Google Geo for Good Summit 2020 Virtual Meetup

Drone's imageries sharing by DRONEBIRD

Taichi FURUHASHI

@mapconcierge

(Aoyama Gakuin University)

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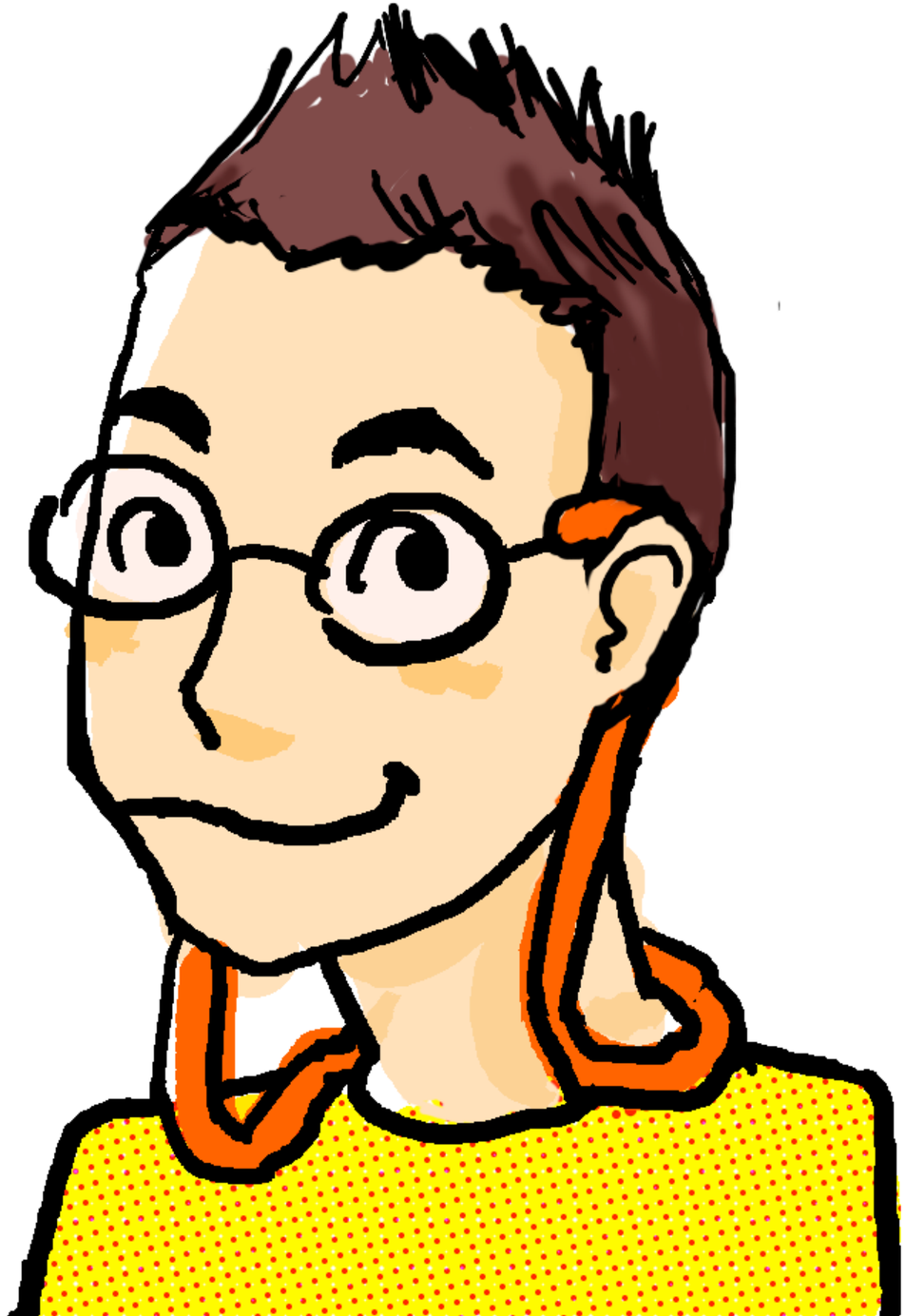
If you have question,
Please add as issue on GitHub.

https://github.com/googleearthengine/geoforgoodsummit2020dronebird/issues/1

Taichi FURUHASHI

@mapconcierge



2019Oct31

DJI Mavic Mini

$399~

30/18 min

GPS

12MP/2.7K Camera

3D Gimbal

249g/199g

249g/199g

means…

Optimizing to
Aviation Law in the world.

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Everyone can become Drone aviator!!

We are working

as

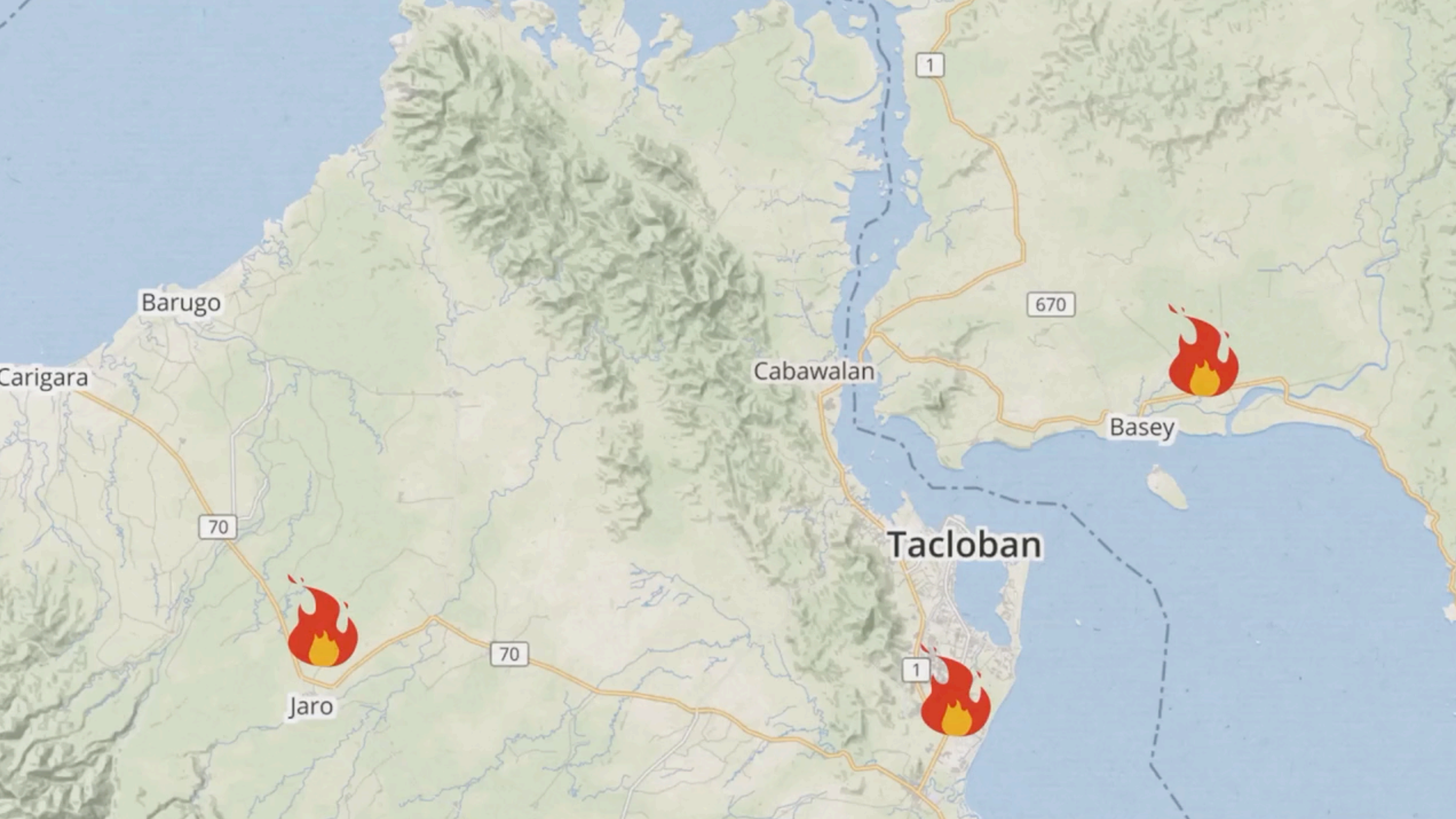
災害ドローン救援隊

DRONE BIRD

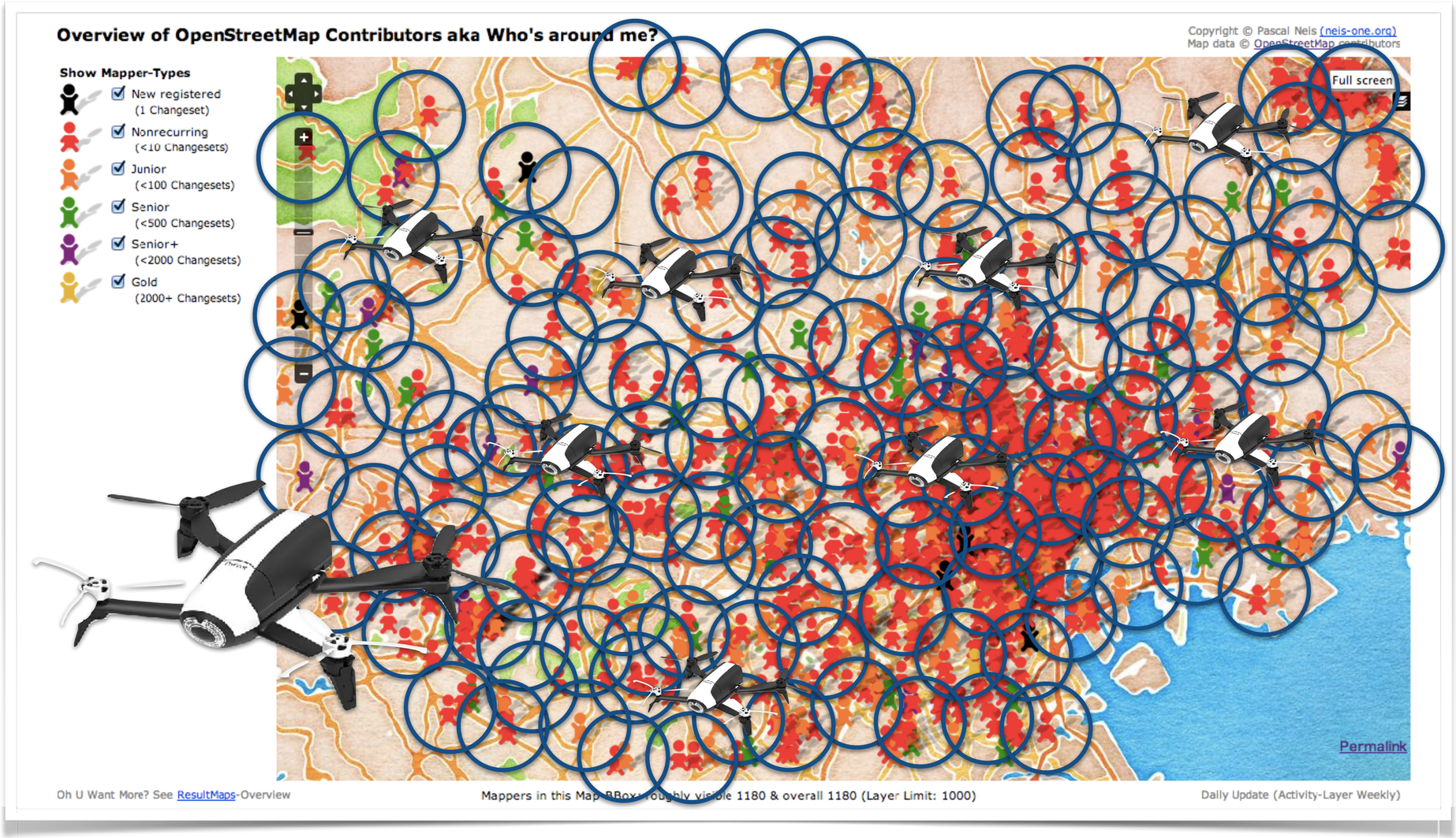
We Robotics

HOT

Flying Labs®

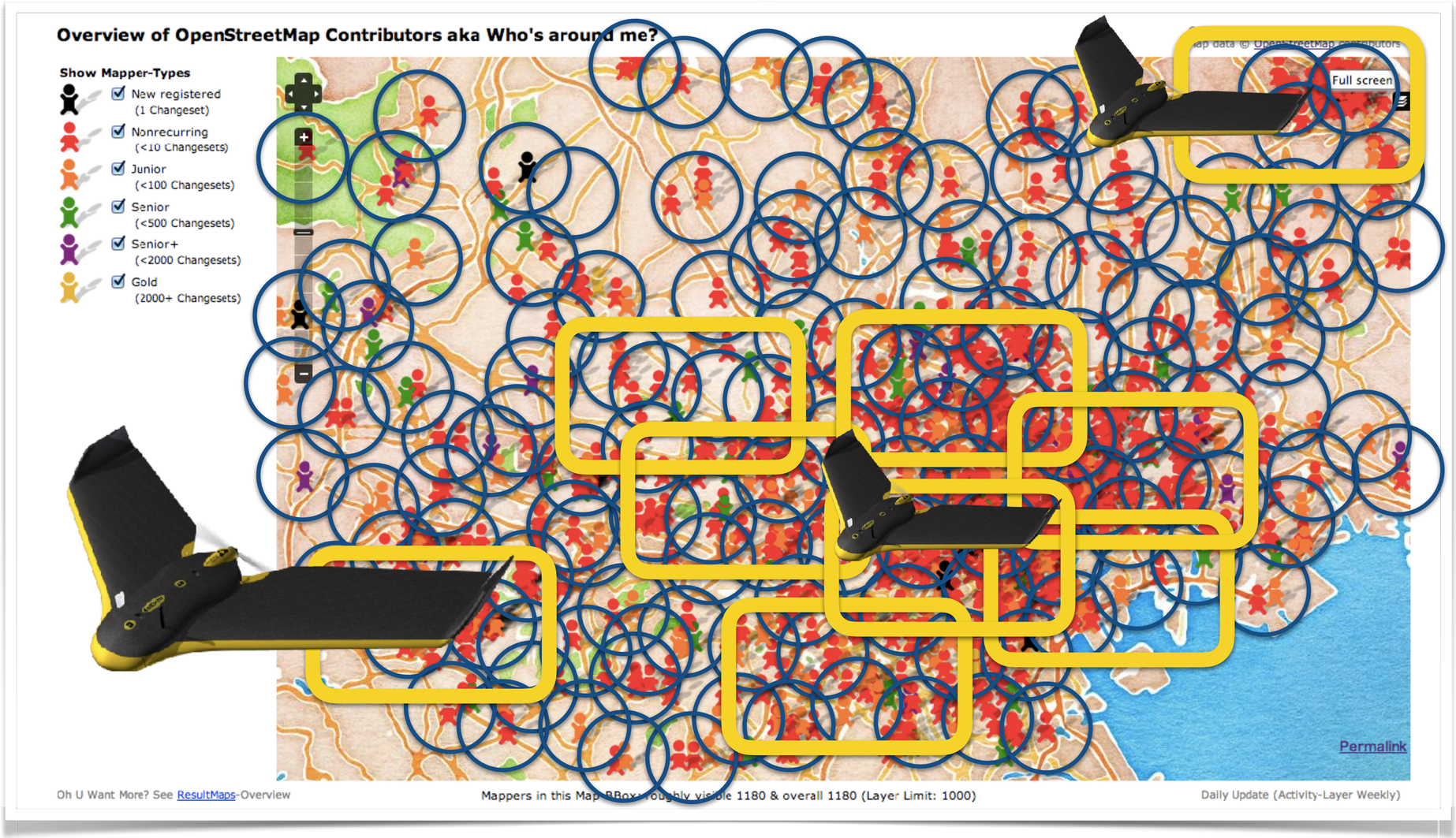

1
Barugo
670
Carigara
Cabawalan
Basey
70
Tacloban
70
1
Jaro

If all mappers has own drone...



http://resultmaps.neis-one.org/oooc?zoom=11&lat=35.73308&lon=139.61465&layers=0B0TFFT

If all mappers has own drone...



http://resultmaps.neis-one.org/oooc?zoom=11&lat=35.73308&lon=139.61465&layers=0B0TFFT

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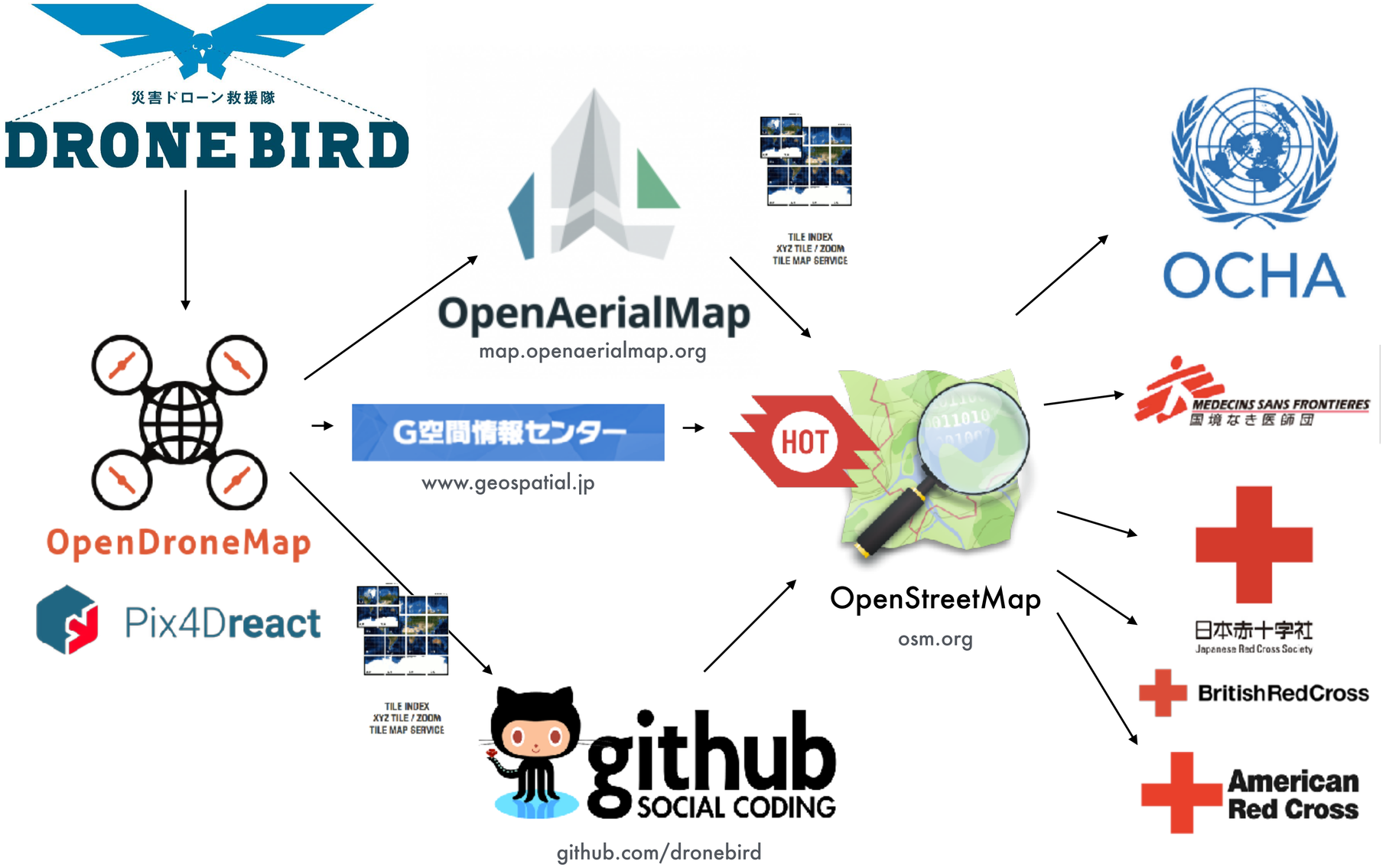

災害ドローン救援隊
DRONE BIRD
OpenDroneMap
Pix4Dreact
OpenAerialMap
map.openaerialmap.org
TILE INDEX
XYZ TILE / ZOOM
TILE MAP SERVICE
G空間情報センター
www.geospatial.jp
HOT
OpenStreetMap
osm.org
TILE INDEX
XYZ TILE / ZOOM
TILE MAP SERVICE
github
SOCIAL CODING
github.com/dronebird
OCHA
MEDECINS SANS FRONTIERES
国境なき医師団
日本赤十字社
Japanese Red Cross Society
BritishRedCross
American
Red Cross

OUR GOAL:

2 hours

（地震発災後）

OpenAerialMap

oam_kimitsu20191027koitogawa01

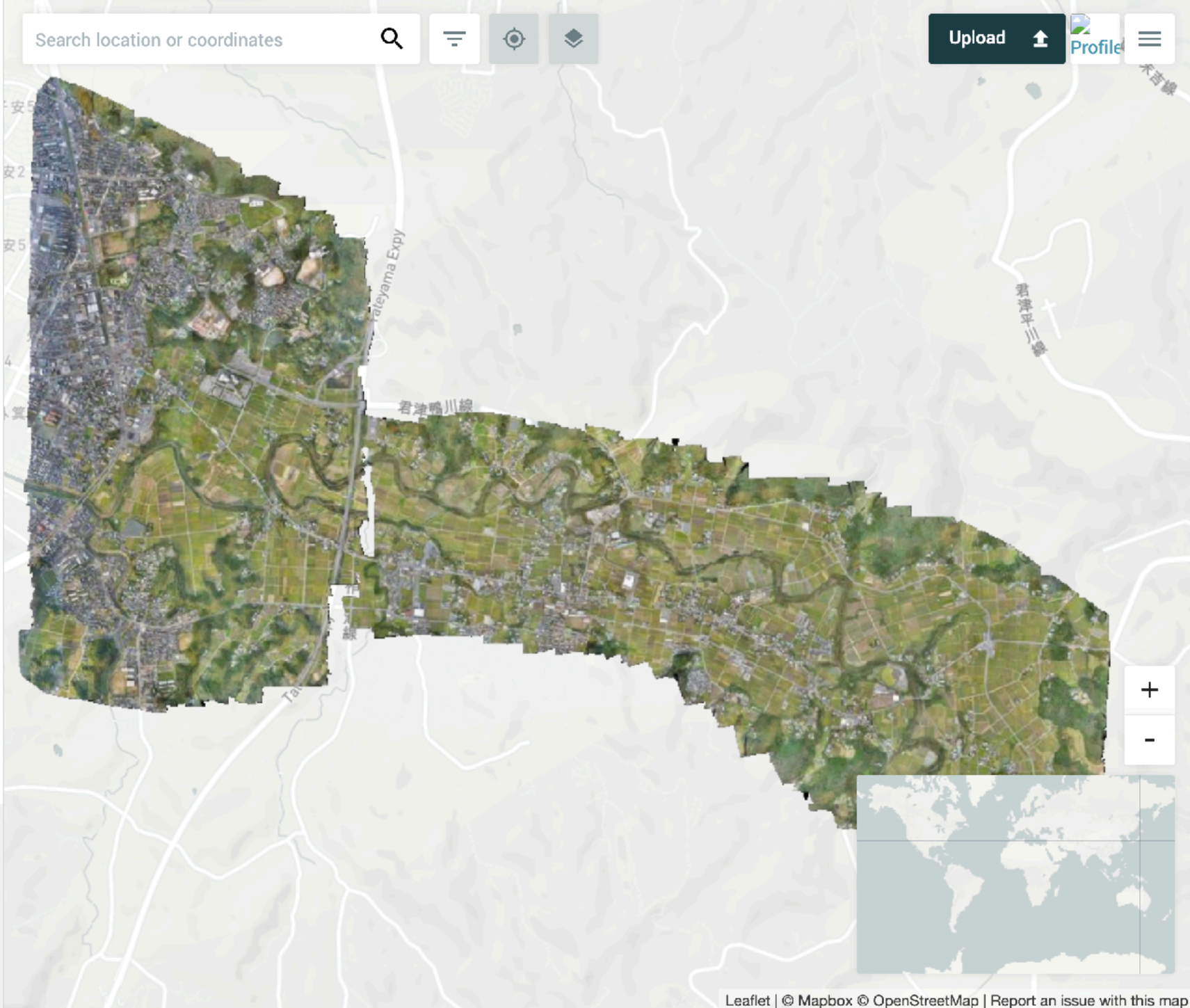
UPLOADED BY
FURUHASHI Taichi

Display as TMS Thumbnail

Open in iD editor | JOSM

Copy image URL TMS | WMTS

DATE	2019-10-27
	5 cm
	MiraiKojimaru/DRONEBIRD



OpenAerialMap

oam_kimitsu20191027koitogawa01

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DATE	2019-10-27
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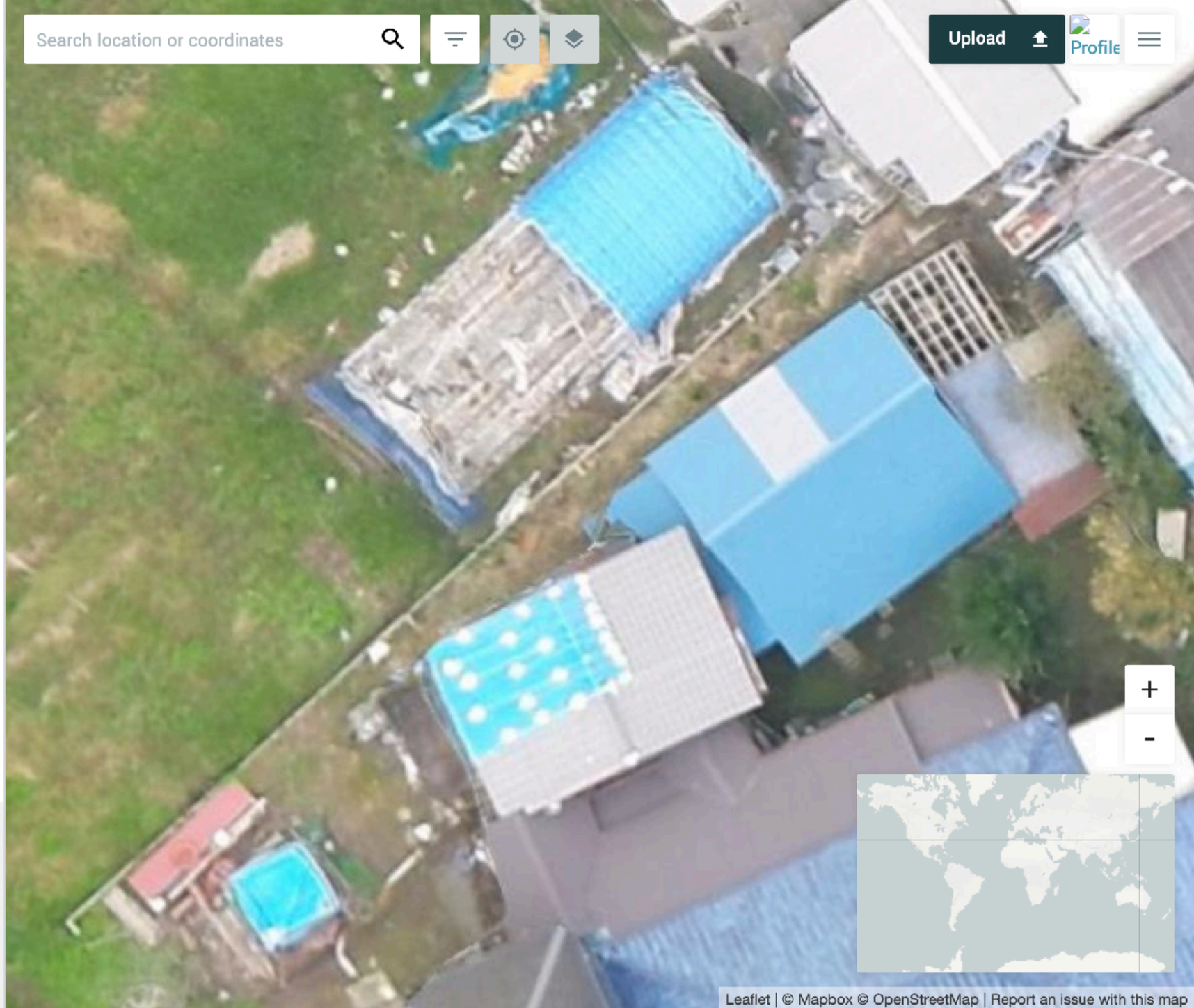

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How to share
own drone imageries?

OpenAerialMap

openaerialmap.org

OpenAerialMap

Explore imagery Documentation About Blog

The open collection of aerial imagery.

OpenAerialMap is an open service to provide access to a commons of openly licensed imagery and map layer services. Download or contribute imagery to the growing commons of openly licensed imagery.

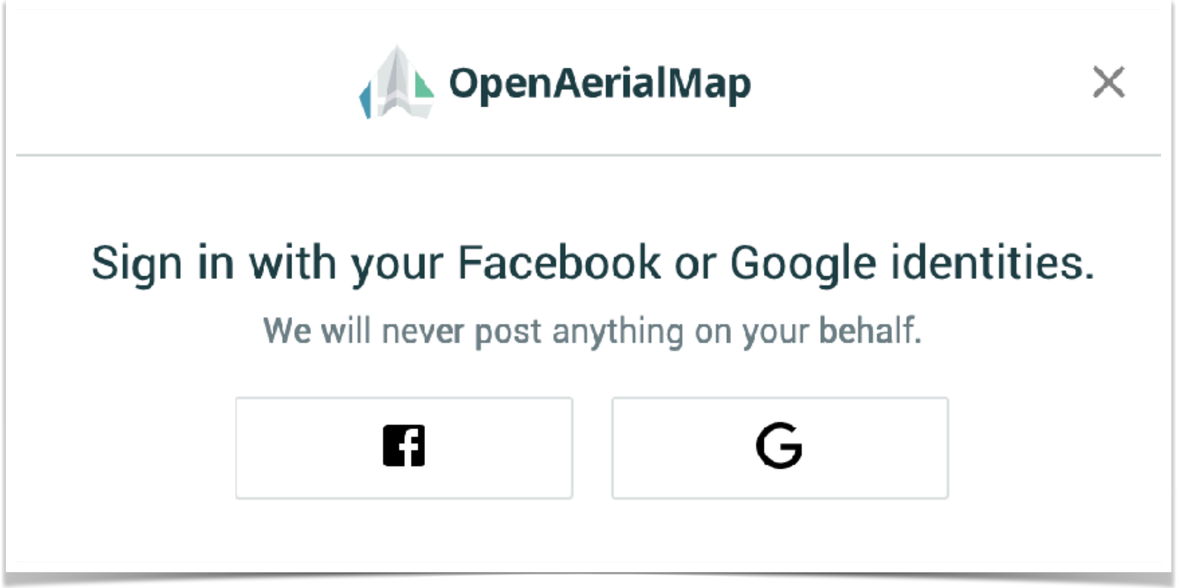
Start Exploring Watch the Video

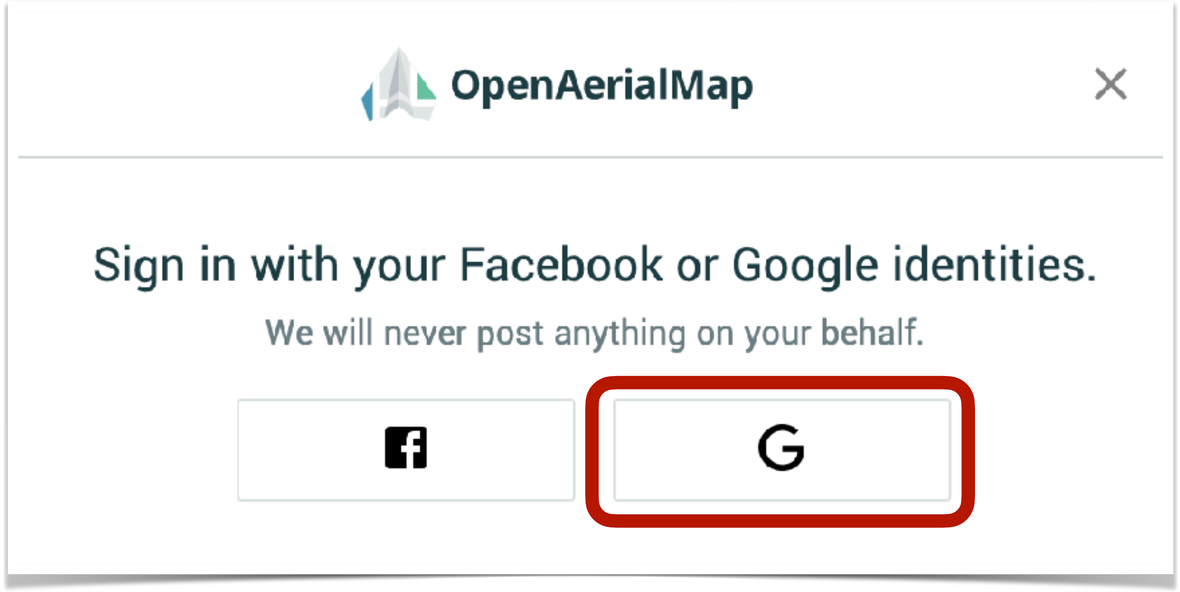
10,374
Images

347
Sensors

438
Providers

openaerialmap.org


OpenAerialMap
Sign in with your Facebook or Google identities.
We will never post anything on your behalf.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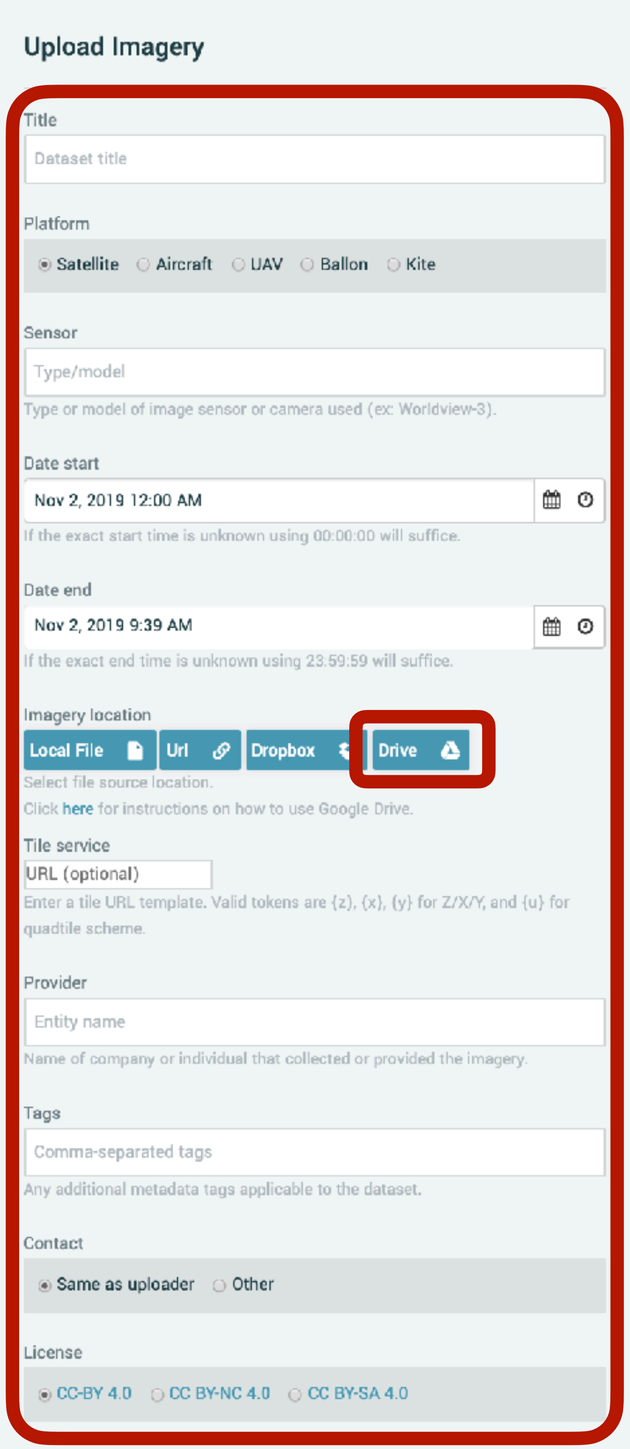

Upload Imagery
Title
Dataset title
Platform
Satellite
Aircraft
UAV
Ballon
Kite
Sensor
Type/model
Type or model of image sensor or camera used (ex: Worldview-3).
Date start
Nov 2, 2019 12:00 AM
If the exact start time is unknown using 00:00:00 will suffice.
Date end
Nov 2, 2019 9:39 AM
If the exact end time is unknown using 23:59:59 will suffice.
Imagery location
Local File
Url
Dropbox
Drive
Select file source location.
Click here for instructions on how to use Google Drive.
Tile service
URL (optional)
Enter a tile URL template. Valid tokens are {z}, {x}, {y} for Z/X/Y, and {u} for quadtile scheme.
Provider
Entity name
Name of company or individual that collected or provided the imagery.
Tags
Comma-separated tags
Any additional metadata tags applicable to the dataset.
Contact
Same as uploader
Other
License
CC-BY 4.0
CC BY-NC 4.0
CC BY-SA 4.0

Default License is

CC BY 4.0

OpenAerialMap

OpenAerialMap

50 images within selected grid square

20191014-sagamihara-midori-B7+
2019-10-14 / 1 cm
Masaki Minami

test
2019-10-25 / 1 cm
TakahashiNashien

oam_tokyo20170902chofu01
2017-09-01 / 2 cm
CrisisMappers Japan / DRONEBI...

oam_yokoze20190402terasakatan...
2019-04-02 / 2 cm
Hiroko NAKAO

Everyone can get as

GeoTIFF file

and

XYZ tile

(TMS/WMTS)

OpenAerialMap

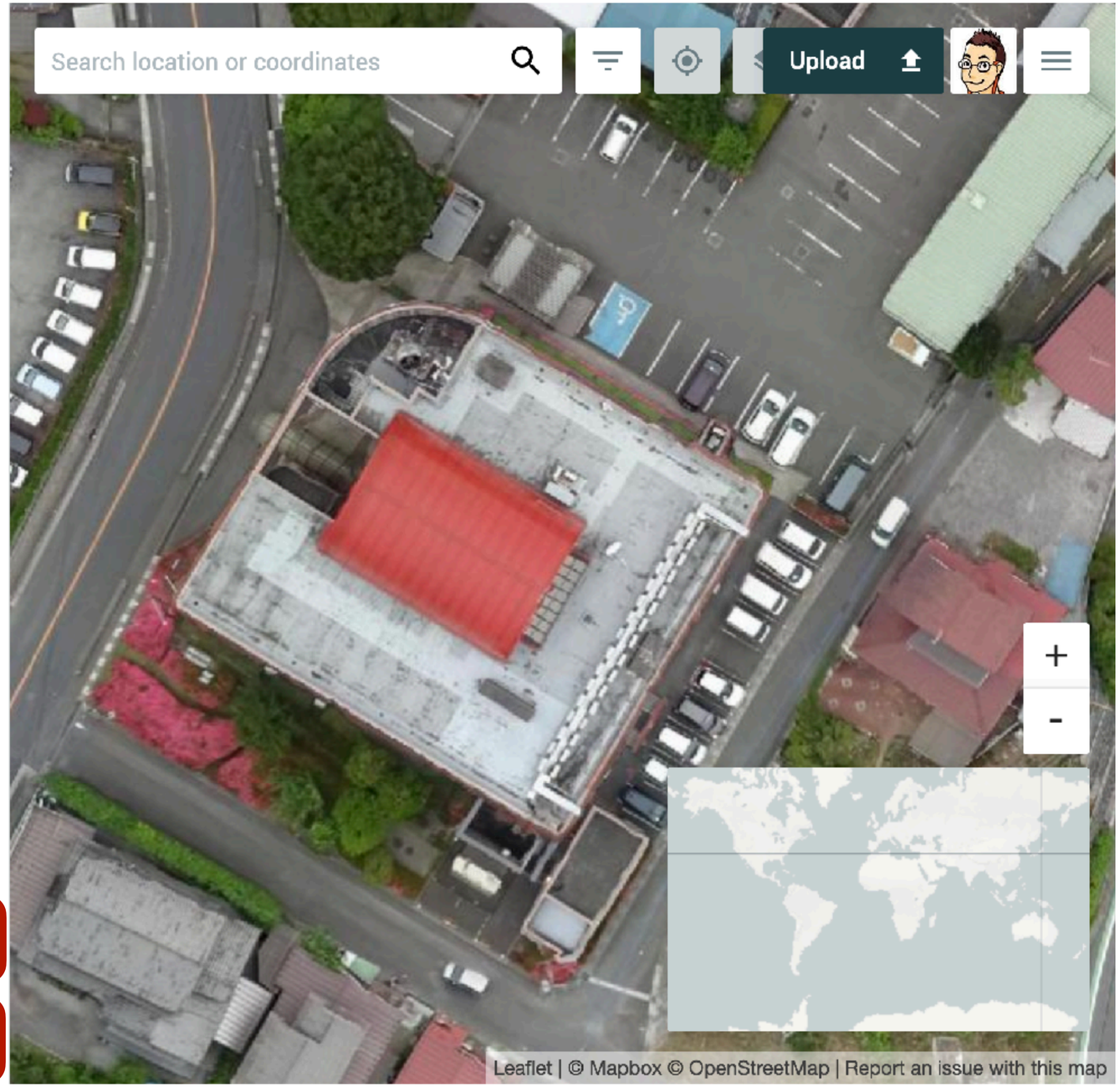
Yokoze Disaster Drill, Saitama, Japan, 2019, DRONEBIRD

UPLOADED BY
Taichi Furuhashi

Display as TMS Thumbnail

Open in iD editor | JOSM

Copy image URL TMS | WMTS

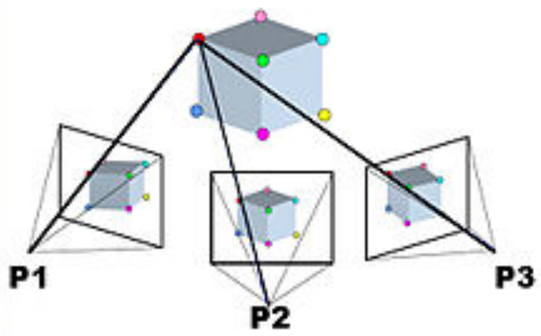


Before uploading…

You have to make <u>Ortho Mozaic image</u> as GeoTIFF file using by <u>SfM</u> tools

Structure from motion

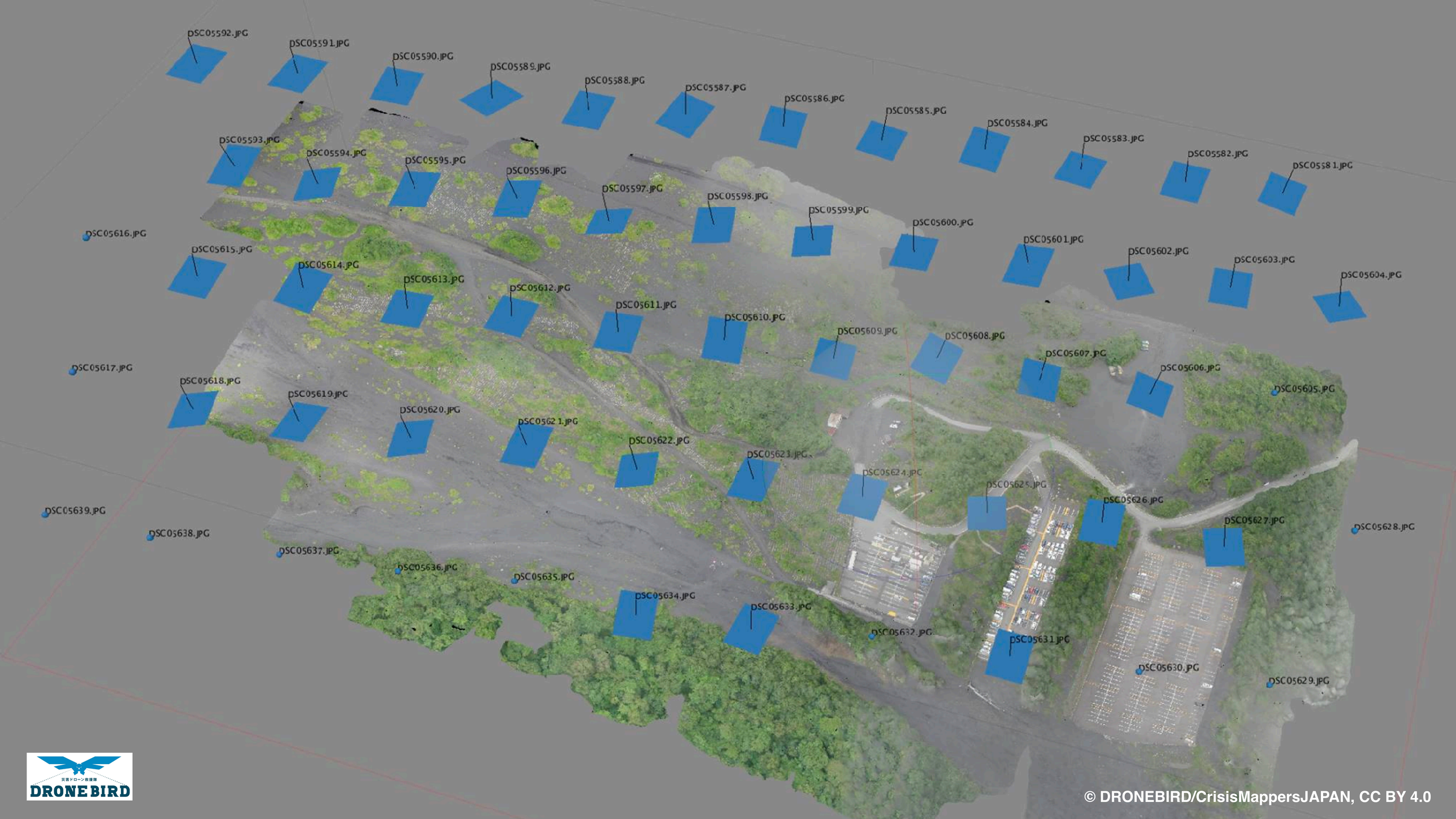
From Wikipedia, the free encyclopedia



Structure from motion (**SfM**)[1] is a photogrammetric range imaging technique for estimating three-dimensional structures from two-dimensional image sequences that may be coupled with local motion signals. It is studied in the fields of computer vision and visual perception. In biological vision, SfM refers to the phenomenon by which humans (and other living creatures) can recover 3D structure from the projected 2D (retinal) motion field of a moving object or scene.

WIKIPEDIA
The Free Encyclopedia

https://en.wikipedia.org/wiki/Structure_from_motion



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Our process

Taking photos by drone → **Making OrthoMozaic by SfM tools** → **Uploading into the OpenAerialMap**

PIX4D CAPTURE

GSP

DroneDeploy

PIX4D mapper pro

Pix4Dreact

Metashape

OpenDroneMap

Google Drive

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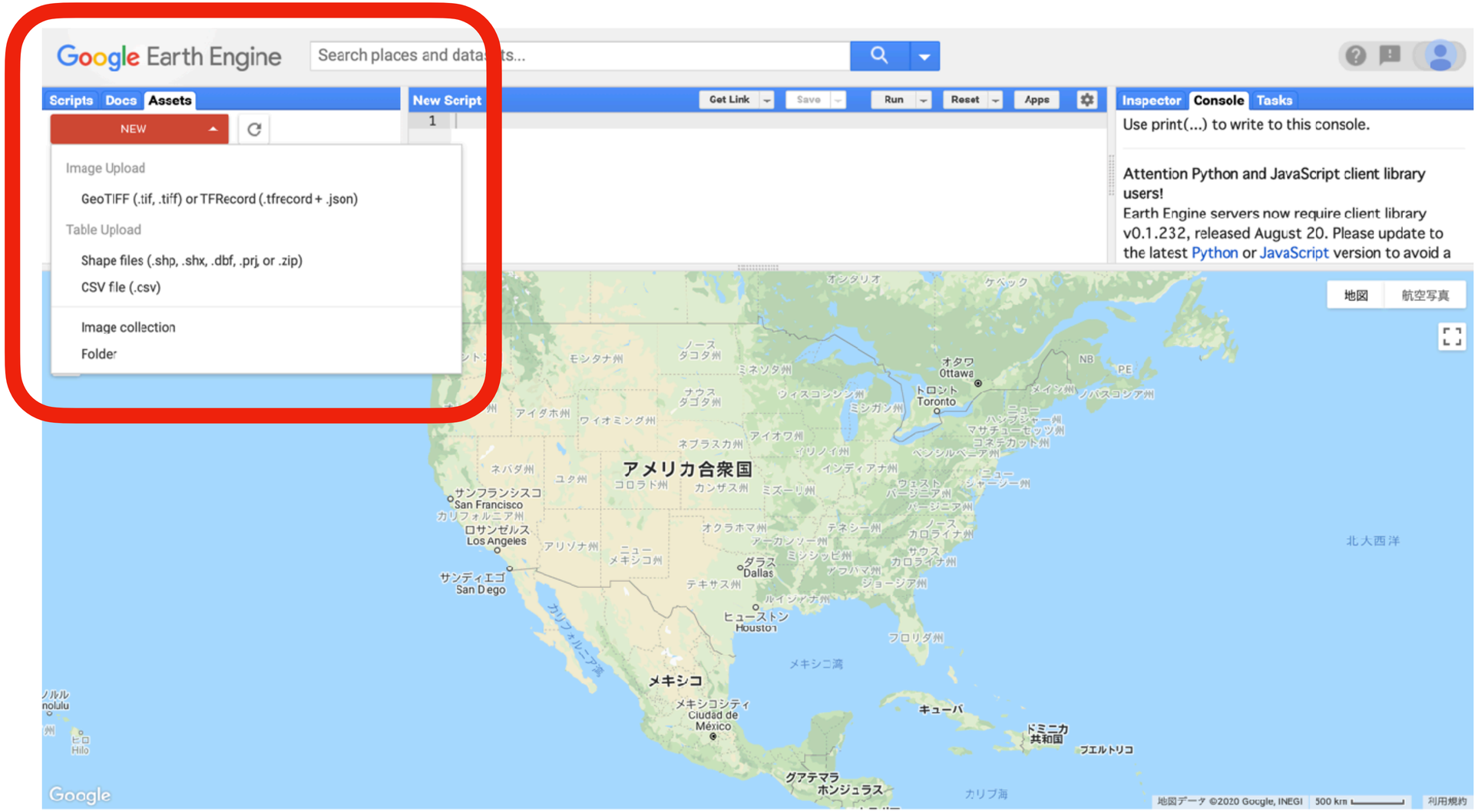
How to upload GeoTIFF file into GEE?

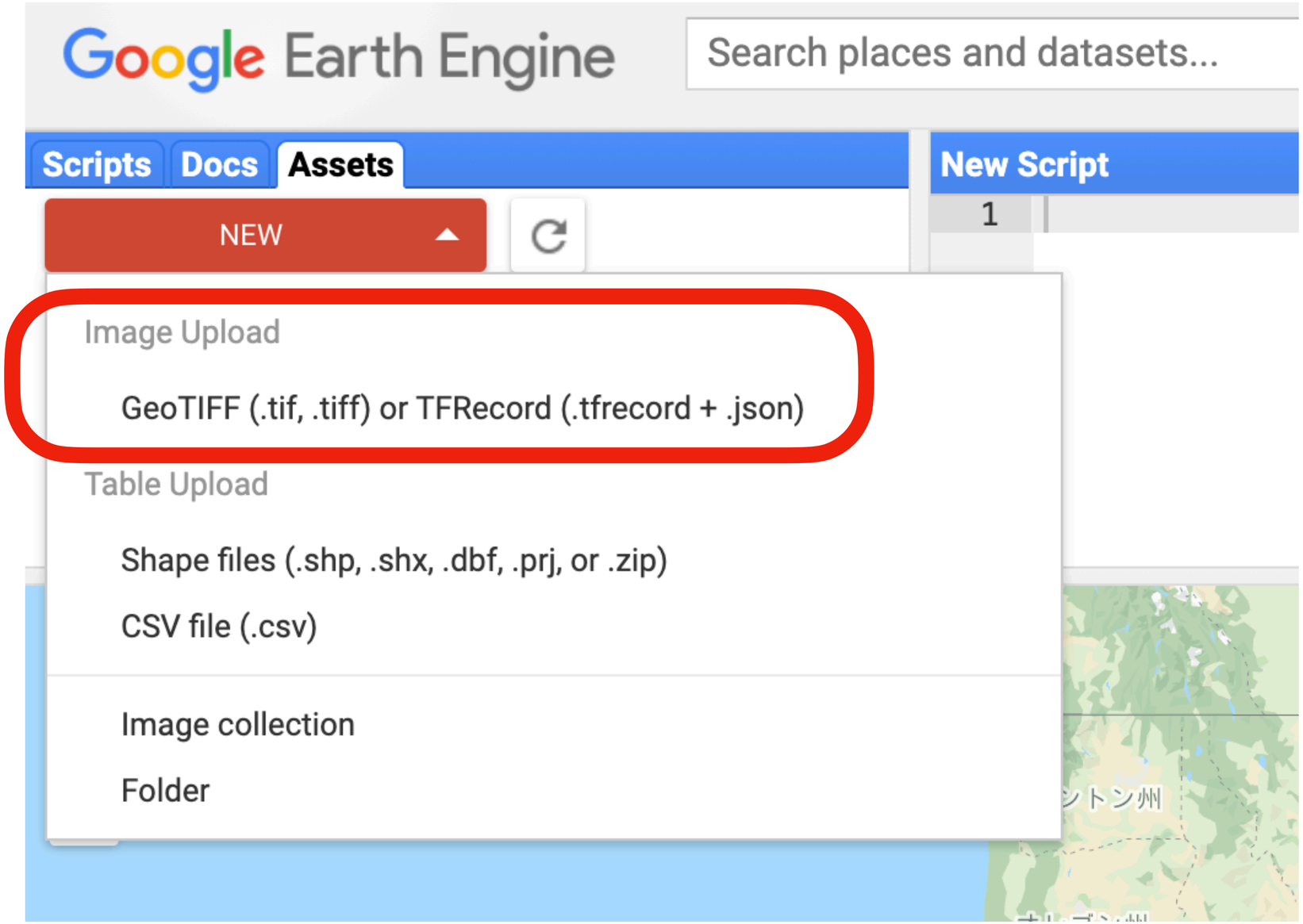
Code Editor

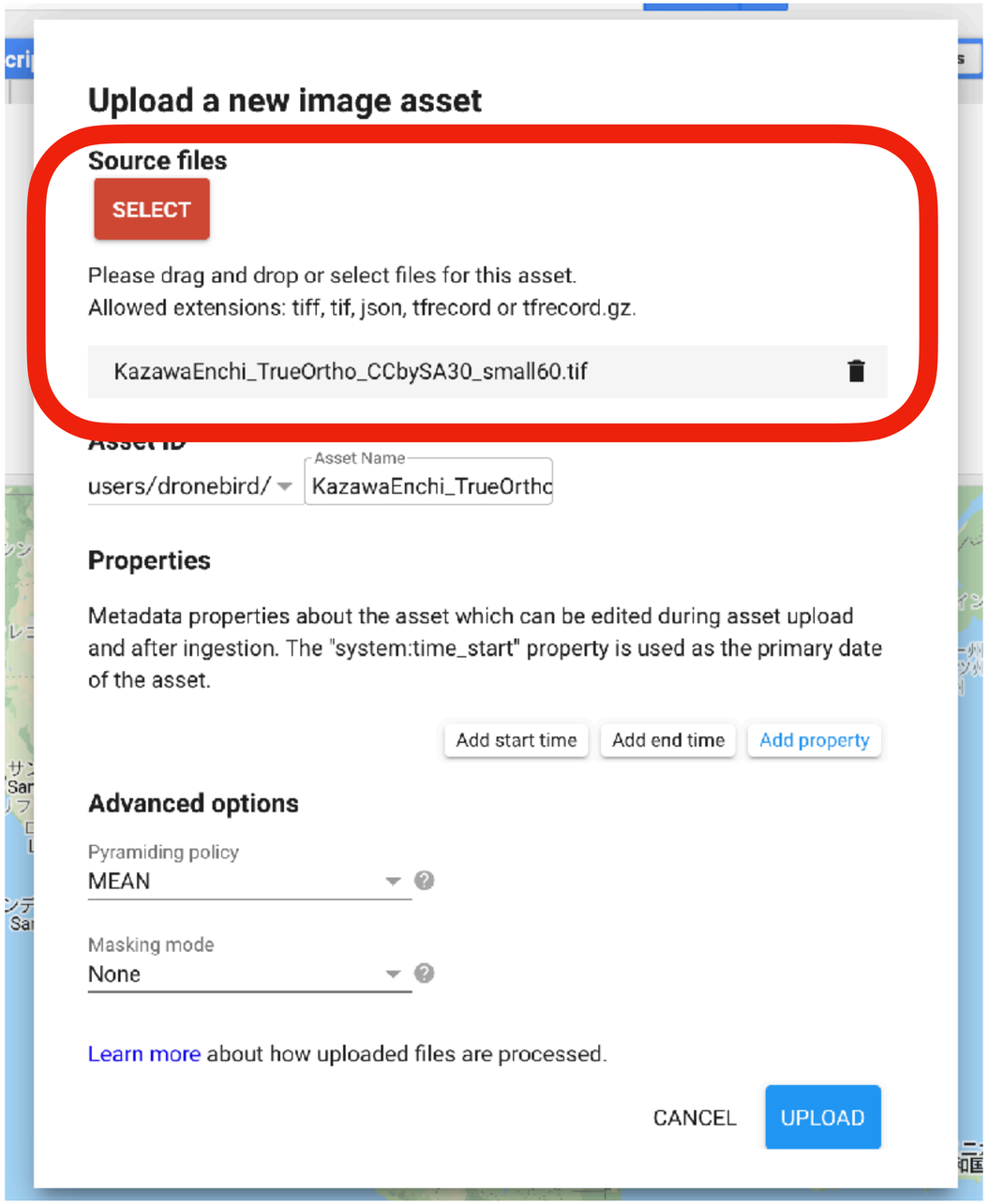
https://code.earthengine.google.com/

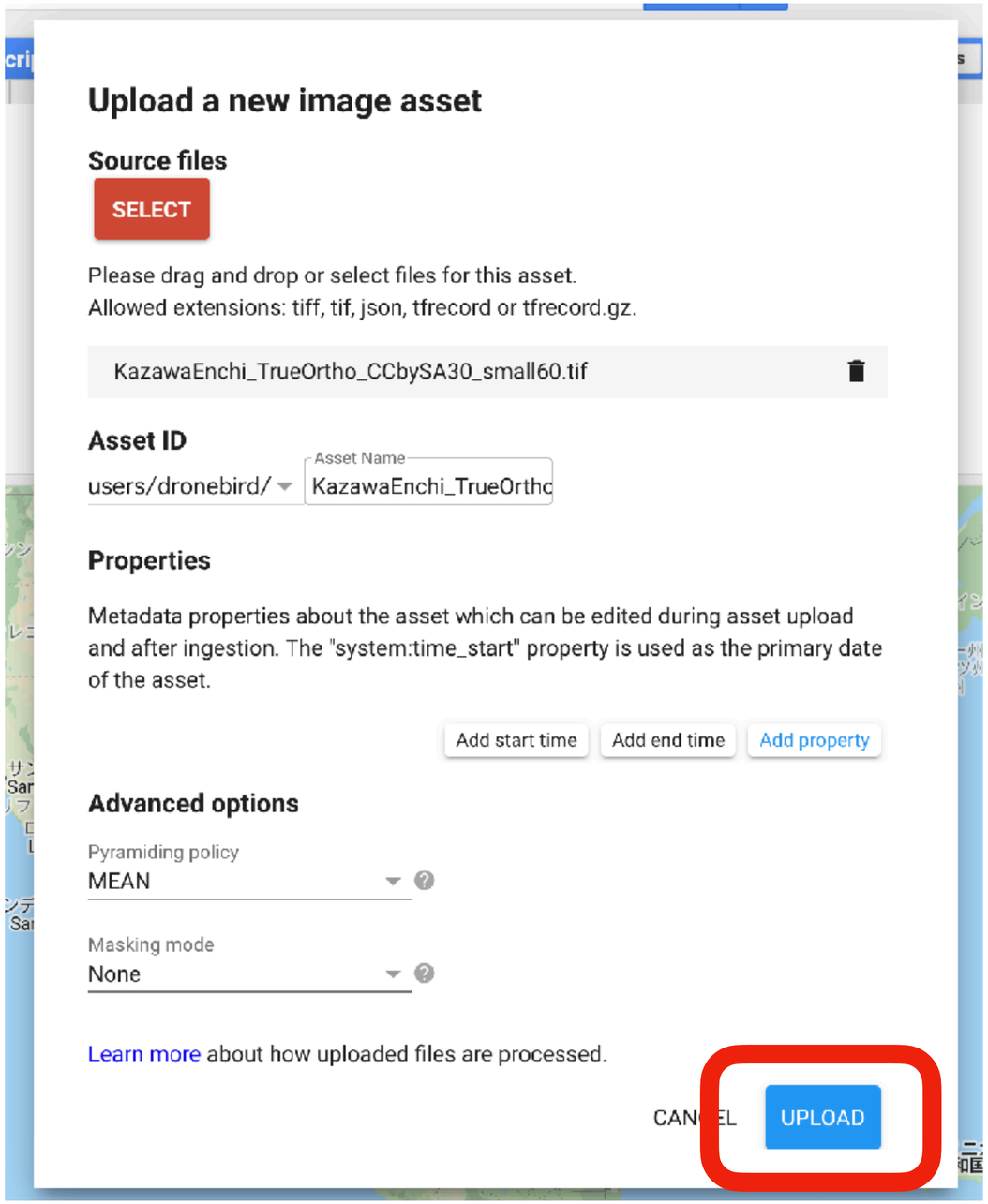
How to upload GeoTIFF file into GEE?



https://code.earthengine.google.com/


Google Earth Engine
Search places and datasets...
Scripts
Docs
Assets
New Script
1
NEW
Image Upload
GeoTIFF (.tif, .tiff) or TFRecord (.tfrecord + .json)
Table Upload
Shape files (.shp, .shx, .dbf, .prj, or .zip)
CSV file (.csv)
Image collection
Folder

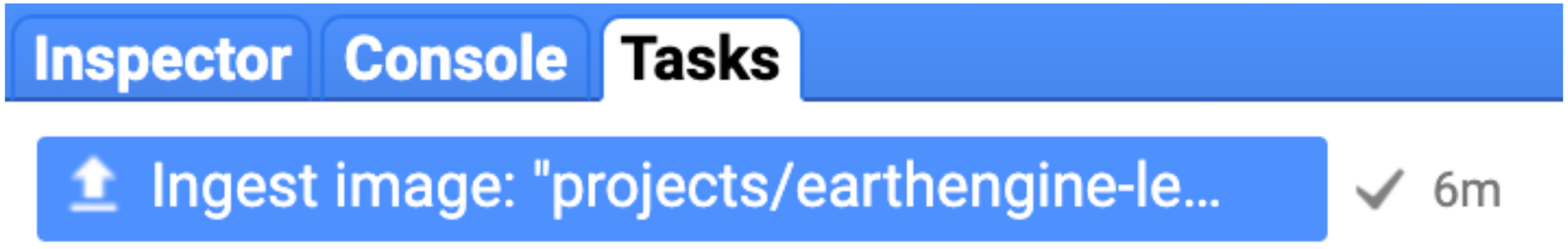

Upload a new image asset
Source files
SELECT
Please drag and drop or select files for this asset.
Allowed extensions: tiff, tif, json, tfrecord or tfrecord.gz.
KazawaEnchi_TrueOrtho_CCbySA30_small60.tif
Asset ID
users/dronebird/
Asset Name
KazawaEnchi_TrueOrthc
Properties
Metadata properties about the asset which can be edited during asset upload and after ingestion. The "system:time_start" property is used as the primary date of the asset.
Add start time
Add end time
Add property
Advanced options
Pyramiding policy
MEAN
Masking mode
None
Learn more about how uploaded files are processed.
CANCEL
UPLOAD

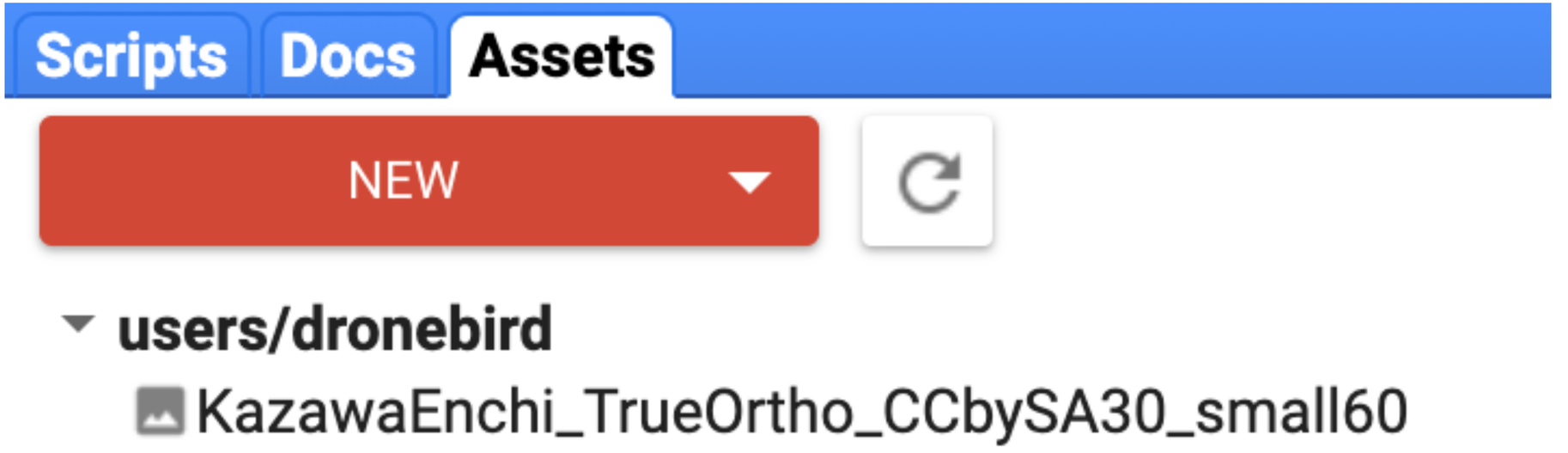

Upload a new image asset
Source files
SELECT
Please drag and drop or select files for this asset.
Allowed extensions: tiff, tif, json, tfrecord or tfrecord.gz.
KazawaEnchi_TrueOrtho_CCbySA30_small60.tif
Asset ID
users/dronebird/
Asset Name
KazawaEnchi_TrueOrthc
Properties
Metadata properties about the asset which can be edited during asset upload and after ingestion. The "system:time_start" property is used as the primary date of the asset.
Add start time
Add end time
Add property
Advanced options
Pyramiding policy
MEAN
Masking mode
None
Learn more about how uploaded files are processed.
UPLOAD

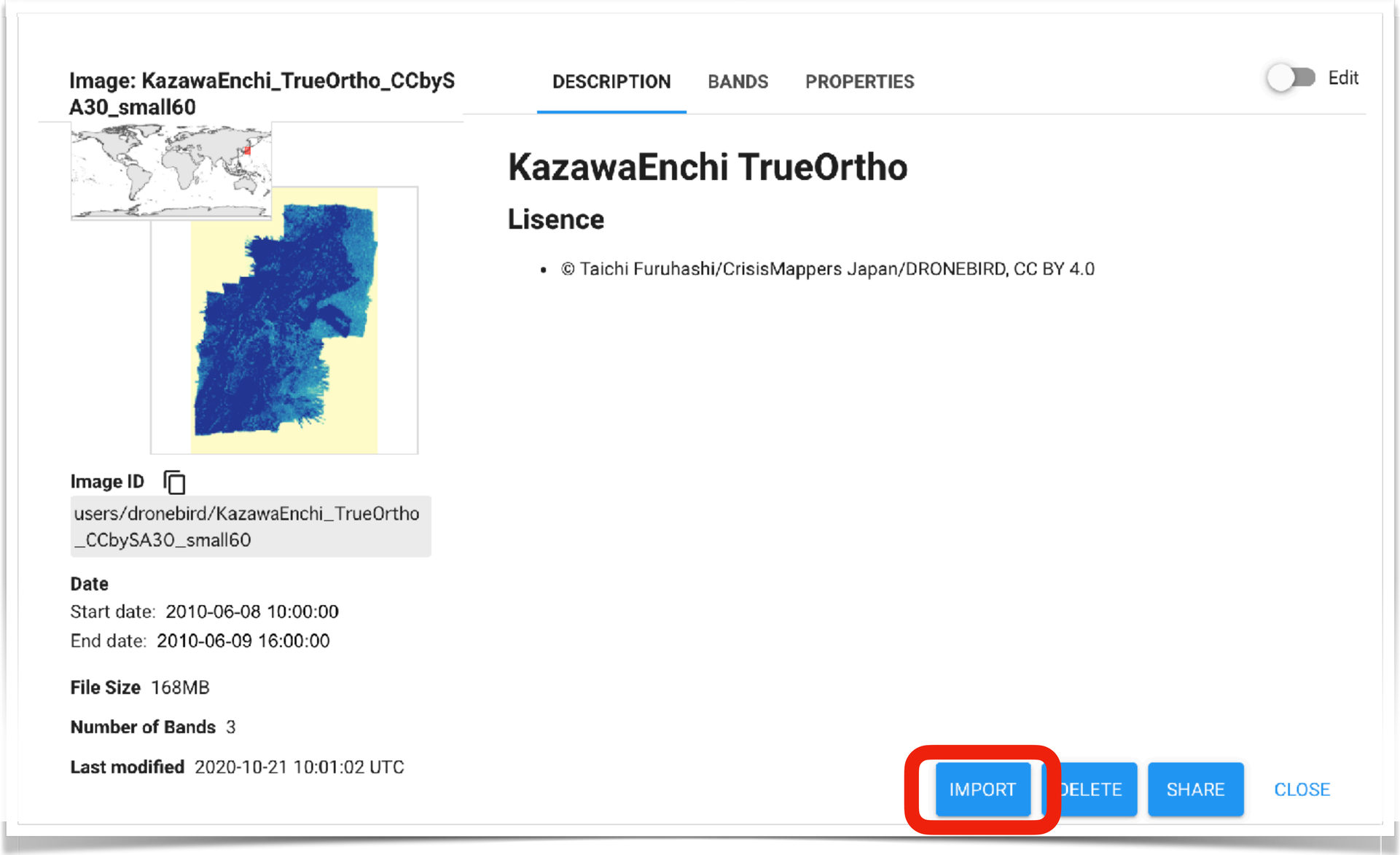
Inspector Console **Tasks**

Refresh

Uploading (50%) 1 file for asset: users... 12s


Inspector
Console
Tasks
Ingest image: "projects/earthengine-le...
6m


Scripts
Docs
Assets
NEW
users/dronebird
KazawaEnchi_TrueOrtho_CCbySA30_small60



https://code.earthengine.google.com/?asset=users/dronebird/KazawaEnchi_TrueOrtho_CCbySA30_small60

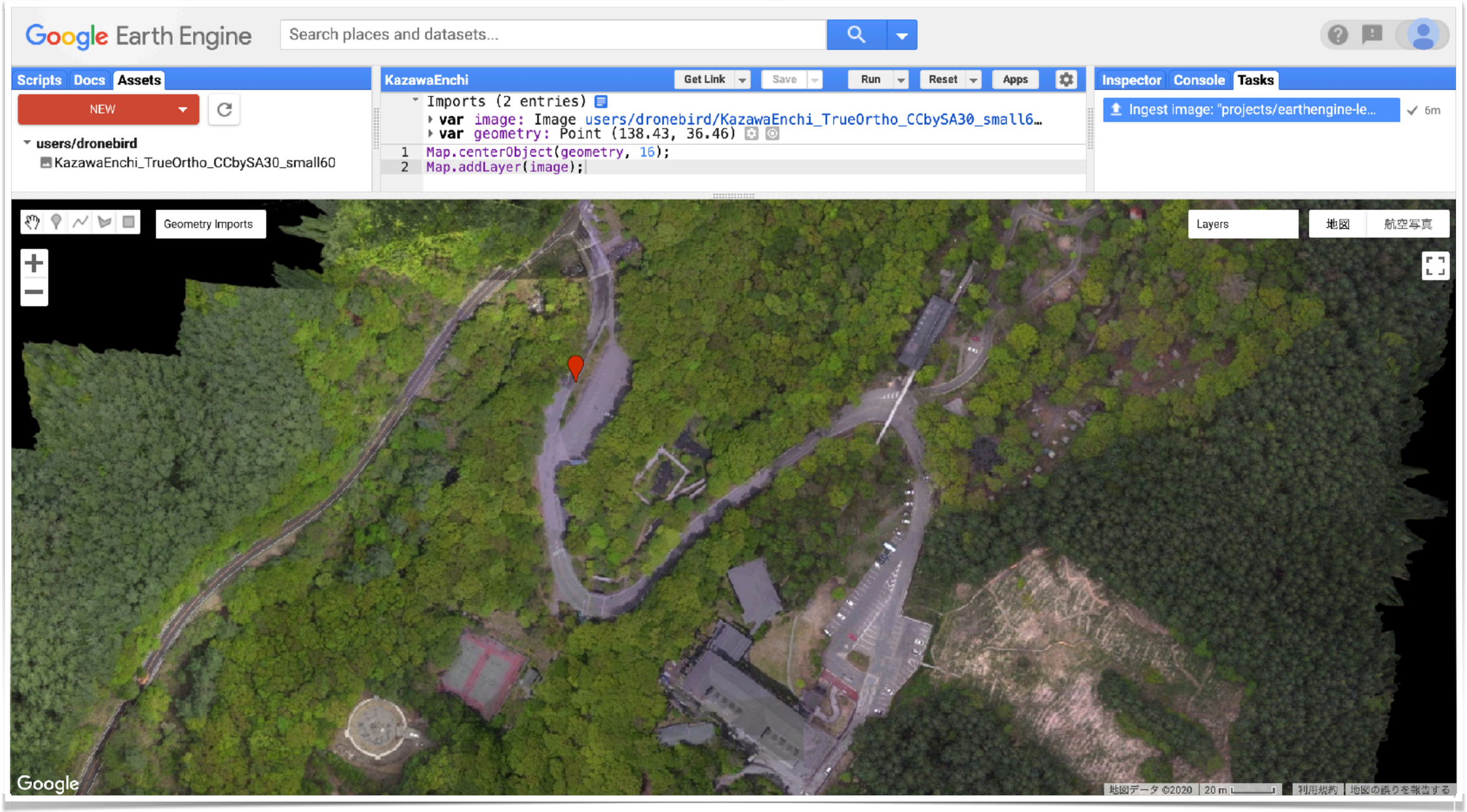
KazawaEnchi

Get Link | Save | Run | Reset | Apps

```
Imports (2 entries)
  var image: Image users/dronebird/KazawaEnchi_TrueOrtho_CCbySA30_small6…
  var geometry: Point (138.43, 36.46)
```

```
1  Map.centerObject(geometry, 16);
2  Map.addLayer(image);
```

https://code.earthengine.google.com/f686b77470a224552a6e5b68faef99aa


Google Earth Engine
Search places and datasets...
Scripts
Docs
Assets
NEW
users/dronebird
KazawaEnchi_TrueOrtho_CCbySA30_small60
KazawaEnchi
Get Link
Save
Run
Reset
Apps
Imports (2 entries)
var image: Image users/dronebird/KazawaEnchi_TrueOrtho_CCbySA30_small6…
var geometry: Point (138.43, 36.46)
Map.centerObject(geometry, 16);
Map.addLayer(image);
Inspector
Console
Tasks
Ingest image: "projects/earthengine-le...
6m
Geometry Imports
Layers
地図
航空写真
Google
地図データ ©2020
20 m
利用規約
地図の誤りを報告する

But,

General GEE user account has only 10GB storage capacity.

We want to donate our drone's imageries for GEE Data Catalog as open data.

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DRONE BIRD

donate

Earth Engine Data Catalog

Search

English

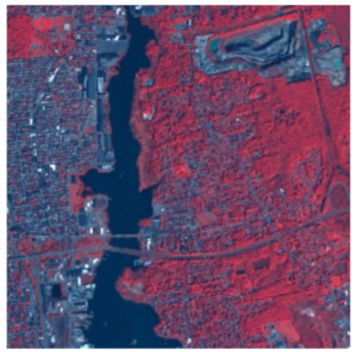
Home | View all datasets | Browse by tags | Landsat | MODIS | Sentinel | API Docs

Datasets tagged highres in Earth Engine

We hope here!

Filter list of datasets

Planet SkySat Public Ortho Imagery, Multispectral



This data from Planet labs Inc. SkySat satellites was collected for the experimental "Skybox for Good Beta" program in 2015, as well as for various crisis response events and a few other projects. The data is available in both a 5-band Multispectral/Pan collection, and a ...

multispectral | pansharpened | planet | skysat | highres

Planet SkySat Public Ortho Imagery, RGB

This data from Planet labs Inc. SkySat satellites was collected for the experimental "Skybox for Good Beta" program in 2015, as well as for various crisis response events and a few other projects. The data is available in both a 5-band Multispectral/Pan collection, and a ...

rgb | pansharpened | planet | skysat | highres

NAIP: National Agriculture Imagery Program

The National Agriculture Imagery Program (NAIP) acquires aerial imagery during the agricultural growing seasons in the continental U.S. NAIP projects are contracted each year based upon available funding and the FSA imagery acquisition cycle. Beginning in 2003, NAIP was acquired on a 5-year cycle. 2008 ...

naip | agriculture | aerial | highres | imagery | usda

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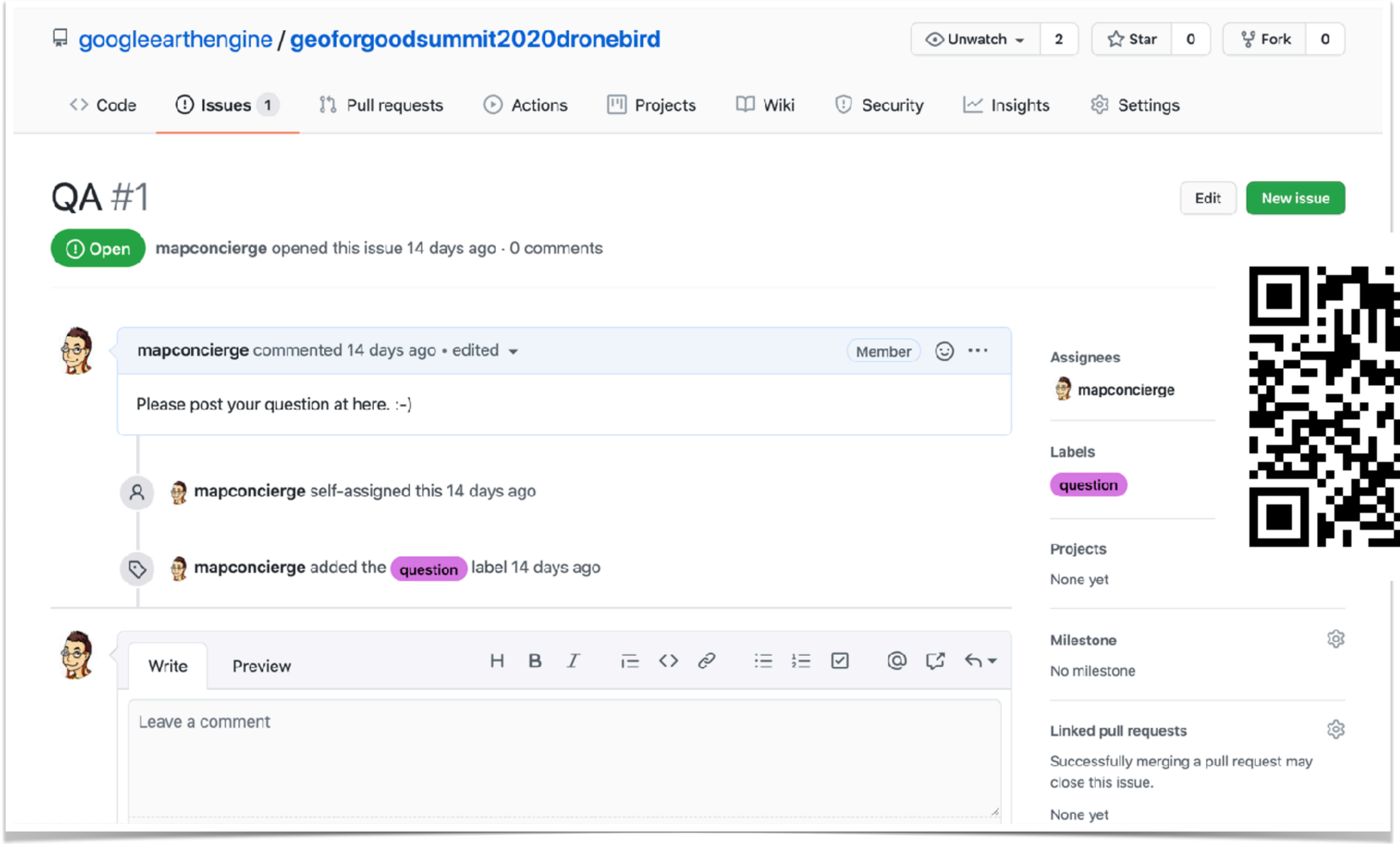
https://developers.google.com/earth-engine/datasets/tags/highres

Q&A

If you have question,
Please add as issue on GitHub.

https://github.com/googleearthengine/geoforgoodsummit2020dronebird/issues/1



https://github.com/googleearthengine/geoforgoodsummit2020dronebird/issues/1

I will share our donation result on GitHub Issue.

https://github.com/googleearthengine/geoforgoodsummit2020dronebird/issues/2

Japan FlyingLabs

災害ドローン救援隊 DRONE BIRD

CRiS!S mappers JAPAN

Happy Mapping!!

Taichi FURUHASHI

@mapconcierge

AOYAMA VISION

青山学院大学 Aoyama Gakuin University