



3D Geo-data

Exploring recent 3D Geo-data projects and technologies in and around Houston, Texas via SIMmetry

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3D Geo-data

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3D Geo-data overview

Houston Geo-data

DOE - Houston

1. In partnership with HARC and University of Houston
2. Manage existing data
3. Acquire oblique imagery
4. Create 3D models
5. Create web-based tool for planning micro grids



2

Considerations for building a 3D Product

3D Geo-data Considerations

Planning

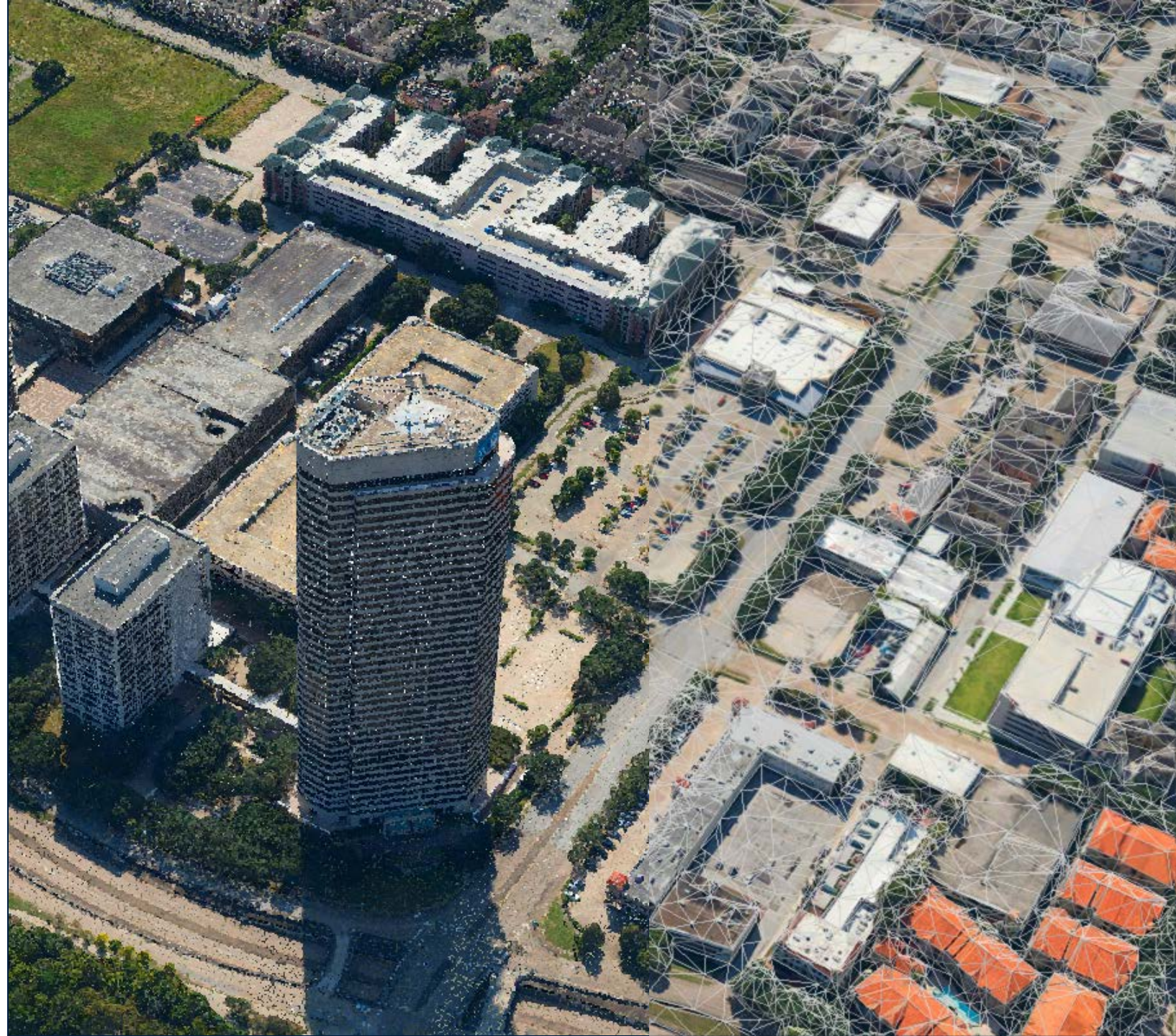
1. Flight planning – overlap, side lap, altitude, and resolution
2. Data size – cloud processing
3. Schedule – apply fusers to align with schedule
4. Product output – use case of data products
5. Existing data products – ground control, lidar, planimetrics, and imagery



3D Geo-data Considerations

Data Processing

1. 3DML
2. Imagery-derived LAS Point Cloud
3. Model-derived true orthoimagery
4. 3D Data Products
5. Enhanced classified lidar point cloud



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3D Geo-data Products

Data Products

3D Model

1. 3DML
2. DAE
3. OBJ
4. 3D Tiles
5. i3S / SLPK
6. OSGB



Data Products

Imagery-derived LAS
Point Cloud and DEM

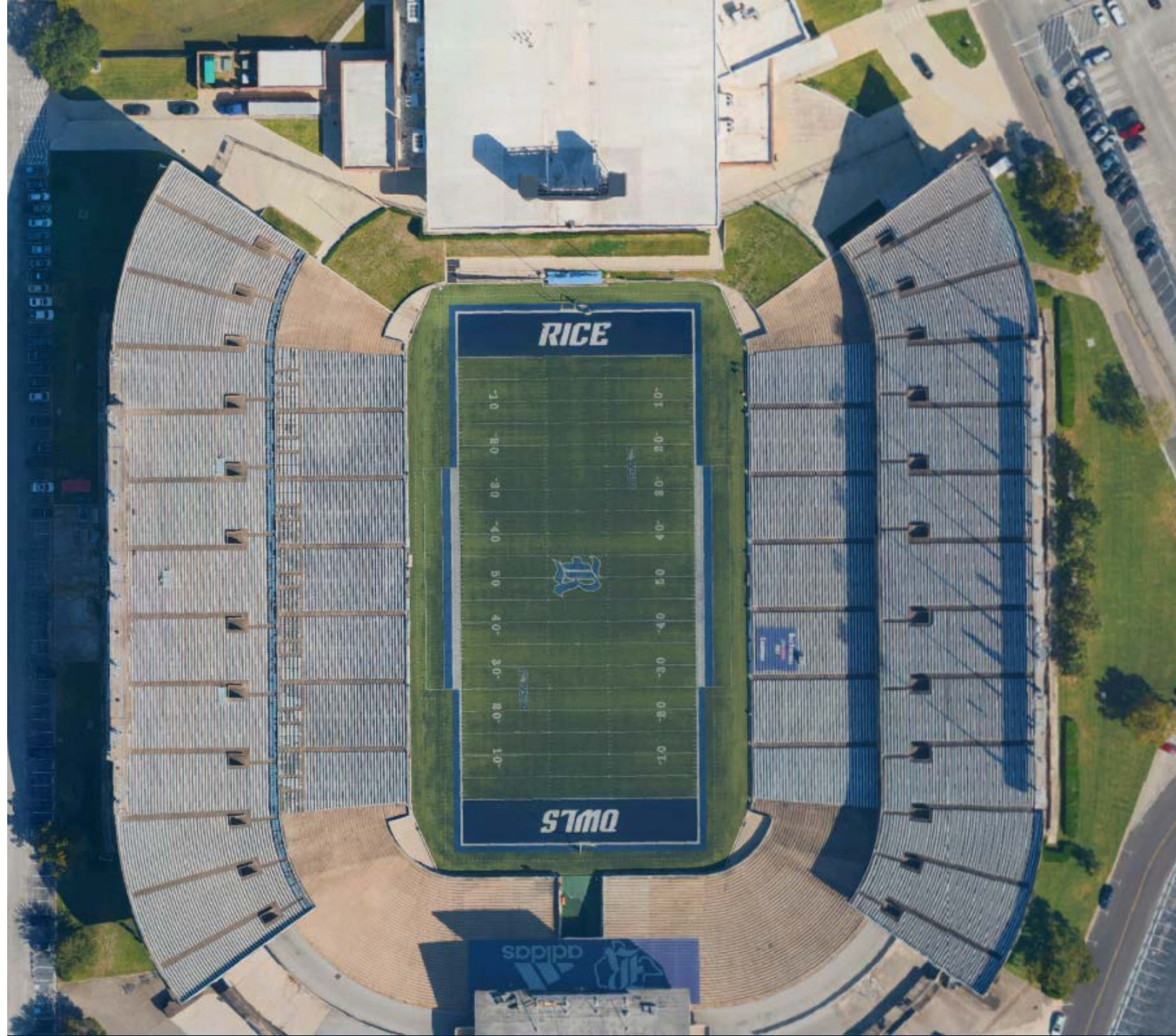
1. LAS or CPT Formats
2. Digital Surface Model
3. Digital Elevation Model



Data Products

Model-derived True Ortho

1. Output can include
 - 1.3-band orthoimagery
 - 2.4-band orthoimagery
 - 3.NDVI



Data Products

Enhanced Lidar Classifications

1. Machine learning classifications of existing lidar data for enhanced:
 1. Building
 2. Vegetation
 3. Culverts



Data Products

3D Geo-data Products

1. Building footprints
2. Building models
3. Vegetation modeling
 1. Height raster
 2. Density raster
4. Solar potential results
5. Impervious surface calculations
6. Planimetrics
7. Contours



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3D Geo-data Use Cases

Geo-data Use Case

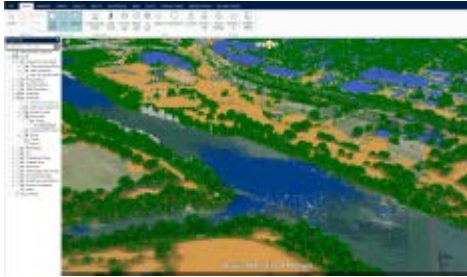
Emergency Management and
Response

1. Integrating with Rapid SOS
2. Call center situational awareness
3. Emergency planning
4. API for CAD integration



SIMmetry for Emergency Management

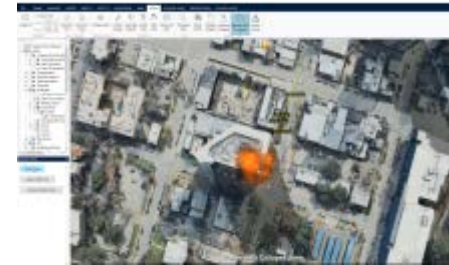
Flood Simulation



Fire Response



Collapse Zone



Floorplans



BIM Interior



Geo-data Use Case

Facility Management

1. Universities
2. Marine ports
3. Airports
4. Government facilities
5. Public works



SIMmetry for Facilities Management

Volume Calculation



Video Footage



Underground Data



Terrain Profile



Shadow Query



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Take a Tour

City of Austin

Fugro

Austin, TX



City of Austin utilized 3-inch oblique and nadir imagery to generate the 3D model.

The data visualized in SIMmetry is the 3DML, Lidar Point Cloud and 3D model functionality display.

Download the free version of SIMmetry at (includes demo of Austin):
www.fugro.com/SIMmetry

The City of Austin in SIMmetry is our demo project spotlight

 Fugro's first imagery/3D POC

 Demo project spotlight

 Base product for building functionality

 Tour Austin today!

Texas Enhanced Lidar Data

TWDB / TNRIS

North, Central, and East Texas



- Enhance existing USGS Lidar
- 83,000 square miles
- Accuracy to 99%
- Independently reviewed

Sense.Lidar is Fugro's machine learning process for accurately classifying USGS lidar data.

The data is enhanced from the standard USGS classifications to include Buildings, Vegetation, and Culverts to a 99% Accuracy.

Download the free version of SIMmetry and .fly file at:

www.fugro.com/SIMmetry

https://globe.fugro.com/sg/projects/Sense.Lidar_Texas.442995

Yale University

Fugro

New Haven, Connecticut



Uses nadir imagery and lidar



Proves concept of building models from nadir imagery



Improves product accuracy and quality



Expands project potential

Proof of concept to use nadir only imagery combined with high density lidar for producing details lidar point clouds, orthoimagery, 3D models, planimetrics and a 3D GIS interface that is used by non-GIS professionals.

Download the free version of SIMmetry and .fly file at:





www.fugro.com/SIMmetry

https://globe.fugro.com/sg/projects/Yale_SIMmetry.443698

Houston DOE

Department of Energy
Houston, Texas



-  In coordination with HARC and the University of Houston
-  Oblique imagery and existing lidar data
-  Improves concept of building 3D planning tools
-  Ingest of localized weather data and power utility statistics

Coming Soon!

Visit Youtube by clicking the link below for more videos and tutorials at:

https://www.youtube.com/channel/UCwBEQeJI058_hDQ7NhqCc4w/videos

