

SPACE CLIMATE

Uniting UK Space-enabled
Climate Expertise and Services



DONNA LYND SAY VICE CHAIR

**The Use of Earth Observation and Geospatial Capabilities
for Strengthening the Timely Monitoring of Environmental
Sustainable Development Goal (SDGs) Indicators**

SPACE4CLIMATE



The UK space sector is at the forefront of global efforts to create and use trusted satellite data for climate action for all

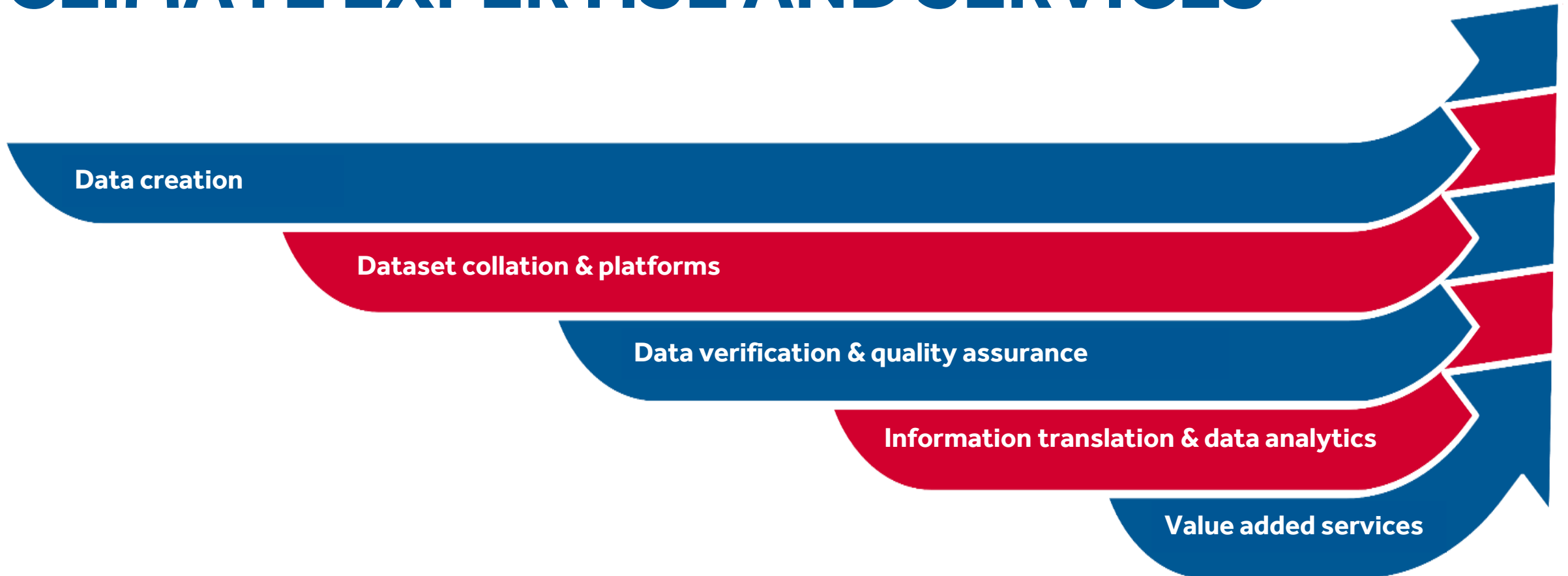
- **Our members span government, industry and academia, working in partnership**
- **We support the UK's world-leading climate science and services community**
- **We enable a seamless supply chain of climate data from space**

www.space4climate.com

We do this through:

- **Climate Science** – research into understanding our world from space and how it is changing, the fundamental importance being to learn what is happening to our world, and to be able to manage the impacts.
- **Climate Technology** – the instrumentation and infrastructure to objectively monitor and measure Earth from space, enabling consistent and innovative data analytics, quality assurance and capacity-building.
- **Climate Action** – enabling people to utilise data from space, to make it visible and meaningful through real-world, useful climate services for all

UNITING UK SPACE-ENABLED CLIMATE EXPERTISE AND SERVICES



CASE STUDIES

Examples of S4C members' expertise in action in support of SDGs



Mapping informal settlements at speed and scale in Lusaka, Zambia Developed by Ordnance Survey

- Using advanced automation techniques and source aerial or satellite imagery, Ordnance Survey (OS) generated 420km² of detailed maps in 10% of the time compared to manual processes; a rapid, accurate and cost-effective way to generate a detailed digital map that has a multitude of additional use cases, including the design and management of critical infrastructure services, census collection, land use planning, transport planning, land tenure, ownership and administration.

International potential: OS are actively looking for African cities to partner with to demonstrate how detailed geospatial information can help manage urbanisation. (Register interest: internationalenquiries@os.uk)

Platform: Commonwealth Data Platform Experience - Lusaka (arcgis.com) but also published locally in Zambia on national NSDI portal.

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CASE STUDIES

Rainfall Explorer - Using satellite data to complement flood risk analysis



Developed by Telespazio UK

- With this tool, users can select past floods or areas of interest to obtain rainfall statistics, including the amount of rainfall (mm) recorded 5 days prior to a flood, the return period (years) of this rainfall and the range of the rainfall return period for the selected area or flood.
- Some uses of the statistics generated by this tool are to identify patterns and trends in flood occurrence, flood severity and rainfall totals and rainfall return level; to identify rainfall thresholds likely to trigger a large flood in an area of interest; to understand the likelihood of rainfall associated with past flood event; to find the return period (years) for a given 5-day rainfall amount (mm); and to find the 5-day rainfall return level (mm) for a given return period (years).



International potential: Rainfall Explorer is being used by the World Bank to help inform how to mitigate against future flood risk. The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, has successfully used this tool for several projects.

Partners: Sistema GmbH, Acclimatise and GMV.

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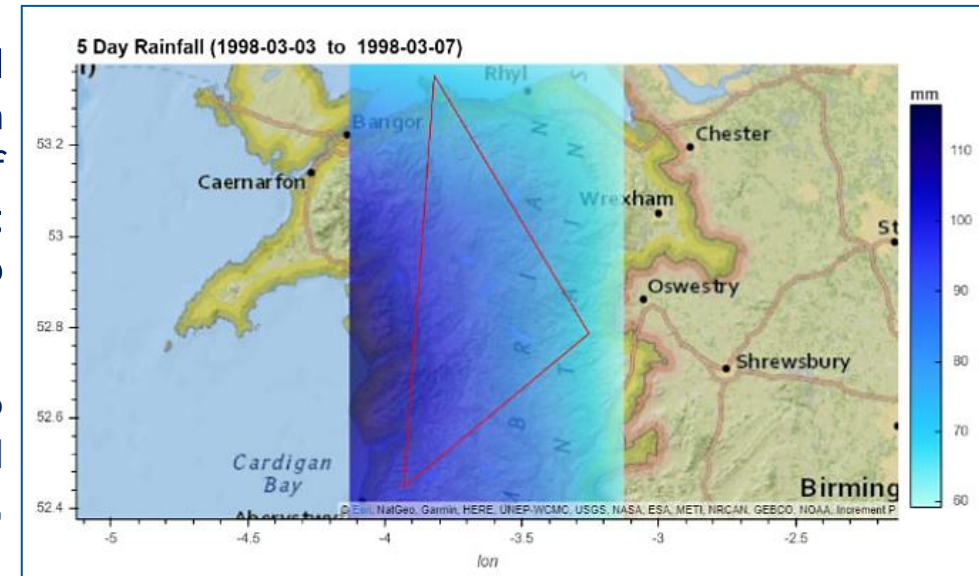


Image: Telespazio UK

CASE STUDIES

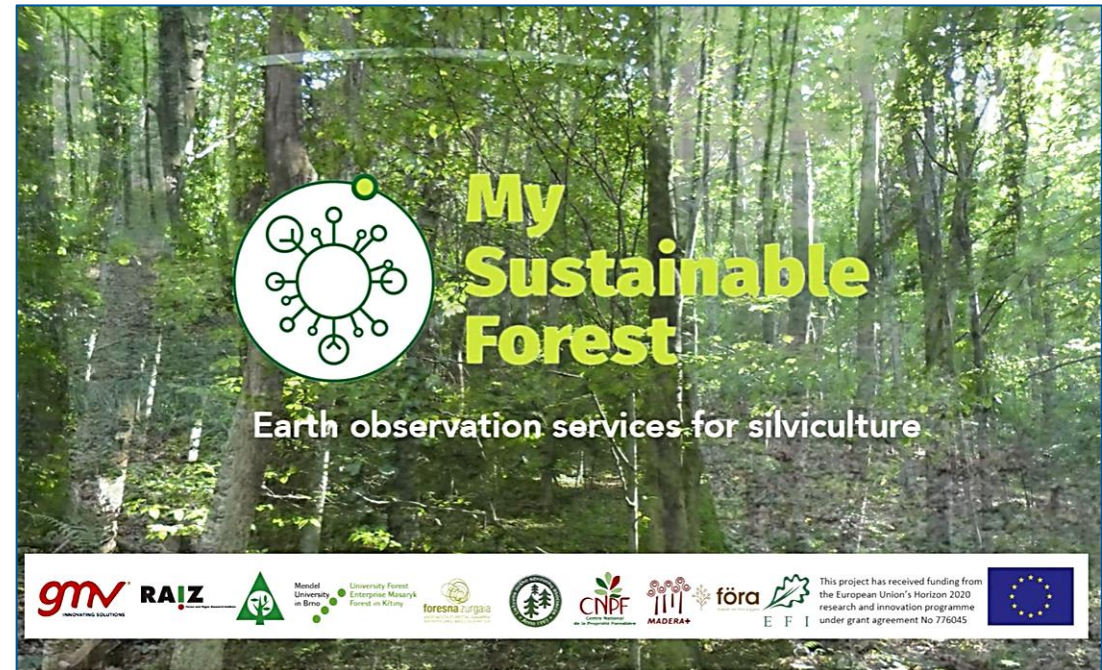
My Sustainable Forest: Earth observation services for silviculture

Developed by GMV UK

- Stakeholders within the silvicultural and wood market chains face outdated forest inventories, uncertain biomass counts, CO2 stocking and carbon accounting demands. My Sustainable Forest provides a specialised kit supporting operations from sustainable forest management procedures and the quality of wood entering sawmills and pulp mills, through to the assessment of vulnerability trends and planning for future climate change adaptation.
- It supports a variety of operations to improve the management of forest provisioning services (timber production) and regulating services (climate/hydrologic changes).

International potential: To date features 6 European countries and 5 climatic regions (Atlantic, Mediterranean, Alpine, Oceanic, Continental).

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CASE STUDIES

CO\$TINGNATURE – allows policy makers to assess ecosystem services against different climate scenarios

- Co\$tingNature uses the best available global datasets on land, climate, water and human activity from the European Space Agency (ESA), NASA and Japan Aerospace Exploration Agency (JAXA) to map ecosystem services (the benefits provided by nature) and tie these to the SDGs at goal level.
- Their map shows for each pixel the SDG to which nature in that pixel provides the greatest support. It calculates a baseline for current ecosystem service provision and allows a series of interventions (policy options) or scenarios of change to be used to understand their impact on ecosystem service delivery.

International potential: The tool is already used all over the world by conservation and development NGOs, policy analysts, various sectors and for academic research.

Partners: Kings College London, AmbioTEK & UNEP-WCMC

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Conservation prioritisation and Ecosystem Services mapping with Co\$ting Nature

Professor Mark Mulligan, King's College London, Department of Geography, Honorary Fellow, UNEP-WCMC
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CASE STUDIES

GEOGLAM – (Group on Earth Observations Global Agricultural Monitoring), a G20 initiative to increase food commodity market transparency and improve food security

GEOGLAM provides 2 global services that support numerous national and regional monitoring systems such as for Uganda, Kenya and Mozambique to name a few.

1. AMIS Crop Monitor: focuses on 4 major food types traded as commodities: wheat, maize, soybean and rice.
2. Climate Monitor for Early Warning – focuses on countries at risk of famine and where advanced warning of potential food shortages provides the necessary time to trigger action by humanitarian and aid organisations.

International potential: GEOGLAM is supporting countries to develop guidance on using satellite data for agricultural monitoring. This guidance will contribute to a country's National Adaptation Plan (NAP)

Partners: Defra, UK Space Agency and the National Centre for Earth Observation (NCEO), University College London GEO, CEOS

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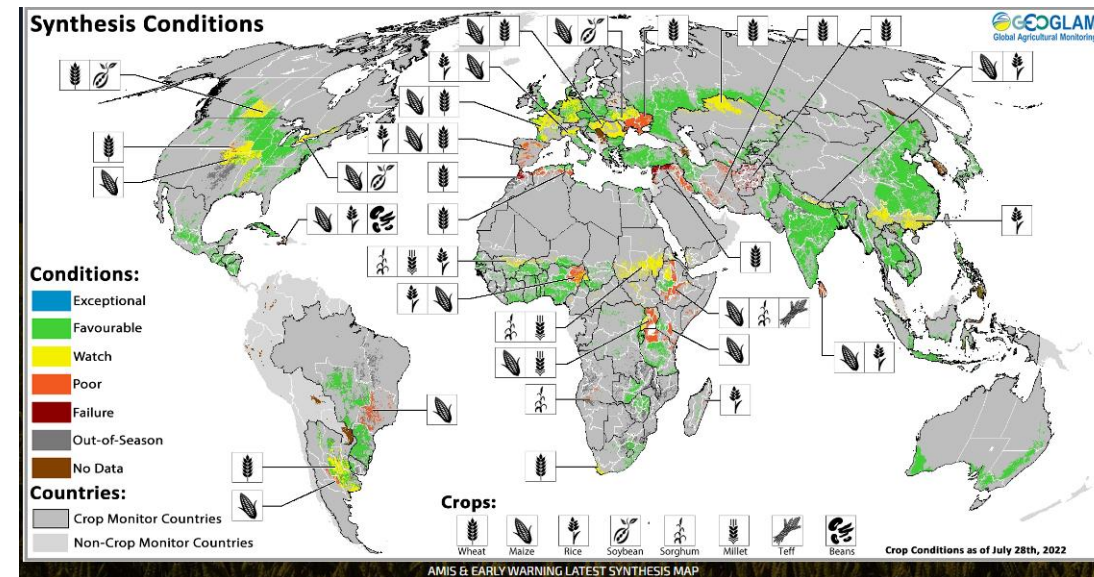


Image: cropmonitor.org

CASE STUDIES



EARTH BLOX - easing access to advanced geospatial analyses for positive global change – addressing sustainable development goals, climate change, deforestation, urban expansion, and large-scale disaster mapping

- Powering the United Nations Environment Programme STRATA platform, supporting the UN in determining where environmental and climate stresses are converging and contributing to increased risk of maladaptation, fragility, migration and conflict.
- A commercial cloud-based planetary-scale mapping tool that gives access to the power of Earth Observation (EO), removing the need for coding, high performance computing, extensive local storage and delivering geospatial intelligence.
- Earth Blox is part of the GEO – Google Earth Engine Program

Partners: United Nations, University of Edinburgh.

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Flooding from Cyclone Idai (black areas, 2019), Mozambique

Climate and environmental risks

THANK YOU

For more information on the presented
case studies and other UK EO Capabilities
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