Zebedee 3D scanner

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CSIRO

Woodland vegetation – also applied in Bushfire sample plots

Zebedee

Can this 3D laser scanner be used to:

• Visualise and record the spatial complexity?

• Can we derive information to determine biomass and other measures?

What is Zebedee?

• **Primary sensor is a 2D Hokuyo UTM-30LX laser scanner which measures distances to surfaces in the environment (43200 samples per second) with a separate inertial sensor**

• **A simple spring mechanism is used to convert the natural motion of the operator into scanning sweeps that result in a 3D field of view**

• **Specialized processing software interprets the raw data to estimate the motion of the scanner and generate a 3D point cloud model of the environment**

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Zebedee cont...

Therefore we have:

- **Lightweight (<700g), handheld 3D laser mapping system**
- **Highly portable – indoor and outdoor (Pisa example)**
- **Simply walk through an area to map it**
- **Results include 9% and 25% sampling of point cloud data. Full dataset available in .laz file as well as diagnostic information**
- **Does not rely on external positioning systems (no built in GPS useful in scanning indoors in buildings, caves etc)**
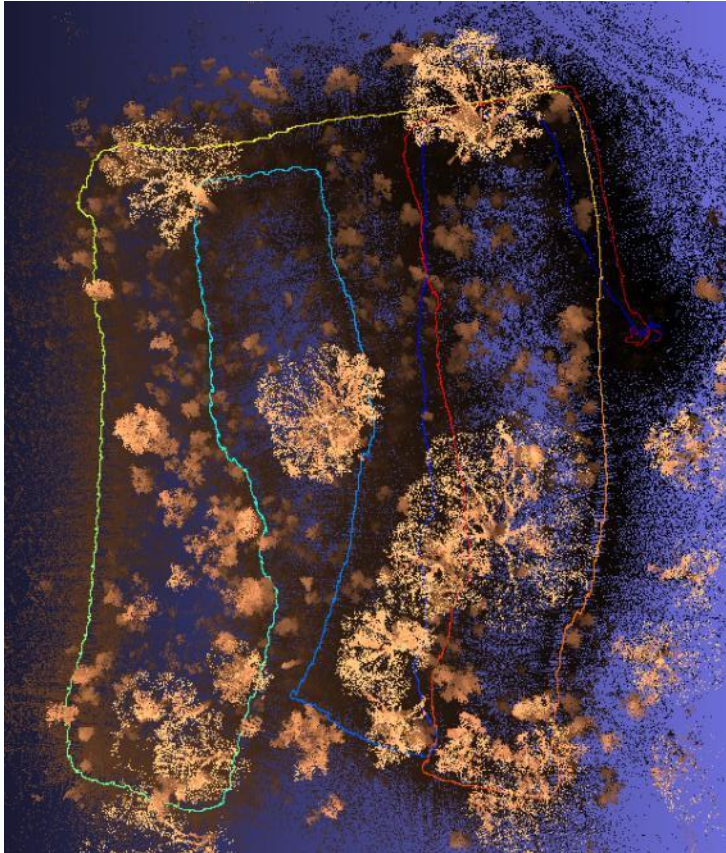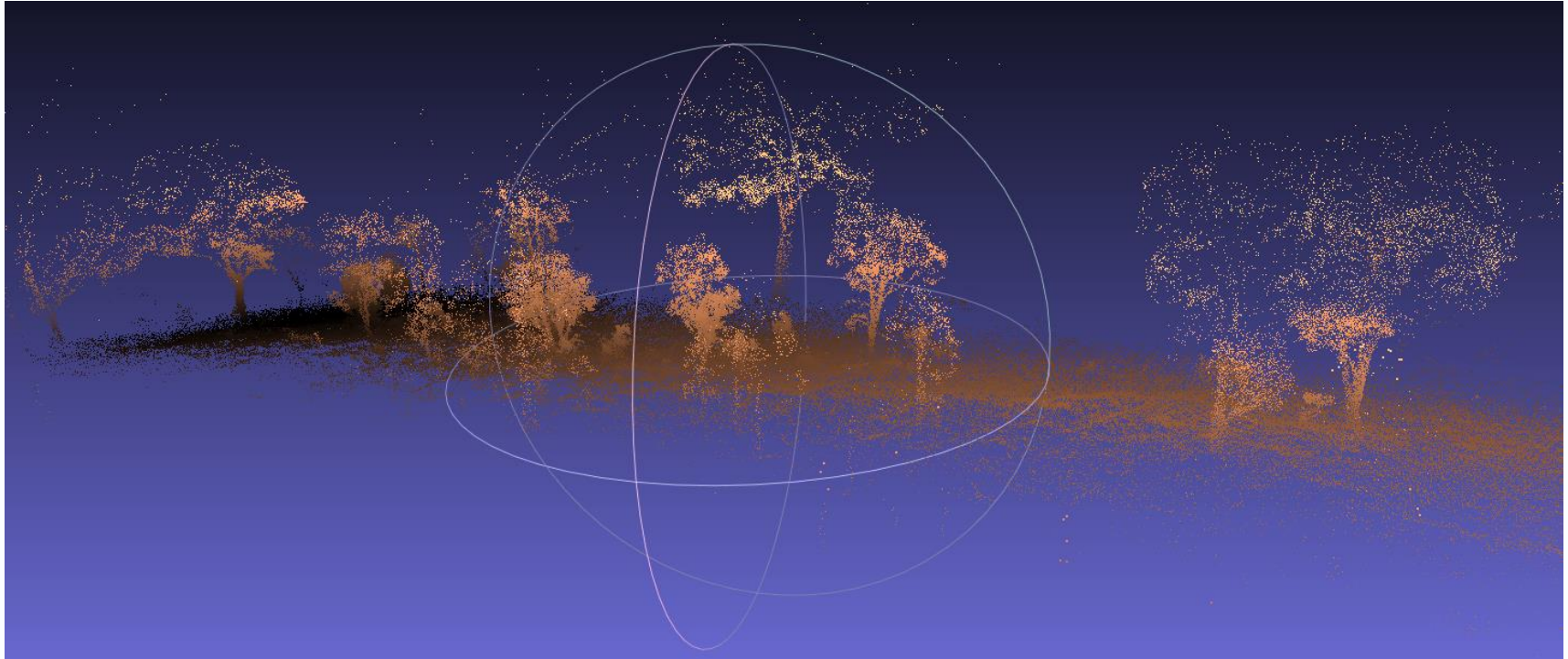- **Relatively low cost**
- **Unit DEMO**

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Zebedee – CSIRO system
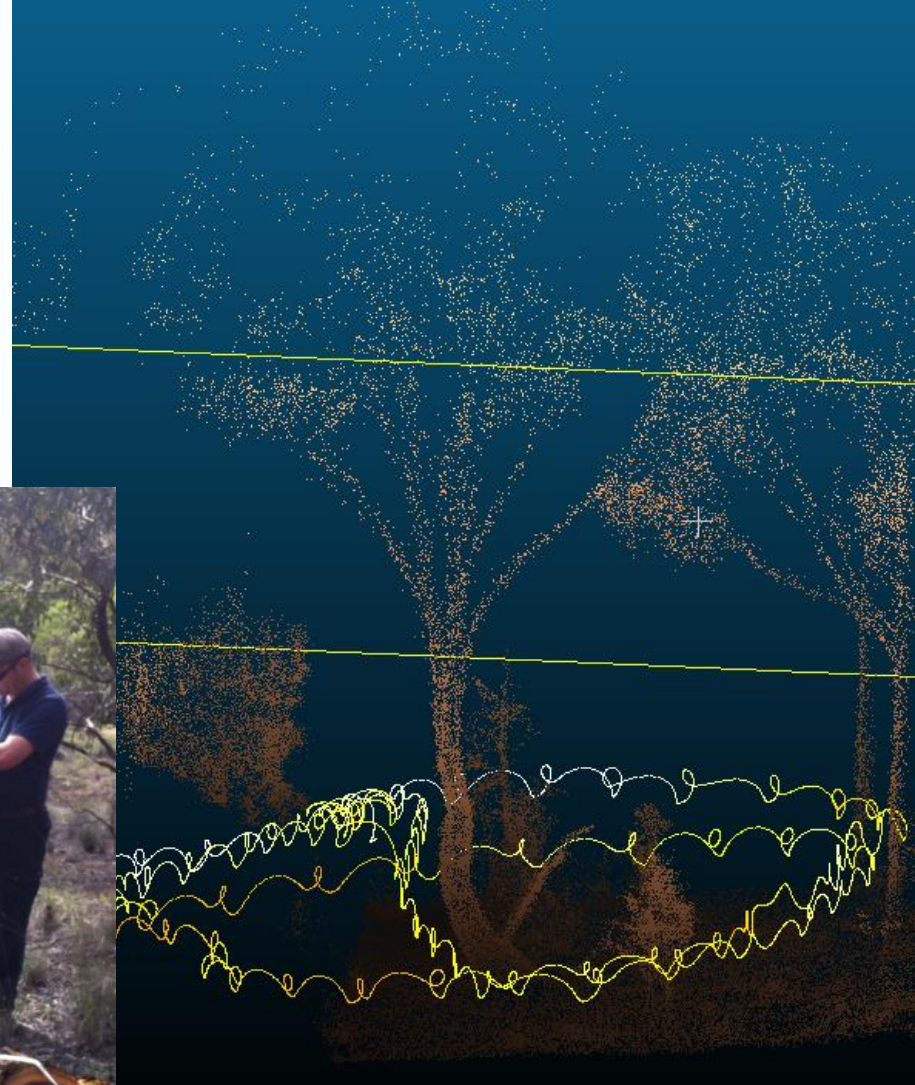
Using Zebedee

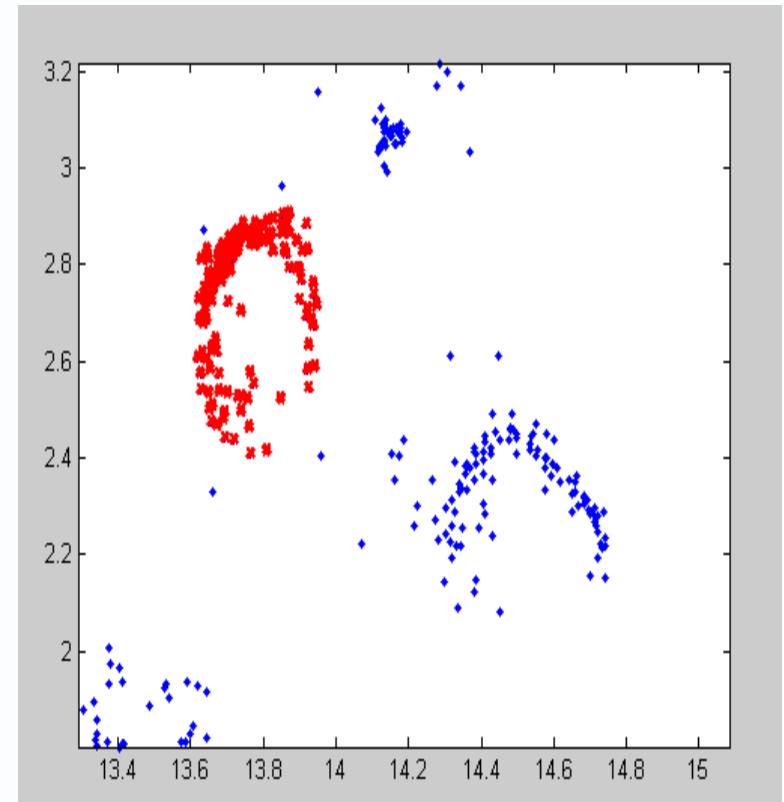# Plot ~ 30 x 30 m

Transect scan

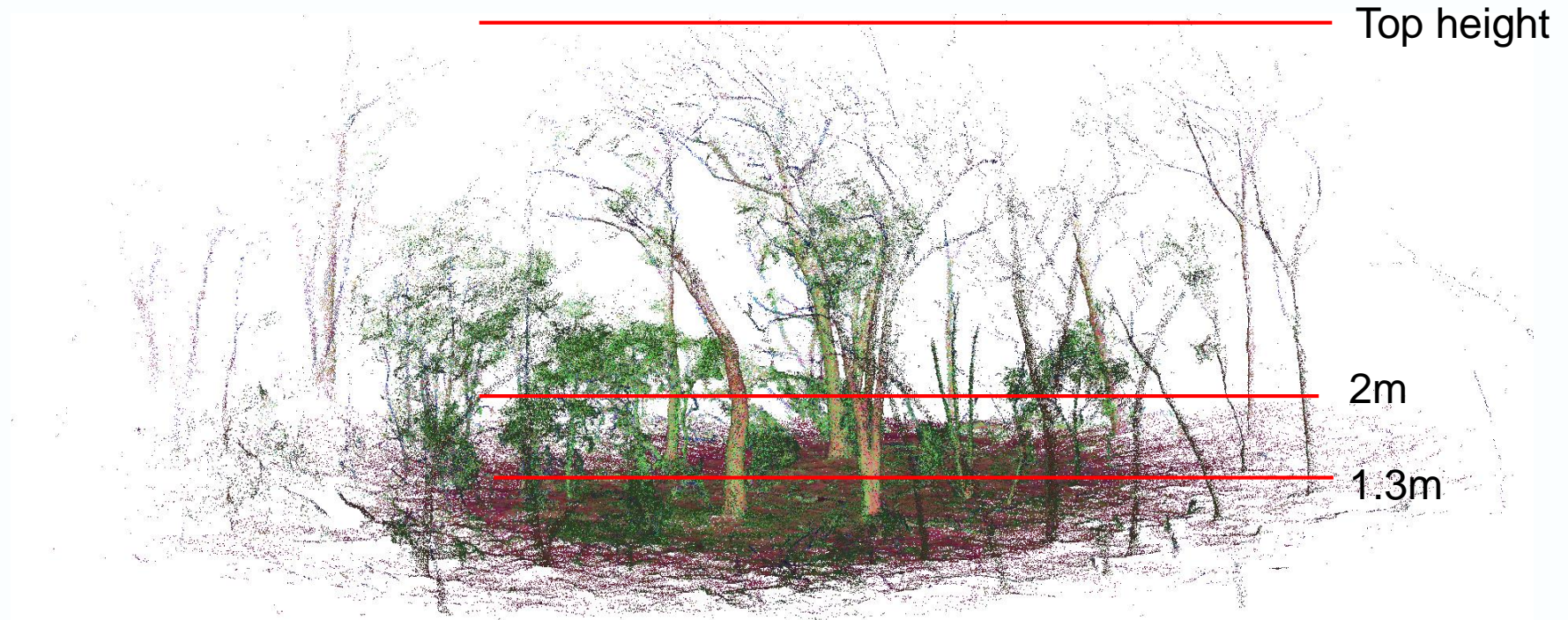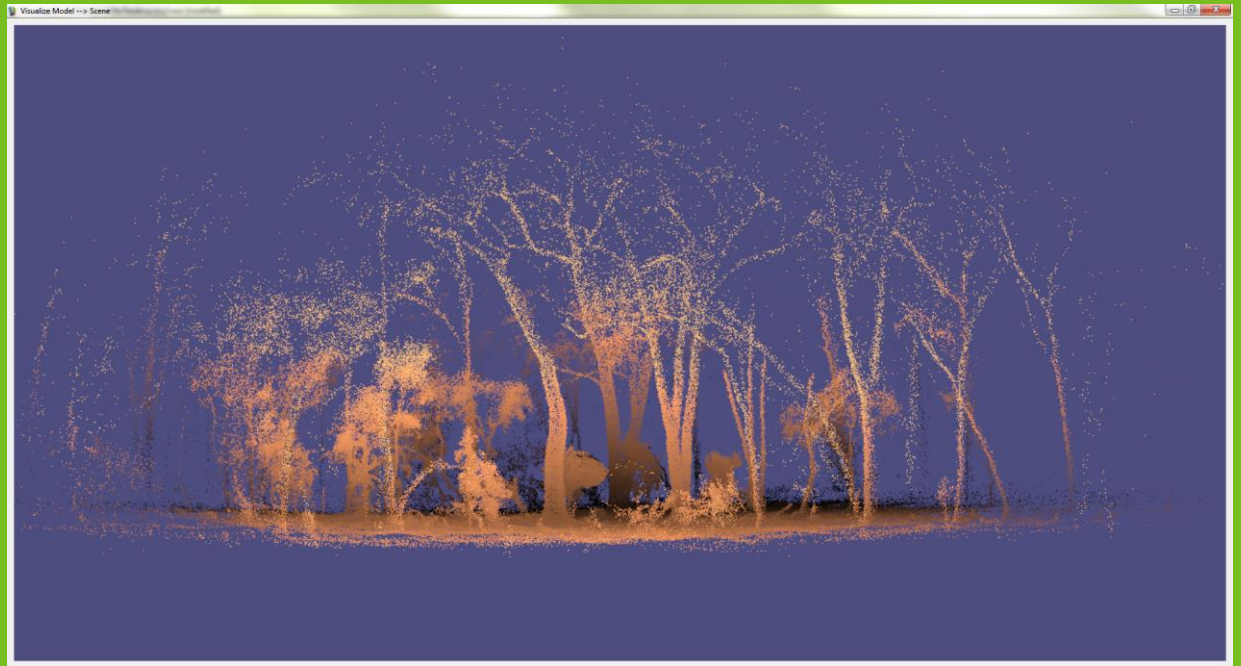Also aligned with field sampling

Individual tree

Plot > slice at 1.3 to 1.35 cm – Suzanne will talk more about this

Slice and measure diameter of tree(s) and shrubs and grasses at different heights above ground level – provide counts – Automate?

Top height

2m

1.3m

Fly through – Himalayan pine at the National Arboretum (thanks Michael Schaefer)

Thank you

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