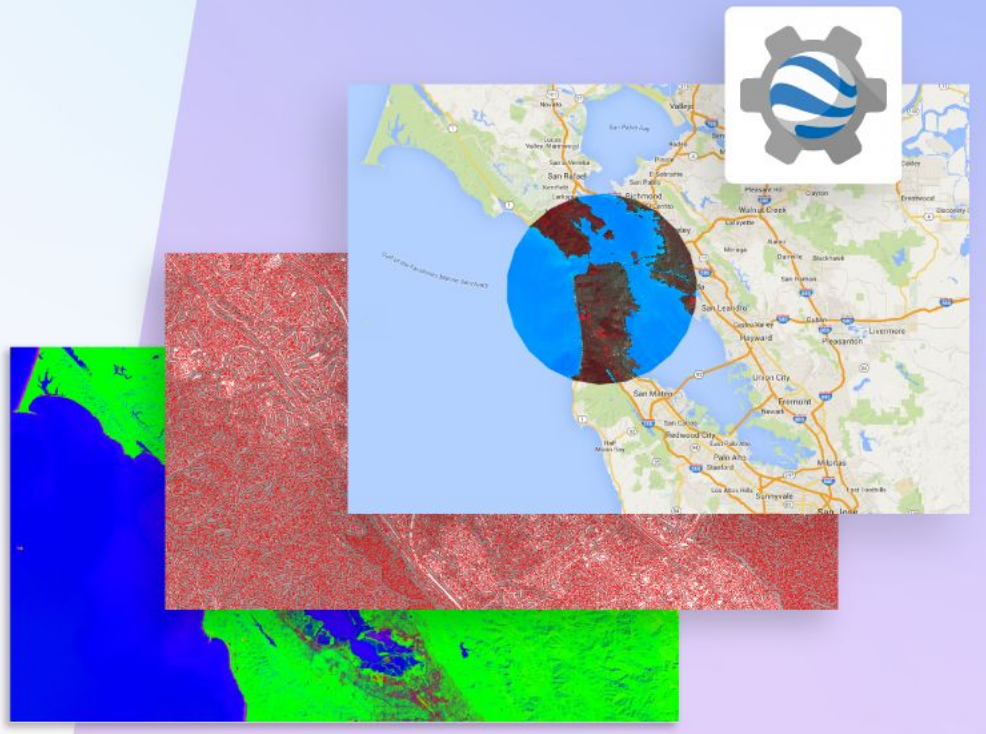
MASTERGIS Days

PROCESAMIENTO Y VISUALIZACIÓN DE DATOS GEOESPACIALES CON GOOGLE EARTH ENGINE

David Montero Loaiza
Ing. Topográfico



Google Earth Engine

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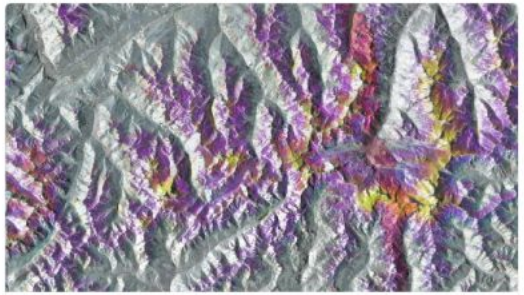

Sentinel-1 SAR GRD: C-band Synthetic Aperture Radar

Data availability: 2014 – Present

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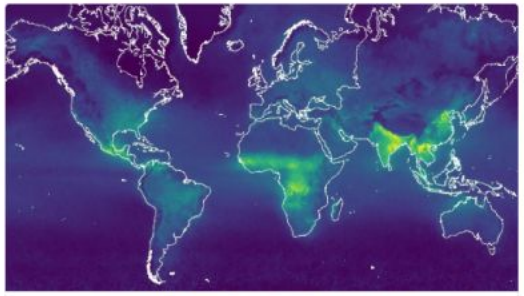

Sentinel-5P TROPOMI: TROPOspheric Monitoring Instrument

Data availability: 2018 – Present

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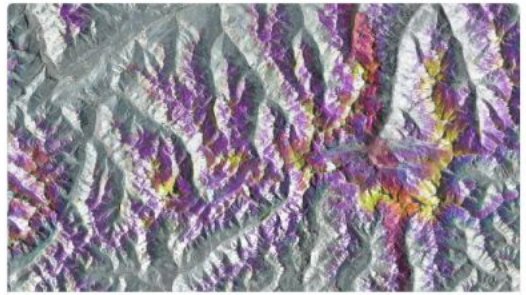

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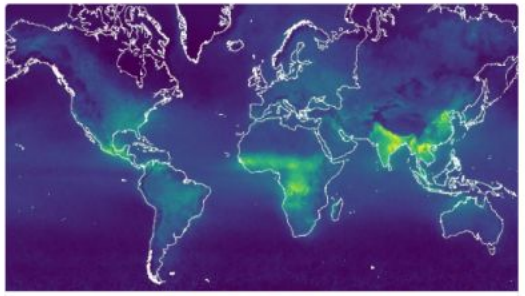

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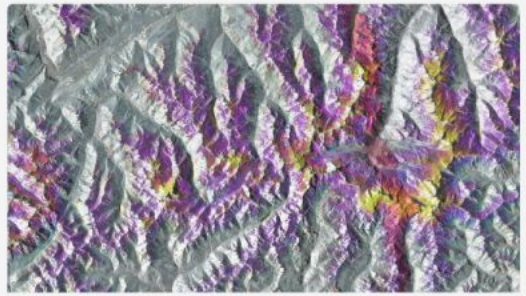

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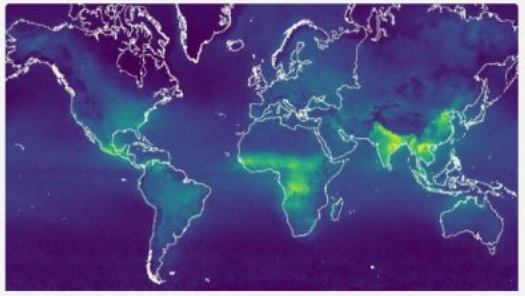

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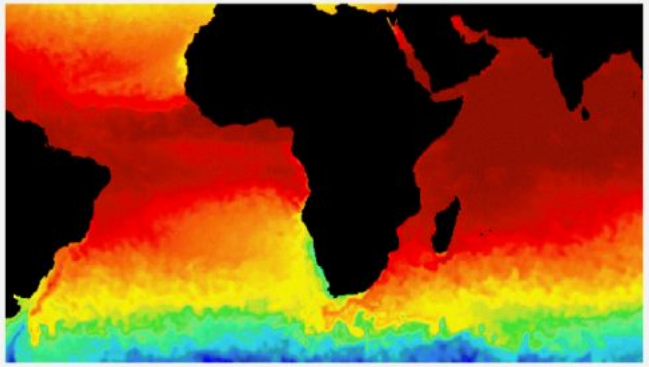
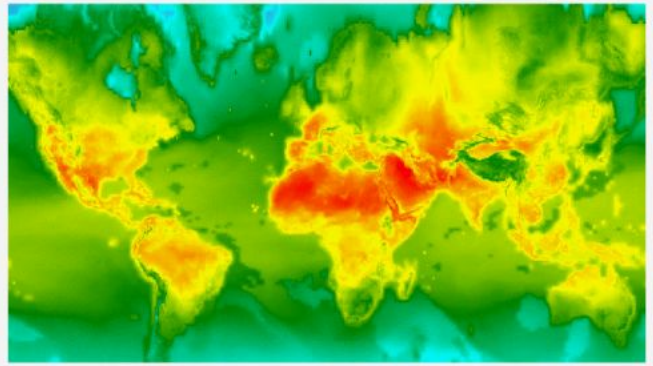


Surface Temperature

Thermal satellite sensors can provide surface temperature and emissivity information. The Earth Engine data catalog includes both land and sea surface temperature products derived from several spacecraft sensors, including MODIS, ASTER, and AVHRR, in addition to raw Landsat thermal data.

Explore temperature data



Climate

Climate models generate both long-term climate predictions and historical interpolations of surface variables. The Earth Engine catalog includes historical reanalysis data from NCEP/NCAR, gridded meteorological datasets like NLDAS-2, and GridMET, and climate model outputs like the University of Idaho MACAv2-METDATA and the NASA Earth Exchange's Downscaled Climate Projections.

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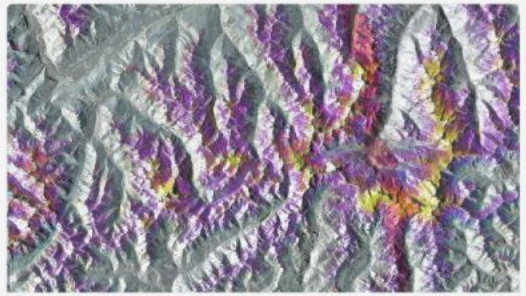
Catálogo de Google Earth Engine



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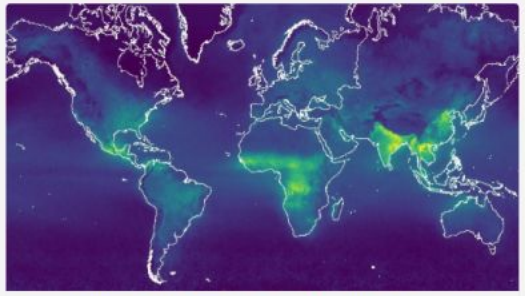

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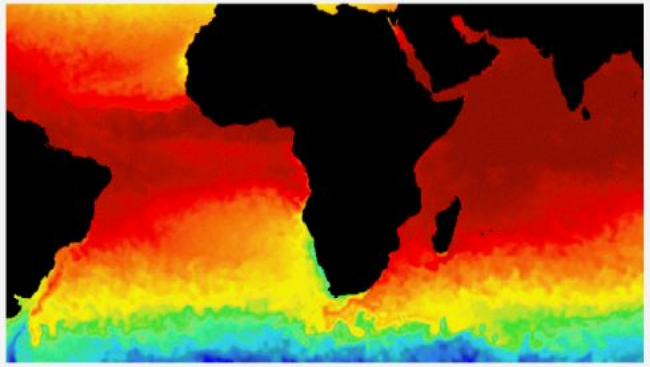

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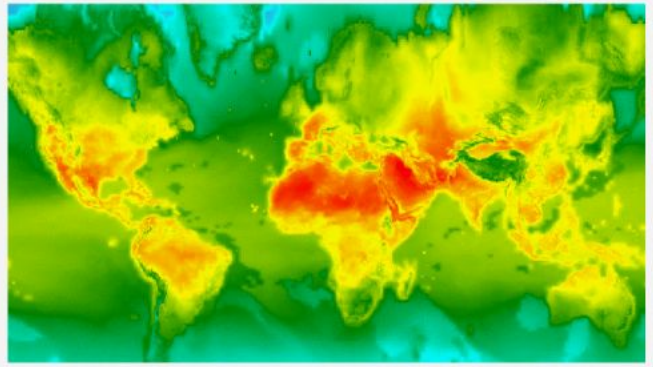

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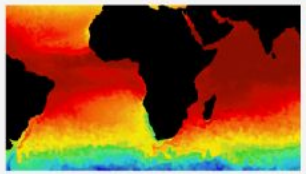

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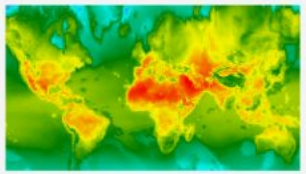

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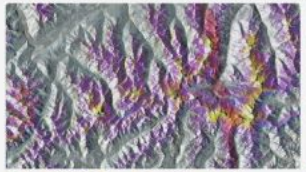

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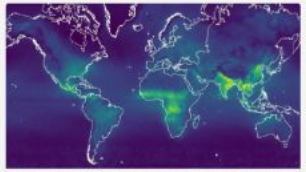

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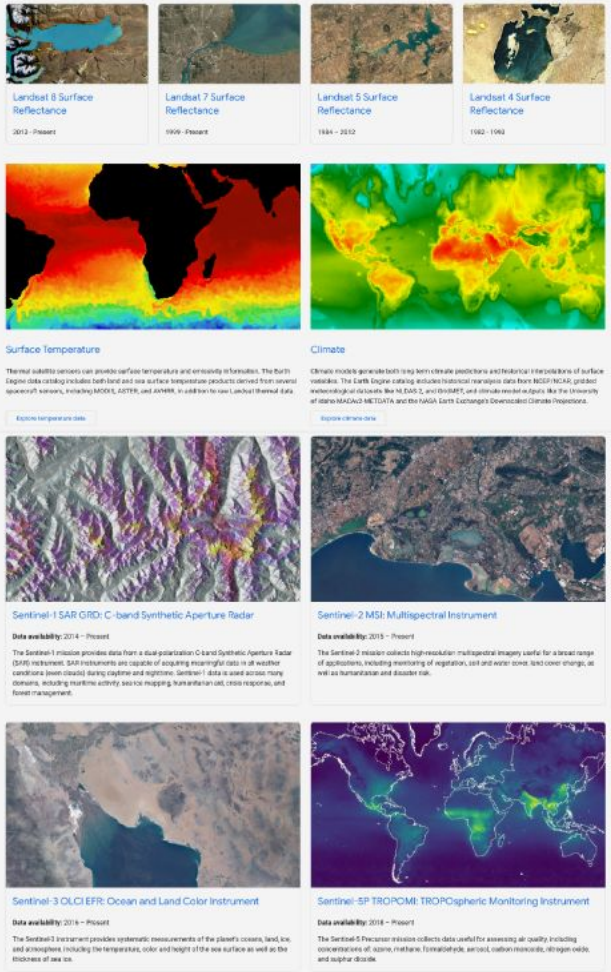
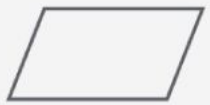


API: Objetos y Métodos

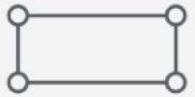


Image

The fundamental raster data type in Earth Engine.

ImageCollection

A set of images.



Geometry

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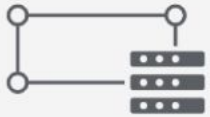
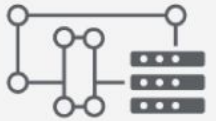


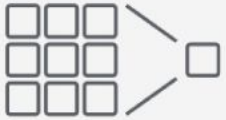
Feature

A geometry with attributes.



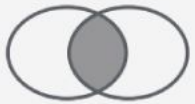
FeatureCollection

A set of features.



Reducer

An object used to compute statistics or perform aggregations.



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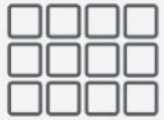

Array

An object for multi-dimensional analyses.

Chart

An object for charting properties and spatiotemporal reductions.

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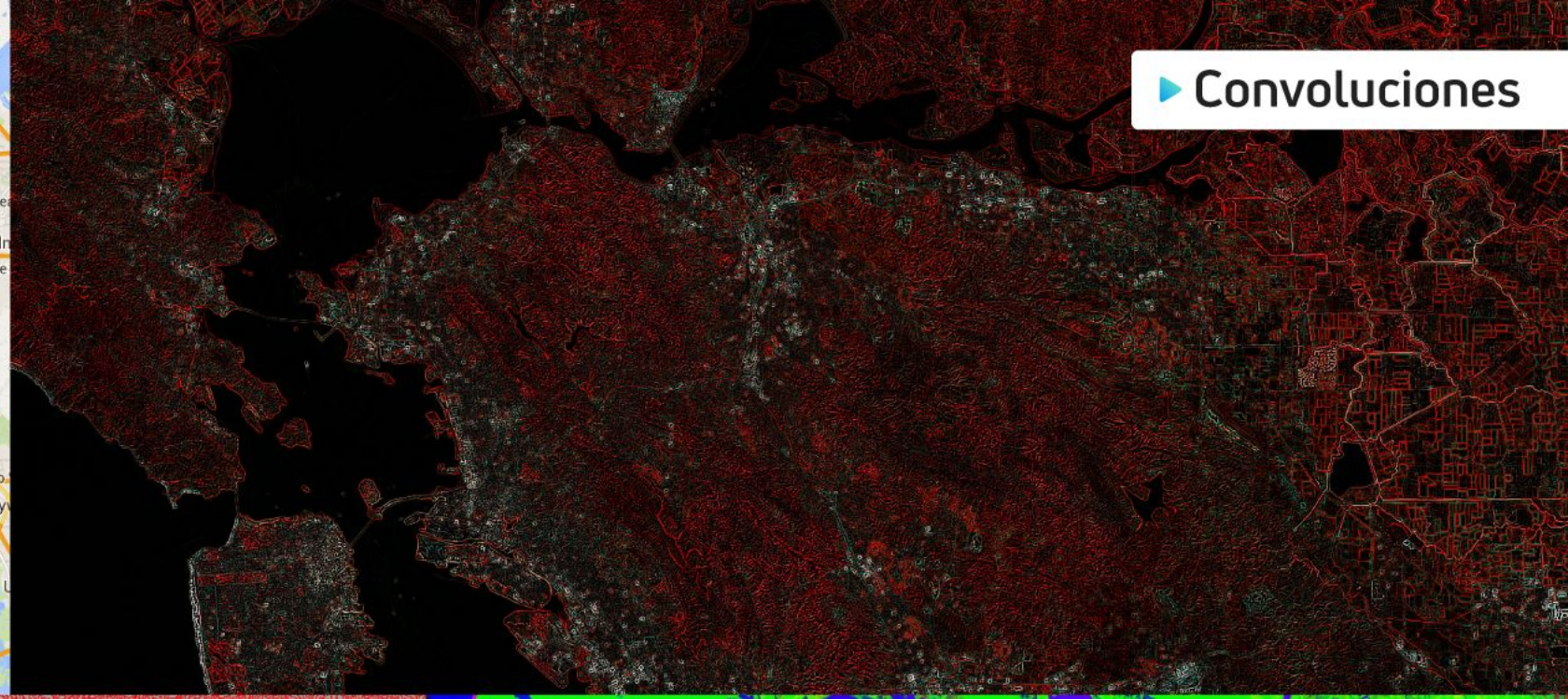
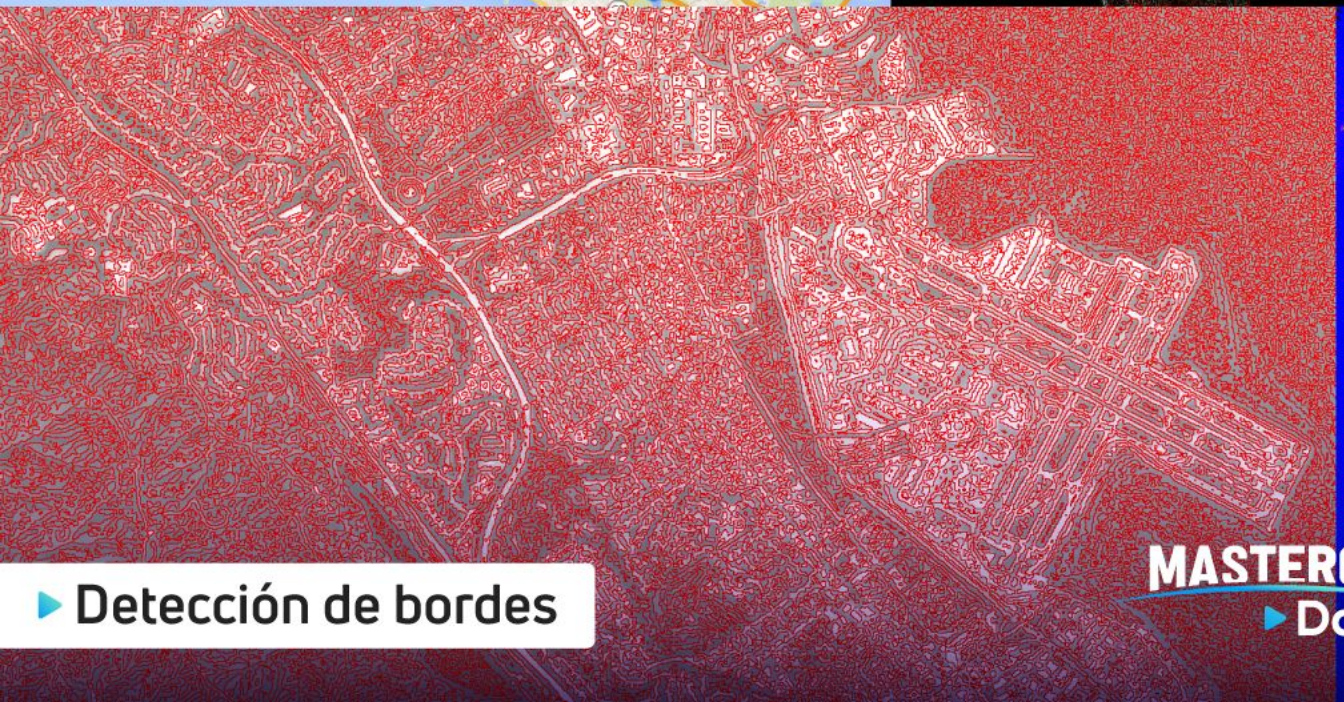
Visualización de datos



Convoluciones



Detección de bordes

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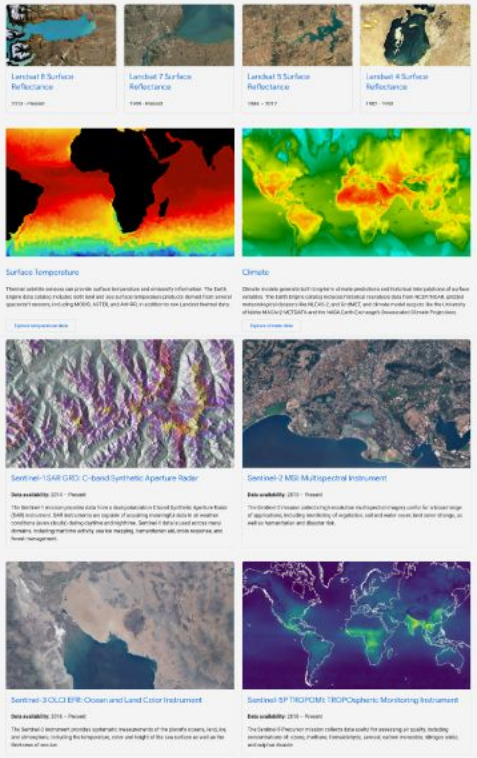
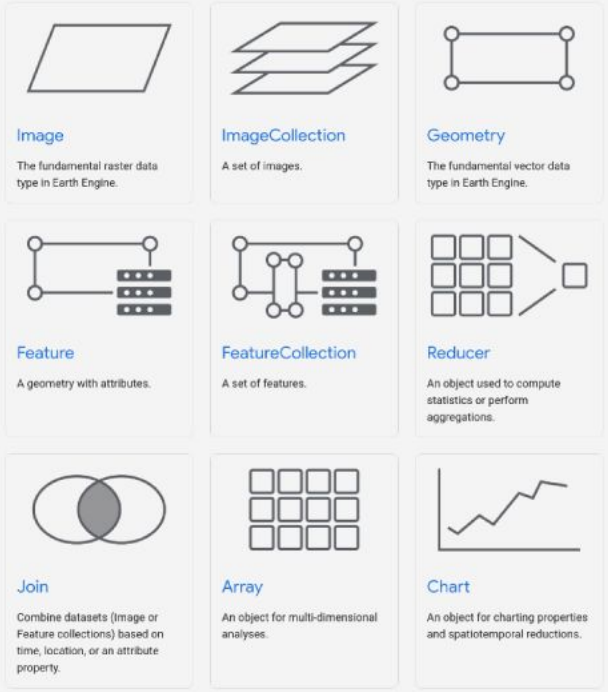
Transformaciones espectrales

Catálogo



API: JavaScript y Python



JS

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API: JavaScript y Python

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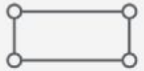

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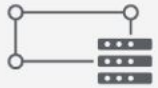

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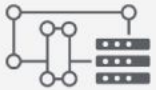

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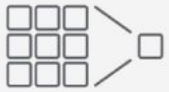

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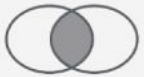

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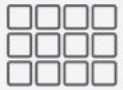

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An object for multi-dimensional analyses.

Chart

An object for charting properties and spatiotemporal reductions.

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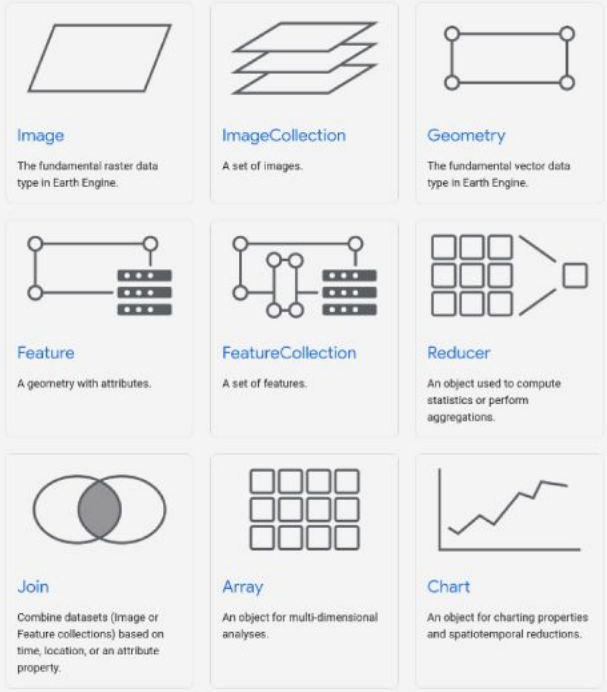
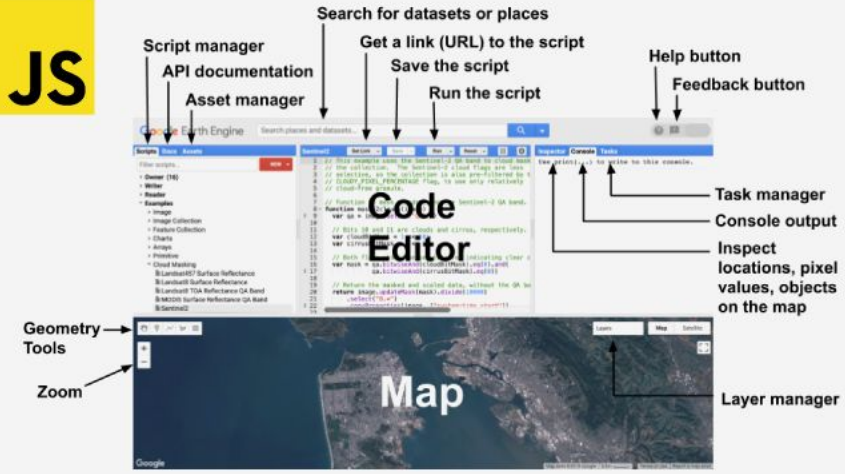
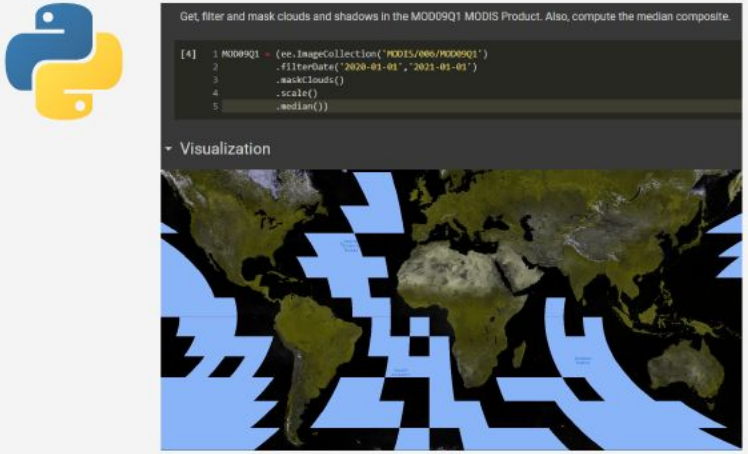
API: JavaScript y Python



JS



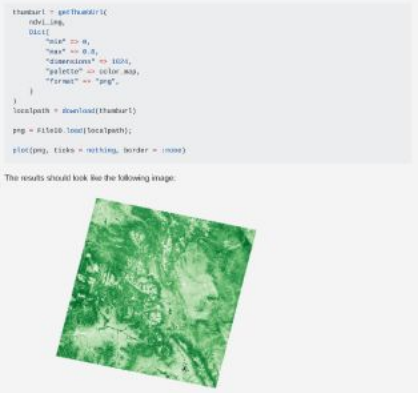


Extensions: R, Julia, QGIS

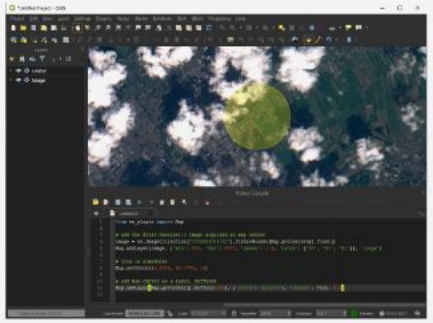
rgee

(Aybar et al., 2020)

(Markert, 2021)



(Donchyts et al., 2021)



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Taller JS

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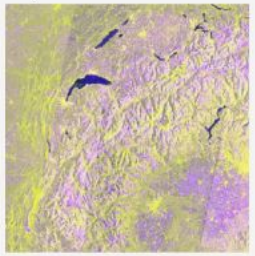
Colecciones: ráster y vector

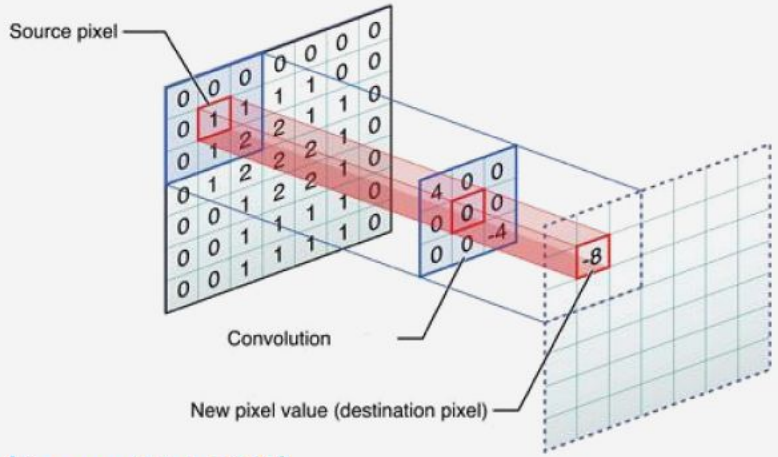
Sentinel-1 SAR GRD: C-band Synthetic Aperture Radar Ground Range Detected, log



Sentinel-2 MSI: MultiSpectral Instrument, Level-1C

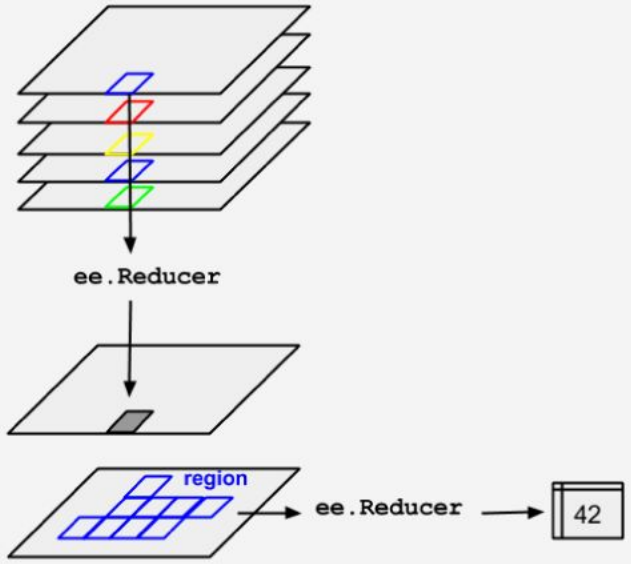
FAO GAUL: Global Administrative Unit Layers 2015, Second-Level Administrative

Convoluciones



(Basavarajaiah, 2019)

Reducers



Matemática de bandas

NDVI = (N-R)/(N+R)

Módulos de terceros

(Montero, 2021)

(Braaten and Donchyts, 2020)

Funciones personalizadas

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GRACIAS

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