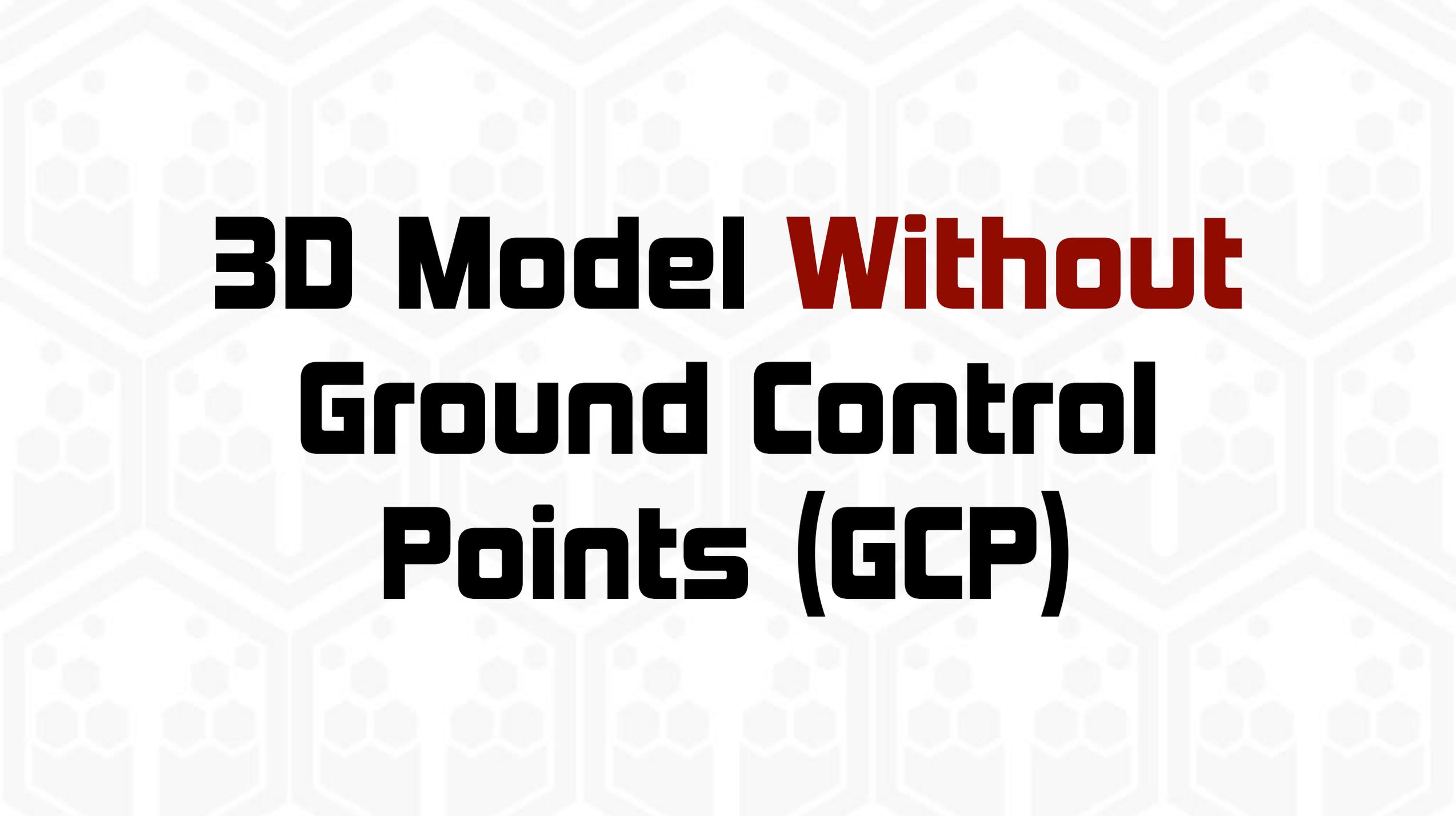




# **Drone Mapping Service Manual**

The background features a repeating pattern of light gray hexagons, each containing a cluster of smaller dots, creating a textured, geometric effect.

# **3D Model Without Ground Control Points (GCP)**



- Dashboard
- GCP Interface
- Processing Nodes
- API
- Documentação

# Welcome! 😊

To create a map, press the "Select Images and GCP" button, or drag and drop some images into a project.

- You need at least 5 images
- Images must overlap by 65% or more
- For great 3D, images must overlap by 83%
- A **GCP file** is optional, but can increase georeferencing accuracy

1st: Create new project

2nd: Upload your drone images

+ Add Project

Select Images and GCP View Map

## First Project

Edit

76 files selected. Please check these additional options:

Name Task of 2018-06-29T16:57:00.264Z

Processing Node Auto

Options Default

Resize Images Yes 2048 px

3rd: Choose "Default" option to have all the features included

Cancel Start Processing

4th: Start your process



- Dashboard
- GCP Interface
- Processing Nodes
- API
- Documentação

+ Add Project

Select Images and GCP View Map

Indicative that the process is over

### First Project

1 Tasks Edit

Task of 2018-06-29T16:39:38.567Z 41 00:14:30 Completed

Created on: 29/06/2018, 17:43:52  
 Status: Completed  
 Options: dem-terrain-type: FlatNonForest, pc-csv: true

```
spacing calculated from diagonal: 3.16516
READING: odm_georeferencing/odm_georeferenced_model.las
INDEXING: 1,000,000 points processed; 1,000,000 points written; 0.926 seconds passed
closing writer
```

5th: View your 3D Model

Download Assets View Map View 3D Model Restart

- Orthophoto (GeoTIFF)
- Orthophoto (PNG)
- Point Cloud (LAS)
- Point Cloud (PLY)
- Point Cloud (CSV)
- Textured Model
- All Assets

Example file .obj

Nome	Tipo
odm_textured_model.conf	Ficheiro CONF
odm_textured_model.mtl	Ficheiro MTL
<b>odm_textured_model.obj</b>	Reshaper
odm_textured_model_data_costs.spt	Ficheiro SPT
odm_textured_model_geo.mtl	Ficheiro MTL
<b>odm_textured_model_geo.obj</b>	Reshaper
odm_textured_model_labeling.vec	Ficheiro VEC
odm_textured_model_material0000_map_Kd.png	Ficheiro PNG
odm_textured_model_material0001_map_Kd.png	Ficheiro PNG
odm_textured_model_material0002_map_Kd.png	Ficheiro PNG
odm_textured_model_material0003_map_Kd.png	Ficheiro PNG
odm_textured_model_material0004_map_Kd.png	Ficheiro PNG

6th: Download your model: to import in O-Pitblast choose the option Textured Model (.obj). After that, you need to uncompress the file and use the .obj file.



- Dashboard
- GCP Interface
- Processing Nodes <
- API
- Documentação

# Task of 2018-06-29T16:39:38.567Z

Potree 1.5RC

Textured Model

Download Assets

Share 2D

Appearance

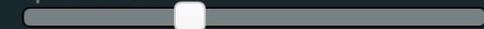
Tools



Navigation



Speed: 171.3



Measurements

Annotations

Materials

Scene

Classification filter

Other settings

About



Viewer tool  
box



Textured Model

Download Assets

Share 2D

Appearance

Tools

Navigation

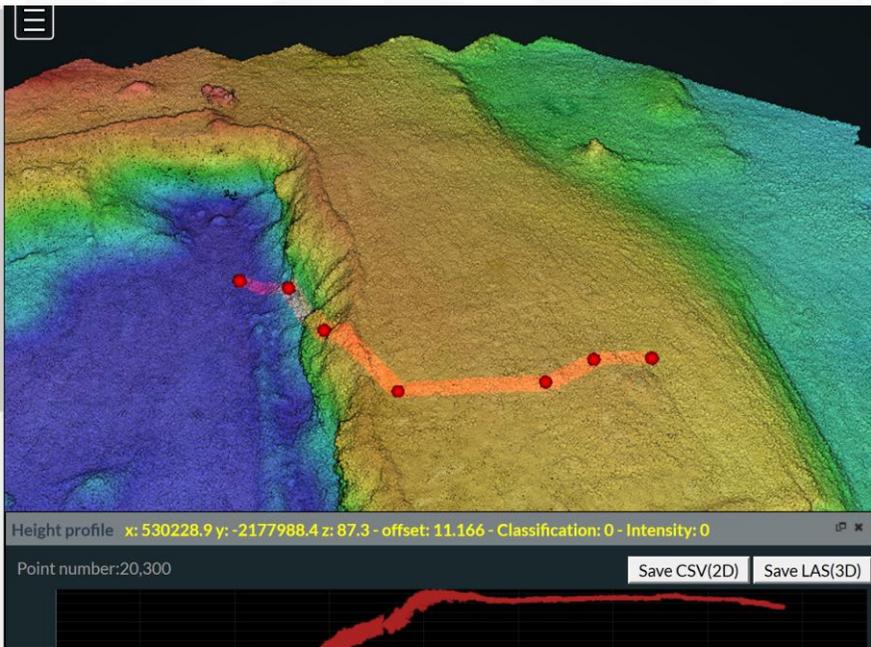
Speed: 37.2

Measurements

Profile

width: 2.004

530222.635, -2177979.143, 82.850
530228.135, -2177987.303, 85.800
530228.905, -2178002.882, 91.030
530232.485, -2178017.022, 93.360



Textured Model

Download Assets

Share 2D

Appearance

Tools

Navigation

Speed: 40.1

Measurements

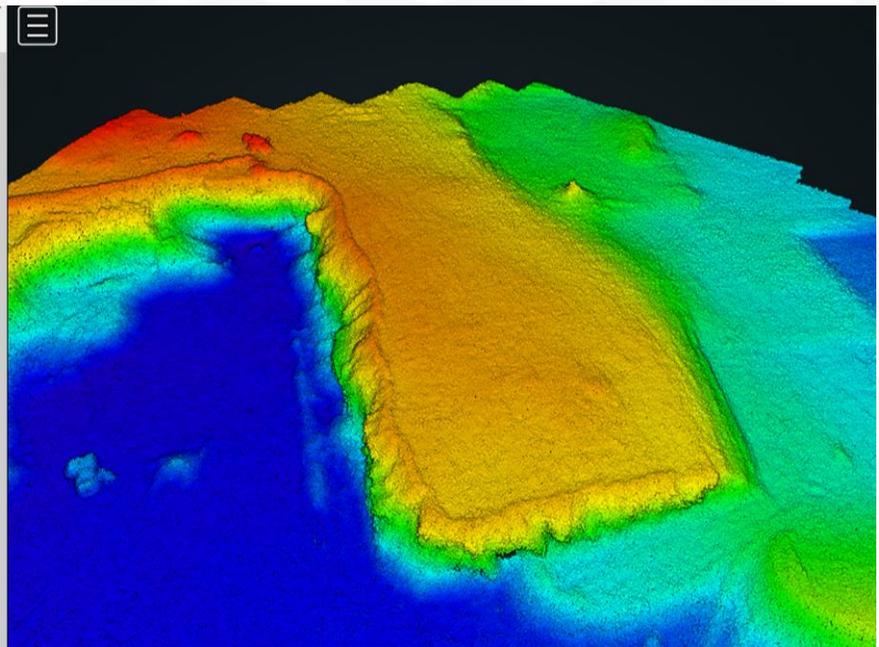
Annotations

Materials

Attributes: Elevation

Elevation

Elevation range: 80.99 to 96.70



Navigation

Speed: 32.2

Measurements

Profile

width: 1.000

show 2d profile

Angle

530211.635, -2178036.412, 83.500

0.0°

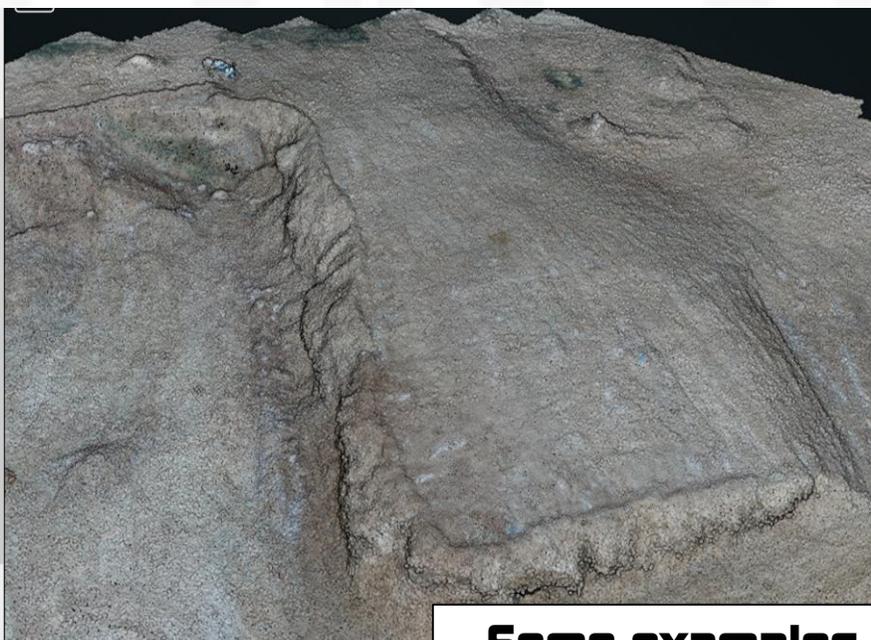
rgb 194, 194, 191

classification 0

Annotations

Materials

Attributes: RGB



Navigation

Speed: 32.2

Measurements

Profile

width: 1.000

show 2d profile

Angle

530200.626, -2178030.652, 83.260

0.0°

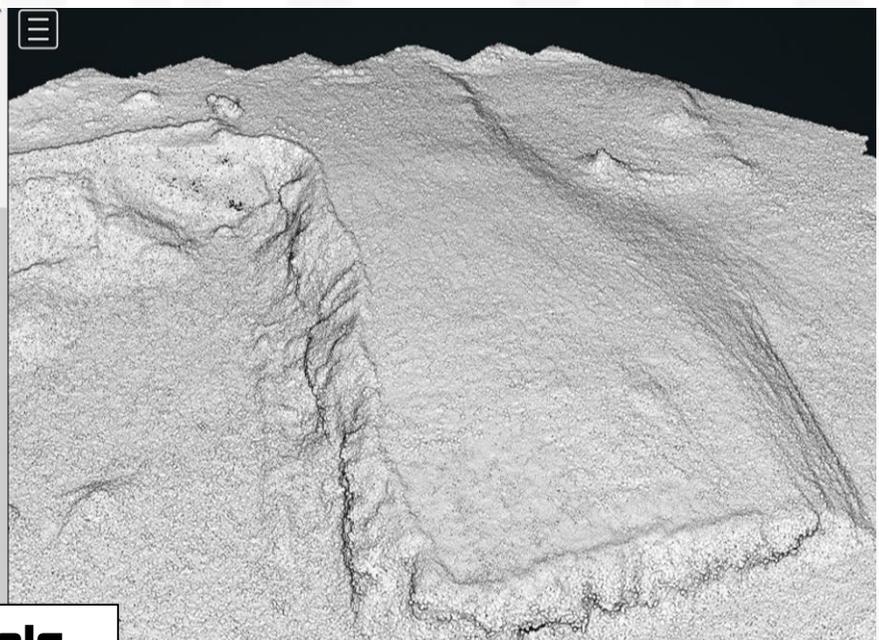
rgb 193, 207, 210

classification 0

Annotations

Materials

Attributes:



**Some examples of available tools**



# **3D Model **With** Ground Control Points (GCP)**



- Dashboard
- GCP Interface**
- Processing Nodes
- Administração
- API
- Documentação
- Customize



# Ground Control Point Interface

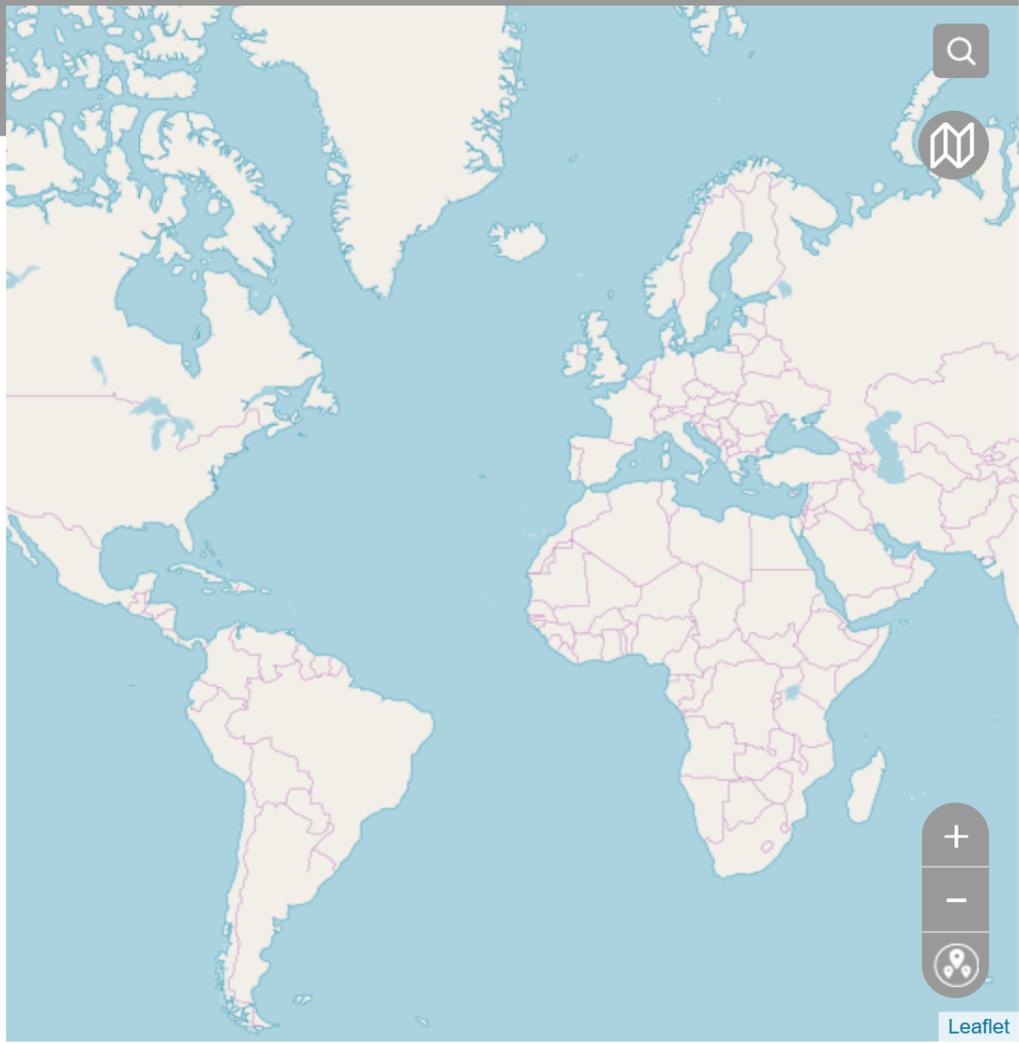
EXPORT FILE

**GROUND CONTROL POINTS**  
No points...

**DIRECTIONS**

Load existing Control Point File

Choose images / drag here



1st: Go to GCP interface



- Dashboard
- GCP Interface
- Processing Nodes
- Administração
- API
- Documentação
- Customize



# Ground Control Point Interface

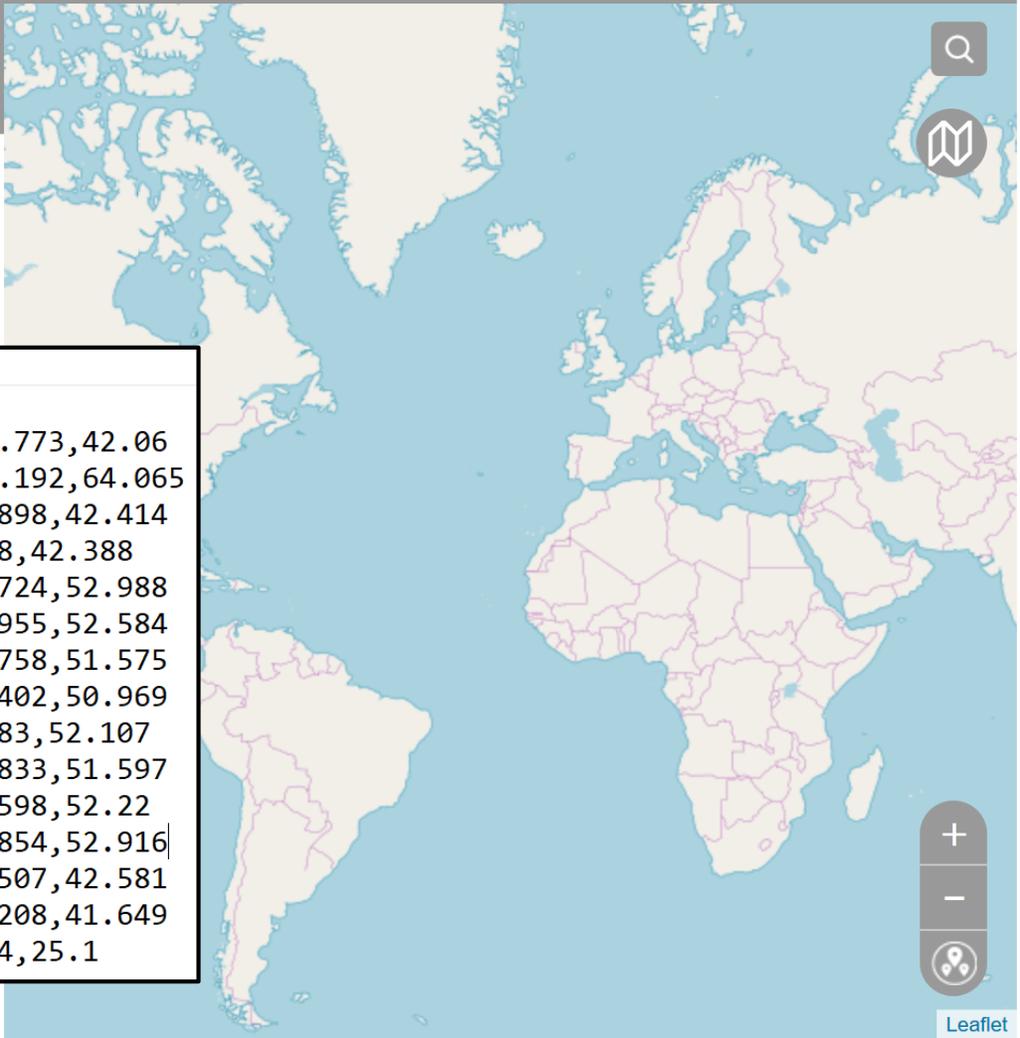
EXPORT FILE

**GROUND CONTROL POINTS**  
No points...

**DIRECTIONS**

Load existing Control Point File

Choose images / drag here



2nd: Load your .txt  
(See APEX A to see  
how your file must  
be prepared) with  
your Control Points

Example file →

```
Ficheiro Editar Formatar Ver Ajuda
WGS84 UTM 55S
BCH-042,530203.512,7821872.773,42.06
BHC-064,530082.657,7822091.192,64.065
DCP-22,530214.878,7821994.898,42.414
DCP-23,530222.978,7822027.8,42.388
DCP-02,530235.272,7822011.724,52.988
DCP-03,530232.957,7821991.955,52.584
DCP-04,530230.081,7821969.758,51.575
DCP-05,530232.314,7821960.402,50.969
DCP-06,530252.735,7821970.83,52.107
DCP-07,530257.007,7821991.833,51.597
DCP-08,530252.005,7822022.598,52.22
DCP-01,530237.806,7822034.854,52.916
LCP-01,530189.843,7821990.507,42.581
LCP-02,530207.497,7821914.208,41.649
WBCP-,529938.94,7821549.544,25.1
```



- Dashboard
- GCP Interface
- Processing Nodes
- Administração
- API
- Documentação
- Customize



# Ground Control Point Interface

EXPORT FILE

**GROUND CONTROL POINTS**  
No points...

### DIRECTIONS

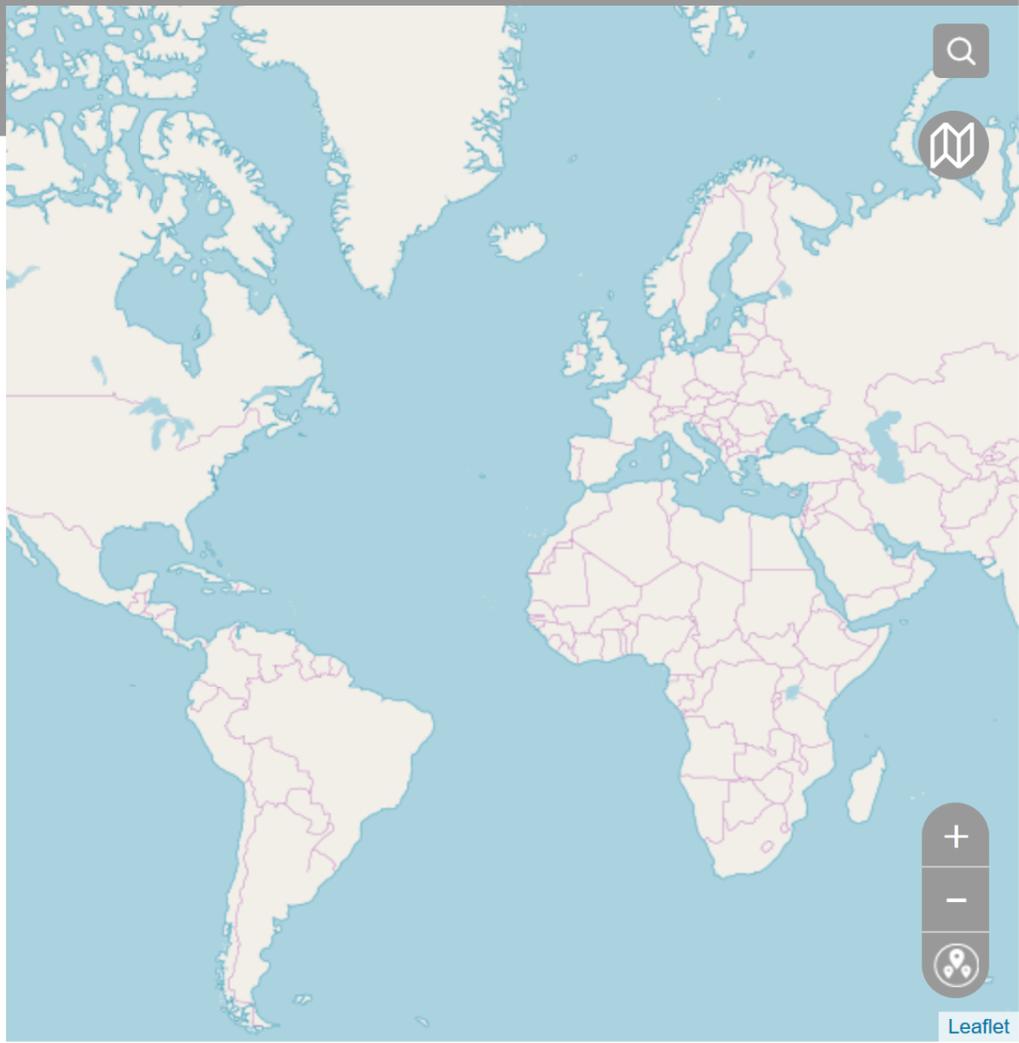
Load existing Control Point File

Choose images / drag here



3rd: Choose your drone photos

Example





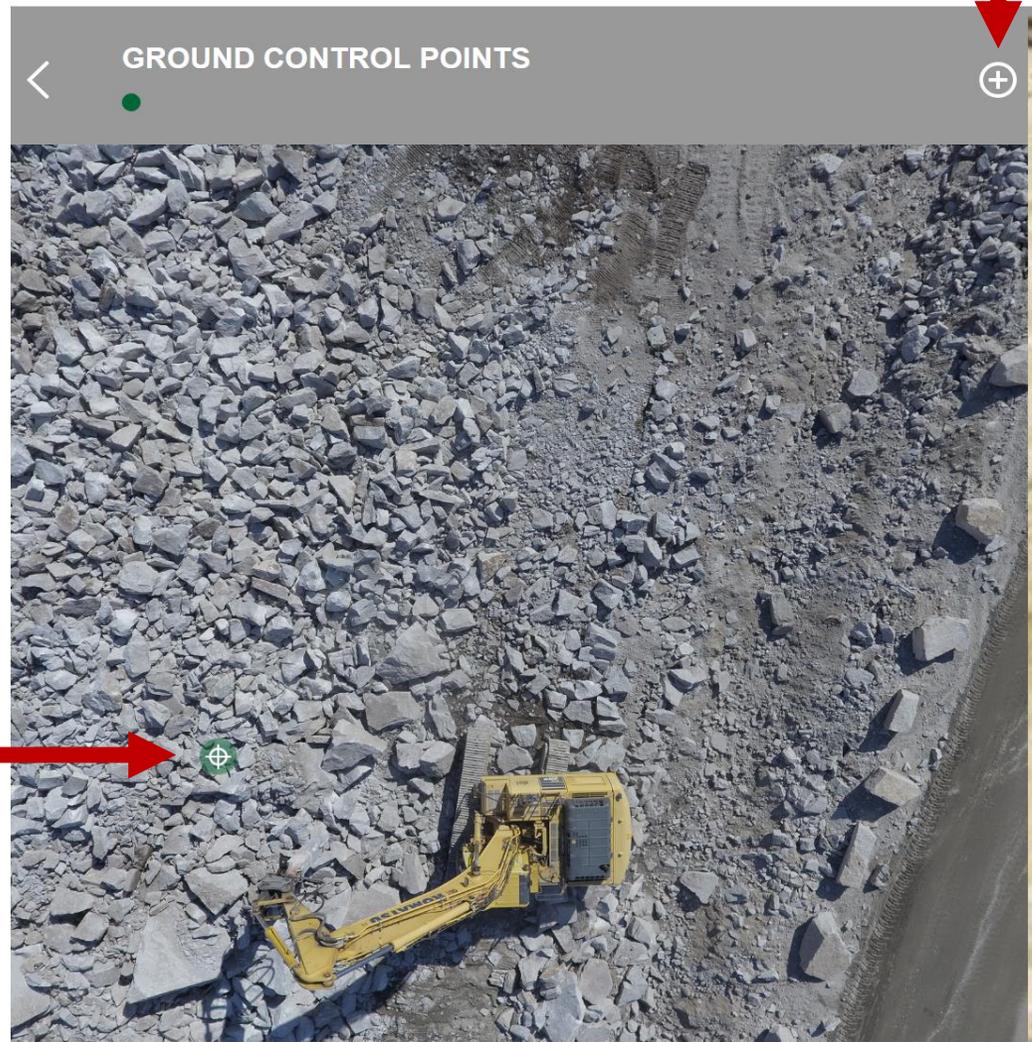
- Dashboard
- GCP Interface
- Processing Nodes
- Administração
- API
- Documentação
- Customize



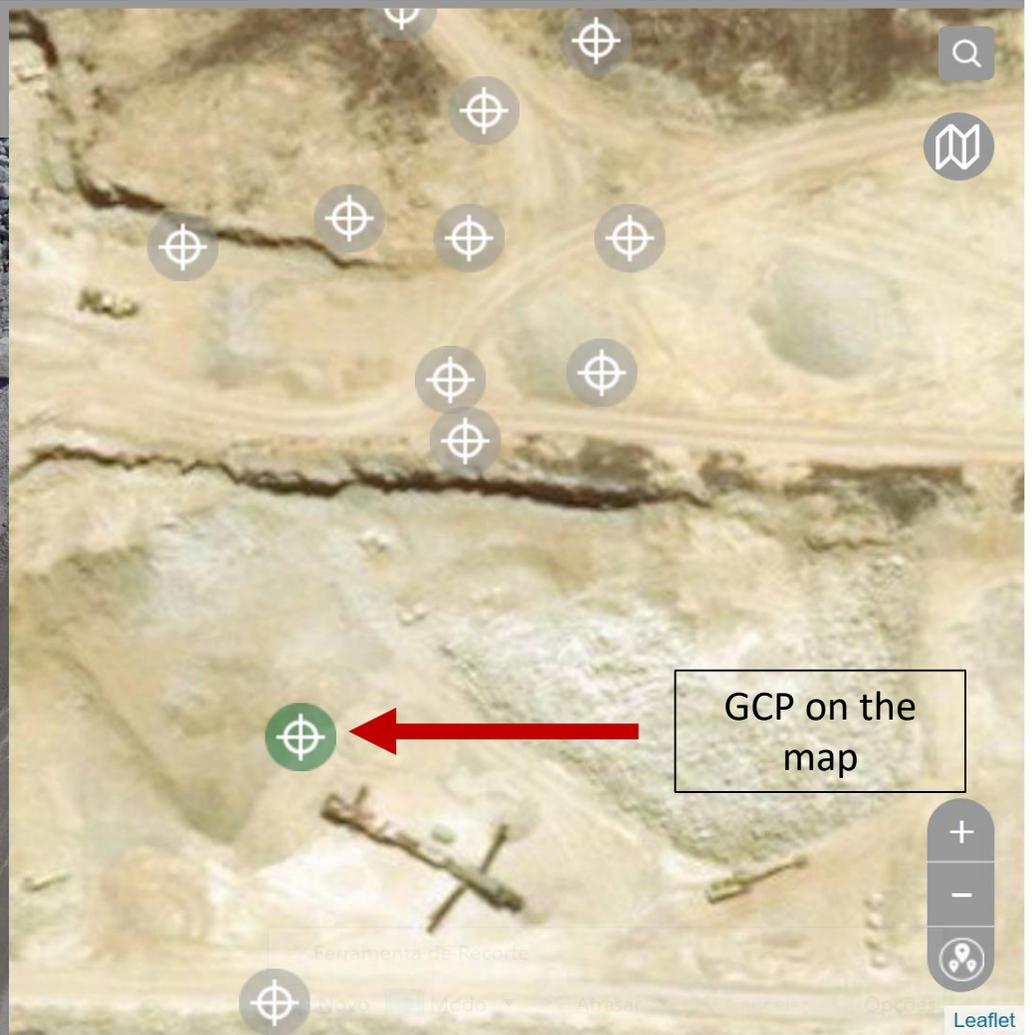
# Ground Control Point Interface

4th: Click on the plus sign to assign a GCP on the image. After that select the on the GCP respectively on the map.

EXPORT FILE



GCP on the image



GCP on the map



Note: when this GCP is green it means that that is active!

- Dashboard
- GCP Interface
- Processing Nodes
- Administração
- API
- Documentação
- Customize



# Ground Control Point Interface

5th: Export file



EXPORT FILE

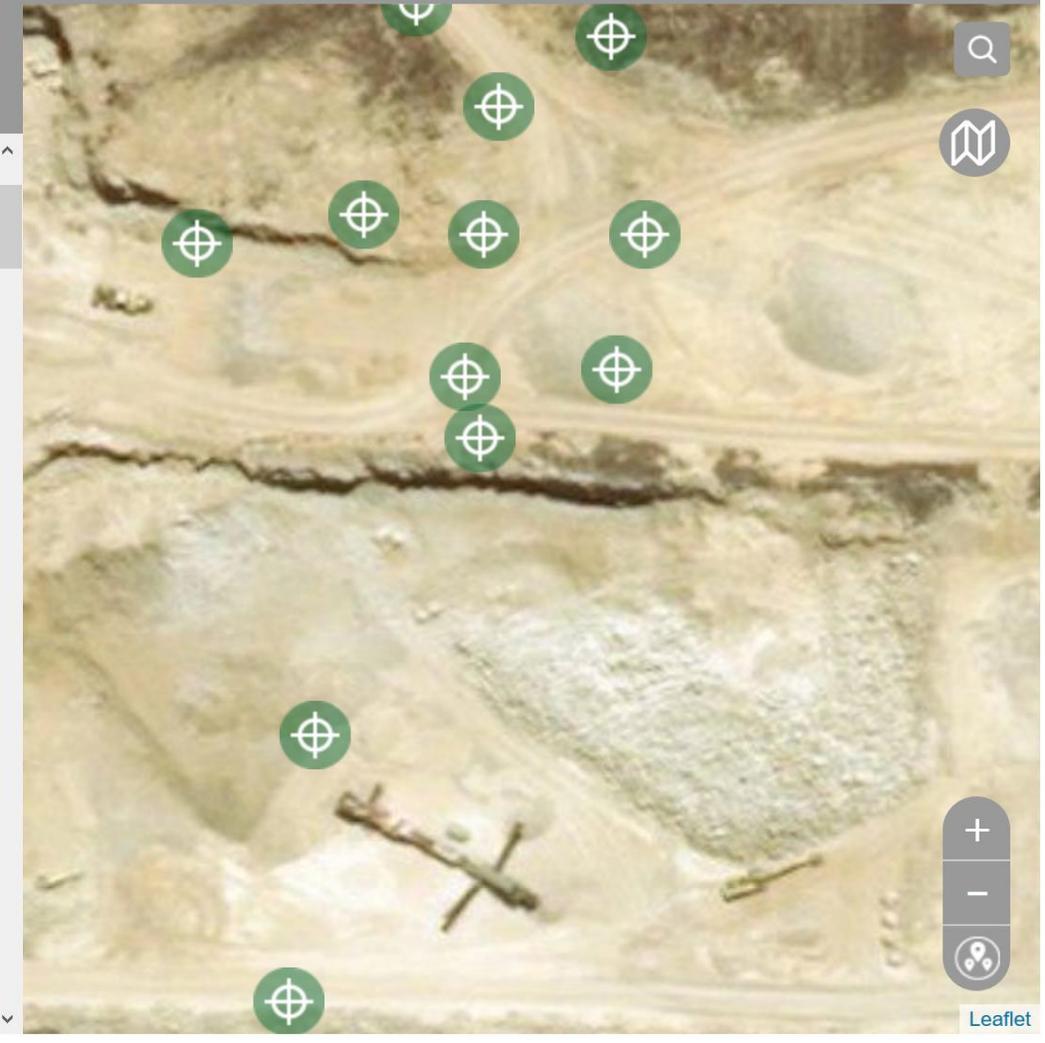
**GROUND CONTROL POINTS**

●●●●●●●●●●●●●●●●

pontos\_novosBM.txt

Choose images / drag here

 DJI_0526.JPG	 DJI_0476.JPG	 DJI_0477.JPG
 DJI_0478.JPG	 DJI_0479.JPG	 DJI_0480.JPG
		



# Export file

## GROUND CONTROL POINT FILE

```
+proj=utm +zone=55 +south +ellps=WGS84 +datum=WGS84 +units=m +no_defs
```

```
+proj=utm +zone=55 +south +ellps=WGS84 +datum=WGS84 +units=m +no_defs
530207.50      7821914.21      41.649  2994.12  1764.71  DJI_0526.JPG    LCP-02
530232.31      7821960.40      50.969  1052.94  2029.41  DJI_0526.JPG    DCP-05
530230.08      7821969.76      51.575  2729.41  623.53   DJI_0526.JPG    DCP-04
530257.01      7821991.83      51.597  2905.88  900.00   DJI_0526.JPG    DCP-07
530252.74      7821970.83      52.107  3447.06  882.35   DJI_0526.JPG    DCP-06
530189.84      7821990.51      42.581  2735.29  1194.12  DJI_0526.JPG    LCP-01
530232.96      7821991.96      52.584  3188.24  1058.82  DJI_0526.JPG    DCP-03
530214.88      7821994.90      42.414  3294.12  564.71   DJI_0526.JPG    DCP-22
530235.27      7822011.72      52.988  3300.00  311.76   DJI_0526.JPG    DCP-02
530252.01      7822022.60      52.22   2694.12  194.12   DJI_0526.JPG    DCP-08
530203.51      7821872.77      42.06   2594.12  1635.29  DJI_0526.JPG    BCH-042
530222.98      7822027.80      42.388  2100.00  341.18   DJI_0526.JPG    DCP-23
```

Copy text with **Ctrl / Cmd+C** or

Copy

Save

6<sup>th</sup>:Save the file



- Dashboard
- GCP Interface
- Processing Nodes
- API
- Documentação

## Welcome! 😊

To create a map, press the "Select Images and GCP" button, or drag and drop some images into a project.

- You need at least 5 images
- Images must overlap by 65% or more
- For great 3D, images must overlap by 83%
- A **GCP file** is optional, but can increase georeferencing accuracy

7th: Create new project

8th: Upload your **drone images** and your **GCP file**

+ Add Project

Select Images and GCP View Map

### First Project

Edit

76 files selected. Please check these additional options:

Name Task of 2018-06-29T16:57:00.264Z

Processing Node Auto

Options Default

Resize Images Yes 2048 px

9th: Choose "Default" option to have all the features included

Cancel Start Processing

10th: Start your process



- Dashboard
- GCP Interface
- Processing Nodes
- API
- Documentação

+ Add Project

Select Images and GCP View Map

Indicative that the process is over

### First Project

1 Tasks Edit

Task of 2018-06-29T16:39:38.567Z 41 00:14:30 Completed

Created on: 29/06/2018, 17:43:52  
 Status: Completed  
 Options: dem-terrain-type: FlatNonForest, pc-csv: true

```
spacing calculated from diagonal: 3.16516
READING: odm_georeferencing/odm_georeferenced_model.las
INDEXING: 1,000,000 points processed; 1,000,000 points written; 0.926 seconds passed
closing writer
```

Download Assets View Map View 3D Model Restart Delete Edit

- Orthophoto (GeoTIFF)
- Orthophoto (PNG)
- Point Cloud (LAS)
- Point Cloud (PLY)
- Point Cloud (CSV)
- Textured Model
- All Assets

11th: View your 3D Model

12th: Download your georeferenced model: to import in O-Pitblast choose the option Point Cloud (CSV)



**Apex A**

# Prepare your GCP file to importation

Ficheiro Editar Formatar Ver Ajuda

WGS84 UTM 55S

BCH-042, 530203.512, 7821872.773, 42.06  
BHC-064, 530082.657, 7822091.192, 64.065  
DCP-22, 530214.878, 7821994.898, 42.414  
DCP-23, 530222.978, 7822027.8, 42.388  
DCP-02, 530235.272, 7822011.724, 52.988  
DCP-03, 530232.957, 7821991.955, 52.584  
DCP-04, 530230.081, 7821969.758, 51.575  
DCP-05, 530232.314, 7821960.402, 50.969  
DCP-06, 530252.735, 7821970.83, 52.107  
DCP-07, 530257.007, 7821991.833, 51.597  
DCP-08, 530252.005, 7822022.598, 52.22  
DCP-01, 530237.806, 7822034.854, 52.916  
LCP-01, 530189.843, 7821990.507, 42.581  
LCP-02, 530207.497, 7821914.208, 41.649  
WBCP-, 529938.94, 7821549.544, 25.1

String with defined coordinate system that  
you want to use.

How to get it and how to use it?  
Follow the next steps.

# What string should I use?

The screenshot shows the epsg.io website interface. At the top left is the logo 'epsg.io Coordinate Systems Worldwide'. At the top right are links for 'Map', 'Transform', and 'About'. A search bar contains the text 'portugal' and a 'SEARCH' button. Below the search bar, the page title is 'Coordinate reference systems for "portugal"' with a subtitle 'Found 87 valid records and 22 deprecated records (in 0.085817 seconds)'. On the right side, there is a 'Type of results' section with a list of categories and counts: Coordinate reference systems (109), Projected (30), Geodetic (31), Geodetic 3D (17), Geocentric (16), Vertical (13), Compound (2), Operation (125), Transformation (110), Compound (4), Conversion (11), Datum (41), Vertical (13), Geodetic (28), and Area (37). On the left side, there is a list of coordinate reference systems. The first entry is 'ETRS89 / Portugal TM06' with details: EPSG:3763 with transformation: 1149, Area of use: Portugal - mainland - onshore. (accuracy: 1.0), and links for 'Transform coordinates' and 'Get position on a map'. Other entries include 'Lisbon 1890 / Portugal Bonne New', 'Lisbon 1890 (Lisbon) / Portugal Bonne', and 'Lisbon / Portuguese Grid New'. A red arrow points from the 'SEARCH' button to the first result, and another red arrow points from the 'SEARCH' button to the 'SEARCH' button itself.

Coordinate reference systems for "portugal"  
Found 87 valid records and 22 deprecated records (in 0.085817 seconds)

portugal SEARCH

**ETRS89 / Portugal TM06**  
EPSG:3763 with transformation: 1149  
Area of use: Portugal - mainland - onshore. (accuracy: 1.0)  
[Transform coordinates](#) | [Get position on a map](#)

**Lisbon 1890 / Portugal Bonne New**  
EPSG:5017 with transformation: 1986  
Area of use: Portugal - mainland - onshore. (accuracy: 5.0)  
[Transform coordinates](#) | [Get position on a map](#)

**Lisbon 1890 (Lisbon) / Portugal Bonne**  
EPSG:2963  
Area of use: Portugal - mainland - onshore.  
[Transform coordinates](#) | [Get position on a map](#)

**Lisbon / Portuguese Grid New**  
EPSG:5018 with transformation: 1984  
Area of use: Portugal - mainland - onshore. (accuracy: 5.0)  
[Transform coordinates](#) | [Get position on a map](#)

**Datum 73 / Modified Portuguese Grid**  
EPSG:27493 with transformation: 1983  
Area of use: Portugal - mainland - onshore. (accuracy: 5.0)

Type of results

- Coordinate reference systems (109)
  - Projected (30)
  - Geodetic (31)
  - Geodetic 3D (17)
  - Geocentric (16)
  - Vertical (13)
  - Compound (2)
- Operation (125)
  - Transformation (110)
  - Compound (4)
  - Conversion (11)
- Datum (41)
  - Vertical (13)
  - Geodetic (28)
- Area (37)

1<sup>st</sup>: Go to website  
**epsg.io**

2<sup>nd</sup>: Search the coordinate system  
that you want do use

3<sup>rd</sup>: Choose the  
one that you  
want to use

# How I get the string?

4<sup>th</sup>: Open and search for "Export"



Export

Well Known Text as HTML

OGC WKT

ESRI WKT

OGC GML

XML

PROJ.4



5<sup>th</sup>: Select the option Proj.4

Definition: PROJ.4

Open

Copy URL

Copy TEXT

Download

```
+proj=tmerc +lat_0=39.66825833333333 +lon_0=-8.133108333333334 +k=1 +x_0=0 +y_0=0 +ellps=GRS80 +towgs84=
```



6<sup>th</sup>: Copy this string

# How I get the string?

Ficheiro Editar Formatar Ver Ajuda

```
+proj=tmerc +lat_0=39.66825833333333 +lon_0=-8.133108333333334 +k=1 +x_0=0 +y_0=0 +ellps=GRS80 +towgs84=0,0,0,0,0,0 +units=m +no_defs
```

```
BCH-042,530203.512,7821872.773,42.06  
BHC-064,530082.657,7822091.192,64.065  
DCP-22,530214.878,7821994.898,42.414  
DCP-23,530222.978,7822027.8,42.388  
DCP-02,530235.272,7822011.724,52.988  
DCP-03,530232.957,7821991.955,52.584  
DCP-04,530230.081,7821969.758,51.575  
DCP-05,530232.314,7821960.402,50.969  
DCP-06,530252.735,7821970.83,52.107  
DCP-07,530257.007,7821991.833,51.597  
DCP-08,530252.005,7822022.598,52.22  
DCP-01,530237.806,7822034.854,52.916  
LCP-01,530189.843,7821990.507,42.581  
LCP-02,530207.497,7821914.208,41.649  
WBCP-,529938.94,7821549.544,25.1
```



7<sup>th</sup>: Paste on the first line of your .txt the string that you copy

Save the new file and it's all set to do the importation!