



## Processing RTK data in Pix4d Mapper.

### Disclaimer:

*This workflow is provided as a general guide and is intended for informational purposes only. It is based on the author's experience and understanding of the subject. The workflow may not be suitable for all projects or situations and users are encouraged to adapt the workflow to their specific needs and to seek professional advice if necessary.*

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### Introduction.

As part of my workflow, I use either a DJI M200v2 fitted with a X5s and 15mm lens or a DJI M300 fitted with a P1 camera and either a 35mm or 24mm lens. For this explanation I will use the data gathered with the M300 and P1 fitted with the 35mm lens.

It is important the P1 and lens is calibrated correctly and details on how this should be done not be covered in this process however the calibration process can be found on DJI website or a google search.

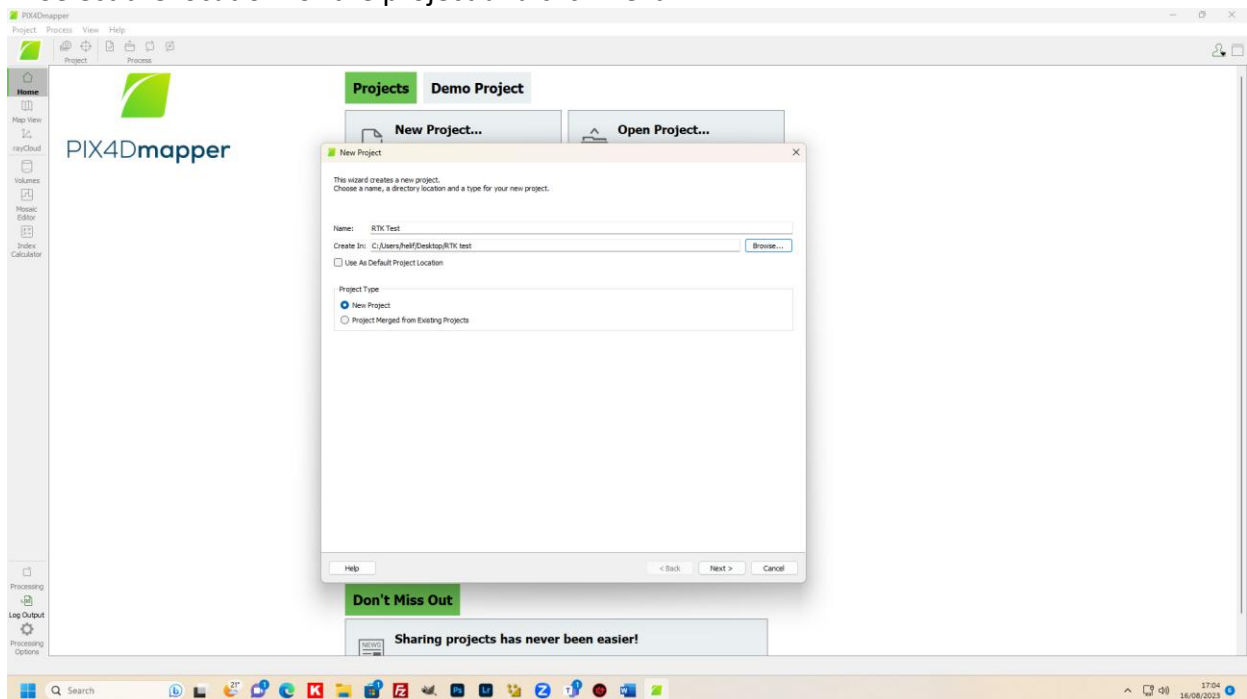
To start the process, it is important that the data collected is the best it can be. To that end, when I am using the M300 with the P1 I use at least 70% side overlap and 80% front and rear overlaps, make sure elevation optimisation is switched OFF and fly the drone as slow as possible but fast enough to make the flight efficient.

Keep the height as low as possible however keep with the drone code for this. Remember that the lower you fly the lower the GSD (Ground Sample Distance) but the longer the flight will take.

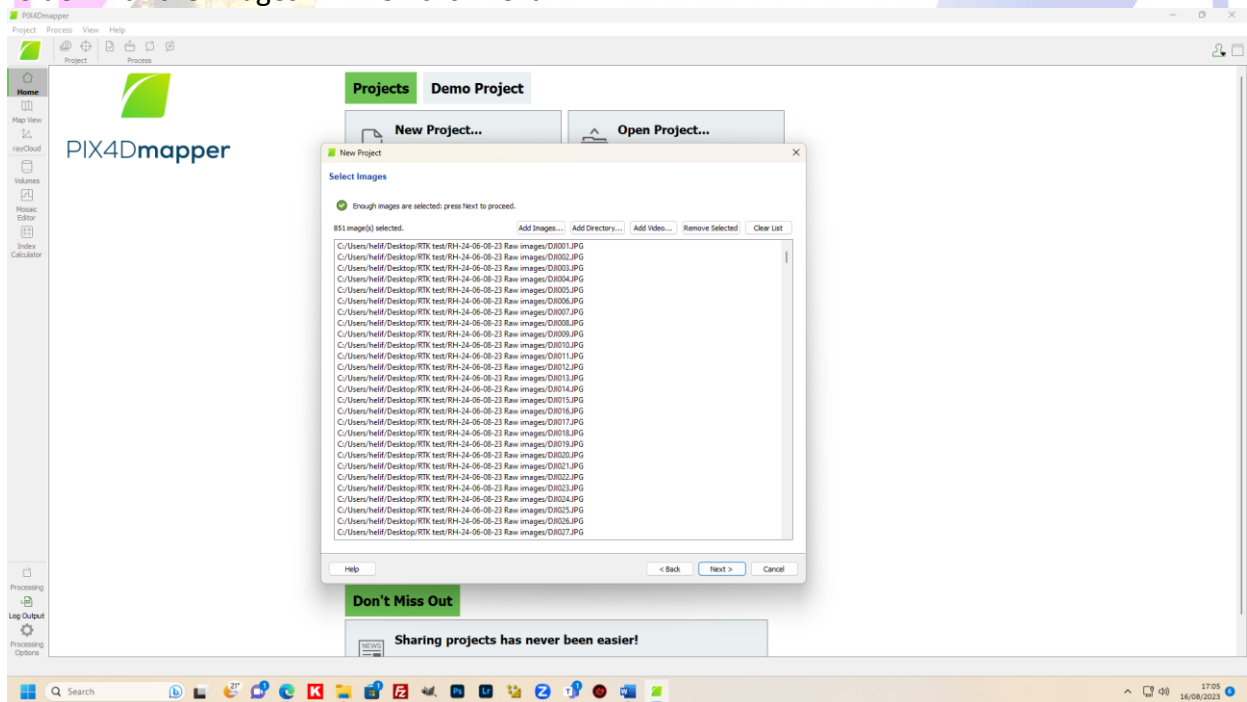
To start the process, you will need the following software installed, Microsoft Excell. Grid inquest and Pix4d mapper. It is very important that when you copy the images from the SD card to your PC **DO NOT** rename the individual files, only the folder if you need to.

The first stage after you have transferred the file to your PC is to copy the EXIF data from the images and to covert them from WGS84 to OSGB36. This is done as below.

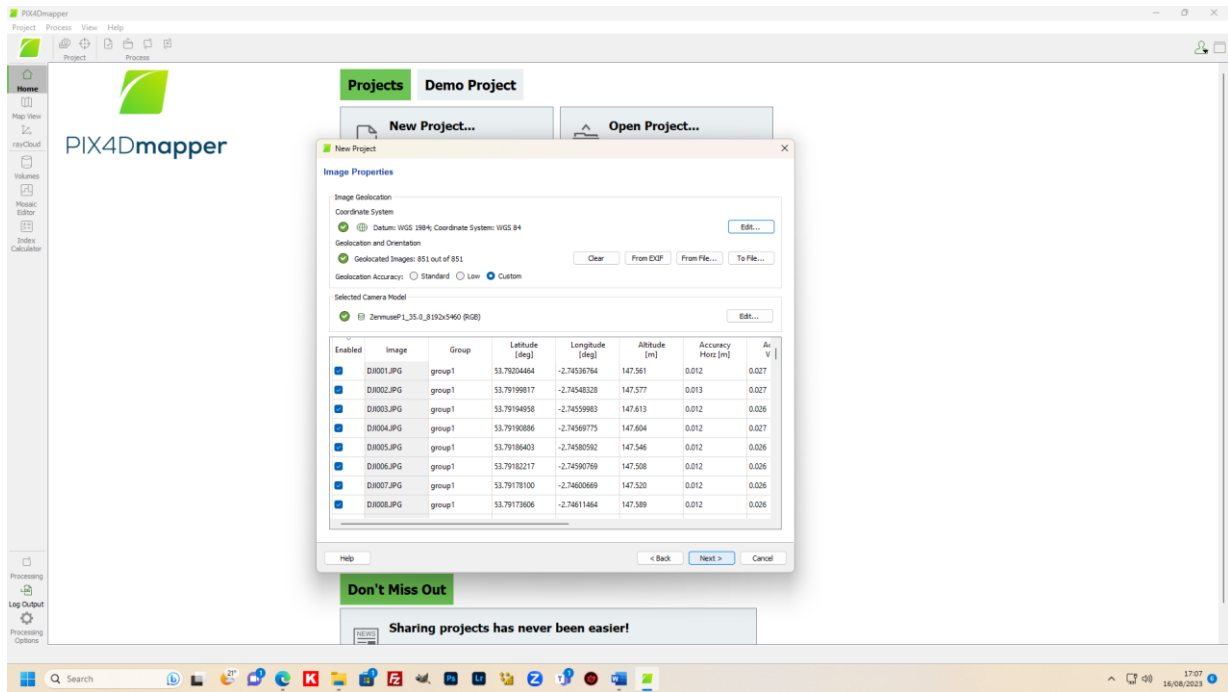
1. Open Pix4d mapper start a new project.
2. Select the location for the project and click Next.



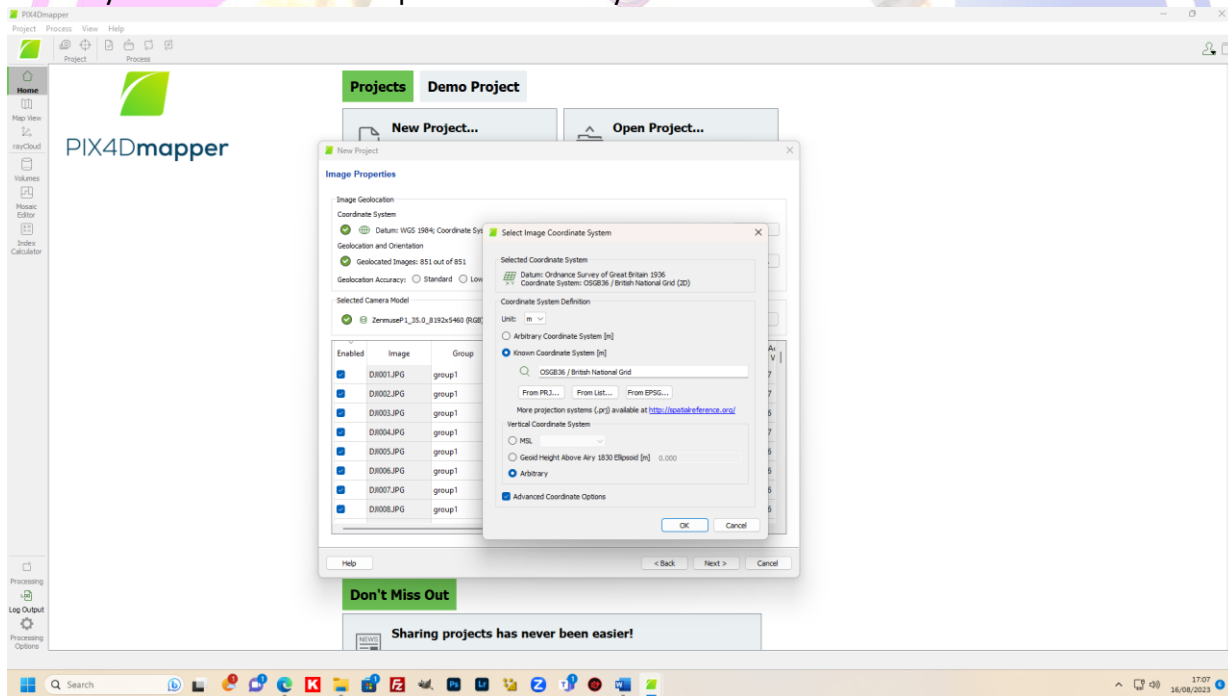
3. Next you need to select all the images for the project. Click on Add images and find the folder with the images in. Then click next.



4. When all the images are loaded the program will extract the EXIF data from the images.

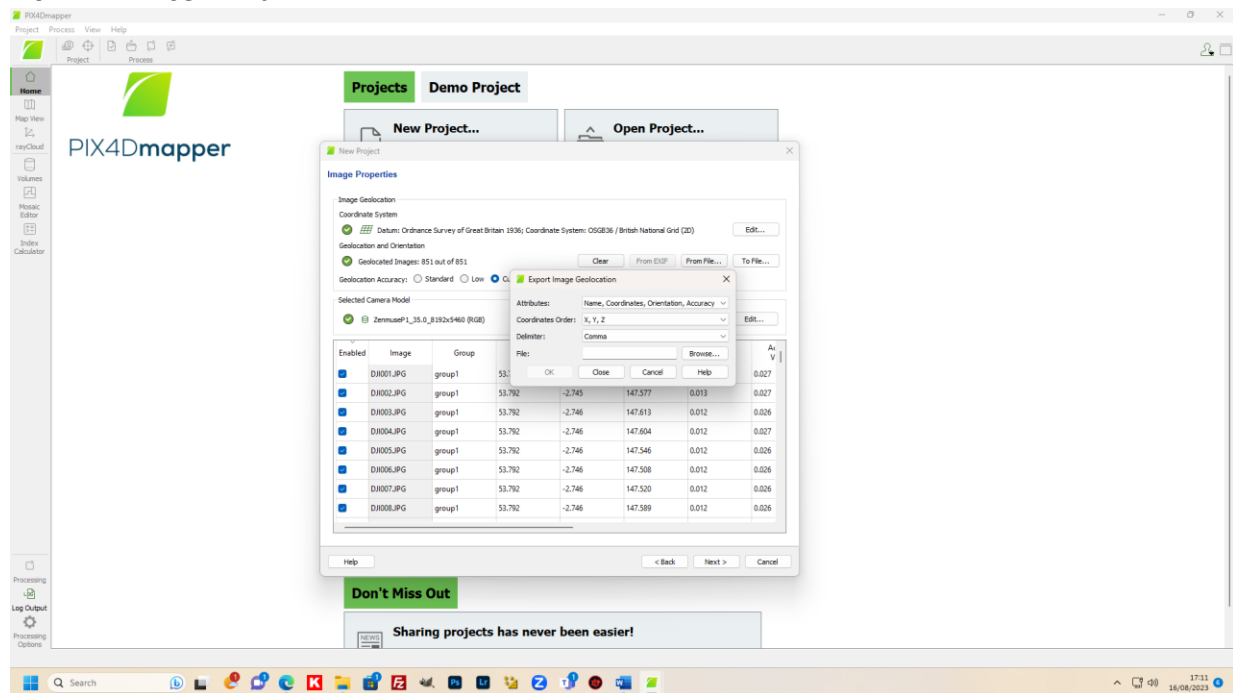


5. First you need to edit the input coordinate system.

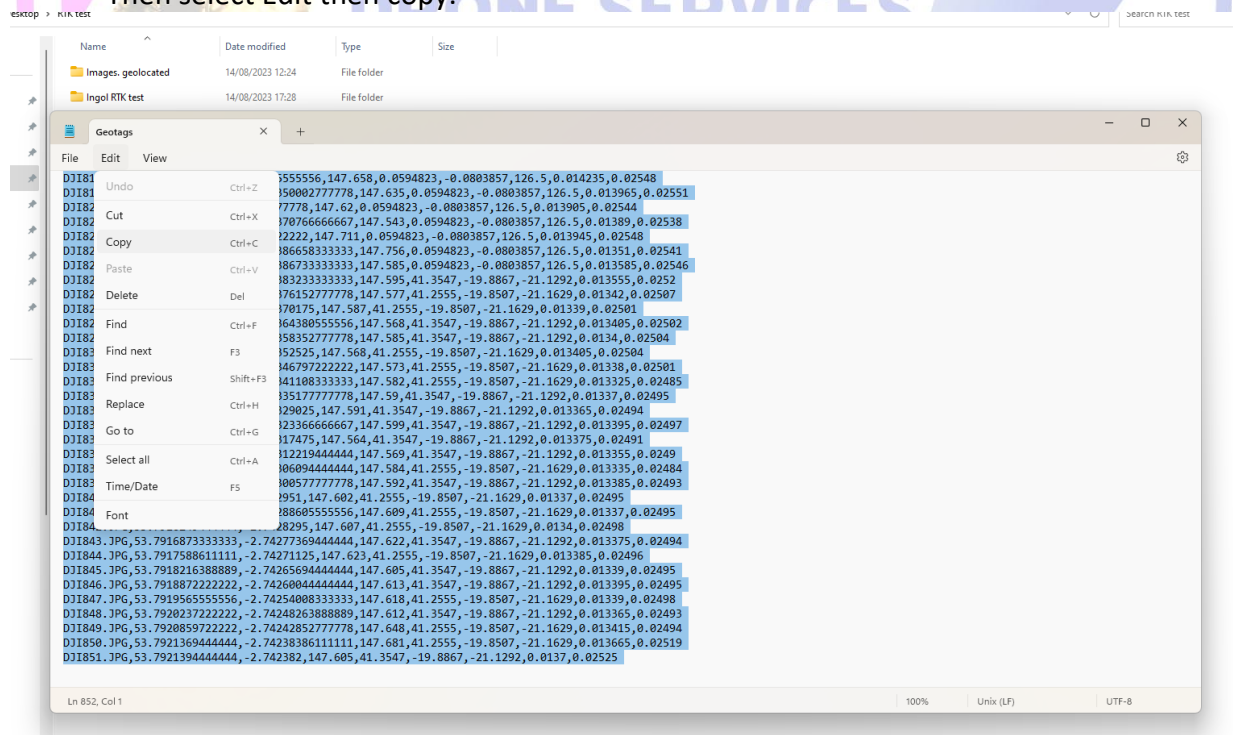


Click edit to the right of the selected Input coordinate system. Type in OSGB and select OSGB1936 British national grid or type 27700 and OSGB1936 British national grid should appear. Select it and then tick the Advanced coordinate options. From the new menu click Arbitrary. Then click OK.

6. Next click “To file” and select a location to save the Geotags. Name the file and click save. Now minimise Pix4d



7. Find the file you just created and open it. It should open in note pad.  
In notepad select edit and then select all from the menu.  
Then select Edit then copy.

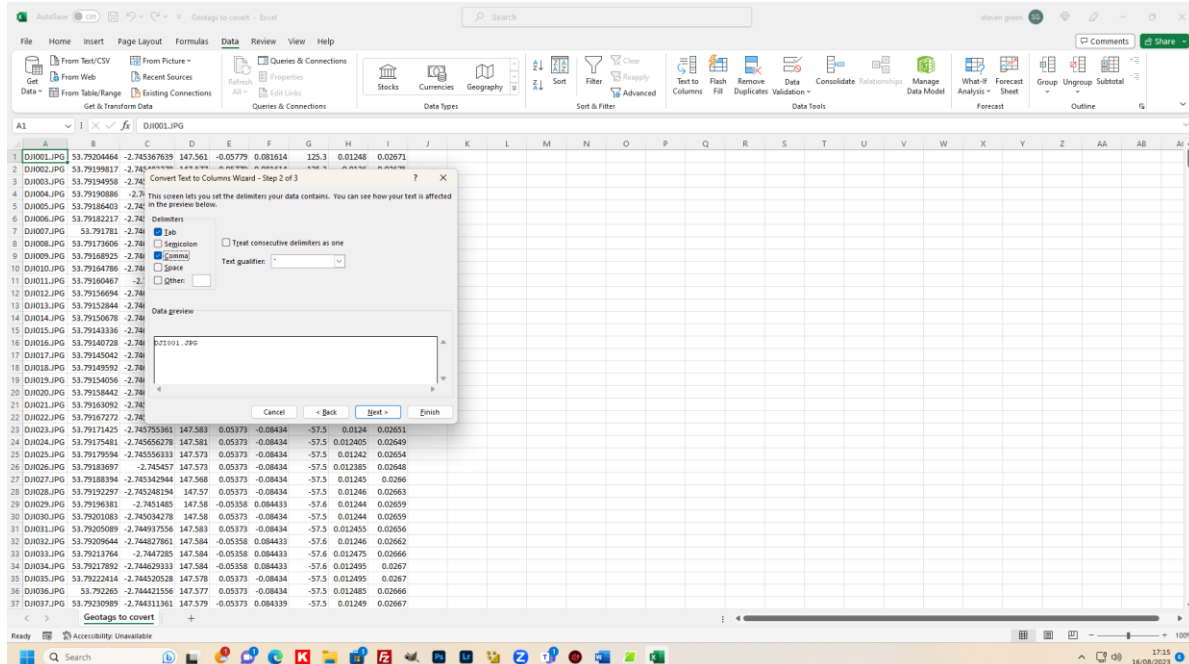


8. Next open excel and choose new workbook

9. Click on the top left cell then click paste from the top ribbon bar.

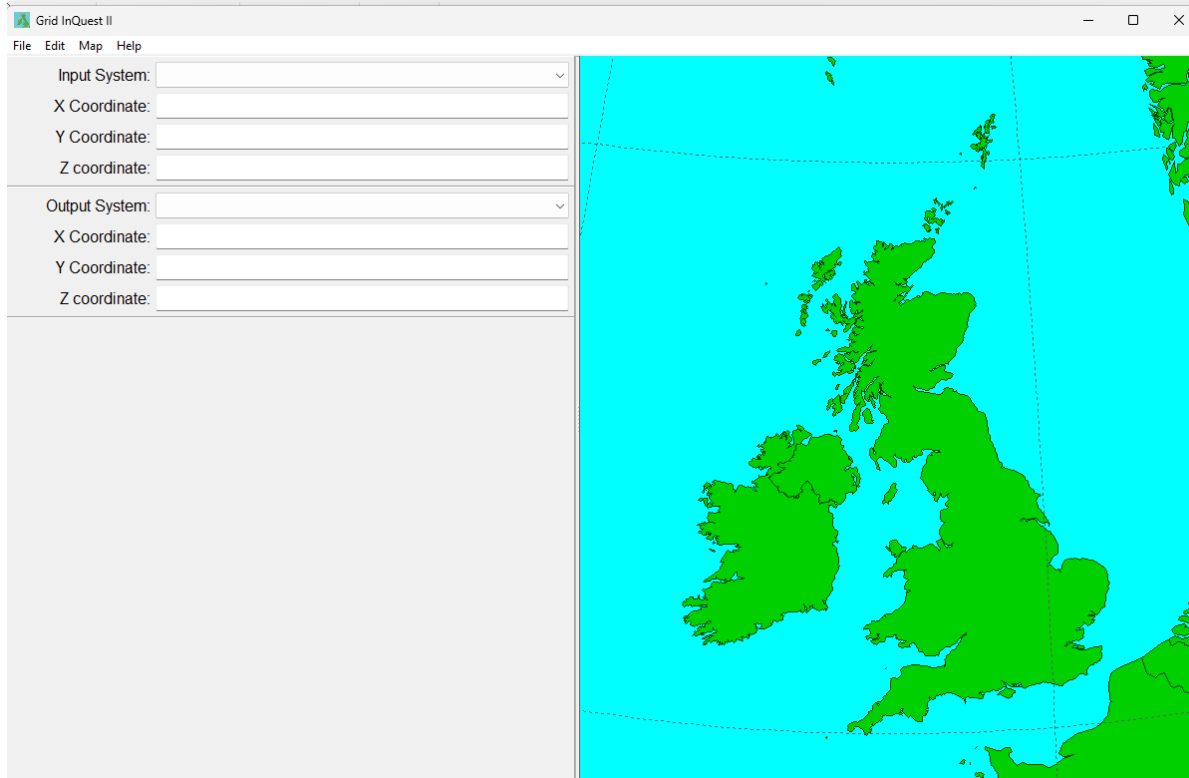
All of the data from the previous sheet should appear in the top left cell.

Select the Data tab from the top ribbon bar then select then click Text to Column. From the menu click next on the bottom right. Select Comma as the delimiter. Click Next then finish.



10. Click File then 'Save as' a CSV in a location you can find it on your PC.

11. Now open grid inquest.





12. Click file then select Load data points. Then find the file you just created and select it.

In the menu that appears.

Select 1 in the box next to Data Starts Row

Select ETRS89 Geodetic for the input coordinate system.

Select Column 2 for the Latitude.

Select Column 3 for the Longitude.

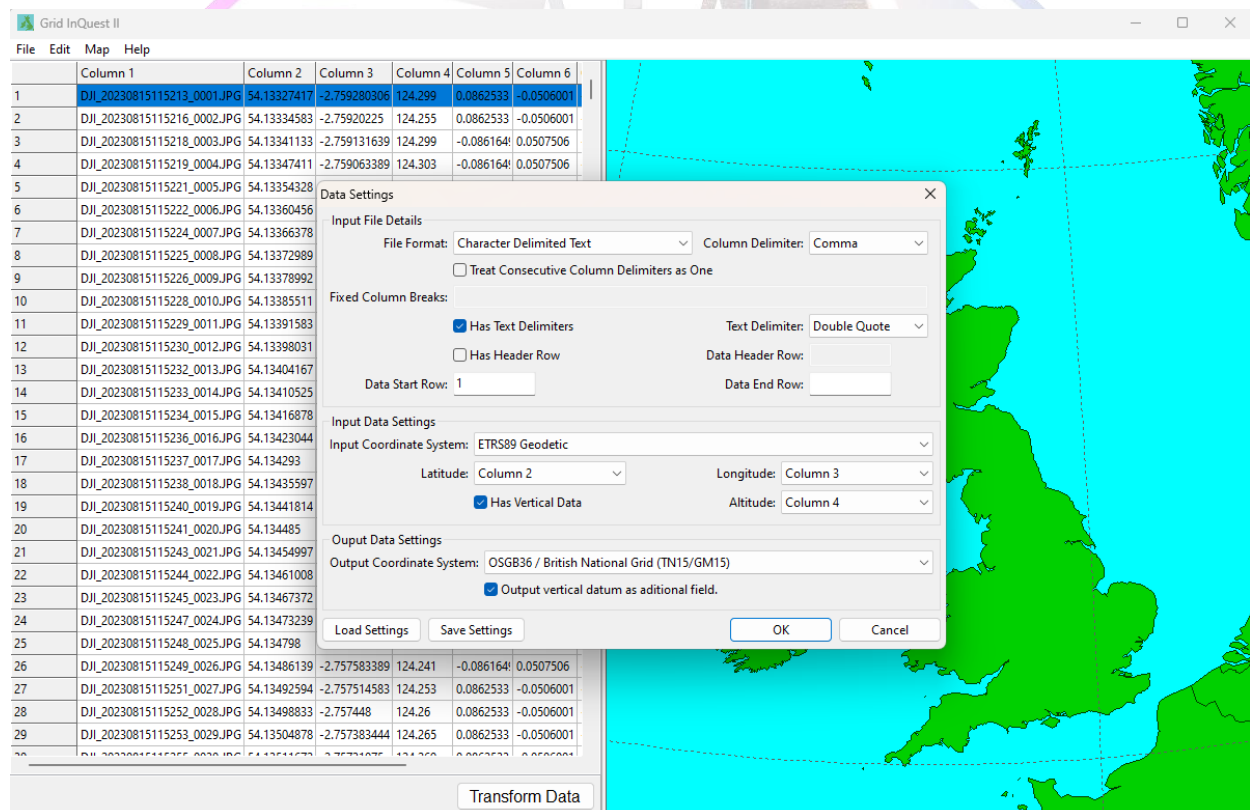
Tick has vertical data.

Select Column 4 for Altitude.

Select OSGB1936/ British national grid (TN15/GM15)

Tick Output vertical datum as additional field.

Click OK.



13. Next click Transform data.

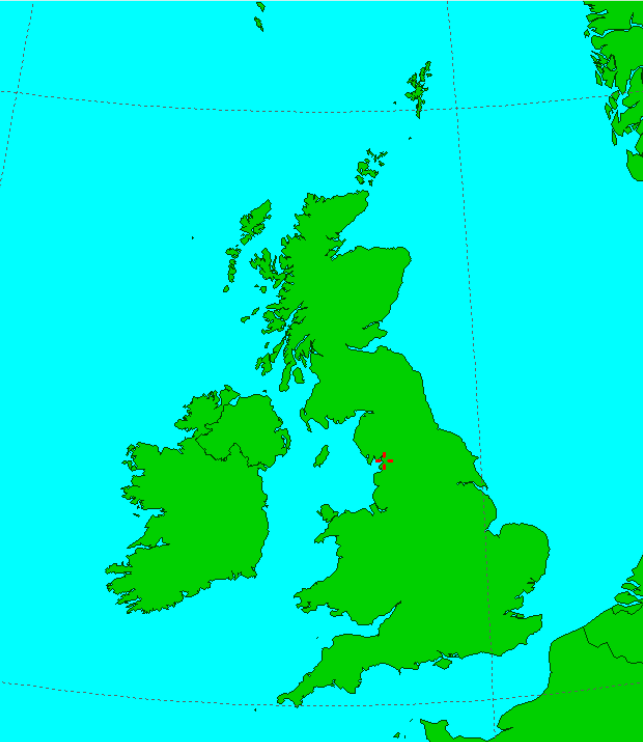
You will now have a number of columns with the last 4 titled OSGB East, OSGB North, OSGB Height and OSGB Datum.

Grid InQuest II

File Edit Map Help

	Column 8	Column 9	OSGB36-East	OSGB36-North	OSGB36-Height	OSGB36-Datum
1	0.01308	0.02475	350485.24	471090.69	72.10	Ordnance Datum
2	0.012935	0.02467	350490.43	471098.61	72.06	Ordnance Datum
3	0.012925	0.02463	350495.12	471105.85	72.10	Ordnance Datum
4	0.01293	0.02467	350499.65	471112.79	72.11	Ordnance Datum
5	0.012915	0.02459	350504.53	471120.43	72.09	Ordnance Datum
6	0.012915	0.02458	350508.91	471127.20	72.09	Ordnance Datum
7	0.01291	0.02461	350513.07	471133.75	72.09	Ordnance Datum
8	0.01295	0.02468	350517.75	471141.06	72.09	Ordnance Datum
9	0.012915	0.0246	350522.03	471147.69	72.08	Ordnance Datum
10	0.01294	0.0246	350526.54	471154.89	72.08	Ordnance Datum
11	0.012985	0.02466	350530.81	471161.61	72.07	Ordnance Datum
12	0.01289	0.02452	350535.48	471168.73	72.05	Ordnance Datum
13	0.012945	0.02458	350539.81	471175.51	72.07	Ordnance Datum
14	0.01293	0.02457	350544.40	471182.54	72.10	Ordnance Datum
15	0.012955	0.02461	350549.01	471189.56	72.06	Ordnance Datum
16	0.0129	0.02452	350553.36	471196.37	72.08	Ordnance Datum
17	0.0129	0.02451	350557.69	471203.29	72.08	Ordnance Datum
18	0.01287	0.02442	350562.11	471210.25	72.08	Ordnance Datum
19	0.012885	0.02444	350566.50	471217.12	72.09	Ordnance Datum
20	0.012925	0.02456	350571.23	471224.51	72.09	Ordnance Datum
21	0.012875	0.02446	350575.88	471231.69	72.08	Ordnance Datum
22	0.012895	0.02445	350580.18	471238.33	72.08	Ordnance Datum
23	0.012885	0.02445	350584.73	471245.36	72.06	Ordnance Datum
24	0.01286	0.02441	350588.90	471251.85	72.07	Ordnance Datum
25	0.012865	0.02443	350593.53	471259.10	72.06	Ordnance Datum
26	0.012905	0.02449	350598.01	471266.10	72.05	Ordnance Datum
27	0.01285	0.02439	350602.58	471273.24	72.06	Ordnance Datum
28	0.01287	0.0244	350607.01	471280.13	72.06	Ordnance Datum
29	0.012925	0.02447	350611.30	471286.81	72.07	Ordnance Datum
30	0.012925	0.02447	350611.30	471286.81	72.07	Ordnance Datum

Transform Data



14. Click file the select save data points.

15. Save the file as a CSV in a location you can find it again.

Font

Grid InQuest II

File Edit Map Help

Save Data Points File

« Rowland Homes » RH 19 Carnforth » RH-19-16-08-23 »

Search RH-19-16-08-23

Organise New folder

Name	Date modified	Type	Size
RH-19-16-08-23 GCP	15/08/2023 23:00	File folder	
RH-19-16-08-23 Logs	15/08/2023 17:03	File folder	
RH-19-16-08-23 Raw images	15/08/2023 14:41	File folder	
RH-19-16-08-23 Results	16/08/2023 08:47	File folder	
RH-19-16-08-23 RTK	15/08/2023 22:26	File folder	
Carnforth, England (1)	15/08/2023 17:08	Microsoft Excel C...	1 KB
Geotags to convert	15/08/2023 17:35	Microsoft Excel C...	108 KB
Geotags to converted to OSGB36	15/08/2023 17:38	Microsoft Excel C...	101 KB

File name: Geotags to converted to OSGB36

Save as type: Comma Separated Text

Save Cancel

Transform Data

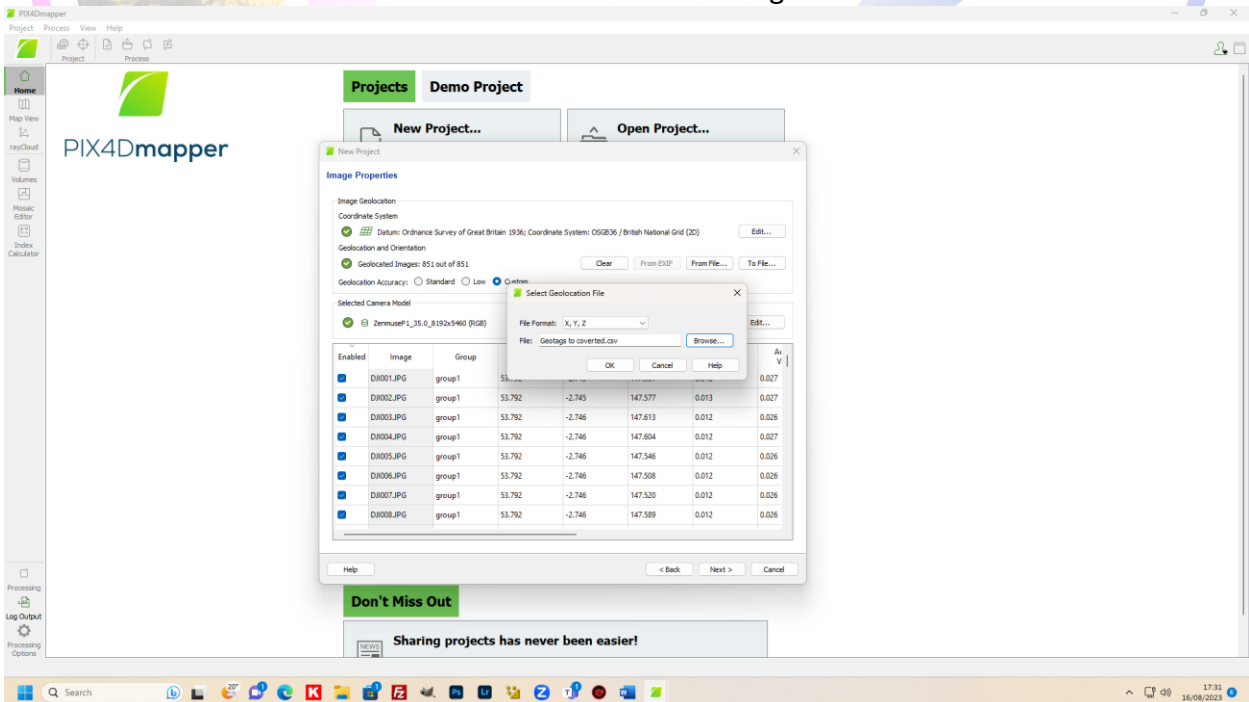
16. Open the CSV file and delete Column H (this contains the name of the datum and is not needed)

17. Highlight columns E, F and G and drag them over the replace columns B, C and D. Click OK to replace the data. Then click save then close the file.

Please see Notes at the end of this document.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
D:\0001.JPG	350994.6	431115.2	95.61	-0.05779	0.081614	125.3	0.01248	0.02671
D:\0002.JPG	350987	431110.1	95.61	-0.05779	0.081614	125.3	0.0126	0.02675
D:\0003.JPG	350979.2	431104.7	95.66	-0.05779	0.081614	125.3	0.01236	0.02649
D:\0004.JPG	350972.7	431100.3	95.66	0.057928	-0.08151	125.4	0.012385	0.02655
D:\0005.JPG	350965.5	431095.4	95.6	-0.05779	0.081614	125.3	0.012325	0.02643
D:\0006.JPG	350958.8	431090.8	95.56	0.057928	-0.08151	125.4	0.01233	0.02636
D:\0007.JPG	350951.2	431086.3	95.57	-0.05779	0.081614	125.3	0.01235	0.0264
D:\0008.JPG	350945.1	431081.3	95.66	-0.05779	0.081614	125.3	0.01239	0.02645
D:\0009.JPG	350937.7	431076.2	95.56	-0.05779	0.081614	125.3	0.01237	0.02642
D:\0010.JPG	350931.1	431071.7	95.66	0.057928	-0.08151	125.4	0.012385	0.02643
D:\0011.JPG	350924.2	431066.9	95.74	0.057928	-0.08151	125.4	0.012745	0.02691
D:\0012.JPG	350918.2	431062.8	95.79	0.057928	-0.08151	125.4	0.01264	0.02683
D:\0013.JPG	350912.1	431058.6	95.72	-0.05779	0.081614	125.3	0.01246	0.02679
D:\0014.JPG	350911.4	431056.2	95.57	-0.08854	0.046484	152.3	0.01236	0.02635
D:\0015.JPG	350915.3	431048	95.63	0.091425	0.040514	-156.1	0.01246	0.02643
D:\0016.JPG	350918.5	431043	95.66	-0.05796	-0.08192	-125	0.012375	0.02642
D:\0017.JPG	350928.8	431040.7	95.59	0.05373	-0.08434	-57.5	0.01234	0.0264
D:\0018.JPG	350931.6	431054.7	95.63	0.05373	-0.08434	-57.5	0.012335	0.0264
D:\0019.JPG	350940.7	431059.6	95.62	-0.05358	0.084433	-57.6	0.012355	0.02643
D:\0020.JPG	350947.7	431064.4	95.62	-0.05358	0.084433	-57.6	0.01236	0.02647
D:\0021.JPG	350955.2	431069.5	95.62	0.05373	-0.08434	-57.5	0.012395	0.02652
D:\0022.JPG	350962	431074.1	95.63	0.05373	-0.08434	-57.5	0.01237	0.02646
D:\0023.JPG	350968.7	431078.7	95.63	0.05373	-0.08434	-57.5	0.0124	0.02651
D:\0024.JPG	350975.3	431083.1	95.63	0.05373	-0.08434	-57.5	0.012405	0.02649
D:\0025.JPG	350981.9	431087.6	95.62	0.05373	-0.08434	-57.5	0.01242	0.02654
D:\0026.JPG	350988.5	431092.1	95.62	0.05373	-0.08434	-57.5	0.012385	0.02648
D:\0027.JPG	350996.1	431097.3	95.62	0.05373	-0.08434	-57.5	0.01245	0.0266
D:\0028.JPG	351002.4	431101.5	95.62	0.05373	-0.08434	-57.5	0.01246	0.02663
D:\0029.JPG	351009	431106	95.63	-0.05358	0.084433	-57.6	0.01244	0.02659
D:\0030.JPG	351016.5	431111.2	95.63	0.05373	-0.08434	-57.5	0.01244	0.02659
D:\0031.JPG	351023	431115.6	95.63	0.05373	-0.08434	-57.5	0.012455	0.02656
D:\0032.JPG	351030.2	431120.5	95.64	-0.05358	0.084433	-57.6	0.01246	0.02662
D:\0033.JPG	351036.8	431125.1	95.64	-0.05358	0.084433	-57.6	0.012475	0.02666
D:\0034.JPG	351043.4	431129.6	95.64	-0.05358	0.084433	-57.6	0.012495	0.0267
D:\0035.JPG	351050.6	431134.5	95.63	0.05373	-0.08434	-57.5	0.012495	0.0267
D:\0036.JPG	351057.2	431139	95.63	0.05373	-0.08434	-57.5	0.012485	0.02666

18. Now go back to Pix4d and click “From file” and then click browse and lock the file you just amended. Then click OK. The coordinates should now change to OSGB from WGS84.





The screenshot shows the PIX4Dmapper software interface. The main window displays the 'New Project' dialog box, which is titled 'New Project' and has a 'New Project...' button. The dialog box contains the following sections:

- Image Properties**
  - Image Geolocation**
    - Coordinate System**
      - ☒ Datum: Ordnance Survey of Great Britain 1936; Coordinate System: OSGB 36 / British National Grid (2D) Edit...
    - Geolocation and Orientation**
      - ☒ Geolocated Images: 851 out of 851 Clear From EXIF From File... To File...
      - Geolocation Accuracy: ☐ Standard ☐ Low ☒ Custom
    - Selected Camera Model**
      - ☒ ZennuseP\_L\_35.0\_8192x5460 (RIG2) Edit...
  - Table of Image Data**

Enabled	Image	Group	X [m]	Y [m]	Z [m]	Accuracy Horiz [m]	Az V
<input checked="" type="checkbox"/>	DI001.JPG	group1	350994.620	433115.150	95.610	0.012	0.027
<input checked="" type="checkbox"/>	DI002.JPG	group1	350996.950	433110.060	95.630	0.013	0.027
<input checked="" type="checkbox"/>	DI003.JPG	group1	350979.210	433104.740	95.660	0.012	0.026
<input checked="" type="checkbox"/>	DI004.JPG	group1	350972.710	433100.270	95.660	0.012	0.027
<input checked="" type="checkbox"/>	DI005.JPG	group1	350965.540	433095.360	95.600	0.012	0.026
<input checked="" type="checkbox"/>	DI006.JPG	group1	350958.780	433090.770	95.560	0.012	0.026
<input checked="" type="checkbox"/>	DI007.JPG	group1	350952.210	433086.260	95.570	0.012	0.026
<input checked="" type="checkbox"/>	DI008.JPG	group1	350845.050	433081.330	95.640	0.012	0.026

At the bottom of the dialog box, there are buttons for 'Help', '< Back', 'Next >', and 'Cancel'.

**Note.**

If left as is these extra symbols mean that the first image EXIF data won't transform in Pix4d. Simply delete these extra symbols without deleting the DJI file name for that image and save before you import this file into Pix4d.

AutoSave On | Search | Converted Geotags - Saved to this PC | Comments | Share

File Home Insert Page Layout Formulas Data Review View Developer Help

Clipboard Font Alignment Number Conditional Formatting Format as Table Styles Cells Editing Add-ins

Converted Geotags

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	Column 1	05G836-E	05G836-H	05G836-I	Column 5	Column 6	Column 7	Column 8	Column 9																				
2	DJI_2025C	334045.7	430040.4	61.52	0.009233	0.999573	-95.2978	0.012405	0.02162																				
3	DJI_2025C	334047.2	430040.2	61.5	-0.00906	-0.99959	-95.1978	0.012445	0.02167																				
4	DJI_2025C	334050.8	430039.6	61.52	-0.00906	-0.99959	-95.1978	0.012405	0.02159																				
5	DJI_2025C	334050.4	430038.2	61.52	0.009233	0.999573	-95.2978	0.012445	0.02168																				
6	DJI_2025C	334060.7	430038.2	61.53	-0.00906	-0.99959	-95.1978	0.012475	0.02179																				
7	DJI_2025C	334066.9	430037.4	61.54	-0.00906	-0.99959	-95.1978	0.012455	0.02175																				
8	DJI_2025C	334073.5	430036.5	61.55	0.009233	0.999573	-95.2978	0.012405	0.02167																				
9	DJI_2025C	334080.9	430035.5	61.55	0.009233	0.999573	-95.2978	0.01243	0.02169																				
10	DJI_2025C	334085.5	430034.5	61.58	0.009233	0.999573	-95.2978	0.01242	0.02171																				
11	DJI_2025C	334096.6	430033.3	61.58	0.009233	0.999573	-95.2978	0.012365	0.02158																				
12	DJI_2025C	334104.1	430032.2	61.58	0.009233	0.999573	-95.2978	0.012365	0.02162																				
13	DJI_2025C	334111.3	430031.2	61.59	-0.00906	-0.99959	-95.1978	0.012405	0.02168																				
14	DJI_2025C	334119.2	430030.2	61.61	-0.00906	-0.99959	-95.1978	0.01241	0.02159																				
15	DJI_2025C	334126.2	430029.2	61.61	-0.00906	-0.99959	-95.1978	0.01244	0.02163																				
16	DJI_2025C	334133.6	430028.2	61.62	-0.00906	-0.99959	-95.1978	0.012875	0.02198																				
17	DJI_2025C	334140.9	430027.2	61.63	-0.00906	-0.99959	-95.1978	0.012915	0.02203																				
18	DJI_2025C	334148.4	430026.2	61.65	-0.00906	-0.99959	-95.1978	0.01266	0.02194																				
19	DJI_2025C	334156.2	430025.2	61.67	-0.00906	-0.99959	-95.1978	0.01264	0.02189																				
20	DJI_2025C	334163.4	430024.2	61.67	-0.00906	-0.99959	-95.1978	0.012595	0.02181																				
21	DJI_2025C	334171.1	430023.1	61.69	-0.00906	-0.99959	-95.1978	0.01261	0.02184																				
22	DJI_2025C	334178.6	430022.1	61.7	-0.00906	-0.99959	-95.1978	0.01262	0.02183																				
23	DJI_2025C	334185.6	430021.1	61.7	-0.00906	-0.99959	-95.1978	0.01258	0.0218																				
24	DJI_2025C	334193	430020.1	61.7	-0.00906	-0.99959	-95.1978	0.01262	0.02185																				
25	DJI_2025C	334200.4	430019.1	61.73	-0.00906	-0.99959	-95.1978	0.01261	0.02184																				
26	DJI_2025C	334207.9	430018.1	61.73	-0.00906	-0.99959	-95.1978	0.01262	0.02183																				
27	DJI_2025C	334215.5	430017	61.73	-0.00906	-0.99959	-95.1978	0.012615	0.0218																				
28	DJI_2025C	334223.2	430016	61.73	-0.00906	-0.99959	-95.1978	0.012625	0.02183																				
29	DJI_2025C	334230.3	430015	61.74	-0.00906	-0.99959	-95.1978	0.01266	0.02188																				
30	DJI_2025C	334238.2	430013.9	61.76	0.009233	0.999573	-95.2978	0.01261	0.02184																				
31	DJI_2025C	334245.1	430012.9	61.77	-0.00906	-0.99959	-95.1978	0.012605	0.0218																				
32	DJI_2025C	334253.5	430011.9	61.77	-0.00906	-0.99959	-95.1978	0.012625	0.02185																				
33	DJI_2025C	334260.1	430010.9	61.78	-0.00906	-0.99959	-95.1978	0.01267	0.02192																				
34	DJI_2025C	334267.6	430009.9	61.79	-0.00906	-0.99959	-95.1978	0.01269	0.02208																				
35	DJI_2025C	334275.4	430008.9	61.81	-0.00906	-0.99959	-95.1978	0.01278	0.02238																				
36	DJI_2025C	334282.5	430007.9	61.81	-0.00906	-0.99959	-95.1978	0.012845	0.02246																				
37	DJI_2025C	334289.9	430006.8	61.82	-0.00906	-0.99959	-95.1978	0.012795	0.02195																				

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