Getmapping x Edina 2024

David Philpot
Project Manager - Getmapping Content Programs

Core Competencies

Aerial Survey Services

Data Hosting and
Streaming Services

Mobile Mapping
(Imagery and LiDAR)

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Getmapping Locations

Fleet, Hampshire – UK Head Office, Sales, IT, Finance, Project Management
Liverpool - Aircraft Base / Flight Ops Office

Cape Town – Sales, IT, Finance, Aerial Photography Production
Centurion – SA Flight Operations, LiDAR Production

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Capturing Aerial Photography

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Technology - Cameras

Evolution of Digital Aerial Survey Cameras

1999

Film Cameras / Scanners

- Slow & expensive

2003

First Generation Digital Cameras

- No film processing / scanning
- Quicker to produce

2009

Next Generation Digital Cameras

- Larger foot print
- Improved CCDs
- Quicker to capture & produce

2018

Latest Digital Cameras

- Extra large footprint
- Improved CCDs
- Higher flying heights
- Reduced capture time & processing

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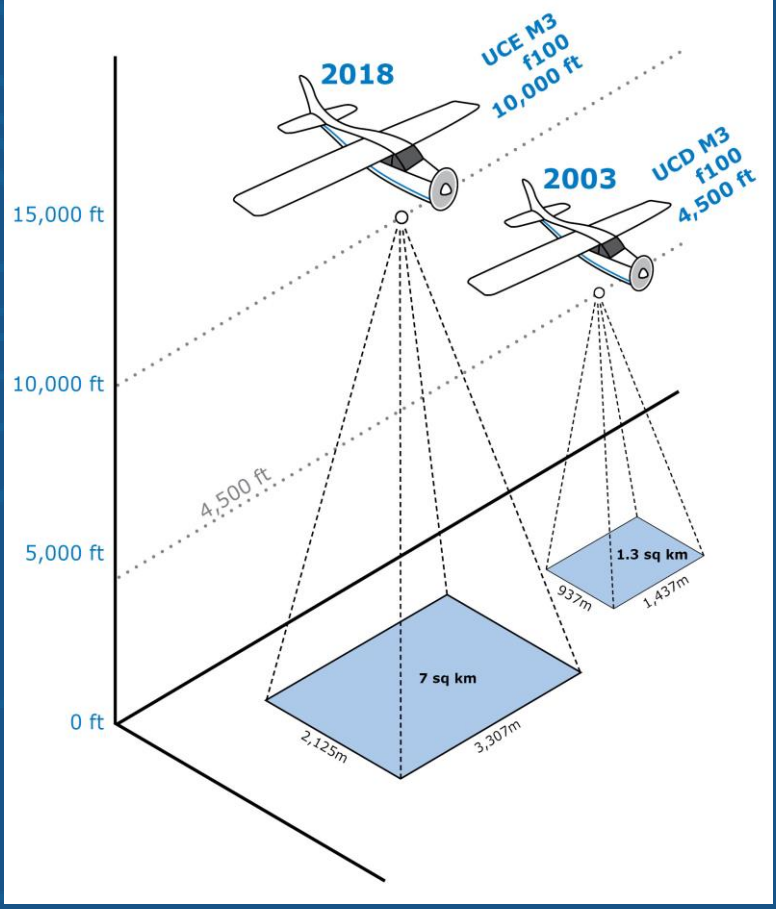
Technology - Cameras

Evolution of Digital Aerial Survey Cameras



- Improved CCD sensors
- Increased footprint
- Higher flying height
- Reduced flying time
- 2-3 year update cycle
- Faster camera cycle time = Increased Overlap

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Technology - Cameras

210mm lens. Captures at 19000 ft for 12.5cm resolution data

100mm lens. Captures at 9000 ft for 12.5cm resolution data

Getmapping make use of the latest in digital camera technology.

'Best of breed' large format RGBI cameras – 2 x Microsoft UltraCam Eagles MK1 (260mpix)

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Technology - Cameras

Individual Red, Green, Blue and Near Infra-Red (NIR) Lenses

4 panchromatic lenses

Panchromatic images provide the detail and are stitched together to create a individual image

Larger footprint on the ground

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Technology – Aircraft

Piper PA 31

Range 5-6 hours
180 – 210 knots
Pressurised
Used at 8000 - 19000 ft in UK

Cessna 402B

Range 5-6 hours
180 – 210 knots
Un-pressurised
Used at 3000 – 10000 ft in UK

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Aerial Photography Production

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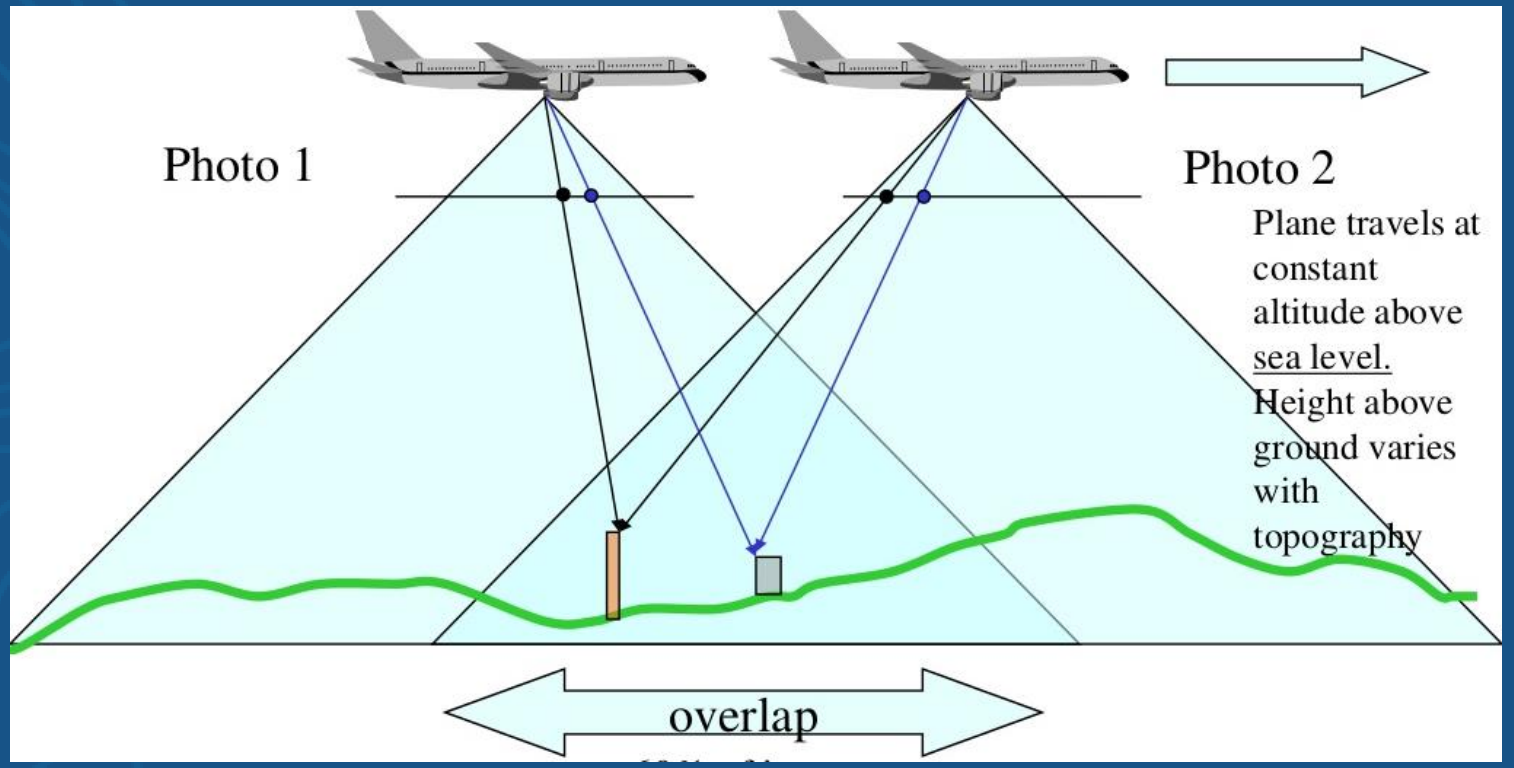
Production – Overlap



The correct overlap critical for data processing

Higher overlap = less building lean
Terrain changes need to be accounted for

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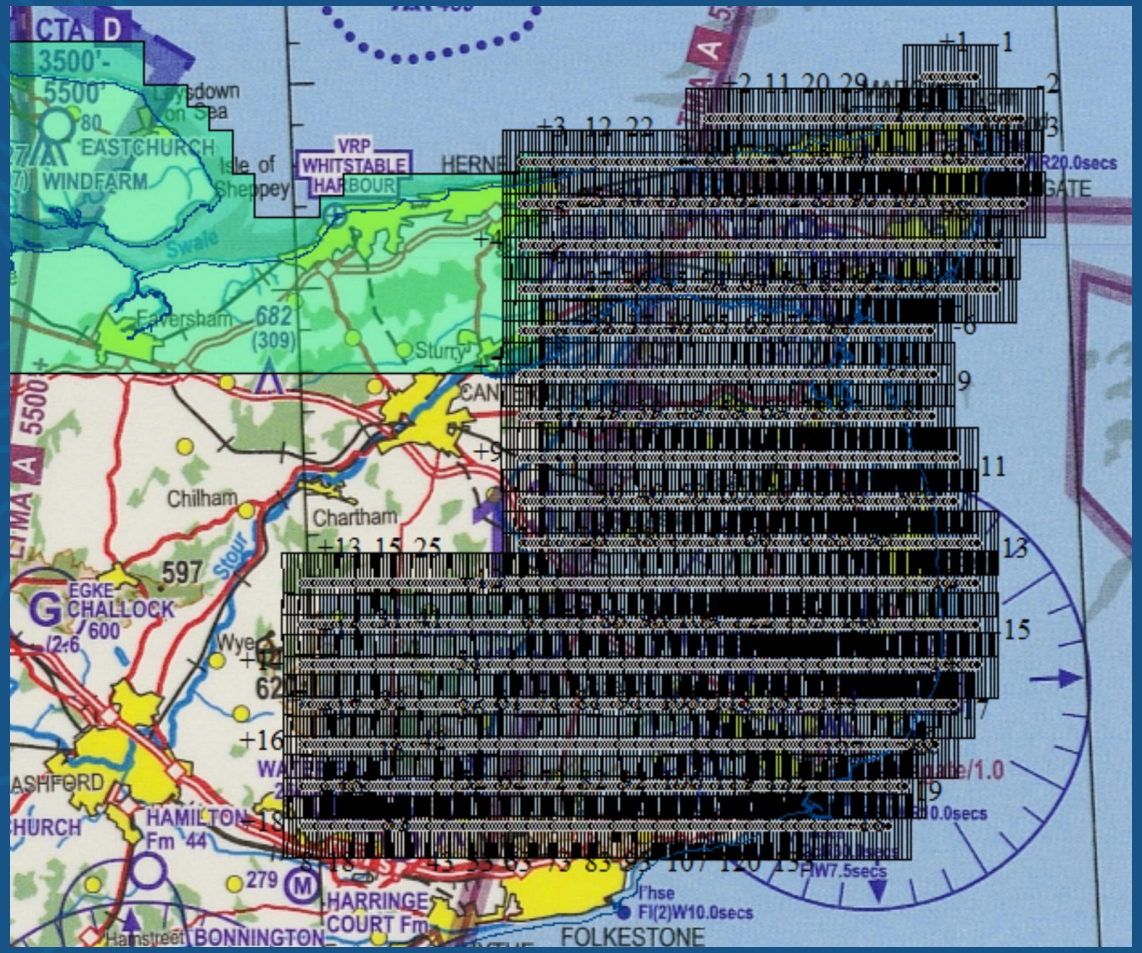
Production – Flightplanning & Overlap



Flightlines planned usually in E/W or N/S direction

.

80% forward overlap
30% side overlap

Faster camera cycle rate enables higher overlap at lower resolutions

Easier to capture 5cm data and create height data from it

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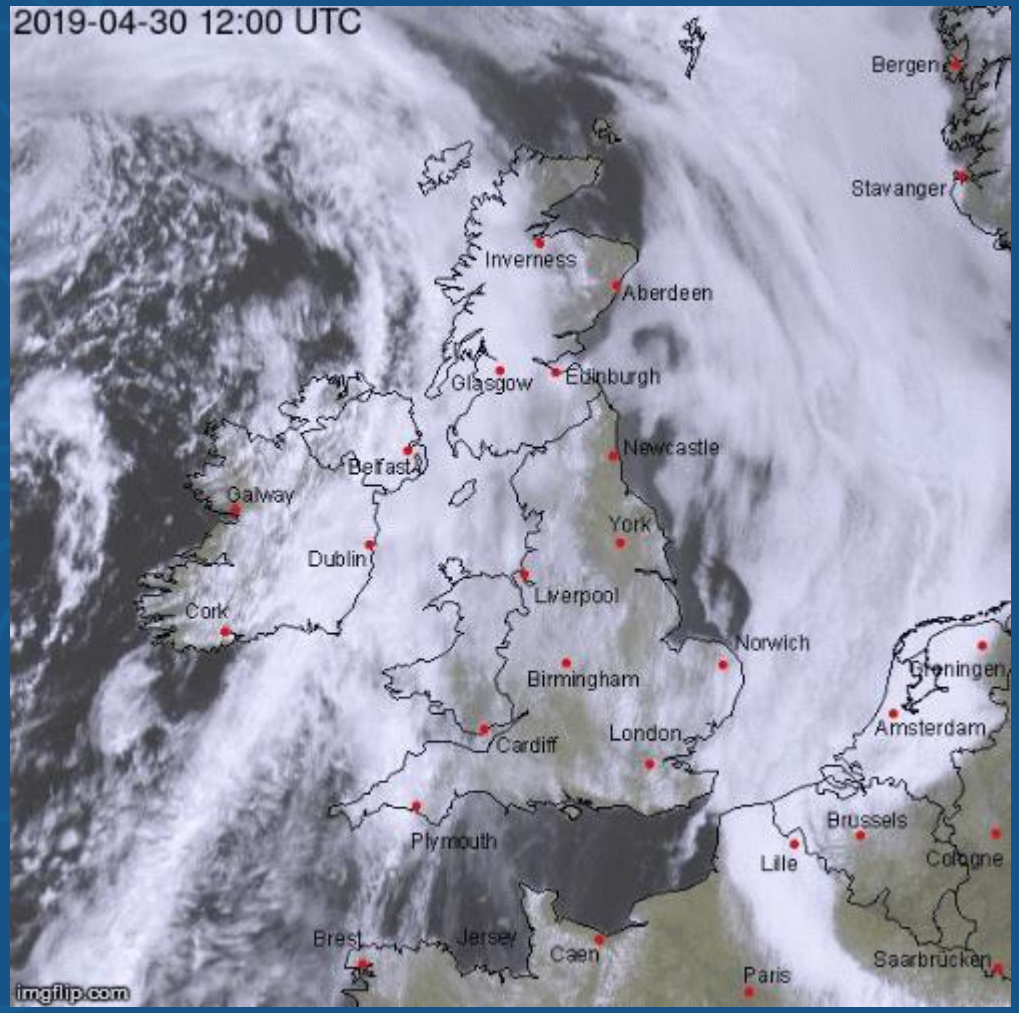
Data Capture – Flying Season



Data captured between April and October

Need clear skies and the correct sun angle

RICS specs for the data

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Processing Aerial Photography

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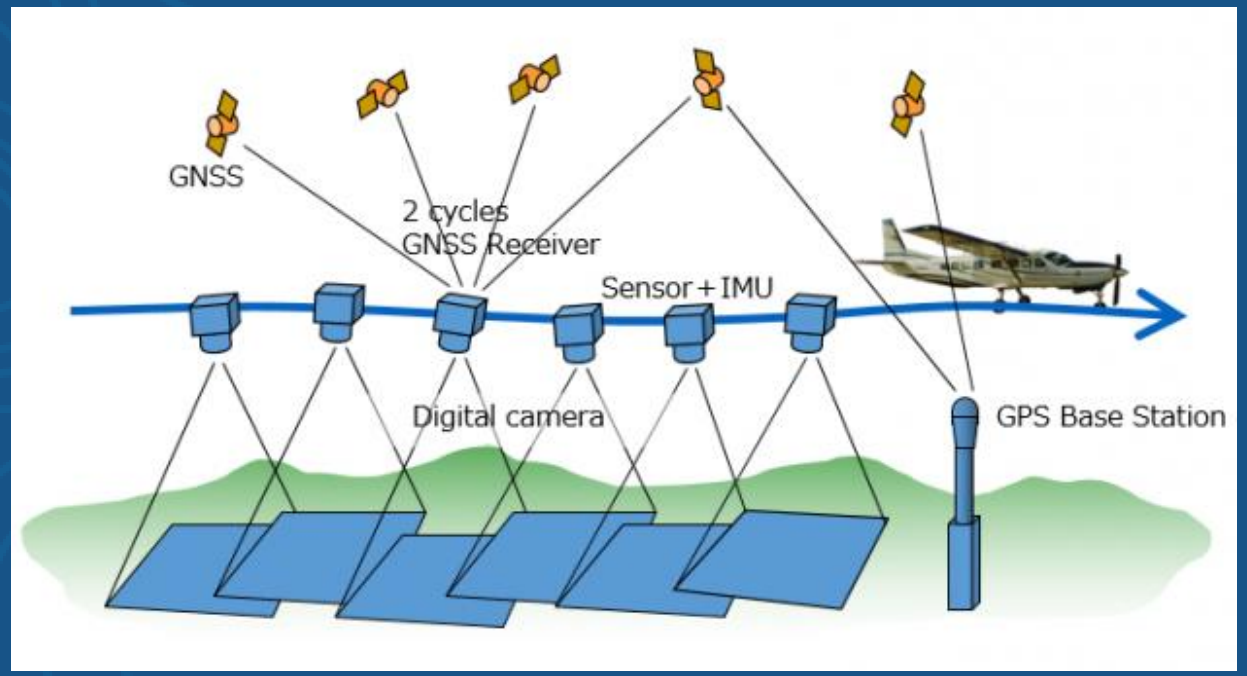
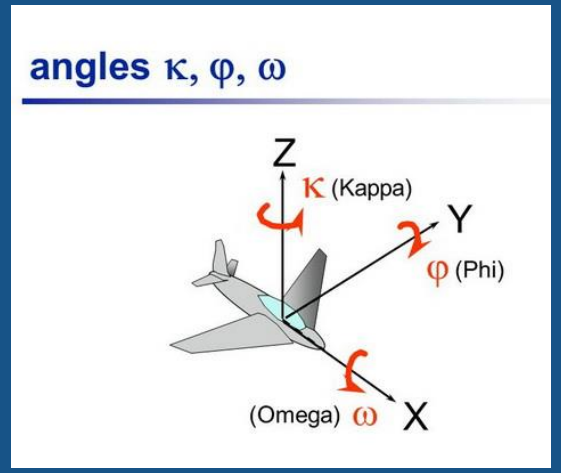
Processing Aerial Photography - Accuracy





Highly accurate measurements of the aircraft position (x,y,z) and attitude (omega, phi, kappa) required for spatial accuracy of output data

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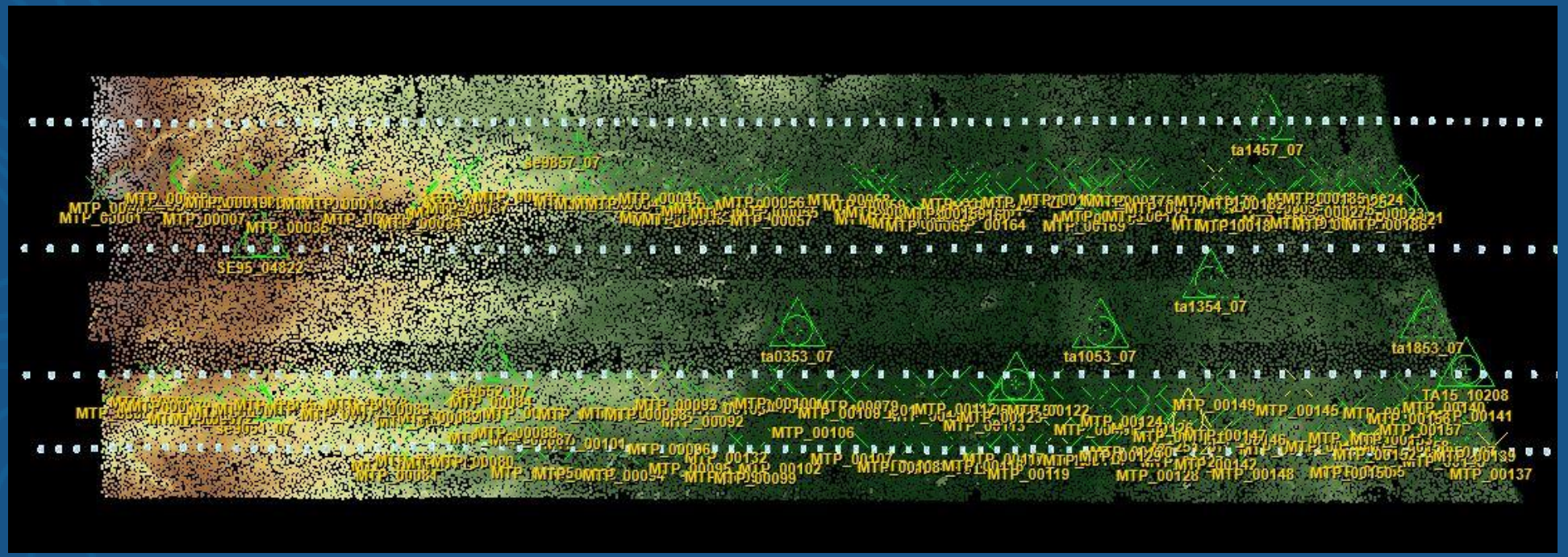
Processing Aerial Photography - Colour

Radiometric corrections performed to create an even datasets with correct colours

Ensuring no loss of information (image burnout

Processing Aerial Photography – Aerial Triangulation



Tie Points automatically generated by the software
Extra Tie points can be added manually in areas where the connectivity is weak
Ground Control Points added

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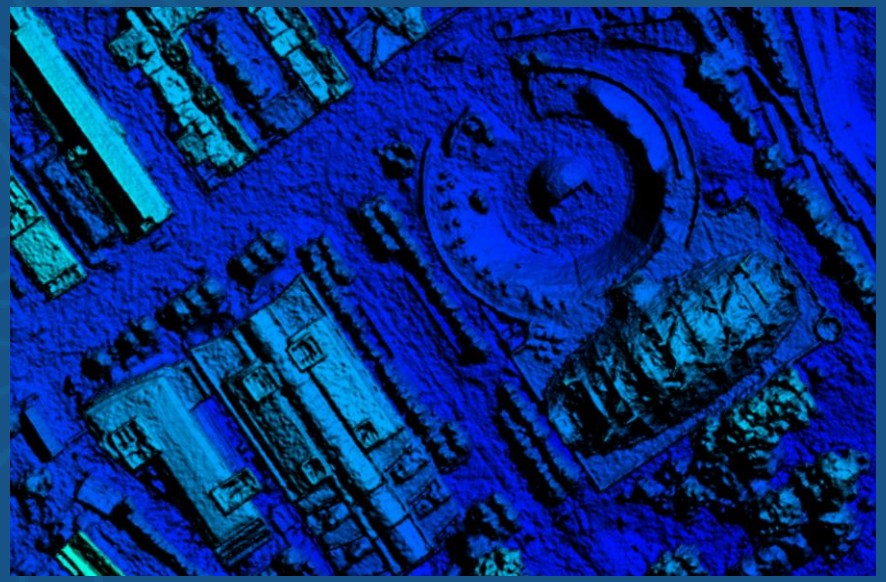
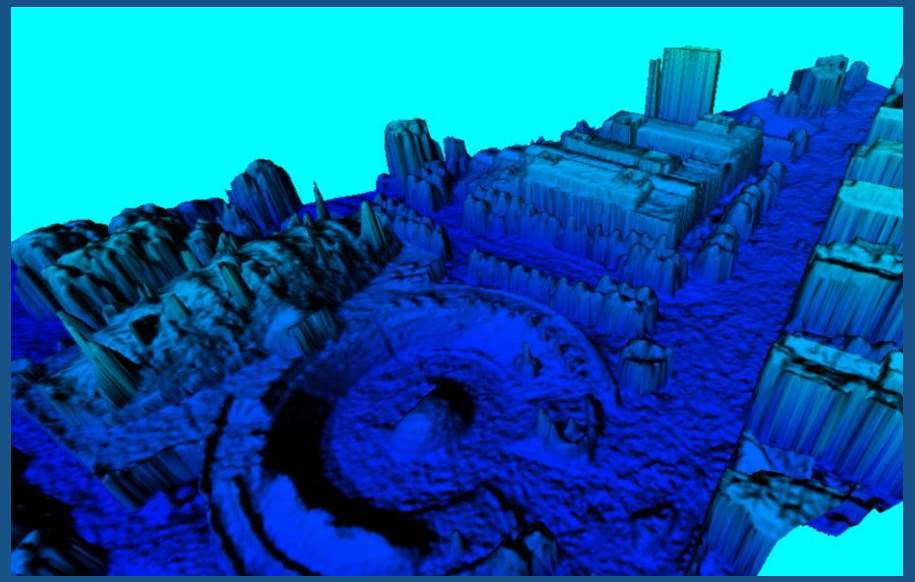
Processing Aerial Photography – Densematcher

Raw DSM - one point every 25cm



As viewed in 3D



The Result – a highly accurate digital surface model (DSM) can be created. Thanks to the high point density, this DSM has remarkably sharp edges and a very high level of detail.

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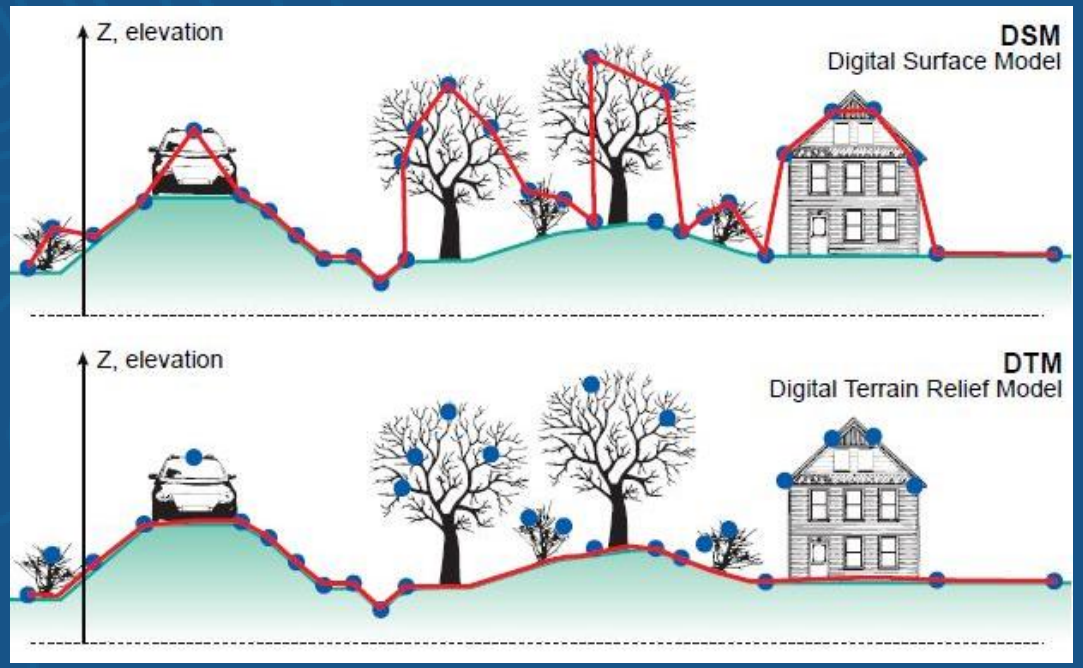
Processing Aerial Photography – Orthorecification

Every frame needs to go through the process of ortho-rectification.

Ortho-rectifies involves draping the imagery over the terrain then flattening to create a 2D image.



DSM → DSM Ortho

DTM → DTM Ortho

An output coordinate system is chosen, eg British National Grid projection.

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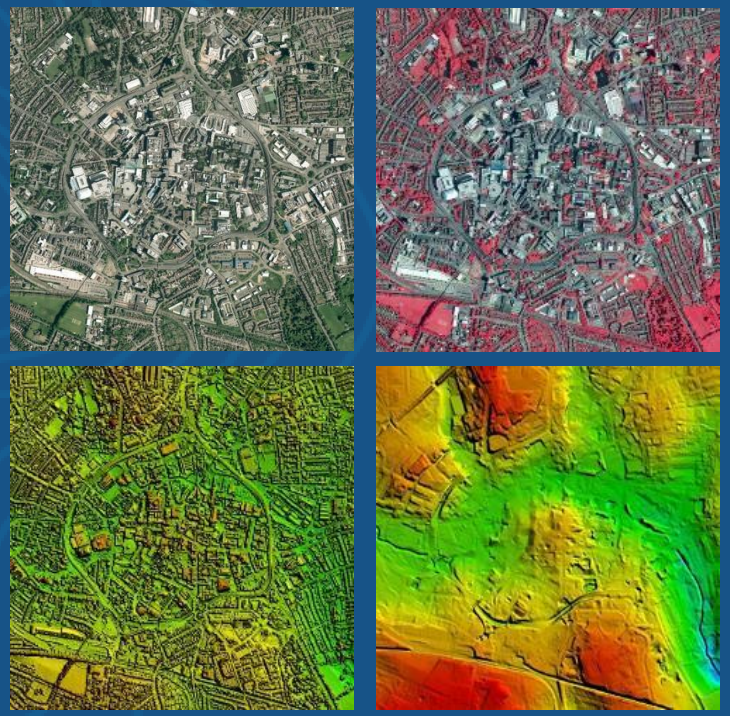
Aerial Photography – Core Datasets



3 or 4 band orthorectified photography

Digital Terrain Model (DTM)
Digital Surface Model (DSM)

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Aerial Photography – Core Datasets

Standard Ortho

True Ortho

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Aerial Photography – Core Datasets

RGB Orthophotography

CIR Orthophotography

All data is produced as RGBI so RGB and CIR are temporally identical

Full UK coverage all data newer than 2021

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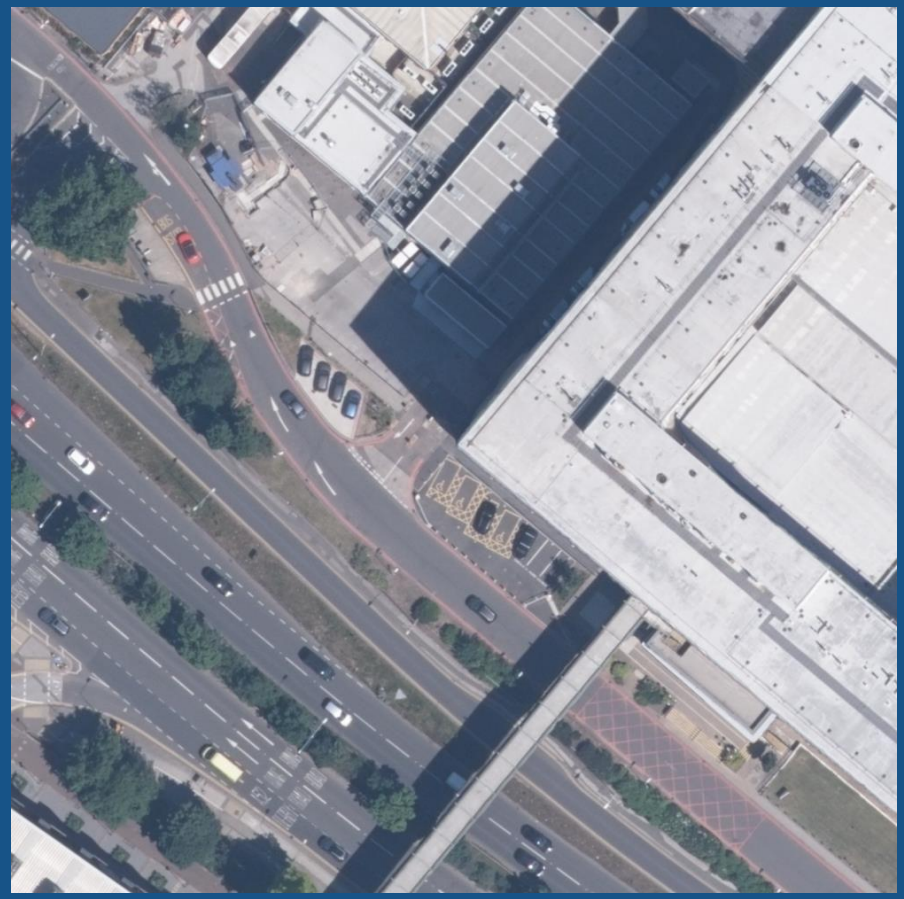
Aerial Photography – Core Datasets

City View 5cm

National View 12.5cm



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Aerial Photography – Core Datasets

City View 5cm

Key Features:

- **Ultra-High Resolution**: 5cm per pixel resolution delivers crisp, detailed images, capturing fine features such as individual roof tiles, road markings, and small objects.
- **Urban Focused**: Specially designed for urban environments, providing detailed imagery of buildings, roads, infrastructure, and green spaces.
- **Accurate Georeferencing**: Each image is accurately georeferenced to enable integration with Geographic Information Systems (GIS) and other mapping platforms.
- **Seamless Data**: Provides a continuous, detailed view of entire urban areas, ensuring smooth transitions between regions and avoiding stitching issues.
- **Frequent Updates**: Regularly refreshed to ensure up-to-date imagery that reflects ongoing changes in cityscapes.

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Aerial Photography – Core Datasets

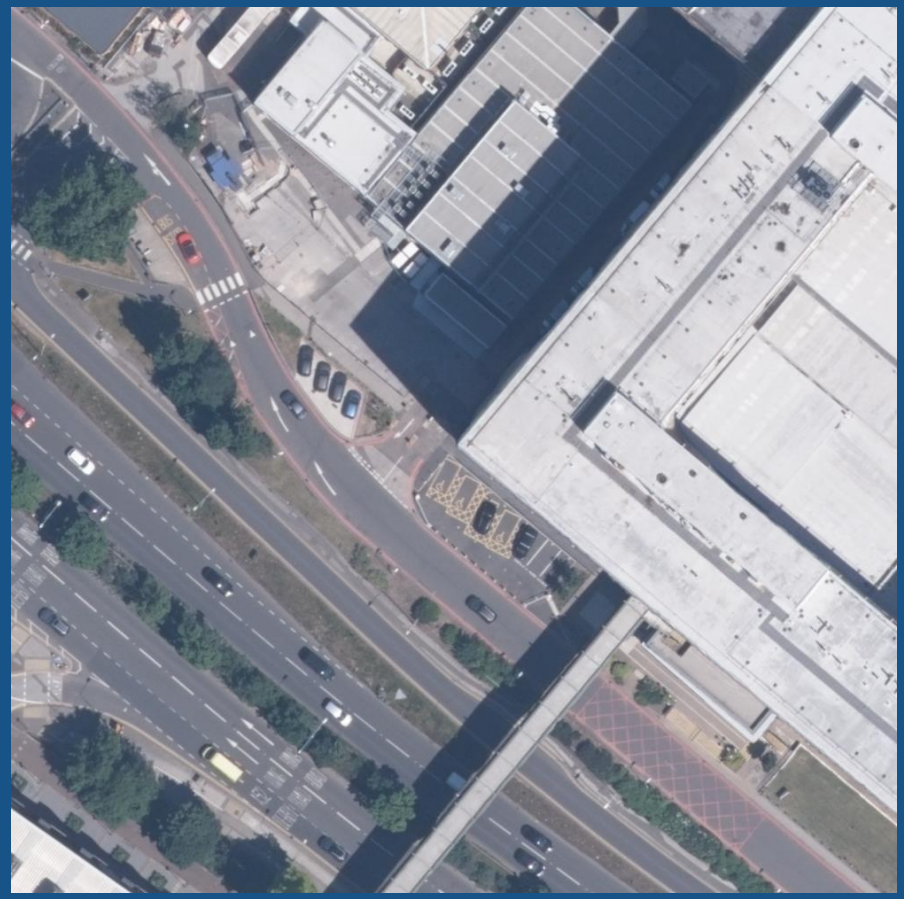
City View 5cm

Aerial Photography - Main Products

Key Features:

- High Resolution: 12.5cm per pixel resolution ensures sharp, detailed imagery suitable for close-up analysis and precise mapping tasks.
- Nationwide Coverage: Full UK coverage ensures a consistent data set across regions, making it ideal for national or multi-regional projects.
- Seamless Integration: Provides a single, seamless dataset, eliminating the need for stitching multiple images, and ensuring a smooth visual experience across borders.
- Regularly Updated: Getmapping ensures frequent updates to keep the imagery current, reflecting the latest changes in infrastructure and environment.
- Ready for GIS Platforms: NationalView Data integrates easily with most Geographic Information Systems (GIS) and mapping software for straightforward analysis.

National View 12.5cm



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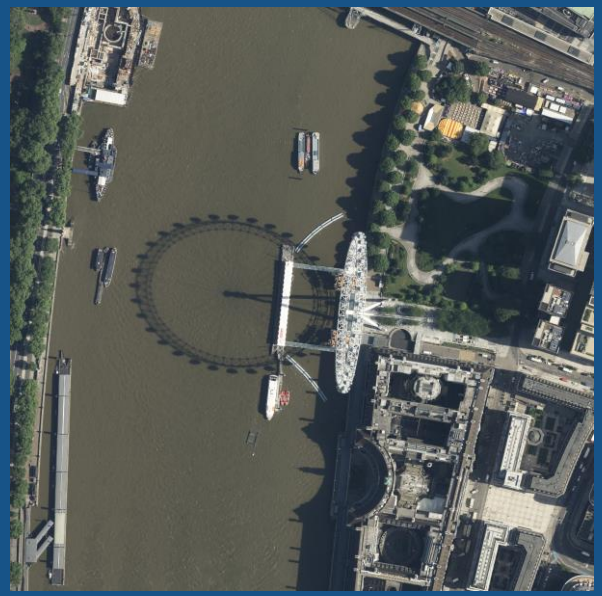
Aerial Photography - Main Products

National View – 25years of data capture

1999

2008



2021

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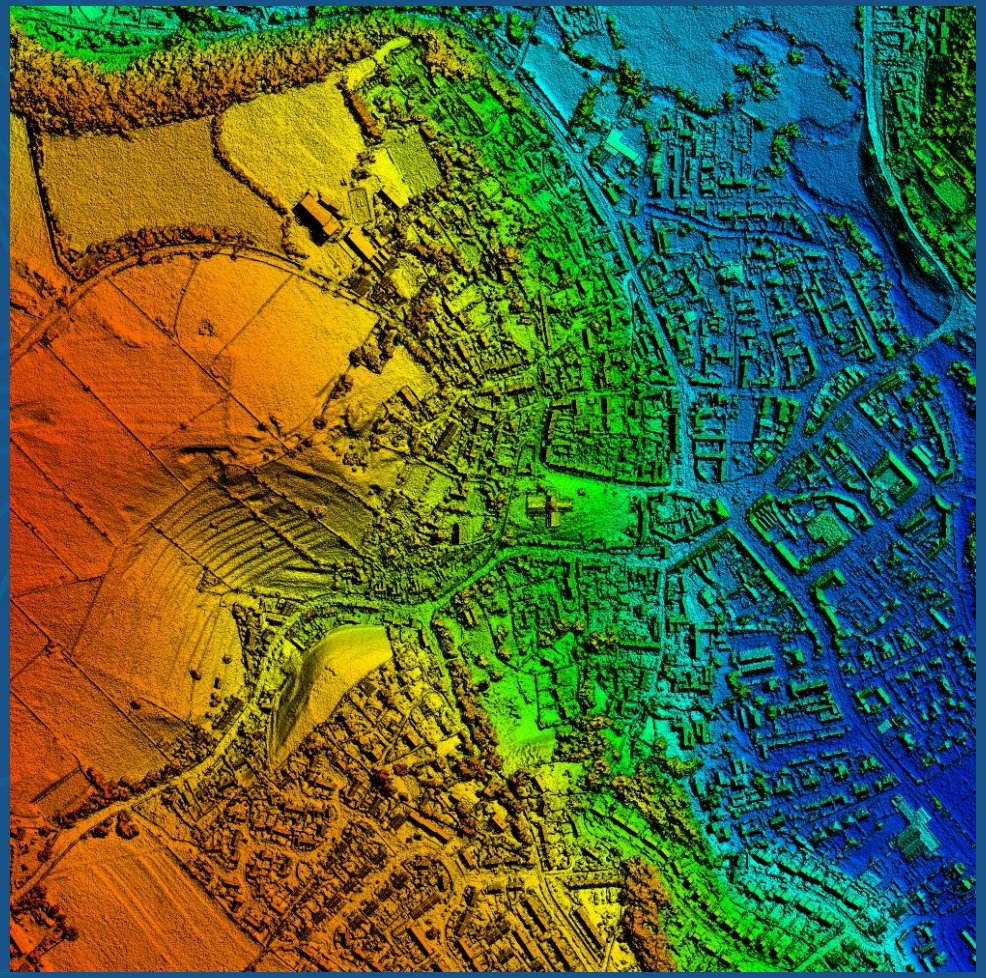
Height data- Main Products DSM



DSM – Digital Surface Model

3D visualisation of the earths surface.
Edited to flatten water, remove spikes and other artefacts removed.

Applications:

- Urban Planning: Provides detailed surface data for infrastructure development, 3D city modelling, and land-use planning.
- Flood Risk Assessment: Elevation data aids in flood modelling, risk mapping, and disaster preparedness.
- Telecommunications: Supports line-of-sight analysis for radio, cellular, and satellite network planning.

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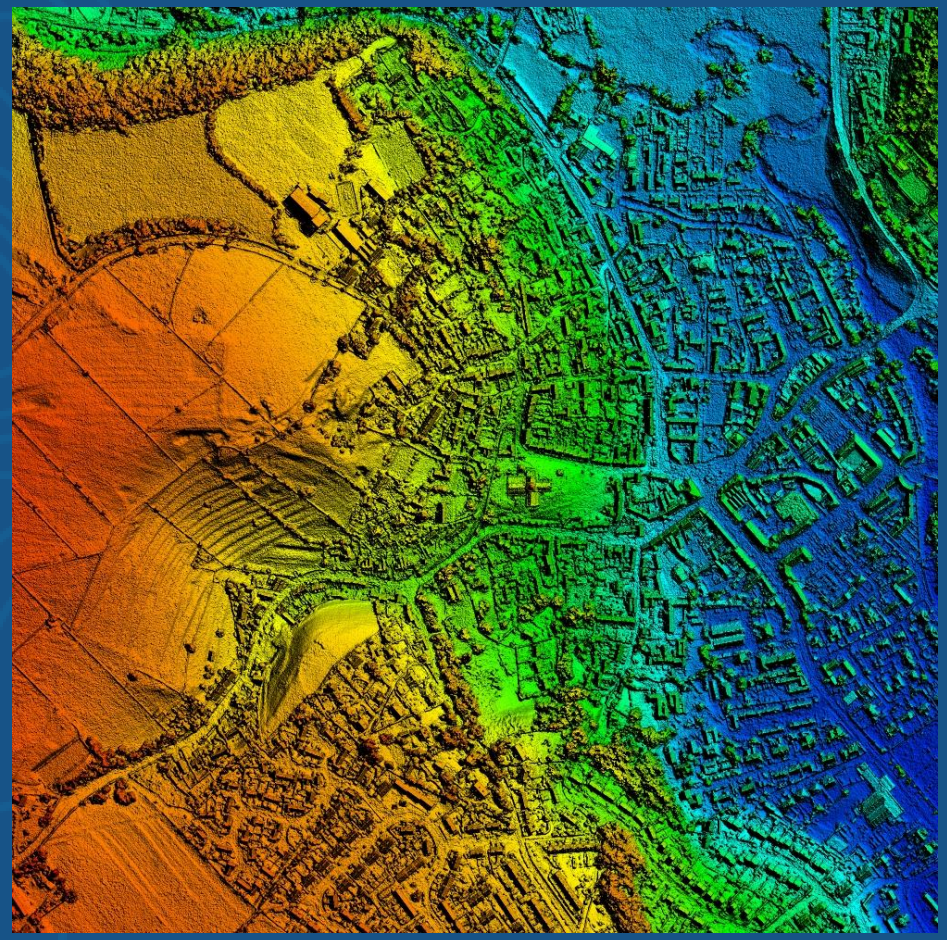
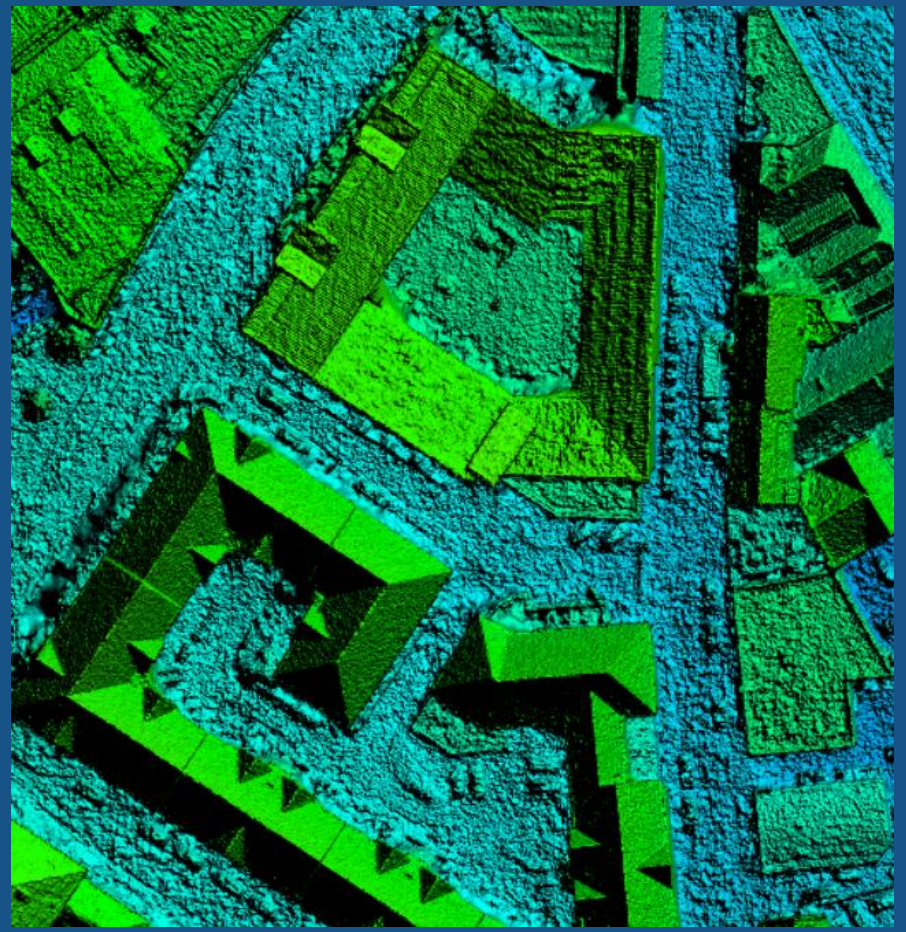
Height data- Main Products DSM



2m resolution (National View Data)



5cm resolution (City View Data)

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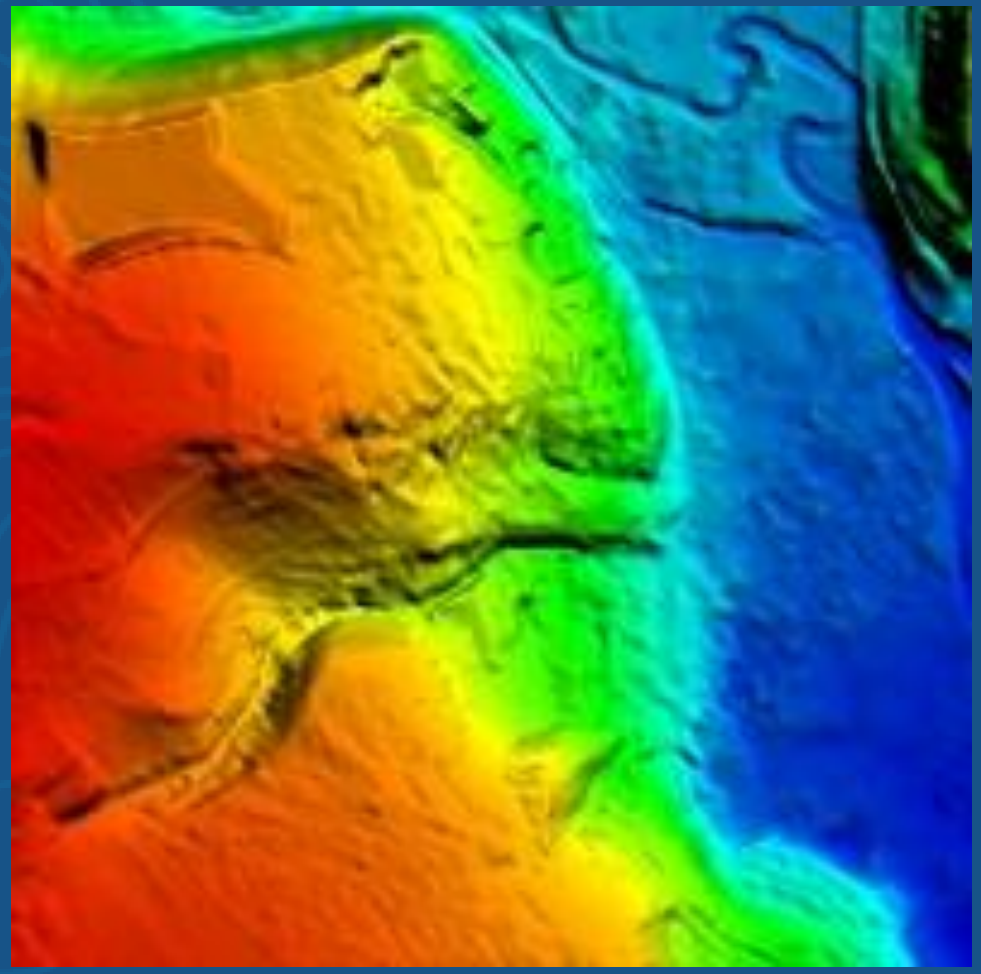
Height data- Main Products DTM



DTM – Digital Terrain Model

3D visualisation of the earths surface.
Aka ‘Bare Earth’. All buildings and vegetation removed

Applications:

- flood modelling
- Environmental impact studies
- Urban development planning
- 3D visualisation and 'fly-throughs’
- Derived products (Contours)

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Managed Data Services

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Managed Data Services - Overview

OVERVIEW

Getmapping Data products and Ordnance Survey mapping streamed straight to your GIS, mapping application or website

Always receive the most up-to-date map data

High speed, ultra-reliable Data Centre connection

Streamed using OGC standards; WMS, WFS or WMTS

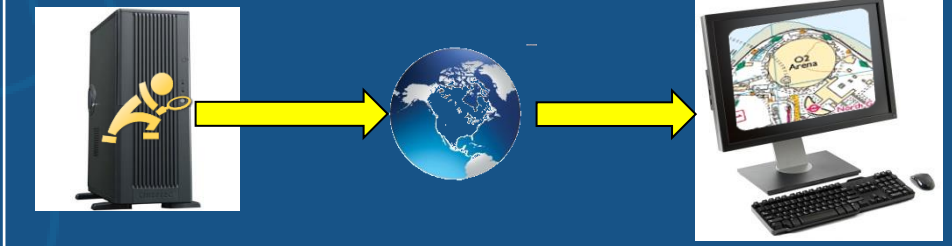
APPLICATIONS

Viewing mapping in Desktop GIS

Viewing mapping in Web GIS

Creating custom GIS applications

Adding into CRM and Databases



Map data is streamed from the Getmapping Data Centre over the Internet to the user

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Managed Data Services – WMS/WMTS/WFS

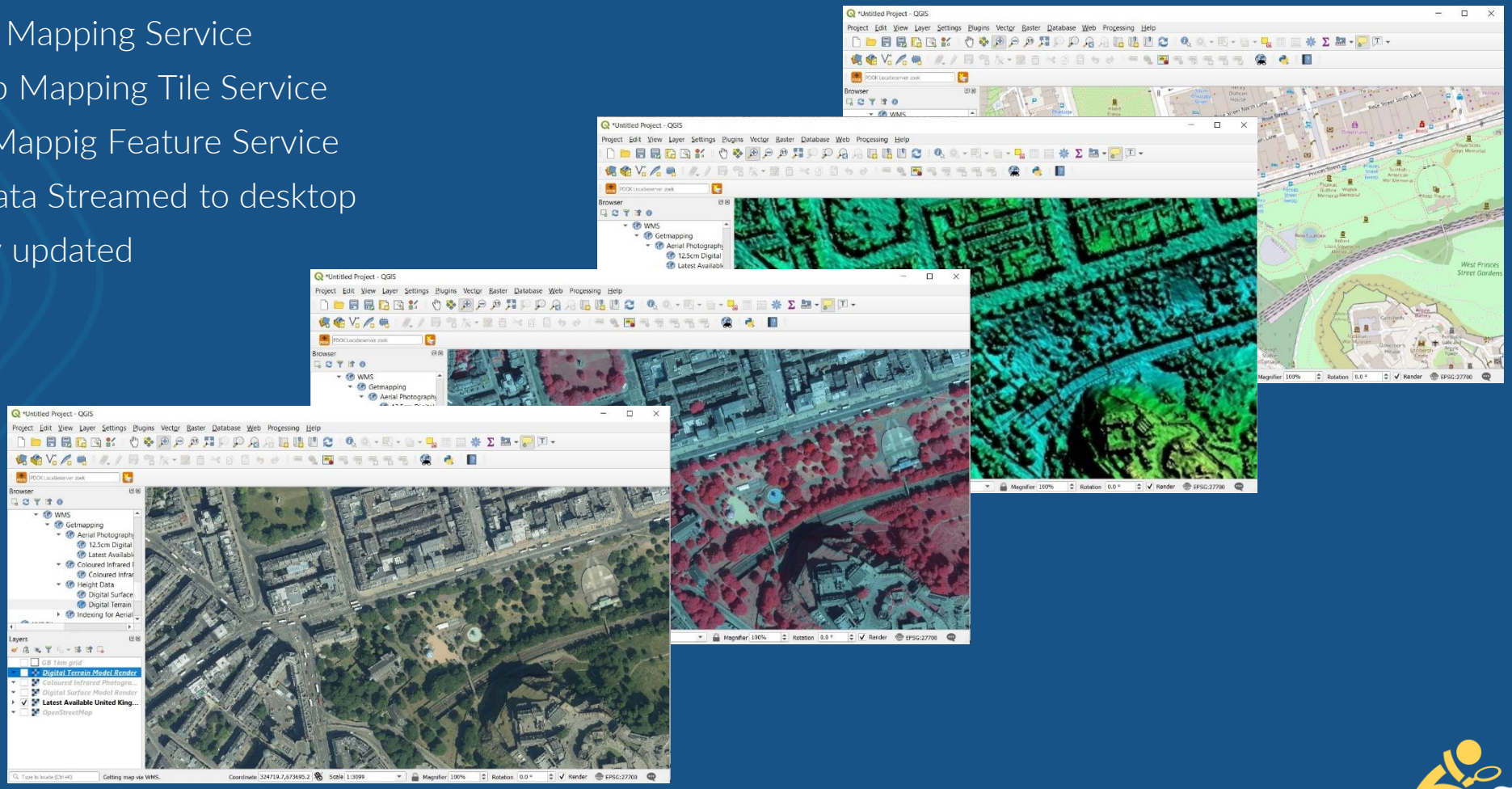
WMS – Web Mapping Service

WMTS - Web Mapping Tile Service

WFS - Web Mappig Feature Service

Geospatial Data Streamed to desktop

Automatically updated



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