APPLYING GEOSPATIAL INFORMATION TO THE CLIMATE CHALLENGE

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COMMUNITY

UN-GGIM leads the way

As a community, UN-GGIM has created frameworks in response to global challenges:

- Integrated Geospatial Information Framework
- Global Statistical Geospatial Framework
- Framework for Effective Land Administration
- Strategic Framework on Geospatial Information and Services for Disasters
- The SDG Geospatial Roadmap

Each of these has a different area of focus but at their core promote better use of geospatial, land and statistical data.











CLIMATE

Top Long-Term Global Risks



Over the next 5-10 years



Source: World Economic Forum Global Risks Report 2022



Modelling the impact of surface temperature and heat





Identifying Populations at Risk

Our case study in Plymouth, UK, highlights regions of the city that have a higher deprivation score, combined with a higher heat discomfort index.



Morice Town

Mount Wise

Stoneh











Identifying Infrastructure at Risk

Here we combine <u>OS AddessBase Premium</u> with NCEO's discomfort index to show which buildings in Plymouth may be impacted the most by the <u>urban</u> <u>heat island</u> (UHI) effect.

Visualising Greenspace

Greenspaces with trees alleviate the UHI effect. In this illustration, we have combined NCEO's discomfort index with <u>OS Greenspace</u> to understand the relationship between greenspaces and discomfort. This could be used to:

- Inform decisions about where to plant trees in order to most efficiently reduce discomfort.
- Monitor tree planting projects over time to ensure that these programs are working as

intended.











National Peatland Observatory



Peatland Monitoring from Space

Rapid Prototyping Team @ Ordnance Survey 8 October 2021 Durham





IN PARTNERSHIP WITH ITALY

ASSIMILA



Monitoring the Fire

Multiple satellite sensors were able to monitor the blaze throughout. Heat sensors on the satellite were able to clearly reveal where the fire was still burning.

image: False colour image of Saddleworth Moor during the fire.

What are Peatlands? Earth Observation Pennines Saddleworth Moor Cambridgeshire Fens The Project

This map shows peat health in the Cambridgeshire Fen region (lighter colours represent healthier peat).

The areas circled in red are either nature reserves or sites of Special Scientific Interest. We can see that the peat in these regions is healthier than in the surrounding farmland.

This highlights the current trade-off between using land for agriculture and as a carbon store. However, this is quickly changing - many farmers now adopt modern farming methods that are more sustainable and better for the environment.









CLIMATE

CAMBRIDGE CONFERENCE

COLLABORATION



Working in collaboration



Countries in attendance UK, Fiji, Belgium, Ghana, Slovenia, Barbados, Mozambique, Romania, Ethiopia, Netherlands, Uganda, Denmark, Nigeria, Singapore, United States. India, Belgium, Germany, Mexico, Turks & Caicos Islands, Canada, Australia, Finland, Kenya, France, Jamaica, Suriname, New Zealand, Switzerland and Morocco



The urgency of our 'Why' is well known. We must act as part of a global system to mitigate and adapt to our changing climate. At the same time, we are often very focused on 'What' we do as national mapping and geospatial agencies to deliver our public tasks.

As national agencies, supporting our governments, we need to act.

Cambridge Conference 2022 has looked at 'How' we make changes in our own institutions to implement the two recommendations from the Cambridge Conference Statement Paper on Climate Change. Those recommendations were for us to:

- Take an active leadership role as advocates for location data in our countries, understanding its value in supporting government priorities, and showcasing the real benefits it can bring to national adaptation and mitigation policies. We should act as drivers of change, empowering organisations and individuals to use location data in new ways and to actively respond to the current and future needs of clitizens.
- 2. Recognise that a changing climate is a global issue that affects all nations strategies need to be based on bestavailable national data and considered in a global context. In recognition of this we should work with others, not alone, creating new networks, and move to using internationally-aged standards to enable the use of trusted data for adaptation and mitigation solutions.

In order to tackle the climate challenges facing our countries, we need to better equip our people improve our data and technology, and strengthen our governance. That's why we've used the UN's Integrated Geospatial Information Framework (IGIF) as a lens for considering our practical advice.







Looking at our challenges through the lens of IGIF





Cambridge Conference 2022

Taking Action on our Data & Technology

- We must move past a focus on the 'What' of data hence the focus on creating 'The How Guide'.
- Data and technology are tools to help describe our world as it is today, advise us how to respond to current challenges, and guide our adaptation and mitigation actions. However, we must accept that producing data is not enough.
- We should also understand how to layer data to create information, put information in context in order to share knowledge, and use our knowledge to help our customers make wiser decisions.
- We should recognise the value of 'Earth observations' not just from satellite systems, but from the variety of different sensors that will be needed to solve complex climate challenges with often unforeseen repercussions



The 'How to Guide' – our challenge

Geography puts NMGAs in a unique position to bring together people and data to address climate challenges.

We should:

- 1. Take an active leadership role as advocates for location data in our countries, understanding its value in supporting government priorities, and showcasing the real benefits it can bring to national adaptation and mitigation policies. We should act as drivers of change, empowering organisations and individuals to use location data in new ways and to actively respond to the current and future needs of citizens.
- Recognise that a changing climate is a global issue that affects all nations differently. Adaptation and mitigation strategies need to be based on best-available national data and considered in a global context. In recognition of this we should work with others, not alone, creating new networks, and move to using internationally-agreed standards to enable the use of trusted data for adaptation and mitigation solutions.







CLIMATE

COMMITMENT

ORDNANCE SURVEY'S APPROACH

We take a principled approach to environmental sustainability.

Our principles:

01

Transparent reporting on our resource use We will collect data and report on the energy, carbon, water and waste we use and create to make sure we are accountable.

02

Engage our employees to tap into their knowhow and passion Our people are our greatest resource in advancing sustainability, because of their know-how, expertise and passion.



Take responsibility for our footprint We'll use sustainable practices in managing our workforce operation, building facilities, and supply chain, to ensure we take responsibility for our actions.

04

Show customers how location can empower them

By understanding our customers, we can provide the geospatial solutions to achieve their sustainability goals.



Use our influence as a national mapping service to lead and inspire bold actions We're using our position as Britain's national mapping service to showcase how geospatial information can empower any organisation or nation to adapt to and mitigate the impacts of climate change.

06

Collaborate to combine our expertise with the strengths of other organisations Recognising the complexity of environmental challenges requires collaboration, we form partnerships to deliver sustainable outcomes for our customers.



SEE > BETTER PLACE

A renewed focus on sustainability and climate action





The urgency of our 'Why' is well known. We must act as part of a global system to mitigate and adapt to our changing climate. At the same time, we are often very focused on 'What' we do as national mapping and geospatial agencies to deliver our public tasks.

As national agencies, supporting our governments, we need to act.

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SUMMARY

3

OS's 7 sustainability trends in location data





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MENTER PLACE

Geovation support

Geovation has a rich community of startups who are actively supporting the UN SDGs. Our recent community survey showed the top SDGs supported by Geovation start-ups are:











Global Supply Chains

Supply Chains, particularly for commodities, can be one of the most important instruments for impact in the fight against climate change, social inequality and loss of nature, among others, both in reducing negative impacts (e.g., deforestation) and driving positive impacts (e.g., forest restoration).





A new global challenge: Trusted location

But, the global Supply Chain community still **lack the key foundational data layer on commodity facility assets** (e.g., bulking sites, mills, refineries, transport terminals, storage, processing, etc.) **to conduct effective due diligence and achieve large scale traceability to commodity origins**.

Critically, organisations may have location info for their assets/points of interest, but this doesn't necessarily align with where they are in practice.

Using our geospatial knowledge, we are exploring how to support multinationals and commodity actors by creating a new verification system for asset location that enable a wide variety of transparent monitoring, due diligence and finance to flow where it is most needed.



A palm oil mill surrounded by oil palm trees in Costa Rica. Image by Rhett Butler/Mongabay.



Our hypothesis

An appropriately resourced initiative that leverages participation of several national geospatial agencies in key commodity producing and consuming countries can **compile and maintain a vital foundational dataset** on commodity assets and develop and implement a **sustainable model** for provisioning these data to diverse users on a recurring basis into the future with **appropriate warranties and service levels** for enterprise use.

This will be a **new international standard for validating the location with a stamp, mark provided to the asset owner.**

This will enable a validated location to be certified which can be used in smart contracts, for supply chain transparency, and for releasing green financing.

This is the Supply Chain Data Partnership concept.







A new framework and partnership

NMA's or authorized bodies can place a stamp of confidence on data with higher confidence/lower error in some areas than others. This could be used as a validation stamp in a range of valuable applications.

Our approach is to explore the buy in and momentum for the solution and partnership with key governments and to build momentum in an agile manner.

Interested?





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SUSTAINABILITY

IS NO LONGER

ABOUT DOING

LESS HARM, IT'S

ABOUT DOING

MORE GOOD.

THE GREATEST THREAT TO OUR PLANET IS THE BELIEF THAT SOMEONE ELSE WILL SAVE IT.



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