Bluesky International Ltd

Geographical Monitoring systems for CO2 emissions and Land Use Changes – Aerial Survey

April 2023

Rachel Tidmarsh
Chief Executive Officer
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Who is Bluesky?

Our Products & Services

Climate & Environmental Customer Case Studies

About Bluesky

- Aerial survey and geospatial data company

- Privately owned

- Established in 2003

- Circa 100 staff across 4 countries (UK, Ireland, India and US)

- Capture and maintain aerial photography and height data nationally for GB and RoI on a 3-year update programme

- Cover public and private sector

- UK Government's supplier of choice for aerial photography and height data

- Accurate, high quality, off the shelf products and bespoke commissioned projects

- Home of innovative products including the National Tree Map and MetroVista

Our Mission: To provide high quality and accurate geospatial products that can inform decisions, shape policy and provide detailed analytical insight helping our customers work efficiently and cost-effectively

Our products

Full range of geospatial data products and offer bespoke data capture solutions

Aerial Imagery

LiDAR

Thermal Imagery/Mapping
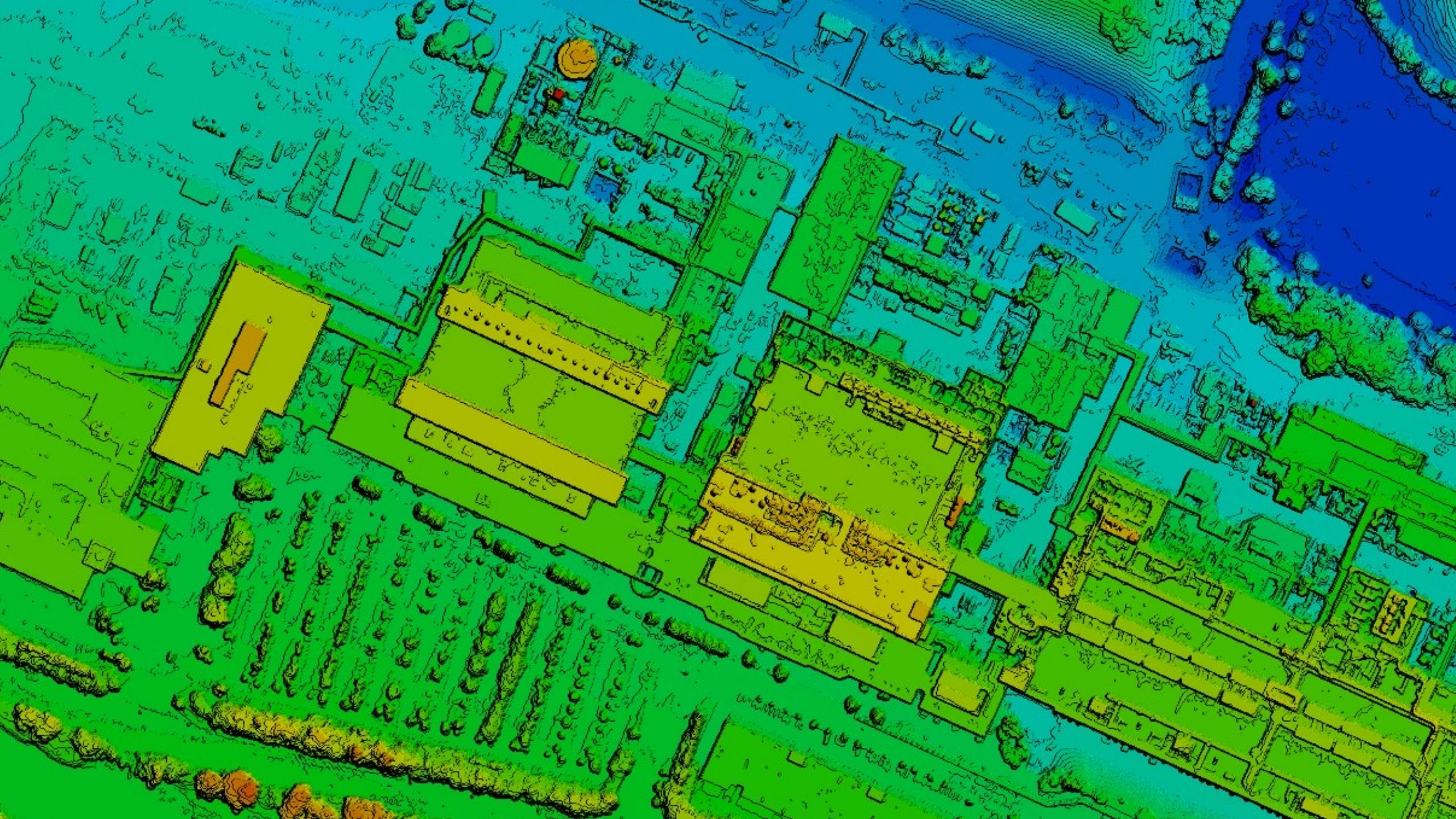
Colour Infrared Imagery

Photogrammetric DSM

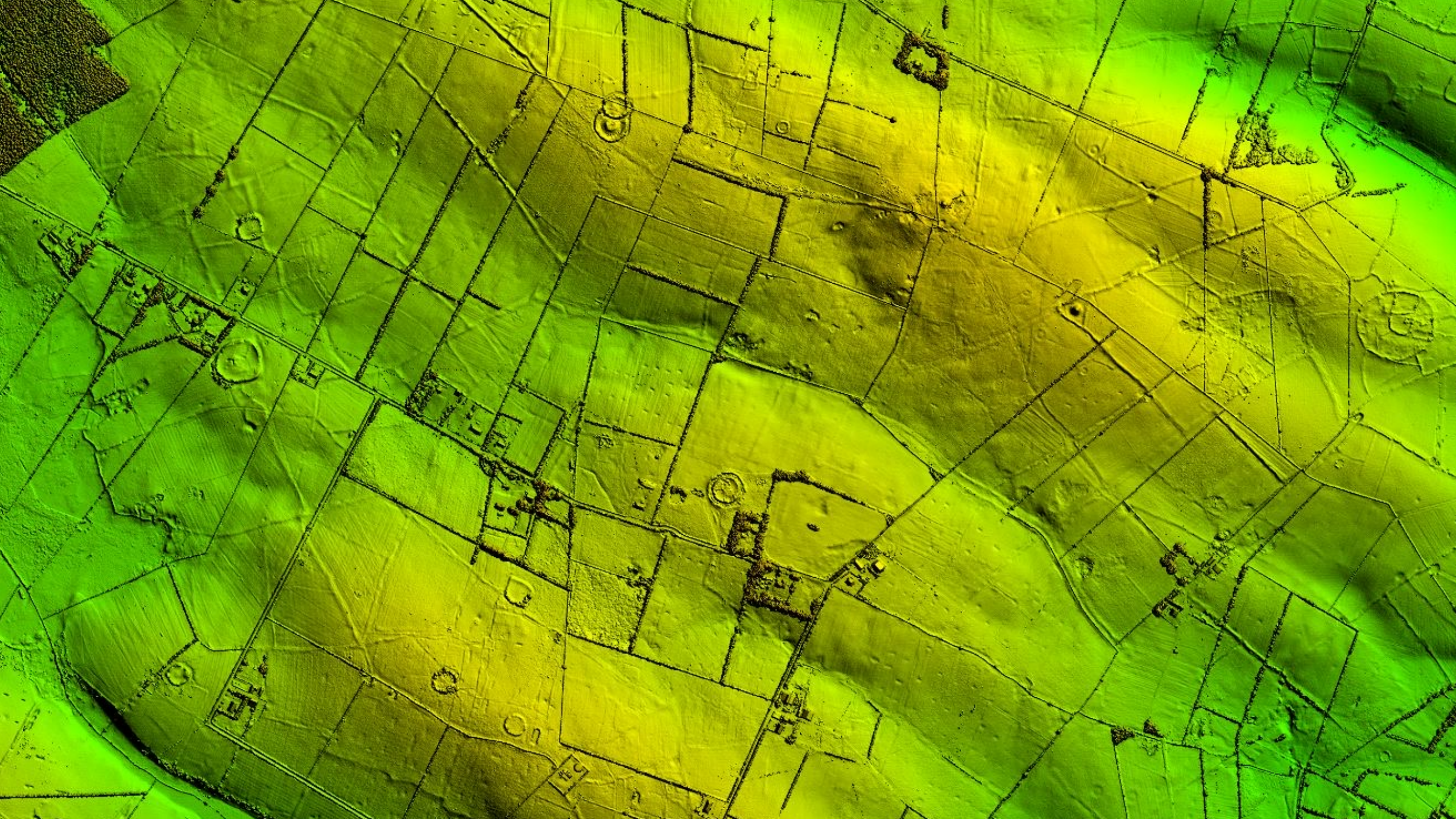Photogrammetric DTM

3D Building Models

National Tree Map

MetroVista

National Tree Map

NTM is the most detailed dataset of its kind ever produced. With coverage across the whole of England, Wales, Scotland and the Republic of Ireland, NTM provides a unique, comprehensive database of location, height and canopy/crown extents for trees 3m and above in height.

Derived from our high resolution national aerial photography, accurate terrain and surface data, and colour infrared imagery, using innovative processing techniques, NTM is already being used across numerous sectors including insurance, utilities, forestry, government, planning, and environmental management.

Benefits

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Unique product – the only tree map in the UK

Easy-to-use vector data

Compatible with Ordnance Survey products

Flexible licensing

Continually updated

Specification

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Trees over 3m in height

Measurements of location, height and canopy spread
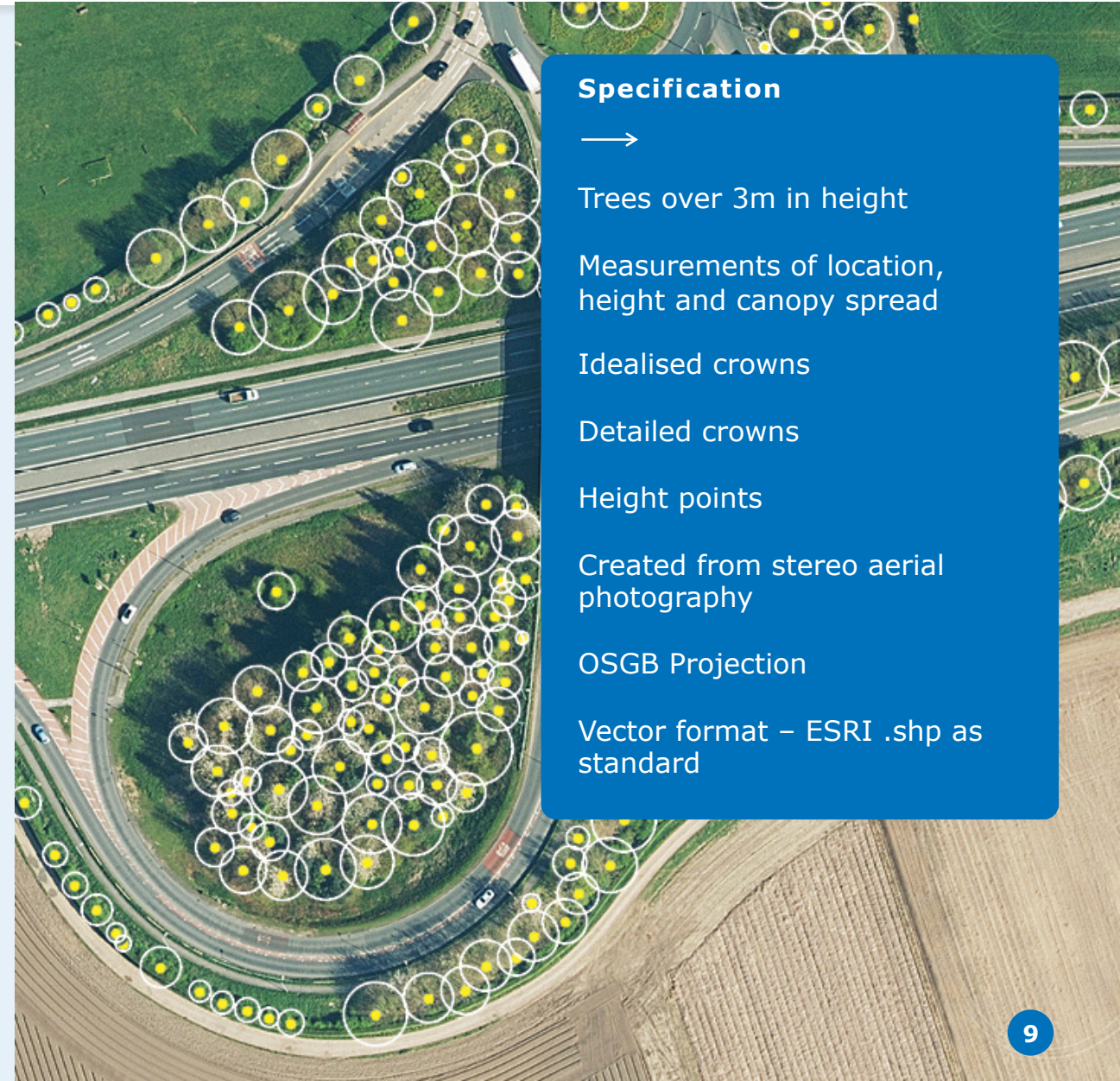
Idealised crowns

Detailed crowns

Height points

Created from stereo aerial photography

OSGB Projection

Vector format – ESRI .shp as standard

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MetroVista

MetroVista products include LiDAR, oblique and vertical imagery as well as fully rendered mesh models.

Data is captured using the Leica CityMapper, the world's first hybrid airborne sensor combining oblique and nadir imaging as well as a LiDAR system in one sensor.

MetroVista mesh models provide the perfect baseline for smart city or digital twin applications, enabling smart decisions in rapidly changing urban environments.

Ideal tool for energy and utilities, urban planning, environmental impact, civil engineering, and insurance and risk.

Benefits

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3D interactive mesh models

Compatible with GIS, CAD and web mapping software

Flexible licensing

A foundation for smart cities

Specification

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Mesh models derived from vertical & oblique imagery & LiDAR
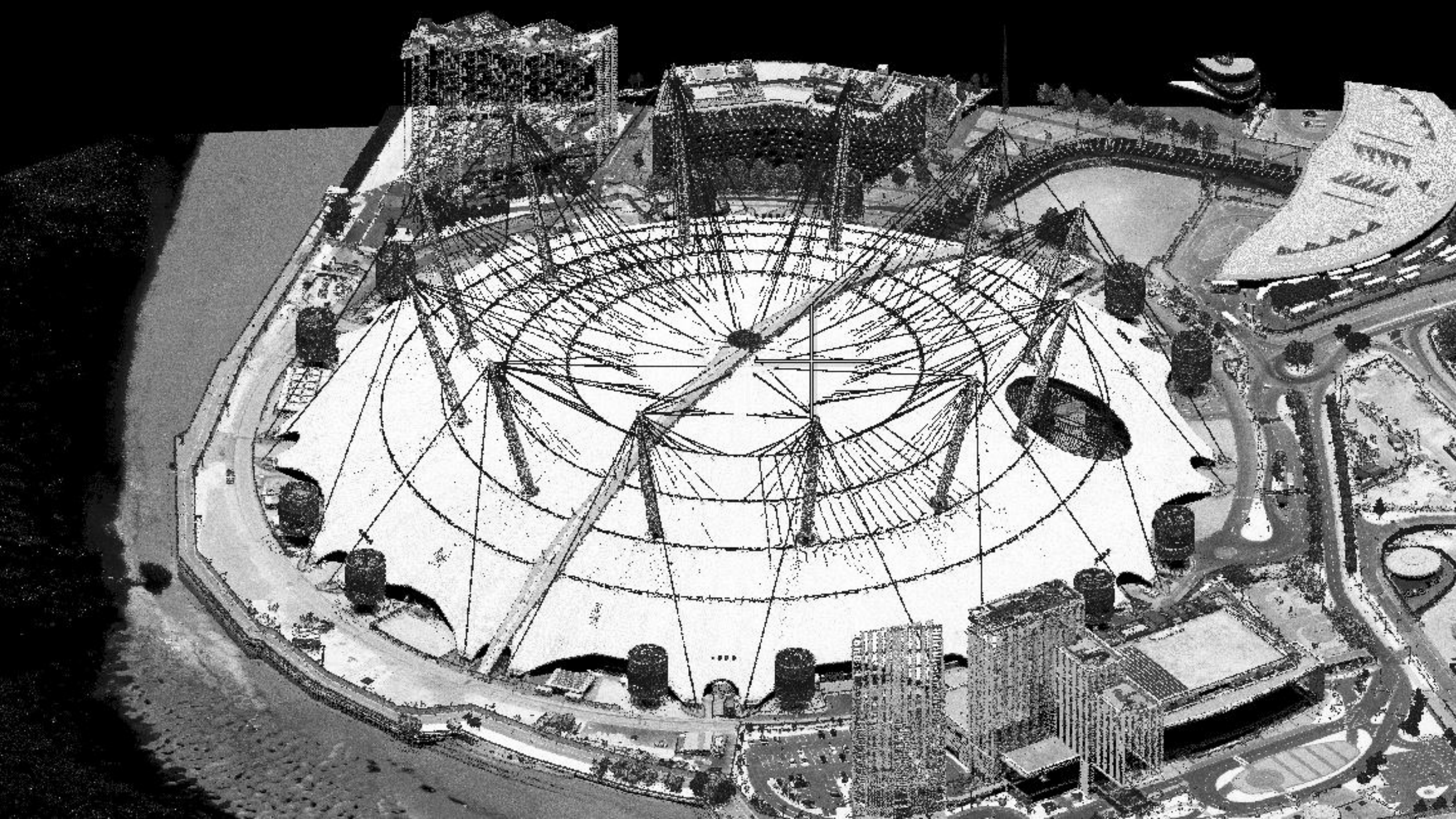
LiDAR captured at 16-100 PPM

Over 20 UK cities captured

Available in numerous industry accepted formats

Climate and environmental case studies – cause and effect

NTM Customer Case Study

Comhairle Cathrach & Contae Phort Láirge
Waterford City & County Council

Waterford City & County Council

PROJECT

To make the entire city a decarbonised zone under Ireland's Climate Action Plan, which will radically transform Waterford to a carbon neutral city by 2030.

NTM DATA

Waterford City and County Council is using the National Tree Map to help benchmark current tree cover across the city and to look at suitable tree planting sites to inform decisions as it progresses towards its target to become Ireland's first decarbonised city. NTM data is also being applied to inform Council policy and budgets as well as actionable climate change and green initiatives, which are an integral part of the Draft Waterford City and County Development Plan for 2020-2028.

OPPORTUNITIES

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Waterford plan to increase this to a target canopy cover of 20 percent and has used the NTM™ to assess suitable and available sites for planting. The NTM™ is updated every three years so it will also allow them to measure and report on progress over the next few years.
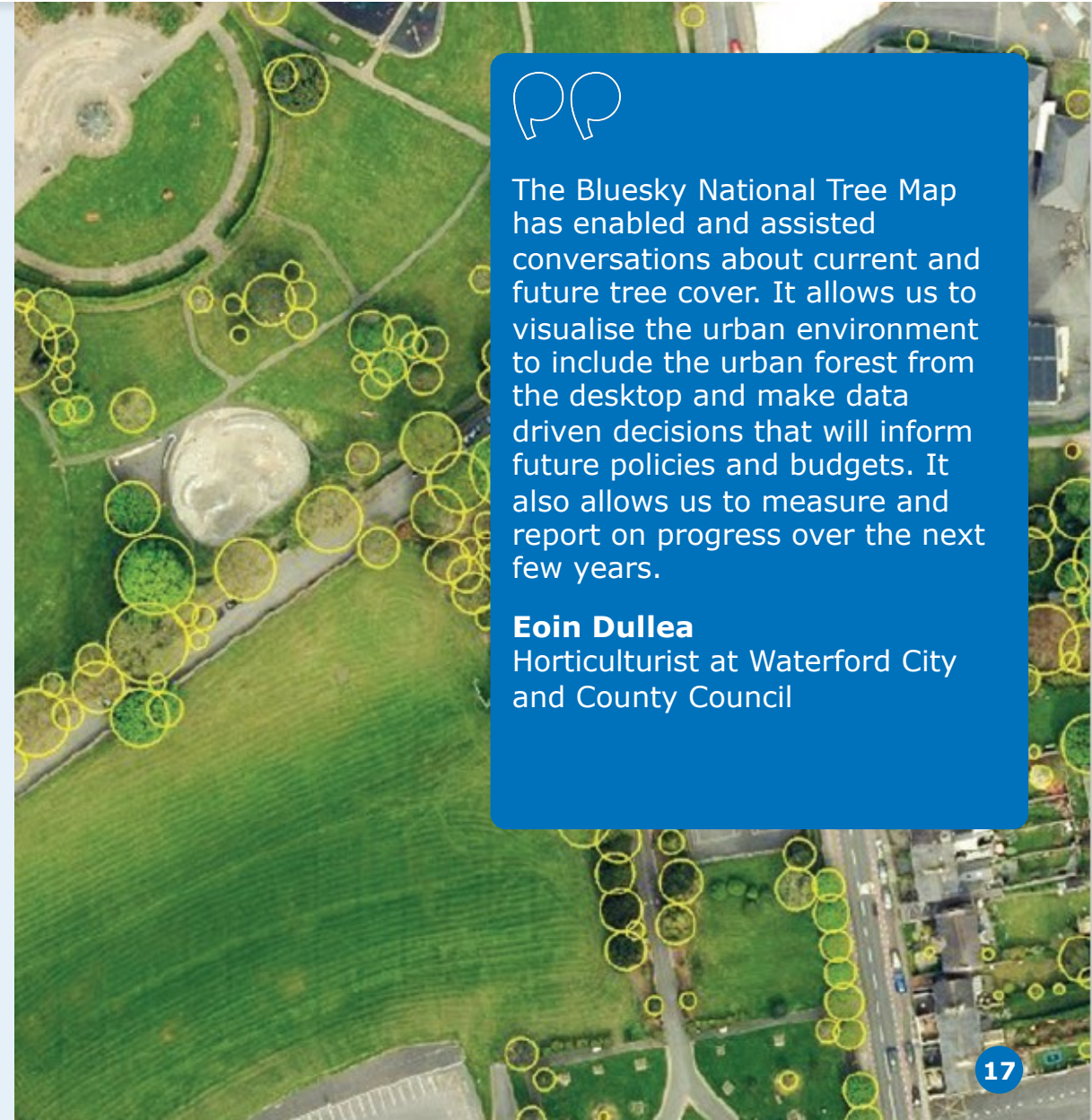
The Bluesky National Tree Map has enabled and assisted conversations about current and future tree cover. It allows us to visualise the urban environment to include the urban forest from the desktop and make data driven decisions that will inform future policies and budgets. It also allows us to measure and report on progress over the next few years.

Eoin Dullea
Horticulturist at Waterford City and County Council

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MetroVista Customer Case Study

> The Bluesky data provides accuracy and detail that enable us to include information that is simply not available from another single source. For example, we can consider the impact of property age and type of construction, we can look at the permeability of a front garden and even individual door thresholds – all important considerations in flood risk assessment and mitigation at this scale.

Dr Luke Smith

Lecturer and Deputy Director of the Urban Observatory at Newcastle University

The PYRAMID Project

PROJECT

PYRAMID (Platform for dynamic, hyper-resolution, near-real time flood Risk Assessment Integrating repurposed and novel Data sources) is a near-real-time flood forecasting and flood risk management platform and is a collaboration between researchers from Newcastle University's School of Engineering, Loughborough University and the Urban Observatory

MetroVista DATA

Captured using the world's first large format imagery and LiDAR hybrid sensor, MetroVista data includes simultaneously captured oblique and vertical aerial photography. MetroVista datasets also include geographically accurate, photo textured, mesh models ready for use in 3D GIS, CAD and other modelling software as well as visualisation, gaming and virtual reality workflows.

OPPORTUNITIES
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Providing real world context and accuracy, the MetroVista data enables the visualisation of evolving events. This will allow flood risk managers to employ just in time maintenance and alleviation methods, such as clearing blocked drains or setting up mobile defences.

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> Traditional ZTV mapping is based on bare-ground terrain data, however, the Bluesky DSM data allows screening by existing vegetation and buildings to be accounted for and also allows us to incorporate proposed mitigation and examine its effectiveness," commented Luis Dominguez, Senior GIS Analyst at Macro Works. "This form of analysis is extremely useful for placing a new structure into almost any setting but is particularly effective for solar developments where we use the process to inform both our Landscape and Visual Impact Assessments and Glint and Glare analysis. "

Bluesky 3D Models Help Macro Works Plan Milestone Solar Farm in Ireland

WHO

Macro Works - On behalf of solar energy developers

PROJECT

Using Imagery and terrain to assess land for solar suitability

Used to:

- Create Zones of Theoretical Visibility

- Assess Glint and Glare

- Generate suitability reports

Efficiencies:

- Ready to use, affordable data

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> Green infrastructure is an essential tool in the war against climate change, reduced biodiversity and the health impacts of air pollution and rising temperatures in our cities.
>
> *Thomas Fenal, co-founder and Chief Technical Officer of Gentian*

Mapping Green Roofs

WHO

Gentian

PROJECT

Bluesky's high resolution aerial photography is supporting a new artificial intelligence platform created by technology start-up Gentian. This new platform has developed an advanced workflow based on machine learning algorithms that automatically identifies and records the number of green roofs (roofs with a layer of vegetation installed).

The platform will also map green infrastructure to identify where biodiversity can be increased in UK cities to combat climate change and meet local and global net zero targets.

> Property insurance providers need to plan how they will map the long-term impact of climate change on their books of business. NTM, together with our new LexisNexis Basement Indicator and LexisNexis Windstorm Model join our offering of more than 40 additional data sets, including perils data down to an individual address.
>
> *Caroline Elliott-Grey, product manager, U.K. and Ireland, for LexisNexis Risk Solutions*
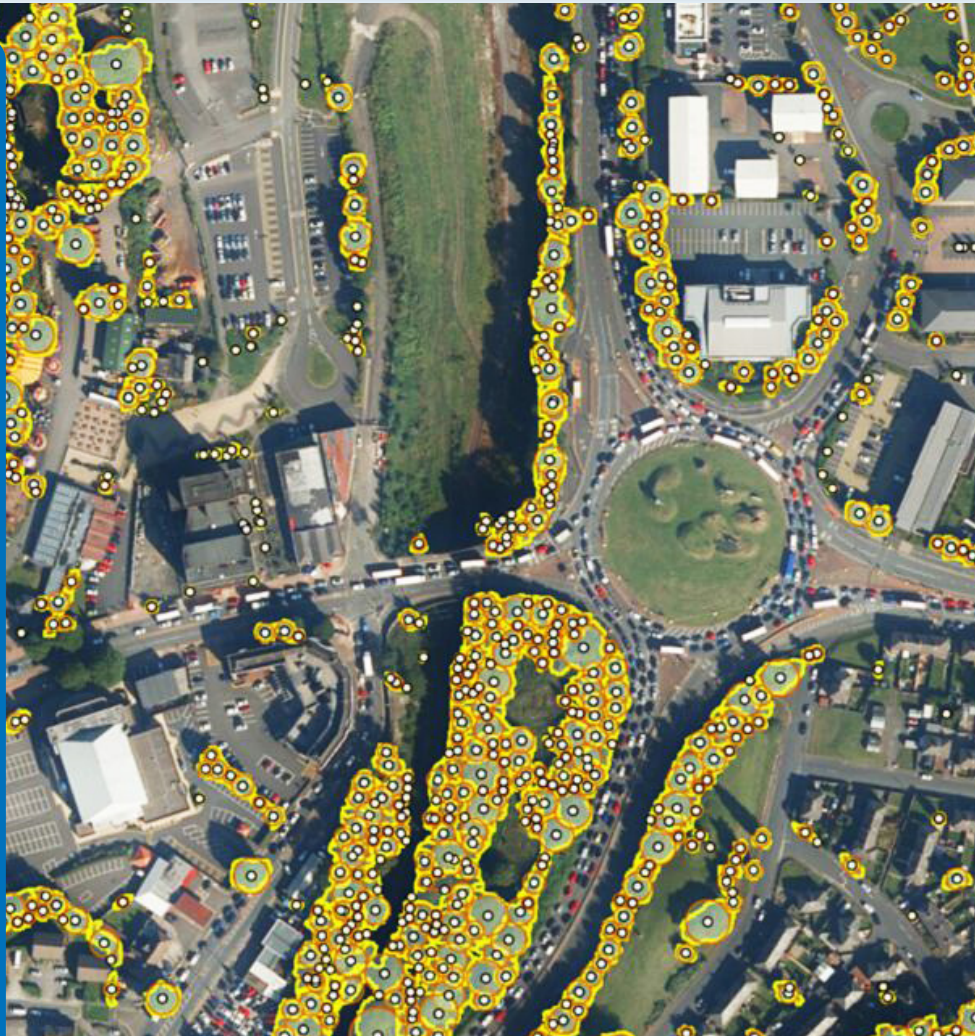
National Tree Map supports insurance providers to make informed decisions

WHO

LexisNexis Risk Solutions

PROJECT

A new suite of geospatial products has been launched by LexisNexis® Risk Solutions in a bid to address weather-related challenges faced by the UK and Ireland insurance market. Bluesky International Ltd's National Tree Map (NTM) is one of three of the new products being applied by the data analytics and technology provider.

NTM is a unique dataset that can provide highly valuable information to the insurance sector, and LexisNexis Risk Solutions have added the dataset to their portfolio, providing a holistic view of property risk for pricing and underwriting.

Launching EirMap Powered by Ecopia and Bluesky

Partnering with Ecopia

EirMap: a ground-breaking new 3D map of Ireland

Accurate building geometry and land use cover

Ecopia's unique AI algorithms applied to Bluesky's imagery to create the 3D map

AI auto extracts landcover including buildings, roads, water, sports facilities and green spaces

Target applications include planning, utilities, architecture and design, facilities management, urban greening and transport management

At Bluesky we have a history of innovation, and product improvement is at the heart of what we do. We are proud to be partnering with Ecopia on this project and our 25cm and 12.5cm high resolution aerial imagery coupled with Ecopia's ground-breaking AI algorithms, means we can now move very quickly to offer 3D mapping of the whole of Ireland as a new and unique offering.

Rachel Tidmarsh
CEO

Thank you