



















Science Landscape Seminar Series: Representative UK Meteorology, Climate Science and Oceans Infrastructure

Notes to reader

This document is to inform discussion only and is subject to the following caveats:

- Inclusion, non-inclusion or otherwise is not intended to reflect on the standing of any organisation or infrastructure.
- We did not include classified defence and intelligence assets.
- Assignment of subjects, Eight Great Technologies and Industrial Strategy sectors was based on desk research and may be subject to error. Categories are designed to inform the general discussion and not reflect on individual organisations or infrastructure. Absence of icons in category tables indicates that (in the project team's opinion) a piece of infrastructure cannot be easily categorised.
- This is an internally generated discussion document; no experts outside of government have been consulted.
- If any mistakes have been made, please inform the seminar secretariat.

Logo Key

Location		Research Area	Eight Great Technologies		Industrial Strategy
	UK	 Arts and humanities		Energy Storage	 Life Science
	EU	 Biological and medical sciences		Big Data	 Aerospace
	Global	 Earth sciences		Satellites	 Professional Business Services
Funding		 Engineering		Robotics and Autonomous Systems	 Education
	Research Councils	 Physical, mathematical and computer sciences		Synthetic Biology	 Nuclear
	Departmental	 Social and economic sciences		Regenerative Medicine	 Oil and Gas
	Private Sector			Agri-Science	 Automotive
	Charity			Advanced Materials	 Offshore Wind
	Academic			Quantum Technologies	 Information Economy
	European				 Construction
	Multinational				 Agri-tech

List of Infrastructure

The infrastructure identified has been categorised in to the lists below. There will be instances when items could fit in to multiple lists and in these cases we have tried to place the infrastructure in the most appropriate list.

Research Centres and Institutes

British Antarctic Survey (BAS)
British Geological Survey
Centre for Environment and Hydrology (CEH) The Institute of Biological, Environmental and Rural Sciences (IBERS).
James Hutton Institute
Met Office
The Met Office Hadley Centre
National Centre for Atmospheric Science (NCAS)
National Centre for Earth Observation (NCEO)
National Oceanography Centre (NOC)
Plymouth Marine Laboratory (PML)
European Centre for Medium range Weather Forecasts

Weather, Climate and Earth System Models and Prediction Systems

Met Office Unified Model
OpenIFS
EC-Earth

Aircraft

Joint NERC/Met Office Facility for Airborne Atmospheric Measurements (FAAM) - BAe 146
Manchester University - Cessna Research aircraft
Edinburgh University – (Diamond HK36 TTC-ECO)
Airborne Research & Survey Facility (ARSF) - Dornier 228
Met Office Civil Contingencies Aircraft (Mocca – Cessna 421)
5 BAS research aircraft (4 Twin Otter & 1 Dash-7)

Analytical Facility

NERC Isotope Geosciences Laboratory (NIGL)
Scottish Universities Environmental Research Centre (SUERC) analytical facilities

Education, Academia and Climate Change policy

University of East Anglia
University of Exeter
Imperial College London
University of Leeds
University of Oxford
University of Reading

Industry

3TIER
Campbell Scientific
Rotronic
Surrey Satellite Technology Ltd (SSTL)
Willis Research Network

Learned Societies

Royal Meteorology Society
Challenger Society for Marine Science

Network and Virtual Centres

Copernicus
European Institute of Technology (EIT)
EUROCHAMP
Expeer Sites in the UK
Global Climate Observing System (GCOS)
Global Earth Observation System of Systems (GEOSS)
Network of European Met Services (EUMETNET)
European Strategy Forum for Research Infrastructures (ESFRI) & programmes
InfraStructure for European Network for Earth System Modelling (IS-ENES) data network
International Ocean Discovery Programme (IODP)
Intergovernmental Panel on Climate Change (IPCC)
JPI Climate
Tyndall Centre for Climate Change Research
UK Carbon Capture and Storage Research Centre (UKCCS)
UK Environmental Observation Network (UKEOF)
World Meteorological Organisation

Observatories, Including Radar

The Met Office surface observations network
Argo
Chilbolton Facility for Atmospheric and Radio Research (CFARR)
Mesosphere Stratosphere Troposphere (MST) Radar Facility
UK Tidal Gauge Network
Weybourne Atmospheric Observatory (WAO)

Public Bodies

Centre for Environment, Fisheries and Aquaculture Science (Cefas)
Environment Agency
Natural Hazards Partnership (NHP)

Ships

New Polar Research Ship (BAS, to be completed 2019)
RRS Ernest Shackleton (BAS)
RRS James Clark Ross (BAS)
RRS Discovery (National Oceanography Centre)
RRS James Cook (National Oceanography Centre)

Space and Satellites

Climate, Environment and Monitoring from Space (CEMS)
ESA European Centre for Space Applications and Telecommunications, Harwell
European Organisation for the Exploitation of Meteorological Satellites (EUMetSat)
NERC Earth Observation Data Acquisition and Analysis Service (NEODAAS)
NovaSAR Space Radar Satellite
Satellite Applications Catapult
The Space Geodesy Facility (SGF)

Supercomputers, Data e-Infrastructure

ARCHER and Research Data Facility (RDF)
British Isles continuous GNSS facility

ECMWF Supercomputer
JASMIN
Met Office Supercomputing Facility & Data Archive and MONSooN
NERC data centres

Private Sector Weather Service Providers

MeteoGroup
Weather Services International








Research Centres and Institutes

British Antarctic Survey (BAS)



BAS has unique research and long-term monitoring capability within the UK. It is funded by NERC, based in Cambridge and has over 400 staff. BAS operates eight research outposts in remote Arctic and Antarctic locations, and a number of research aircraft and ships. Specialised facilities for the scientific staff include laboratories for the physical and chemical analyses of biological, geological and ice specimens, molecular biology facilities, a scanning electron microscope, sample preparation and controlled

environment rooms (including a cold aquarium and extensive freezer storage) as well as a library, archives, computing and mapping facilities. [More info: <http://www.antarctica.ac.uk/>]






Location	Funding	Research area	Eight Great	Industrial Strategy
 UK  Global	 Research Council	 Earth sciences  Biological sciences  Physical Sciences		 Oil and Gas

British Geological Survey



The world's longest-established national geological survey, funded through NERC with an annual budget of £47m. BGS researches geophysics, geochemistry, climate change, earth hazards and energy. It is based at Keyworth and its facilities include the National Geological Repository, National Geosciences Data Centre, NERC Isotope Geosciences Laboratory, National Physical Properties and Processes Laboratories and National

GeoEnvironmental Laboratories. The National Geological Repository (NGR) core store houses over 200km of cores, samples and cuttings from over 15,000 boreholes. [More info: <http://www.bgs.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences		 Oil and Gas

Centre for Environment and Hydrology (CEH)



CEH research is aimed at improving understanding of the environment and the processes that support life on Earth. They are particularly interested in the impacts of human activity on the world around us and in developing ready-to-use approaches for achieving environmental sustainability. The headquarters are in Wallingford and the centre operates additional sites at sites at

Bangor, Edinburgh and Lancaster. Additionally, CEH has eight research sites involved in five EU climate change Infrastructure Projects. The annual budget is £37m. [More info: <http://www.ceh.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences		

The Institute of Biological, Environmental and Rural Sciences (IBERS)










With 360 members of staff, IBERS is the largest Institute within Aberystwyth University. IBERS is an internationally recognised research and teaching centre providing a unique base for research in response to global challenges such as food security, bioenergy and sustainability, and the impacts of climate change. IBERS scientists conduct basic, strategic and applied research from genes and molecules to organisms and the environment. [More info: <http://www.aber.ac.uk/en/ibers/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic  Research Councils  Departmental  European	 Earth sciences  Biological and medical sciences	 Agri-Science	

James Hutton Institute



The James Hutton Institute is an internationally networked organisation and operates from multiple sites, including two main ones in Scotland at Aberdeen and Dundee. It employs more than 600 scientists and support staff, making it one of the biggest research centres in the UK and the first of its type in Europe. The institute is one of the Scottish Government's main research providers in environmental, crop and food science. [More info: <http://www.hutton.ac.uk/>]










Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental  European  Private Sector	 Earth sciences  Biological and medical sciences	 Agri-Science	

Met Office



A Trading Fund within the Department for Business Innovation and Skills, operating on a commercial basis under set targets. The Met office employs more than 1,800 people at 60 locations throughout the world including over 500 scientists, responsible for the development of improved weather and climate predictive capability.

They are recognised as one of the world's most accurate forecasters, using more than 10 million weather observations a day, an advanced atmospheric model and high performance supercomputing to create 3,000 tailored forecasts and briefings a day. The Met Office acts as one of six major nodes on the WMO Global Telecommunications Network, processing 106 million observations a day. [More info: <http://www.metoffice.gov.uk/>]




Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental  Private Sector  European	 Earth sciences  Physical, mathematical and computer sciences  Social and economic sciences	 Big Data  Satellites	

The Met Office Hadley Centre



The Met Office Hadley Centre (MOHC) produces guidance on the science of climate change and makes significant contributions to the peer reviewed literature. The MOHC Climate Programme (funding by DECC and Defra) enables the Met Office to deliver the

National Climate Capability (NCC). It contains intellectual capital in climate modelling and observation, and the attribution and impacts of climate change. It also has capabilities in data handling and supercomputing. It has 200 scientists, and sits within the Met Office science programme. Co-location within the Met Office ensures that the NCC benefits from numerical weather prediction research and the Met Office's 24/7 operational capability. The climate and weather services use the same model, technical and observational base and infrastructure delivering substantial cost savings. This integration of key expertise and activities provides enhanced insight, improved efficiency and effectiveness. [More info: <http://www.metoffice.gov.uk/climate-guide/science/science-behind-climate-change/hadley>]





Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental  European	 Earth sciences  Physical, mathematical and computer sciences  Social and economic sciences	 Big Data	

National Centre for Atmospheric Science (NCAS)



The National Centre for Atmospheric Science (NCAS) provides the UK academic community and the Natural Environment Research Council with national capability in the science of climate change

(including modelling and predictions), atmospheric composition (including air quality), weather (including hazardous weather) and technologies for observing and modelling the atmosphere. Operating with an annual budget of £9m, NCAS facilities include a world-leading research aircraft, a ground-based instrumentation pool via the Atmospheric Measurement Facility (AMF), access to computer models via the Computation Modelling Services (CMS), and facilities for storing and accessing data. [More info: <https://www.ncas.ac.uk/>]





Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences		

National Centre for Earth Observation (NCEO)



National Centre for Earth Observation
NATURAL ENVIRONMENT RESEARCH COUNCIL

NCEO is a partnership of over 100 scientists from 26 institutions whose mission is to unlock the full potential of Earth observation data. Scientists use data from Earth observation satellites to monitor global and regional changes in the environment, as well as to learn more about the Earth system and improve predictions of future environmental conditions. NCEO work closely with the UK satellite industry and international space organisations and operate with an annual budget of £6.5m. [More info: <http://www.nceo.ac.uk/>]





Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences	 Satellites	

National Oceanography Centre (NOC)



NOC is a NERC funded organisation for integrated ocean research, monitoring and technology development, with sites at Southampton and Liverpool, employing 540 people. NOC focus on providing technological capability for the UK's marine research community, including Royal Research ships, deep submersibles, advanced ocean sensors and instruments. NOC runs numerous open-ocean and coastal observatories. NOC also houses a data centre and the British Ocean Sediment Core Research Facility

(BOSCORF) to provide specialised facilities for the long-term storage and curation of deep-sea cores [More info: <http://noc.ac.uk/>
<http://www.boscorf.org>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Biological sciences  Physical Sciences		 Oil and Gas

Plymouth Marine Laboratory (PML)



Plymouth Marine Laboratory

PML is an independent academic institution which specialises in delivering pioneering research and relevant knowledge exchange to address challenges facing the marine environment. It is funded by NERC and through industrial contracts. It operates the Western Channel Observatory (WCO; an in-situ ocean data collection), experimental tank facilities and several ships. In 2013, PML had 166 staff (of which 67% are scientists), 50 students and are a host to many visiting researchers. [More info: <http://www.pml.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences  Biological sciences  Physical Sciences		

European Centre for Medium range Weather Forecasts



ECMWF is both a research institute and a 24/7 operational service, producing and disseminating medium range (3-10 days) numerical weather predictions to its Member States. This data is fully available to the national meteorological services in the Member States. The Centre also offers a catalogue of forecast data that can be purchased by businesses worldwide and other commercial customers. The supercomputer facility at ECMWF is one of the largest of its type in Europe and Member States can use 25% of its capacity for their own purposes. The centre employs around 270 staff from more than 30 countries. [More info: <http://www.ecmwf.int/>]

Location	Funding	Research area	Eight Great	Industrial Strategy	
 EU	 Multinational	 Earth sciences	 Physical, mathematical and computer sciences	 Big Data	

Weather, Climate and Earth System Models and Prediction Systems

Modelling is critical to a broad range of research in Meteorology and Climate Science. The below entries represent some of the models used by researchers in this area.

Met Office Unified Model

The Met Office Unified Model (UM) provides seamless prediction systems for operational and research in weather forecasting, climate prediction and climate change projection. The UM system constitutes around 2million lines of code and represents an investment of around £100m in critical research infrastructure. The UM system is currently used by over 1000 scientists in the UK (including 500 at the Met Office), as well as several hundred internationally. Its future development is supported by the Met Office/NERC Joint Weather and Climate Research Programme (JWCRP). [More info:

<http://www.metoffice.gov.uk/research/modelling-systems/unified-model>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental  Research Councils	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

OpenIFS



OpenIFS is an ECMWF led project which provides an easy-to-use, exportable version of the IFS system in use at ECMWF for operational weather forecasting. The project aims to develop and promote research, teaching and training on numerical weather prediction (NWP) and NWP-related topics with academic and research institutions. [More info: <https://software.ecmwf.int/wiki/display/OIFS/OpenIFS+Home>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	 Multinational	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

EC-Earth



EC-Earth is a recent earth-system model developed by a consortium of European research institutions and researchers, based on state-of-the-art models for the atmosphere, the ocean, sea ice and the biosphere. The goal is to produce seasonal to decadal climate prediction and climate projections. [More info: <http://eearth.knmi.nl/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	 Multinational	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

Aircraft

The UK research community operates 9 research aircraft relevant to Meteorology and Climate Change.





- Joint NERC/Met Office Facility for Airborne Atmospheric Measurements (FAAM) - BAe 146
- Manchester University - Cessna Research aircraft
- Edinburgh University – (Diamond HK36 TTC-ECO)
- Airborne Research & Survey Facility (ARSF) - Dornier 228
- Met Office Civil Contingencies Aircraft (Mocca – Cessna 421)
- 5 BAS research aircraft (4 Twin Otter & 1 Dash-7)



The UK based aircraft (FAAM, Manchester University, Edinburgh University, ARSF and MOCCA) are equipped to gather data for optical remote sensing, oceanography, atmospheric and earth science research; completing flights in the UK and abroad.



Five aircraft are operated by the British Antarctic Survey in the Antarctic summer; four of those aircraft are equipped for airborne remote sensing and all are used for transporting people and supplies to remote areas in Antarctica.

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences		





Analytical Facilities

These facilities are commissioned to analyse samples on behalf of ‘customers’. They usually require specific expertise and equipment, and often provide training.

NERC Isotope Geosciences Laboratory (NIGL)



NIGL is the largest UK producer of stable isotope data and one of the largest facilities in Europe for studying naturally occurring isotopes; particularly specialising in climate, environmental and archaeological studies. The laboratory has preparative and mass spectrometry facilities and expertise in radiogenic isotope analysis and interpretation. The laboratory employs 18 staff and has an annual resource allocation of £700,000. [More info: <http://www.bgs.ac.uk/nigl/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Physical Sciences		

Scottish Universities Environmental Research Centre (SUERC) Analytical Facilities



SUERC was established to provide the Universities of the Scottish Consortium collaborative access to expensive equipment and specialist expertise. The centre houses five NERC isotopic analysis laboratories: the Argon Isotope Facility, the Isotope community support community, the cosmogenic isotope analysis facility, and the NERC radiocarbon facility, and the life science mass spectrometry facility. [More info: <http://www.gla.ac.uk/research/az/suerc/nercfacilities/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Council	 Earth sciences  Biological sciences  Physical Sciences		

Education, Academia and Climate Change Policy

University of East Anglia



Climate system and climate change is a key area of research for the University and the School of Climate, Ocean and Atmospheric Sciences operates three major centres which contribute to this theme: The Climatic Research Unit, the Centre for Ocean and Atmospheric Sciences (COAS) and the Tyndall centre. The University is also responsible for operation of The Weybourne

Atmospheric Observatory (WAO) in North Norfolk.

[More info: <https://www.uea.ac.uk/environmental-sciences/research/research-themes/climate-ocean-and-atmospheric-sciences>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	  Earth sciences Physical Sciences		

University of Exeter



Exeter University is a Met Office academic partner through which there are in the region of 80 collaborative projects underway or in the pipeline, with a total value of £18m, including studentships and research projects. Additional notable assets include CliMathNet (an

academic network working on a range of novel climate science mathematical techniques) and the Environment and Sustainability Institute (ESI), a £30m interdisciplinary centre leading cutting-edge research into solutions to problems of environmental change. [More info: <http://www.exeter.ac.uk/metoffice/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	  Earth sciences Physical Sciences		

Imperial College London



Imperial College's Grantham Institute seeks to tackle the challenges of climate change and the environment, working to offer practical scientific and technical knowledge. The Institute is

supported by a team of experts who provide authoritative analysis and assessment of research outputs, communicating it in a policy-relevant way to decision makers. Imperial college also houses the Ecotron controlled environment facility. [More info:

<http://www3.imperial.ac.uk/grantham>
<http://www3.imperial.ac.uk/cpb/history/theecotron>]





Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	  Earth sciences Physical Sciences		

University of Leeds



UNIVERSITY OF LEEDS





Leeds University is a Met Office academic partner. Collaborative work predominantly focuses on the following three themes: observations and atmospheric processes, atmospheric composition in climate and weather, and African climate and impacts. The University has brought the complete range of disciplines from geology and geophysics, environmental science, meteorology and climate science, to environmental social science together under one banner and has one of the largest research clusters of Earth, environmental and social scientists in the UK and internationally. The University is a joint host of the Centre for Climate Change Economics and Policy (CCCEP), in conjunction with LSE. [More info: <http://www.cccep.ac.uk/Home.aspx> <http://www.see.leeds.ac.uk/research/icas/working-groups/met-office-partnership/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	 Earth sciences  Physical Sciences  Economic and social sciences		

University of Oxford



The University of Oxford is a Met Office academic partner. Furthermore, Oxford's Environmental Change Institute (ECI) conducts and promotes interdisciplinary research on the nature, causes and impact of environmental change and seeks to contribute to the development of management strategies for coping with future environmental change. [More info: <http://www.climate.ox.ac.uk/oxford-climate-research/met-office-academic-partnership/> <http://www.eci.ox.ac.uk/information/about.php>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	 Earth sciences  Economic and social sciences		

University of Reading



Reading University is a Met Office academic partner with over 100 active research collaborations with Met Office scientists. The University offers a full range of undergraduate and postgraduate courses in meteorology and is internationally renowned for its research and teaching in atmospheric, oceanic and climate science. The University's Walker Institute delivers world-leading research at the frontiers of climate system science, training the next generation of climate scientists. The Institute is made up of a core team of four with researchers drawn from a broad range of research groups across the University. [More info: <http://www.met.reading.ac.uk/research/moap/> and <http://www.walker-institute.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Academic	 Earth sciences  Physical Sciences		

Other Universities

There is also a strong M&CC research base across a broad range of UK Higher Education Institutes including the University of Edinburgh, University of Manchester, University of East Anglia and University of Cambridge, University College London and University of Leicester.

Industry

3TIER



3TIER uses the most advanced weather science to frame wind, solar, and hydro variability. The company's products and services help the energy industry build better renewable energy projects, extract more energy from existing projects, and integrate the

electricity generated by these projects into the power grid. [More info:

<http://www.3tier.com/en/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Private Sector	  Earth sciences Physical Sciences		 Offshore wind

Campbell Scientific



Campbell Scientific assembles, manufactures, and develops new products specialising in optical sensors such as those for visibility, cloud base and present weather. The European headquarters, Campbell Park, is on the outskirts of Shepshed, in the Midlands.

[More info: <http://www.campbellsci.co.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Private Sector	  Earth sciences Physical Sciences		

Rotronic



Accurate weather forecasting is based on capturing accurate measurements. Rotronic produces humidity probes and weather stations with a reputation for providing accurate and reliable long-term data, especially in demanding locations. Probe choice is application dependent and cost and specification are important variables.

[More info: <http://www.rotronic.co.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Private Sector	  Earth sciences Physical Sciences		







Surrey Satellite Technology Ltd (SSTL)



SSTL is an independent British company privately owned by Airbus DS. It has been operational since 1981 and has a 40% share of the global small satellite market. It designs, manufactures and operates small satellites, of which it has launched 43 (15 currently operational), and communications and remote sensing payloads for Earth observation, telecoms and navigation missions [More info:

<http://www.sstl.co.uk>]






Location	Funding	Research area	Eight	Industrial

			Great	Strategy	
 UK	 Private Sector	 Earth sciences	 Engineering	 Physical Sciences	 Satellites

Willis Research Network

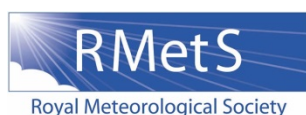


Willis Research Network was formed in 2006 to integrate science, insurance and resilience at a scale never before envisaged. The Network has become the world's largest collaboration between public science and the financial sector with a membership of around 50 leading research institutions.
 [More info: <http://www.willisresearchnetwork.com/>]


Location	Funding	Research area	Eight Great	Industrial Strategy	
 Global	 Private Sector	 Earth sciences	 Physical Sciences	 Economic and social sciences	

Learned Societies

Royal Meteorology Society



The Royal Meteorological Society is the professional and learned society for weather and climate. The Society serves not only those in academia and professional meteorologists, but also those whose work is affected in some way or other by the weather or climate, or simply have a general interest in the weather. The membership includes scientists, practitioners and a broad range of weather enthusiasts. [More info: <http://www.rmets.org/>]




Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Charity	  Earth sciences Physical Sciences		

Challenger Society for Marine Science



The Challenger Society for Marine Science is a learned society for marine scientists in the UK, named after the ship HMS Challenger. Its aim is to advance the study and application of marine science through research and education, to encourage collaboration and to contribute to public debate and government policy.

[More info: <http://www.challenger-society.org.uk>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Charity	  Earth sciences Physical Sciences		

Network/Virtual Centres

These centres range between collaborations to share equipment and data, and those that are designed to bring together experts to collectively address ideas and problems.

Copernicus



Copernicus (The European Earth Observation Programme) is a programme of the European Commission which aims at establishing an autonomous, multi-level operational Earth observation capacity. Its cost during 1998 to 2020 is estimated to be €8.4 billion. The ESA has performed much of its design and oversees and co-funds the development of Sentinel 1, 2 and 3 satellites and Sentinel 4 and 5 instruments for MTG and METOP SG weather satellites of EUMETSAT.

COPERNICUS will also deliver freely accessible new environmental monitoring (including some forecasting) services for a wide range of users, which support and compliment national services. There will be six service themes:

- i. Land Monitoring;
- ii. Emergency Management;
- iii. Atmosphere;
- iv. Marine
- v. Climate; and
- vi. Security (both maritime and civilian).

[More info: <http://www.copernicus.eu/>]

Location	Funding	Research area	Eight Great	Industrial Strategy	
 EU	 European	 Earth sciences	 Physical Sciences	 Satellites	

European Institute of Technology (EIT)



The European Institute of Innovation and Technology (EIT) is a body of the European Union, established by the European Parliament and based in Budapest, Hungary. The EIT currently employs approximately 50 members of staff. A Climate Knowledge and Innovation Community (KIC) (one of three such communities) was created in 2010. The climate-KIC supports the EIT's mission to create sustainable growth by addressing climate change mitigation and adaptation. [More info: <http://eit.europa.eu/> <http://www.climate-kic.org/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 European	 Earth sciences		

EUROCHAMP



EUROCHAMP is a European project which aims to facilitate better integration of simulation chambers for studying atmospheric processes; making better use of these expensive facilities by breaking down boundaries between national research-institutions and opening up access to a wider range of researchers. Fourteen European Partners are the backbone of this project, with University of Leeds and Manchester University representing the UK.

[More info: <http://www.eurochamp.org/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 European	 Earth sciences		

ExpeER Sites in the UK



ExpeER (Experimentation in Ecosystem Research) is a European project which aims to bring together, for the first time, the major observational, experimental, analytical and modelling facilities in ecosystem science in Europe. The network of highly instrumented ecosystem research facilities encompasses 37 participants across 19 European nations. [More info: <http://www.expeeronline.eu/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 European	 Earth sciences		

Global Climate Observing System (GCOS)



The Global Climate Observing System (GCOS) was established in 1992 to ensure that the observations and information needed to address climate-related issues are obtained and made available to all potential users. It provides an operational framework for integrating, and enhancing as needed, observational systems of participating countries and organisations into a comprehensive system focused on the requirements for climate issues. [More info: <http://gosc.org/gcos>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Multinational	  Earth sciences Physical Sciences	 Satellites	

Global Earth Observation System of Systems (GEOSS)



This 'system of systems' will proactively link together existing and planned observing systems around the world and support the development of new systems where gaps currently exist. It will promote common technical standards so that data from the thousands of different instruments can be combined into coherent data sets. It is comprised of 80 governments and the European Commission, and a wide range of participating organisations.


[More info: <http://www.earthobservations.org/geoss.php>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Multinational	  Earth sciences Physical		

Network of European Met Services (EUMETNET)



EIG EUMETNET is a grouping of 31 European National Meteorological Services that provides a framework to organise co-operative programmes between its Members in the various fields of basic meteorological activities. These activities include key infrastructures needed for European numerical weather predictions and climate monitoring: non-space observing systems (including radar, surface marine, aviation, wind profilers and GNSS) and data processing. [More info at: <http://www.eumetnet.eu>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	  European Multinational	 Earth sciences		

European Strategy Forum for Research Infrastructures (ESFRI) & Programmes

ESFRI, is a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach. ESFRI, the European Strategy Forum on Research Infrastructures, is a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach. There are a range of Research Infrastructures spanning: energy, engineering, environmental sciences, ICT, life sciences, material sciences, physical sciences and astronomy, social sciences, and humanities. ICOS, IAGOS, Euro-Argo, SIOS, ACTRIS, IS-ENES and PRACE are specific examples. [More info at: <http://ec.europa.eu/research/infrastructures>]







Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	 European	 Earth sciences		

Infrastructure for European Network for Earth System Modelling (IS-ENES) Data Network



The ENES network gathers together the European modelling community working on understanding and predicting climate variability and change. IS-ENES2 combines expertise in climate modelling, computational science, data management and climate

impacts. The INES Consortium comprises 23 partners from 11 countries, including The University of Reading, STFC and the Met Office. [More info: <https://verc.enes.org/ISENES2>]



Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	   	 Earth sciences		

International Ocean Discovery Programme (IODP)



The UK is a member of the International Ocean Discovery Programme (IODP) as part of the European Consortium for Ocean Research Drilling (ECORD). The programme is made up of an international partnership of scientists and research institutions, distributed across 25 partner nations. IODP uses multiple drilling platforms to access different sub-seafloor environments during

research expeditions. Three implementing organizations in the US, Japan, and Europe serving as platform operators. [More info: <http://www.bgs.ac.uk/iodp/>]


Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Multinational	  Earth sciences Physical Sciences		

Intergovernmental Panel on Climate Change (IPCC)



The IPCC is an intergovernmental body under the auspices of the UN which provides internationally accepted authority on climate change. The main IPCC activity is the preparation of comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its

causes, potential impacts and response strategies, as well as producing Special Reports. It is currently finalising the Fifth Assessment Report. [More info: <http://www.ipcc.ch/>]





Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Multinational	  Earth sciences Physical Sciences		

JPI Climate



JPI Climate is a collaboration of 14 European countries to coordinate jointly their climate research and fund new transnational research initiatives, which connects scientific disciplines, enables cross-border research and increases science-practice interaction. It is coordinated with the EU's Horizon 2020 programme. [More info:

<http://www.jpi-climate.eu/>]







Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	 European	 Earth sciences  Physical Sciences		

Tyndall Centre for Climate Change Research



The Tyndall centre aims to bring together scientists, economists, engineers and social scientists who are working to develop sustainable responses to climate change. They work not just within the research community, but also with business leaders, policy

advisors, the media and the public in general. University partners are to be found in Cardiff, Shanghai, Newcastle, Cambridge, East Anglia, Manchester, Oxford, Southampton and Sussex. [More info: <http://www.tyndall.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Research Councils  European  Multinational	 Earth sciences  Social and economic sciences		

UK Carbon Capture and Storage Research Centre (UKCCS)



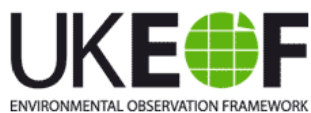
The aim of the UKCCS is to provide a national focal point for CCS research and development in order to bring together the user community and academics to analyse problems, devise and carry

out world-leading research and share delivery, thus maximising impact. A key priority is to help stimulate the UK economy by driving an integrated research programme focused on increasing the contribution of CCS to a low-carbon energy system for the UK. [More info:

<https://ukccsrc.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Departmental  Research Councils	 Earth sciences	 Energy Storage	

UK Environmental Observation Network (UKEOF)



UKEOF was launched in 2008 to support better communication and sharing of information across the observations community. Representatives from a range of organisations including government, research councils, devolved administrations, agencies and the voluntary sector work together through UKEOF to achieve its aims. This collaborative approach helps inform strategic direction in environmental observations and supports the efficient delivery of operational services. UKEOF informs policy, management, science and innovation for environmental and economic benefit.

Location	Funding	Research area	Eight Great	Industrial Strategy	
 Global	 Departmental	 Research Councils	 Charity	 Earth sciences	

World Meteorological Organisation



The World Meteorological Organization (WMO) is an intergovernmental organisation and a specialised agency of the UN, with a membership of 191 Member States and Territories. WMO has been entrusted with the task of defining and implementing the Global Framework for Climate Services (GFCS). Major WMO programs include the World Weather Watch (WWW), and the World Weather Research Program (WWRP). The WMO also sponsors the World Climate Research Program (WCRP). [More info:

<https://www.wmo.int/>]

Location	Funding	Research area	Eight Great	Industrial Strategy	
 Global	 Multinational	 Earth sciences	 Physical Sciences		

Observatories, Including Radar

These observatories are often, but not always, sited at remote geographical locations. They may perform analysis and other research functions on-site, but their primary role is sample collection and bespoke measurements.

The Met Office – Surface Observations Networks



Comprehensive observations of the atmospheric state are essential for initialising, monitoring and verifying forecast models; for informing model development; and maintaining the climate record. Remote sensing – both from satellites and ground-based – represents a large and increasingly important component of the global observing system, but observations from aircraft, ships, buoys, weather balloons and weather stations are also vital. Some networks are directly managed by the Met Office, but others by

national, European and Global partnership organisations – some of which are listed in this document (see e.g. Argo, EUMETSAT, GCOS, WMO and EUMETNET). Notable examples of directly managed networks are the land based weather stations and the national weather radar network (a partnership mainly with the Environment Agency).

[More info: <http://www.metoffice.gov.uk/public/weather/climate-network/#?tab=climateNetwork>]

Location	Funding	Research area	Eight Great	Industrial Strategy	
 UK	 Departmental	 Earth sciences	 Physical Sciences	 Big Data	

Argo



Argo consists of a fleet of approximately 3600 drifting profiling floats deployed worldwide. The probes drift at a depth of 1000 metres (the so-called parking depth) and, every 10 days, by changing their buoyancy, dive to a depth of 2000 metres and then move to the sea-surface, making a variety of measurements along the way. The data are transmitted to shore via satellite, and are freely available to everyone, without restrictions. [More

info: <http://www.argo.net/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Multinational	 Earth sciences		

Chilbolton Facility for Atmospheric and Radio Research (CFARR)



The Chilbolton Facility for Atmospheric and Radio Research is equipped with a wide range of advanced meteorological radars (including the 25m Chilbolton Advanced Meteorological Radar), lidars and radiometers for remote sensing of the atmosphere from the ground. The Facility makes measurements of clear air turbulence and refractivity, cloud characteristics, precipitation,

water vapour and aerosol. Measurements of these key parameters make a major contribution to reducing current uncertainties in numerical weather and climate models. In addition to improving the prediction of climate change, the measurements are being used to study the atmospheric processes that lead to storms and flooding

[More info: <http://www.stfc.ac.uk/Chilbolton/default.aspx>
<http://www.stfc.ac.uk/Chilbolton/24821.aspx>]

Location	Funding	Research area	Eight Great	Industrial Strategy

 UK	 Research Councils	 Earth sciences		
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Mesosphere Stratosphere Troposphere (MST) Radar Facility



The Mesosphere Stratosphere Troposphere Radar Facility (MSTRF) is a research station operated on behalf of the UK's atmospheric science community located at Capel Dewi near Aberystwyth in west Wales. The station operates the NERC Mesosphere-Stratosphere-Troposphere (MST) Radar, the UK's most powerful and versatile wind-profiling instrument, as well as a number of auxiliary

instruments. [More info: <http://www.stfc.ac.uk/2790.aspx>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences		

UK Tidal Gauge Network



The UK Tidal Gauge network comprises approximately 45 gauges. Most are related, through the national levelling network, to the median sea level in Cornwall (Ordnance Datum Newlyn). Data are collected, processed and banked centrally to provide long time series of reliable and accurate sea levels. The data are used for tidal analysis and prediction, oceanographic research, coastal defence and storm surge warning systems. [More info:

https://www.bodc.ac.uk/data/online_delivery/ntslf/]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences		

Weybourne Atmospheric Observatory (WAO)

The Weybourne Atmospheric Observatory is a coastal site located on the North Norfolk coastline. Over the last ten years the WAO has become established as a world class facility at which fundamental research, background monitoring and teaching have all been successfully carried forward. WAO has been the focus of many international experiments designed to look into the chemistry of the free troposphere and the planetary boundary layer. [More info: <http://weybourne.uea.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils  Academic  European  Private Sector  Departmental	 Earth sciences		

Public Bodies

This group is comprised of Government departments, executive agencies, and arm's length bodies some of whom have active roles in the UK science base for M&CC. They also act as delivery partners for M&CC research.

Centre for Environment, Fisheries and Aquaculture Science (Cefas)



CEFAS is an executive agency of Defra. It is an applied marine science centre which carries out a wide range of research, advisory, consultancy, monitoring and training activities for the EU, UK government, NGO's, research centres and industry. CEFAS employs approximately 570 staff at two specialist laboratories in Lowestoft and Weymouth, and operates a research ship (Cefas Endeavour). [More info: <http://cefas.defra.gov.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental	 Earth sciences  Biological and medical sciences		

Environment Agency




The Environment Agency is a non-departmental public body established in 1996 to protect and improve the environment. It is sponsored by the Department for Environment, Food and Rural Affairs (Defra) and has over 10,600 employees. The Environment Agency's remit covers the whole of England, about 13 million hectares of land, 22,000 miles (35,000 km) of river and 3,100 miles (5,000 km) of coastline seawards to the three-mile limit which includes 2 million hectares of coastal waters. [More info: <https://www.gov.uk/government/organisations/environment-agency/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental	 Earth sciences		

Natural Hazards Partnership (NHP)

The NHP brings together expertise from across the UK's leading public sector agencies with the aim of drawing upon scientific advice in the preparation, response and review of natural hazards. It informs the National Risk Register and publishes a daily assessment on natural hazards such as flooding, geological hazards, air quality and extreme weather. The partnership includes several NERC research centres, the Met Office, the Environment Agency, Ordnance Survey and government members. [More info: <http://www.metoffice.gov.uk/nhp/>]



Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Departmental  Research Councils	 Earth sciences  Physical, mathematical and computer sciences		

Ships



NERC research centres support four research ships, with a further one, a new polar icebreaker, due for completion in 2019. These vessels fulfil a range of roles including measurement and sampling, resupply of remote bases, and data downloads from unmanned observatories. The ships are the:

- New Polar Research Ship (BAS, to be completed 2019)
- RRS Ernest Shackleton (BAS)
- RRS James Clark Ross (BAS)
- RRS Discovery (National Oceanography Centre)
- RRS James Cook (National Oceanography Centre)

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences		







Space and Satellites

This category includes satellites, ground-based data receiving sites, and facilities for simulation of space-like conditions.

Climate, Environment and Monitoring from Space (CEMS)



CEMS is a purpose-built facility offering space-based climate change and earth observations data and services. CEMS is designed to give users access to extensive data holdings and a range of applications, tools and services that help them analyse this data more effectively. To facilitate this, CEMS provides users with a virtualised environment allowing easy access to CEMS data and various associated services. CEMS also provides consultancy services offering expert advice from a panel of climate and earth observations experts across both the commercial and academic sectors. [More info: <https://sa.catapult.org.uk/cems>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Private Sector  Research Councils	 Earth sciences  Physical, mathematical and computer sciences	 Satellites	

ESA European Centre for Space Applications and Telecommunications, Harwell



The European Space Agency (ESA) studies the Earth's immediate space environment, the solar system and the universe, and develops satellite technologies. The UK hosts the ESA European Centre for Space Applications and Telecommunications (ECSAT) at Harwell. ECSAT will support activities related to telecommunications, integrated applications, climate change, technology and science. Also located at Harwell, the ESA Climate Office will be the portal for all matters related to climate change.

Around 100 ESA employees will be based in Harwell by 2015.

[More info: http://www.esa.int/About_Us/Welcome_to_ESA/ECSAT]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils  Departmental  European	 Earth sciences  Physical, mathematical and computer sciences	 Satellites	

European Organisation for the Exploitation of Meteorological Satellites (EUMetSat)









EUMETSAT is a global operational satellite agency based in Europe that gathers accurate and reliable satellite data on weather, climate and the environment around the clock. They currently have seven operational weather satellites: Meteosat-7,-8,-9 and -10, Metop-A and -B and Jason-2. It is an intergovernmental organisation. [More info: <http://www.eumetsat.int/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 EU	 European	 Earth sciences  Physical Sciences	 Satellites	

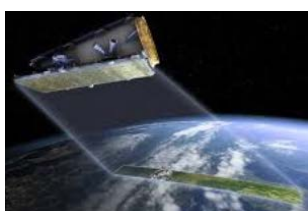
NERC Earth Observation Data Acquisition and Analysis Service (NEODAAS)



NEODAAS is funded by NERC to support UK environmental scientists with remote sensing data and information. It was formed by the merger of two long established services, the Dundee Satellite Receiving Station, University of Dundee, and the Remote Sensing Data Analysis Service which operates within Plymouth Marine Laboratory. Together they have the capability to automatically receive, archive, process and map global data from multiple polar-orbiting sensors in near-real time, and also receive and process data from multiple geostationary satellites. [More info: <http://www.neodaas.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences  Physical, mathematical and computer sciences	 Satellites  Big Data	

NovaSAR Space Radar Satellite



NovaSAR-S provides medium resolution imagery for use in applications such as flood monitoring, agricultural crop assessment, forest monitoring and disaster management. The Satellite, developed by Surrey Satellite Technology Limited in collaboration with EADS-ASTRIUM, is a 'Synthetic Aperture Radar' satellite (SAR). These satellites are capable of taking images through clouds or at night. NovaSAR-S costs significantly less than competing SAR missions with a cost more comparable with traditional optical imaging satellites.

[More info: <http://www.sstl.co.uk/NovaSAR-1>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Private Sector	 Earth sciences  Physical, mathematical and computer sciences	 Satellites	 Agri-tech

Satellite Applications Catapult



The Satellite Applications Catapult is a new type of independent innovation and technology company, created to foster growth across the economy through the exploitation of space. It aims to become a world-class centre for the development and commercial exploitation of space and satellite-based products. [More info: <https://sa.catapult.org.uk/>]



Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Private Sector	 Earth sciences  Physical, mathematical and computer sciences	 Satellites	

The Space Geodesy Facility (SGF)



The SGF operates techniques to support satellite missions to study the Earth. The facility makes precise range measurements to enable orbit-height determination for scientific satellite missions that study the oceans, ice sheets, land mass, gravity field and climate of the Earth in order to better understand the processes at work. [More info:

<http://sgf.rgo.ac.uk/index.html>]



Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences	 Satellites	

Supercomputers, Data and e-Infrastructure

ARCHER and Research Data Facility (RDF)



ARCHER (Advanced Research Computing High End Resource) is the latest UK National Supercomputing Service. It is a Cray XC30 system based at the EPCC (Edinburgh Parallel Computing Centre) and funded by EPSRC and NERC, available to UK researchers through grants. The RDF, also based at EPCC, is available for ARCHER users and provides long term, high capacity data storage and persistent infrastructure. [More info: <http://www.archer.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

British Isles continuous GNSS facility



The NERC funded British Isles continuous GNSS Facility (BIGF) supports research scientists with archived RINEX format GNSS (Global Navigation Satellite System) data, metadata and derivative products. This unique facility in the UK is hosted at the Nottingham Geospatial Institute - a centre for related postgraduate teaching and research, at the University of Nottingham. [More info:

<http://www.bigf.ac.uk/>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences	 Big Data	

ECMWF Supercomputer

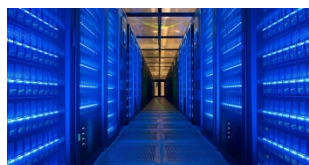


ECMWF operate one of the largest supercomputer facilities of its type in Europe and hold the largest meteorological data archive in the world. Member and Co-operating States can access ECMWF's basic computing facilities, the meteorological archive, and temporary tape storage. Member States also have access to the supercomputers and permanent tape storage. [More info:







<http://www.ecmwf.int/en/computing/our-facilities/supercomputer>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 European	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

JASMIN



The JASMIN super-data cluster at the STFC Centre for Environmental Data Archival (CEDA) at the Rutherford Appleton Laboratory is funded by the Natural Environment Research Council (NERC) and the UK Space Agency (UKSA). It is responsible for two main functions: infrastructure for the Centre for Environmental Data Archival, including the British Atmospheric Data Centre; and providing a platform for data-intensive scientific computation for environmental researchers across the UK. By the end of phase 4 of its introduction (later this year), JASMIN will offer a 15 Petabyte storage infrastructure. [More info: <http://www.jasmin.ac.uk/>]







Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils  Departmental	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

Met Office Supercomputing Facility & Data Archive and MONSooN



The Met Office uses an IBM supercomputer which can do more than 1000 trillion calculations a second. Its power allows it to take in hundreds of thousands of weather observations from all over the world which it then takes as a starting point for running an atmospheric model containing more than a million lines of code. MONSooN is a shared service jointly funded by Met Office and

NERC to facilitate collaborative research using the supercomputing capability [More info: <http://www.metoffice.gov.uk/news/in-depth/supercomputers>
<http://www.jwcrp.org.uk/documents/monsoon-leaflet.pdf>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils  Departmental	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

NERC Data Centres




NERC has a network of environmental data centres that provide a focal point for NERC's scientific data and information. The NERC Data Catalogue Service provides an integrated, searchable catalogue of the data holdings of the data centres. NERC supports seven data centres covering the following disciplines:

- Marine - British Oceanographic Data Centre
- Atmospheric - British Atmospheric Data Centre (BADC)
- Earth Observation - NERC Earth Observation Data Centre (NEODC)
- Solar and Space Physics - UK Solar System Data Centre (UKSSDC)
- Terrestrial and Freshwater - Environmental Information Data Centre
- Geoscience - National Geoscience Data Centre
- Polar and Cryosphere - Polar Data Centre

Location	Funding	Research area	Eight Great	Industrial Strategy
 UK	 Research Councils	 Earth sciences  Physical, mathematical and computer sciences	 Big Data	

Private Sector Weather Service Providers

MeteoGroup

 MeteoGroup is a leading full-service, global weather business. With 400 employees including 150 meteorologists and operations across Europe and in Southeast Asia and the USA, MeteoGroup provides local forecasting and consultancy services to a global customer base. [More info: <http://www.meteogroup.com/en/gb/home.html>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Private Sector	 Earth sciences		

Weather Services International



Weather services international have created the world's largest commercial meteorological database – incorporating information from the U.S. National Weather Service, U.S. military, Canadian, British, and Japanese governments, other international agencies, and commercial vendors. WSI's global client list spans the media, aviation, energy, insurance and utility industries. [More info:

<http://www.wsi.com>]

Location	Funding	Research area	Eight Great	Industrial Strategy
 Global	 Private Sector	 Earth sciences	 Physical, mathematical and computer sciences	 Big Data