

**OpenDroneMap**

**First impressions**

**Lightning talk**

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# Opendronemap.org

Webseite:

<http://opendronemap.org/>

What is it?

OpenDroneMap is an **open source toolkit for processing aerial drone imagery** [..] OpenDroneMap turns those simple images into three dimensional geographic data that can be used in combination with other geographic datasets.

Wiki:

<https://github.com/OpenDroneMap/OpenDroneMap/wiki>

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ODM erstellt:

- Punktwolke
- Digitales Geländemodell
- Texturiertes Oberflächenmodell
- Orthophoto
- Klassifizierte Punktwolke (work in proress)

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## Kommandozeilen-basiertes Werkzeug (in Docker):

```
python run.py --images </path/to/images> <project-name>
```

```
python run.py -i /code/Dronedata/Flug_Kraftwerkinsel_Birsfelden_20171103/block1 kwb1
```

## Mit Kontrollpunkten:

```
coordinate system description  
x1 y1 z1 pixelx1 pixely1 imagename1  
x2 y2 z2 pixelx2 pixely2 imagename2  
x3 y3 z3 pixelx3 pixely3 imagename3
```

e.g. for the Langley dataset:

```
WGS84 UTM 10N  
544256.7 5320919.9 5 3044 2622 IMG_0525.jpg  
544157.7 5320899.2 5 4193 1552 IMG_0585.jpg  
544033.4 5320876.0 5 1606 2763 IMG_0690.jpg
```

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## Runtime Parameter:

```
usage: run.py [options] <project name>

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positional arguments:
  <project name>      Name of Project (i.e subdirectory of projects folder)

optional arguments:
  -h, --help          show this help message and exit
  --images <path>, -i <path>
                      Path to input images
  --project-path <path>
                      Path to the project folder
  --resize-to <integer>
                      resizes images by the largest side for opensfm. Set to
                      -1 to disable. Default: 2048
  --start-with <string>, -s <string>
                      Can be one of: resize | opensfm | slam | cmvs | pmvs |
                      odm_meshing | odm_25dmeshing | mvs_texturing |
                      odm_georeferencing | odm_dem | odm_orthophoto
  --end-with <string>, -e <string>
                      Can be one of:resize | opensfm | slam | cmvs | pmvs |
                      odm_meshing | odm_25dmeshing | mvs_texturing |
                      odm_georeferencing | odm_dem | odm_orthophoto
  --rerun <string>, -r <string>
                      Can be one of:resize | opensfm | slam | cmvs | pmvs |
                      odm_meshing | odm_25dmeshing | mvs_texturing |
                      odm_georeferencing | odm_dem | odm_orthophoto
  --rerun-all        force rerun of all tasks
  --rerun-from <string>
                      Can be one of:resize | opensfm | slam | cmvs | pmvs |
                      odm_meshing | odm_25dmeshing | mvs_texturing |
                      odm_georeferencing | odm_dem | odm_orthophoto
  --video <string>   Path to the video file to process
  --slam-config <string>
                      Path to config file for orb-slam
```

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## Resultate:

```
|-- images/
    |-- img-1234.jpg
    |-- ...
|-- images_resize/
    |-- img-1234.jpg
    |-- ...
|-- opensfm/                                # Tie Points and camera positions here in JSON format
|-- pmvs/
    |-- recon0/
        |-- models/
            |-- option-0000.ply              # Dense point cloud
|-- odm_meshing/
    |-- odm_mesh.ply                        # A 3D mesh
    |-- odm_meshing_log.txt                # Output of the meshing task. May point out errors.
|-- odm_texturing/
    |-- odm_textured_model.obj             # Textured mesh
    |-- odm_textured_model_geo.obj        # Georeferenced textured mesh
    |-- texture_N.jpg                     # Associated textured images used by the model
|-- odm_georeferencing/
    |-- odm_georeferenced_model.ply        # A georeferenced dense point cloud
    |-- odm_georeferenced_model.ply.laz   # LAZ format point cloud
    |-- odm_georeferenced_model.csv       # XYZ format point cloud
    |-- odm_georeferencing_log.txt        # Georeferencing log
    |-- odm_georeferencing_utm_log.txt    # Log for the extract_utm portion
|-- odm_orthophoto/
    |-- odm_orthophoto.png                # Orthophoto image (no coordinates)
    |-- odm_orthophoto.tif                # Orthophoto GeoTiff
    |-- odm_orthophoto_log.txt            # Log file
    |-- gdal_translate_log.txt            # Log for georeferencing the png file
|-- odm_mesh/
    |-- odm_dsm.tif                        # Digital Surface Model Geotiff - the tops of everything
    |-- odm_dtm.tif                        # Digital Terrain Model Geotiff - the ground.
```



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Resultate:



DJI\_0001.JPG



DJI\_0002.JPG



DJI\_0003.JPG



Elementy  
Aufnahme  
Markierung  
Bewertung  
Abmessur  
Größe: 4.9  
Titel: DCI

DJI\_0004.JPG



DJI\_0005.JPG



DJI\_0006.JPG



DJI\_0007.JPG



DJI\_0008.JPG



DJI\_0009.JPG



DJI\_0010.JPG



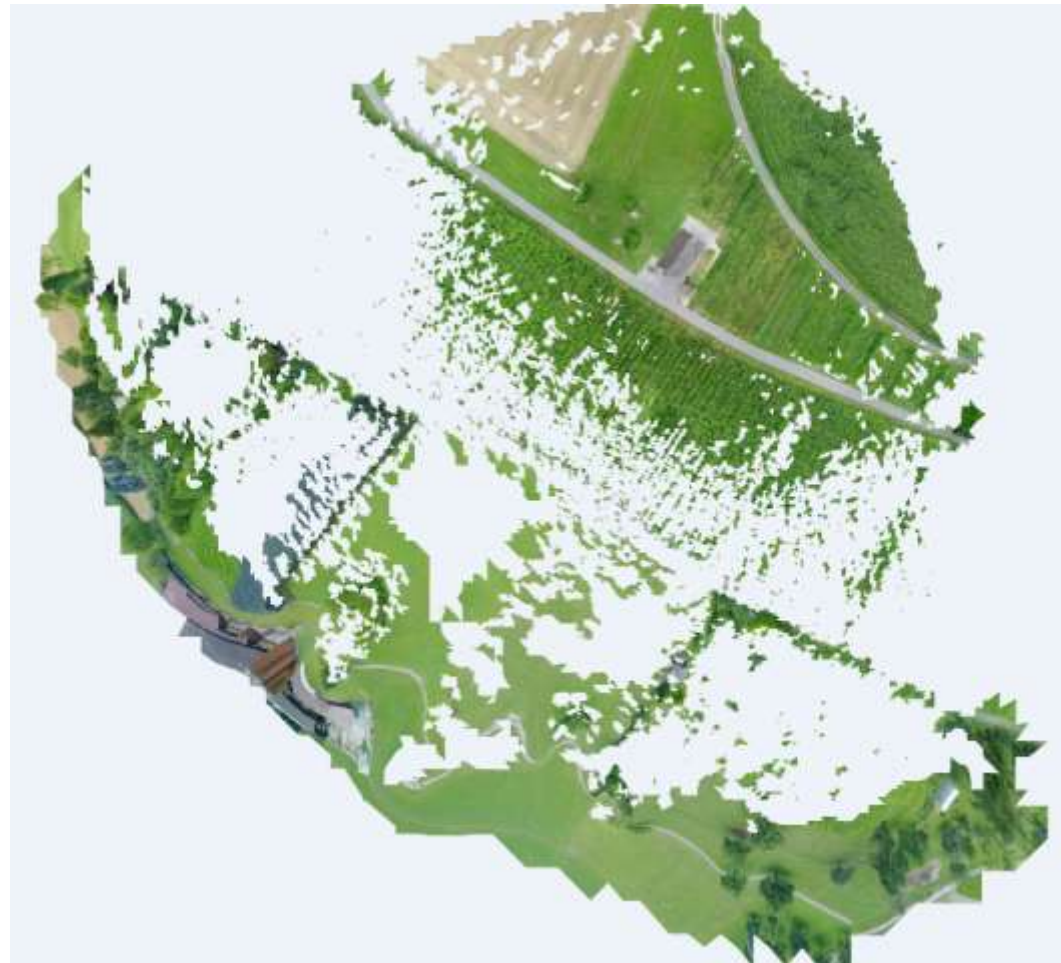
DJI\_0011.JPG



DJI\_0012.JPG

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Resultate:





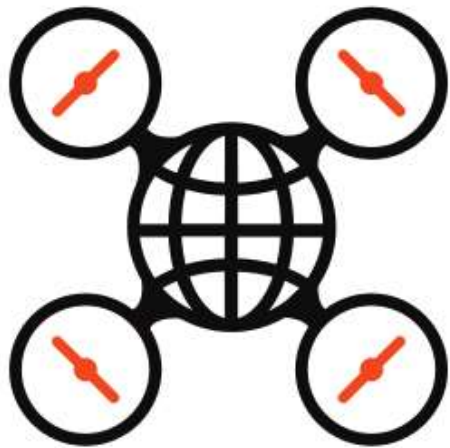
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Resultate:





SBB CFF FFS



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Besten Dank.

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