MosaicMill

EnsoMOSAIC

UAS Power Line Inspection
AUVSI, Orlando May 15th 2014

Company Introduction

MosaicMill

- MosaicMill founded in 2009 in Finland
- Technology EnsoMOSAIC since 1995 (Stora Enso Ltd.)
- Main businesses
  - EnsoMOSAIC image processing software and solutions- UAV and conventional
  - EnsoMOSAIC aerial imaging system sales – conventional
- Clients
  - Power line management
  - Survey and mapping
  - Forestry and plantations
  - Oil and gas
  - Mining
  - Research and universities

Power Line Mapping – Tools

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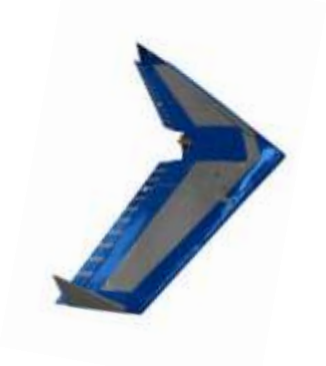
Imaging hardware

Any UAV platform



- Standard RGB sensor
- Images + GPS data

+

Processing hardware

- Standard PC
- Standard 3D display

+

Software

- EnsoMOSAIC ortho
- EnsoMOSAIC point cloud
- EnsoMOSAIC 3D

+

- Training
- Maintenance
- Support

Power Line Mapping – Work Flow

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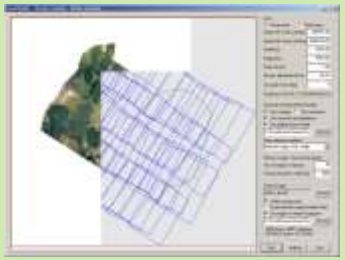
Imaging

- Single flight line for corridor and posts.
- Double flight lines for cables in 3D.
- Typical altitude 100 – 150 m, > 2 times post height
- Resolution 1 – 3 cm

Orthorectification

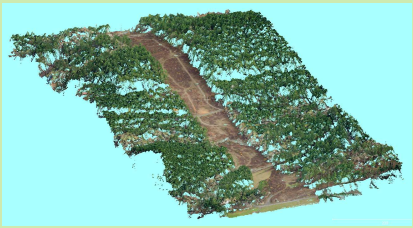
EnsoMOSAIC ortho



- Automatic aerotriangulation and mosaicking

DSM-processing

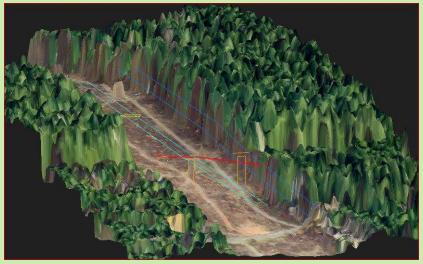
EnsoMOSAIC Point Cloud



- Pixel level Surface models
- Optional

3D Power line analysis

EnsoMOSAIC 3D



- Stereo inspection
- 3D digitizing of power line features
- Interactive detection of vegetation and other objects
- Hot spots with thermal imagery
- Direct input into customer database

DSM

Images + Autopilot log

Mosaics + Image orientations

EnsoMOSAIC Orthorectification- results

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Single orthorectified image

Orthomosaic

EnsoMOSAIC DSM processing

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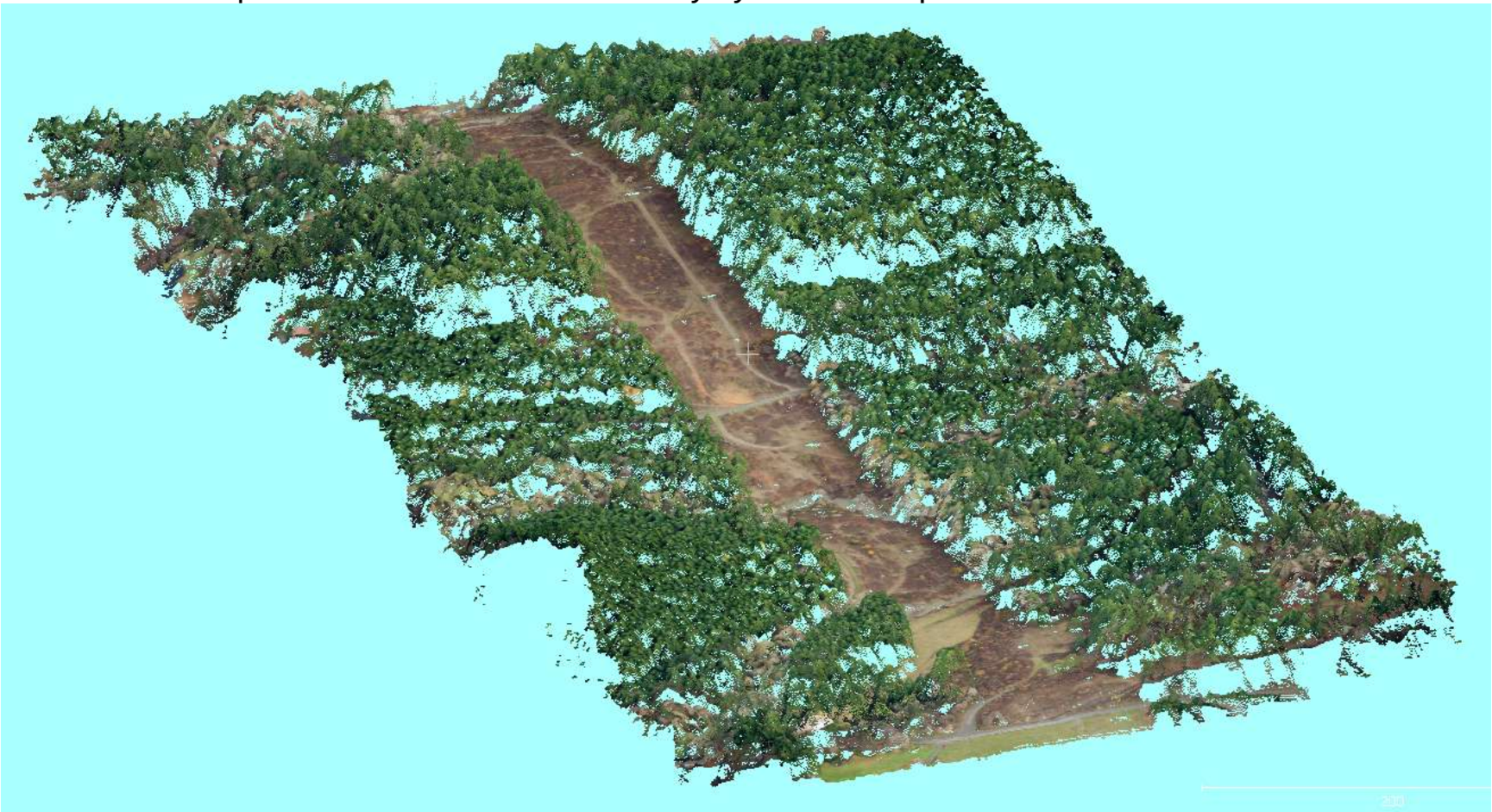
- XYZ point cloud + Raster surface model
- LiDAR type, by photogrammetric process
- For automated vegetation detection
- Cables and posts cannot be detected reliably by automated process



EnsoMOSAIC 3D Power Line Analysis

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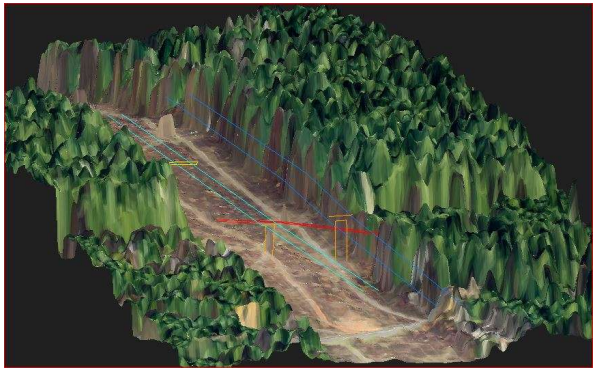
- **INPUTS**
  - Oriented images from EnsoMOSAIC
  - DSM for automated process (optional)

- **FUNCTIONS**
  - Photogrammetric extraction of elevations
  - 3D-digitizing of power line cables and posts
  - Stereo viewing of power line details
  - Interactive hot spot detection of vegetation and other objects
  - Direct link to customer database and creation of GIS-reports



EnsoMOSAIC 3D Power Line Analysis

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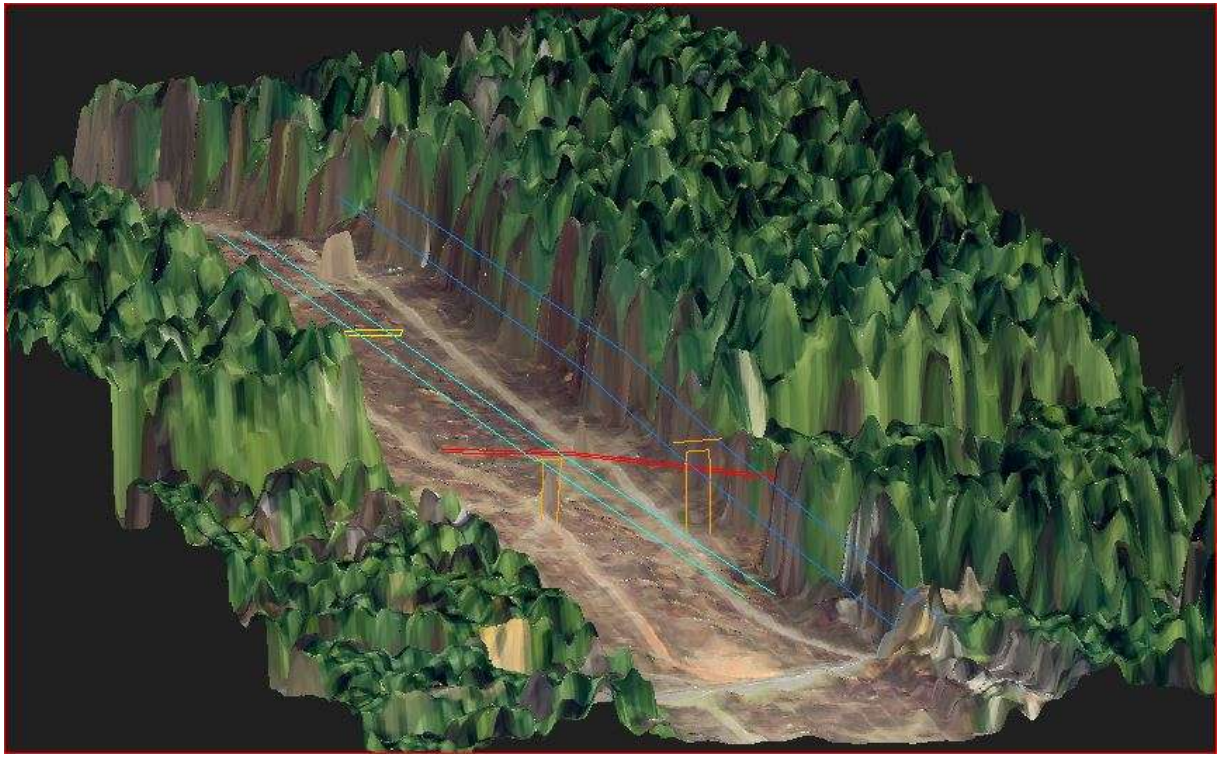
OUTPUTS:

- Detected **hot spots**
- Vectorized **cables**
- **Posts** as points or vectors
- **Point cloud** and **DSM** of the corridor + buffers
- GIS **reports** for field teams



EnsoMOSAIC 3D – Powerline alert

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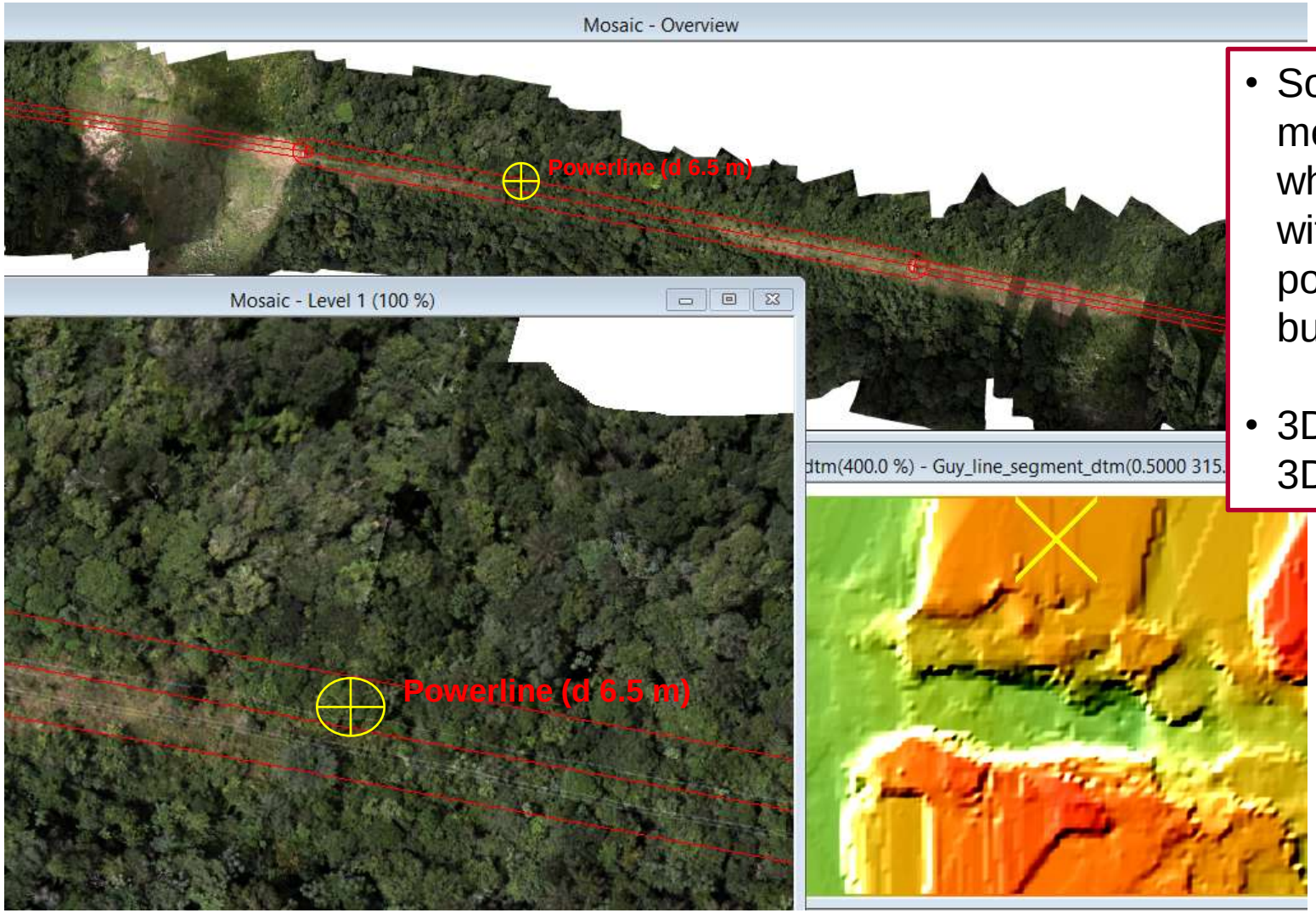

- Sound and message alert when mouse within powerline buffer
- 3D buffer – 3D distance

UAV flight by Delair-Tech

EnsoMOSAIC 3D – results to database

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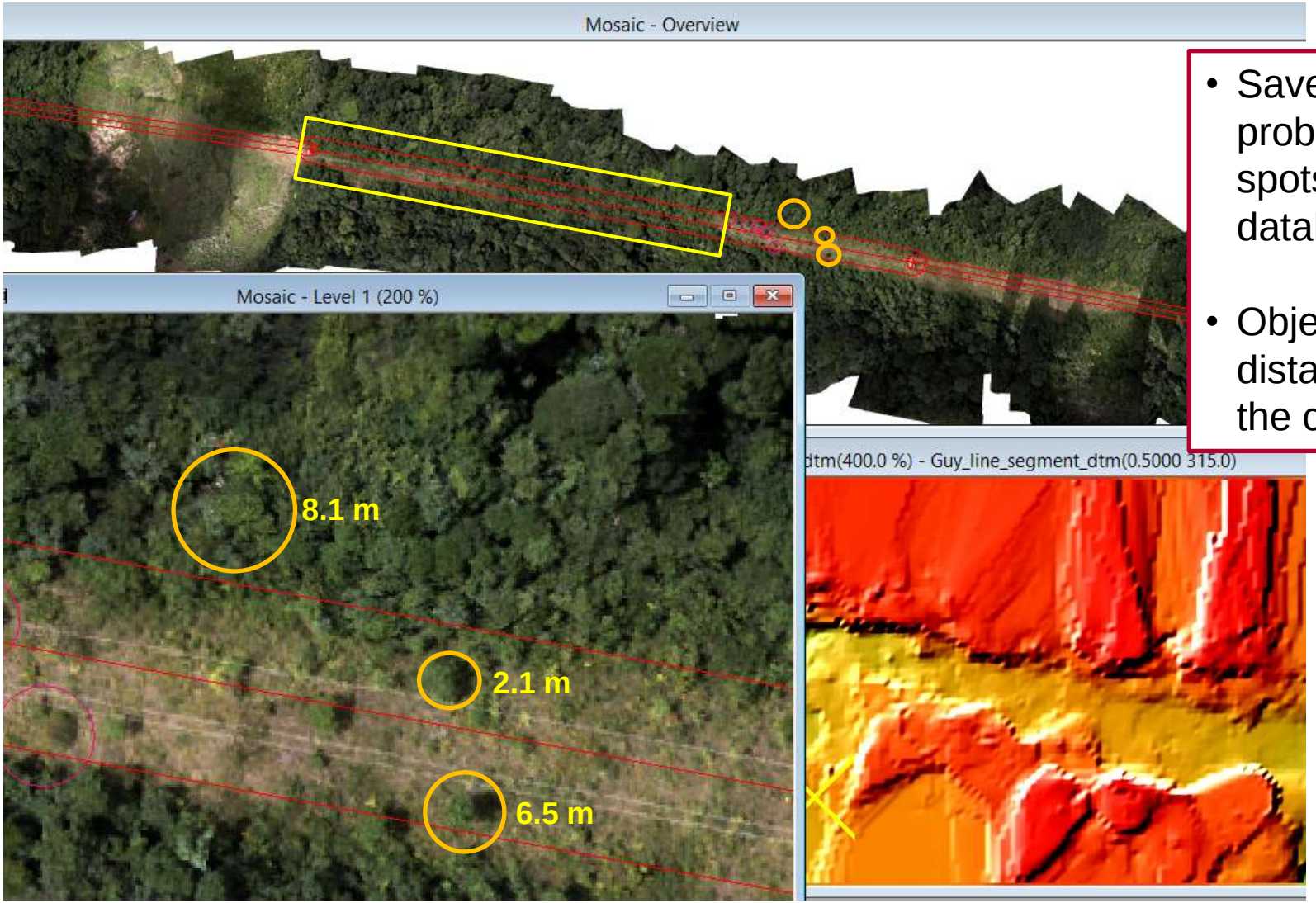

- Save problematic spots into database
- Object type + distance from the cable

UAV flight by Delair-Tech