INTRODUCCIÓN A GOOGLE EARTH ENGINE

David Hernández López

Dr. Ingeniero en Geodesia y Cartografía

Catedrático de Universidad

Universidad de Castilla-La Mancha

David.hernandez@uclm.es

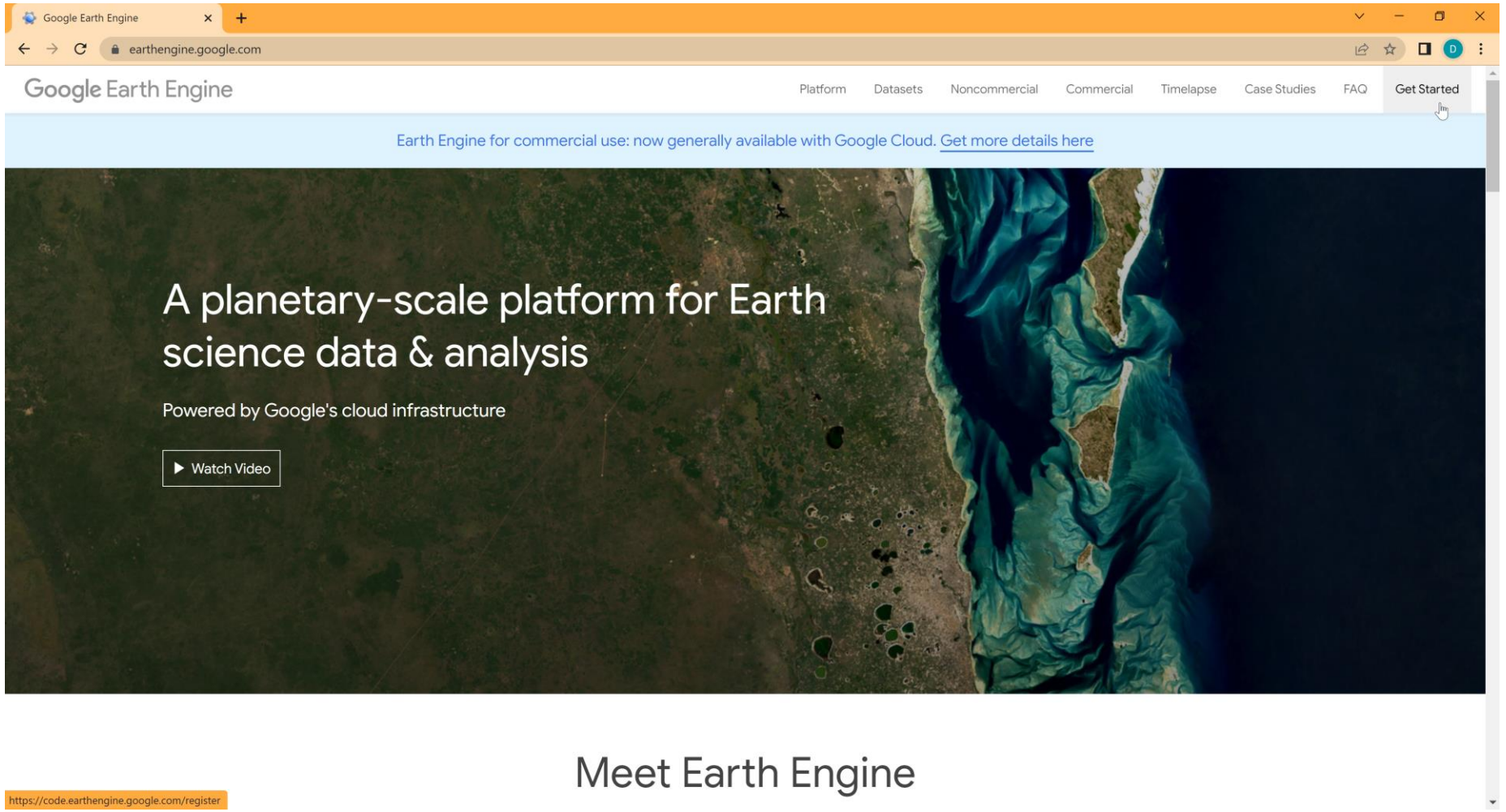
Grupo de Investigación y Sección del Instituto de Desarrollo Regional: Precisión Agroforestal y Cartográfica, PAFyC

http://pafyc.uclm.es/

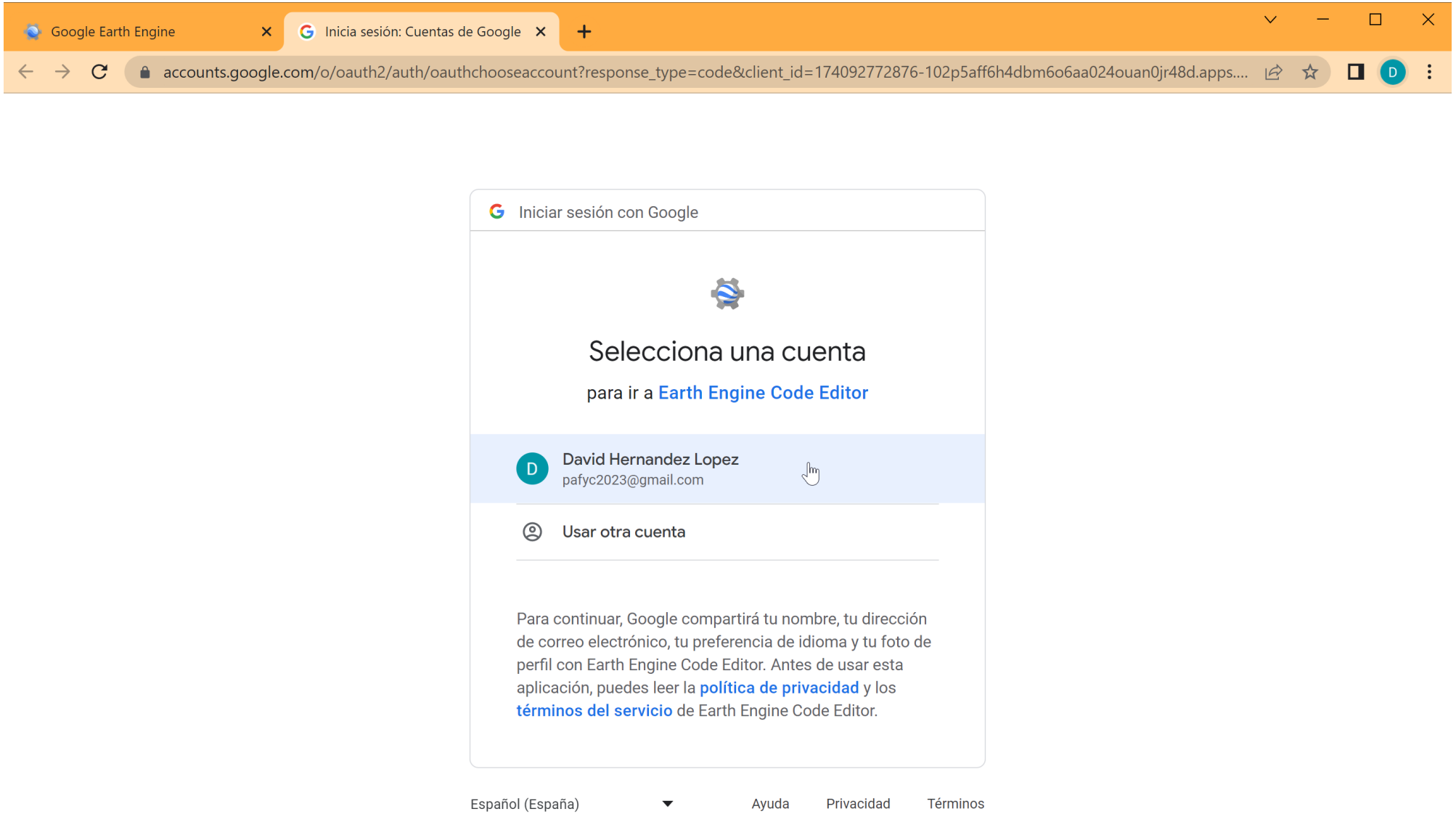
INTRODUCCIÓN A GOOGLE EARTH ENGINE

1. Crear usuario de desarrollo accediendo inscribiéndose en la página, https://earthengine.google.com/

Para descargar los resultados de los scripts se puede indicar una carpeta de Google Drive, por lo que conviene crear el usuario empleando el propio usuario de Google



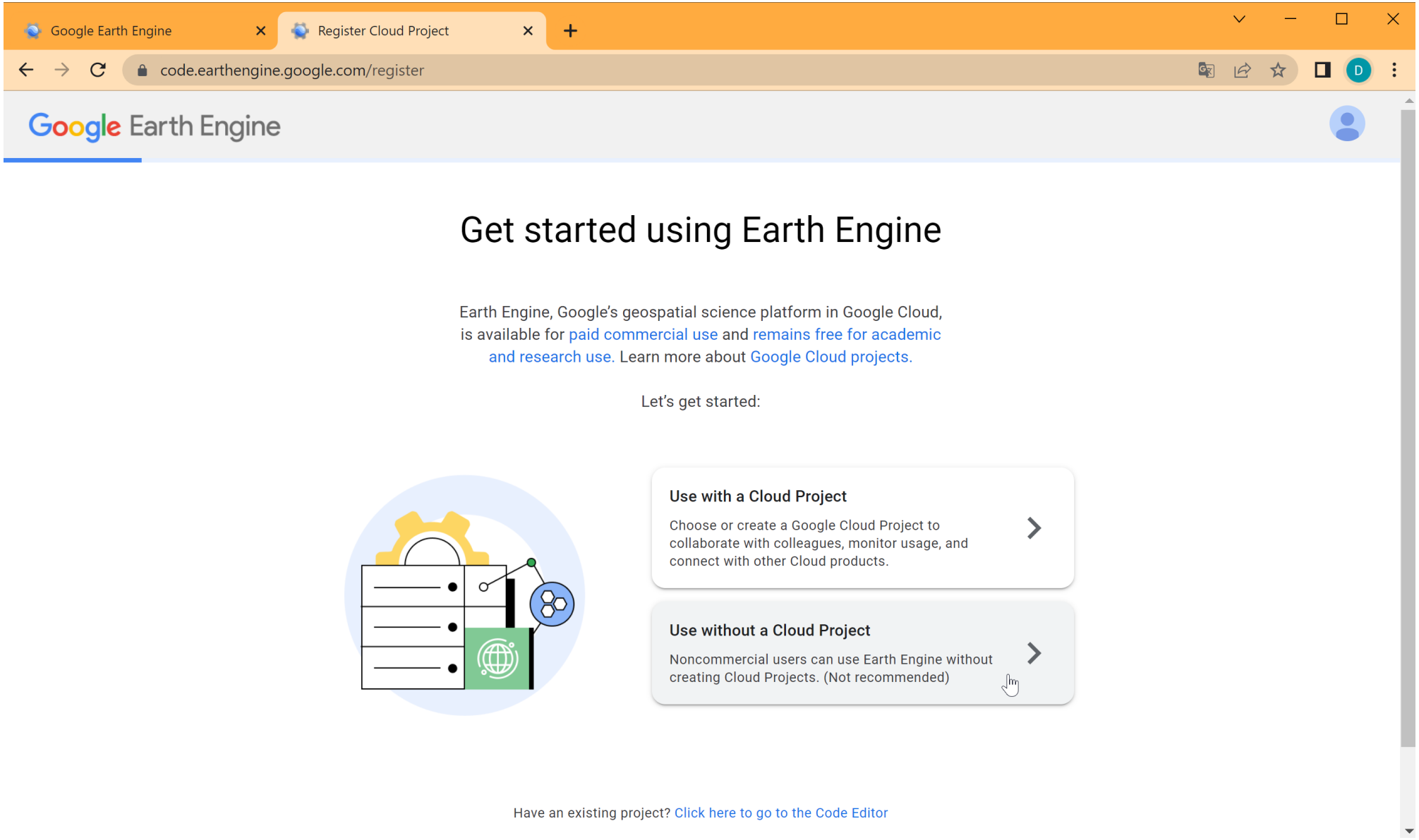
INTRODUCCIÓN A GOOGLE EARTH ENGINE



David.hernandez@uclm.es

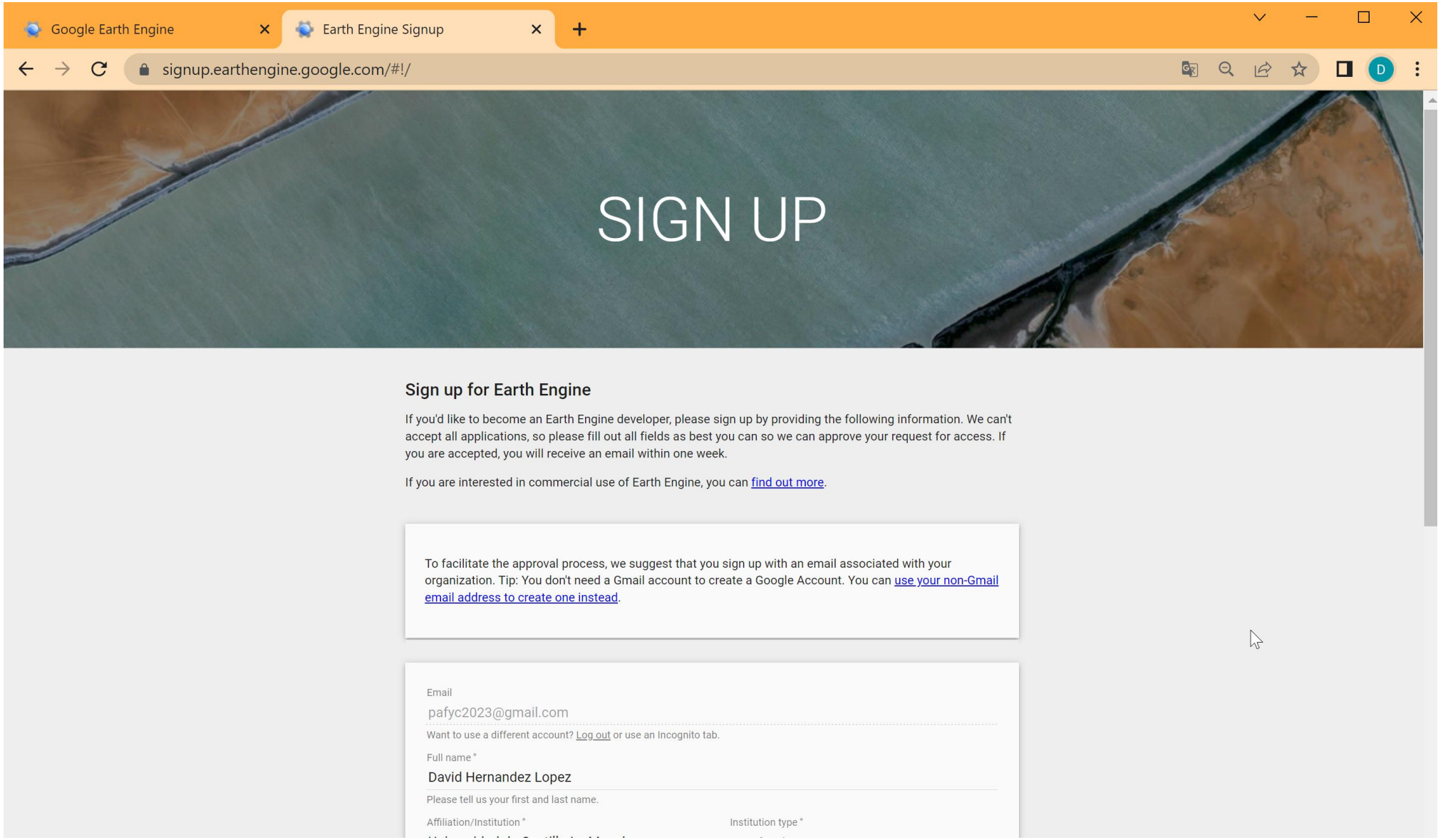
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE



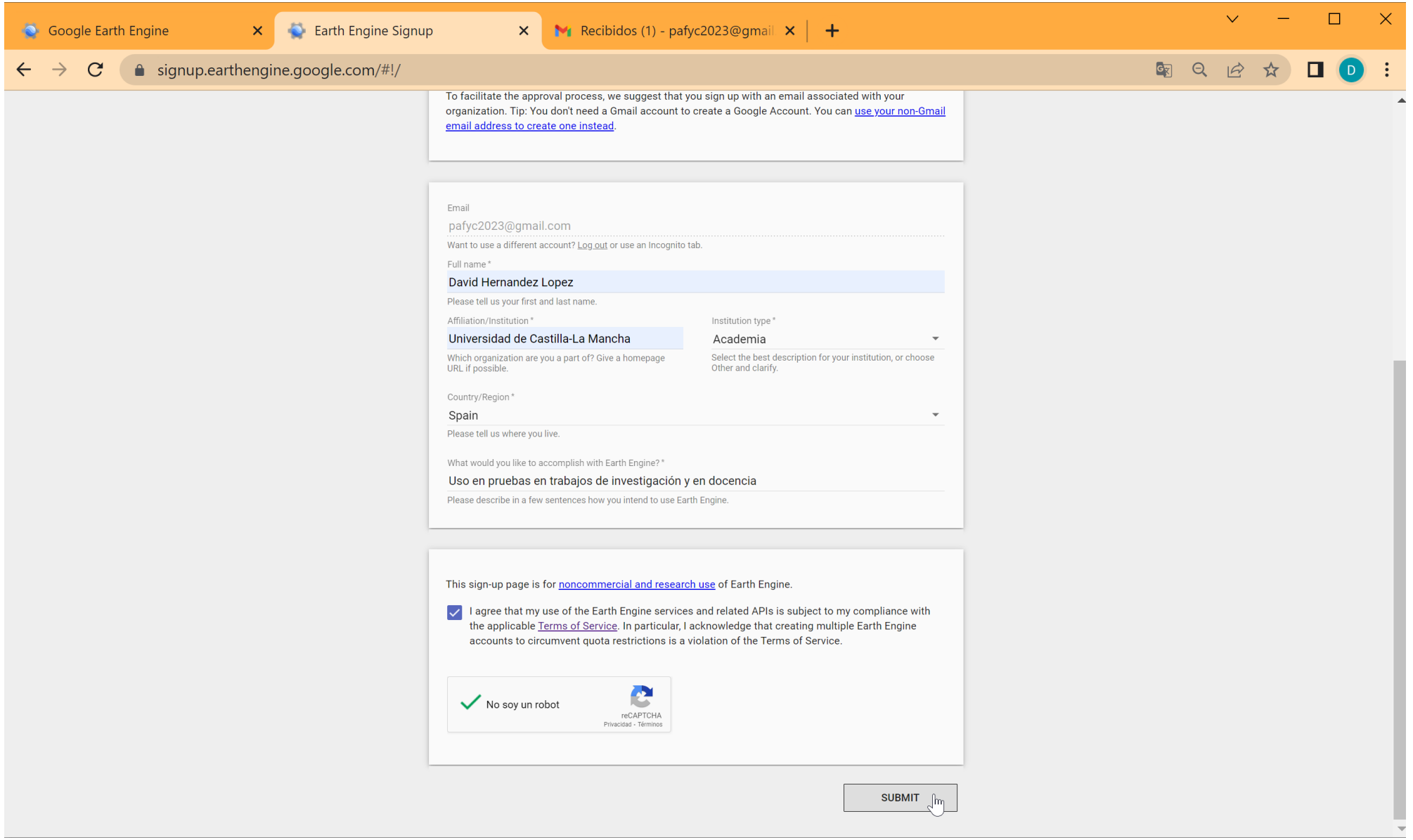
David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE



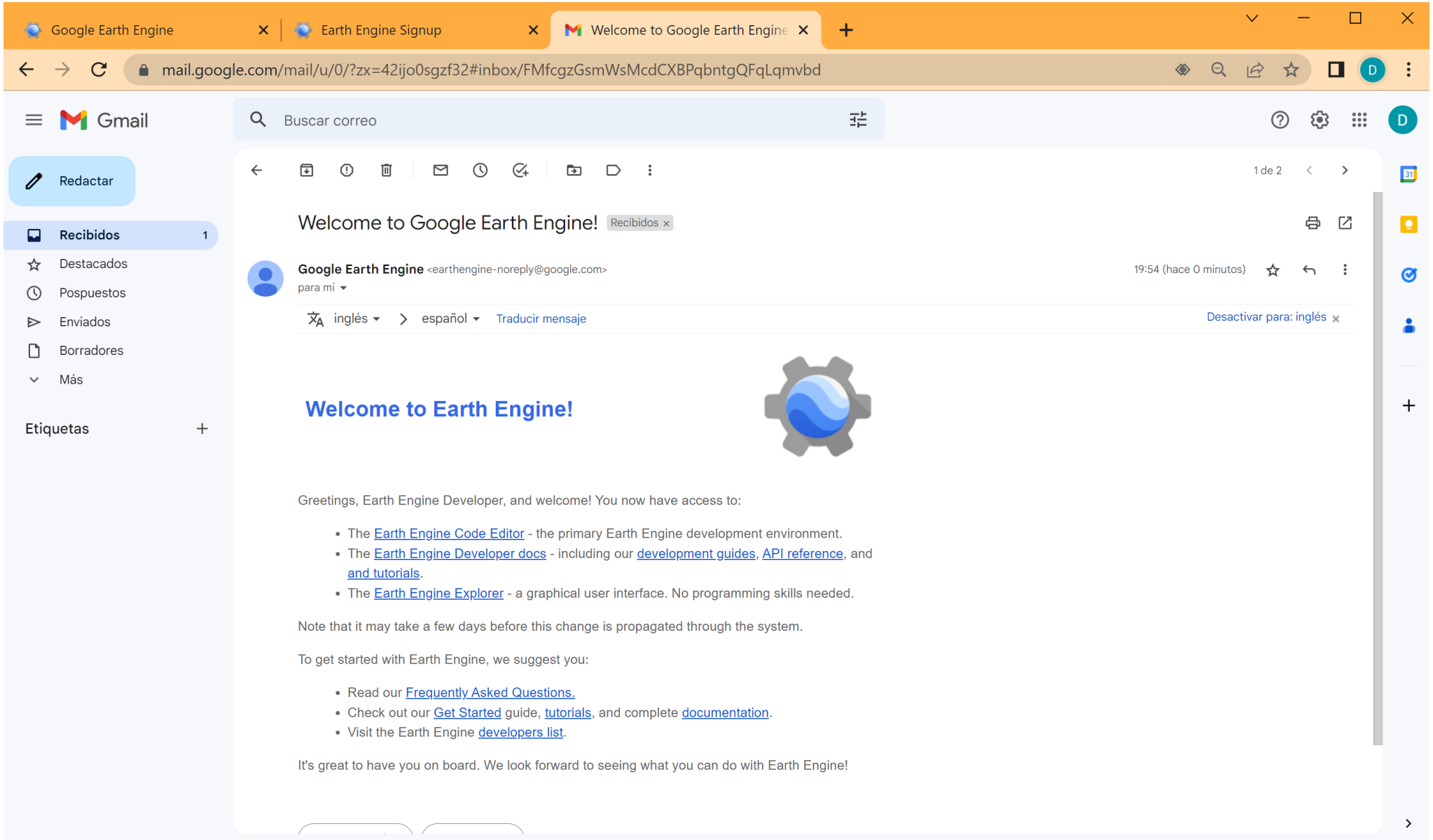
David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE



David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

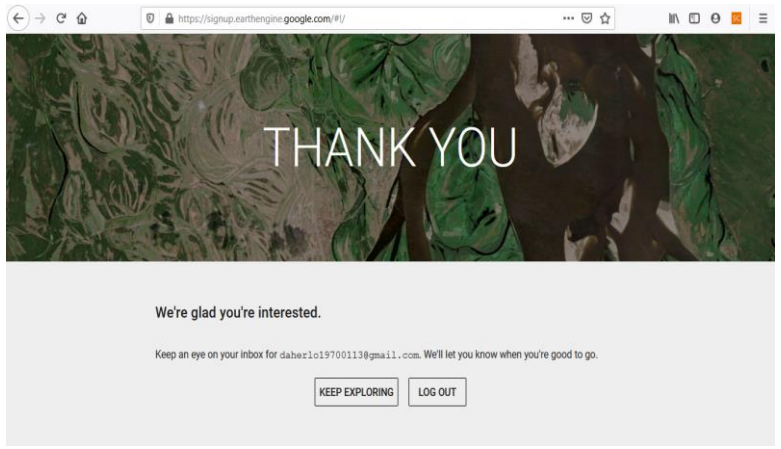
INTRODUCCIÓN A GOOGLE EARTH ENGINE



David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE

1. Crear usuario de desarrollo accediendo inscribiéndose en la página, https://earthengine.google.com/



GE

Google Earth Engine <earthengine-noreply@google.com>
Lun 19/04/2021 10:04
Para: daherlo19700113@gmail.com

Welcome to Earth Engine!

Earth Engine

Greetings, Earth Engine Developer, and welcome! You now have access to:

- The Earth Engine Code Editor - the primary Earth Engine development environment.
- The Earth Engine Developer docs - including our development guides, API reference, and and tutorials.
- The Earth Engine Explorer - a graphical user interface. No programming skills needed.

Note that it may take a few days before this change is propagated through the system.

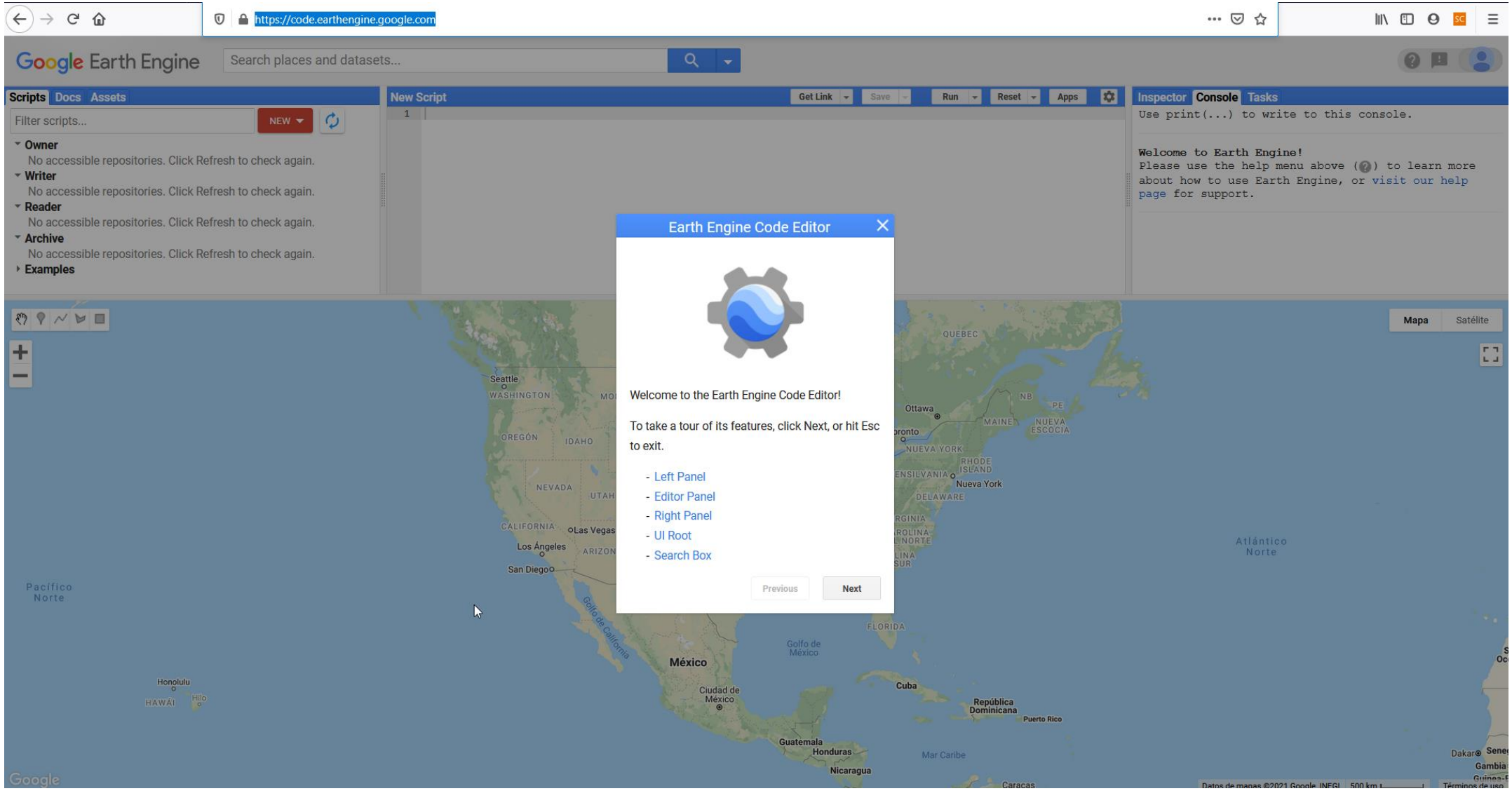
To get started with Earth Engine, we suggest you:

- Read our Frequently Asked Questions.
- Check out our Get Started guide, tutorials, and complete documentation.
- Visit the Earth Engine developers list.

It's great to have you on board. We look forward to seeing what you can do with Earth Engine!

INTRODUCCIÓN A GOOGLE EARTH ENGINE

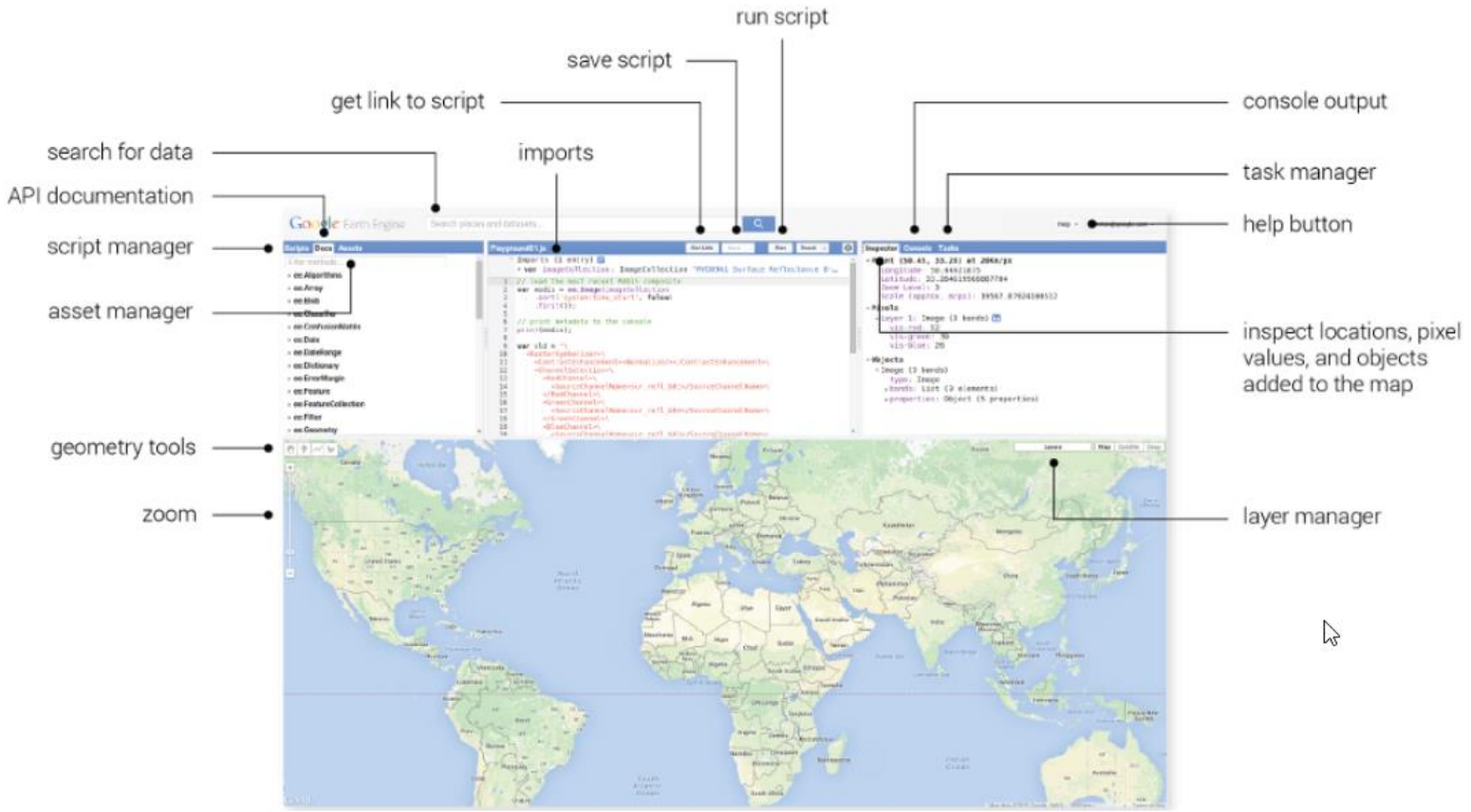
2. Al acceder al editor de código, https://code.earthengine.google.com/, se solicita usuario



INTRODUCCIÓN A GOOGLE EARTH ENGINE

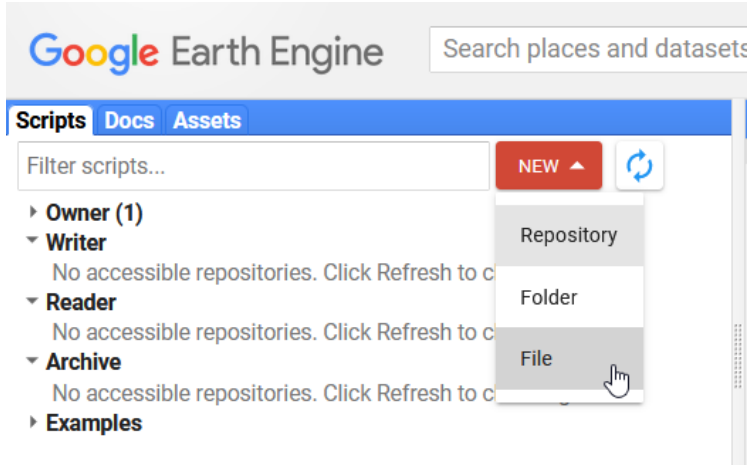
Code Editor

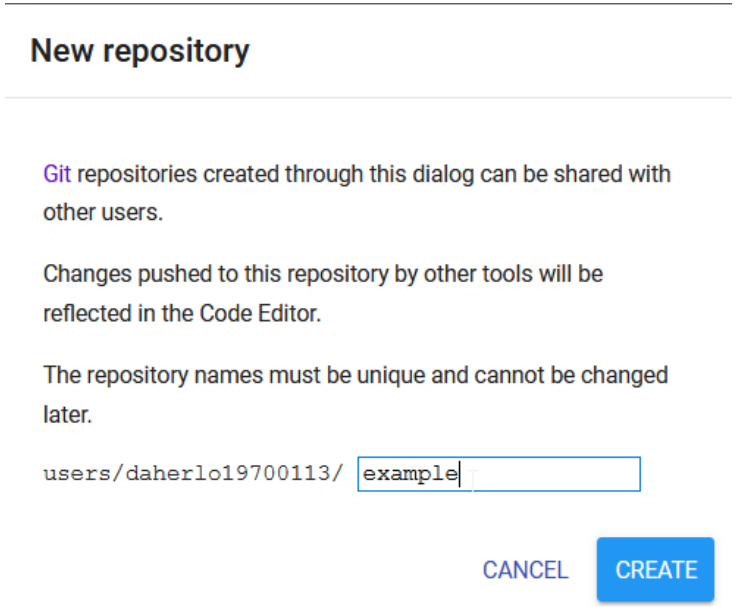
The Earth Engine Code Editor at code.earthengine.google.com is a web-based IDE for the Earth Engine JavaScript API. It requires log in with a Google Account that's been enabled for Earth Engine access. Code Editor features are designed to make developing complex geospatial workflows fast and easy. The Code Editor has the following elements (illustrated in the figure):

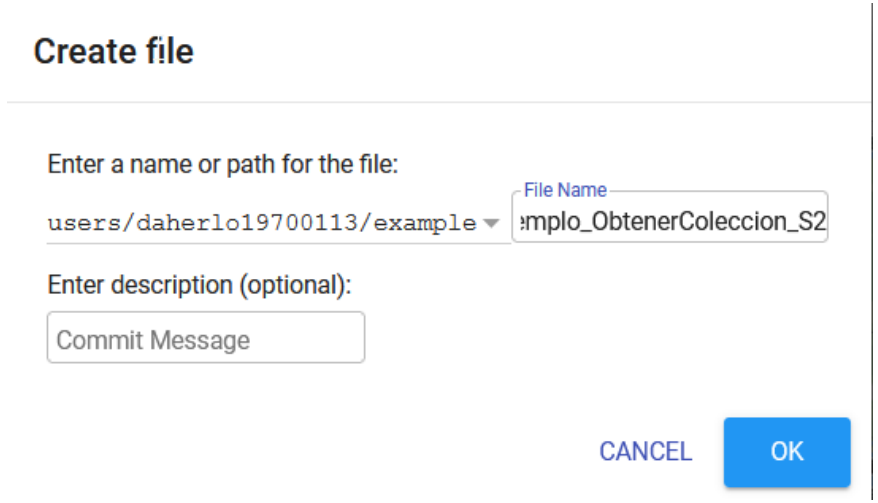


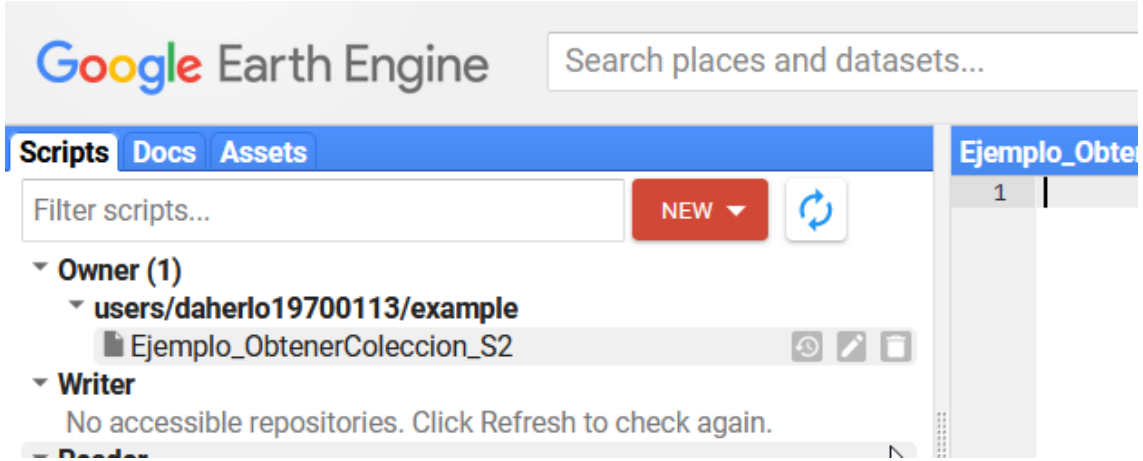
INTRODUCCIÓN A GOOGLE EARTH ENGINE

2. Crear un fichero (solicita crear repositorio dentro, escribir/copiar código en un fichero, salvar y ejecutar









INTRODUCCIÓN A GOOGLE EARTH ENGINE

2. Crear un fichero (solicita crear repositorio dentro, escribir/copiar código en un fichero, salvar y ejecutar

M:\EjemploGEE\agricola\Ejemplo_ObtenerColeccion_S2.js - Notepad++

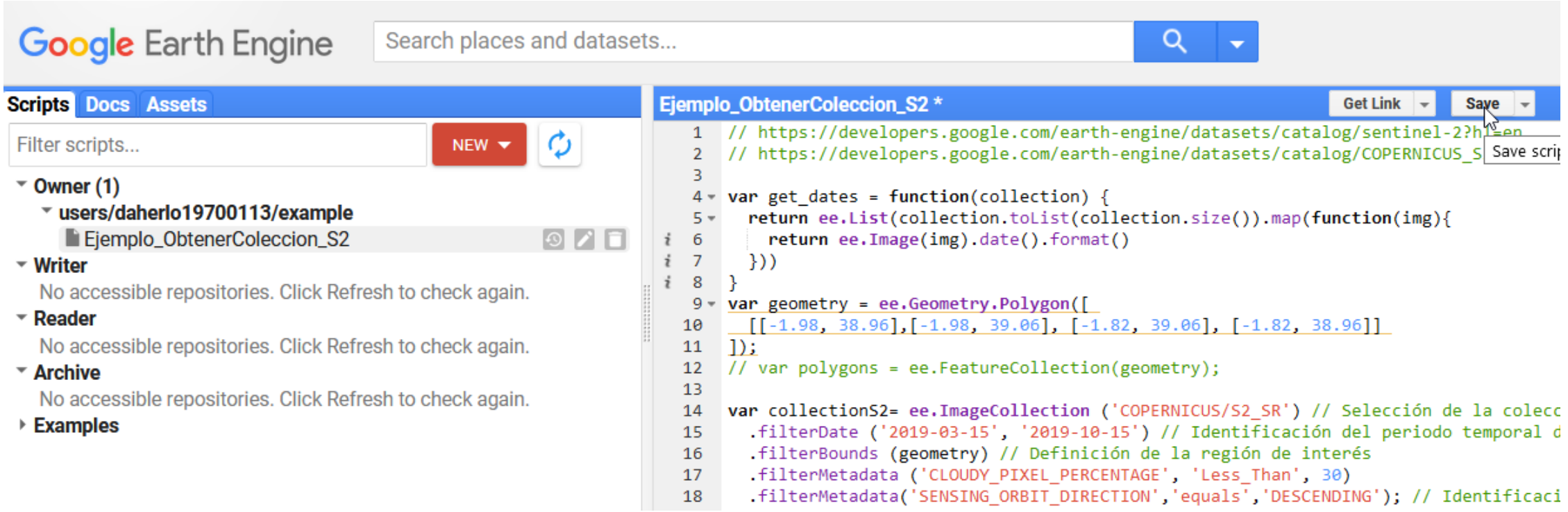
Archivo Editar Buscar Vista Codificación Lenguaje Configuración Herramientas Macro Ejecutar Plugins Ventana ?

markers.xml | Markers.xml | new 9 | parameters_pp_processing_tools.xml | parameters_pp_processing_tools.xml | metadata.py | utils.py | dls.py | image.py | calc_rad2refl.py | micasense_calibration.py

```
// https://developers.google.com/earth-engine/datasets/catalog/sentinel-2?hl=en
// https://developers.google.com/earth-engine/datasets/catalog/COPERNICUS_S2_SR#description

var get_dates = function(collection) {
  return ee.List(collection.toList(collection.size()).map(function(img){
    return ee.Image(img).date().format()
  }))
}
var geometry = ee.Geometry.Polygon([
  [[-1.98, 38.96],[-1.98, 39.06], [-1.82, 39.06], [-1.82, 38.96]]
]);
// var polygons = ee.FeatureCollection(geometry);

var collectionS2= ee.ImageCollection ('COPERNICUS/S2_SR') // Selección de la colección de la misión espacial
  .filterDate ('2019-03-15', '2019-10-15') // Identificación del periodo temporal de análisis
  .filterBounds (geometry) // Definición de la región de interés
  .filterMetadata ('CLOUDY_PIXEL_PERCENTAGE', 'Less_Than', 30)
  .filterMetadata('SENSING_ORBIT_DIRECTION','equals','DESCENDING'); // Identificación de cobertura de nubes mínima

var dates = get_dates(collectionS2);
console.log(dates.getInfo());
print(collectionS2)
Export.table.toDrive({
  collection: collectionS2,
  description:'ColleccionS2',
  folder: 'gee_giaa',
  fileFormat: 'GeoJSON'
});
// editor online de json: https://jsoneditoronline.org
```

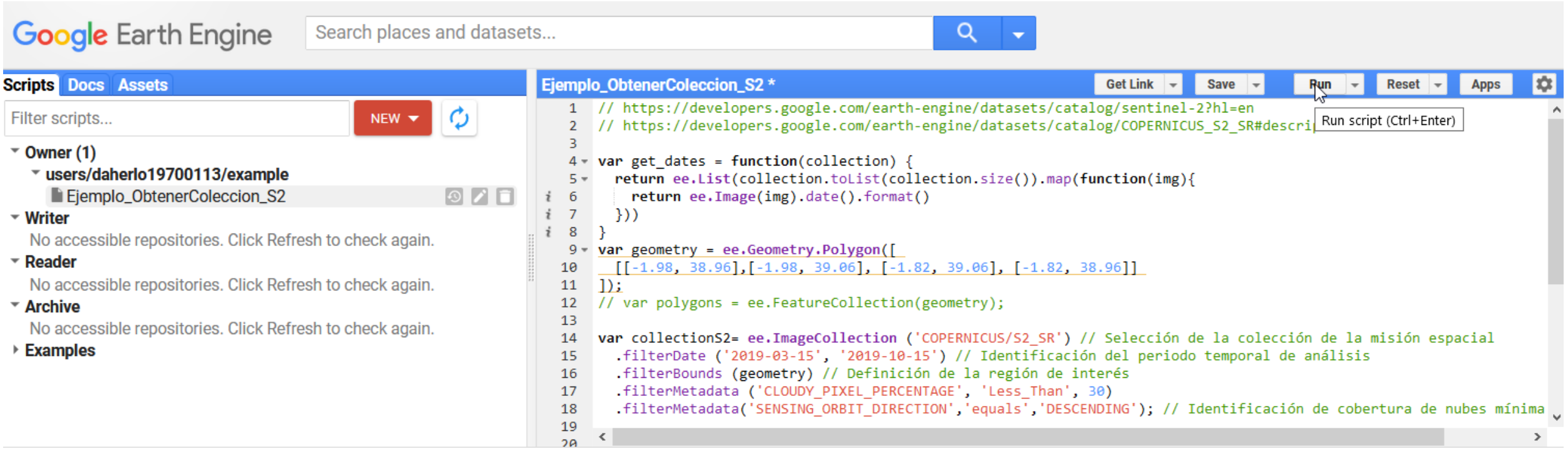
INTRODUCCIÓN A GOOGLE EARTH ENGINE

2. Crear un fichero (solicita crear repositorio dentro, escribir/copiar código en un fichero, salvar y ejecutar



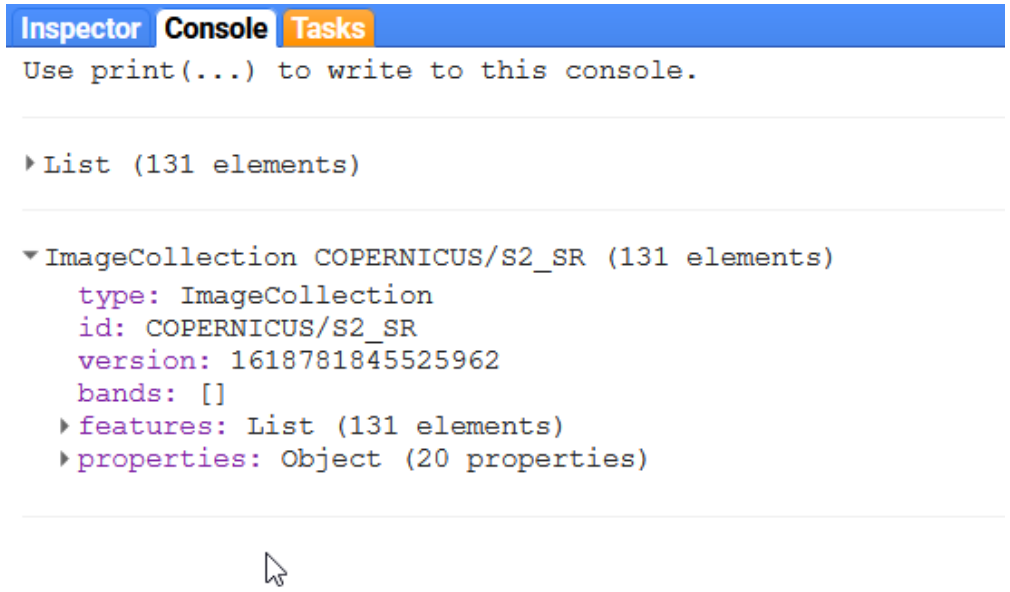
INTRODUCCIÓN A GOOGLE EARTH ENGINE

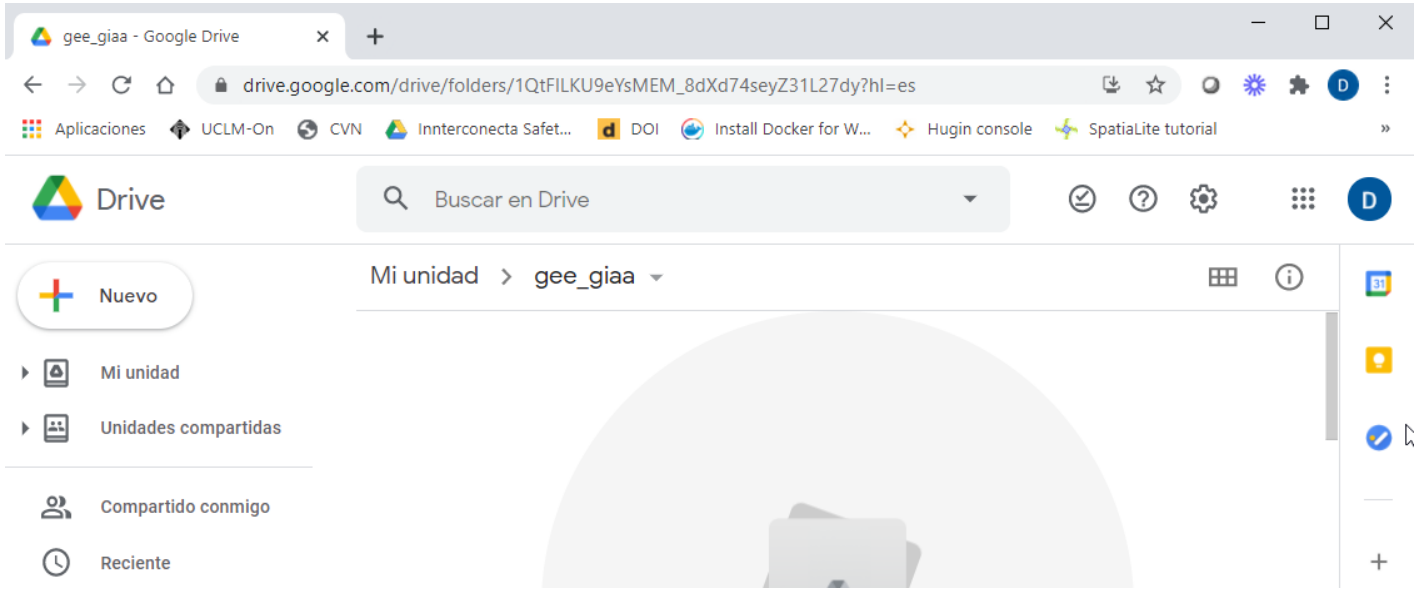
2. Crear un fichero (solicita crear repositorio dentro, escribir/copiar código en un fichero, salvar y ejecutar

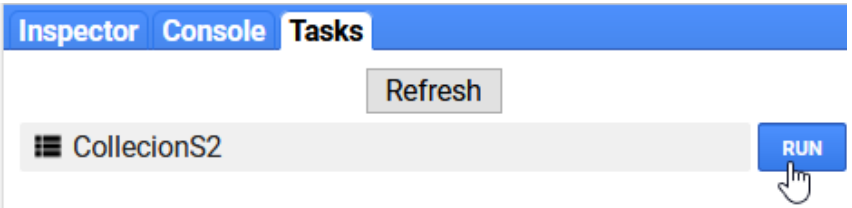


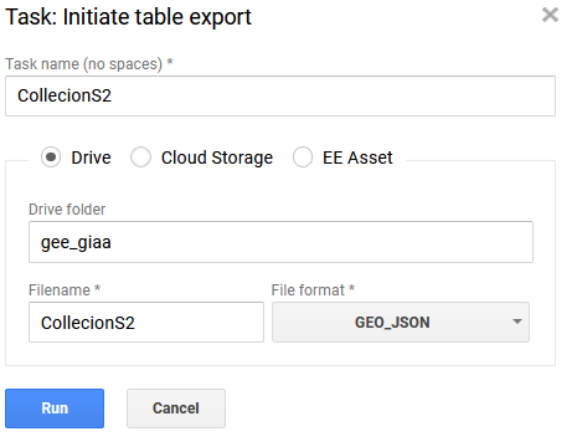
INTRODUCCIÓN A GOOGLE EARTH ENGINE

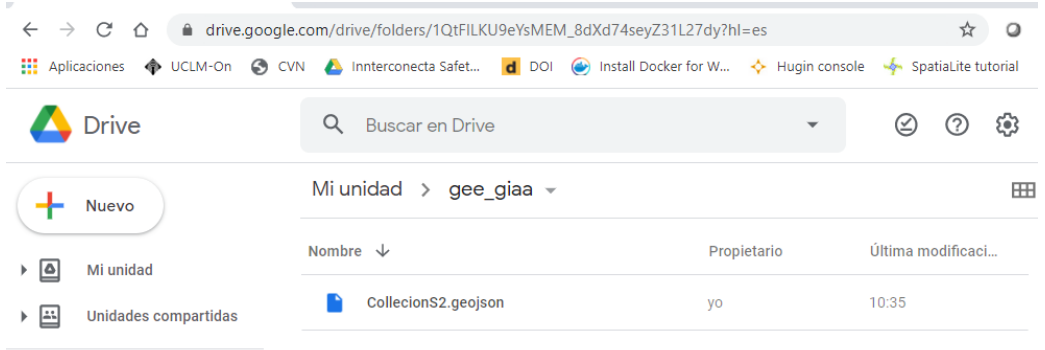
2. Crear un fichero (solicita crear repositorio dentro, escribir/copiar código en un fichero, salvar y ejecutar









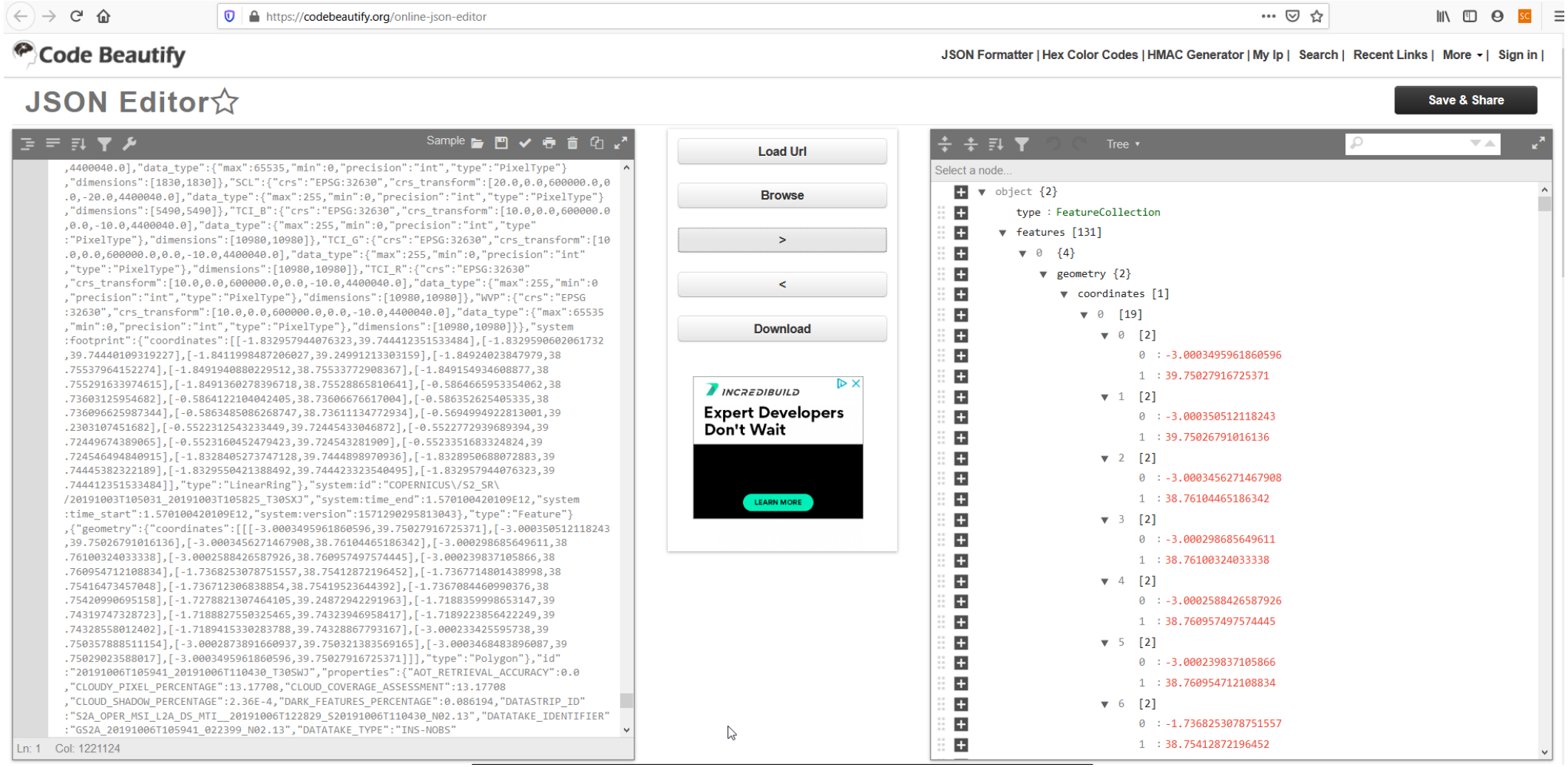


David.hernandez@uclm.es

Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

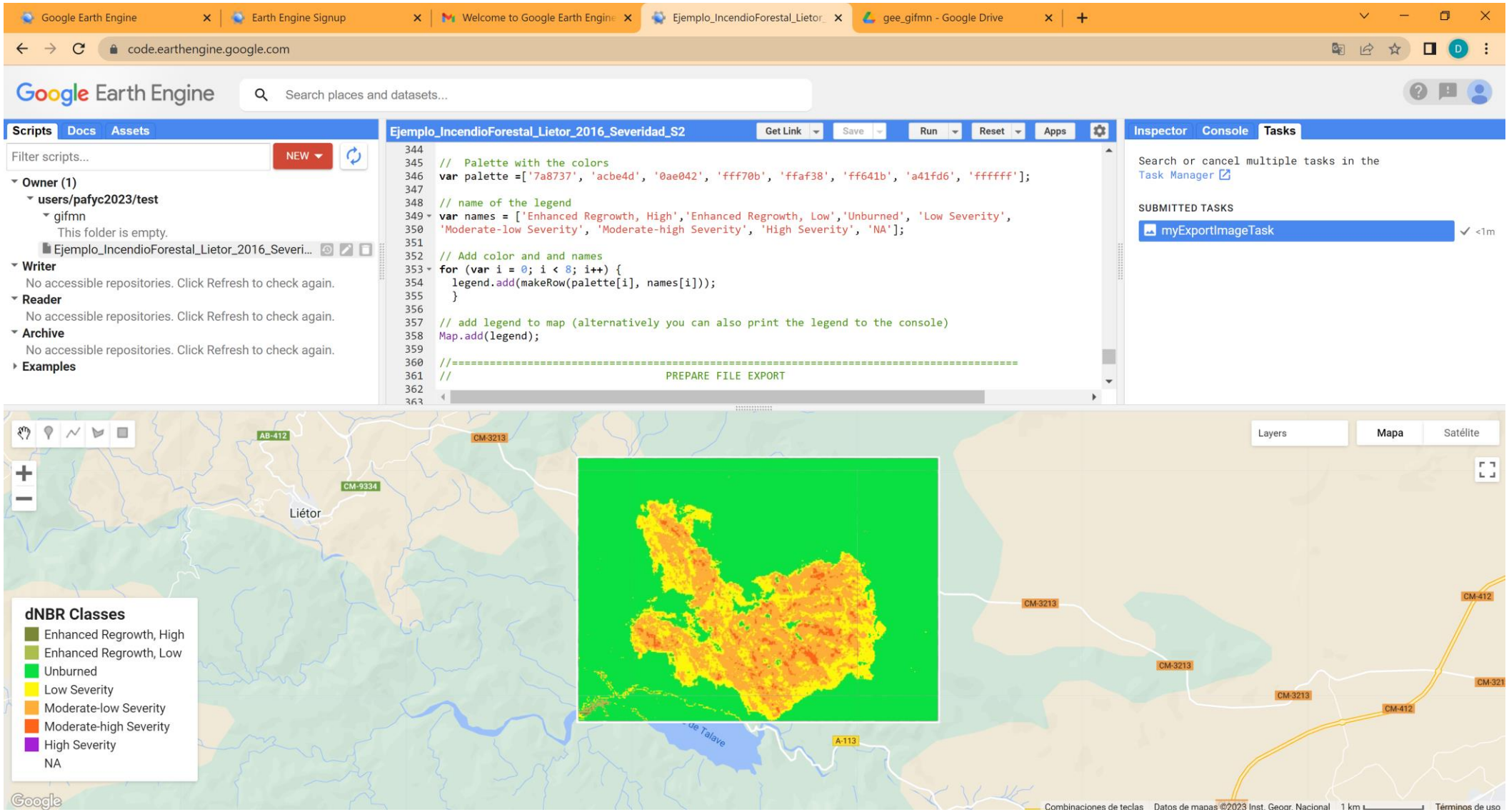
INTRODUCCIÓN A GOOGLE EARTH ENGINE

3. Descarga y utilizar el resultado. Ejemplo fichero JSON que se puede editar con Notepad++, copiar su contenido y consultarlo a través de algún editor de JSON (https://codebeautify.org/online-json-editor)



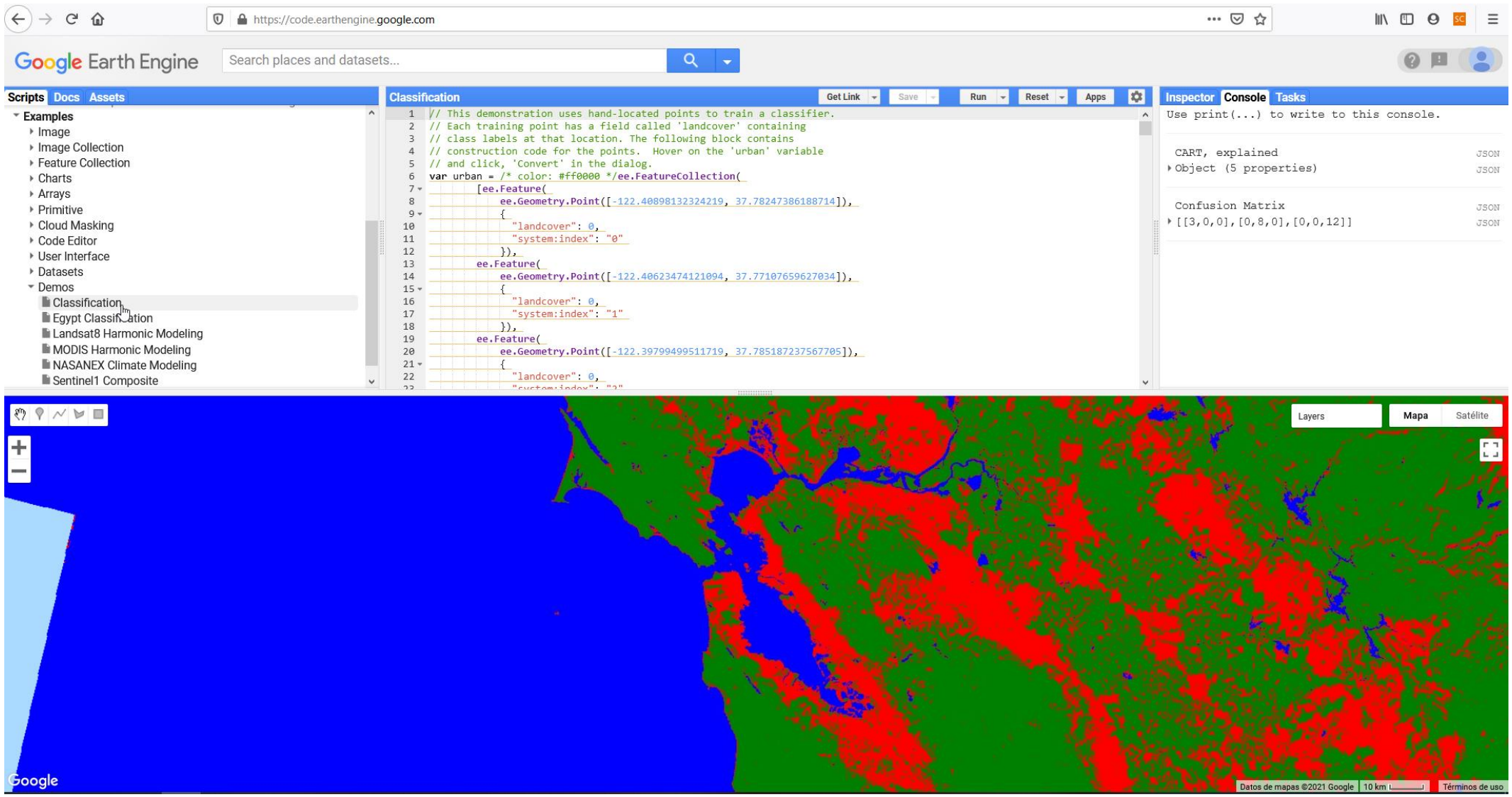
INTRODUCCIÓN A GOOGLE EARTH ENGINE

Ejemplo de severidad de incendios, Ejemplo_IncendioForestal_Lietor_2016_Severidad_S2.js



INTRODUCCIÓN A GOOGLE EARTH ENGINE

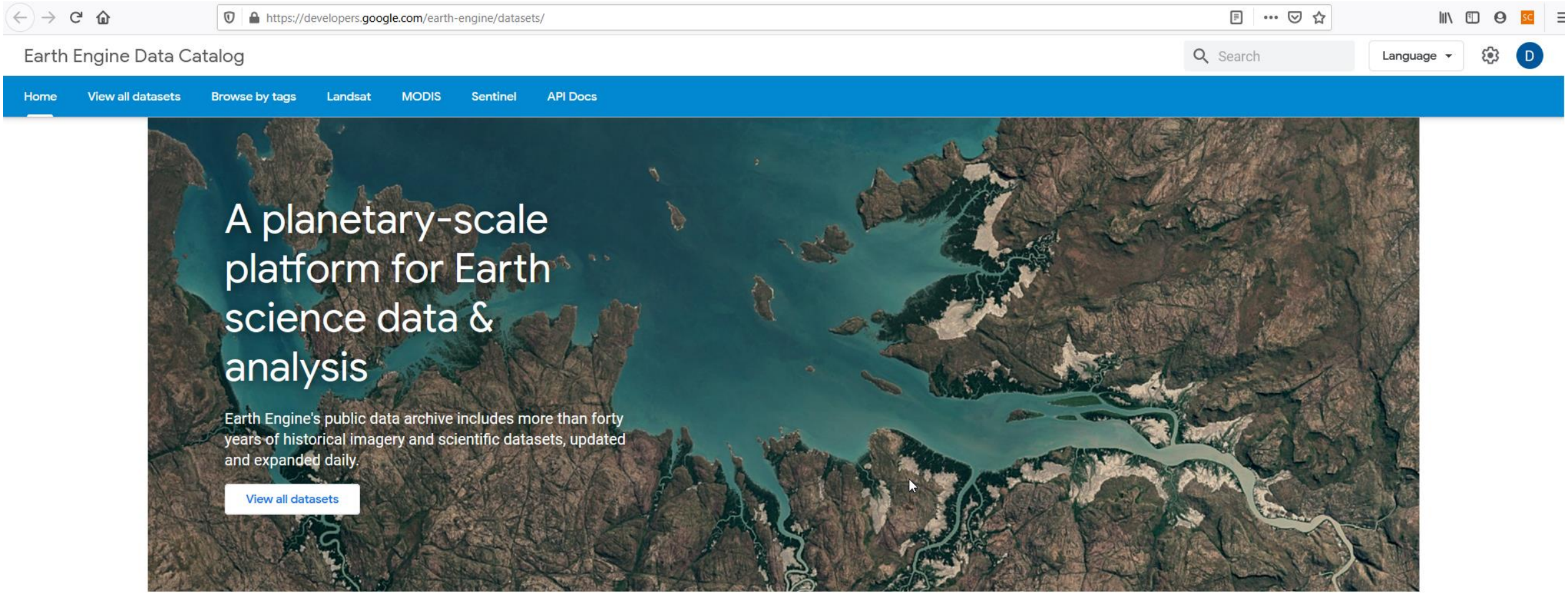
Ejecutar ejemplos de GEE



David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE

Consultar fuentes de datos

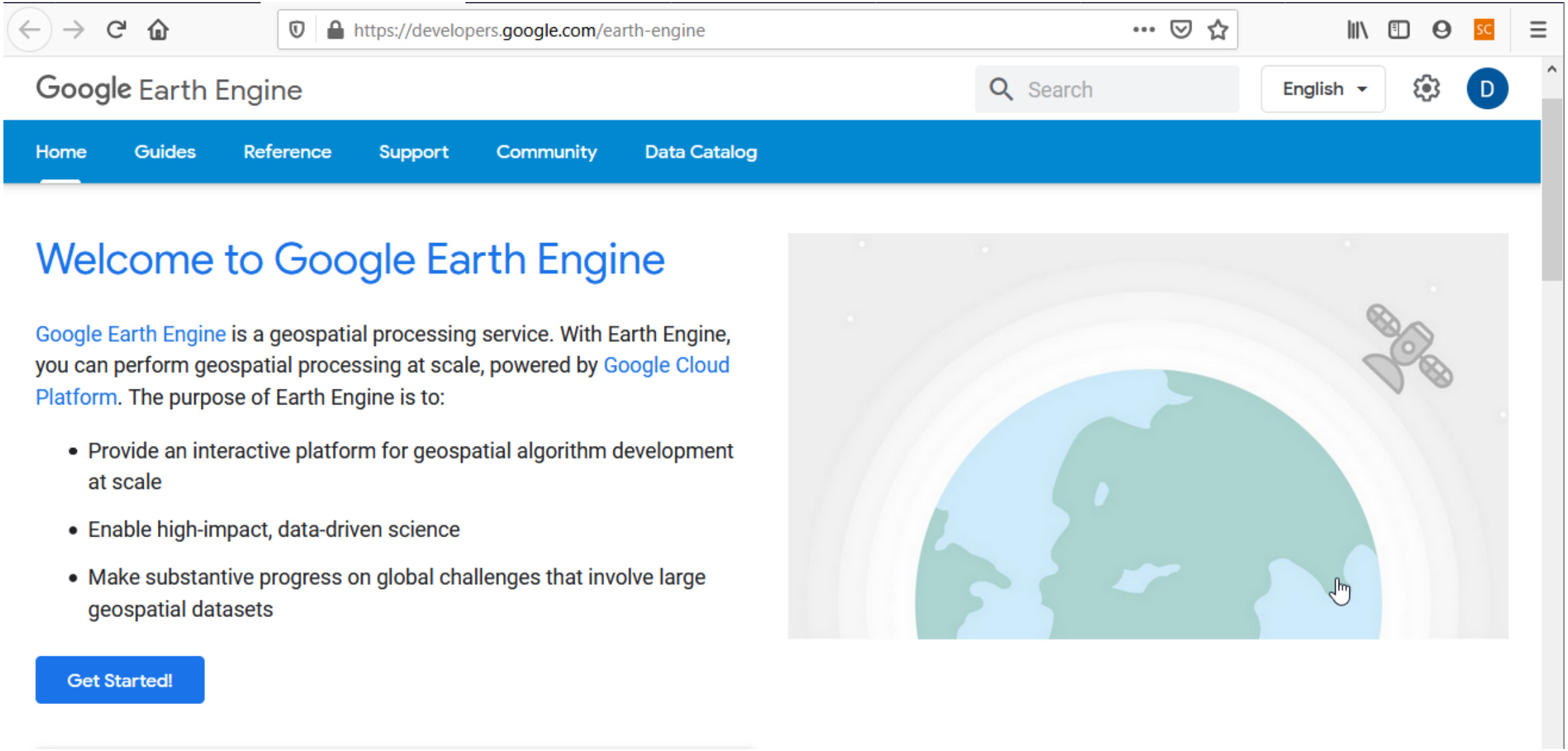


David.hernandez@uclm.es

Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica

INTRODUCCIÓN A GOOGLE EARTH ENGINE

Consultar la documentación, cursos, …



David.hernandez@uclm.es
Catedrático de Universidad – GI Precisión Agroforestal y Cartográfica