Pix4Dmapper, a New Wave of Geographic Information From UAV Platforms

OhioGIS, September 22, 2015

Pix4D Proprietary
Pix4D

spin-off, 2011
Lausanne (HQ), San Francisco, Shanghai
+100 partners globally
Changing the mapping game

Survey efficiency with respect to survey area
Software converting images from off-the-shelf sensors into centimeter accurate 2D maps and 3D models AUTOMATICALLY
Thousands of active Pix4D customers using drones for professional 3D mapping

Over 1000+ projects daily
Enterprise
Land development needs frequent estimations
Farmers need to inspect
Farming 3D observation
Land development is being planned.
Environmentalists need to assess
Powerlines need to be maintained
Video: Construction Data Archiving
WorkFlow
Capture: Flight

- Consistency of overlap and flight lines
- Frontal overlap of 75%, side 65%

Support.pix4d.com
Positioning and Accuracy

GPS Consumer Grade

Ground Control Point

Differential GPS / RTK
0. Check image capture
Field Checking

Quality Report

Flight Path

Overlap

Number of overlapping images: 1 2 3 4 5+
Quick Look

Low Resolution 2D Map
Process

1. Features Matching
Processing: features matching
2. Densification
Processing: densification
Create Outputs
Create Outputs

- Orthomosaic
- Breaklines
- Volumetric Calculation
- Point Cloud
- Radiometric DVI
- Triangulated Mesh
- Manual reconstruction

- Digital Elevation Model
- Contour map
- Digital Terrain Model
- Virtual Camera
- Fly Through
Formats

AutoCAD
ArcGIS
GeoTIFF
MapBox
Point Cloud LAS
Farm Works Software
A DIVISION OF TRIMBLE
Google Earth
ArcGIS Integration
Customize
Precision Agriculture
From Drones to Tractors

- New Index calculator
- New workflow, co-developed with senseFly
  - Radiometric calibration UI
  - Regions management
  - Index calculation (NDVI)
  - Classes with semantics (Interpretation)
  - Shapefile map export

Fly + Process + Scout + Refine & Interpret
+ Output to Tractor
New Features

- Index formula editor - NDVI, DVI, ...
- Analysis per crop variety
- NIR, red edge, multispectral
- Radiometric calibration
- Application map
- Automatic segmentation
- Annotation of decisions
GIS Projects Examples
Riverbank Flood Analysis, Trees Clearing

PROJECT INFO

Company: Delair-Tech
Country: Toulouse, France
Industry: Emergency Response
Project date: November 2014
Project Manager: David Seguela
Client: French Department of Territory Management
Equipment: DT-18 UAV from Delair-Tech packaging with a DT 3-band RGB sensor
Project Dimension: 360 Hectares / 1992 images / GSD: 4.12 cm
Riverbed – Flood Analysis, Trees Clearing
Landfill Monitoring

PROJECT INFO

Organization Name: TerraPAC Imagery
Country: Hawaii, The United States
Industry: Mines and Quarries
Project date: 3 phases from January 2013 to January 2014
Project Manager: David Harrington
Equipment: A glider with Canon 5D Mark II onboard
GSD: 10 to 12 cm
Website: www.terrapacimagery.com
Landfill Monitoring
Landfill Monitoring

Ground Truth Points of 2013-01

- \( N = 7178 \)
- \( \mu = 22.55 \text{ cm} \)
- \( \sigma = 26.49 \text{ cm} \)
- \( \text{RMS} = 34.788 \text{ cm} \)

Ground Truth Points of 2013-05

- \( N = 37555 \)
- \( \mu = 15.41 \text{ cm} \)
- \( \sigma = 30.96 \text{ cm} \)
- \( \text{RMS} = 34.583 \text{ cm} \)

Ground Truth Points of 2014-01

- \( N = 56265 \)
- \( \mu = 24.17 \text{ cm} \)
- \( \sigma = 24.48 \text{ cm} \)
- \( \text{RMS} = 34.401 \text{ cm} \)
Landfill Monitoring
Making UAVs a solution
Serving professionals
An input for geospatial analysis
UAVs becoming easier to use

Conclusion
Map Now

Discover automated modeling with Discovery (FREE!)
Use our sample UAV images to process on your own
Learn how to improve your flight by processing
Our Knowledge Base is free and accessible
Topic-specific tutorials
Start today with Pix4Dmapper Discovery

www.pix4d.com

Thank you

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