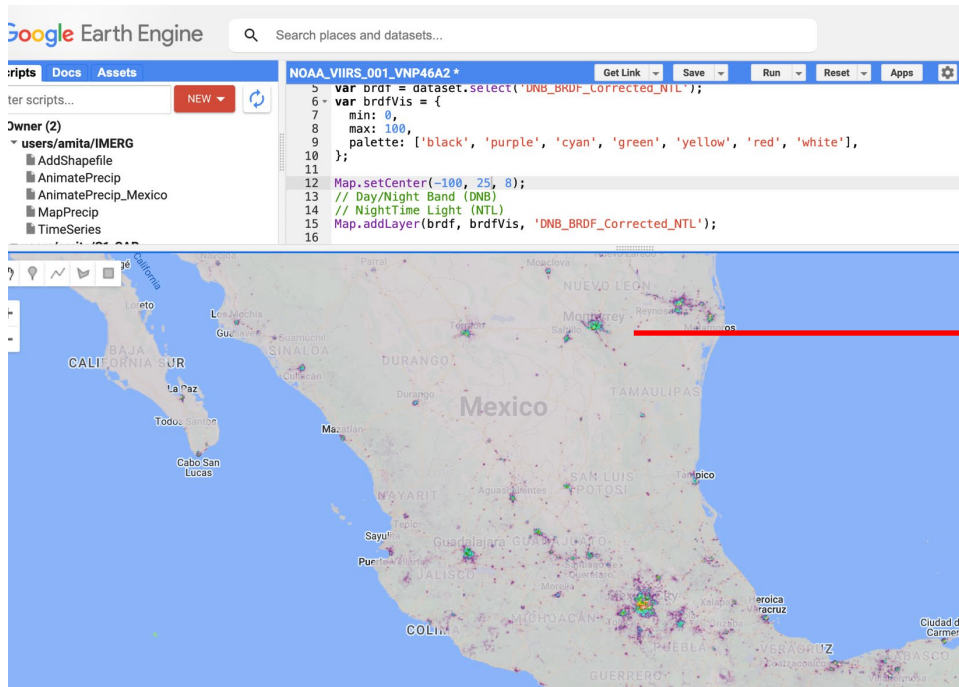
<https://ladsweb.modaps.eosdis.nasa.gov/missions-and-measurements/products/VNP46A2/>

- Temporal resolution and coverage: Daily, starting from January 19, 2012.
- Spatial resolution and coverage: 500 m, global.
- Limitations: Data are missing when clouds are present or when surface is covered with snow/ice.
- Monthly composite data are available which provide better spatial coverage and allow tracking nightlights from human settlements.



VIIRS Nighttime Lights Products

- GEE Data Set: [NOAA VIIRS 001_VNP46A2](#)
- GEE also has monthly composite nightlight data product: [NOAA VIIRS DNB MONTHLY V1_VCMCFG](#)





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Demonstration of Data Access



Thank You!

