HOW TO READ A DJI TERRA QUALITY REPORT

Content

2D Reconstruction

Aerial Triangulation Quality Report

DJI Terra Aerial Triangulation Quality Report

Image Information Overview

Item	Value
Input Images	684
Image With Position	684
Calibrated Images	684
Use Image Position	True
Georeferencing RMSE	1.138 m
Connected Components	1
Max Component Images	684
SFM Time	4.364 min

1. Input Images：the number of images which have been captured and input into the software for reconstruction
2. Image With Position：the number of images with POS data
3. Calibrated Images：the number of images reconstructed
4. Use Image Position：calculations used the POS data associated to the images
5. Georeferencing RMSE：the root-mean-square error, or the difference between the projected position and actual position of a point in the image
6. Connected Components：the number of connected components
7. Max Component Images：the number of images in the maximum component area
8. SFM Time：Structure from motion time

GCP Information Overview

Ground Control Point

ID	dx(m)	dy(m)	dz(m)
4	-0.004485	0.009190	-0.014095
5	-0.014598	0.008998	-0.017303
6	-0.000789	0.011663	-0.002902
9	-0.009201	0.005609	-0.012178
19	0.002876	-0.006967	-0.001428

Control Point RMSE

dx(m)	dy(m)	dz(m)
0.008084	0.008734	0.011461

Ground Check Point

ID	dx(m)	dy(m)	dz(m)
1	0.002513	-0.013376	-0.084288
15	0.006684	-0.023639	-0.010804

Check Point RMSE

dx(m)	dy(m)	dz(m)
0.005049	0.019205	0.060088

RTK Status

Status	Number of Images
FIX	1119
FLOAT	0
SINGLE	0
NONE	0

FIX：fix solution, where positioning is within centimeter accuracy

FLOAT：float solution, where positioning is within decimeter accuracy

SINGLE：single solution, where positioning is within meter accuracy

NONE：not using RTK

Camera Calibration Information

Camera Model FC6310R

Camera SN 16909bb8225a618457d1b63cca4d5098

Item	Focal	Cx	Cy	K1	K2	K3	P1	P2
Initial	3661.43	2420.96	1836.99	-0.26455500	0.10349900	-0.02710990	0.00040893	-0.00031529
Optimized	3650.70	2421.69	1835.61	-0.26628813	0.10815465	-0.03050346	0.00044727	-0.00028173

1. Camera Model
2. Camera SN
3. Initial：internal camera parameters
4. Optimized：optimized internal camera parameters
5. Focal：focal length of camera in pixel
6. Cx，Cy：principal point coordinates of photograph in pixel
7. K1，K2，K3：camera radial distortion parameters
8. P1，P2：camera tangential distortion parameters

Coefficients and correlation matrix Matrix for measuring the coefficients and correlation of camera internal parameters

	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	0.01429022	1.00000000	0.01934982	-0.61049952	-0.35157843	0.31504547	-0.28359061	0.50146992	-0.00440416
Cx	0.01336107	0.00386075	1.00000000	-0.02324432	-0.00006828	-0.00004430	0.00021491	0.00457739	-0.05607488
Cy	0.01435064	-0.22795695	-0.02215738	1.00000000	0.00116116	-0.00059518	0.00072616	-0.18538668	0.00133082
K1	0.00001162	-0.49547731	-0.00642516	0.05694237	1.00000000	-0.97163986	0.91906360	-0.09935557	-0.00541749
K2	0.00002822	0.36399576	0.00544822	-0.02276564	-0.97527695	1.00000000	-0.98348841	0.03352836	0.00776033
K3	0.00001984	-0.31443590	-0.00727562	0.02188253	0.92317953	-0.98420871	1.00000000	-0.02648467	-0.01196153
P1	0.00000056	0.54066939	0.03905561	-0.41219857	-0.00377832	0.00066860	-0.00337103	1.00000000	-0.00397253
P2	0.00000036	-0.02782030	0.16945228	0.01281755	-0.00636394	0.00695452	-0.00950727	-0.02111529	1.00000000

Hardware Information

- CPU: Intel(R) Core(TM) i7-7700 CPU @ 3.60GHz
- GPU Number: 1
- GPU0: GeForce GTX 1050 Ti
- RAM: 40823 M

DJI Terra 2D Quality Report

Process Parameters

Process Parameters	Value
Mapping Scene	Fruit Tree
sfm mode	Normal
Resolution	High
Coordinate Correct	Yes
Use Cluster	No

1. Mapping Scene：Choose among three mapping scenarios: Urban, Field, and Fruit Tree
2. sfm_mode：the number of feature points extracted
3. Resolution：image resolution for reconstruction
   - High：original image resolution
   - Medium：1/2 of original image resolution
   - Low：1/3 of original image resolution
4. Coordinate Correct：coordinates of mapping result have / have not been corrected
5. Use Cluster：use cluster reconstruction or not

TDOM Preview

Map Information Overview

Item	Value
TDOM GSD	0.047 m
Coverage Area	0.228009 sq km
Average Flight Altitude	87.643 m

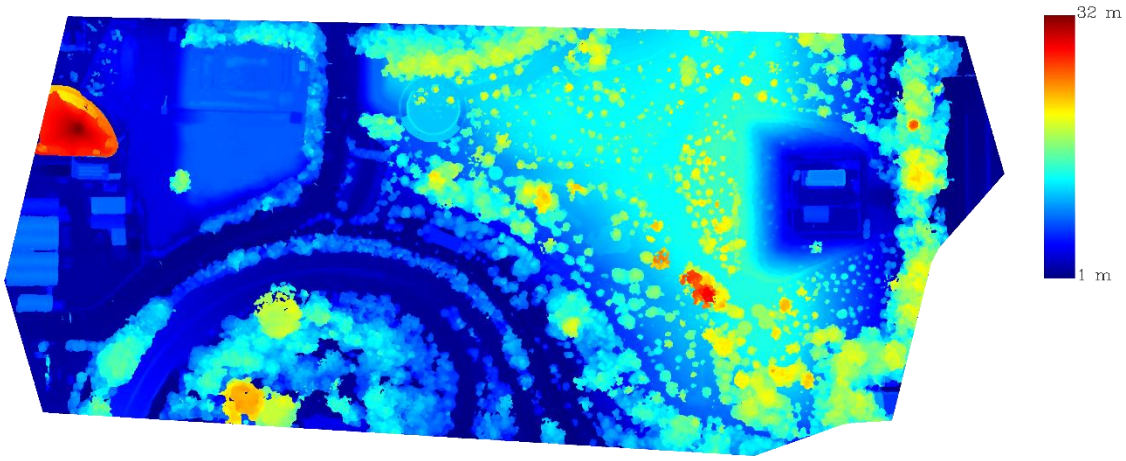
TDOM GSD：the distance between adjacent pixel centers in TDOM measured on the ground in meters
Coverage Area：coverage area in square kilometers
Average Flight Altitude：the aircraft’s flight height relative to the ground of the surveying area in meters

Performance Overview

Pipeline	time cost (min)
Image Correction	0.483
Densification	3.617
TDOM Generate	7.233

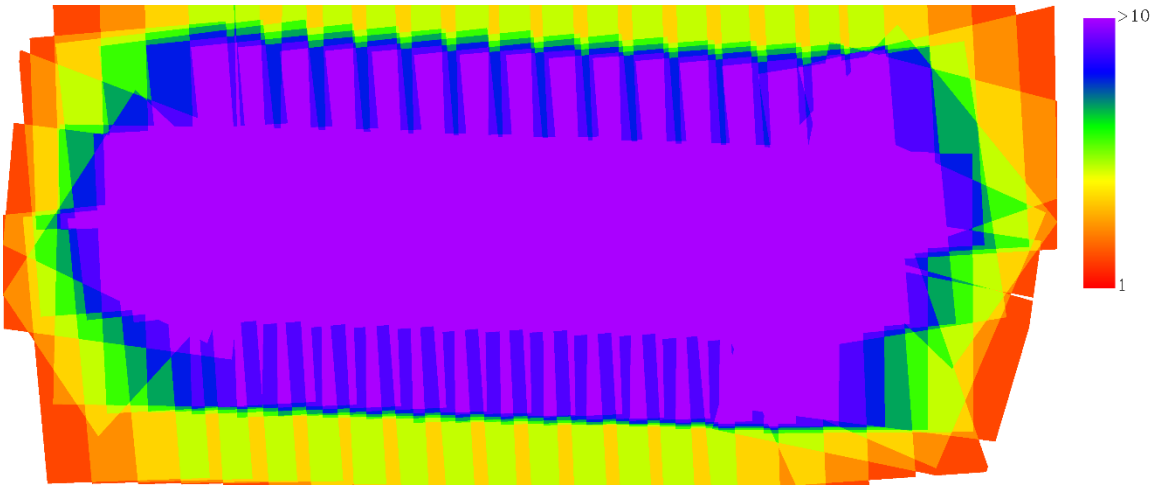
Image Correction：undistorting image time
Densification：densification time in minutes
TDOM Generate：TDOM generation time in minutes

DSM Preview Digital Surface Model Preview



Scene Overlap Analyze

Scene Overlap Coverage: the number of images covering different areas of the scene. Different color corresponding with different number of images.



3D Reconstruction

Aerial Triangulation Quality Report

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Image Information Overview

Item	Value
Input Images	684
Image With Position	684
Calibrated Images	684
Use Image Position	True
Georeferencing RMSE	1.138 m
Connected Components	1
Max Component Images	684
SFM Time	4.364 min

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Control Point RMSE

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1	0.002513	-0.013376	-0.084288
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Check Point RMSE

dx(m)	dy(m)	dz(m)
0.005049	0.019205	0.060088

RTK Status

Status	Number of Images
FIX	120
FLOAT	0
SINGLE	0
NONE	0

FIX：fix solution, where positioning is within centimeter accuracy

FLOAT：float solution, where positioning is within decimeter accuracy

SINGLE：single solution, where positioning is within meter accuracy

NONE：not using RTK

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K3	0.00001984	-0.31443590	-0.00727562	0.02188253	0.92317953	-0.98420871	1.00000000	-0.02648467	-0.01196153
P1	0.00000056	0.54066939	0.03905561	-0.41219857	-0.00377832	0.00066860	-0.00337103	1.00000000	-0.00397253
P2	0.00000036	-0.02782030	0.16945228	0.01281755	-0.00636394	0.00695452	-0.00950727	-0.02111529	1.00000000

Hardware Information

- CPU: Intel(R) Core(TM) i7-7700 CPU @ 3.60GHz
- GPU Number: 1
- GPU0: GeForce GTX 1050 Ti
- RAM: 40823 M

DJI Terra 3D Quality Report

Process Parameters

Process Parameters	Value
Mapping Scene	Circle
sfm_mode	Normal
Resolution	High
Use Cluster	No

1. Mapping Scene：Choose among three mapping scenes: Normal, Circle and Power Lines
2. sfm_mode：the number of feature points extracted
3. Resolution：image resolution for reconstruction
   High：original image resolution
   Medium：1/2 of original image resolution
   Low：1/3 of original image resolution
4. Use Cluster：use cluster reconstruction or not

Production

the reconstruction result file in different format

Production List
XML File
PLY File
B3DM File
PNTS File
OBJ File
OSGB File
LAS File
PLY Point File
PCD File
S3MB File
S3MB Point File
I3S File

Performance Overview

Item	Value
MVS Time	2.290 min
MVS Block Count	1

MVS Time：3D reconstruction time in minutes

MVS Block Count：the number of 3D reconstruction blocks

LiDAR Point Cloud Process

LiDAR Point Cloud Process Quality Report

DJI Terra Lidar Quality Report

Input Information Overview

Item	Value
Pose Data Collection Time	56.913 min
Point Cloud Collection Time	38.108 min
Lidar Block Count	1

Pose Data Collection Time：time consuming of collecting POS data
Point Cloud Collection Time：time consuming of collecting Point Cloud
Lidar Block Count：the number of imported LiDAR data folders

Process Parameters

Process Parameters	Value
Resolution	Low

Resolution：point cloud density used in LiDAR point cloud processing
High：100% point clouds used
Medium: 25% point clouds used
Low：6.25% point clouds used

Production

the reconstruction result file in different format

Production List
PNTS File
LAS File
PCD File
PLY Point File
S3MB Point File

Performance Overview

Item	Value
Pose Process Time	2.368 min
Georeference Time	1.370 min
LPP Time	126.735 min
Lidar Colorize Time	0.711 min
Save Result Time	0.951 min
Total Process Time	134.974 min

1. Pose Process Time: time consuming of solving poses
2. Georeference Time: time consuming of solving point clouds and converting coordinates
3. LPP Time：time consuming of point cloud accuracy optimization
4. Lidar Colorize Time：time consuming of point cloud RGB coloring
5. Save Result Time: time consuming of saving point cloud results (.pnts, .las, .ply, .pcd, .s3mb)
6. Total Process Time：Total time consuming of point cloud processing