



Pix4D in India: Meet our team and products

Pix4D

Online Webinar, Aug. 25th

Agenda

- Meet our representative in India
- Pix4D applications, industries & sectors of focus
- User Testimonial -viDoc RTK rover-
- Next generation mapping with PIX4Dmatic, PIX4Dsurvey and PIX4Dcatch
- User Testimonial -PIX4Dmatic and PIX4Dsurvey-
- Q&A session



PIX4D IN INDIA



PIX4D

Introduction of PIX4D Products

Mitul Arora
Business Development Lead-India

India

India Sales representative:



Mitul Arora

Business Development Lead
Pix4D

Back ground: Mechanical Engineering with MBA having 14 years of experience in Aviation/Drones/Business Development, Public Policy.

Role in Pix4D: Business Development for the India region.

Pix4D Presence



R&D and commercial offices

 Switzerland

 Germany

 Spain

 U.S.A.

 Japan

 China

 Romania

Commercial presence

 France

 Italy

 United Kingdom

 India

Including 140 Pix4D authorised resellers worldwide

What is photogrammetry?

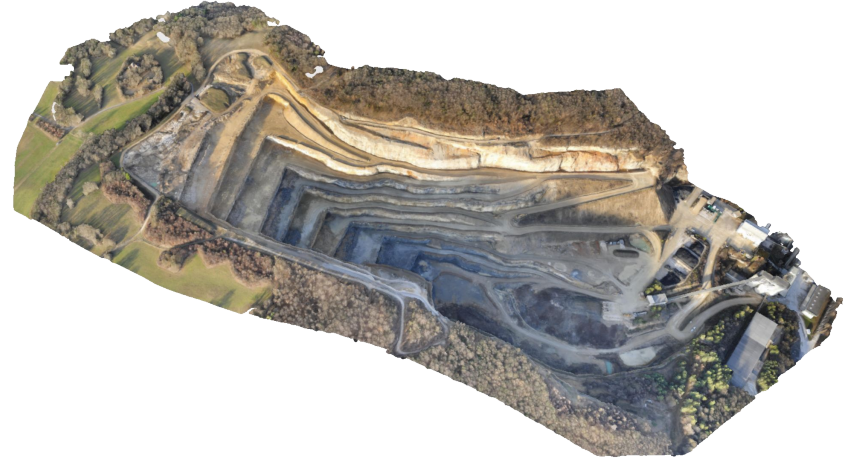
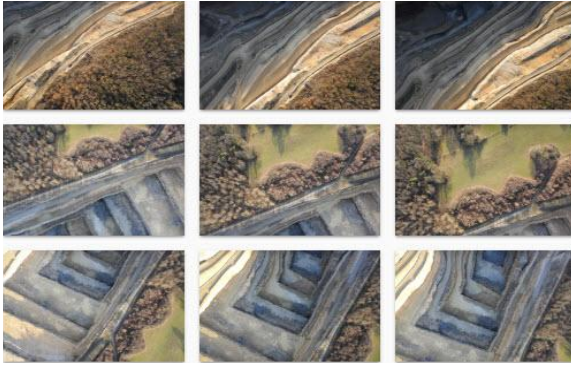


“Evolution favors eyes that perceive the world in 3D”



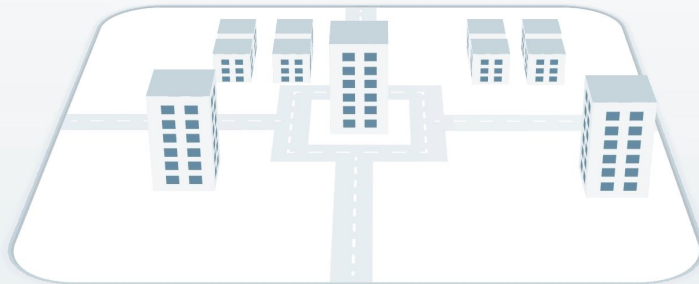
Dr Christoph Strecha,
Co-Founder and CEO of Pix4D

What is photogrammetry?



Photogrammetry is the science and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring and interpreting photographic images and patterns of electromagnetic radiant imagery and other phenomena

What is photogrammetry?



Extracting **3D information** from photographs

Pix4D software and hardware solutions

Software applications (desktop and cloud)



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**fields**



PIX4D**react**



PIX4D**inspect**



PIX4D**cloud**



PIX4D**engine**

Mobile applications



PIX4D**scan**



PIX4D**catch**



PIX4D**capture**

Hardware



Crane**Camera**

viDoc[®]



Pix4D applications, industries & sectors of focus

Applications, Sectors and Industries



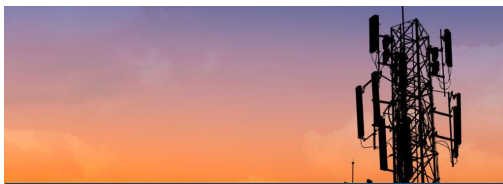
Surveying & mapping



Construction



Mining & aggregates



Inspection & telecom



Agriculture



Cultural heritage



Education



Public safety



Emergency response

Surveying & mapping

- **Increase productivity**
Save operational costs by spending less time in the field
- **Ensure high accuracy**
Quality reports, practical and detailed editing tools, ground control points, checkpoints, and RTK drone support
- **Always up to date maps and terrain models**
Simple workflow and easily, repeatable data collection
- **Wide range of imagery inputs**
Terrestrial and drone cameras, including RGB, multispectral, thermal, fisheye, 360° camera, camera rig images and videos as well as point clouds
- **Survey-grade deliverables**
Accurate 3D maps and models. Terrestrial, corridor and large scale mapping and vectorized, CAD ready outputs



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**engine**



PIX4D**cloud**



PIX4D**catch**



PIX4D**capture**

viDoc®

Construction

- Earthworks management
- Topographic surveys
- Stockpile measurements & cut/fill calculations
- Visual records of excavations

As-built monitoring

- Regular visual status reports on the as-built situation
- Site progress tracking compared to BIM project schedule and design
- Online project documentation for visualization, measurement, annotation and sharing

Building & infrastructure inspections

- Online results with intuitive viewing/analysis tools;
- Create thermal maps for analysis



PIX4D**mapper**



PIX4D**engine**



PIX4D**cloud**



Crane**Camera**



PIX4D**catch**

viDoc®

Mining & aggregates

Operational risk and compliance management

- Terrestrial and aerial surveying & 3D mapping
- Drill & blast planning & topography engineering
- Asset & infrastructure inspections
- Geotechnical inspection & structure characterization

Supply chain management

- Stockpile management
- Production inventory
- Delivery forecasting

Asset lifecycle management

- Base mapping for site planning or design
- Site surveys during construction
- As built versus as designed comparison



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**cloud**

Inspection & telecom

Highly-accurate, end-to-end remote visual inspections.

2D and 3D measurements, annotations, and automatic reports.

Digitize assets portfolio

- Access and share assets information anytime and anywhere;
 - Keep track of inspection history for predictive maintenance and informed decisions.
 - AI-powered algorithms automatically detect telecom antennas
-
- Bridges
 - Roads
 - Tunnels
 - Solar energy
 - Roofs
 - Transmission towers
 - Cell towers
 - Buildings
 - Ports & harbors
 - Airports



PIX4Dinspect



PIX4Dengine



PIX4Dscan



PIX4Dcatch

Agriculture

Crop protection

- Identify issues faster
- A deeper understanding of your crop's health
- Connect index maps to plant features

Crop production

- Obtain management-ready maps
- Save 5-15% on inputs every year
- Export any maps to industry standard formats

Crop performance

- More precise yield estimations
- Plan and manage irrigation
- Minimize soil erosion



PIX4D**fields**



PIX4D**mapper**



PIX4D**cloud**



PIX4D**engine**

Cultural heritage

Conservation

Provide detailed and accurate 3D maps and models to assist in critical conservation work and active management

Discovery

Immersive experiences in VR & AR and interactive web content to inspire future generations

Recovery

Digital permanent records of the site used in recovery efforts following natural disasters



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**engine**



PIX4D**cloud**



PIX4D**catch**

Public safety

Forensics and scene reconstruction

- Reduced time on scene
- Hundreds of photos organized and accessible with a click
- Court-ready documentation

Fire investigation

- Root cause analysis
- Damage assessment
- Insurance claim adjustments

Search and Rescue (SAR)

- Search for missing persons
- Fast situational awareness for first responders



PIX4D**mapper**



PIX4D**react**



PIX4D**cloud**



PIX4D**catch**

viDoc[®]

Humanitarian Aid & Disaster relief

Emergency relief and recovery

- Provide situational awareness to teams on the ground to coordinate relief and recovery teams
- Assess situations on the ground, often in the most complex environments
- Share and disseminate information online or offline

Disaster risk reduction

- Mitigate disasters in reducing risks
- Identify damaged houses, shelters, roads, bridges or other critical infrastructures
- Identify new locations for critical infrastructure, health or logistics centers
- Assess crop and food security



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**react**



PIX4D**cloud**



PIX4D**catch**

Education

- Teach the principles of photogrammetry
- Enhance your curriculum or design your own courses with Pix4D's knowledge base and videos
- Support your research with full access to Pix4D's mapping and photogrammetry technology
- Design the academic program and take classes to the next level with the free PIX4Dmapper course material for educational institutions



PIX4D**mapper**



PIX4D**matic**



PIX4D**survey**



PIX4D**engine**



PIX4D**cloud**



PIX4D**react**



viDoc RTK Rover

Elevate 3D scanning with the power of RTK and photogrammetry on a mobile device

viDoc®



PIX4Dcatch

<https://www.pix4d.com/product/vidoc-rtk-rover>



Next generation mapping with PIX4Dmatic, PIX4Dsurvey and PIX4Dcatch

25.08.2022

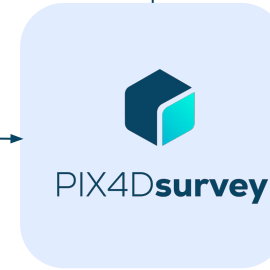
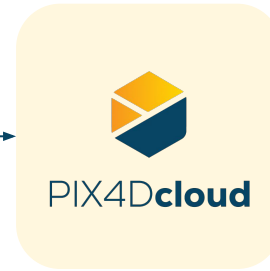
Geospatial workflow



PIX4D**catch**

The aerial and terrestrial images acquisitions can be done separately and in parallel

- Processing of the aerial and terrestrial data
- Verification of accuracy
- Creation of point cloud, mesh, DSM and orthomosaic



- Combine projects
- Creation of DTM, contour lines, volume measurements and reports, semi-automated vectorization

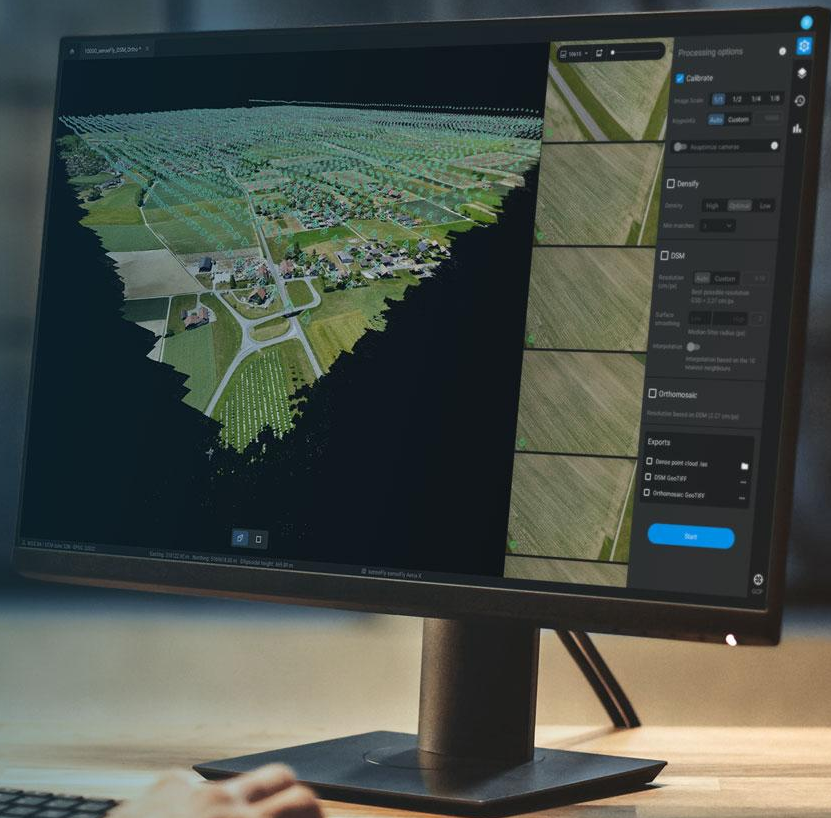
- Share results
- Compare through time

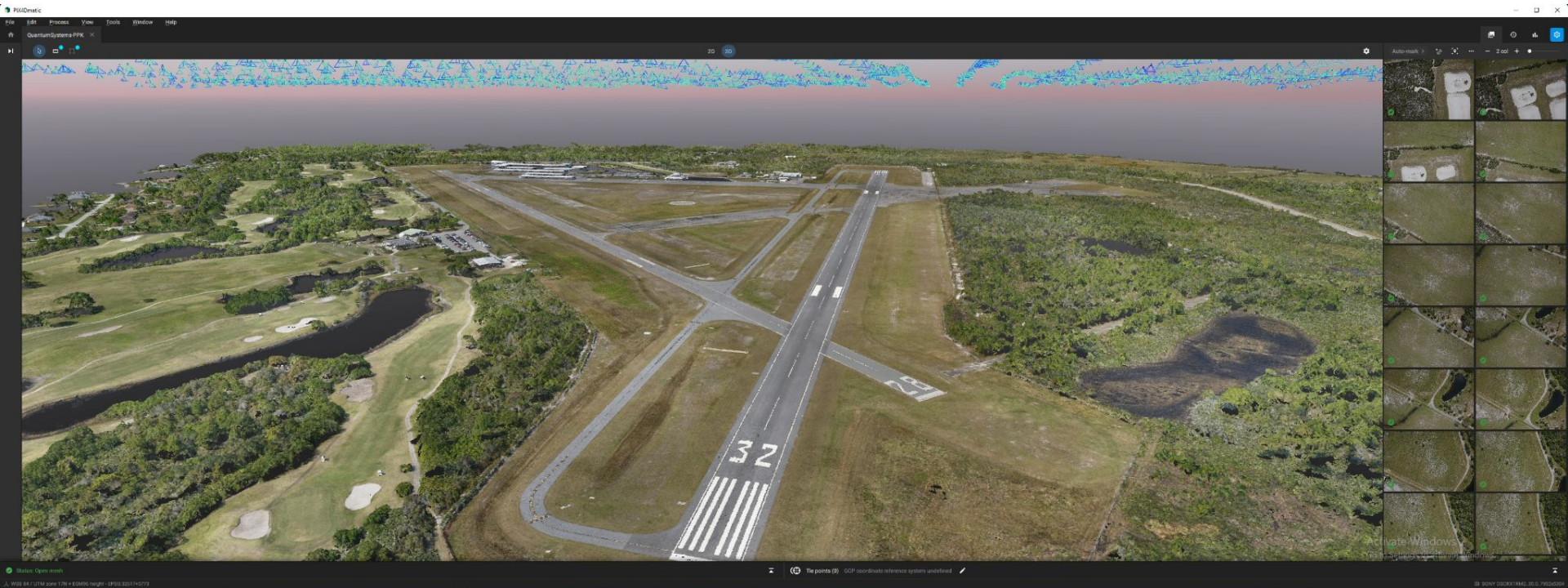


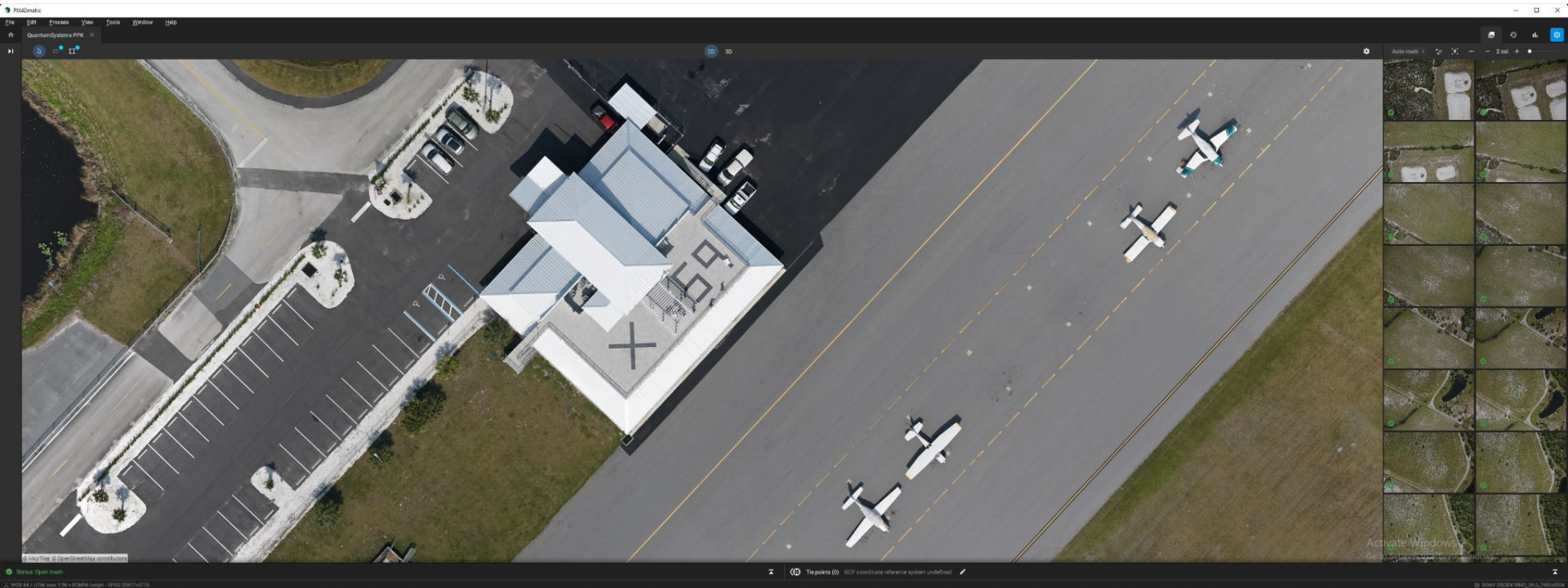
Next-generation photogrammetry software for
terrestrial, corridor and large scale mapping

Product page:

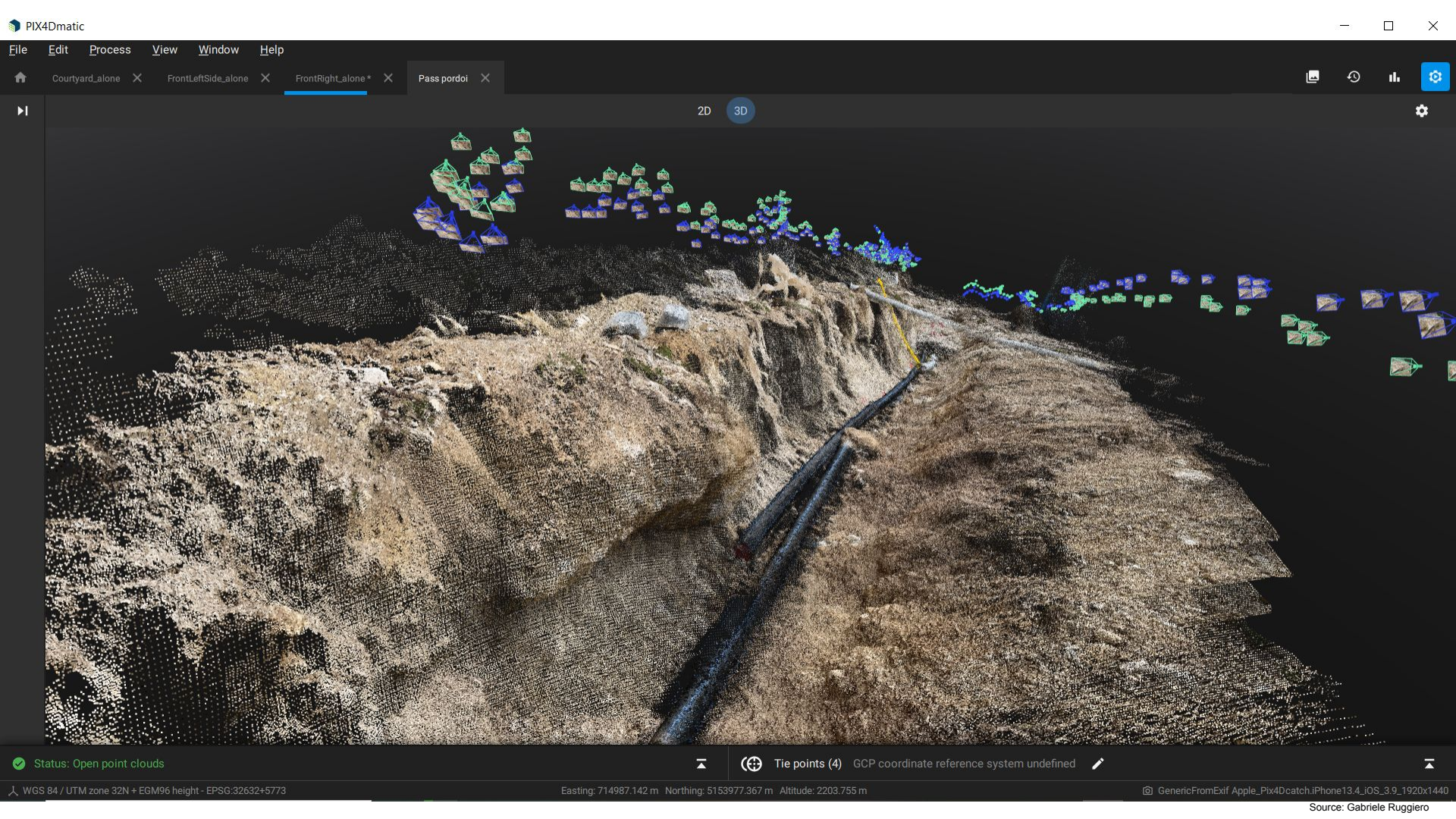
<https://www.pix4d.com/product/pix4dmatic-large-scale-photogrammetry-software>

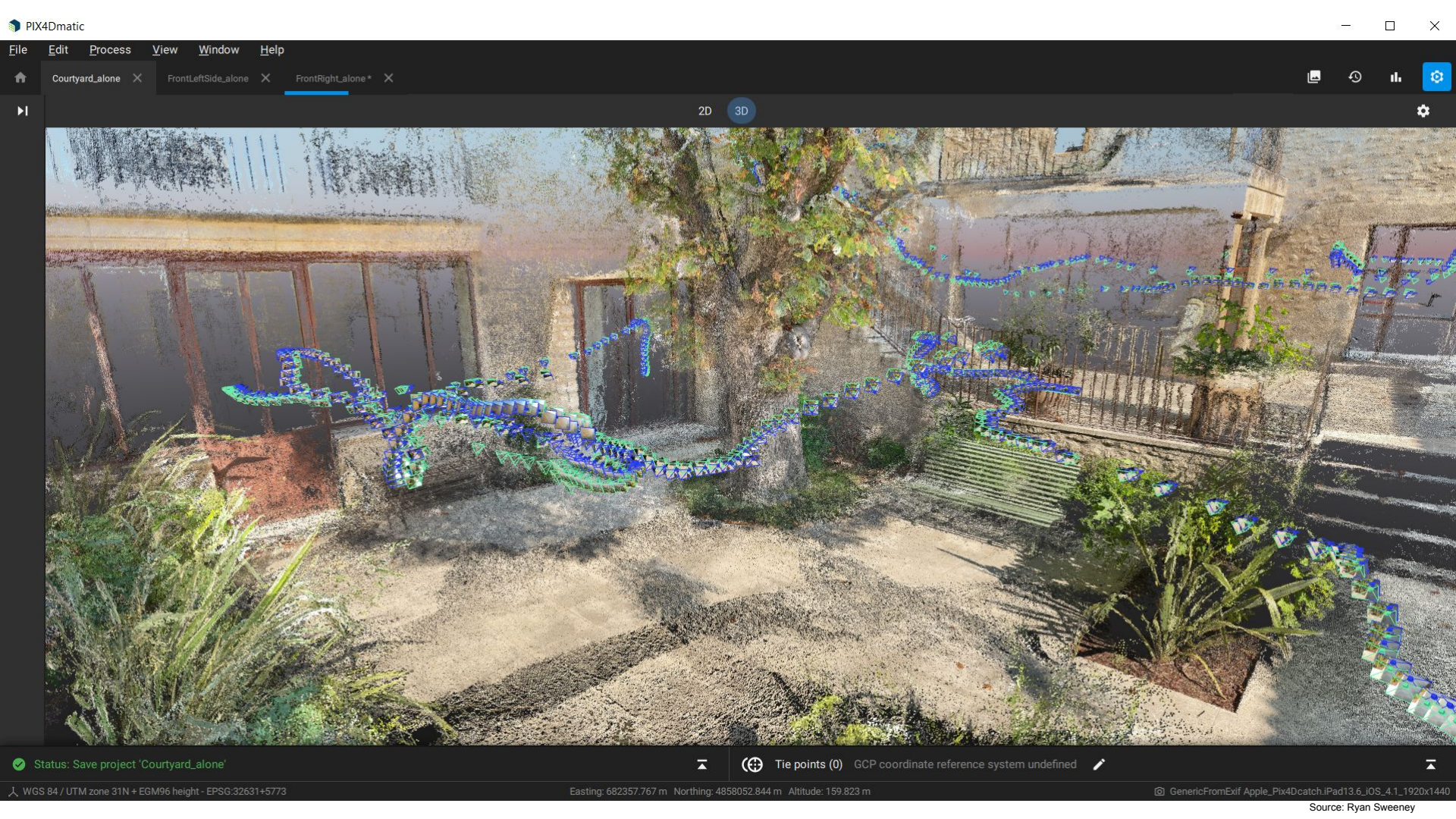












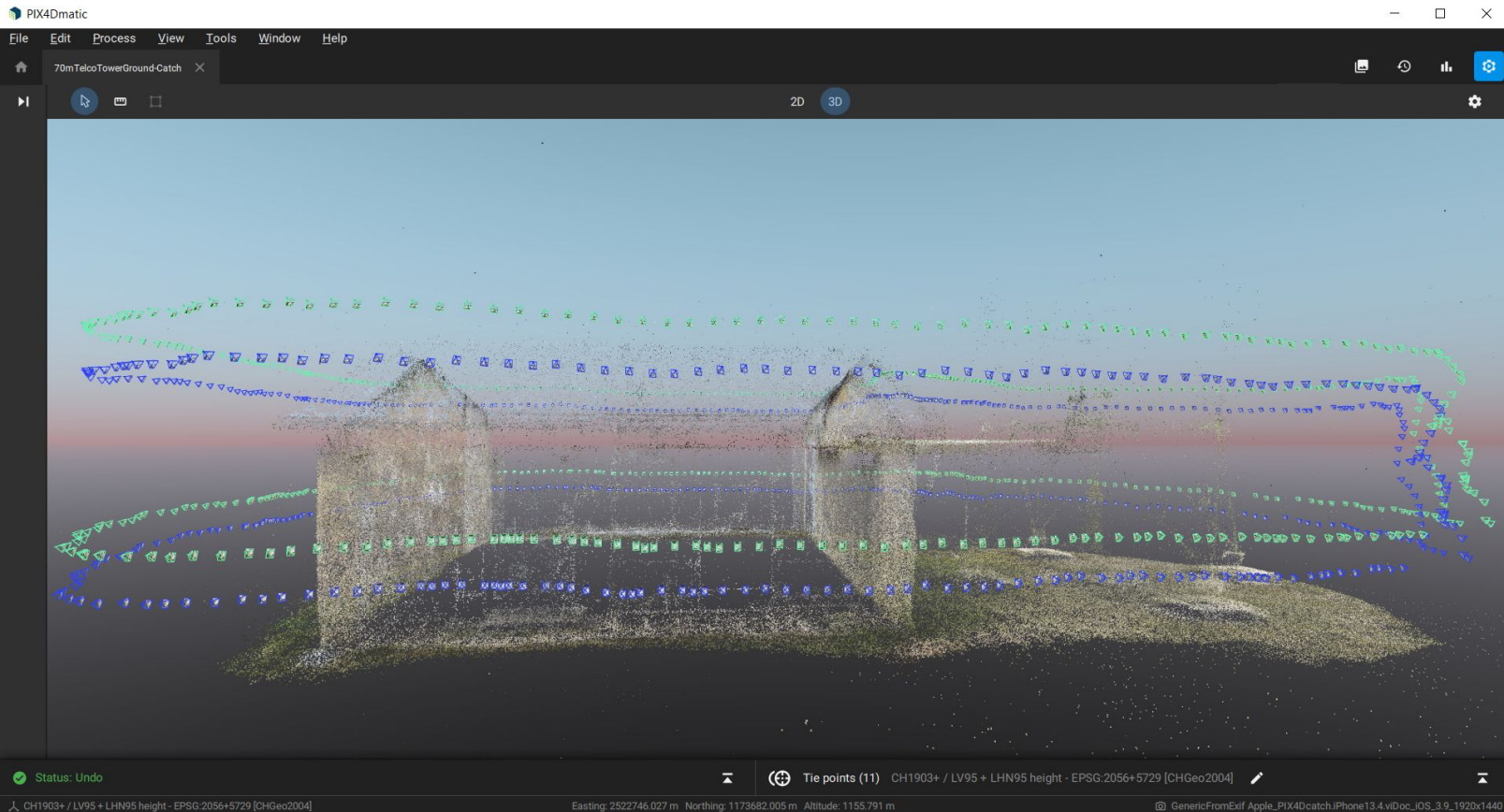


Highlight 1

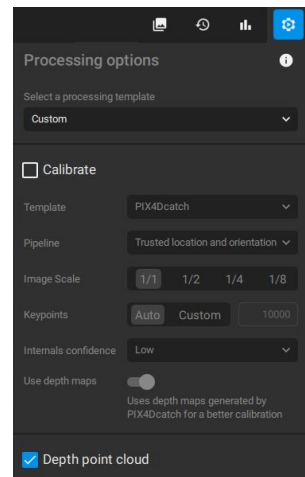
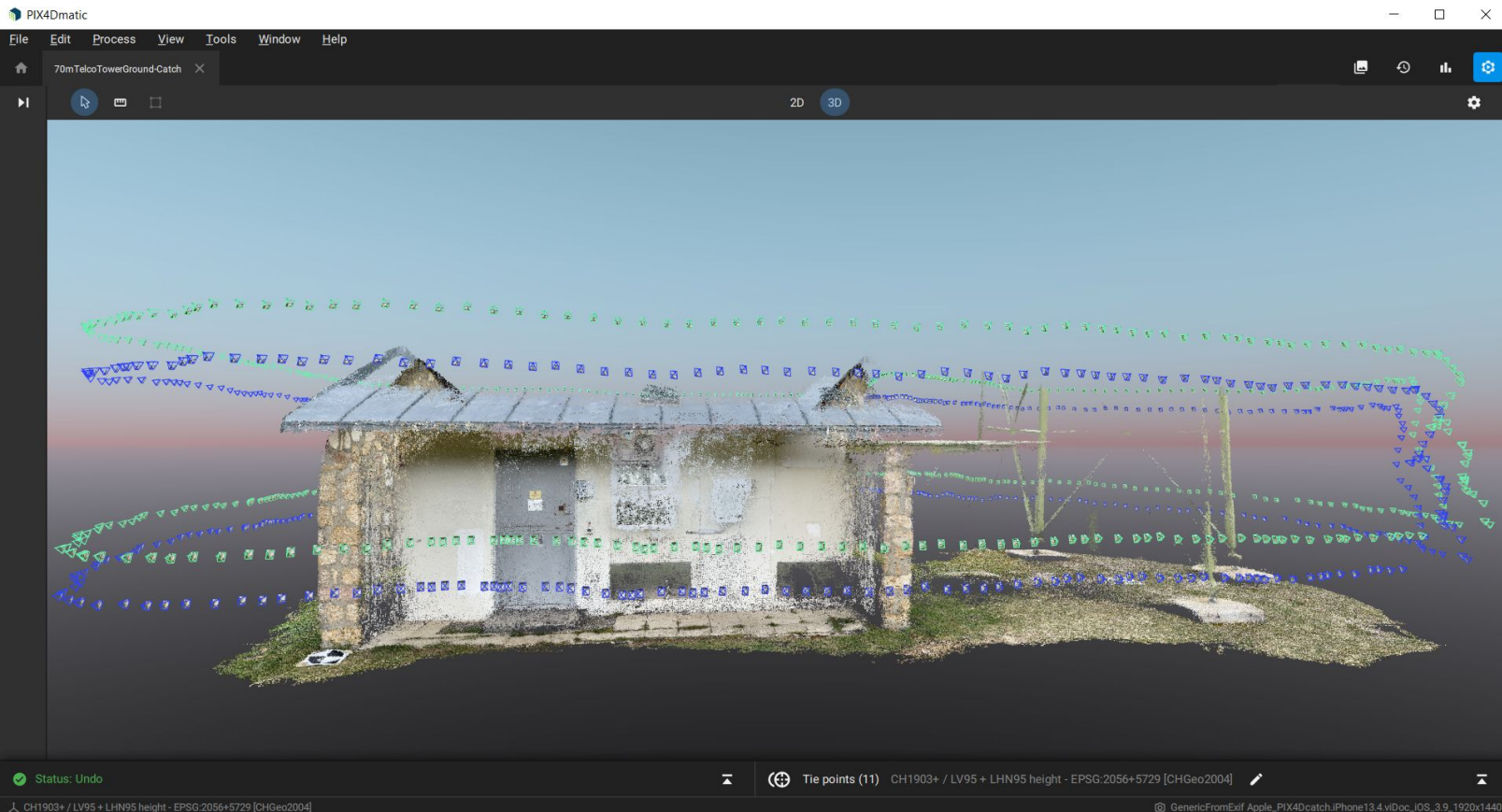
Terrestrial workflow with PIX4Dmatic, viDoc RTK and PIX4Dcatch

Complement your aerial data
with terrestrial data

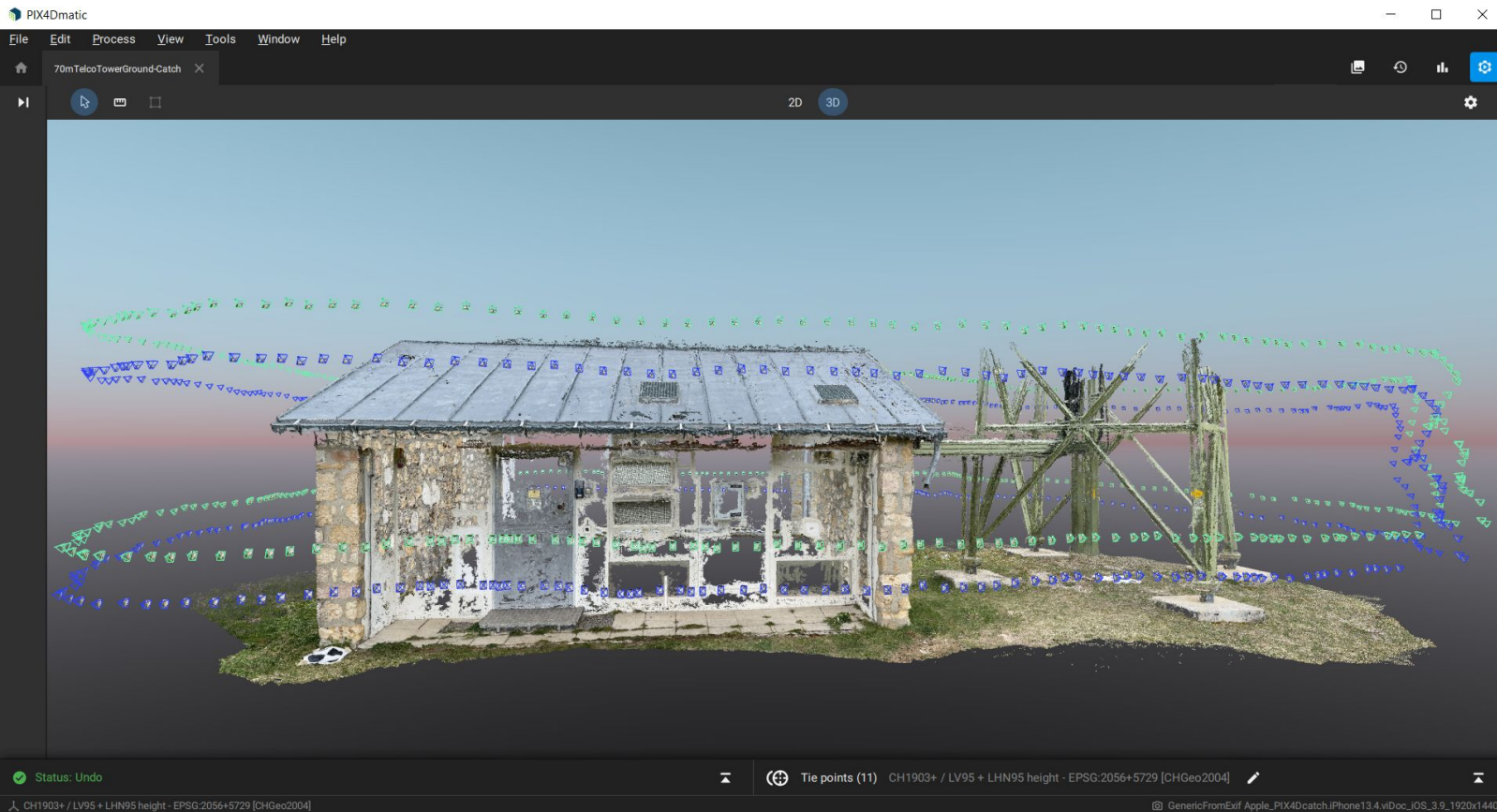
Calibrate - Automatic Tie Points (ATPs)



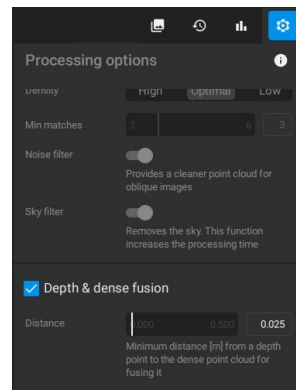
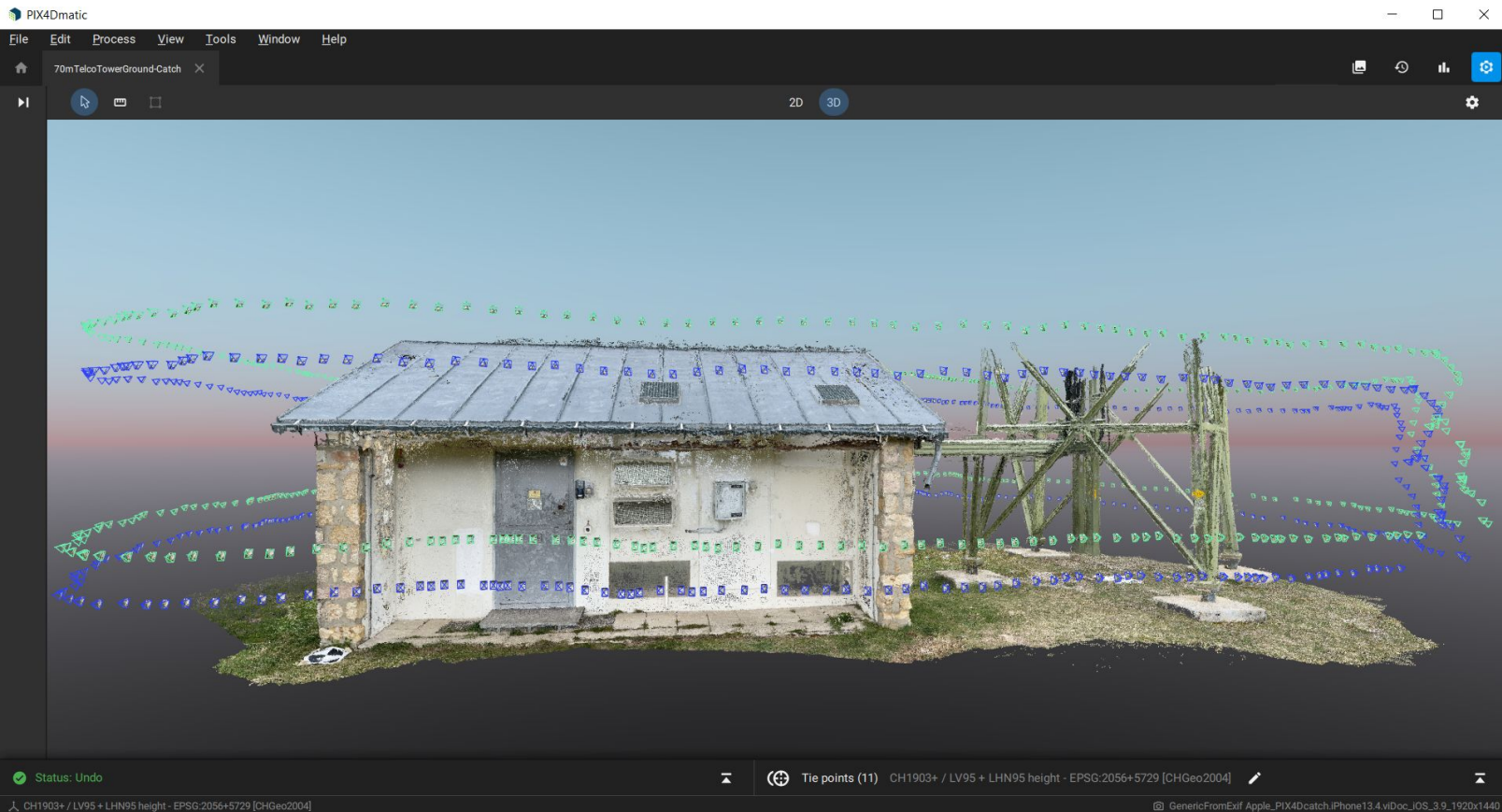
Depth point cloud = LiDAR + pos./orient. from calibration



Dense point cloud = photogrammetry point cloud



Depth & dense fusion = LiDAR + photogrammetry point cloud



LiDAR with ARKit GPS/IMU

GPS/**IMU drift**. Misaligns scans.

+

Calibrate:
images + LiDAR + vDoc RTK

More accurate positions/**orientations**

=



PIX4D**matic**

Integrates all.
Mobile LiDAR and photogrammetry are survey-grade

Certified in France by





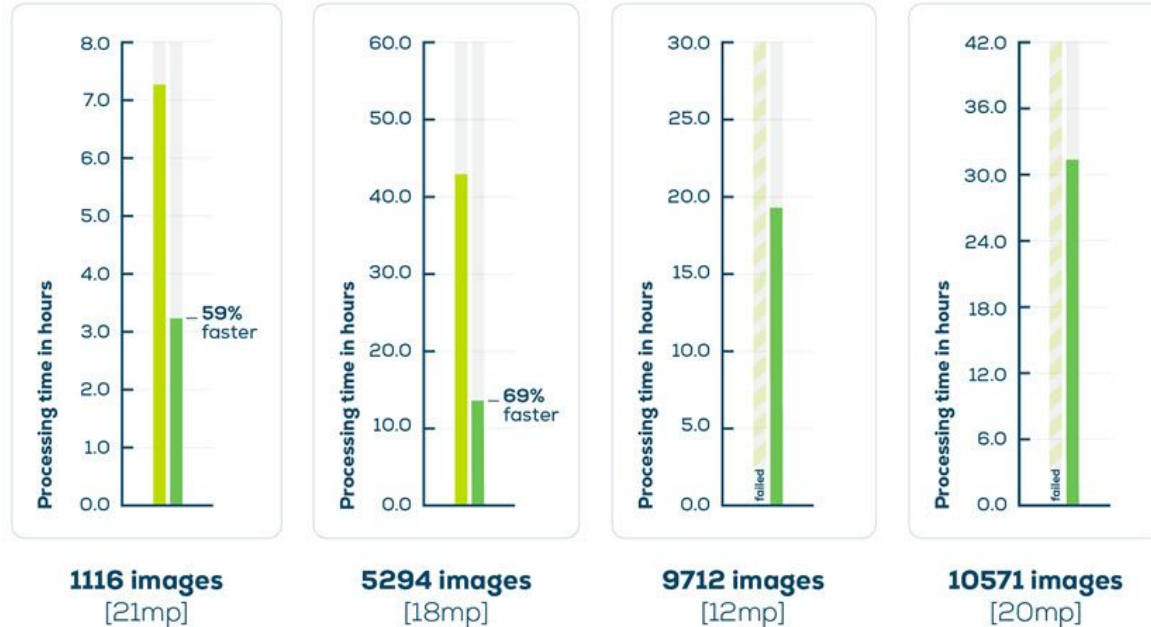
PIX4D**matic**

Highlight 2

Processing speed







2x faster than PIX4Dmapper

Test benchmark – Total processing time PIX4Dmapper vs PIX4Dmatic



(PC specification: Windows 10, 8-Core Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz, 64 GB RAM, SSD)

Not only for large scale datasets

	Calibration + Densification		DSM + Orthomosaic		Total processing time	
PIX4Dmapper 4.6.4 vs PIX4Dmatic 1.30	 PIX4Dmapper	 PIX4Dmatic	 PIX4Dmapper	 PIX4Dmatic	 PIX4Dmapper	 PIX4Dmatic
Nadir dataset (20MP, 516 images)	1:49:00	0:51:59	1:25:46	0:08:25	3:14:46 (194min)	1:13:11 (73min) 63% faster
Oblique dataset (20MP, 587 images)	3:27:57	1:58:29	NA	NA	3:27:57 (207min)	2:07:12 (127min) 39% faster

(PC specification: Windows 10, 8-Core Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz, 64 GB RAM, SSD)



PIX4D**matic**

Highlight **3**

Vertical CRS and Geoids

Optimally process RTK
datasets

Geoids and arbitrary coordinate reference systems

×

Select the GCP coordinate reference system (CRS)*

☒ Known CRS

☐ Arbitrary CRS

m ▾

Horizontal coordinate reference system [m]

CH1903+ / LV95 - EPSG:2056×

Vertical coordinate reference system [m]

LHN95 height - EPSG:5729|×

Geoid

CHGeo2004×

Geoid height

ⓘ

*Project CRS is derived from the GCP CRS

Cancel

Apply



PIX4D**matic**

Highlight **4**

Improved outputs

Better mesh, noise & sky
filter, deghosting, etc.

Improved mesh texture



Noise filter



Sky filter



Interpolation



Deghosting





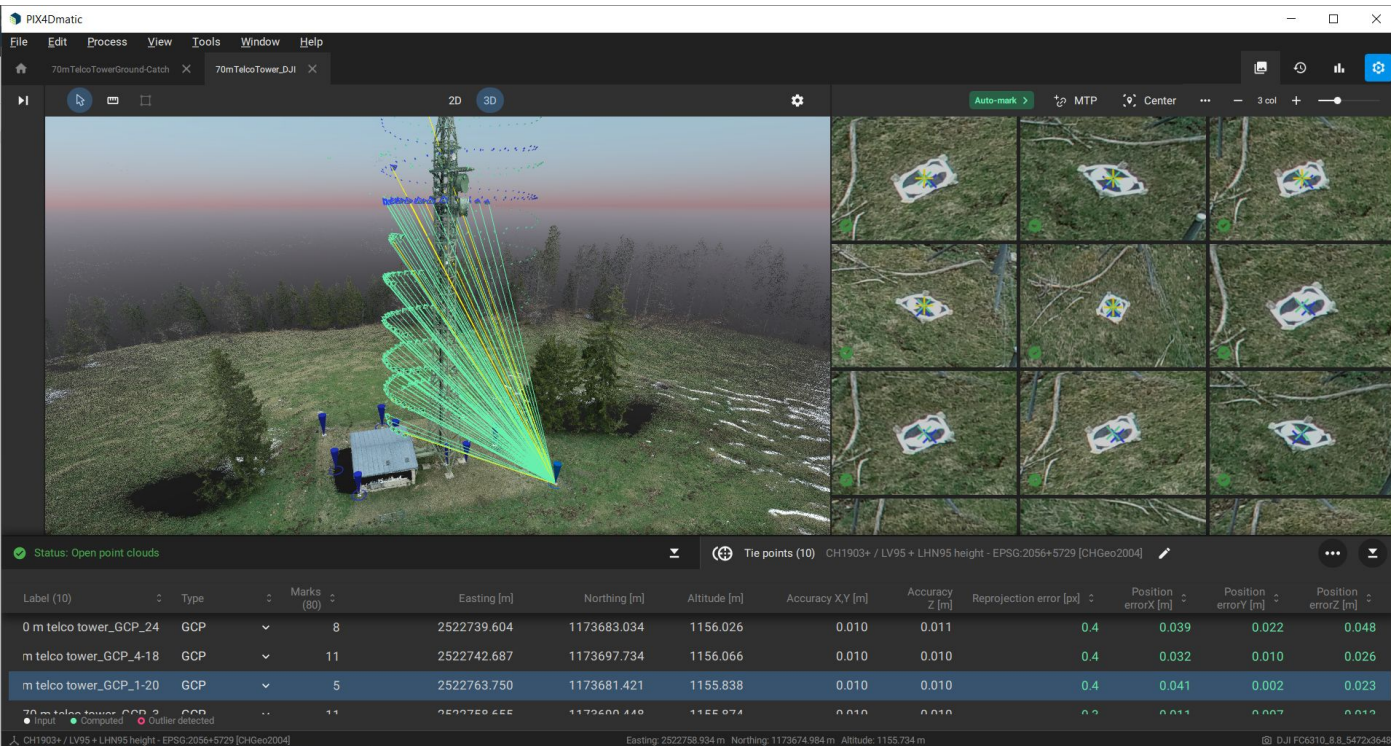
PIX4Dmatic

Highlight 5

**Verify and
ensure
accuracy**

AutoGCP, Checkpoints,
quality report,...

How to verify and ensure accuracy



The screenshot displays the PIX4Dmatic software interface. The main window shows a 3D point cloud of a tower structure. The right panel shows a grid of 12 images with ground control points (GCPs) marked. The bottom panel shows a table of tie points and their associated data.

Tie points (10) CH1903+ / LV95+ LHN95 height - EPSG:2056+5729 [CHGeo2004]

Label (10)	Type	Marks (80)	Easting [m]	Northing [m]	Altitude [m]	Accuracy XY [m]	Accuracy Z [m]	Reprojection error [px]	Position errorX [m]	Position errorY [m]	Position errorZ [m]
0 m telco tower_GCP_24	GCP	8	2522739.604	1173683.034	1156.026	0.010	0.011	0.4	0.039	0.022	0.048
m telco tower_GCP_4-18	GCP	11	2522742.687	1173697.734	1156.066	0.010	0.010	0.4	0.032	0.010	0.026
m telco tower_GCP_1-20	GCP	5	2522763.750	1173681.421	1155.838	0.010	0.010	0.4	0.041	0.002	0.023

Legend: Input (blue dot), Computed (green dot), Outlier detected (red dot)

CH1903+ / LV95+ LHN95 height - EPSG:2056+5729 [CHGeo2004]

Easting: 2522758.934 m Northing: 1173674.984 m Altitude: 1155.734 m

© DJI FC6310, 8.8.5472x3648

- Ground Control Points (GCPs)
- Checkpoints
- AutoGCP marking
- Manual Tie Points (MTPs)
- Visual checks (2D/3D)
- Distance measurement
- Quality report
- Processing options
- Geoids and arbitrary coordinate reference system support



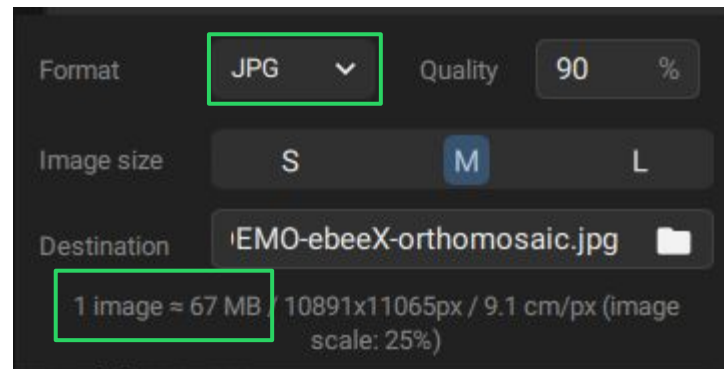
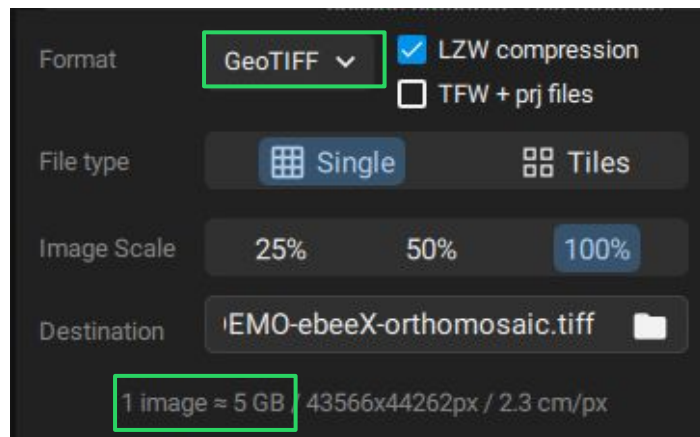
PIX4Dmatic

Highlight **6**

File size control at export

Select file size after processing,
check and export

DSM/orthomosaic export





Bridge the gap between photogrammetry
and CAD

Product page:

<https://www.pix4d.com/product/pix4dsurvey>





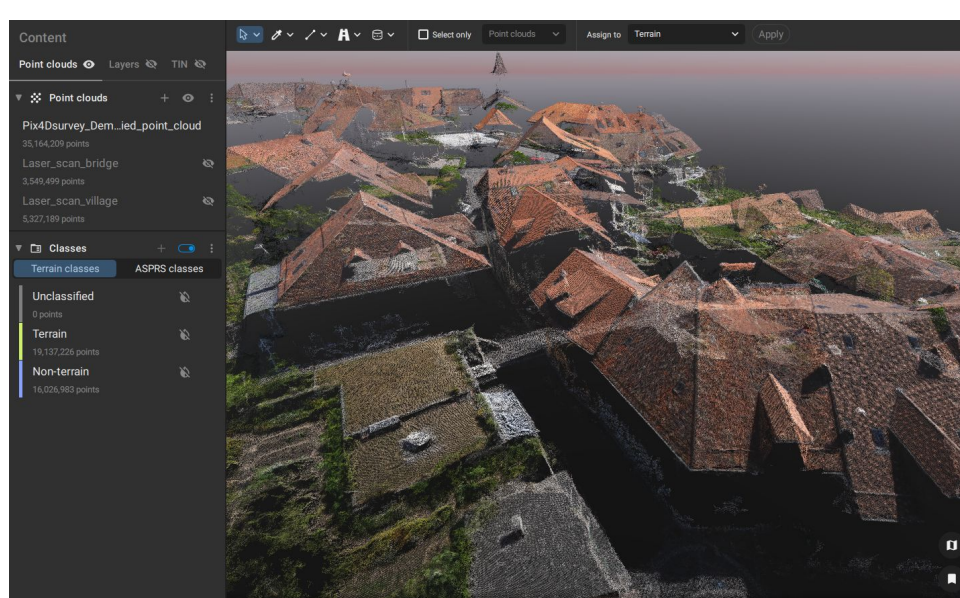
PIX4D**survey**

Highlight

1

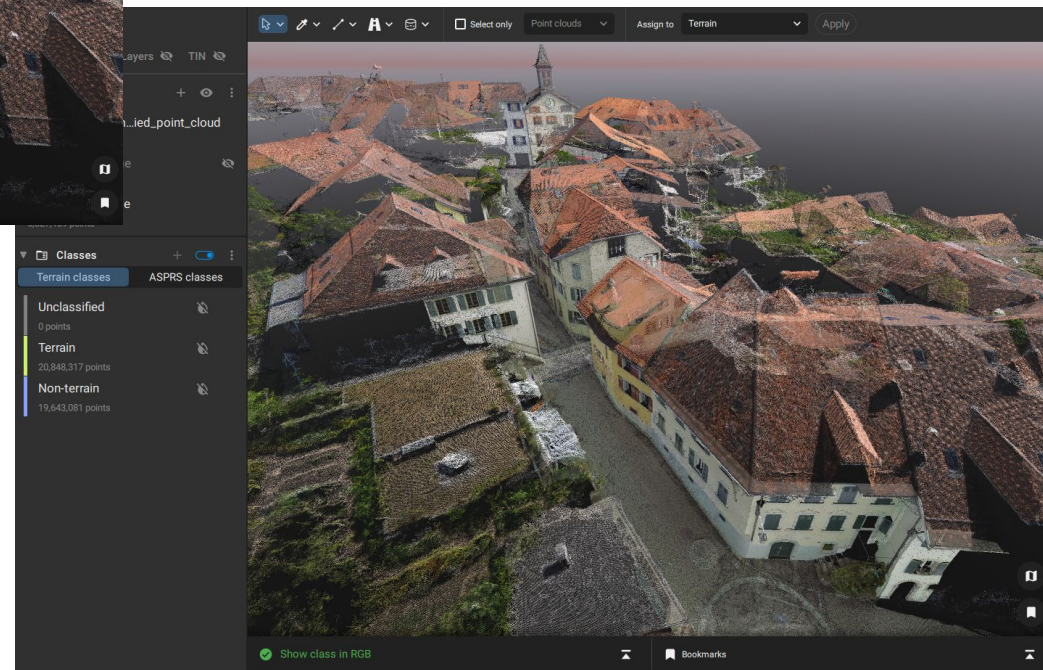
**Works with any LAS,
not just
photogrammetry**

Fast point cloud rendering

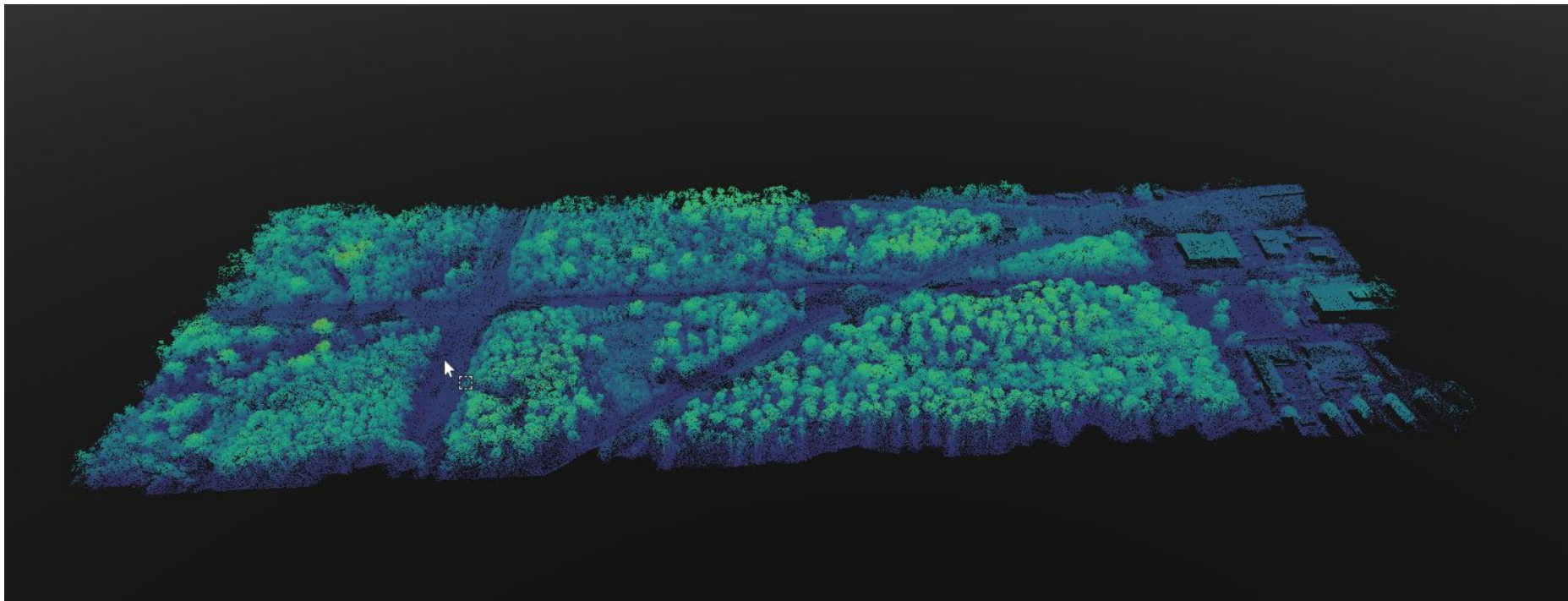


+ Terrestrial laser scanner

Aerial photogrammetry



+ Aerial LiDAR





PIX4D**survey**

Highlight **2**

Terrain workflow

Easily go from point cloud to grid
of points to TIN and contours.



PIX4D**survey**

Highlight **3**

(semi-) automatic information extraction

Point cloud classification, road marks, curbs, manholes, drains, stockpile detection, volume reports

(Semi-) automated extraction of information

PIX4Dsurvey

File Edit Process View Window Help

Webinar_DEMO_all_steps_processed*

Content

Point clouds Layers TIN

Vector layers

- Detected drains 1
62 objects
- Detected manholes 1
287 objects

Volume layers

Grid of points Processes

Drain 28

Layer

Detected drains 1

Measurements

Easting [m]	317941.430
Northing [m]	5167983.829
Ellipsoidal height [m]	657.225

Hide 1 vector layer

Bookmarks

WGS 84 / UTM zone 32N - EPSG:32632

Easting: 317941.238 m Northing: 5167983.626 m Ellipsoidal height: 657.237 m

Assign to Terrain Apply

1 col



PIX4Dsurvey

Volume Report

	Max elevation [m]	Cut volume [m³]	Fill volume [m³]	Net volume [m³]	Total volume [m³]
	496.055	62.643	-0.054	62.589	62.696
		62.643	-0.054	62.589	62.696

	Min elevation [m]	Max elevation [m]	Cut volume [m³]	Fill volume [m³]	Net volume [m³]	Total volume [m³]
	493.918	494.953	255.140	-0.980	254.159	256.120
	495.255	495.540	548.911	-0.338	548.573	549.289
	495.353	495.996	19.979	-0.137	19.842	20.116
	495.842		824.030	-1.455	822.574	825.485

Start your 15 days free trial today!
Request trial from contact form:



<https://www.pix4d.com/contact>

Bundle offer available

The ultimate photogrammetry bundle:



PIX4D**matic**



PIX4D**survey**



PIX4D**mapper**

<https://www.pix4d.com/pricing?tab=bundles>