

การติดตั้งโปรแกรมประเมินผลภาพ OpenDroneMap/WebODM

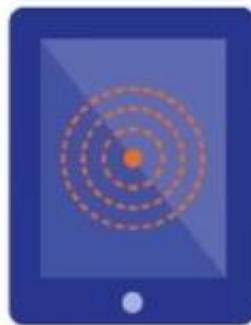
นายชิงชัย หุ่มห้อง

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MAPEDIA Co., Ltd.
www.mapedia.co.th

THE BEST SOLUTION FOR YOUR FUTURE MAPPING

ผังการทำงานของการทำแผนที่ด้วยโดรน

1 Upload your
flight plan



2 Auto flight &
data capture



3 Data upload
& processing



4 Access & analyze
your job site

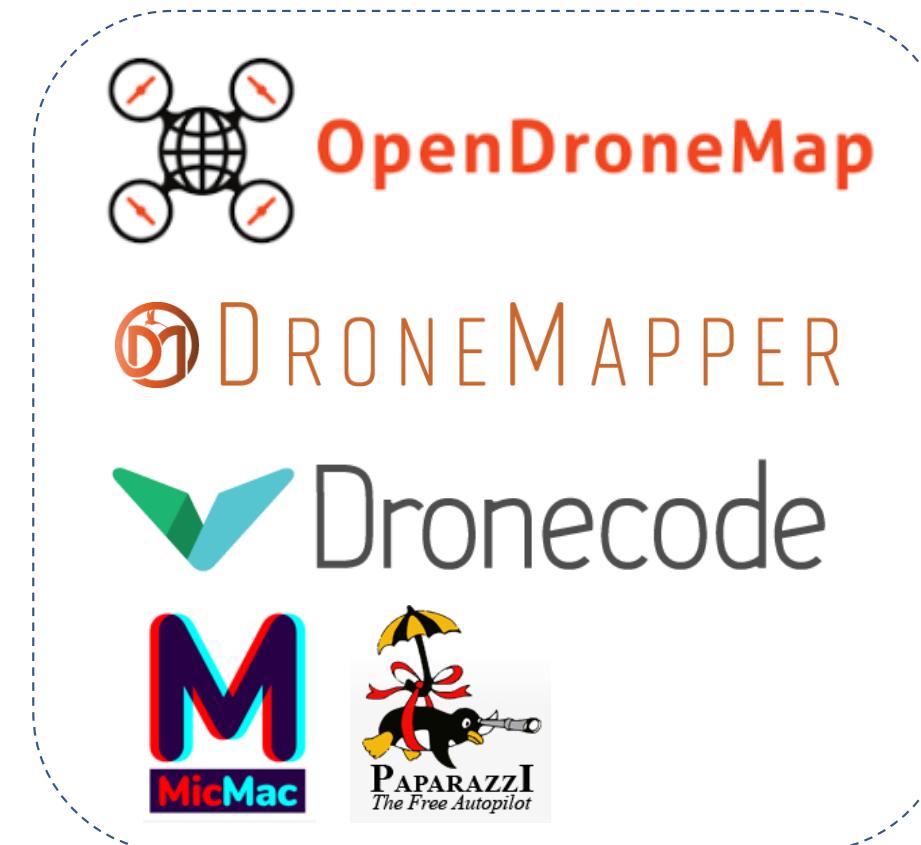


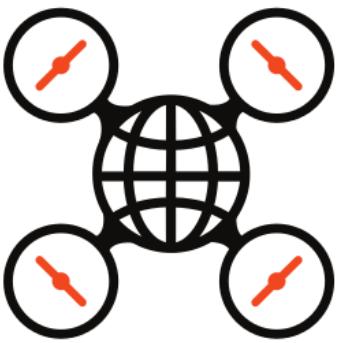
ໂປຣແກຣມປະນົມວິລຸພາກ

ເຂັ້ມພາບຍົງ



ວິເລະຮັສເປີດ





OpenDroneMap

Drone Mapping Software

Generate maps, point clouds, 3D models and DEMs from
drone, balloon or kite images.

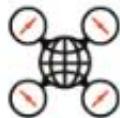
www.opendronemap.org

OpenDroneMap is an open source toolkit for aerial drone imagery.

It is modern photogrammetry - fully automated matching, digital surface modeling, and mosaicking

Projects

ODM



A command line toolkit to process aerial images. Since its creation in 2014, it has become the de-facto standard of open source drone image processing.

[Go To Project](#)

WebODM



A user-friendly, extendable application and API for drone image processing. It provides a web interface to ODM with visualization, storage and data analysis functionality.

[Go To Project](#)

NodeODM



A lightweight REST API to access ODM. It also provides a minimal web interface to access its functions.

[Go To Project](#)

LiveODM



A bootable DVD/USB ISO with ODM, node-ODM and WebODM pre-installed.

[Go To Project](#)

CloudODM



A command line tool to process aerial imagery in the cloud.

[Go To Project](#)

PyODM



A Python SDK for adding aerial image processing capabilities to applications.

[Go To Project](#)

Features



Orthomosaics

Georeferenced, orthorectified maps.



Point Clouds

Georeferenced, filtered and classified dense point clouds.



Elevation Models

Georeferenced digital elevation models (DSMs and DTMs).



3D Models

Textured 3D models in .OBJ format.



Any Camera

From consumer phones to professional cameras (standard, fisheye, 360°), single or multi-camera.



Any Format

JPGs and TIFFs (8bit and 16bit), with or without EXIFs.



Any Orientation

Process aerial and ground images, captured nadir or oblique.



Multispectral

Process multispectral images.



Measurements

Make volume and area measurements with ease, track stockpiles.



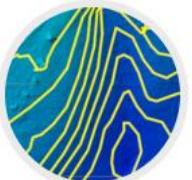
Plant Health

Easily compute NDVI, VARI, GNDVI and many other indexes.



Ground Control Points

Create and use GCPs for additional accuracy.



Contours

Preview and export elevation contours to AutoCAD, ShapeFile, GeoPackage.



Export

High resolution GeoTIFF, PNG, LAS, OBJ formats.



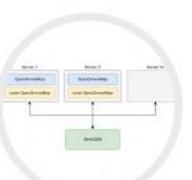
Share

Easily share your maps and 3D models.



Rebrand

Choose a logo and color scheme that matches your organization.



Scale

Run multiple jobs in parallel and single jobs distributed on multiple machines.

Download and Install

Download

To install WebODM you have two choices:

Manual Install

WebODM is free and open source software. If you are a technical user and don't mind getting your hands dirty, go to GitHub, get a copy of the source code and follow the README.

- Command line skills required
- Community support

 Go to GitHub

WebODM Installer

The installer makes it easy to install WebODM.

- No command line skills needed
- Installation manual
- Install support
- Support the project! ❤

 Choose an Installer

Manual Install

Searched: Search or jump to... Pull requests Issues Marketplace Explore

OpenDroneMap / WebODM

Sponsor Watch 135 Unstar 1.4k Fork 527

Code Issues 68 Pull requests 1 Actions Projects Security Insights

master 9 branches 23 tags Go to file Add file Code

pierotofy	Merge pull request #968 from mateo3d/master ...	b30b676 yesterday	1,616 commits
.github	Recurse submodules	3 months ago	
app	Support for reading coords.txt	23 days ago	
build	Added gunicorn, nginx, modified code to build static assets, check de...	4 years ago	
contrib	Fix some things	3 years ago	
db	Fix DB build, laptop icon on hover	13 months ago	
locale	Minor language fixes, imported latest weblate translations	23 days ago	
nginx	Update letsencrypt to match current protocol	15 months ago	
nodeodm	Update NodeODM	2 months ago	
plugins	new code test	5 days ago	
screenshots	Updated screenshot of pointcloud	4 years ago	
service	Fixed celerybeat PID file hang issue	2 years ago	
slate	Update `task.md` with tasks/import endpoint	9 months ago	
webodm	PoC translation for both JSX components and Django	3 months ago	
worker	Unit tests, cleanup	14 months ago	
.babelrc	Upgraded webpack to 4, minor changes to OAM plugin	3 years ago	
.env	Add possibility for multiple nodes	2 years ago	
.gitignore	Update .gitignore	5 days ago	

About

User-friendly, commercial-grade software for processing aerial imagery.

www.opendronemap.org/webodm/

api drone maps point-cloud photogrammetry

Readme AGPL-3.0 License

Releases 23

v1.8.0 Latest on Feb 9 + 22 releases

Sponsor this project

pierotofy Piero Toffanin https://www.opendronemap.org/we... https://odmbook.com

Learn more about GitHub Sponsors

WebODM Installer

Standard

One-time purchase

WebODM Installer

Installer Documentation + Troubleshooting Guide

1 Year Installation Support

Per-User License ⓘ

Updates Included

30 Days Money-Back Guarantee

 [Buy for Windows \(\\$57.00\)](#)

 [Buy for macOS \(\\$57.00\)](#)

 [+ Buy Bundle \(\\$97.00\)](#)

Business

One-time purchase

WebODM Installer

Installer Documentation + Troubleshooting Guide

1 Year Priority Installation Support (24 hours response)

Per-User License ⓘ

Updates Included

30 Days Money-Back Guarantee

 [Buy for Windows \(\\$147.00\)](#)

 [Buy for macOS \(\\$147.00\)](#)

 [+ Buy Bundle \(\\$197.00\)](#)

System Requirements

ข้อกำหนดขั้นต่ำของ WebODM สำหรับระบบปฏิบัติการ Windows

- Windows 10
- CPU 64 บิตจำนวนไม่น้อยกว่า 4 Core
- รองรับ VT-X
- พื้นที่ว่างในฮาร์ดดิสก์ 100 GB
- RAM อย่างน้อย 4 GB ขึ้นไป

* WebODM ไม่ทำงานบนคอมพิวเตอร์ 32 บิต

ข้อกำหนดขั้นต่ำของ WebODM สำหรับระบบปฏิบัติการ macOS

- macOS 10.13 หรือใหม่กว่า
- ฮาร์ดแวร์ Mac จะต้องเป็นรุ่น 2010 หรือใหม่กว่าและรองรับ Intel virtualization
- พื้นที่ว่างในฮาร์ดดิสก์ 100 GB
- RAM อย่างน้อย 4 GB ขึ้นไป

Setup

- WebODM
 - opendronemap/webodm_webapp
 - opendronemap/webodm_db
 - opendronemap/nodeodm
 - redis
- Git
- Docker
 - WSL 2
 - Hyper-V

Setup

github.com/mapedia-th/docker-conf

The screenshot shows the GitHub repository page for `mapedia-th/docker-conf`. The repository has 1 branch and 0 tags. The main file displayed is `README.md`, which contains a "Docker Cheat Sheet" for WSL 2 and Hyper-V. It includes instructions for changing Docker image locations and a note about Docker Desktop on WSL 2. The repository has 11 commits from user `chingchai .`. The repository page also features sections for About, Releases, Packages, and Contributors.

About
Docker Cheat Sheet for WSL 2 and Hyper-V

Code

README.md

Docker Cheat Sheet

Docker Cheat Sheet WSL 2 and Hyper-V

Change the location of docker images when using Docker Desktop on WSL 2

1. The WSL 2 docker-desktop-data vm disk image would normally reside in:
%USERPROFILE%\AppData\Local\Docker\wsl\data\ext4.vhdx
2. Shut down your docker desktop and Quit Docker Desktop

Releases
No releases published
Create a new release

Packages
No packages published
Publish your first package

Contributors 2

chingchai Chingchai Humhong

mapedia-th MAPEDIA

http://10.10.84.12:8000

Username: user

Password: 1234

WebODM

NGINX

node.js

redis



OpenStreetMap



PostGIS



PostgreSQL

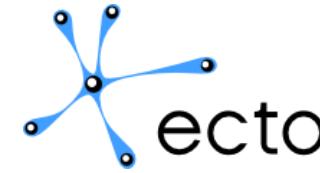


Potree.org

WebGL point cloud visualization



ODM



python™

django



Celery



git

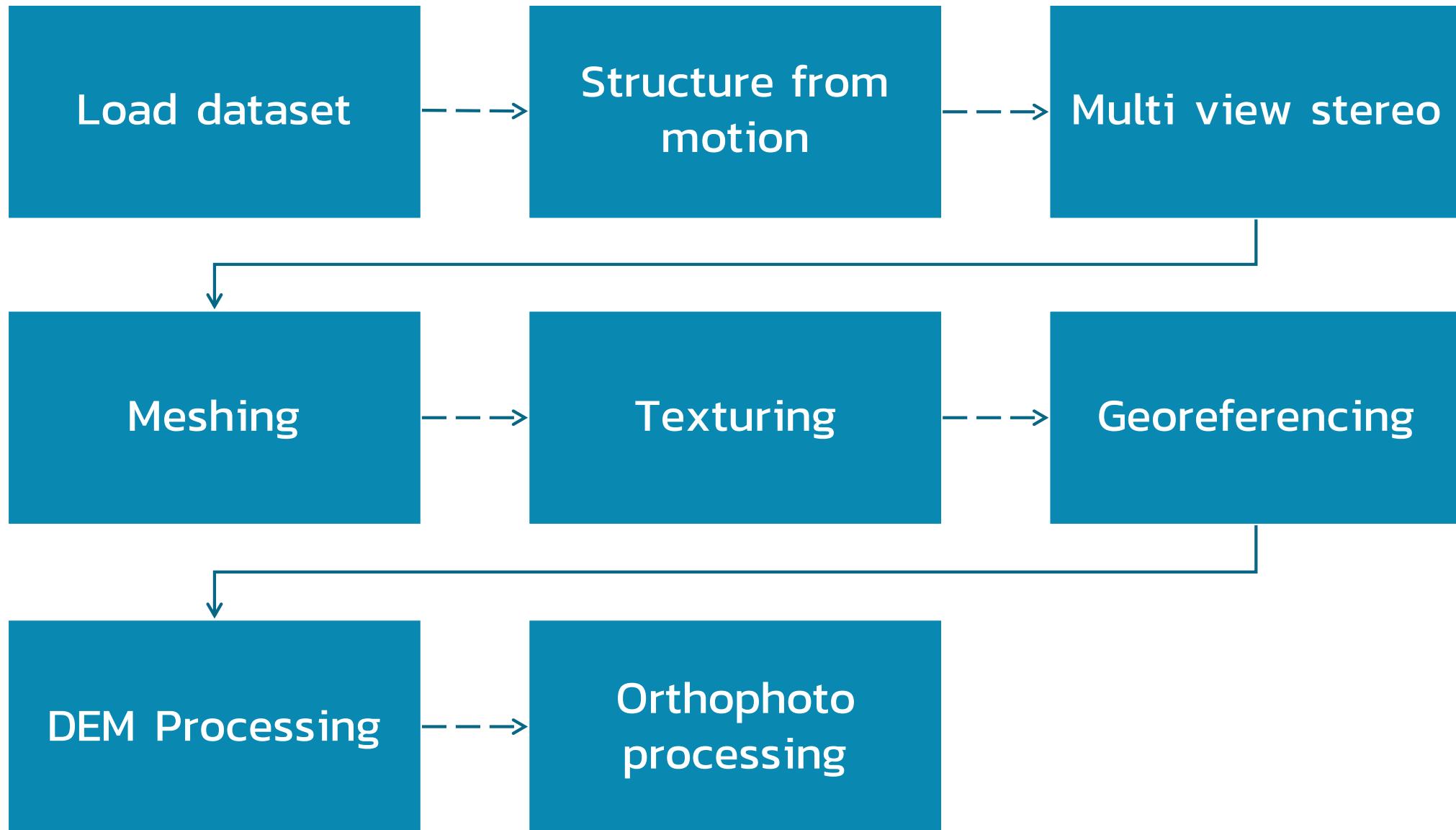


gunicorn



The Process

Processing pipeline



ODM and the Photogrammetric Process

- **Structure from Motion** ←
- Point Cloud Densification
- Surface Reconstruction
- Multi-View Stereo Texturing
- Orthophoto Generation

Structure from Motion

- Matches features extracted from images with overlap



ODM and the Photogrammetric Process

- Structure from Motion
- **Point Cloud Densification** ←
- Surface Reconstruction
- Multi-View Stereo Texturing
- Orthophoto Generation

Sparse Point Cloud from Matching



Dense Point Cloud

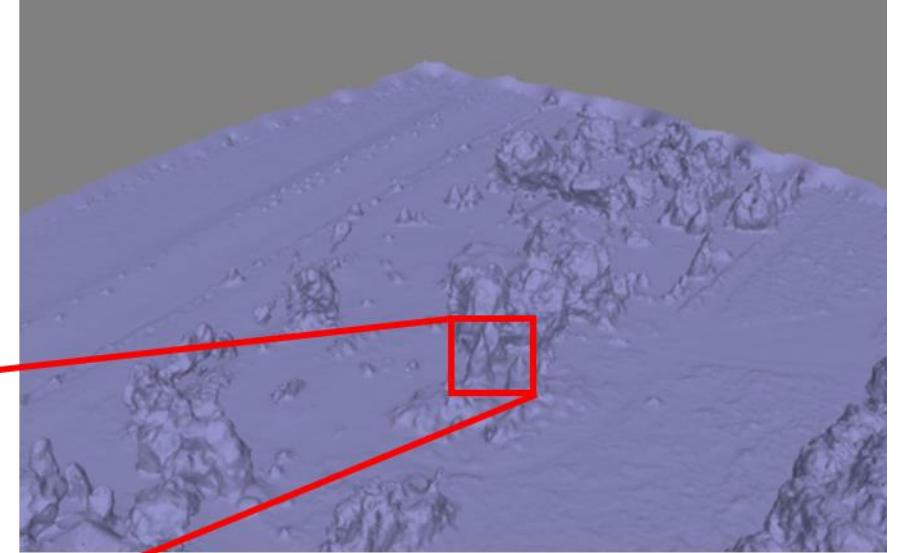


ODM and the Photogrammetric Process

- Structure from Motion
- Point Cloud Densification
- **Surface Reconstruction**
- Multi-View Stereo Texturing
- Orthophoto Generation



Mesh



ODM and the Photogrammetric Process

- Structure from Motion
- Point Cloud Densification
- Surface Reconstruction
- **Multi-View Stereo Texturing** ←
- Orthophoto Generation

Texturing



Photogrammetric process

- Structure from Motion
- Point Cloud Densification
- Surface Reconstruction
- Multi-View Stereo Texturing
- **Orthophoto Generation** ←

Orthophoto Generation



Using WebODM

Dashboard

The screenshot shows the WebODM dashboard interface. On the left is a sidebar with navigation links: Dashboard, Diagnostic, Lightning Network, GCP Interface, Processing Nodes, Administration, and About. The main area displays three completed processing tasks:

- NU**: Created on: 3/11/2021, 11:33:30 PM. Processing Node: node-odm-1 (auto). Options: dsm: true. Task Output: On. Status: Completed. Includes buttons for Download Assets, View Map, View 3D Model, Restart, and Delete.
- TestWSL2_IncreaseMEM**: Created on: 6/2/2020. Status: Completed. Includes buttons for Select Images and GCP, Import, and View Map.
- First Project**: Created on: 6/2/2020. Status: Completed. Includes buttons for Select Images and GCP, Import, and View Map.

Red arrows highlight the 'Download Assets' button for the NU project and the 'About' link in the sidebar.

Add Images

The screenshot shows the WebODM interface with a central file selection dialog and three separate UI elements.

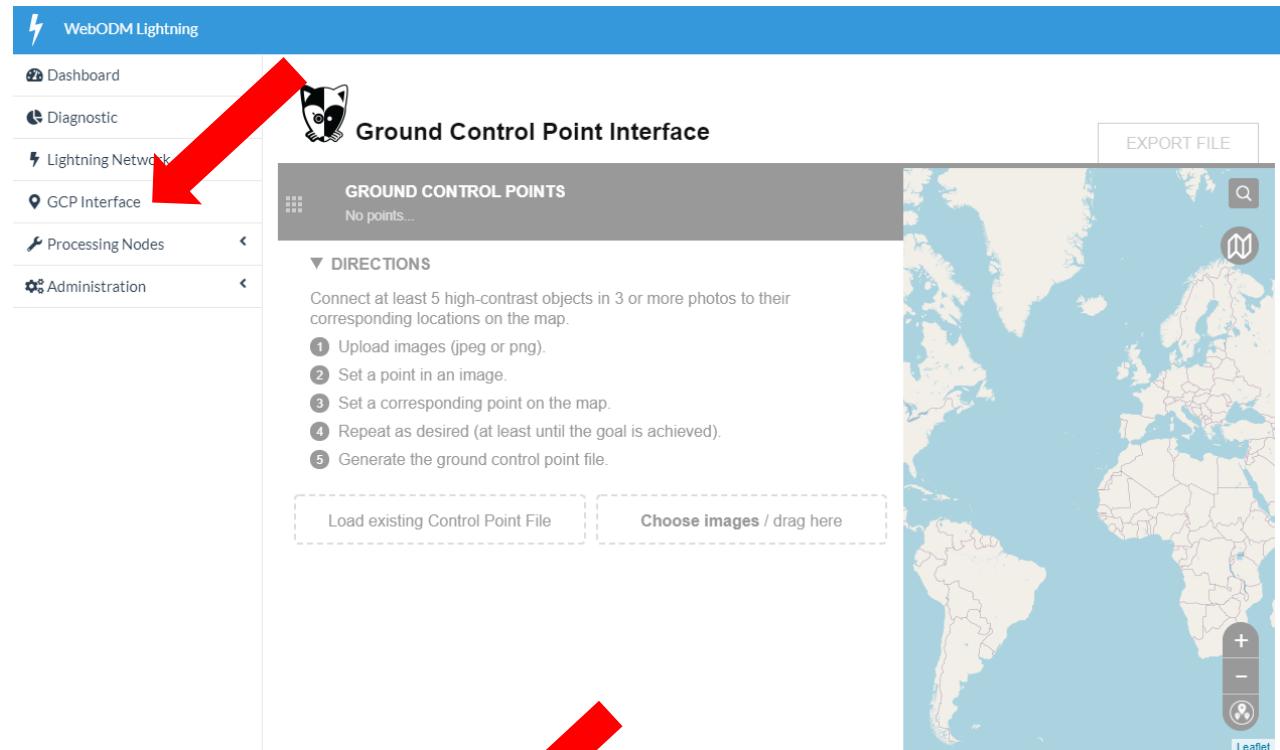
File Selection Dialog: A Windows-style file browser window titled "Open" is displayed. It shows a folder structure under "This PC > Downloads > Double Grid 1-20210310T190327Z-001 > Double Grid 1". The left sidebar lists drives and network locations. The main area displays a grid of 28 image thumbnails, each labeled with a file name starting with "DJI_0050.JPG" up to "DJI_0077.JPG". At the bottom, there is a "File name:" input field, a "Custom Files (*.xbm;*.tif;*.ppm;*)" dropdown, and "Open" and "Cancel" buttons.

UI Elements: There are three separate UI sections, each containing a "Select Images and GCP" button, an "Import" button, and a "View Map" button. The top section has a red box around the "Select Images and GCP" button. The middle and bottom sections have standard blue buttons for these actions.

Add GCP (optional)

- Built-in interface, or
- GCP Editor Pro (external)
- Include gcp_list.txt with images

See <https://docs.opendronemap.org/gcp.html>



```
+proj=utm +zone=10 +ellps=WGS84 +datum=WGS84 +units=m +no_defs  
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
```

GCP file format

- Project Croordinate Reference System
- x y z pixelx pixely imagename

GROUND CONTROL POINT FILE PREVIEW					
+proj=utm +zone=47 +ellps=WGS84 +datum=WGS84 +units=m +no_defs					
626828.15	1850930.68	0	3867.80	1750.84	DJI_0169.JPG
626828.15	1850930.68	0	3901.72	2420.16	DJI_0170.JPG
626828.15	1850930.68	0	3079.94	791.19	DJI_0192.JPG
626828.15	1850930.68	0	818.85	3305.29	DJI_0207.JPG
626831.26	1850900.71	0	3950.64	2446.94	DJI_0169.JPG
626831.26	1850900.71	0	3991.50	3130.19	DJI_0170.JPG
626831.26	1850900.71	0	3010.11	99.27	DJI_0192.JPG
626831.26	1850900.71	0	3013.73	813.23	DJI_0193.JPG
626831.26	1850900.71	0	3035.30	1464.11	DJI_0194.JPG
626831.26	1850900.71	0	3061.43	2192.68	DJI_0195.JPG
626765.06	1850889.44	0	2313.39	2764.82	DJI_0169.JPG
626765.06	1850889.44	0	2271.88	2094.34	DJI_0168.JPG
626765.06	1850889.44	0	4705.41	1928.35	DJI_0195.JPG
626864.07	1850985.88	0	4685.61	399.26	DJI_0169.JPG
626864.07	1850985.88	0	4748.76	1071.94	DJI_0170.JPG
626864.07	1850985.88	0	4802.10	1784.10	DJI_0171.JPG
626879.55	1850883.31	0	5109.81	2848.93	DJI_0169.JPG
626879.55	1850883.31	0	1888.39	388.03	DJI_0193.JPG
626770.16	1850993.00	0	2438.34	947.84	DJI_0170.JPG

<http://bit.ly/2HL3C7h>



GCP Editor - WebODM Demo

https://demo.webodm.org/plugins/posm-gcp/

Dashboard

GCP Interface

Diagnostic

Processing Nodes

API

Ground Control Point Interface

GROUND CONTROL POINTS

GCP file loaded: gcp_file_1550296316052.txt

Choose images / drag here

DIRECTIONS

DJI_0169.JPG

DJI_0170.JPG

DJI_0192.JPG

DJI_0207.JPG

DJI_0193.JPG

DJI_0194.JPG

DJI_0195.JPG

DJI_0168.JPG

DJI_0171.JPG

DJI_0206.JPG

DJI_0205.JPG

DJI_0204.JPG

EXPORT FILE

The interface displays a satellite map of a rural area with several agricultural fields and clusters of houses. Numerous green circular markers with white crosshairs are placed on the map, corresponding to the locations of the ground control points listed in the GCP file. The map includes standard zoom and navigation controls.

WebODM Demo Site

Set Configuration

18 files selected. Please check these additional options:

Name	Sample Dataset
Processing Node	Auto
Options	Default
Resize Images	px <ul style="list-style-type: none">(Custom)DefaultHigh ResolutionFast OrthophotoDSM + DTMForestPoint of InterestBuildings3D ModelVolume AnalysisMultispectral
First Project	

Processing

DroneCamp 2020

1 Tasks ▾ Edit

Sample Dataset 18 00:01:25 Running

Created on: 6/12/2020, 9:30:58 PM Task Output: On

Processing Node: Lightning (auto) Options: dsm: true, dtm: true

```
done importing NVMe file!
[INFO]    Running dense reconstruction. This might take a while.
[INFO]    running /code/SuperBuild/src/elibs/mve/apps/dmrecon/dmrecon -s3 --progress=fancy --local-neighbors=2 "/va
MVE Depth Map Reconstruction (built on May 21 2020, 19:25:15)
Initializing scene with 18 views...
Initialized 18 views (max ID is 17), took 0ms.
Reading Photosynther file (18 cameras, 6825 features)...
Reconstructing all views...
0 of 18 completed (0.00%)
```

 Cancel  Delete

Finished

WebODM

Dashboard + Add Project

Diagnostic Select Images and GCP Import View Map

Lightning Network GCP Interface Select Images and GCP Import View Map

Processing Nodes Administration Select Images and GCP Import View Map

About

NU 1 Tasks Edit Select Images and GCP Import View Map

TestWSL2_IncreaseMEM 1 Tasks Edit Select Images and GCP Import View Map

First Project 1 Tasks Edit Select Images and GCP Import View Map

Task #bf82272c-a1bb-4aeb-b7b5-b5d9ba6c072f 75 00:04:19 Completed Task Output: On

Created on: 3/11/2021, 9:33:51 PM Processing Node: node-odm-1 (auto) Options: texturing-skip-global-seam-leveling: true, radiometric-calibration: camera

Download Assets View Map View 3D Model Restart Delete Edit

The screenshot shows the WebODM interface with a sidebar containing navigation links like Dashboard, Diagnostic, and Administration. The main area displays three projects: NU, TestWSL2_IncreaseMEM, and First Project. The First Project section is expanded, showing a completed task. The task details include the task ID, number of images (75), processing time (00:04:19), and a green 'Completed' status bar. Below the task details, there are buttons for 'Download Assets', 'View Map', 'View 3D Model', 'Restart', and 'Delete'. Three red arrows point to the 'View Map', 'View 3D Model', and 'Edit' buttons.

Outputs

2D Orthophoto

WebODM

Dashboard Add Project

Diagnostic Select Images and GCP Import View Map

Lightning Network GCP Interface Processing Nodes Administration About

NU 1 Tasks Edit Select Images and GCP Import View Map

TestWSL2_IncreaseMEM 1 Tasks Edit Select Images and GCP Import View Map

First Project 1 Tasks Edit Select Images and GCP Import View Map

Task #bf82272c-a1bb-4aeb-b7b5-b5d9ba6c072f 75 00:04:19 Completed Task Output: On Off

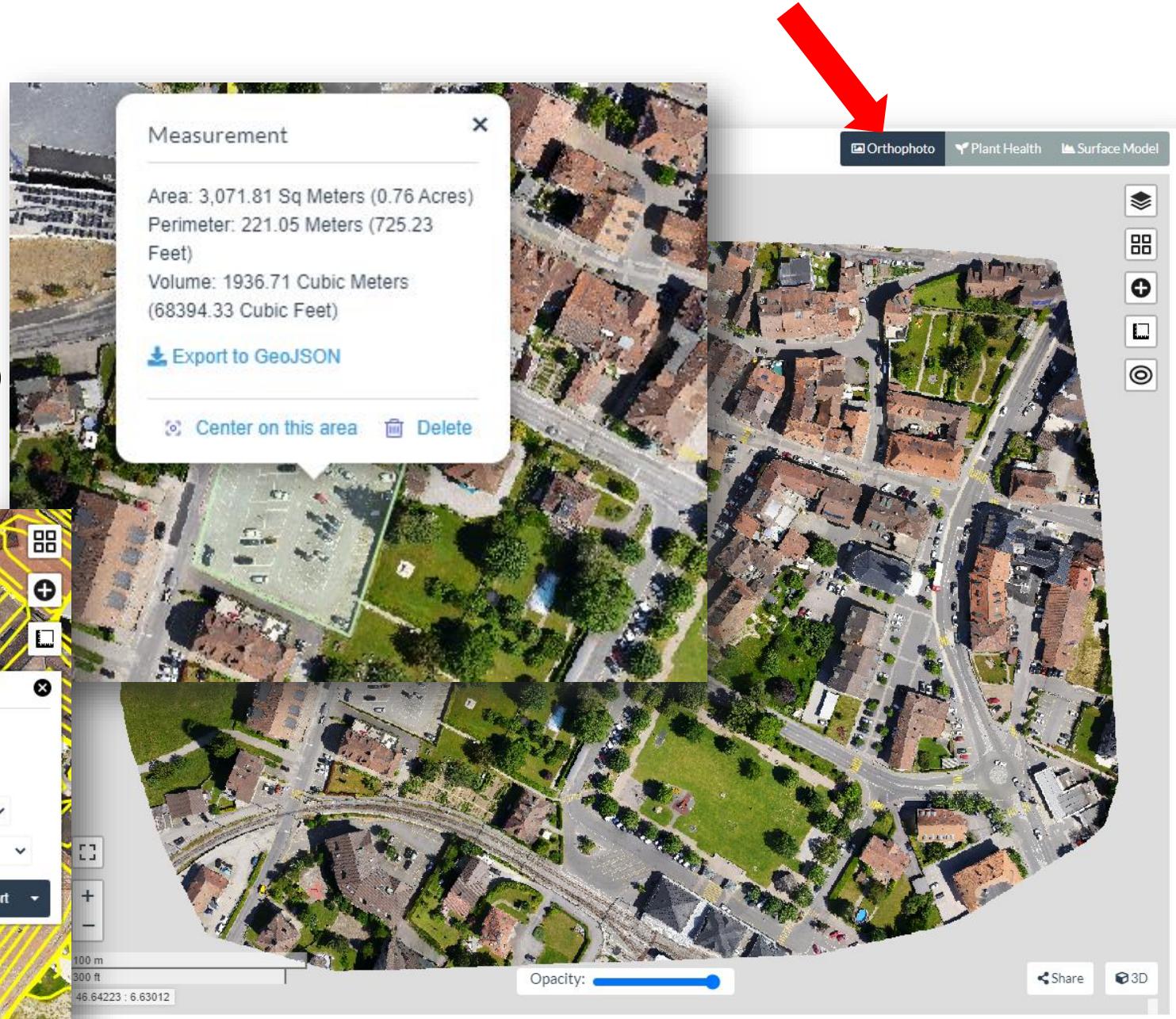
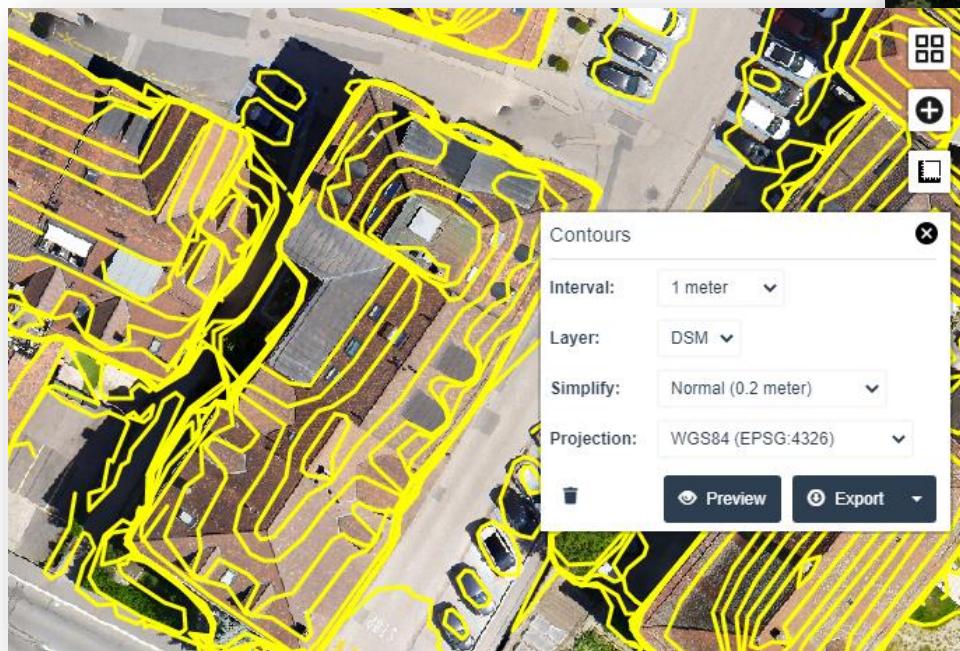
Created on: 3/11/2021, 9:33:51 PM
Processing Node: node-odm-1 (auto)
Options: texturing-skip-global-seam-leveling: true, radiometric-calibration: camera

Download Assets View Map View 3D Model Restart Delete Edit



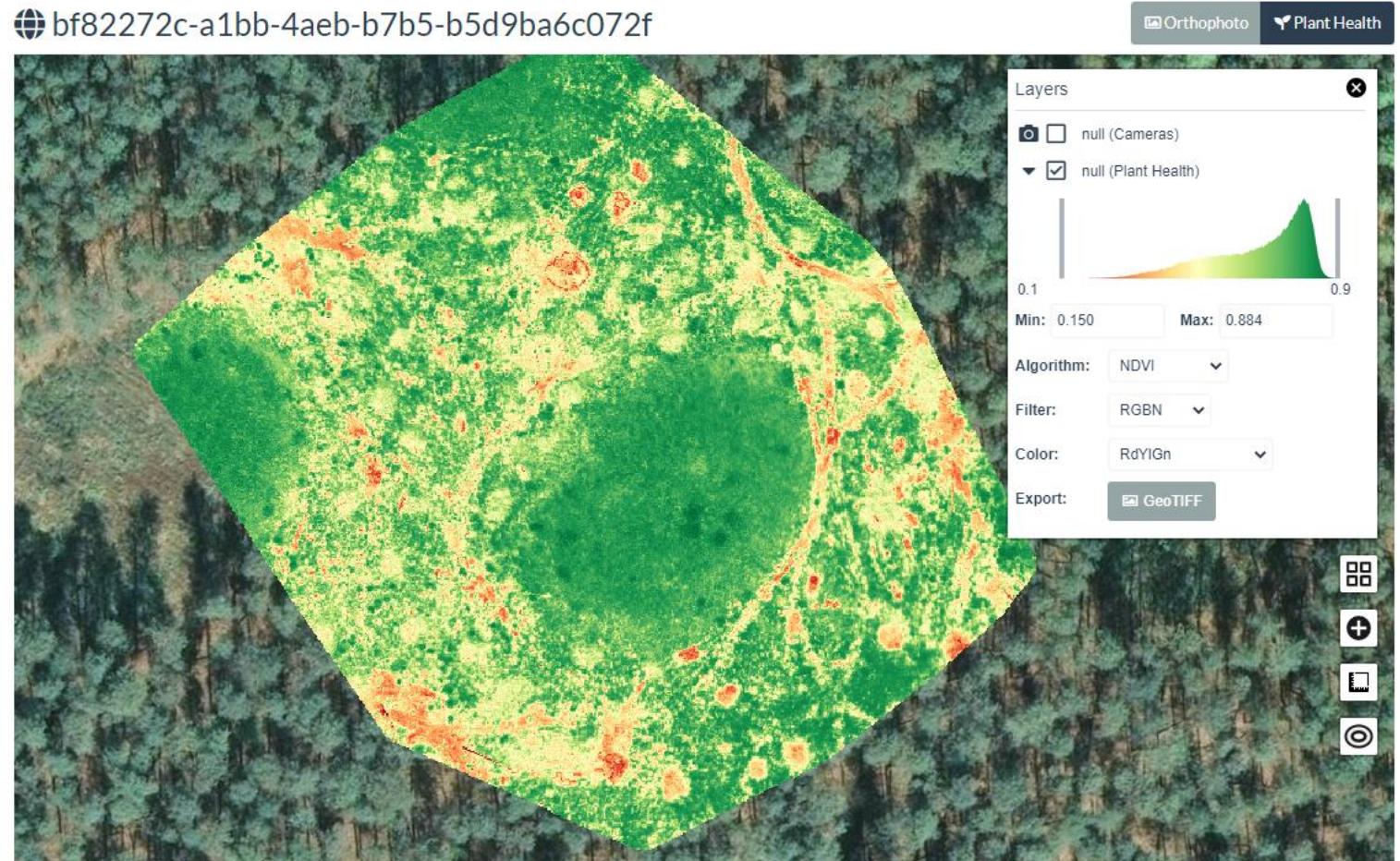
2D Orthophoto

- Overlay on Google Map, OpenStreetMap, etc
- Measurements (linear, area, volume)
- Contour Lines



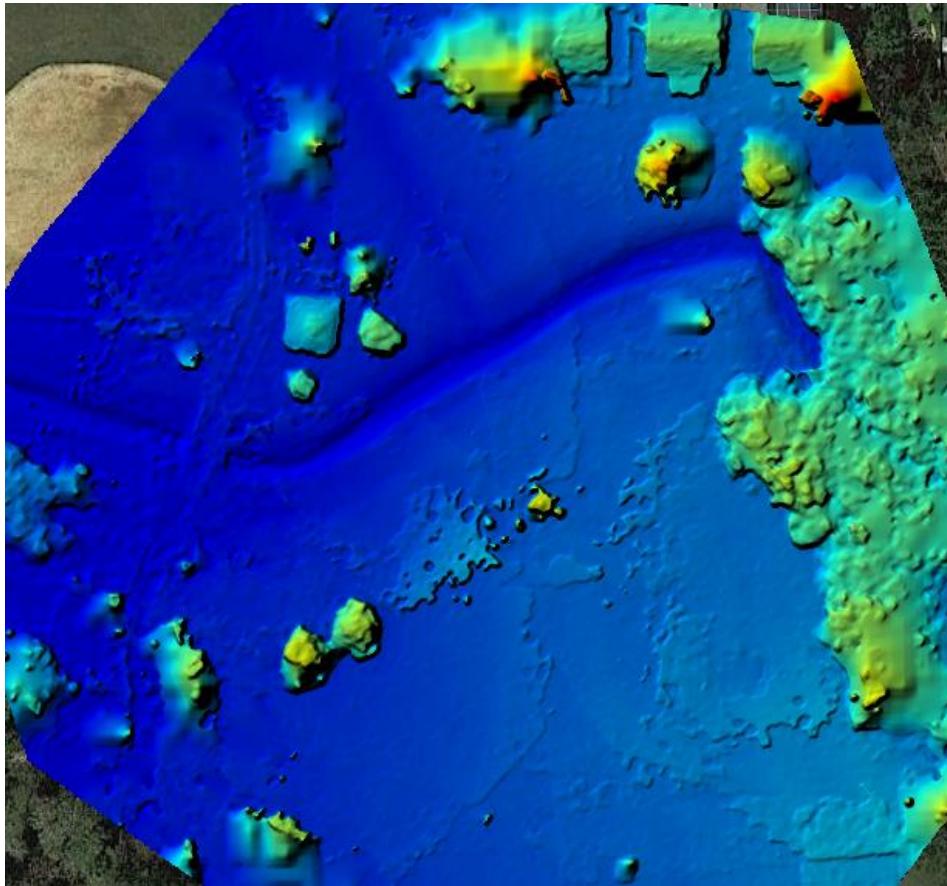
Plant Health Index

- Images from multi-spectral cameras (Micasense, Sentera, etc)
- Wavelengths beyond visible spectrum
- Algorithms:
NDVI, RDVI, GLI, SAVI, more

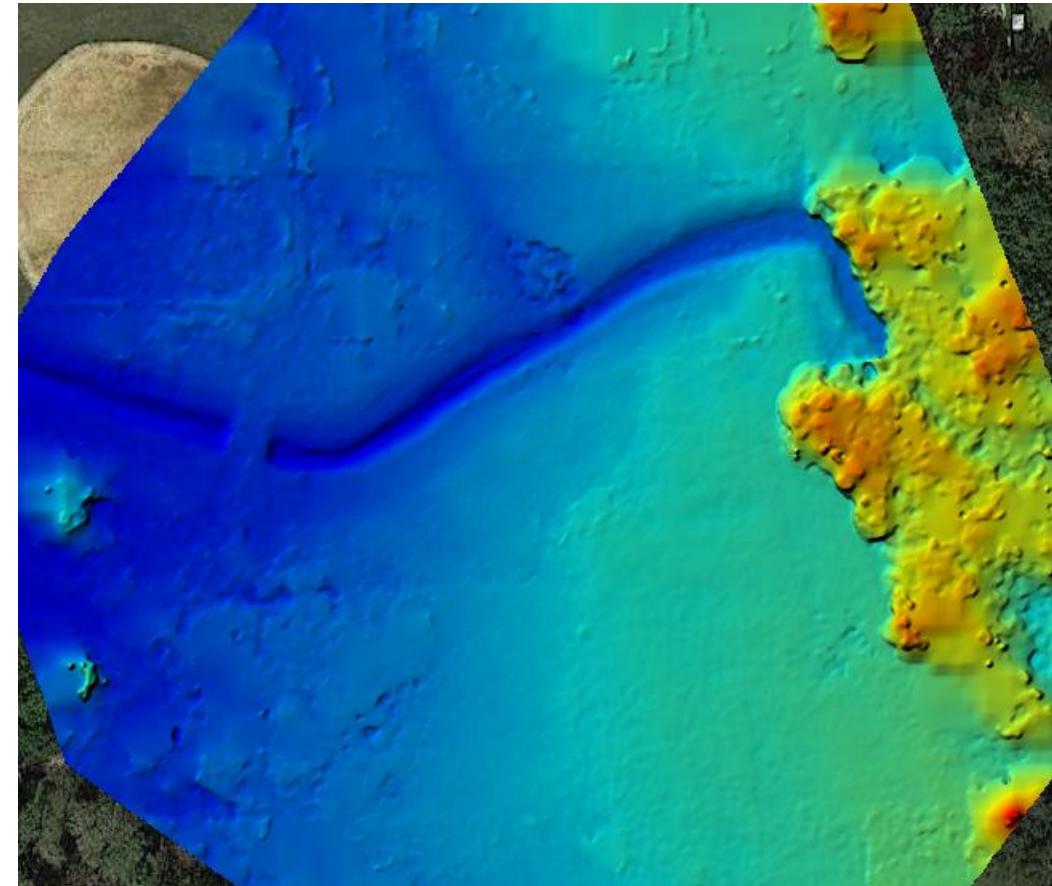


2D Surface Model (DSM/DTM)

DSM



DTM



Images: opendronemap.org

Point Cloud

- Individual points
- X, Y, Z

Naresuan University - 9/26/2020



Textured Model

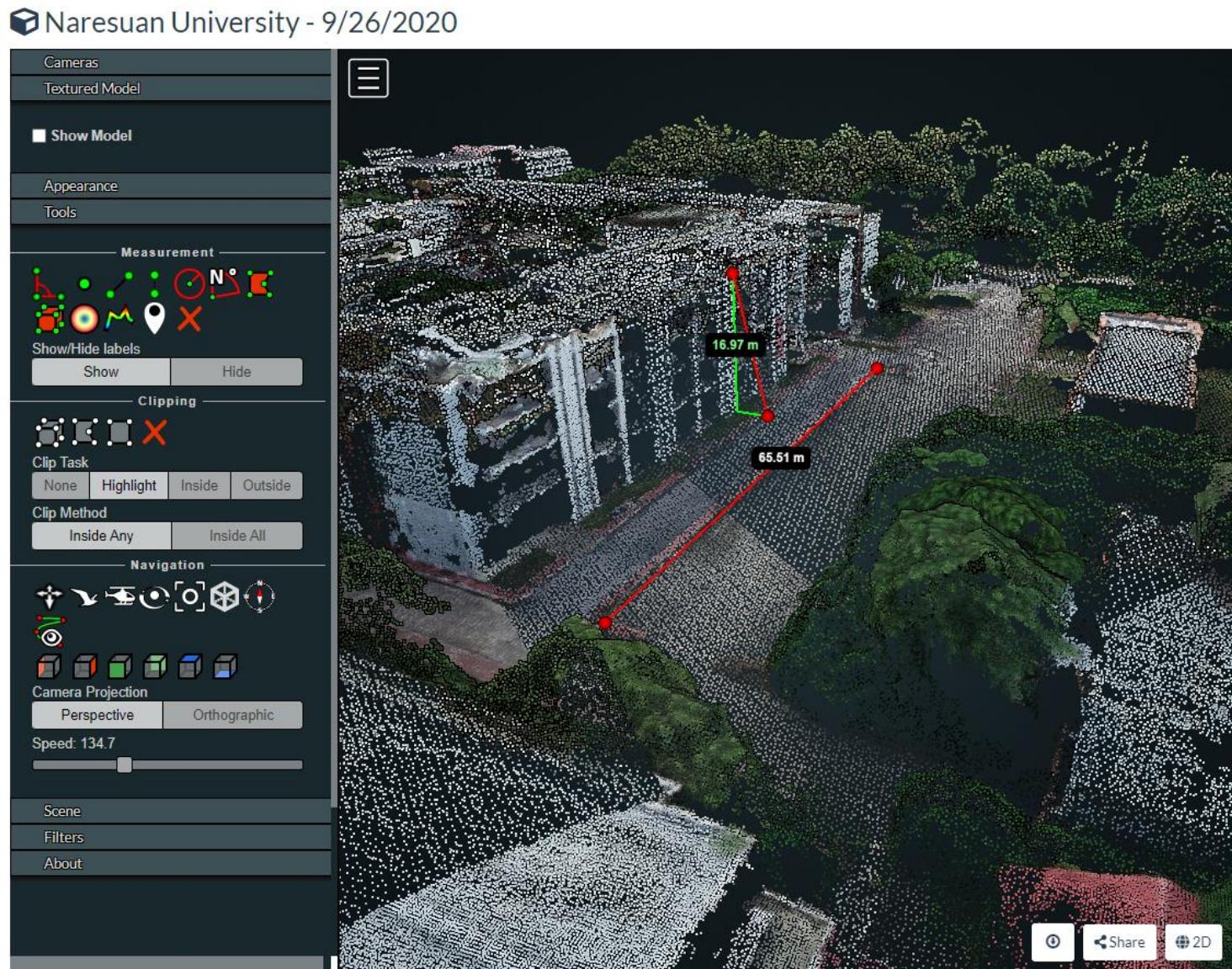
- Identify surface triangles
- Point Cloud -> Surface Mesh

Naresuan University - 9/26/2020



3D Measurements

- Linear
- Area
- Angle
- Height
- Height Profile
- Volume



Download

- Orthophoto (GeoTIFF or Tiles)
- Terrain Model / DTM (GeoTIFF or Tiles)
- Surface Model / DSM (GeoTIFF or Tiles)
- 3D Point Cloud (.laz)
- 3D Textured Model (.obj)
- Camera Parameters

The screenshot shows a software interface for managing geospatial data processing tasks. At the top, there are two sections: 'อุทยานสมเด็จพระนเรศวรมหาราช' (Naresuan University) and 'อาคารมหาธรรมราชา' (Mahathat Hall). Each section has a 'Select Images and GCP' button, an 'Import' button, and a 'View Map' button.

Below these sections, a task card is displayed for 'Naresuan University - 9/26/2020'. The card includes the following details:

- Created on: 3/11/2021, 11:33:30 PM
- Processing Node: node-odm-1 (auto)
- Options: dsm: true

The task status is 'Completed' with a green progress bar. To the right, there is a 'Task Output' switch set to 'On'. Below the task card is a toolbar with buttons for 'Download Assets', 'View Map', 'View 3D Model', 'Restart', and 'Delete'.

A dropdown menu is open under the 'Download Assets' button, listing the following asset types:

- Orthophoto (GeoTIFF)
- Surface Model (GeoTIFF)
- Point Cloud (LAZ)
- Textured Model
- Camera Parameters
- Camera Shots (GeoJSON)
- Quality Report
- All Assets

At the bottom of the interface, there are three more sections with 'Select Images and GCP', 'Import', and 'View Map' buttons.

Output Quality

ODM Quality Report

Processed with ODM version 2.4.5

Dataset Summary

Date	11/03/2021 at 15:01:33
Area Covered	0.056180 km ²
Processing Time	1.0h:11.0m:0.0s

Processing Summary

Reconstructed Images	100 over 100 shots (100.0%)
Reconstructed Points (Sparse)	141386 over 146919 points (96.2%)
Reconstructed Points (Dense)	27,367.917 points
Average Ground Sampling Distance (GSD)	1.9 m
Reconstructed Components	1 component
Detected Features	14,911 features
Reconstructed Features	4,211 features
Geographic Reference	GPS
GPS errors	0.02 meters

228 meters
114
0
299 meters

Orthophoto

228 meters
114
0
299 meters

Digital Surface Model

657.39m
696.36m

Previews

Survey Data

Legend: 2, 3, 4, 5+

Features Details

Detected Features heatmap for Survey Data accuracy: 6901-40033 Brown, 71711 gray

	Min.	Max.	Mean	Median
Detected	10255	29713	15858	14911
Reconstructed	2480	5826	4164	4211

Reconstruction Details

Average reprojection Error	0.69 pixels
Average Track Length	2.95 images
Average Track Length (> 2)	4.45 images

Tracks Details

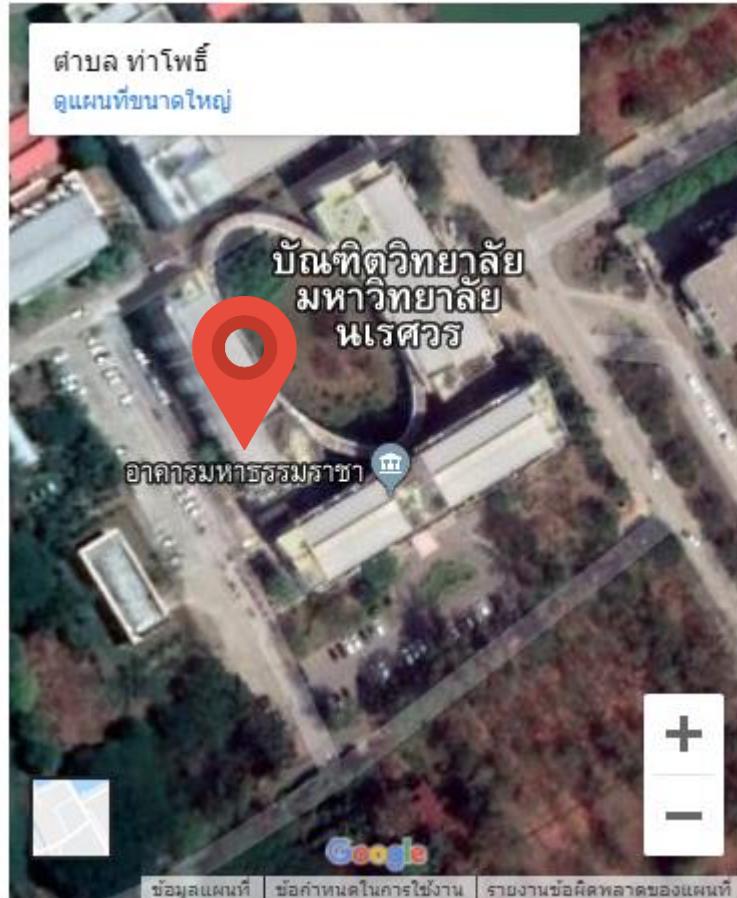
Length
Count
200 400 600 800 1000 1200
Number of matches between images

Length	2	3	4	5	6	7	8	9	10
Count	86780	26306	11452	6049	3492	2274	1548	1048	747

GPS/GCP Errors Details

GPS	Mean	Sigma	RMSE
X Error (meters)	-0.000	0.012	0.012
Y Error (meters)	0.000	0.017	0.017
Z Error (meters)	-0.000	0.011	0.011
Total			0.022

ขอบคุณครับ



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