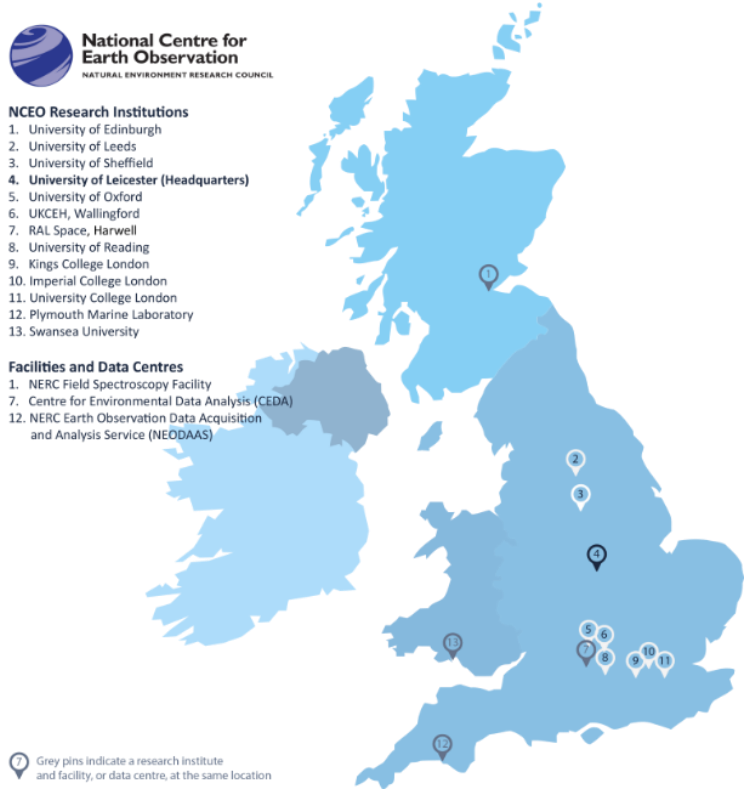
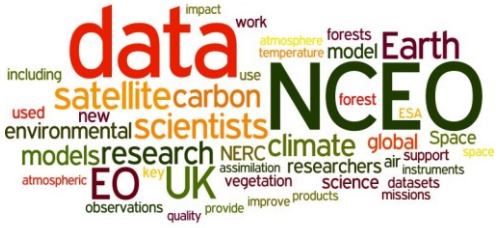
About NCEO

- NCEO is a UKRI-NERC research centre
- Income of >£10 million per year (~£5 million baseline NERC)
- > 120 scientists in leading UK universities and research organisations
- > 150 research papers every year
- Contributions to major, international, environmental science reports
- Championing the NERC EO community.



Expertise

- space-based EO science
- model-data merging, data assimilation
- international EO data products
- model evaluation to underpin Earth system/climate research
- significant roles in mission planning



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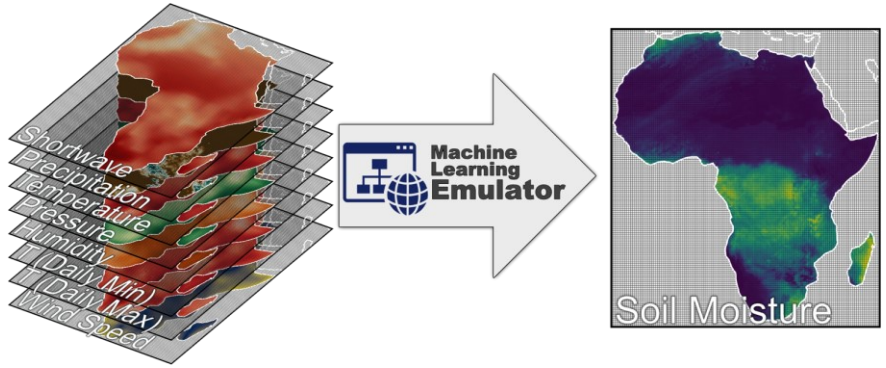
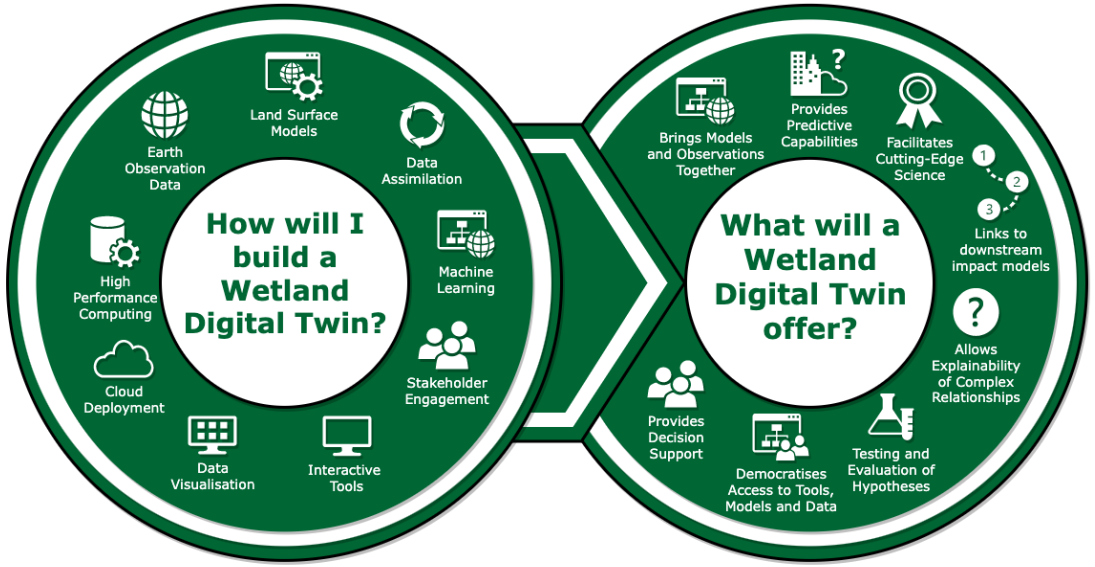
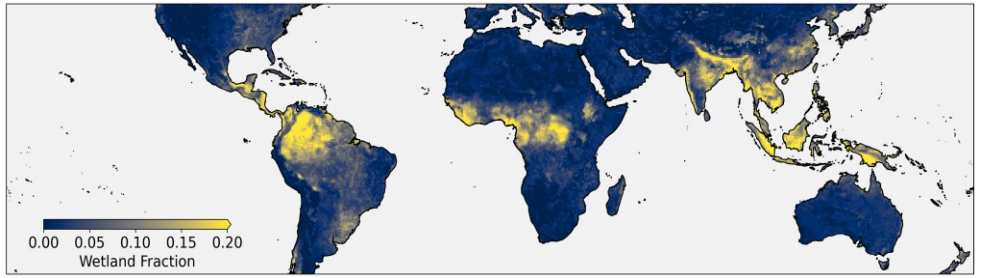
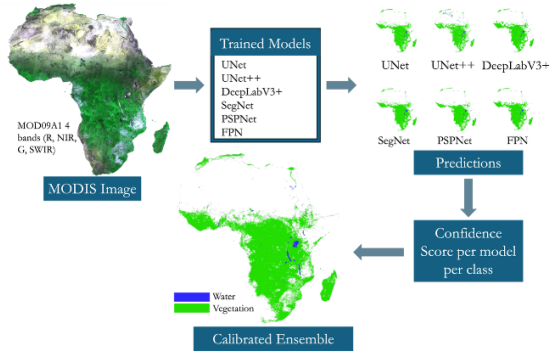
Digital Twin of Tropical Wetland Methane Emissions

- Developing explainable machine-learning based emulators and Digital Twins on a range of topics including carbon cycle, wildfires, drought
- Recently awarded a UKRI Future Leaders Fellowship to develop a Tropical Wetland Digital Twin









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Labs – Instruments – Ground Measurements

Put our extensive range of fully equipped laboratories and workshops to work

- Air Quality and Atmospheric Measurement Lab
- Fourier Transform Spectrometer Room
- Calibration Lab
- Rooftop Observatory

Greenhouse gas emissions monitored on College roof

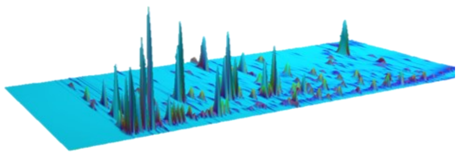
Sensor installed at school by the National Centre for Earth Observation

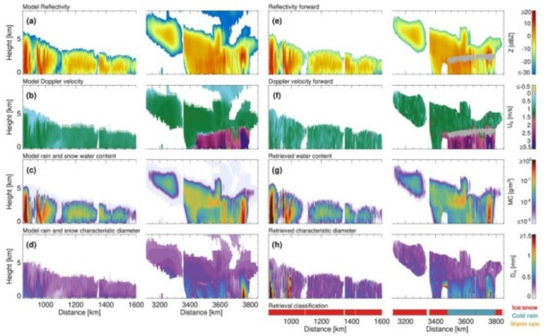
by Lucy Rouget

Ongoing deployment of instrument in Brazil, Amazon

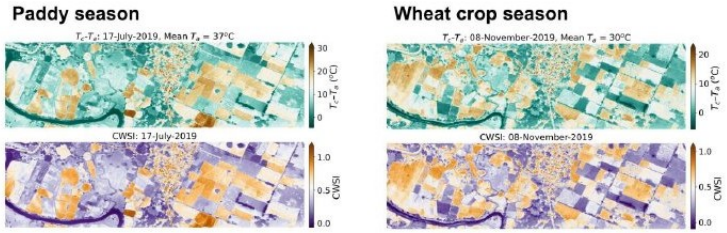
Atmospheric Monitoring

- Particulate matter including UFP, BC, and gases
- Specialise in volatile organic compounds (VOC)





Radar retrieval system - developed at Leicester - NCEO Scientists will use ground LiDARs to demonstrate accuracy of data



Field-scale crop water stress mapping with **drones**

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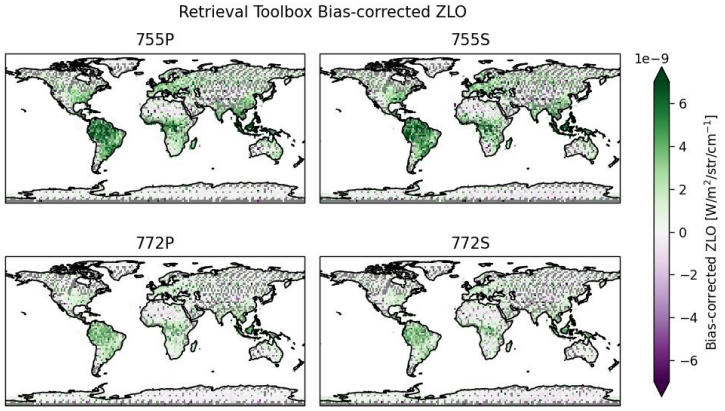
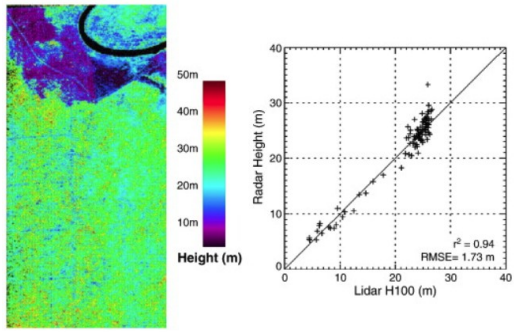
Carbon Cycle Observations - CO_2, CH_4, SIF

- GOSAT CH_4 and CO_2 Retrieval
- Solar Induced Fluorescence
- Microcarb



MicroCarb Mission

BIOMASS mission: Global Forest Biomass Mapping



Wildfire Detection

- State of Wildfire 2024-25 report

The project I work on

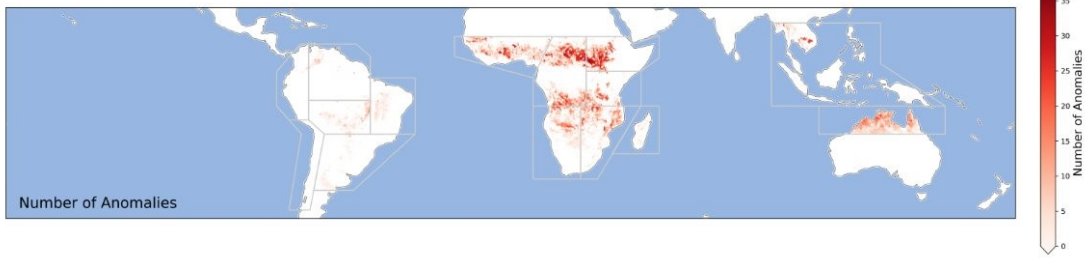
Terra FIRMA

Future Impacts, Risks and Mitigation Actions in a changing Earth system

Recent report I work on

THE STATE OF WILDFIRES PROJECT

- Wildfire anomalies detection using EO dataset



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Aboveground Forest Biomass

Global maps of aboveground biomass (Mg ha^{-1}) and its uncertainty.

100 m spatial resolution

Maps for 2010:

- Based on time-series of ALOS PALSAR and ENVISAT ASAR

Annual maps for 2017-2020:

- Based on time-series of ALOS-2 PALSAR-2 and Sentinel-1 SAR

Forthcoming for 2015/2016 and 2021/2022.

Informed by spaceborne lidar and Landsat optical sensor data.

esa biomass cci

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GAMMA REMOTE SENSING

Land Surface Temperature from Space