

NET ZERO: A PIVOTAL ROLE FOR GEOSPATIAL

HOW IS GEODATA AND TECH HELPING IN THE DRIVE TO 'NET ZERO' EMISSIONS? WHAT REAL-WORLD EXAMPLES ARE DELIVERING TANGIBLE RESULTS? AND ARE SUPPLIERS OF GEOSPATIAL GOODS AND SERVICES REDUCING THEIR OWN CARBON FOOTPRINT? OUR SPECIAL SUPPLEMENT EXPLORES THESE AND OTHER ISSUES

The COP26 Summit in Glasgow late last year not only laid down fresh challenges for governments to meet their obligations under the Paris Climate Agreement; it also provided a platform for the world's first virtual Space & Geospatial Pavilion. The Pavilion hosted some 30 speaker sessions spread over 11 days to showcase how the power of place can help governments and businesses unlock significant carbon reduction opportunities.

And we need to act fast says Greg Scott, Head of the Geospatial Secretariat at the

United Nations: "We're running out of time. When we think about the climate challenges that are coming before us in the next generation or two, it is going to be more of a catastrophe than a problem."

That urgency was echoed at this year's Cambridge Conference, the quadrennial get-together of the world's mapping agencies, which subsequently published a guide¹ on how geospatial can be applied to climate challenges.

Suppliers of geospatial goods and services have not been slow to curb their own carbon

emissions. Esri, Topcon, Hexagon, Trimble, Bentley Systems, HERE Technologies, Airbus and Planet Labs among many other global players with programmes to audit and reduce their carbon footprint, either directly or as part of their Environmental, Social, and corporate Governance (ESG) frameworks.

Read on to find out how the power of place is being harnessed to meet the Net Zero challenge.

1. <https://www.ordnancesurvey.co.uk/documents/cambridge-conference/how-guide-cambridge-conference-22.pdf>

PHASE ONE

Agriculture is among the most significant contributors to global emissions levels, and with the worldwide increase in population, the FAO (Food and Agriculture Organization) outlines that food production must even be increased by 50% by 2050 to feed a population of 9 billion.

But how increase production by 50% sustainably in an already overburdened industry? Whether it is deforestation to ensure land availability for agriculture, the extensive use of fertilizers, or the allocation of scarce water resources, farmers are at the forefront of the battle for the fight for sustainable agriculture. Unsustainable agriculture is caused by the overuse of land, pesticides, and fertilisers. Precision Agriculture, where accurate data is used to determine the exact needs of the fields and then dispense only prescribed resources, is one valuable solution. Previously, gathering the required data and acting on it was challenging as traditionally, these surveys were restricted to vehicle-mounted or handheld sensors, severely decreasing the efficiency of surveying and exposing humans to environmental hazards and potentially harmful chemicals.

Today, drone-based solutions offer swift and efficient data gathering, allowing to turn a day's worth of surveying into just a few short hours. Additionally, drones with sensors like Phase One's 4-band kit or high-res Phase One P3 payload and 100MP camera offer unprecedented image quality for premium traits assessments, to:

- detect even the smallest nutrient deficiency
- detect interrow and intra row weeds
- detect bugs and other insects that could endanger the crops
- very precise crop counting
- ear counting
- digital phenotyping

Using the information gained from remote sensing drones with Phase One sensors, allows to work out the exact amount of water, fertilizer or pesticide necessary. Instead of blanket spraying an entire farm, now resources can be used very conservatively, which significantly adds to resource efficiency while ensuring that the land is not overused.



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