VEXCEL IMAGING

UltraCam Osprey, the oblique sensor technology by Vexcel Imaging

Michael Gruber
Vexcel Imaging GmbH
Anzengrubergasse 8/4, 8010 Graz / Austria
michael.gruber@vexcel-imaging.com

EuroSDR
EUROSDR/ISPRS WORKSHOP OBLIQUE 2017
9 - 10 October 2017 (Barcelona, Spain)
isprs
information from imagery

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New Ownership Information:

Vexcel Holdings GmbH, Graz, acquired Microsoft's UltraCam Business Unit in March 2016

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Exploring the world from every angle

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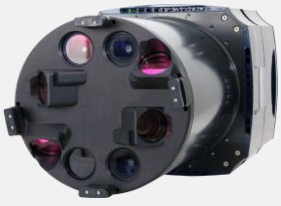
UltraCam Osprey Mark 3

Photogrammetry meets oblique

The UltraCam Osprey Mark 3 Premium combines two cameras in one photogrammetric housing



- Mapping grade nadir (pan, 116 Mpix)
- 80 Mpix oblique (4 directions)
- 80mm / 120 mm lens system
- Four exchangeable lens systems

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SENSOR SYSTEM

Nadir

PAN image size	13,470 x 8,670 pixels
PAN physical pixel size	5.2 µm
Color capability (multi-spectral)	4 channels - RGB Bayer pattern & NIR
Color image size	6,735 x 4,335 pixels
Color physical pixel size	5.2 µm
Pansharpen ratio	1 : 2

Imaging sensor	CCD
Shutter (longlife central leaf)	1/750 to 1/64
Forward-motion compensation (FMC)	TDI controlled
Maximum FMC capacity	50 pixels
Frame rate (minimum inter-image interval)	1 frame per 1.75 seconds
Dynamic range	> 72 db
Analog-to-digital-conversion at	14 bits

Oblique

Color capability	3 channels - RGB Bayer pattern
Color image size	10,300 x 7,700 pixels
Color physical pixel size	5.2 µm

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LENS SYSTEM

Nadir

PAN lens system focal distance	80 mm
PAN lens aperture	f=1/5.6
Color (RGB Bayer pattern & NIR) lens system focal distance	40 mm
Color (RGB Bayer pattern & NIR) lens aperture	f=1/5.6
Total field of view, across track along track	47,3° 31,5°
Flying height for RGB pixel size @ 10 cm GSD	1,538 m

Oblique

Color (RGB Bayer pattern) lens system focal distance	120 mm
Color (RGB Bayer pattern) lens aperture	f=1/4.4
Total field of view, across track along track	45° (+9,5° / -15,7°) 45° (+9,5° / -9.5°)

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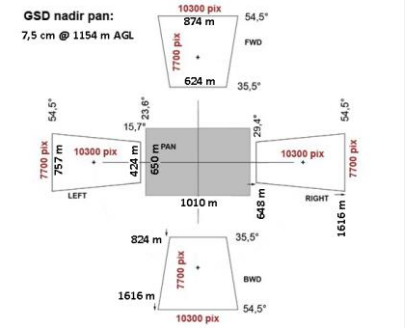
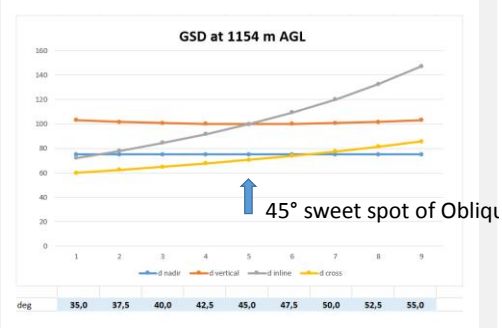
UltraCam Osprey Mark 3 premium





Footprint

GSD

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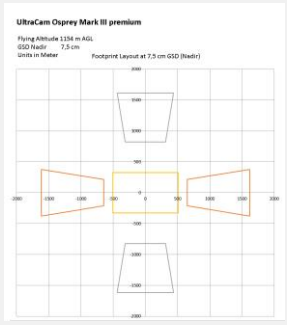

Recommended flight Pattern (60% Sidelap, 80% Endlap)

Footprint dimensions	cross track	long track		
pan +/- (m) from Nadir	505,19	325,17	**Sidelap [%]**	**60**
pan full footprint size (m)	1010,38	650,34	**Endlap [%]**	**80**
rgb +/- (m) from Nadir	505,19	325,17	**Speed [m/s]**	**74,32**
			Speed [kn]	**144,47**
left/right near	648,64	212,66	**Height [ft]**	**3786,09**
left/right far	1616,15	378,34		
forwd/backwd near	312,13	824,00	**Strip-Dist. [m]**	**404,15**
forwd/backwd far	437,14	1616,15	**BaseLength [m]**	**130,07**

Minimum flight Pattern (40% Sidelap, 60% Endlap)

Footprint dimensions	cross track	long track		
pan +/- (m) from Nadir	505,19	325,17	**Sidelap [%]**	**40**
pan full footprint size (m)	1010,38	650,34	**Endlap [%]**	**60**
rgb +/- (m) from Nadir	505,19	325,17	**Speed [m/s]**	**148,65**
			Speed [kn]	**288,95**
left/right near	648,64	212,66	**Height [ft]**	**3786,09**
left/right far	1616,15	378,34		
forwd/backwd near	312,13	824,00	**Strip-Dist. [m]**	**606,23**
forwd/backwd far	437,14	1616,15	**BaseLength [m]**	**260,13**

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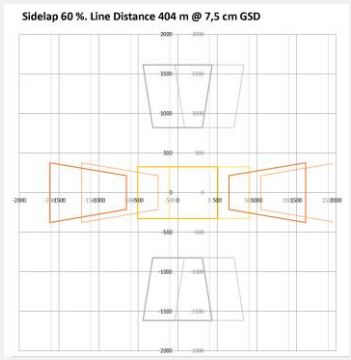

Overlap area of footprints at 60% Sidelap and 40% Sidelap

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Overlap area of footprints at 80% Endlap and 60% Endlap

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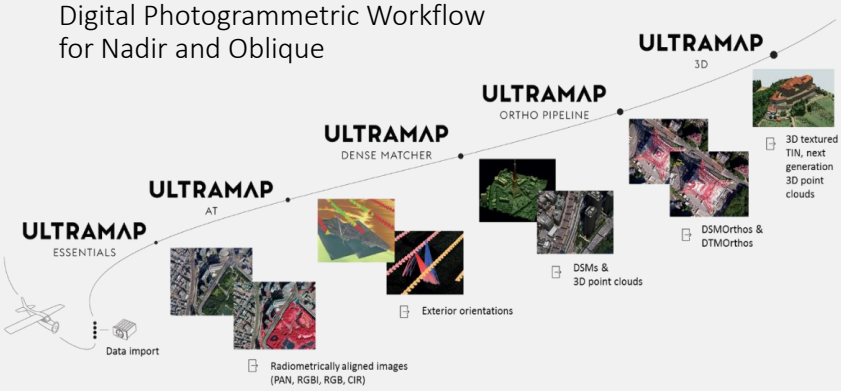
UltraMap V4

Digital Photogrammetric Workflow for Nadir and Oblique



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UltraMap V4

Digital Photogrammetric Workflow
for Aerial and Terrestrial Application

- New intuitive GUI
- Oblique image processing and color balancing
- On the fly color adjustment
- 3D viewer
- UltraMap Terrestrial for UltraCam Mustang and Panther

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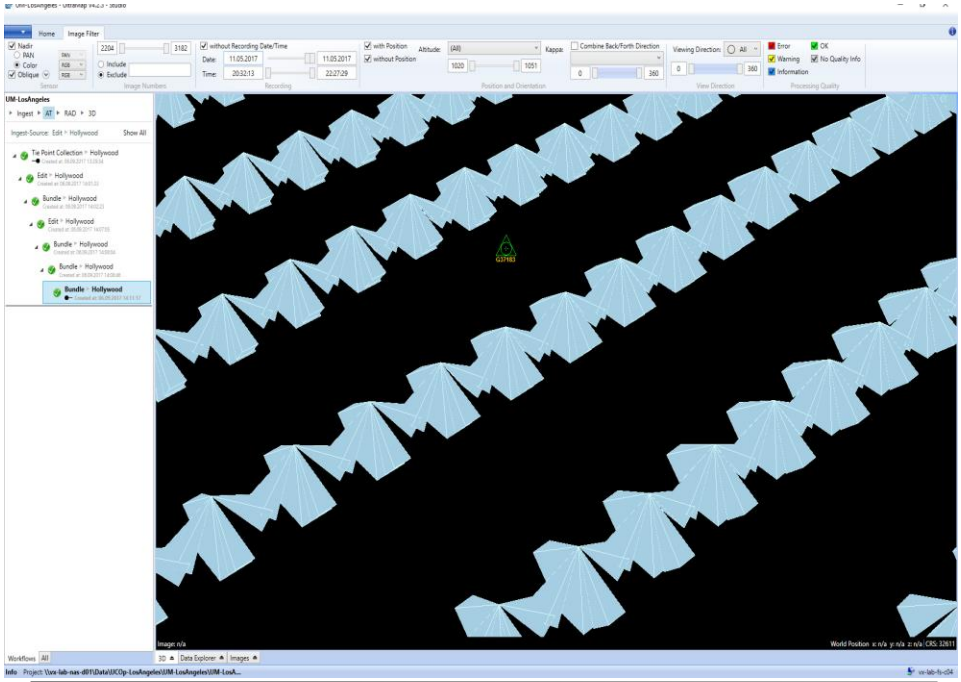
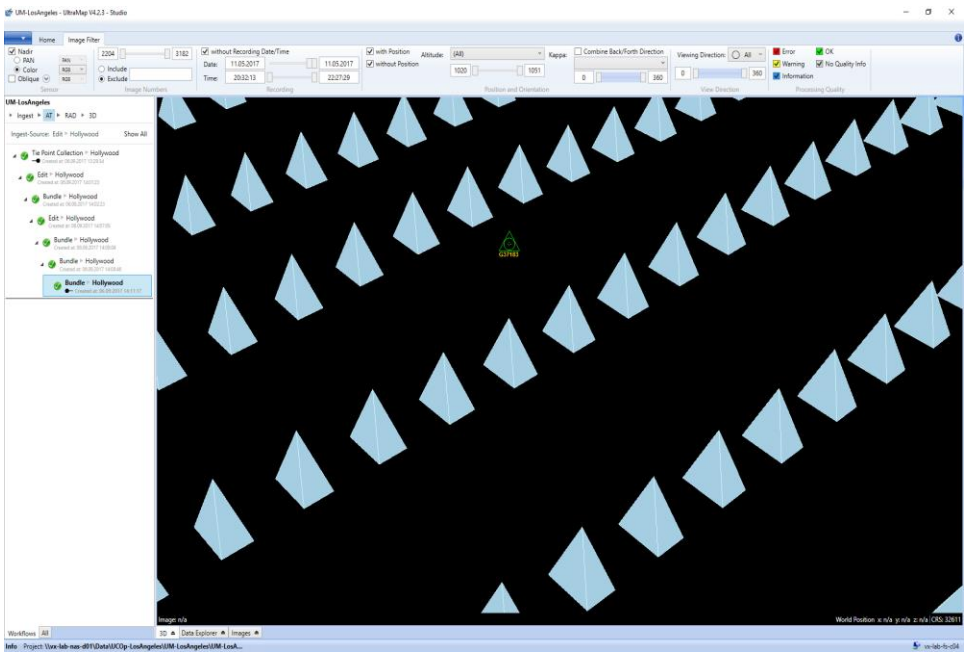
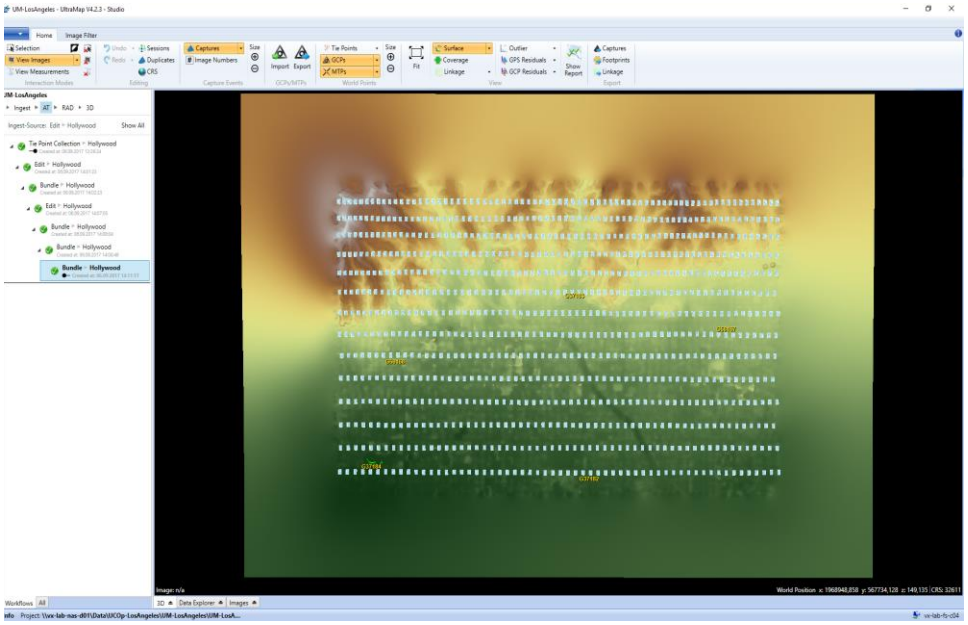
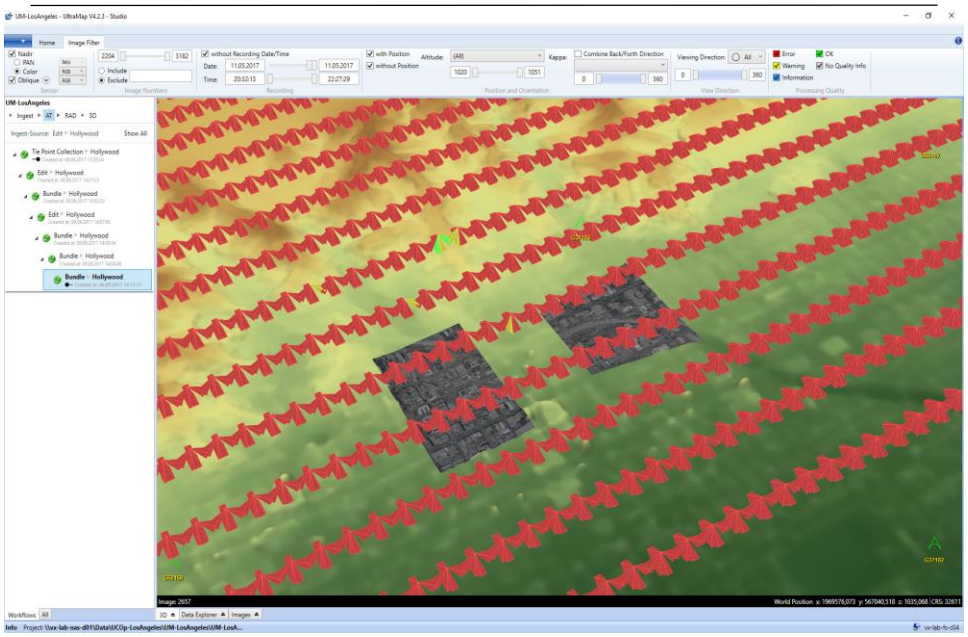
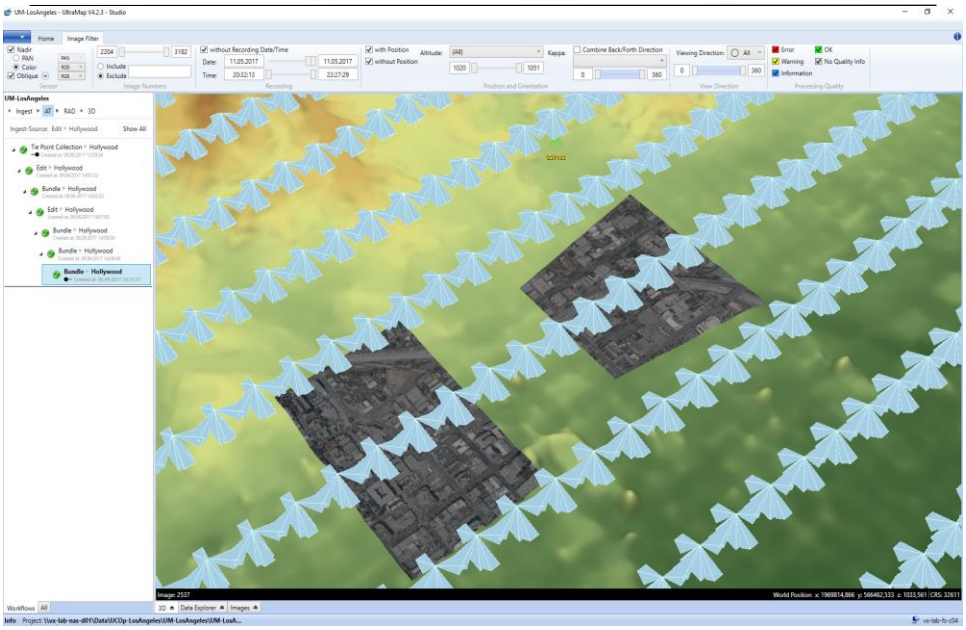
Simultaneous nadir/oblique color balancing











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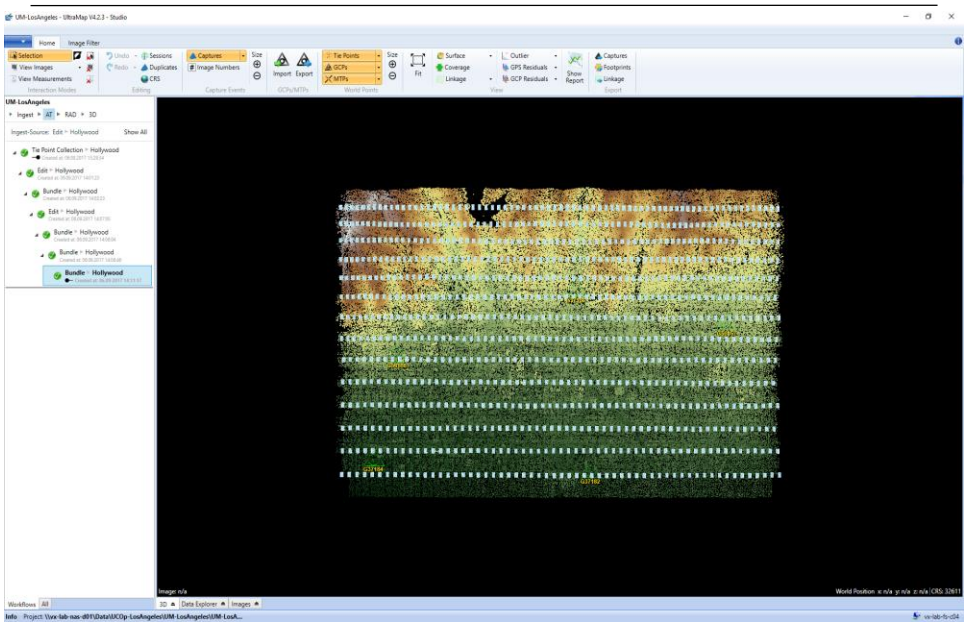
Project LA / Hollywood

- UltraCam Osprey
- 978 Capture Events @ 6,4 cm GSD
- Capture Time May 2017
- Color adjustment
- 3D viewer
- Additional capture by UltraCam Mustang



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ULTRAMAP AT Report

Product / Version: UltraMap V4.2.3 / 22.3.1709.1801

Overview

Project / Block	UM-LosAngeles / Hollywood
Capture Time	1 day: (11.05.2017 20:32 - 11.05.2017 22:27)
Cameras / Calibration	UltraCam Osprey Mark 2 f120 / UC-Op-1-30616173-f120 [3]
Sessions / Lines	1 / 14
Capture Events / Images	978 / 5868
Tie Points / Manual Tie Points	253147 / 0
Ground Control Points / Check Points	5 / 0
Average GSD [1/px]	0.064
Mean Photo Scale	12.283
Coordinate System [EPSG Code]	32611
Sigma naught	1.39

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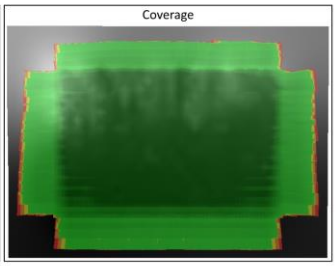
ULTRAMAP AT Report

Sessions

Coverage



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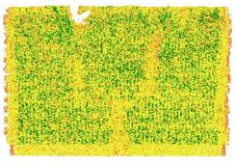
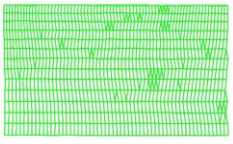
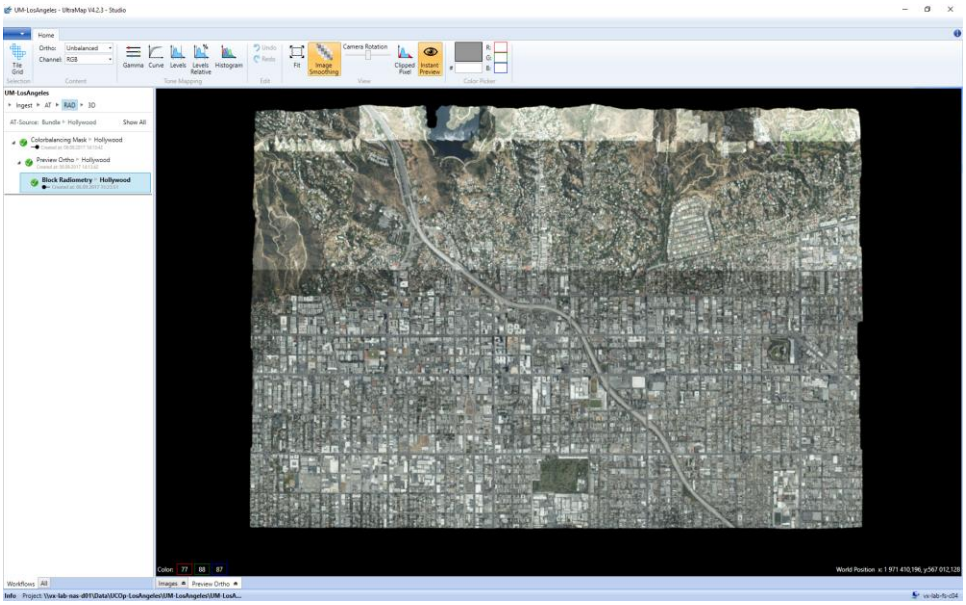
ULTRAMAP AT Report

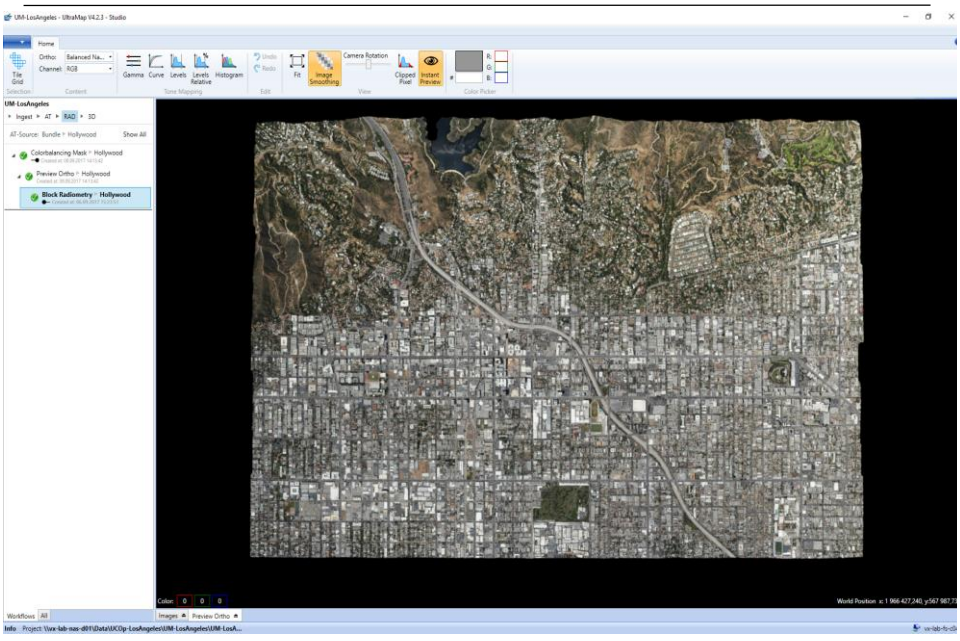
Tie Point Distribution



Link Diagram




UM-LosAngeles - UltraMap V4.2.3 - Studio
Home
Ortho:
Channel:
Gamma
Curve
Levels
Levels Relative
Histogram
Fit
Image Smoothing
Camera Rotation
Clipped Pixel
Instant Preview
UM-LosAngeles
Ingest
AT
RAD
3D
AT-Source: Bundle
Hollywood
Show All
Colorbalancing Mask
Preview Ortho
Block Radiometry
Workflows
All
Images
Preview Ortho


UM-LosAngeles - UltraMap V4.2.3 - Studio
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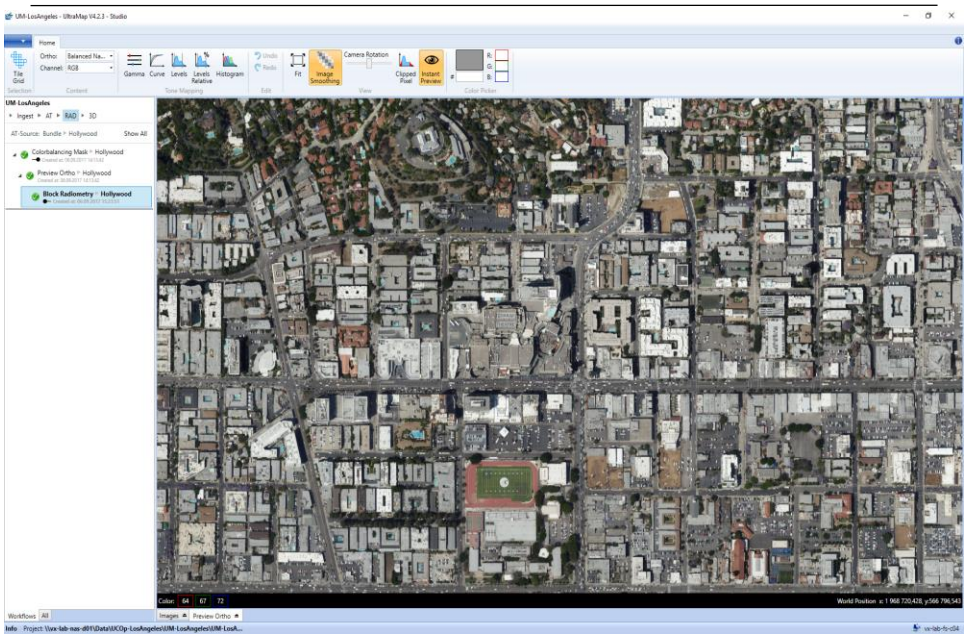

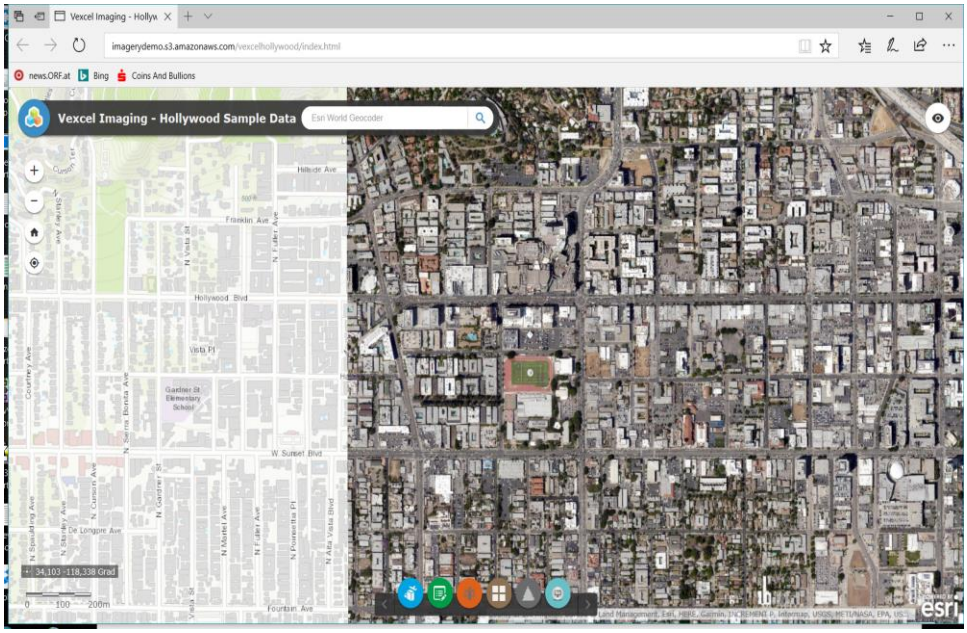
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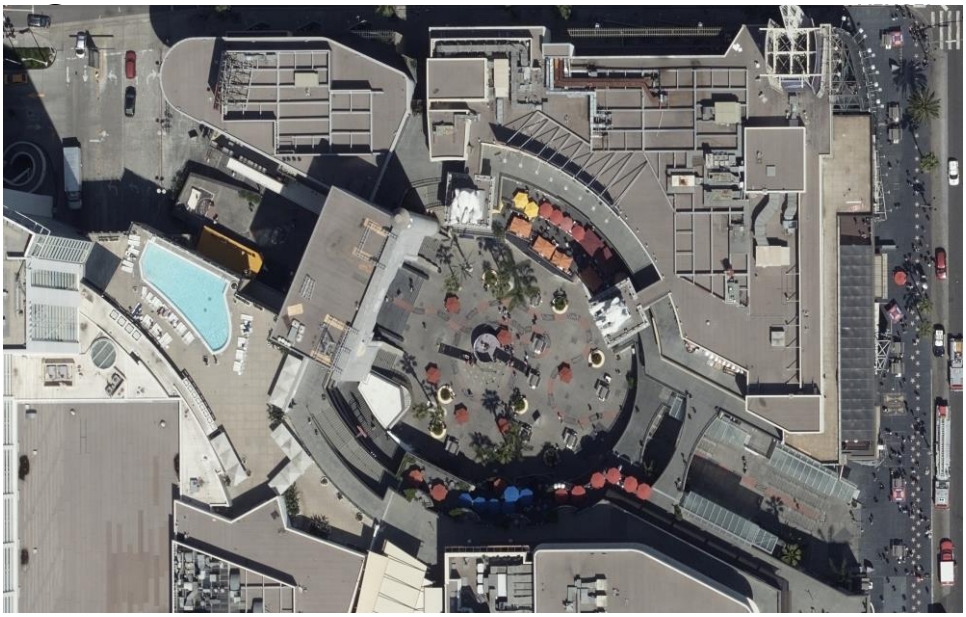
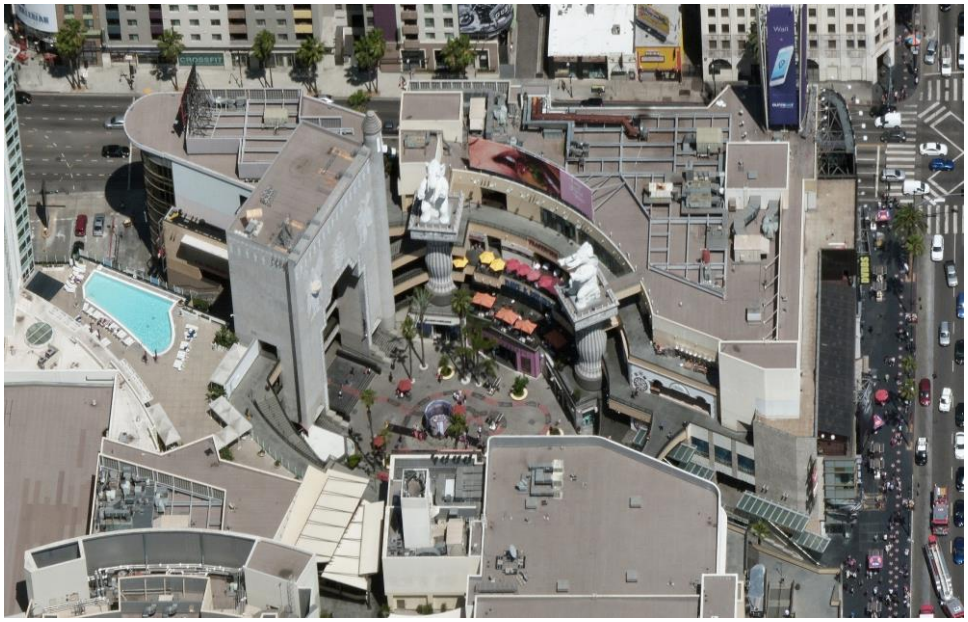
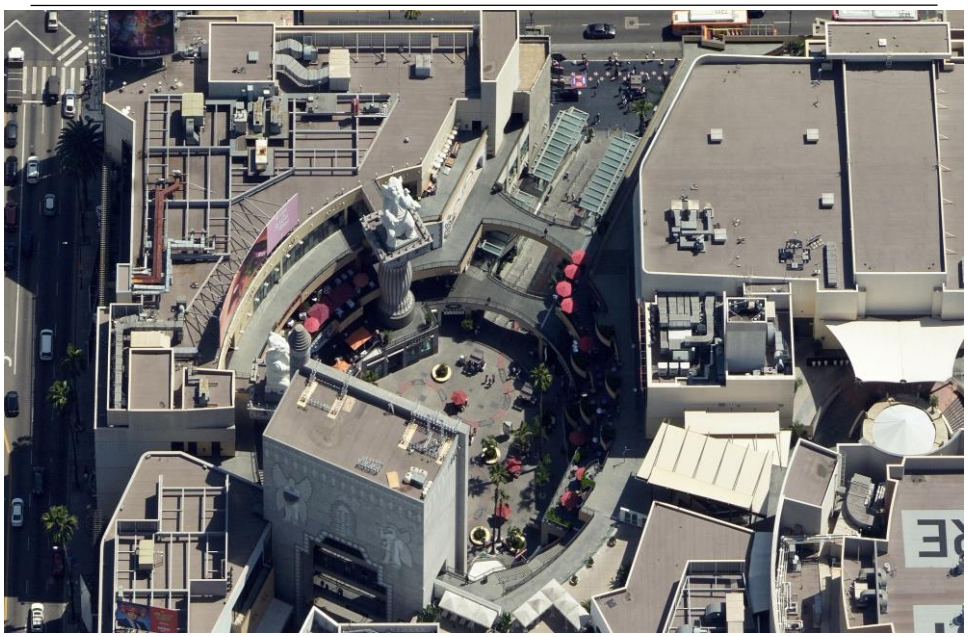
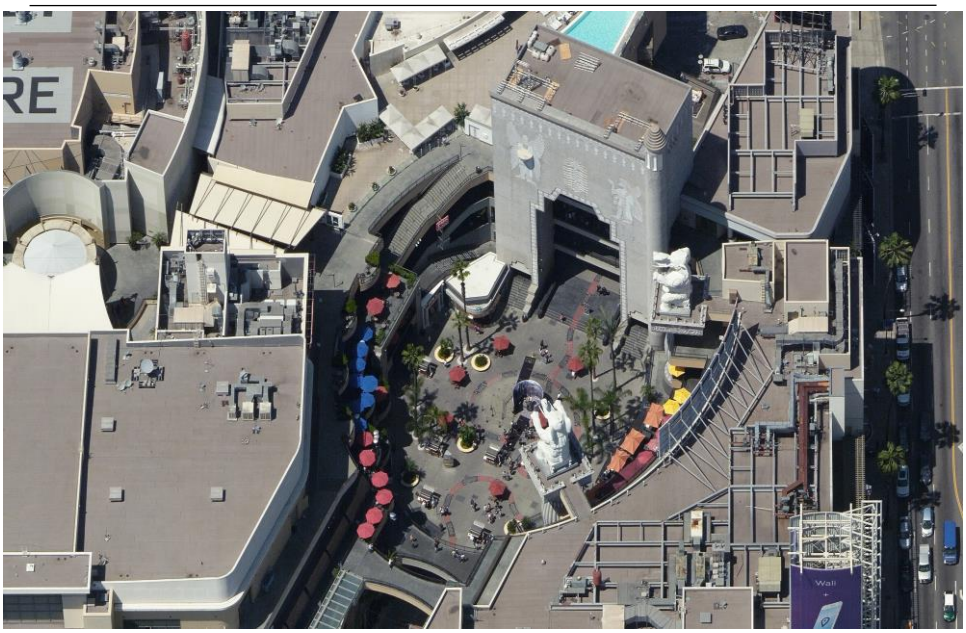
news.ORF.at
Bing
Coins And Bullions
Vexcel Imaging - Hollywood Sample Data
Esri World Geocoder
Hollywood Blvd
W Sunset Blvd
Franklin Ave
Fountain Ave
Gardner St Elementary School
34.103 -118.338 Grad
esri









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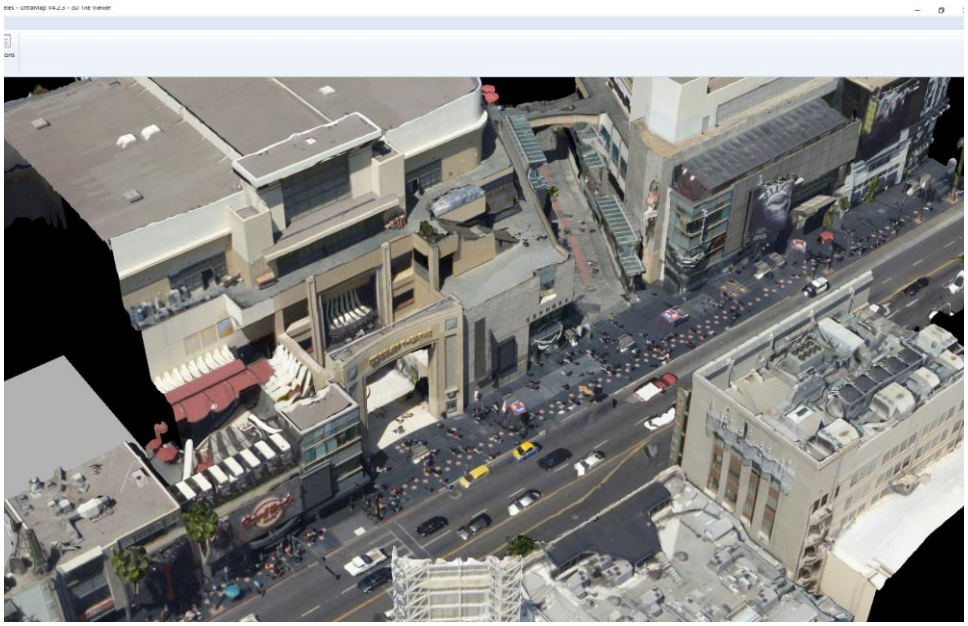

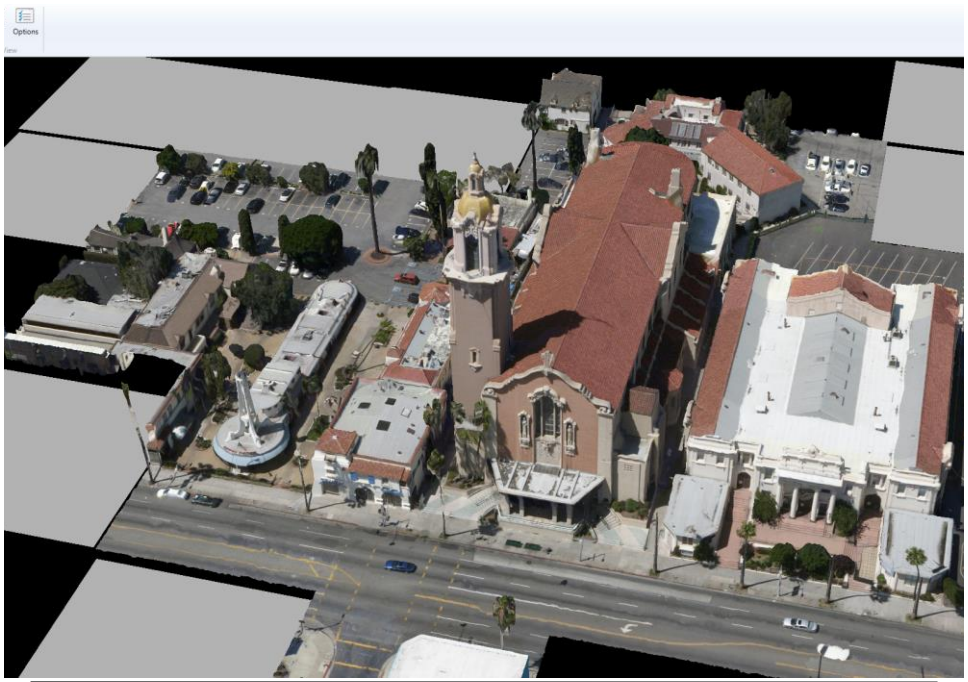
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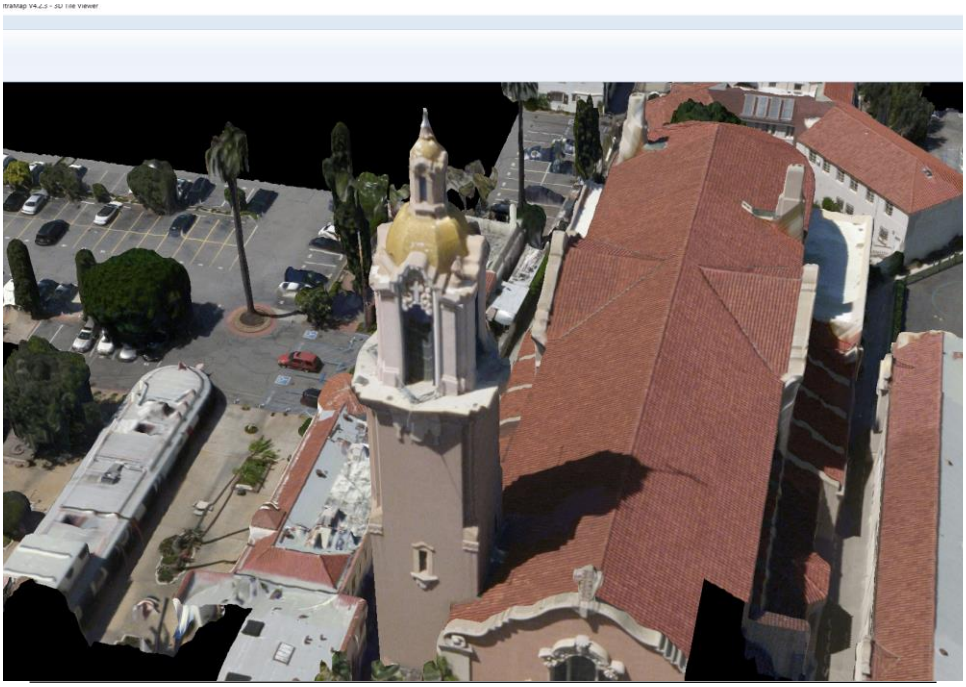

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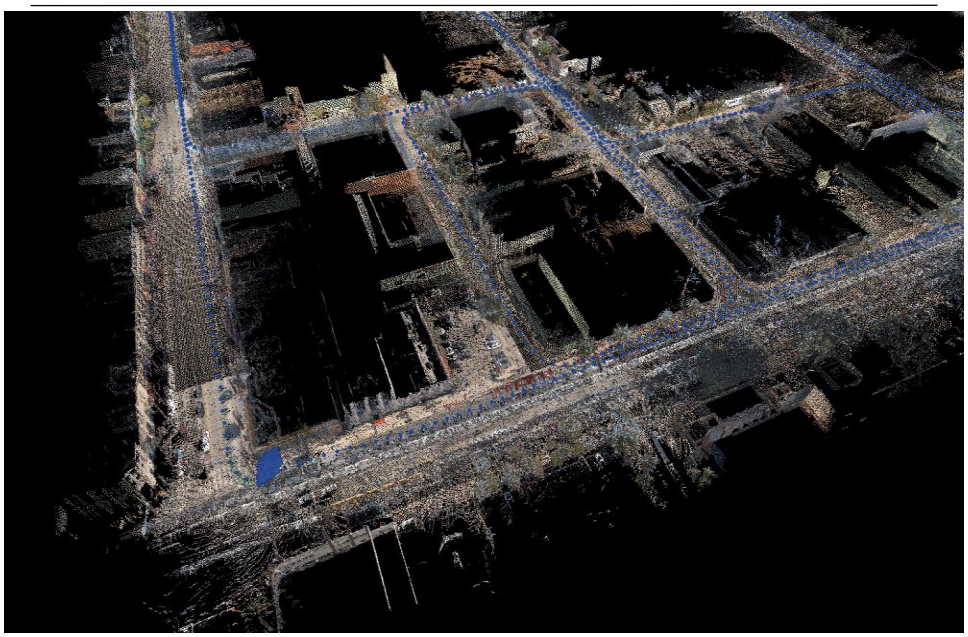
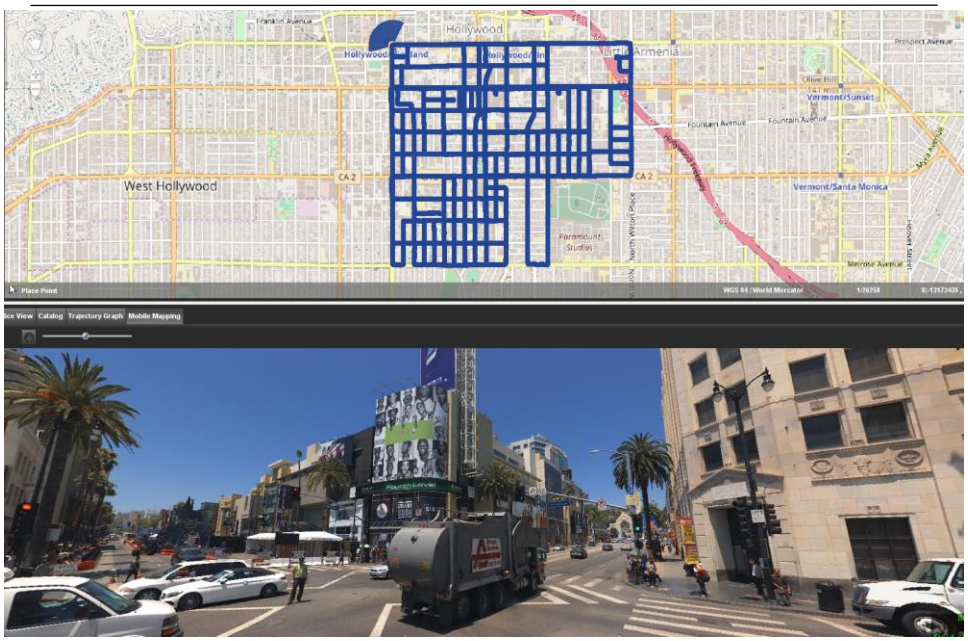
ULTRACAM
MUSTANG

Mobile mapping system for capturing geo-positioned panoramic imagery and 3D data of street-level scenery




Hollywood
West Hollywood
Vermont/Santa Monica
Vermont/Sunset
Paramount Studios
Place Point
Catalog
Trajectory Graph
Mobile Mapping

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