



Collaboration, Innovation and Resilience: Championing a Digital Generation

Brisbane, Australia 6-10 April

Enhancing LiDAR Products Quality Assessment Optimization and Innovative Approaches

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FIG2025, Commission 7

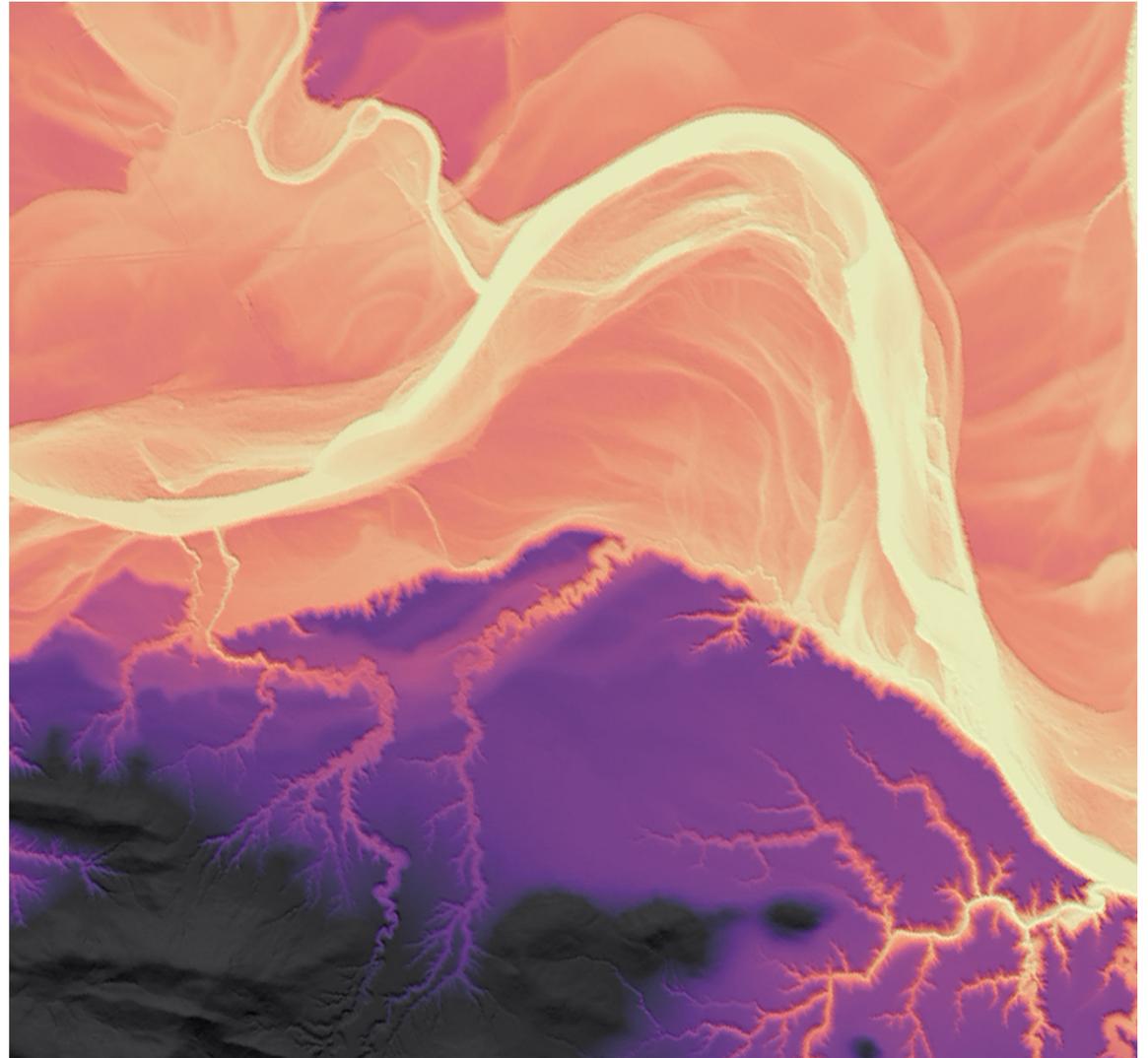


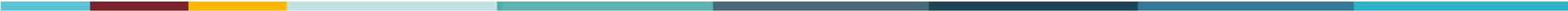
PLATINUM SPONSORS



Overview

- Introduction
- LiDAR Specification
- Quality Assessment
- LiDAR Products
- Queensland LiDAR Coverage
- Data Access

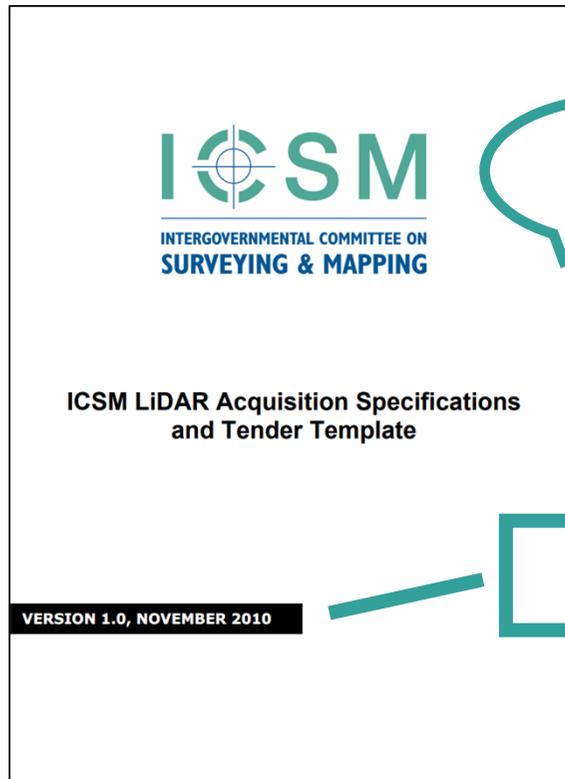




Introduction – Why we need QA

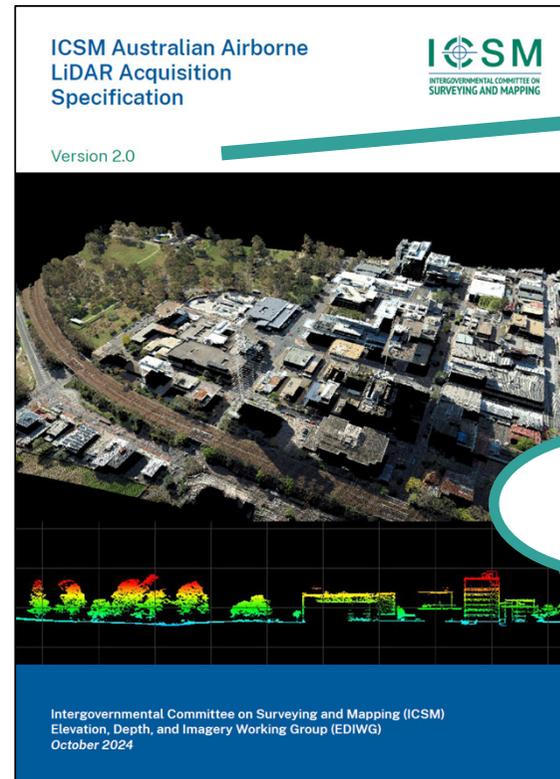
- **Customer Satisfaction:** QA helps ensure that products meet customer expectations, leading to higher satisfaction and brand loyalty.
- **Reduced Costs:** By catching defects early, QA reduces the costs associated with rework, recalls, or customer support issues.
- **Industry Standard:** QA ensures that products comply with industry regulations and standards, reducing the risk of legal issues.
- **Improved Product Quality:** QA processes help identify and correct defects, leading to a more reliable and higher-quality product.

LiDAR Specification



33
pages

V1 , 2010



V2 – 2024 (Draft)

48
pages

LiDAR Specification

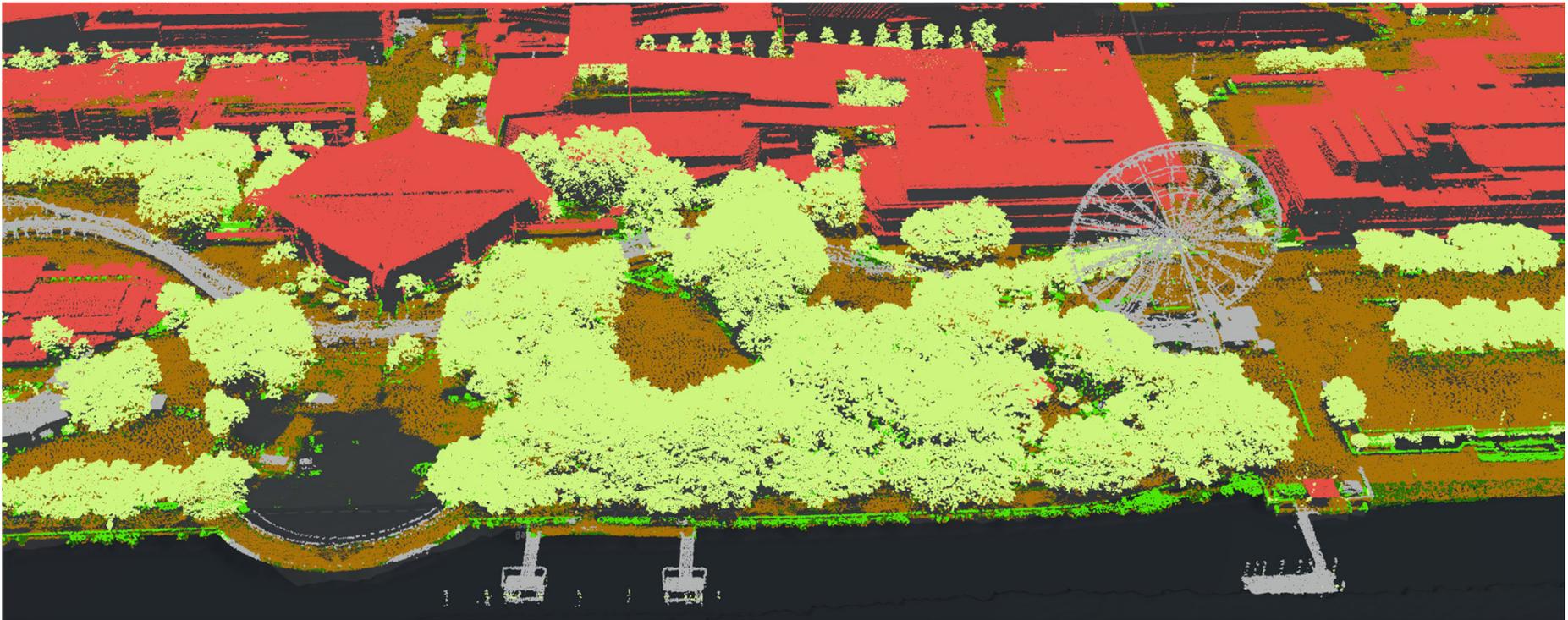
Classification Value	Meaning	ICSM Accuracy Level
0	Created, never classified	Level 1
1	Unclassified	Level 1
2	Ground	Level 3
3	Low Vegetation (0m – 0.3m above ground)	Level 2
4	Medium Vegetation (0.3m – 2m above ground)	Level 2
5	High Vegetation (>2m above ground)	Level 2
6	Buildings	Level 3
7	Low Noise	Level 1
9	Water	Level 3
17	Bridge deck & permanent jetties (excludes bridge furniture, e.g. guard rails, handrails, supporting structures, etc.)	Level 3
18	High Noise	Level 1
64	Culvert	Level 3
65	Bridge furniture (e.g. guard rails, supporting structures, etc.)	Level 3

From 4 ppsm to 8 ppsm

From 1 m DTM to 0.5 m DTM

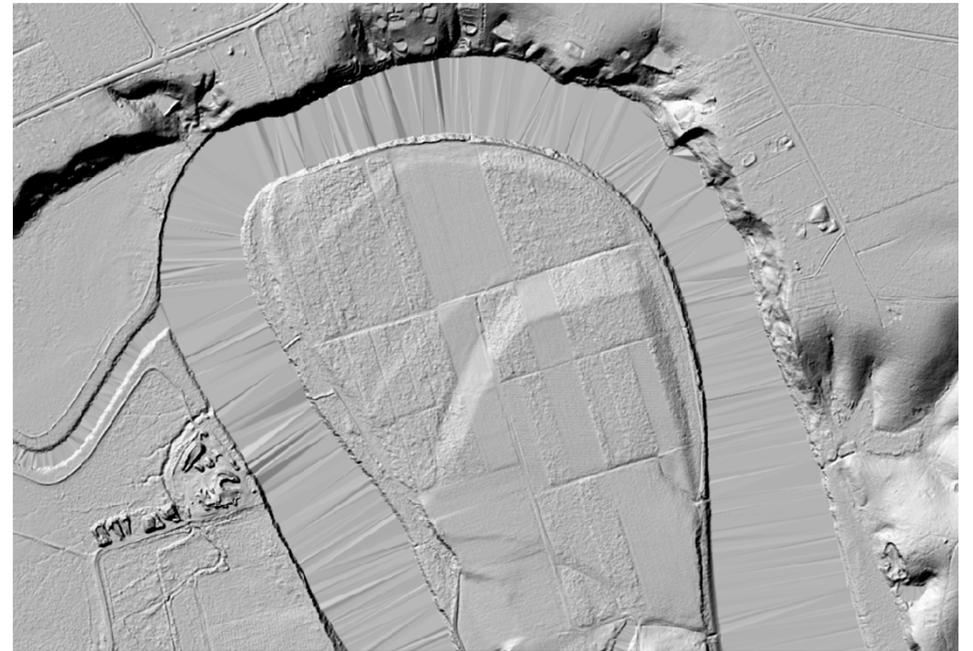
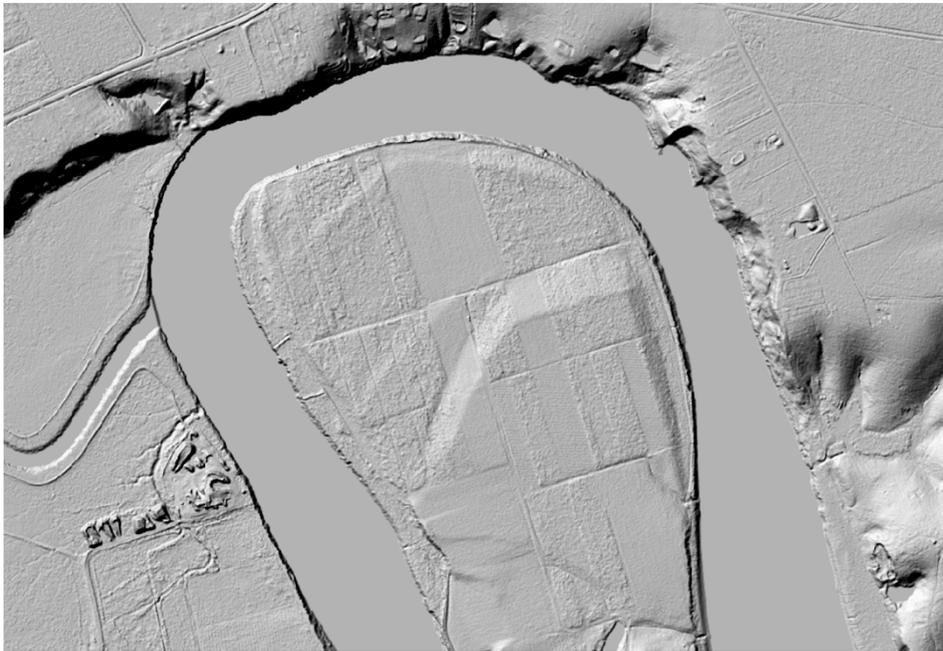
From ±30cm to ±20cm vertical accuracy
and
From ±80cm to ±60cm Horizontal accuracy

Quality Assessment



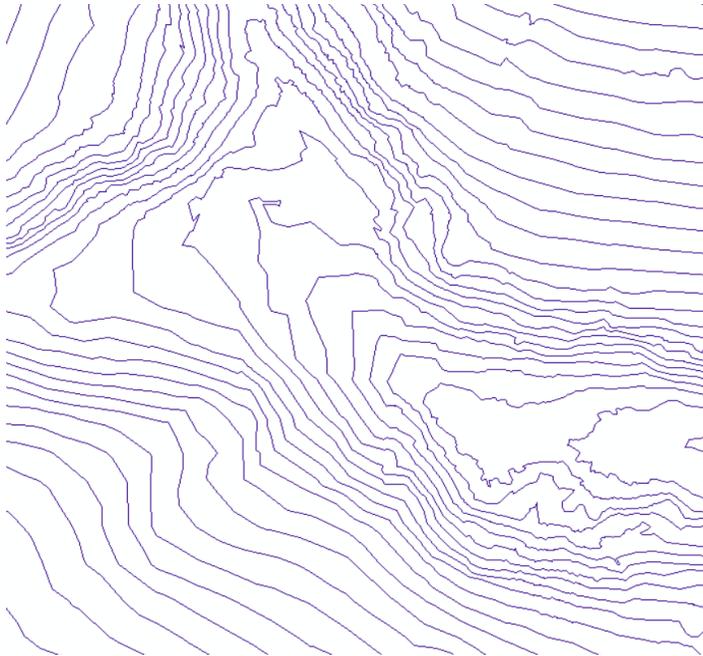
Point Cloud Classification
South Bank Brisbane

Quality Assessment



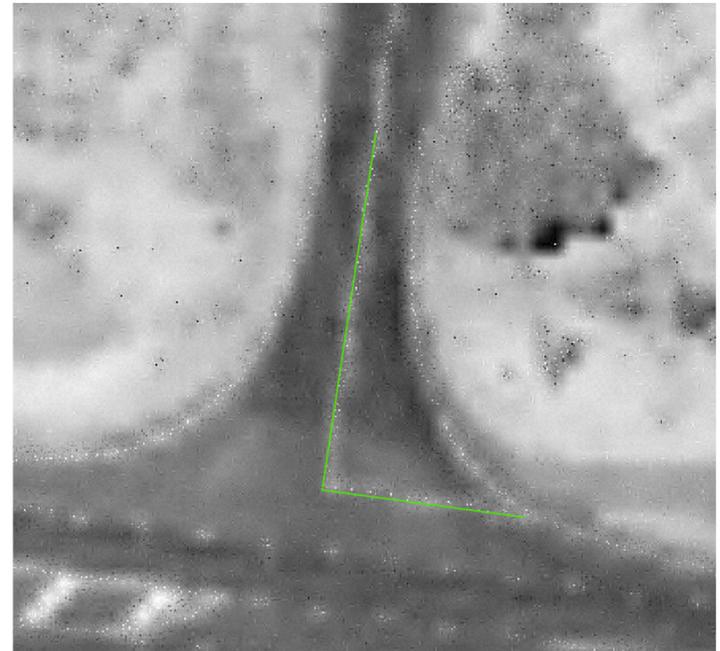
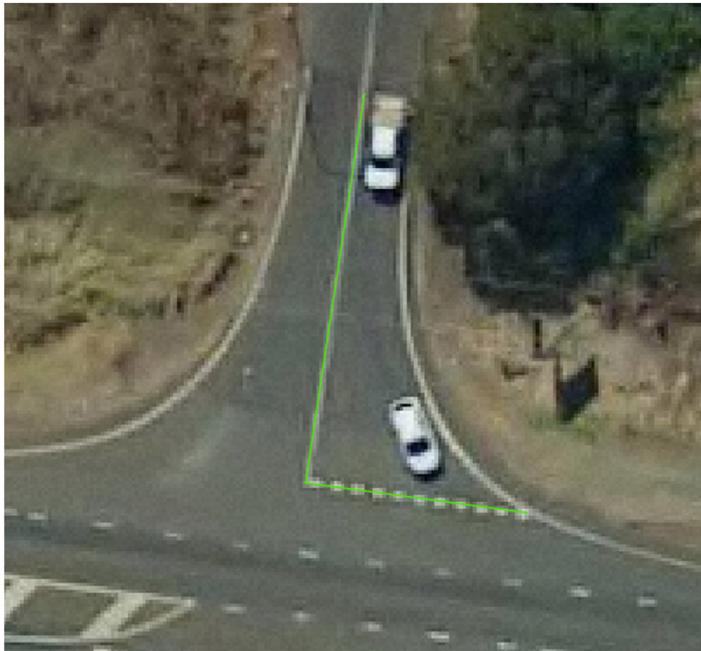
Hydro-flattening Validation

Quality Assessment



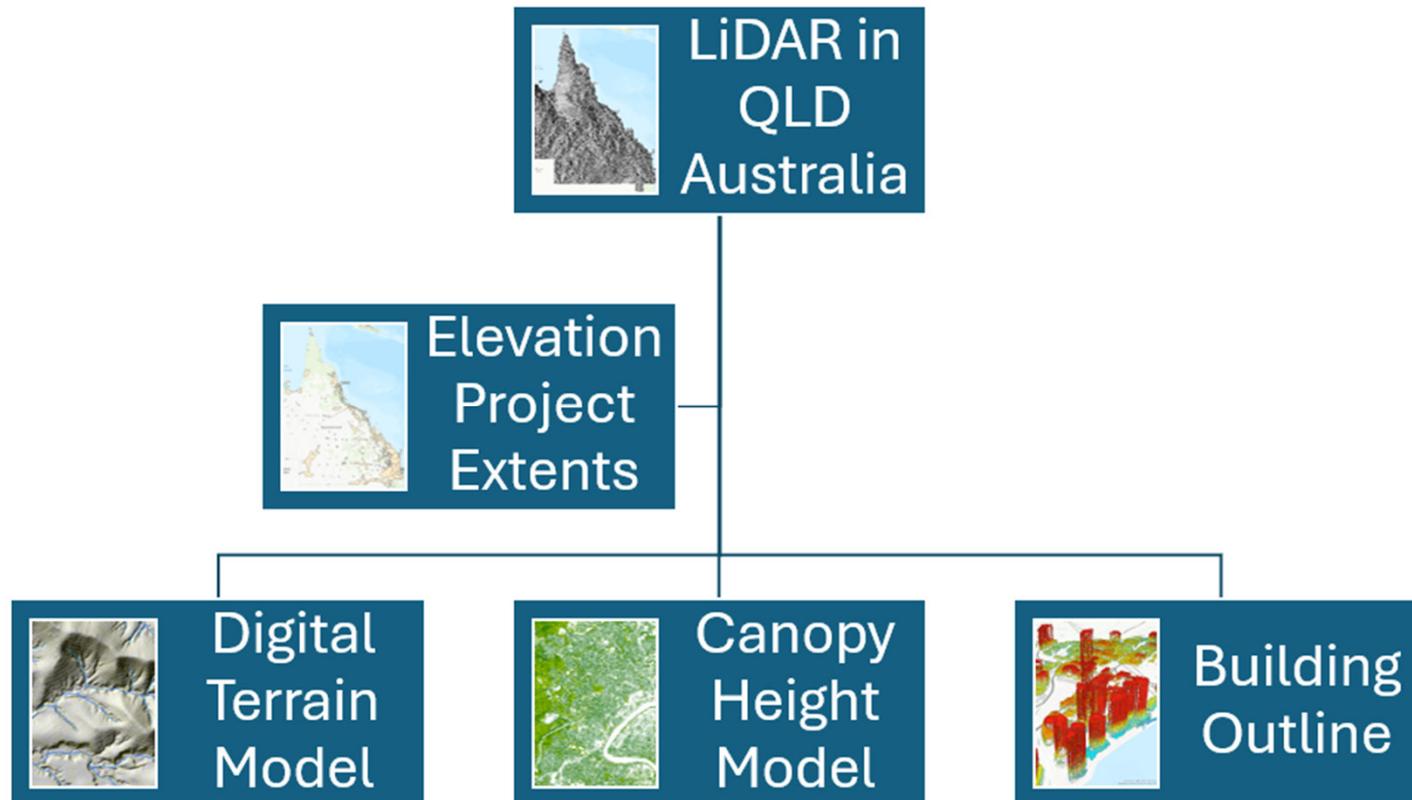
Engineering vs Cartographic Contours

Quality Assessment

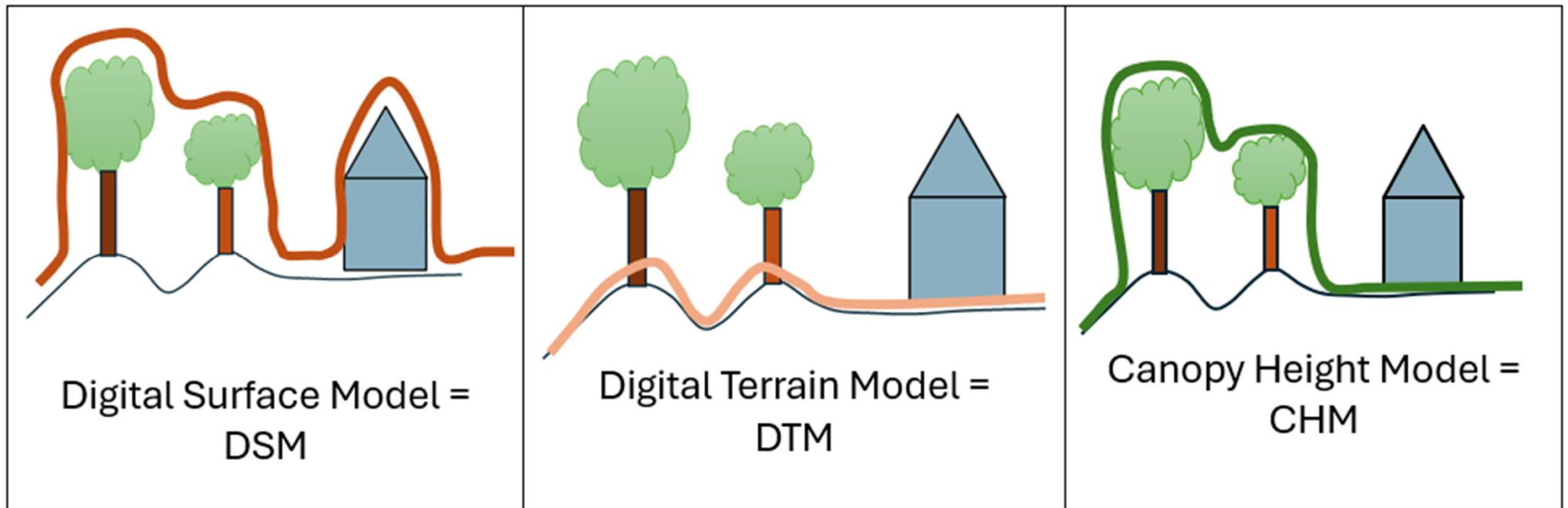


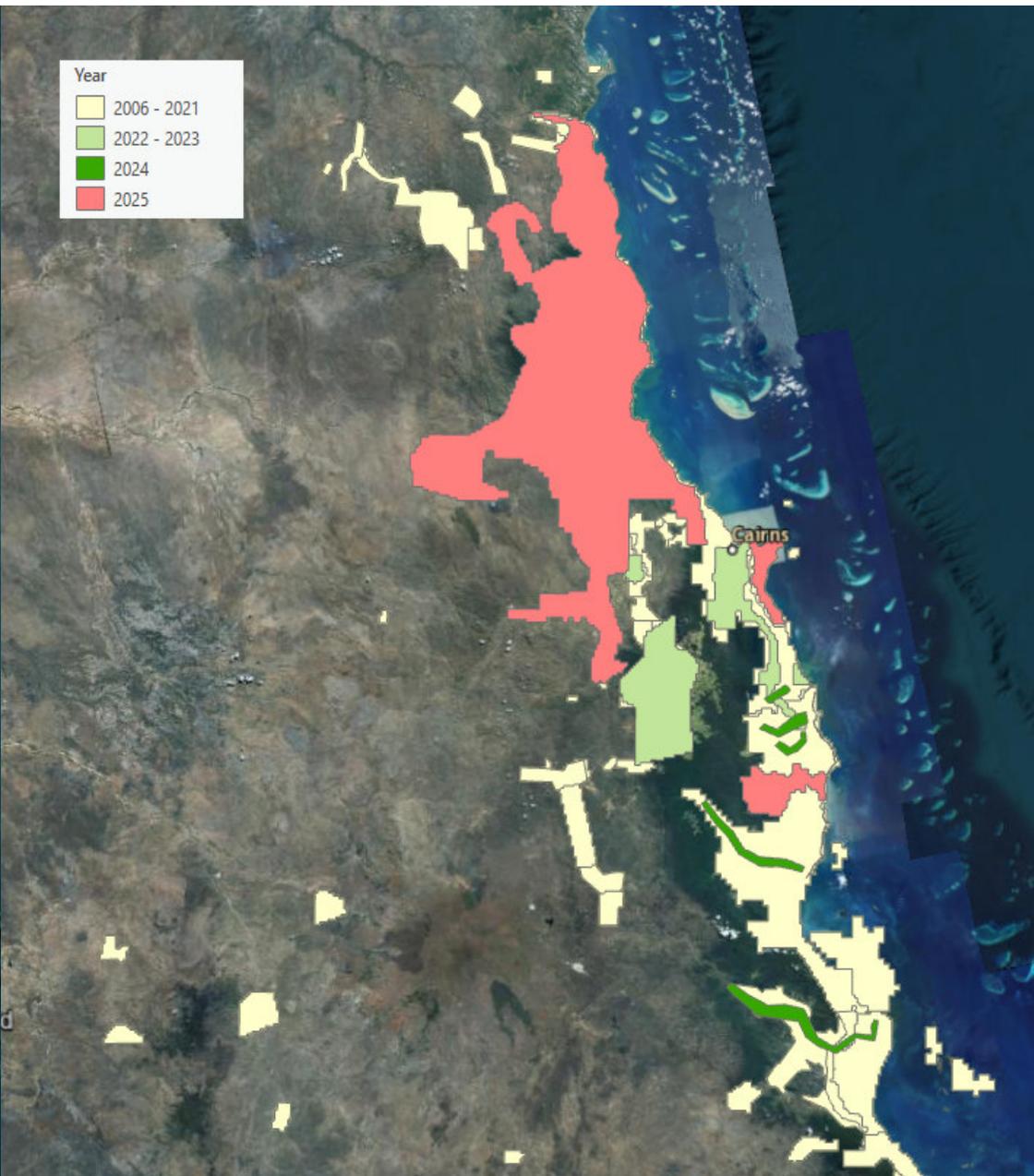
Intensity Image Comparison

LiDAR Derived Products



LiDAR Derived Products





Data Access – Websites and Web Service



2D & 3D visualisation
Height query tool
Elevation profile tool

**Queensland
Globe**



Metadata for each project
QA/QC summary
Links to ELVIS or data purchase

**Queensland
Spatial
Catalogue**



- Download point cloud (.las) or DTM (.tif)
- CC-BY licensed data
- Multiple jurisdictions

ELVIS



- ESRI Image Service / WMS / WMTS
- Basemap services
- Time series services
- Public & restricted

**Elevation
Raster
Web
Services**



- ESRI Map Service / WMS
- Extents for LiDAR and non-LiDAR projects
- CC-BY licensing

**Elevation
Extents
Service**



- Service descriptions
- Software connection details (ArcGIS Pro, QGIS, MapInfo)
- Support + purchase forms

**Knowledge
Base &
Help Centre**

8 DECENT WORK AND
ECONOMIC GROWTH



1st relevant
SDG

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



2nd relevant
SDG

11 SUSTAINABLE CITIES
AND COMMUNITIES



3rd relevant
SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals