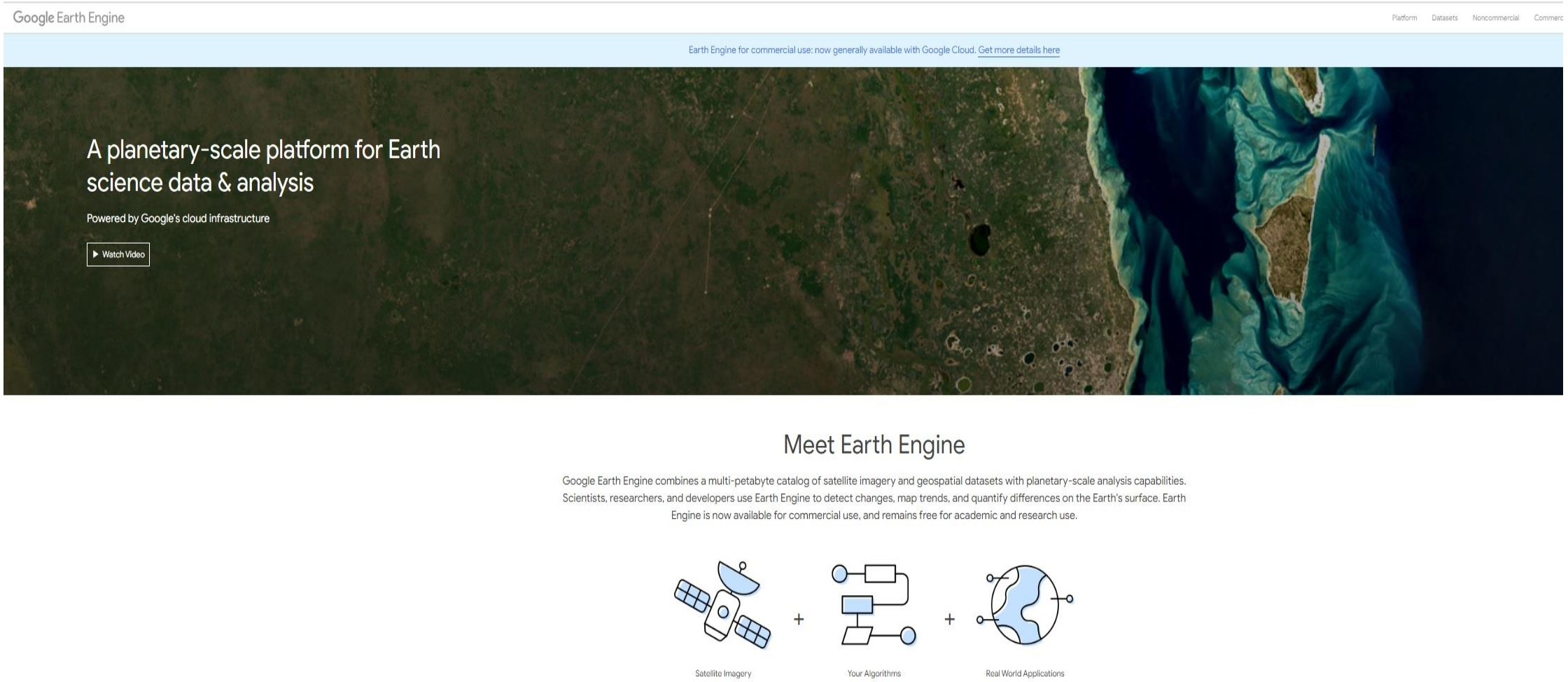
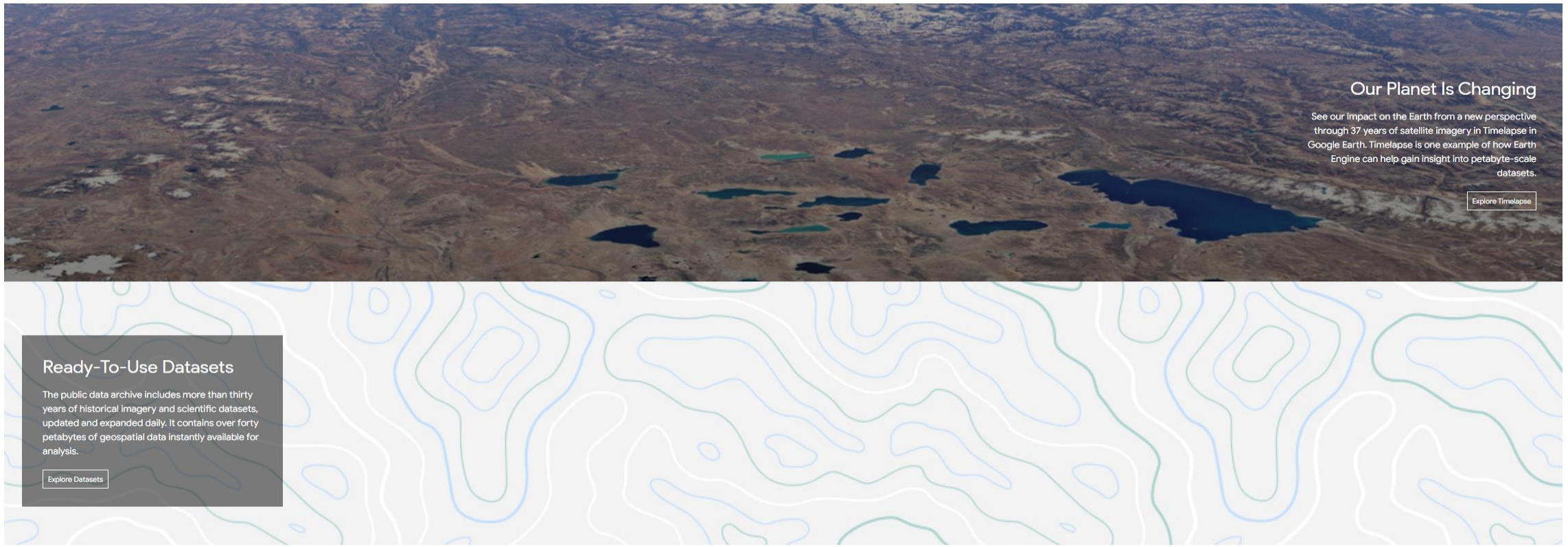
Demonstration

Google Earth Engine (GEE)



Source https://earthengine.google.com/

Google Earth Engine Datasets



Register/Sign Up (using Google account or other account)

Access to various datasets

GEE Various Datasets

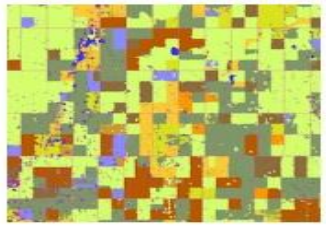
Earth Engine Data Catalog

Earth Engine's public data catalog includes a variety of standard Earth science raster datasets. You can import these datasets into your script environment with a single click. You can also upload your own raster data or vector data for private use or sharing in your scripts.

Looking for another dataset not in Earth Engine yet? Let us know by suggesting a dataset.

Filter list of datasets

Canada AAFC Annual Crop Inventory



Starting in 2009, the Earth Observation Team of the Science and Technology Branch (STB) at Agriculture and Agri-Food Canada (AAFC) began the process of generating annual crop type digital maps. Focusing on the Prairie Provinces in 2009 and 2010, a Decision Tree (DT) based methodology ...

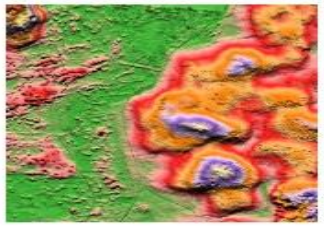
aafc canada crop landcover

Allen Coral Atlas (ACA) - Geomorphic Zonation and Benthic Habitat - v1.0

The Allen Coral Atlas dataset maps the geomorphic zonation and benthic habitat for the world's shallow coral reefs at 5m pixel resolution. The underlying satellite image data are temporal composites of PlanetScope satellite imagery spanning 2018-2020. The habitat maps are created via a machine learning ...

coral ocean planet planet-derived reef seagrass

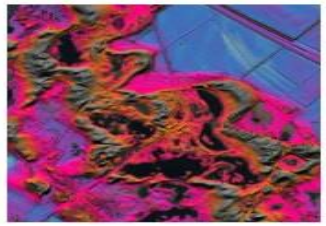
AHN Netherlands 0.5m DEM, Interpolated



The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. It contains ground level samples with all other items above ground (such as buildings, bridges, trees etc.) removed. This version is ...

ahn dem elevation geophysical lidar netherlands

AHN Netherlands 0.5m DEM, Non-Interpolated



The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. It contains ground level samples with all other items above ground (such as buildings, bridges, trees etc.) removed. This version is ...

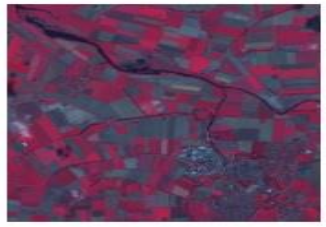
ahn dem elevation geophysical lidar netherlands

AHN Netherlands 0.5m DEM, Raw Samples

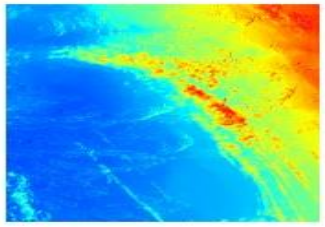
The AHN DEM is a 0.5m DEM covering the Netherlands. It was generated from LIDAR data taken in the spring between 2007 and 2012. This version contains both ground level samples and items above ground level (such as buildings, bridges, trees etc). The point cloud ...

ahn dem elevation geophysical lidar netherlands

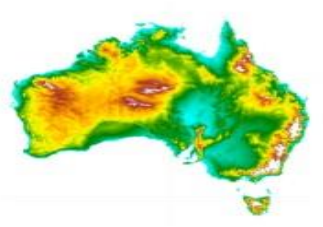
ASTER L1T Radiance



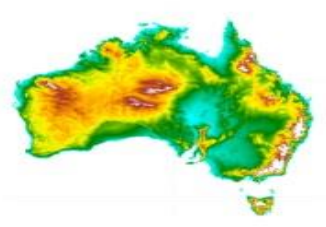
Australian 5M DEM



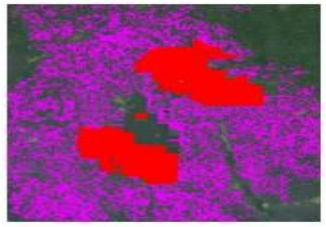
DEM-H: Australian SRTM Hydrologically Enforced Digital Elevation Model



DEM-S: Australian Smoothed Digital Elevation Model



Global Map of Oil Palm Plantations



Nighttime Light Data

VIIRS Nighttime Day/Night Band Composites Version 1

Dataset Availability

2012-04-01T00:00:00Z–2022-06-01T00:00:00

Dataset Provider

Earth Observation Group, Payne Institute for Public Policy, Colorado School of Mines

Earth Engine Snippet

```
ee.ImageCollection("NOAA/VIIRS/DNB/MONTHLY_V1/VCMCFG")
```

Tags

dnb eog lights monthly nighttime noaa viirs visible

Description Bands Terms of Use

Monthly average radiance composite images using nighttime data from the Visible Infrared Imaging Radiometer Suite (VIIRS) Day/Night Band (DNB).

As these data are composited monthly, there are many areas of the globe where it is impossible to get good quality data coverage for that month. This can be due to cloud cover, especially in the tropical regions, or due to solar illumination, as happens toward the poles in their respective summer months. Therefore it is recommended that users of these data utilize the 'cf_cvg' band and not assume a value of zero in the average radiance image means that no lights were observed.

Cloud cover is determined using the VIIRS Cloud Mask product (VCM). In addition, data near the edges of the swath are not included in the composites (aggregation zones 29-32). Version 1 has NOT been filtered to screen out lights from aurora, fires, boats, and other temporal lights. This separation is under development and will be included in a later version of this time series. Also in development is a method to separate lights from background (non-light) values.

Prior to averaging, the DNB data is filtered to exclude data impacted by stray light, lightning, lunar illumination, and cloud-cover.

Explore in Earth Engine

```
var dataset = ee.ImageCollection('NOAA/VIIRS/DNB/MONTHLY_V1/VCMCFG')
                  .filter(ee.Filter.date('2017-05-01', '2017-05-31'));
var nighttime = dataset.select('avg_rad');
var nighttimeVis = {min: 0.0, max: 60.0};
Map.setCenter(-77.1056, 38.8904, 8);
Map.addLayer(nighttime, nighttimeVis, 'Nighttime');
```

Open in Code Editor

FAO GAUL

FAO GAUL: Global Administrative Unit Layers 2015, First-Level Administrative Units

Dataset Availability

2014-12-19T16:45:00Z–2014-12-19T16:45:00

Dataset Provider

FAO UN

Earth Engine Snippet

FeatureCollection

```
ee.FeatureCollection("FAO/GAUL/2015/level1")
```

FeatureView

```
ui.Map.FeatureViewLayer("FAO/GAUL/2015/level1_FeatureView")
```

Tags

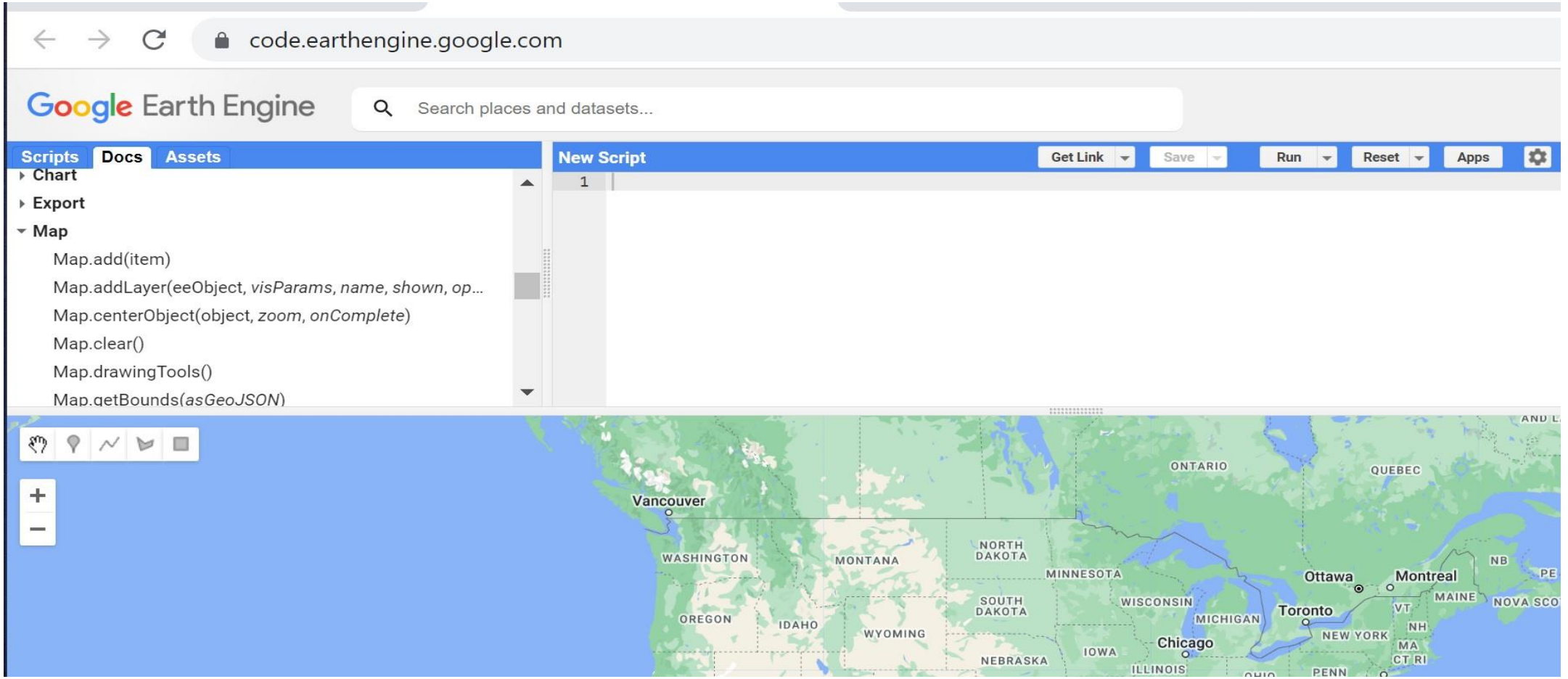
borders departments fao gaul provinces states un

Description | Table Schema | Terms of Use

The Global Administrative Unit Layers (GAUL) compiles and disseminates the best available information on administrative units for all the countries in the world, providing a contribution to the standardization of the spatial dataset representing administrative units. The GAUL always maintains global layers with a unified coding system at country, first (e.g. departments), and second administrative levels (e.g. districts). Where data is available, it provides layers on a country by country basis down to third, fourth, and lowers levels. The overall methodology consists in a) collecting the best available data from most reliable sources, b) establishing validation periods of the geographic features (when possible), c) adding selected data to the global layer based on the last country boundaries map provided by the UN Cartographic Unit (UNCS), d) generating codes using GAUL Coding System, and e) distribute data to the users (see Technical Aspects of the GAUL Distribution Set. Note that some administrative units are multipolygon features.

https://developers.google.com/earth-engine/datasets/catalog/FAO_GAUL_SIMPLIFIED_500m_2015_level1

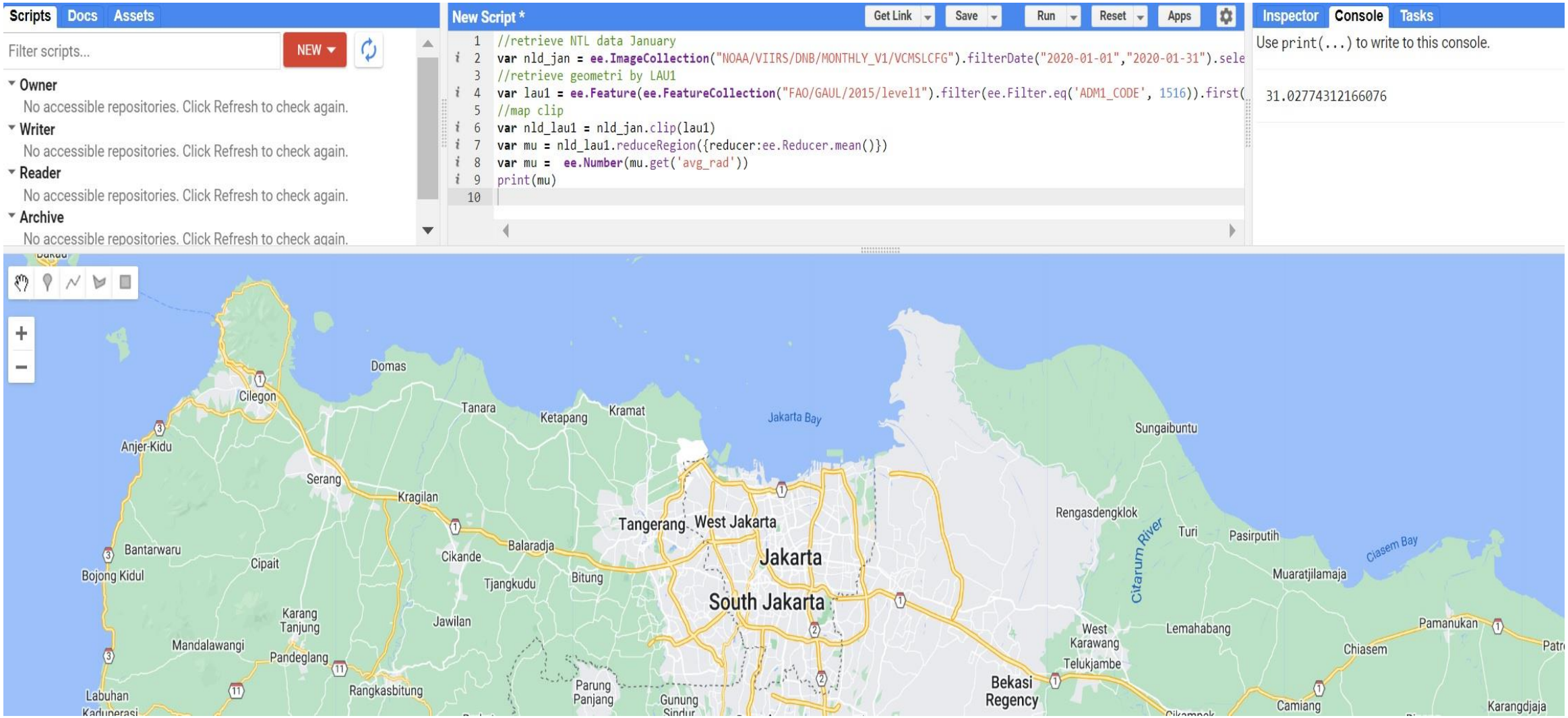
Import/Add Map to GEE



Combine NTL and LAU

```
//retrieve NTL data January
var nld_jan =
ee.ImageCollection("NOAA/VIIRS/DNB/MONTHLY_V1/VCMSLCFG").filterDate("2020-
01-01","2020-01-31").select('avg_rad').first()
//retrieve geometri by LAU1
var lau1 =
ee.Feature(ee.FeatureCollection("FAO/GAUL/2015/level1").filter(ee.Filter.eq('ADM1_C
ODE', 1516)).first()).geometry()
//map clip
var nld_lau1 = nld_jan.clip(lau1)
var mu = nld_lau1.reduceRegion({reducer:ee.Reducer.mean()})
var mu =  ee.Number(mu.get('avg_rad'))
print(mu)
```

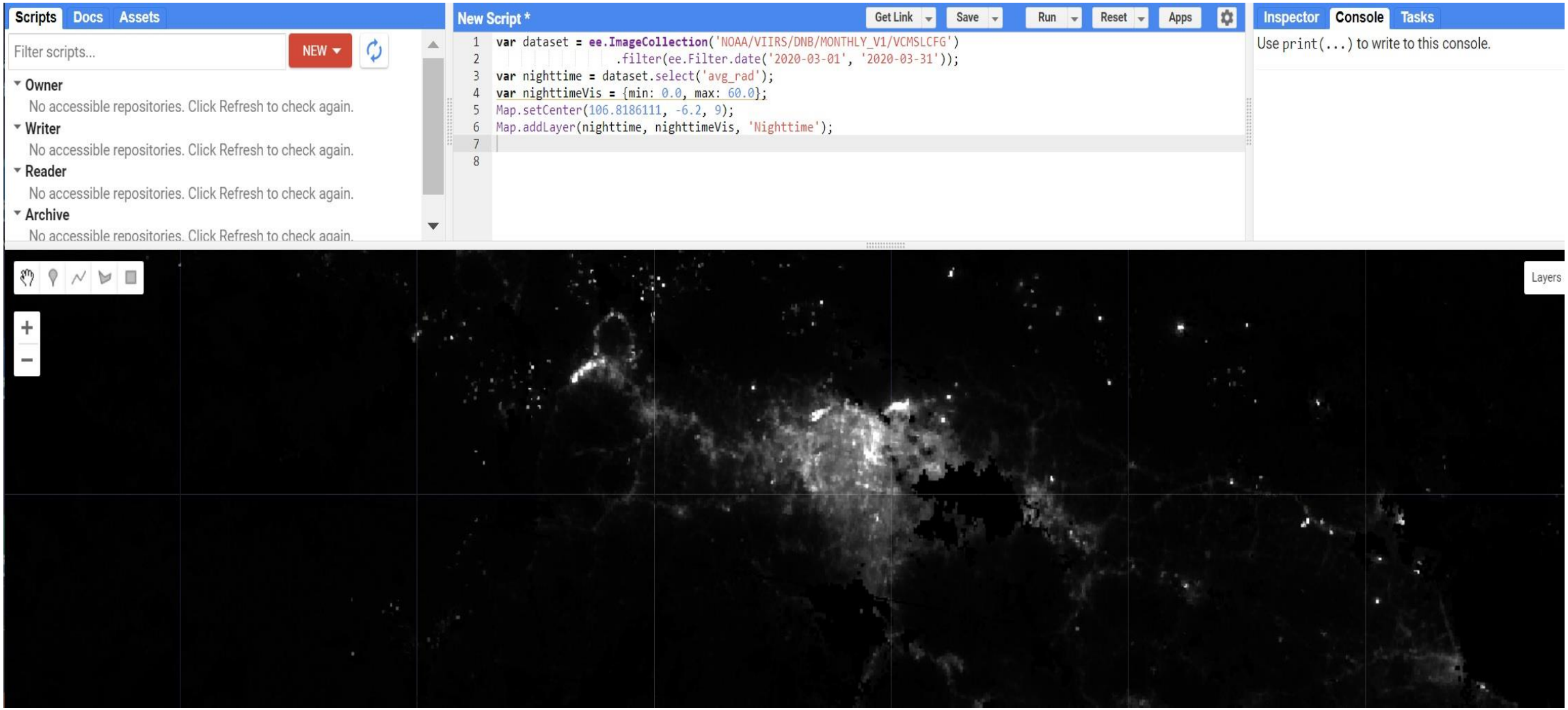
Result


Scripts
Docs
Assets
Filter scripts...
NEW
Owner
No accessible repositories. Click Refresh to check again.
Writer
No accessible repositories. Click Refresh to check again.
Reader
No accessible repositories. Click Refresh to check again.
Archive
No accessible repositories. Click Refresh to check again.
New Script *
Get Link
Save
Run
Reset
Apps
1 //retrieve NTL data January
2 var nld_jan = ee.ImageCollection("NOAA/VIIRS/DNB/MONTHLY_V1/VCMSLCFG").filterDate("2020-01-01","2020-01-31").sele
3 //retrieve geometri by LAU1
4 var lau1 = ee.Feature(ee.FeatureCollection("FAO/GAUL/2015/level1").filter(ee.Filter.eq('ADM1_CODE', 1516)).first(
5 //map clip
6 var nld_lau1 = nld_jan.clip(lau1)
7 var mu = nld_lau1.reduceRegion({reducer:ee.Reducer.mean()})
8 var mu = ee.Number(mu.get('avg_rad'))
9 print(mu)
10
Inspector
Console
Tasks
Use print(...) to write to this console.
31.02774312166076
Domas
Cilegon
Tanara
Ketapang
Kramat
Jakarta Bay
Sungaibuntu
Anjer-Kidu
Serang
Kragilan
Tangerang
West Jakarta
Jakarta
South Jakarta
Rengasdengklok
Turi
Pasirputih
Citarum River
Ciasem Bay
Muaratjilamaja
Bantarwaru
Bojong Kidul
Cipait
Cikande
Balaradja
Tjangkudu
Bitung
Karang Tanjung
Jawilan
Mandalawangi
Pandeglang
Rangkasbitung
Labuhan
Parung Panjang
Gunung Sindur
West Karawang
Telukjambe
Lemahabang
Bekasi Regency
Chiasem
Pamanukan
Camiang
Karangdjaja

NTL Image

```
var dataset =
ee.ImageCollection('NOAA/VIIRS/DNB/MONTHLY_V1/VC
MSLCFG')
                .filter(ee.Filter.date('2020-03-01', '2020-03-
31'));
var nighttime = dataset.select('avg_rad');
var nighttimeVis = {min: 0.0, max: 60.0};
Map.setCenter(106.8186111, -6.2, 9);
Map.addLayer(nighttime, nighttimeVis, 'Nighttime');
```

Result (NTL Image of Jakarta)



Run multiple states

```
var myArray =
[2853,2885,2886];
var i;
for(i = 0; i < myArray.length; i++){
  //retrieve NTL data January
  var nld_jan = ee.ImageCollection("NOAA/VIIRS/DNB/MONTHLY_V1/VCMSLCFG").filterDate("2020-01-01","2020-01-
31").select('cf_cvg').first()

  //retrieve geometry by LAU
  var prov = ee.Feature(ee.FeatureCollection("FAO/GAUL/2015/level1").filter(ee.Filter.eq('ADM1_CODE',
myArray[i])).first()).geometry()

  //clip
  var nld_prov = nld_jan.clip(prov)

  var mu = nld_prov.reduceRegion({reducer:ee.Reducer.mean()})
  var mu =  ee.Number(mu.get('cf_cvg'))
  print(mu)
}
```

Result (Radiance Thailand)