Natural Environment Research Council

AI for Environmental Science

Funding Opportunity Webinar

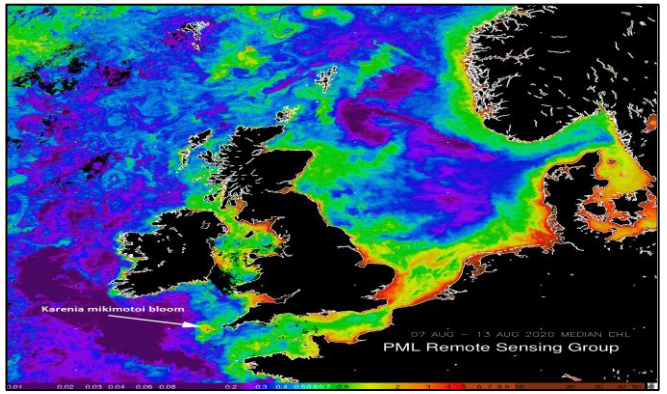
11.00am to midday BST on 24 October 2025

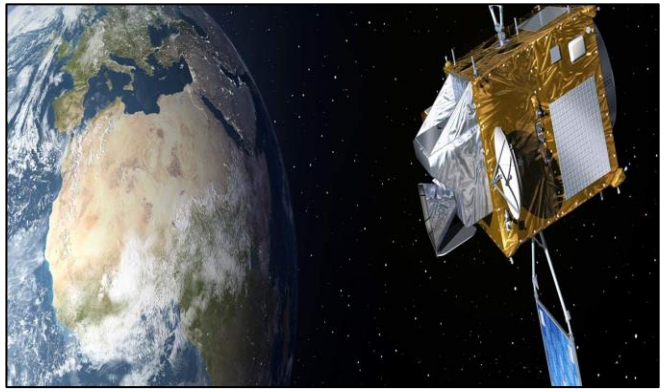
The webinar will be recorded

Please use the Q&A feature to post questions, and use the chat feature to share anything else (feel free to make connections by introducing yourself and your organisation)

Agenda

1. Welcome and overview – Anna Angus-Smyth
2. Strategic landscape – Simon Gardner
3. Scope – Simon Gardner
4. Specific requirements of funding opportunity – Emma Morgan
5. Q&A – Sam Tailby, all
6. Close – Anna Angus-Smyth





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AI for Environmental Science (AI4ES) aims

- **We will fund bold, ambitious projects** that accelerate the development of leading-edge data science tools and AI to help deliver new approaches and transformative solutions to the intractable environmental challenges of today and the future.

- **We encourage applicants to be as adventurous as possible** in their thinking.

- We are seeking to support **creative and potentially unconventional ways of working**, rather than incremental development. At the same time, we are open to activities across the Technology Readiness Levels (TRLs), from the development of novel algorithms to the application of an established technology from another domain to address a key environmental challenge.

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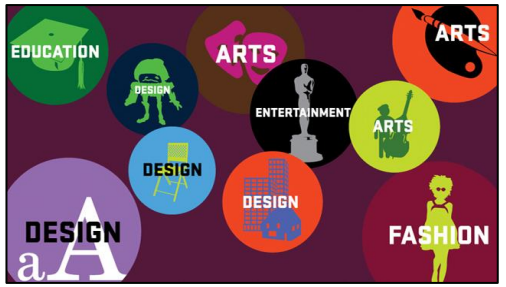
Strategic landscape

Dr Simon Gardner,
Head of Digital Environment
Data, Technology and Space, NERC-UKRI

The UK's Modern Industrial Strategy, published in June 2025, focuses on eight key sectors to drive economic growth

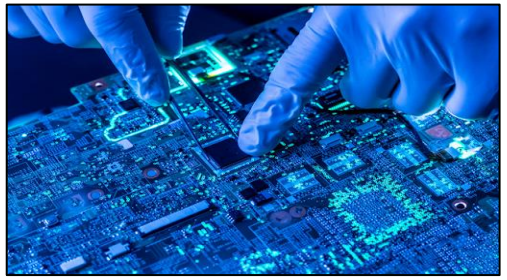
Advanced Manufacturing: This sector leverages the UK's strong research base to drive innovation in areas like electric vehicle batteries, aerospace, and new materials.

Clean Energy Industries: The strategy aims to make the UK a world leader in clean growth by targeting technologies such as offshore wind, hydrogen, and nuclear energy.



Creative Industries: Building on the UK's world-renowned creativity in areas like film, music, and video games, the strategy focuses on increasing investment and exports.

Defence: The strategy aims to align national security goals with economic growth by boosting the UK's defence industrial base through investment in next-generation technologies.

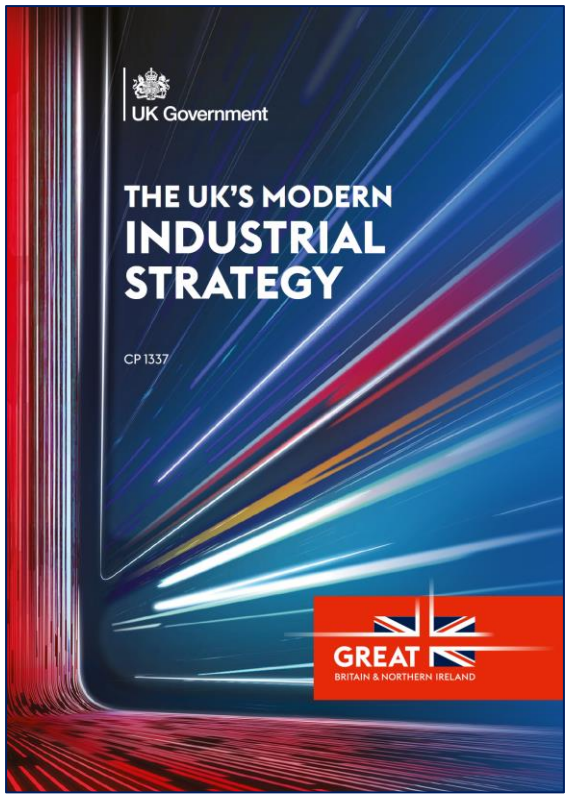


Digital and Technologies: This sector focuses on making the UK a top global hub for tech business by supporting frontier technologies like artificial intelligence (AI), quantum computing, and semiconductors.

Financial Services: The strategy seeks to strengthen the UK's position as a global financial centre and promote emerging areas like fintech and sustainable finance.

Life Sciences: This sector builds on the UK's innovation in pharmaceuticals and medical technology to accelerate growth and strengthen domestic health resilience.

Professional and Business Services: Focusing on services such as accounting, legal, and consultancy, the strategy works to maintain the UK's position as a trusted advisor to global industry.



Artificial Intelligence (AI)

AI is a transformative technology that performs tasks normally requiring human intelligence – such as understanding language, recognising patterns, and making decisions. It has many use cases such as accelerating drug discovery in healthcare; summarising complex legal documents; and improving customer service through virtual assistants.

Generated **£14.2 billion** in revenue, contributed **£5.8 billion** in GVA, and employed **64,500 people** in the UK in 2023.

(DSIT AI Sector Study)

Cyber Security

Cyber Security is about protecting the technology we rely on for everyday life and work. This includes protecting critical infrastructure like power grids; securing personal data in healthcare systems; and safeguarding financial institutions from fraud. It is crucial for protecting our economy and ensuring our security online.

Generated **£13.2 billion** in revenue, contributed **£7.8 billion** in GVA, and employed **67,300 people** in the UK in 2023-24.

(DSIT Cyber Security Sectoral Analysis)

Advanced Connectivity Technologies (ACT)

ACT are cutting-edge technologies that enable the transmission of data in our increasingly digitised economy and society – connecting both people and things. These include technologies that make up advanced wireless systems, such as 5G and the transition to 6G, non-terrestrial networks, advanced optical networks, the growing integration of AI – and in time quantum – with communications.

A quarter of the UK telecoms sector can be attributed to ACT-linked activity, generating an estimated **£26.2 billion** in revenue and **£11.1 billion** in GVA globally. (ACT Market Scoping Analysis)

Engineering Biology

Engineering biology is the design, scaling and commercialisation of biology-derived products and services that can transform sectors or produce existing products more sustainably. It draws on the tools of synthetic biology to create the next wave of innovation in the bioeconomy.

Engineering biology could drive a **£1.6-3.1 trillion** global impact by 2040, with the UK well-positioned to lead the way. (McKinsey; Bank of England EXR)

Quantum Technologies

Quantum technologies have potential to enhance UK economic prosperity and national security. They leverage quantum mechanics to deliver new capabilities that have the potential to outperform classical technologies in specific areas across UK industrial sectors such as Life Sciences, Defence, Financial Services and Clean Energy.

Quantum computing alone could add over **£11 billion** to the UK's GDP by 2045.

(Oxford Economics)

Semiconductors

Semiconductors are materials that sit at the heart of electronic devices and digital technologies we use every day. They are crucial for our economy and are used to power smartphones and computers; and enable renewable energy and advanced medical devices.

Generated **£9.6 billion** in revenue, contributed **£7.4 billion** in GVA, employed 15,000 people in the UK in 2022.

(DSIT Semiconductors Sector Study)

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Existing AI Strategies

- **AI for Science** agenda to deploy AI and data science in priority areas to support the UK economy
- Using this Pioneer technology to effectively address significant societal challenges and transform health, science, engineering, and government

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UK Research and Innovation

Home > NERC Forward Look > A forward look for environmental science

Strategy

A forward look for environmental science

From: NERC
Published: 2 June 2025

Our vision

Environmental science which is ambitious, novel and a force for innovation.

Our mission

To tackle global environmental challenges, increase societal resilience, and enable sustainable economic growth through strategic investment in researchers, innovators, facilities and data, which together deliver a world-leading environmental science capability.

Our role

NERC is a thought leader for UK environmental science. We drive new research and innovation to advance the frontiers of science and benefit society. We invest in building a community of environmental scientists who work across disciplines in research and industry.

The knowledge and data we generate are used for the benefit of citizens across the UK, enhancing their prosperity, safety and quality of life. Our funding supports the UK as an international leader in evidence-driven environmental policy.

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Forward Look Pillars:

- Tackle climate change mitigation and adaptation together
- Deliver prosperity through the effective management and restoration of the environment
- Maximise the value of the environment to the UK economy

Environmental Security

- Increase our power to predict environmental change
- Integrate geopolitical and environmental risks
- Build resilience in critical systems

Responsible Innovation

- Harness novel technology
- Robust evidence without advocacy
- Innovate from our data

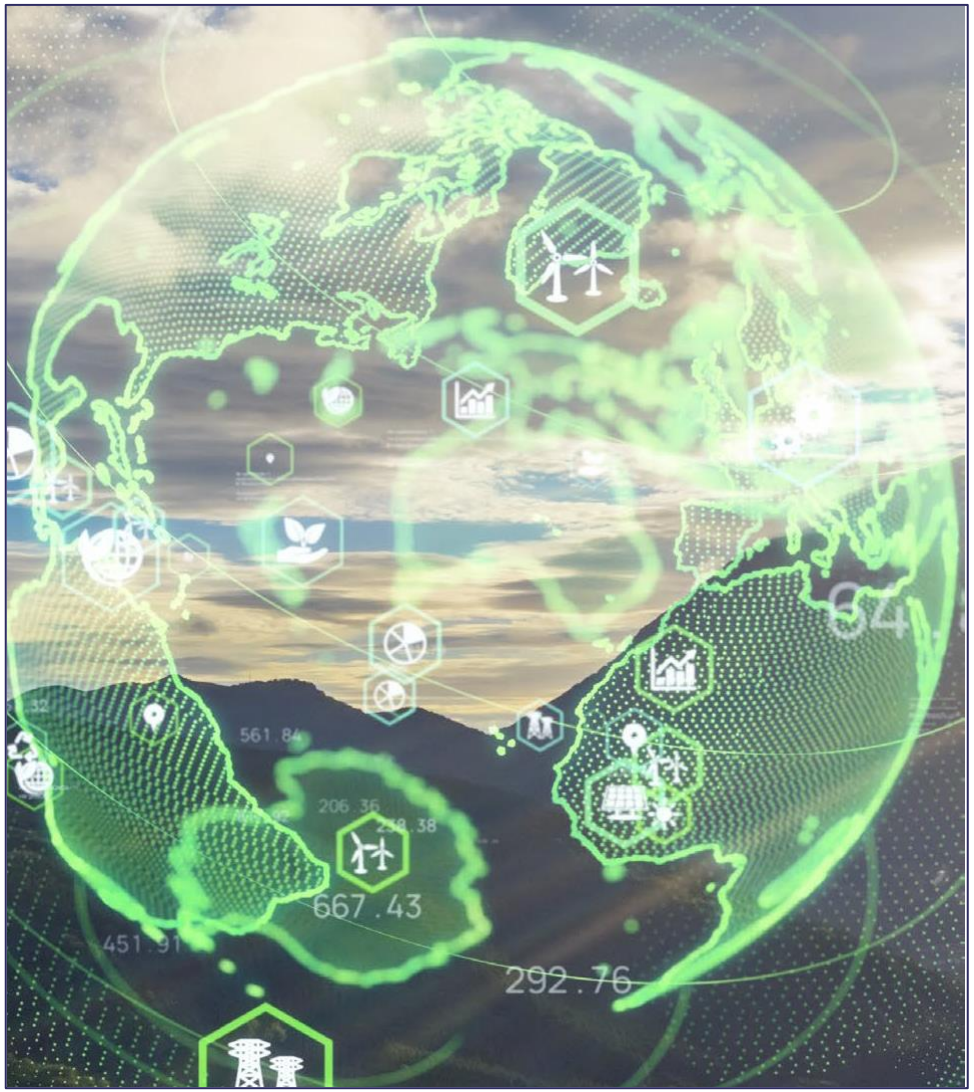
NERC Digital Strategy – Strategic Themes

‘Data Science Tools and Techniques’

Ambition: *to realise the potential of technologies such as AI, machine learning and digital twinning to advance world-leading environmental science*

NERC will seek to:

- *Enable new transformative discoveries in environmental science, supported by leading edge data science tools and technologies*
- *Provide leadership to develop and foster new paradigms, such as digital twinning, for understanding and representing complexity in environmental science*
- *Support interdisciplinary collaborations directly connecting the development of innovative digital tools and their use in addressing environmental science challenges, as well as across other scientific domains and societal challenges*



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Scope

Dr Simon Gardner,
Head of Digital Environment
Data, Technology and Space, NERC-UKRI

AI4ES

NERC is investing £12m across five years (£4.8m in phase 1)

The objectives are to:

- develop AI and data science approaches to deliver **high quality and trustworthy AI-ready environmental datasets**

- support novel AI and data science capability and techniques in the areas of '**data analysis, modelling and prediction**' and '**digitally-enabled decisions**' to support breakthroughs in approaches to tackle significant environmental challenges facing the UK and beyond

- establish interdisciplinary, multidisciplinary and cross-disciplinary communities **to leverage expertise and techniques across different areas of science** and research to stimulate innovative approaches, in line with user needs

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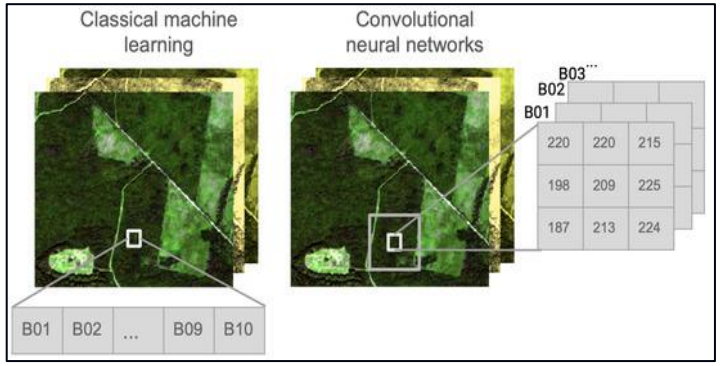
Focus areas

Environmental hazards and human health

The effective management of natural hazards and their impact on people including, but not limited to, air quality, flooding, droughts, heat stress and wildfires.

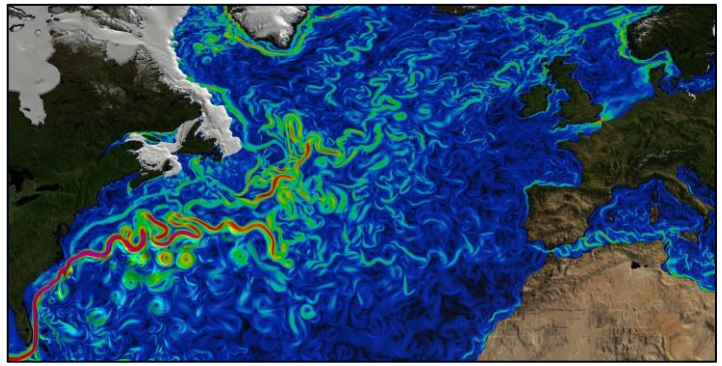
Examples: prediction of extreme events and their impact on human health, to optimise response efforts, and to facilitate recovery from hazards; early warning systems for vulnerable communities, real-time simulations, or damage assessments.



Terrestrial ecology

The use of data science and AI to provide insights into ecosystem and biodiversity changes, to detect and attribute causes to those changes, and to prioritise and plan conservation efforts.

Examples: the development of new AI and data-science based approaches to enhance complex monitoring at the species and ecosystem level, or predictive modelling for habitat conservation and ecosystem restoration.



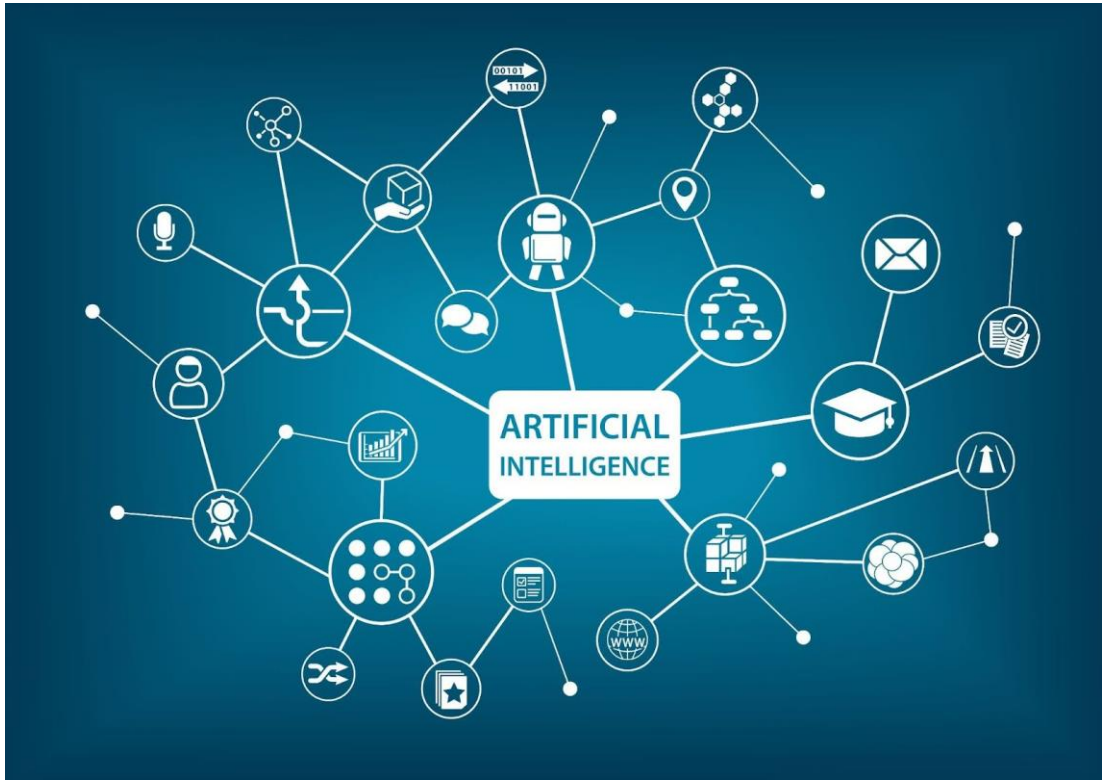
Oceans and climate

Sustainable ocean management and climate resilience.

Examples: the use of data science and AI to transform our ability to understand and predict complex weather and ocean patterns, uncover hidden connections in climate data, and deliver more efficient ocean-climate models; the development of algorithms for ocean data analysis, the development of multi-modal models; prediction and forecasting of extreme events.

Examples of approach

- hybrid models which bring together physics-based and data-driven approaches
- the use of multi-modal models capable of integrating and interpreting diverse (for example, large, small, sparse, complex) environmental and multidisciplinary datasets
- the use of foundation models to provide insights and tools for better data analysis, prediction, and decision-making
- small language models to support environmental science in an energy efficient and sustainable way



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Desired outcomes

Examples of outcomes could include, but are not limited to:

- high quality and trustworthy **AI-ready datasets**
- the more effective quantification and management of uncertainty and risk
- more efficient and **less carbon-intensive approaches** to modelling
- new insights into the trends, correlations and patterns within complex systems
- **novel approaches** to simulation, prediction and forecasting, including the upscaling and downscaling of projections from local to global scale
- **optimised solutions** to resource allocation problems
- trustworthy new decision-support tools to enable timely mitigation and adaptation measures

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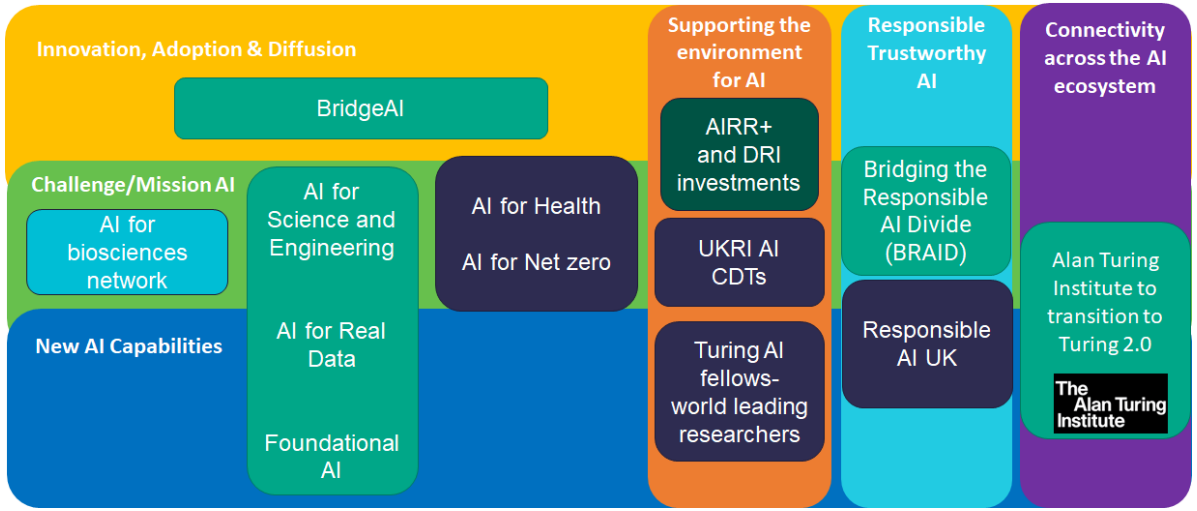
- You are encouraged to **work across research communities and disciplines** in order to develop innovative and ground-breaking approaches. You are also encouraged to **work closely with user communities** within the business, policy and third sector (or any other sector deemed appropriate) in order to deliver impact.

- We will support funded projects to **engage and connect with the existing ecosystem** of UK AI investments and provide a gateway into the wider UK Research and Innovation (UKRI) community, to identify and capture synergies. This will include working closely with **Responsible AI UK**, whose role it is to empower and connect the funded AI ecosystem.



AI4CI
AI for Collective Intelligence

Prob_AI

Generative AI Hub

RAi

National Edge AI Hub

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CHAI

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Specific requirements of funding opportunity

Dr Emma Morgan
Senior Programme Manager
Data, Technology and Space, NERC-UKRI

What we will fund in phase one & timeline

Funding opportunity

Artificial intelligence (AI) for environmental science phase one

Opportunity status:	Open
Funders:	Natural Environment Research Council (NERC)
Funding type:	Grant
Total fund:	£4,800,000
Award range:	£200,000 - £400,000
Publication date:	26 September 2025
Opening date:	3 October 2025 9:00am UK time
Closing date:	11 December 2025 4:00pm UK time

Last updated: 9 October 2025 - see all updates

Timeline

- **3 October 2025 9:00am**
  Opening date
- **24 October 2025 11:00am**
  Webinar
- **11 December 2025 4:00pm**
  Closing date
- **1 July 2026**
  Project must start by

£4.8m to fund 9–12 projects

Funding opportunity closes: 11 Dec 2025

Assessment panel: March 2026

Awards start: 1 July 2026

Duration: 18 months

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This is a two-phase opportunity

- This programme is made up of two phases and has a total budget of £12 million over five years.

Phase one
Open competition to support for 18 month ‘pump-priming’ projects with high adventure

Phase two
Closed to projects funder under phase one, following assessment of a phase two application and the outputs of phase one activities. If successful, phase two funding will be for an additional 42 months. For the second phase of the programme, the FEC will likely be between £1.3 million and £1.8 million.

Deadline for applying around five months prior to phase one ending. To start on 1st January 2028

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Successful phase two applications will be expected to have demonstrated evidence of the following during phase one:

- the **impact to date** of their innovative approach to bringing data science and AI to bear on key environmental challenges
- their **potential to deliver further transformation** in the use of data science and AI to address environmental challenges with further funding
- the **real-world usability** of the tools or technologies or approach that will be developed, in line with user needs
- **deliverability of plans for a second phase**, including the appropriateness of the team, collaborators and partners to maximise impact

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Who can apply

Open to eligible researchers at:

- higher education institutions (HEIs)
- research council institutes (RCIs)
- approved independent research organisations (IROs)
- public sector research establishments (PSREs)
- Catapults

Who is not eligible to apply

- project leads and project co-leads **based outside the UK are not permitted** (except specific costs for project co-leads from Norway and the International Institute for Applied Systems Analysis)

International collaborators, UK partners not based at approved organisations (including business or financial sectors) can be project partners

Project partners fund their own involvement - we will only fund minor incidental expenses, such as some travel costs

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Demand management

- Individuals may be involved **in no more than two applications**, with one as Project lead
- Trialling approach of accepting a **maximum of four applications** per research organisation (RO)
- UKRI has not set any specific expectations about the selection process to be followed by ROs
- The RO should ensure applicants they support can demonstrate their ability to meet the expectations detailed in the ‘What we are looking for’ section
- ROs are asked to use an **inclusive approach** to maximising the diversity of candidates they support
- No requirement to report on the characteristics of potential versus selected applicants

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How to apply

- We are running this funding opportunity on the **UKRI Funding Service**. You cannot apply on the Joint Electronic Submissions (Je-S) system

- The project lead is responsible for completing the application process on the UKRI Funding Service, but we expect all team members and project partners to contribute to the application

- Only the lead research organisation can submit an application to UKRI

Closing date for applications: 11 December 2025 at 4.00pm UK time

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How will we assess your application?

Assessment by independent panel of experts, using criteria:

- vision
- approach
- applicant and team capability to deliver
- ethics and responsible research and innovation

Find details of assessment questions and criteria under 'Application questions' in the funding opportunity.

We are looking to fund work that:

- will enable significant advances in our ability to tackle key UK and global environmental challenges
- Is novel, adventurous and potentially transformative
- is cross-disciplinary, interdisciplinary and/or multidisciplinary of team and approach
- will build trust and usability in the capability being developed

Applications may be based on challenges in other geographical regions, but there must be UK relevance

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Thank you

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Questions?

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