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塑造智慧变革

北京
国家会议中心
2018年
9月10-12日
2018.hexagonchina.com.cn

Airborne Solutions: Enabling Digitization

John Welter, Division President

Geospatial Content Solutions

Beijing, September 2018

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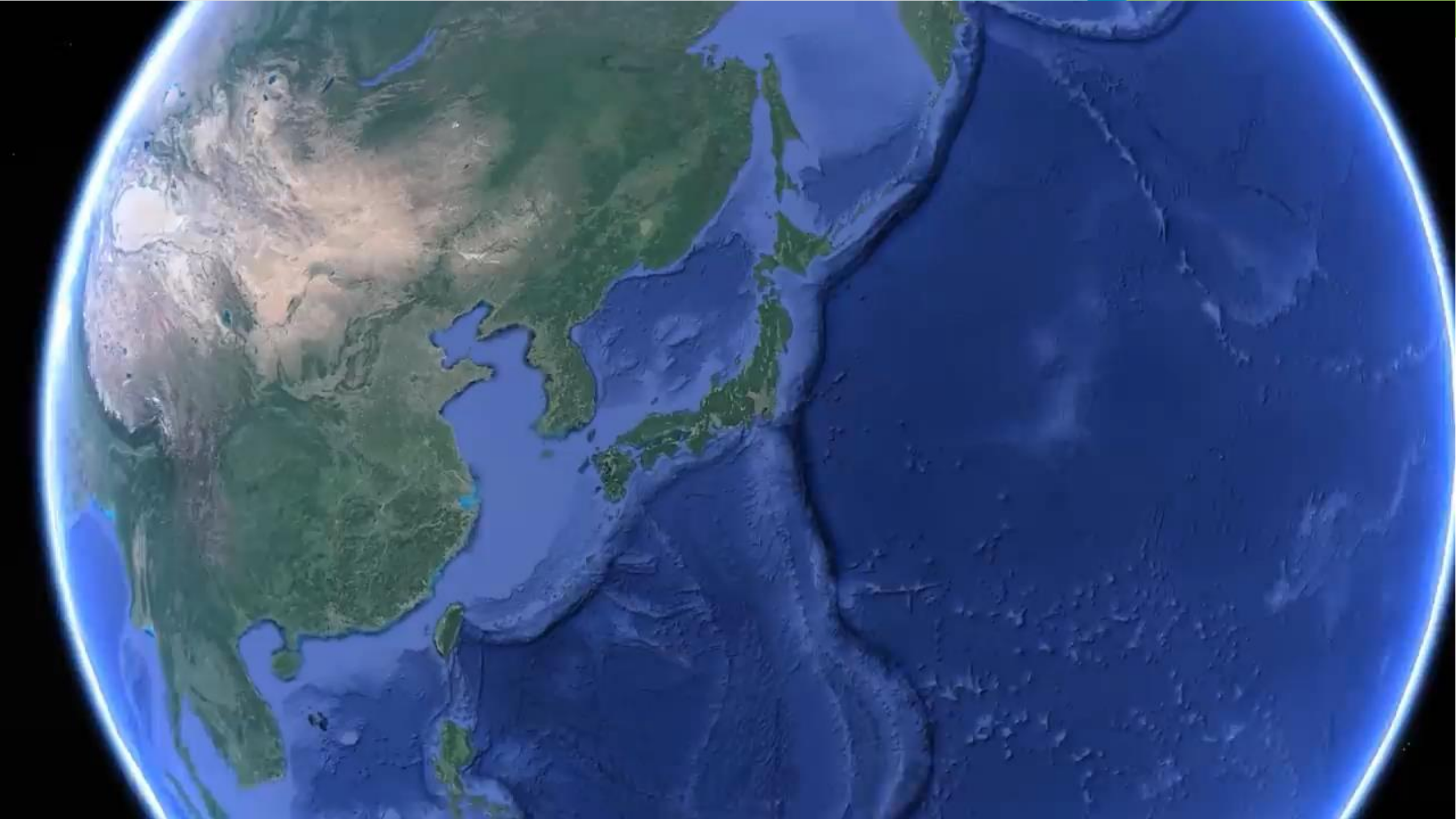

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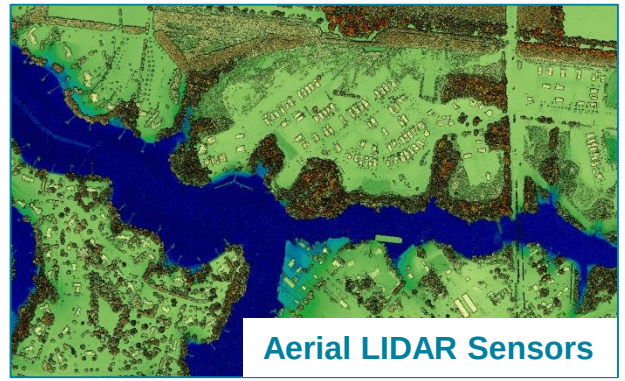
Airborne Sensors – Complete Family of Solutions supported Globally

Aerial Imagery Sensors

Aerial Hybrid Sensors



Aerial LIDAR Sensors

RealWorld

RealCity

RealTerrain

* Hexagon Geosystems has an extensive partner network throughout the World that own and/or operate our sensor platforms.

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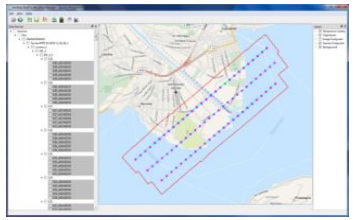
Leica Geosystems RealCity Solution

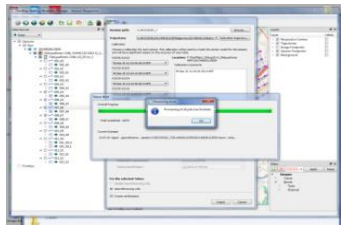
RealCity

DATA COLLECTION --- DATA PROCESSING --- DATA VISUALISATION

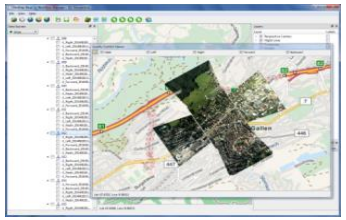
CityMapper



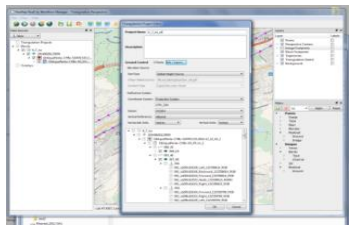
Session View



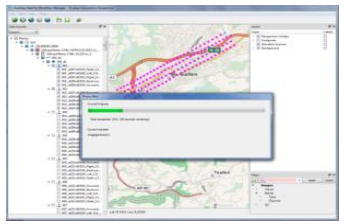
Georeferencing



Quality Control



APM & AT



Ortho Rectification

3D Demo Perspective

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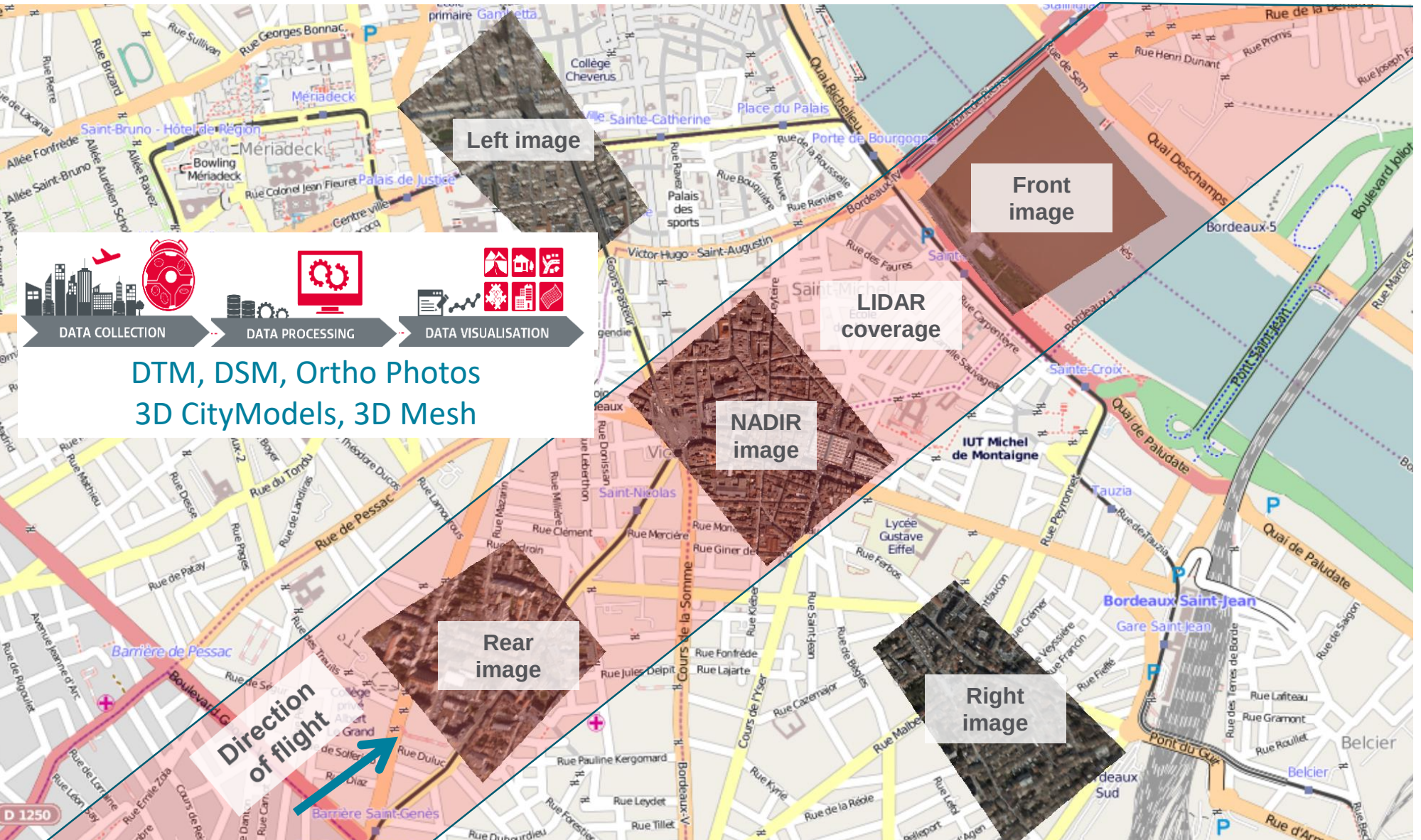
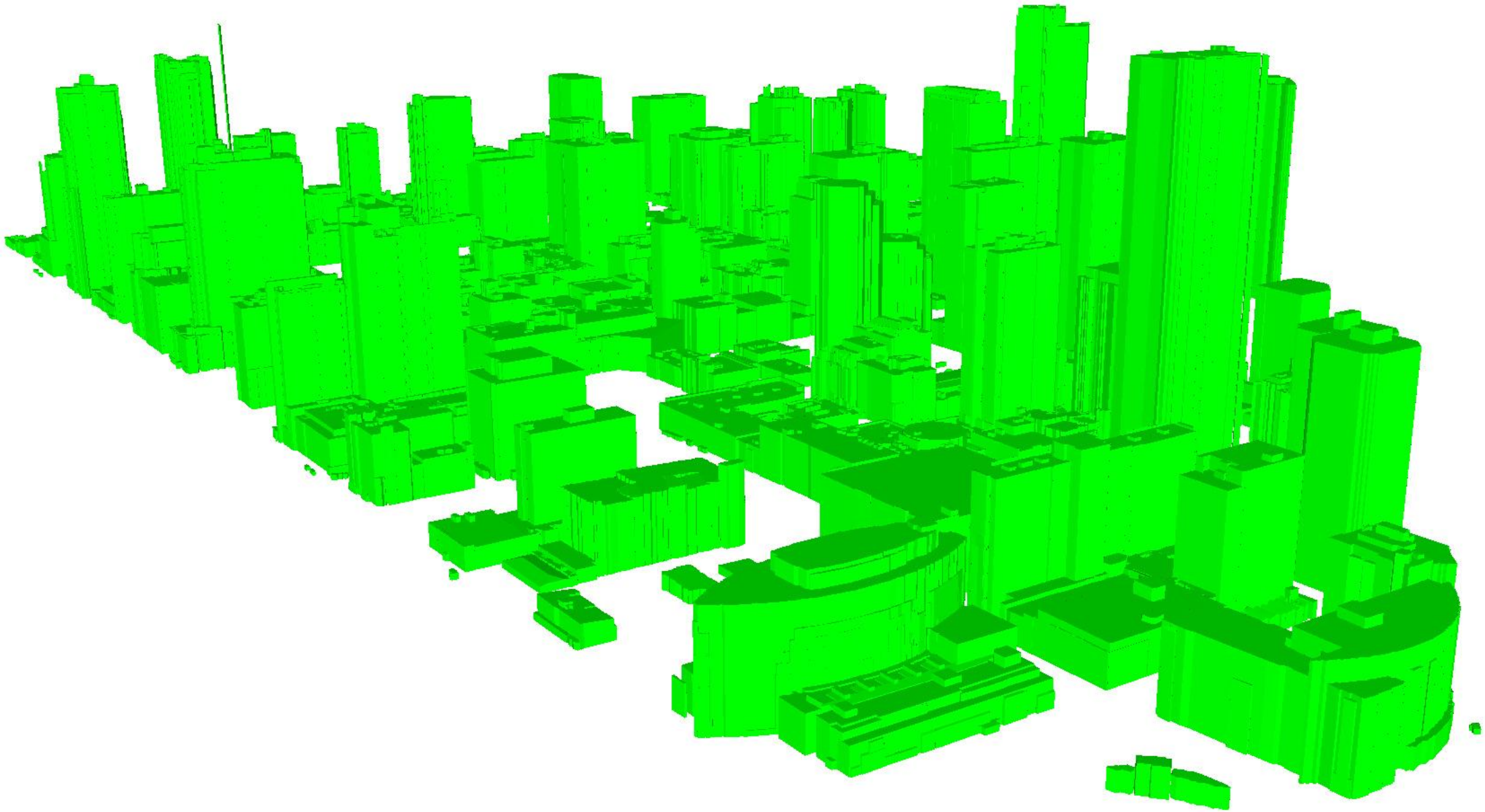
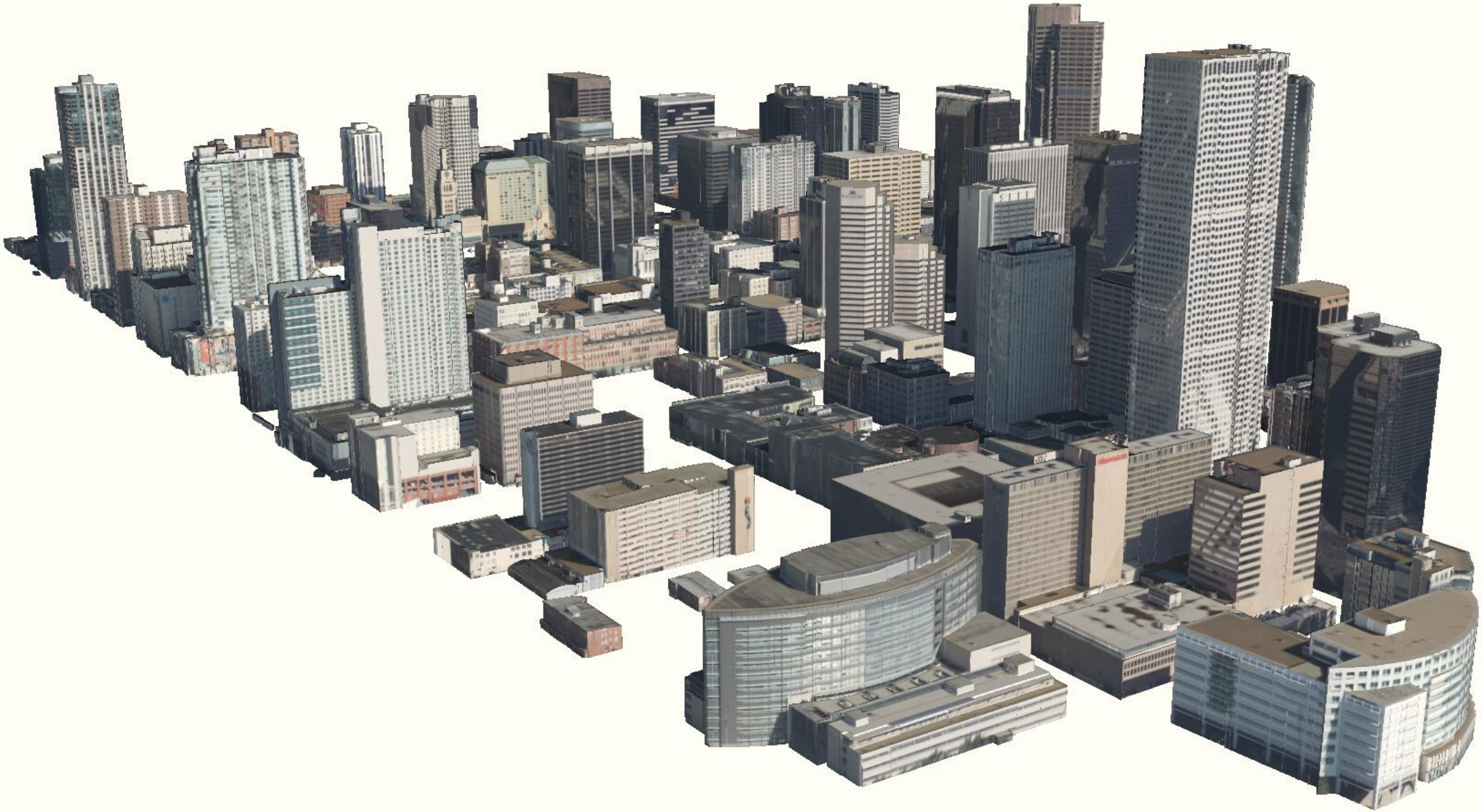
Innovation and opening new opportunities: Hybrid Sensors

RealCity

CityMapper







Industry Solutions: Land use and tax assessment mapping

Orthophoto

Classified buildings

Classified buldings and vegetation

Classified surface types

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City of Jingzhou, CityMapper flying

Flight Platform: Airbus H125 (Helicopter)

Flight Height：380m AGL

GSD：2cm

Point Density：79 points/m^2

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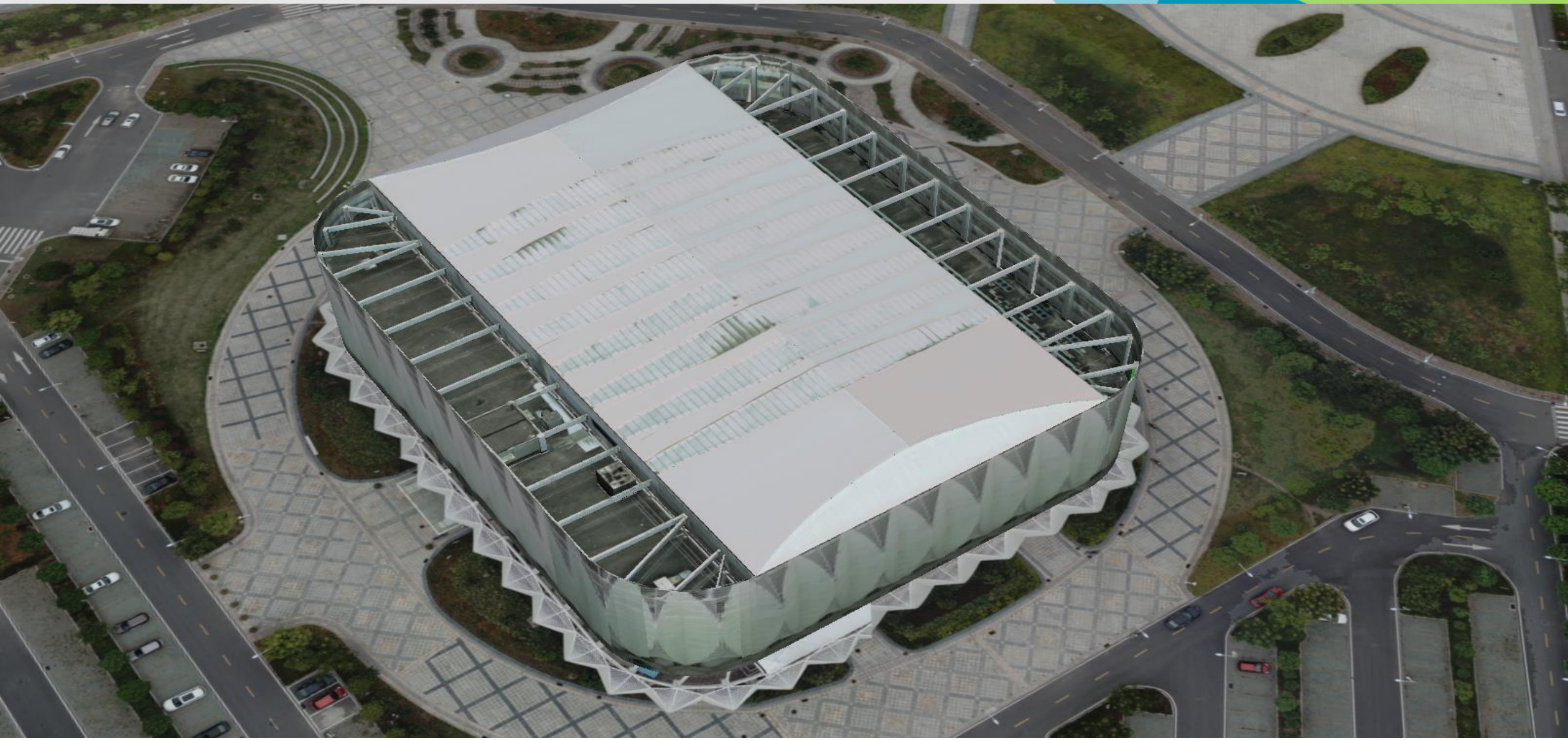

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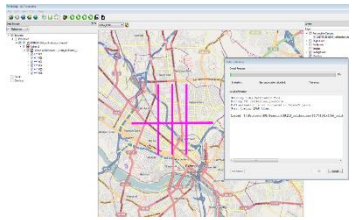
Leica Geosystems RealTerrain Solution

RealTerrain

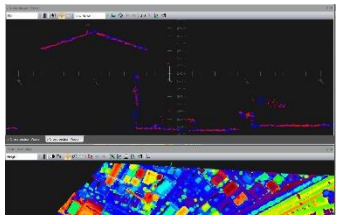
TerrainMapper

SPL100

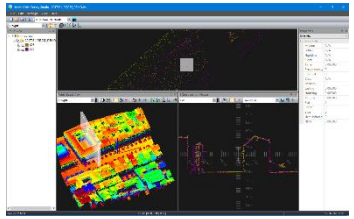
LiDAR QC Report



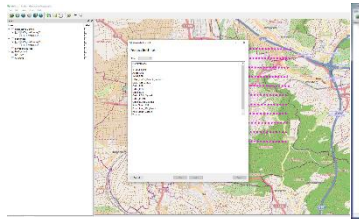
Automatic LiDAR Calibration



Flightline Matching



LiDAR Survey Studio



Product Generation

3D Demo Perspective

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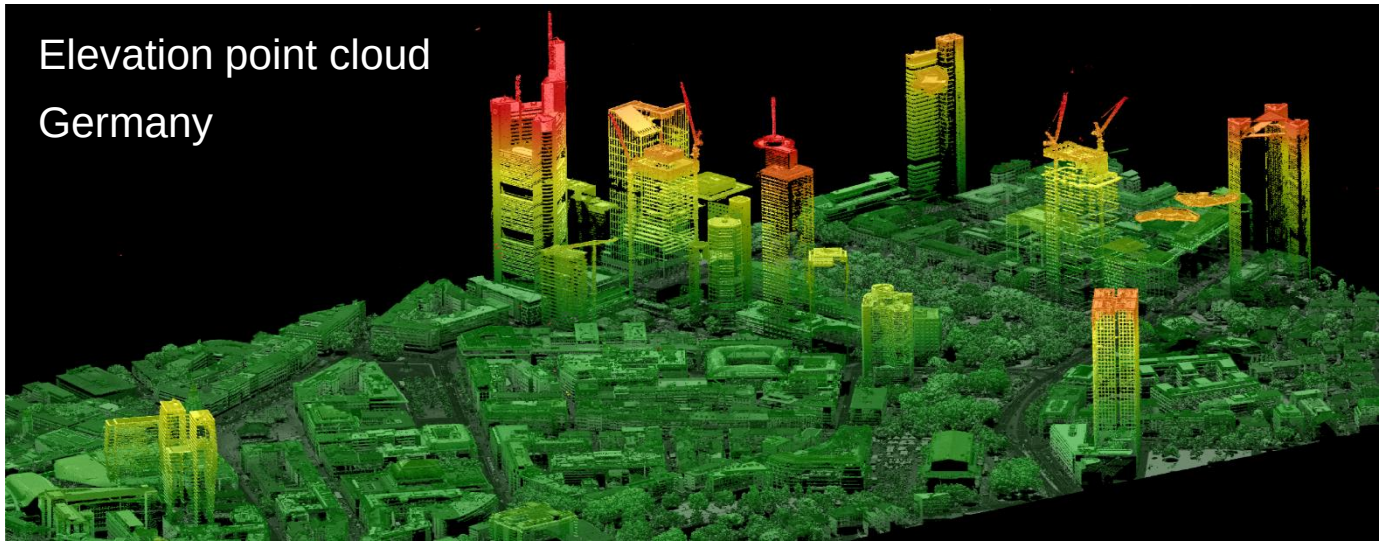
TerrainMapper – Next generation linear-mode LiDAR sensor

Based on our existing **Leica CityMapper**

- Integrated **LiDAR and NADIR-Imaging** Sensor
- **Single Sensor Pod** fully integrated with existing accessories
- 2 million measurements per second
- Capture power lines at **100 points/m²**
- **Successor** to the ALS series of LiDAR systems
  - >250 sold over series life 2002 to 2018

Product Release: **Q3/2018**



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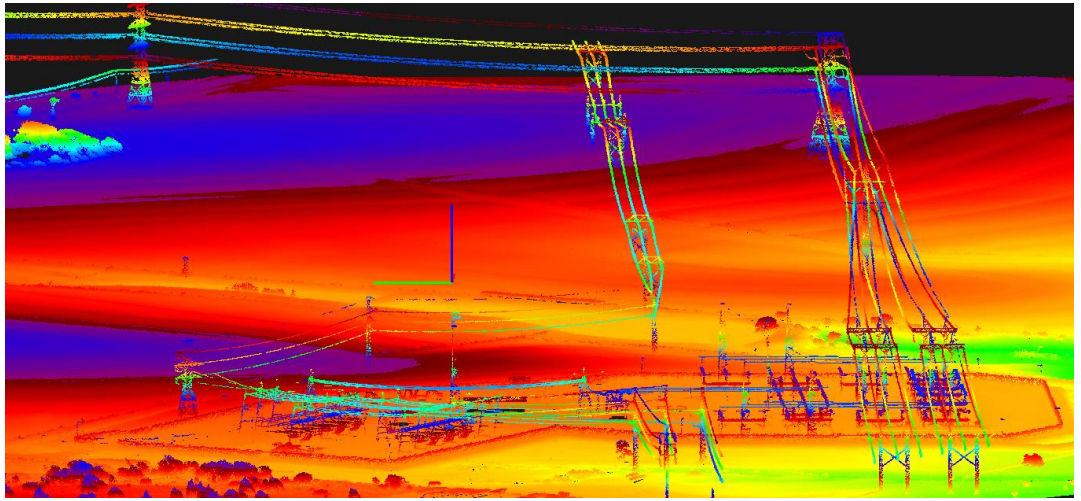
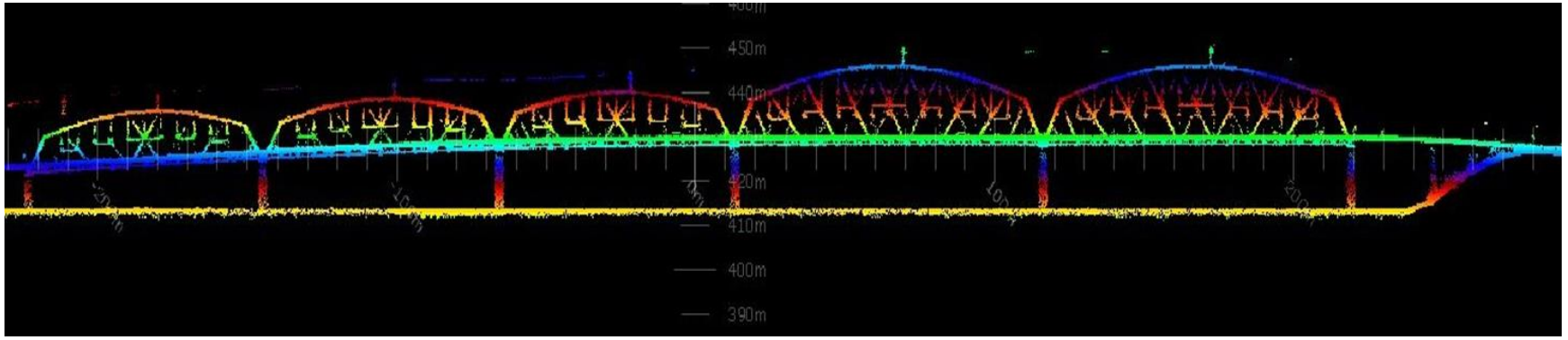
SPL100 sensor

First commercially available single photon LiDAR system

- 6 Million shots per second (60 kHz laser * 100 beams)
- Multiple returns per shot
- >12 points/m^2 at 800 km^2/hr (16,000 feet @ 220 knots)
- Day or night operation



Product Release: **Q1/2018**



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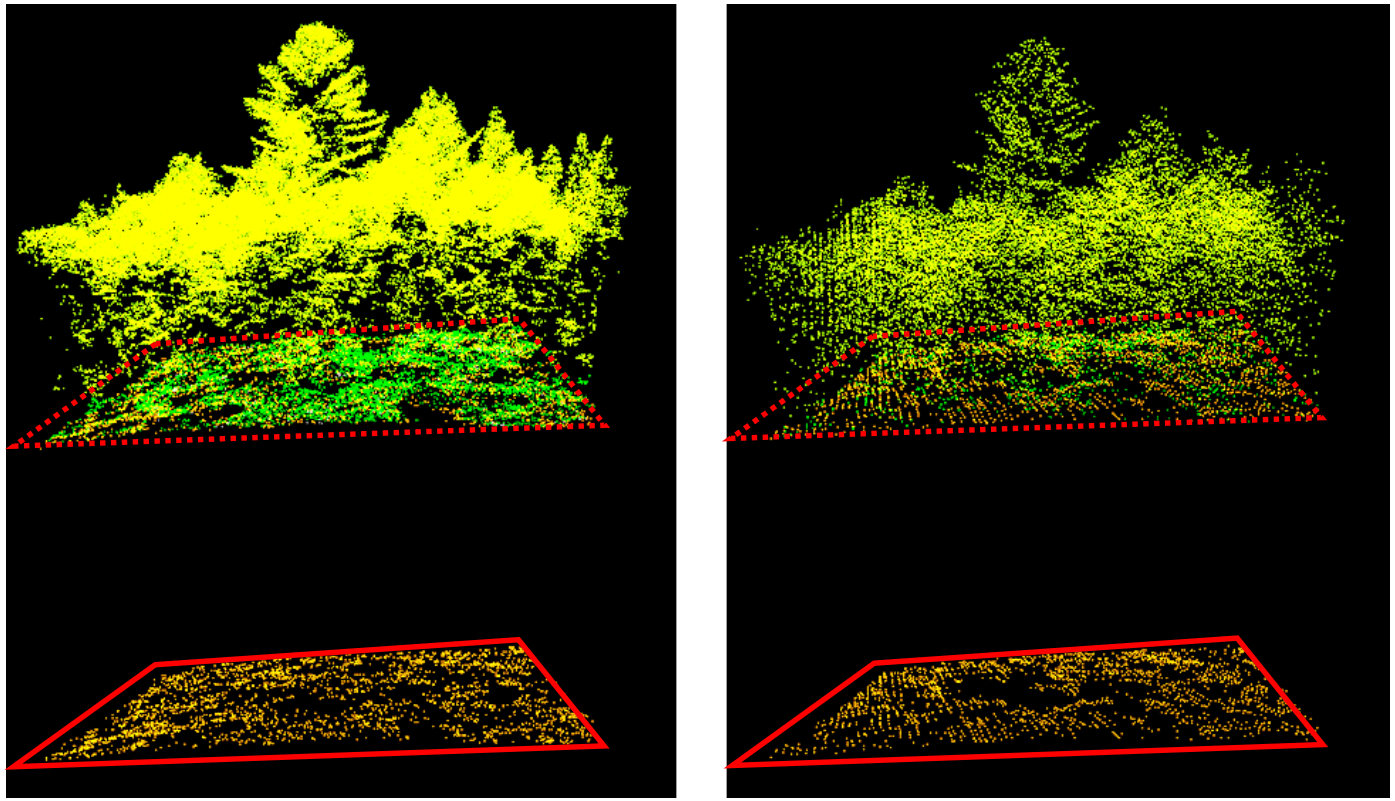
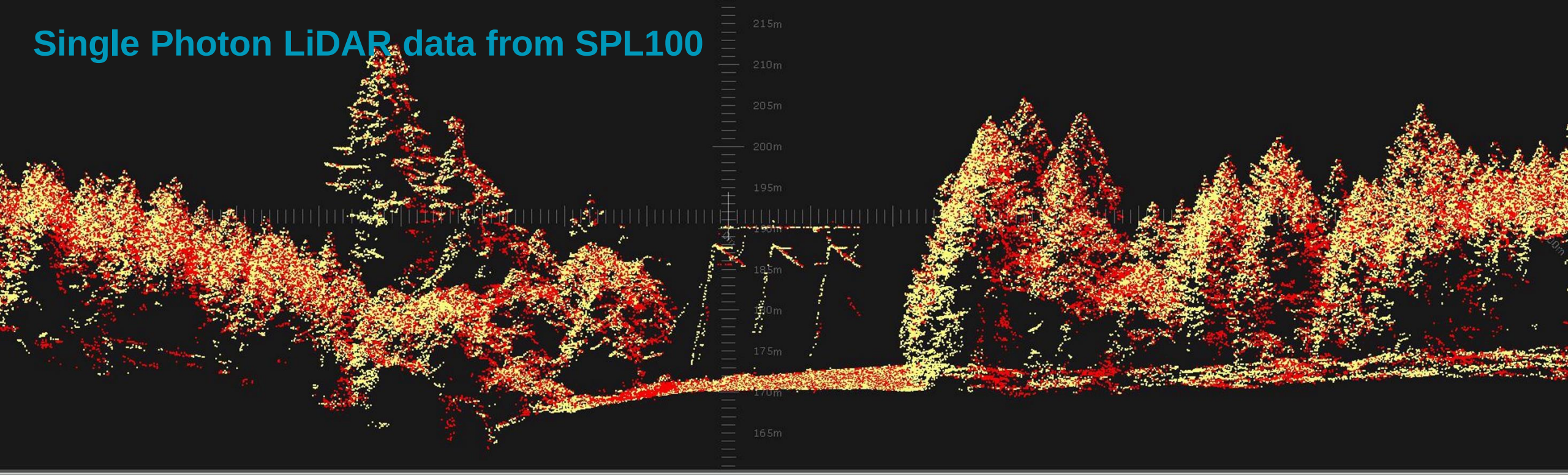
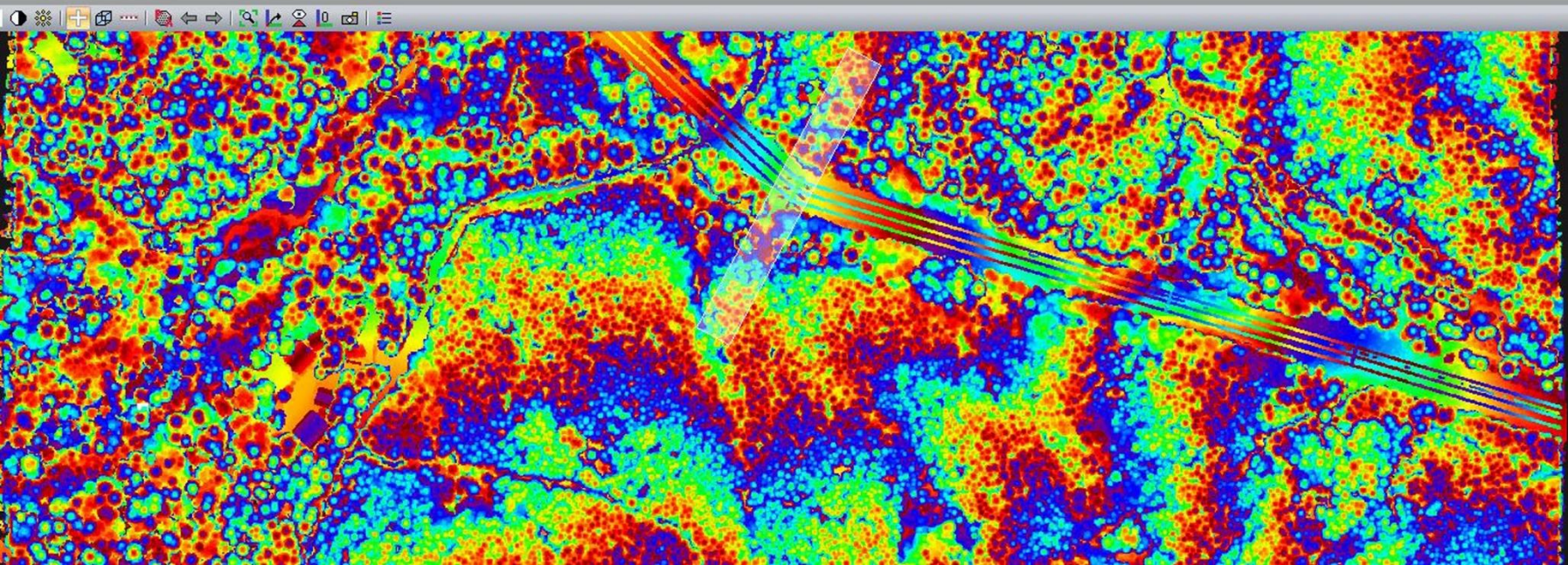
SPL100 ground return rates similar to linear-mode LiDAR

- Petawawa research forest, Ontario, Canada
- Mixed species (~60% pine, 40% hardwood)
- SPL100 in 2018
  - Flying height AGL: 12,000’
  - Pulse rate: 50kHz
  - Scan rate: 20Hz
  - FOV: (30 deg FOV)
  - Speed: ~180 knots
  - Point Density $25/m^2$
  - Ground hits this area: **2983 points**
- ALS in 2012
  - Point density: $15/m^2$
  - Ground hits this area: **1858 points**
- SPL gives 1.66x the point density on the tree crowns
- SPL gives 1.60x the point density on the forest floor



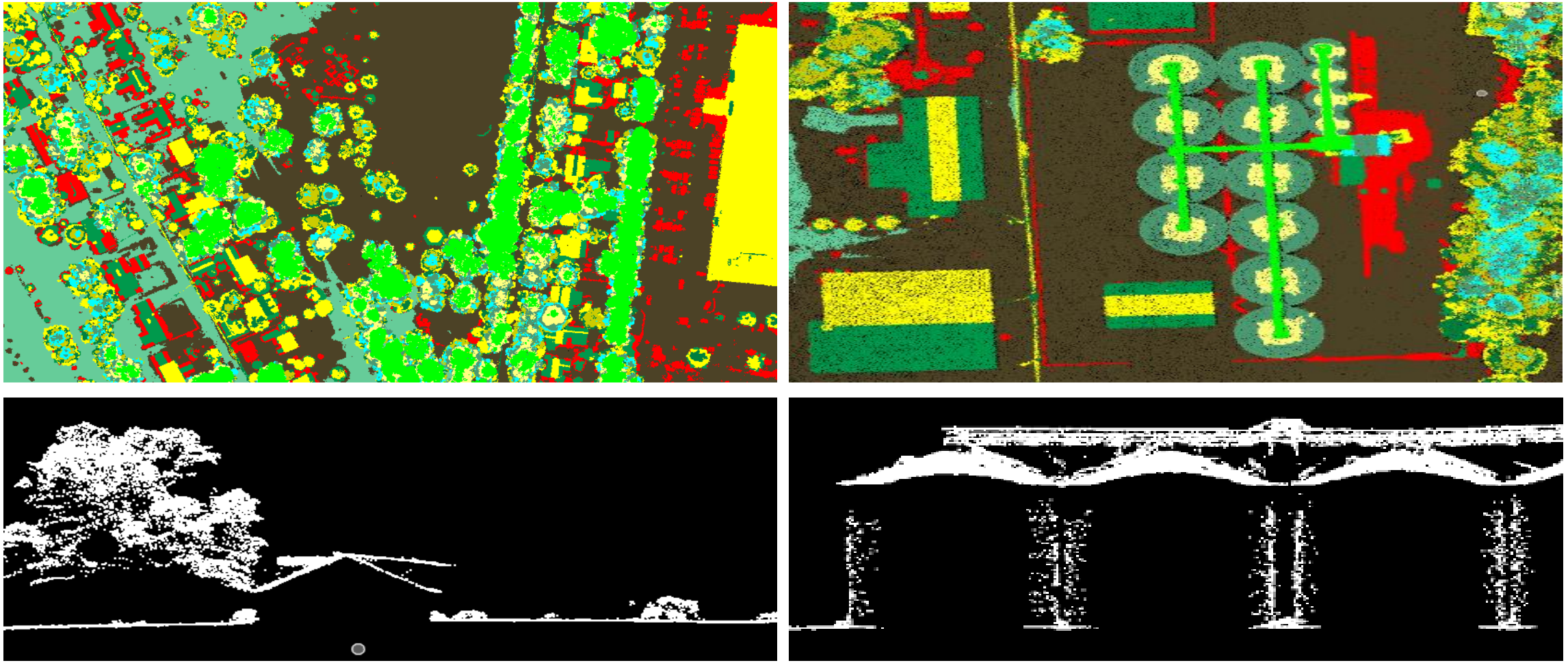
Single Photon LiDAR data from SPL100





Example 1: 25 point/m² from 12,000 ft flying height for forestry customer

Single Photon LiDAR data from SPL100



Example 2: 60 points/m^2 from 2000m flying height. Colorized DSM can be used for 3D mapping

Leica Geosystems RealWorld Solution

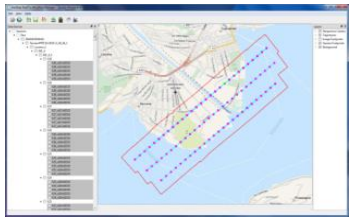
RealWorld

DATA COLLECTION ----- DATA PROCESSING ----- DATA VISUALISATION

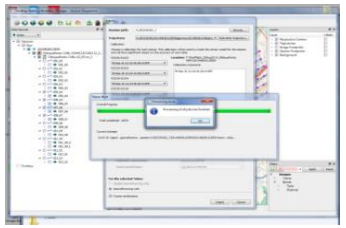
ADS100

DMC III

CountryMapper (2019)

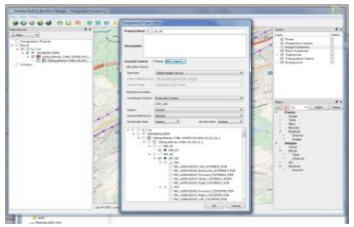


Session View

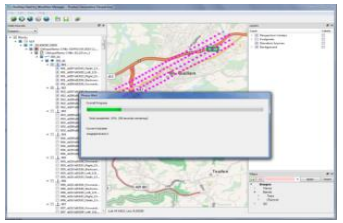


Georeferencing

Quality Control



APM & AT



Ortho Rectification

3D Demo Perspective

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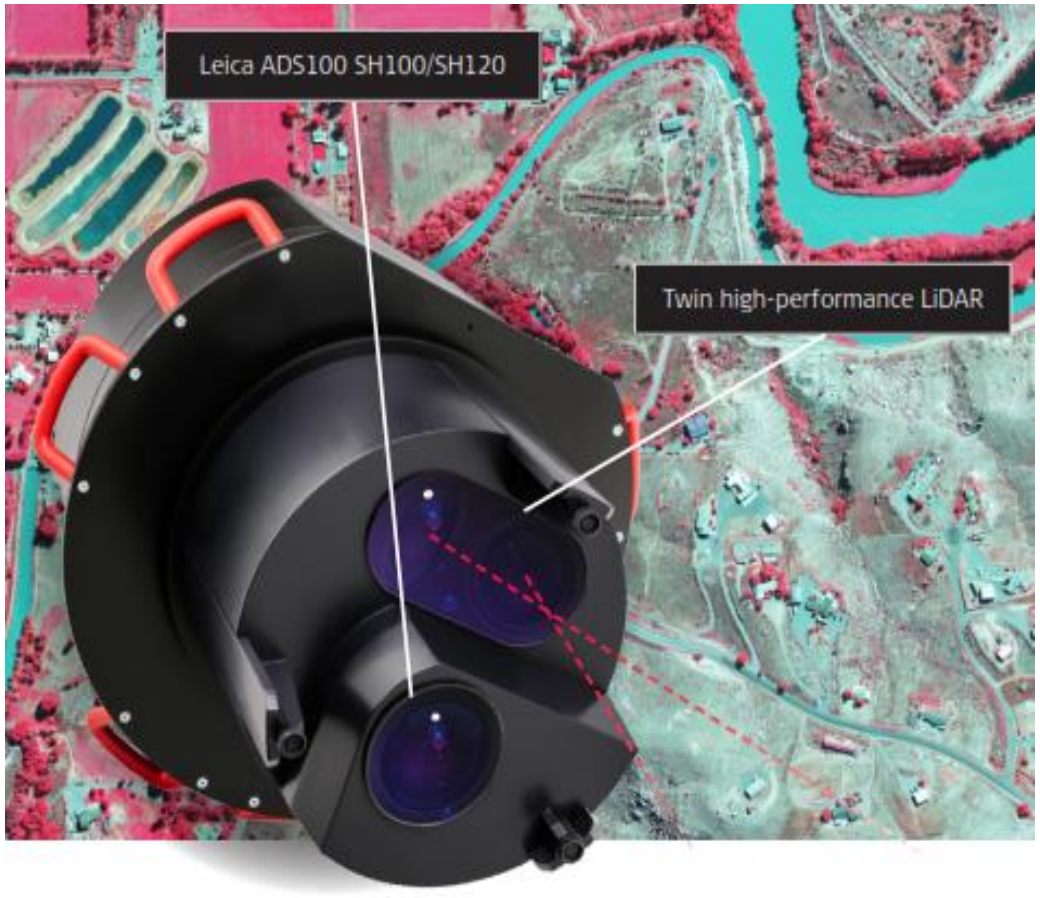
Leica CountryMapper



It’s time for doing more when you fly!

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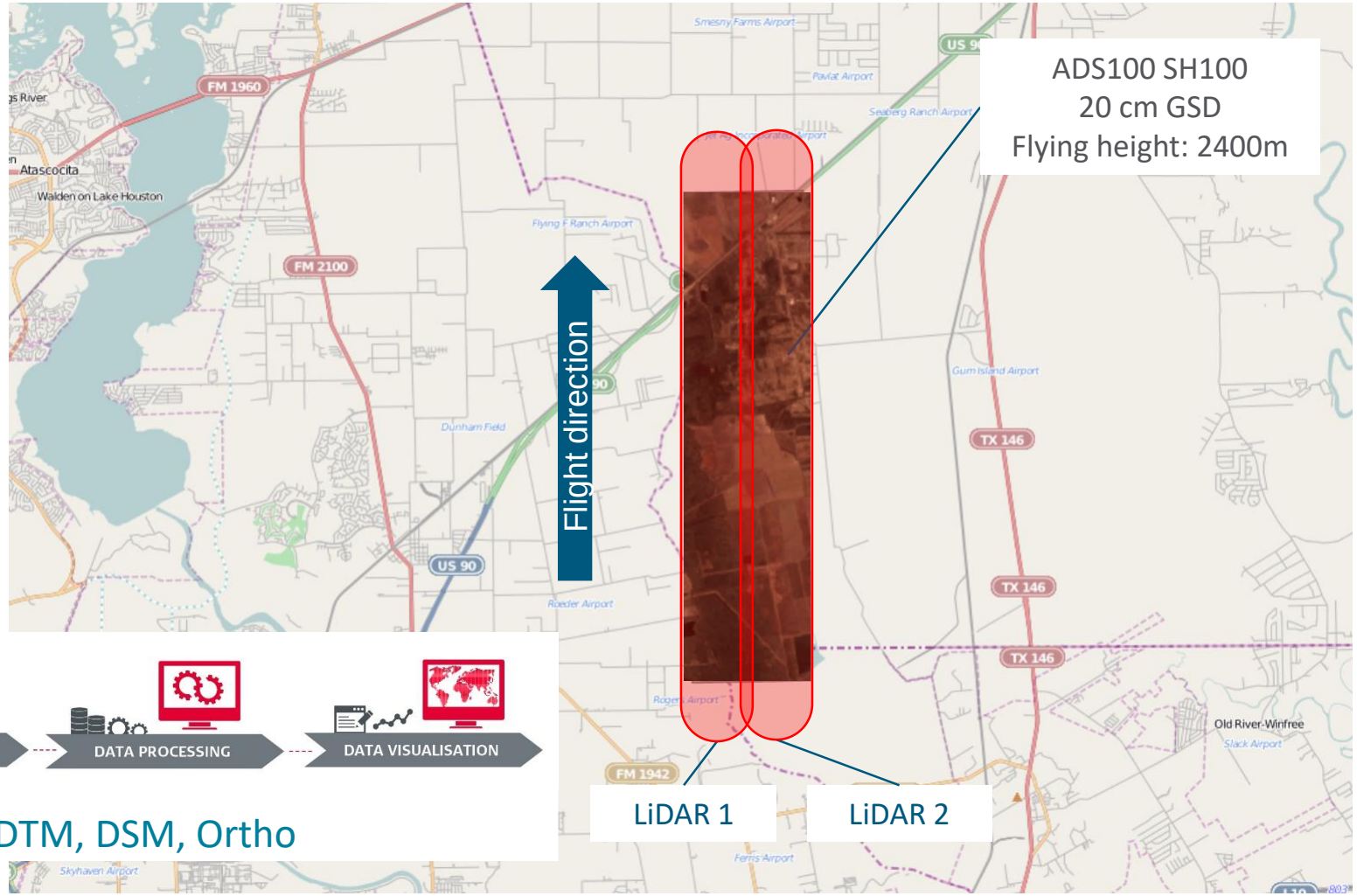
Innovation & New Opportunities – Hybrid Sensors

RealWorld



DTM, DSM, Ortho

CountryMapper

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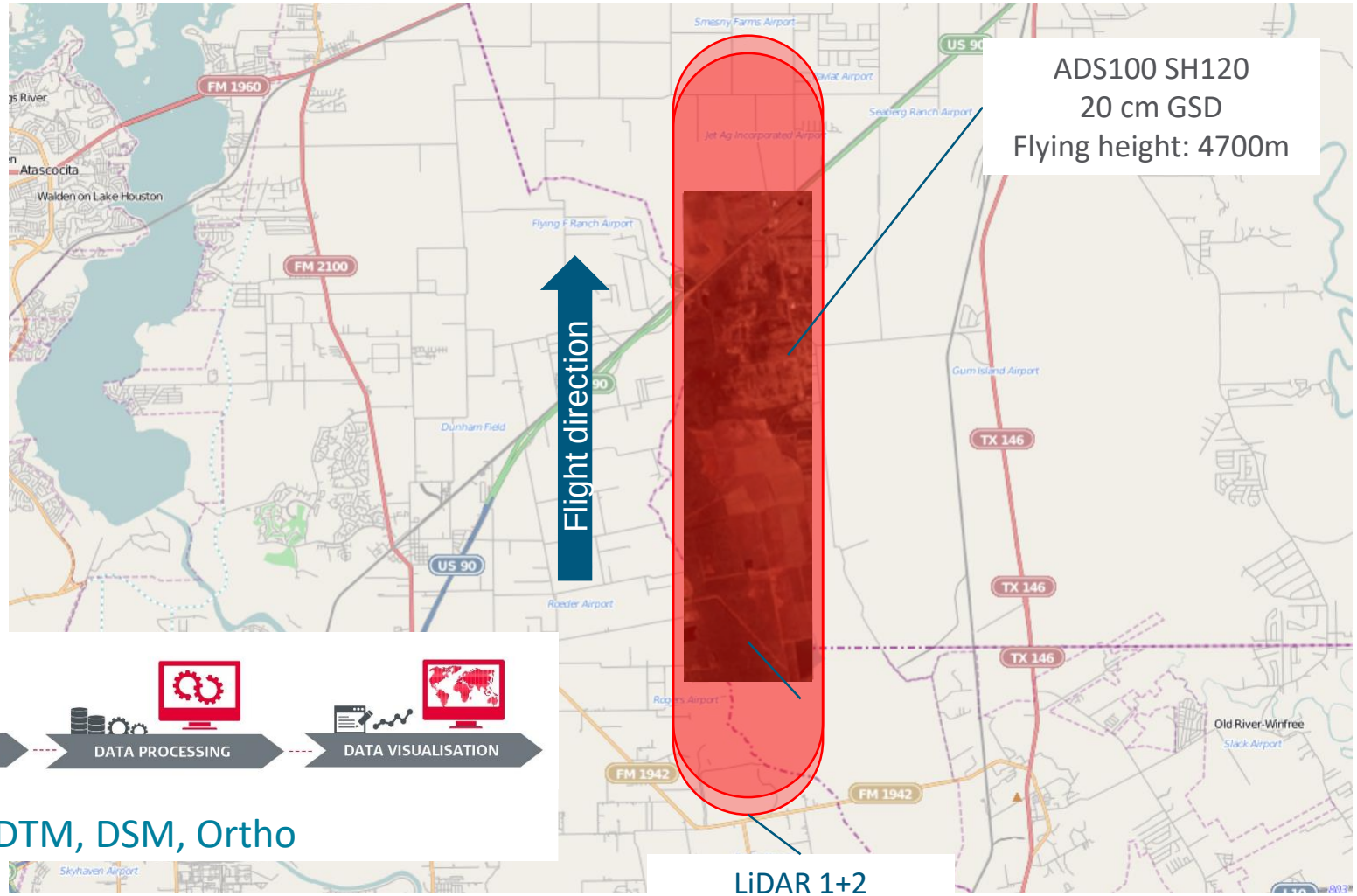
Innovation & New Opportunities – Hybrid Sensors

RealWorld



DTM, DSM, Ortho

CountryMapper

Twin high-performance LiDAR

Leica ADS100 SH120

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Leica DMC III Camera System

- **Technical Features**
  - 25728 x 14592 pixel
  - 391 MP CMOS sensor
  - Mechanical FMC
- **Customer Benefits**
  - High productivity
  - High resolution at high flying height
  - CMOS sensor with very high dynamic range

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Leica ADS100 – Airborne Digital Sensor

- **Technical Features**
  - 20000 nadir pixel swath in RGBN
    - 24000 with High Resolution HR mode
  - 5um pixel size, with TDI
  - 65mm and 120mm focal length
  - RGBN Pentachroid in forward, backward and nadir view

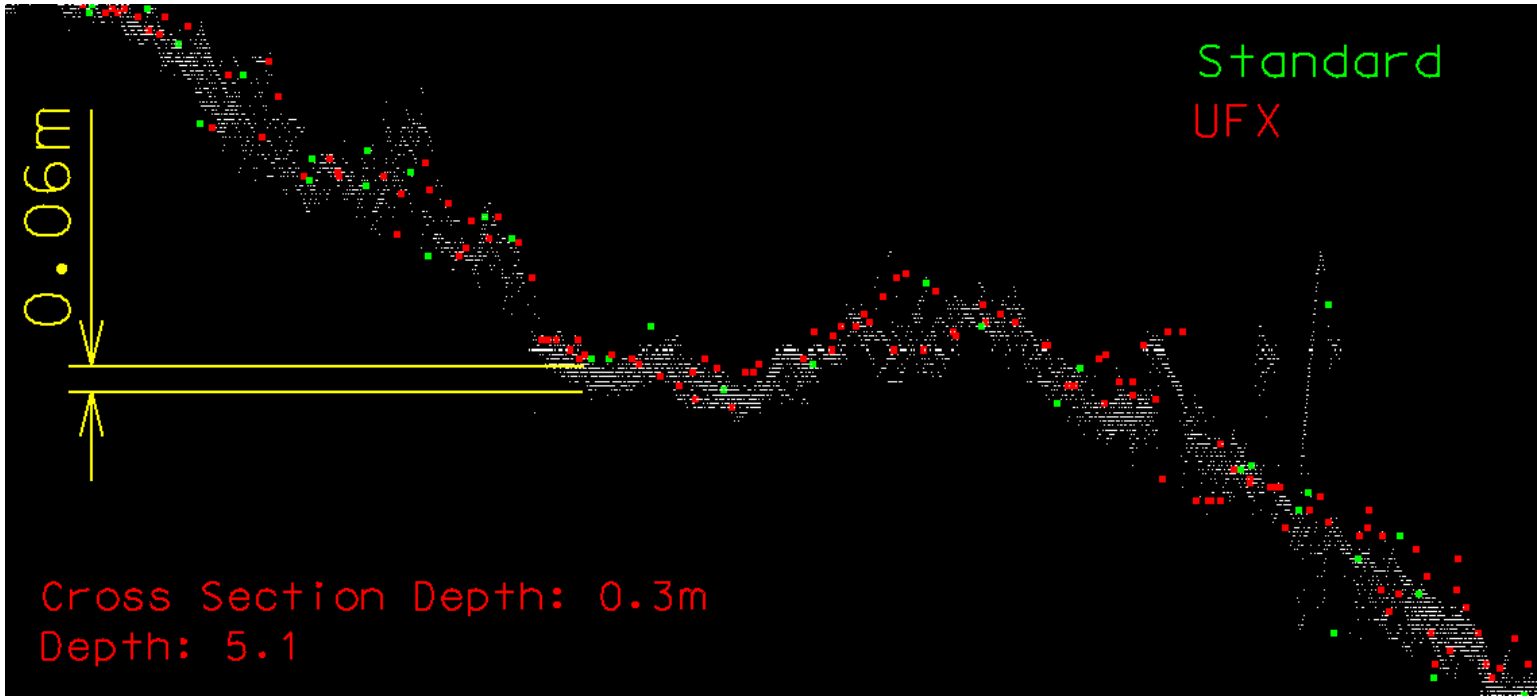
- **Customer Benefits**
  - The highest productivity for Orthophotos
  - High resolution at high flying height
  - Small occlusions on high buildings for urban mapping
  - Near “True ortho” without the complexity

UfourX – Capability upgrade of bathymetric portfolio

Based on new patent pending technology

- Increases point density by a **factor 4**
- Reduces flight costs **50%** for key end user requirements
- Customer **beta-test ongoing**

Planned Product Release: **Q4/2018**



HawkEye point density, with and without UfourX

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Related sessions

2018/9/12		
Time	Duration (Min.)	Room 301B
11:00 - 11:30	30	6309 Creating the Future: the prospect of Leica single-photon LiDAR technology abroad Ron Roth, PM Airborne Topographic LiDAR
11:30 - 12:00	30	6310 New Leica UAV portfolio with integrated Infinity workflow Valentin Fuchs, Product Manager

谢 谢