

The UK Environmental Observation Framework

Delivery Plan 2015-2017



A working document of the UKEOF Management Group

Version: December 2015

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This Delivery Plan is a working document of the UKEOF Management Group and will be updated as the programme progresses. It describes how the United Kingdom Environmental Observation Framework (UKEOF) will be delivered. Further details of the programme itself can be found at: <http://www.ukeof.org.uk/>.

UKEOF can be contacted at office@ukeof.org.uk

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Executive Summary

Since 2008, The UK Environmental Observation Framework (UKEOF) has provided the strategic framework to improve coordination of the observational evidence needed to understand and manage the changing natural environment. It is a partnership of public sector organisations (who provide the funding) with an interest in using and providing evidence from environmental observations. Five years after the start of the programme the two main funders, NERC and Defra, commissioned a review of UKEOF that reported in April 2013.

In 2015, with changes in governance, uncertainty of funding across the UK observational monitoring community and an increasing role of technology and citizen science it is more important than ever to ensure continued coordination. Building on the recommendations made in 2013 and to address partners' concerns, new areas of strategic interest to multiple partners have been decided and future sustainable funding scenarios for UKEOF are being identified. Maintaining up-to-date understanding of the partners' strategic priorities is an important ongoing activity.

Current priorities for the programme are:

- assess partners' strategies to inform UKEOF priorities
- work towards metrics for Natural Capital
- understand existing and potential links between modelling and monitoring, and identify opportunities
- UKEOF future funding scenarios
- work with the Government Office for Science (GO Science) and departmental science advisers to support decisions on long-term monitoring.
- further populate the catalogue
- engage with Local Authorities to enable them to use the catalogue
- review the evolving data landscape (big, linked, open data) for the partners
- commission work on citizen science, to understand firstly, motivations, and secondly, cost and benefits
- coordinate climate observations
- communications

The programme faces significant risks around resources, principally funding, but also recruiting and keeping staff, and securing engagement from partners.

1. Overview of the UK Environmental Observation Framework

1.1. Introduction to the Delivery Plan 2015-2017

UK EOF was founded in 2008, and substantially reviewed and refocused in 2013 (more details of the review are in Annex 2). This delivery plan updates the plan published in [2014](#) and adopts a slightly different structure to reflect the changes to the programme, mainly to organise the tasks around the UKEOF working groups which lead on them. It does not include activities which predate 2013, although it does mention those that relate to the revised programme where this is thought to be helpful. It focusses on work going forward from 2015, although a summary of outputs and outcomes from 2013 is provided as context (Annex 3).

Where possible information which is contextual or very detailed, it has been included in the Annexes.

1.2. Aim

UKEOF is a partnership of public sector organisations with an interest in using and providing evidence from environmental observations. It aims:

- To achieve effective partnership working in environmental observations
- To maximise the benefits of observations to the UK including for science, policy and economic growth.

Working with partners and with direction from the Management Group the aims will be met by achieving the following outcomes/objectives:

1. Develop a **holistic picture** of what the overall evidence needs are and the role of observations in providing this information. This will enable and empower the UK, and each agency, department or observation initiative to make a clearer contribution to existing and anticipated national and international programmes, optimise its investments, recognise dependencies and work in partnership.
2. **Share knowledge** and information on observation plans and programmes so that we will know what environmental parameters are being monitored by or for the UK, by whom, how, why and at what cost. We will have a greater understanding of what we can do with the information and how to access the data.
3. Enable effective and transparent **decision-making processes** by embedding the tools developed under the other objectives and encouraging good practice.
4. Enable **funding for observation programmes to be effective, transparent** and capable of supporting the long-term information needs of the UK and the role of the UK in a global perspective.
5. Build a strong **community** providing evidence in the **most efficient and effective** manner and sharing both data and expertise with decision makers who understand the value of, own and use the information. Technological innovations will be encouraged where appropriate.

1.3. Structure and Management

The funders and initiators of UK environmental observations have agreed to work together towards the main strategic priorities for UKEOF (listed in Section 2). The work is delivered through the management group, the two core working groups (citizen science and the data advisory group) and the coordinating climate observations group; see Annex 4 for the roles of the groups. The programme is no longer part of the Living With Environmental Change Programme (LWEC).

The UKEOF secretariat provides everyday programme and project management, communication and co-ordination between the interlinked work areas. It reports to the management group via papers submitted to each meeting.

Key activities have at least one dedicated Management Group champion who is responsible for guiding the work and will report progress to the rest of the group.

The UKEOF subscriptions have progressively reduced as earlier programmes to build up capacity were scaled back, as shown in Table 1. In addition, partners provide in-kind support.

Table 1: total subscriptions

2008-09	£459,000
2009-10	£450,000
2010-11	£271,000
2011-12	£271,000
2012-13	£271,000
2013-14	£271,000
2014-15	£265,000
2015-16	£156,000
2016-17	tbc
2017-18	tbc

Subscriptions in 2015-16 were reduced as part of a plan to deal, over three years, with an underspend which had built up due to problems with NERC recruiting staff, resulting in lower staff costs and also lower project spend due to reduced staff capacity, in 2014-15.

The full Secretariat team initially consisted of a Programme Manager, a Data Initiative Manager, an Observation Coordinator, an Observation Requirements Analyst, a Decision Support Coordinator and an Administration Assistant. From 2012 this was reduced to a Programme Manager, two FTE project managers (reduced by management group agreement to 1.5 in March 2015) and a part time administration post. In order to regain ground lost in 2014-15 and overcome difficulties recruiting from within NERC, the MGM agreed to appoint a programme Manager on secondment from a partner organisation, plus one externally recruited FTE Programme Officer on a temporary basis for August 2015-August 2016, bringing the number of Programme Officers back up to two for a year.

2. Work Areas

2.1. Work Programme

Based on the outcome of the 2013 review, core UKEOF activities have been determined. The key findings of the 2013 review have in large part been addressed, although it is recognised that more can be done to better link UKEOF work-planning directly to partner strategic needs across research and operations.

Core activities, that are considered to be of relevance to all UKEOF partners, comprise:

- Management Group, including focus on partners' strategic needs
- Data Advisory Group
- Environmental Observation Catalogue
- Citizen Science Working Group
- Work with GO Science and departmental science advisers to support decisions on long-term monitoring
- Coordinating Climate Observations
- Communications and Community engagement

In addition short, detailed activities address questions in specific areas, which are of interest to multiple partners, but may not be to all partners.

2.2. The UKEOF 'Tool Kit'

The UKEOF Review in 2013 recommended that, apart from the environmental observation catalogue, the tools should be 'mothballed', i.e. not developed further, although remaining available on our website. The Assessment Tool, which existed within the Catalogue and allowed for activities to be assessed against need or other criteria, was not kept when the Catalogue was upgraded.

2.2.1. **Environmental Observation Catalogue** (Management Group Champion: Mike Brown, CEH)

The Catalogue is an online searchable database of metadata (i.e. knowledge of who is doing what, where and why) covering over 2000 records. It is freely available on the UKEOF website and offers the only UK overview of observation activities.

The Catalogue has been upgraded, with additional map functionality, and records holding geolocation information allowing users to be able to visualise where observations are being carried out. The new Catalogue is INSPIRE compliant.

2.2.2. Other tools

The tools which have been 'mothballed' are:

- **Cost Guidance** - a standard methodology to enable collation of the costs that organisations attribute to environmental observations.
- **Towards a Statement of Need** – a comprehensive review of environmental observation requirements for the UK.
- **Decision Support Framework** - a structured framework to help partners to make transparent decisions and look at the broader UK picture when considering their internal investment priorities.

3. Activities and groups

3.1. Management Group

The secretariat will work in partnership with the Management Group members to identify and undertake projects in priority areas, which will build upon the tools developed and evidence already gathered. Work areas identified for 2015-2016 are:

- Natural Capital (assessing partners' strategies; work to support developing metrics)
- UKEOF future funding scenarios
- Work with GO Science and departmental science advisers to support decisions on long-term monitoring. The aim is to help ensure that the UK's long term environmental observational information needs can be met for science, society and the economy.
- Understanding existing and potential links between modelling and monitoring, and identifying opportunities

UKEOF will also continue to provide support and a neutral space for organisations to discuss efficiencies and collaborative working.

3.2. Data Advisory Group

Data Advisory Group (DAG) is a collaborative forum which allows organisations to come together to discuss the various data sharing initiatives at the UK, EU and global levels - and work to achieve a long-term vision for data sharing and a cultural shift in the reuse of information.

The DAG has its own workplan covering data archiving, Big Data and the Internet of Things, data quality, data skills, modelling and support for INSPIRE activities. The priorities will be to continue to populate the catalogue, engaging with other sectors (Local Authorities), the evolving data landscape (big, linked, open data) and Advice Notes.

3.3. Citizen Science Working Group

Citizen Science Working Group provides a forum where member organisations can share good practice and discuss future needs and plans for working with volunteers to provide high quality, environmental observation data. Building on the success of the UKEOF commissioned Guide to Citizen Science in 2012, the priorities will be to deliver two recently commissioned contracts; one on motivations and the other on cost and benefits of citizen science. Its workplan also proposes an investigation into the use of low cost sensors for citizen science.

3.4. Coordinating Climate Observations Group

Set up in 2012 to oversee coordination of UK climate observing activities, advise on UK user priorities, and encourage implementation of common observing standards and methods, this group produced a first report and a guidance note in 2013, which the secretariat followed up by identifying which Global Climate Observing System (GCOS) Essential Climate Variables (ECVs) are relevant to which catalogue data records. It was agreed that the group will work with the UKEOF Management Group, the GCOS Secretariat and other relevant stakeholders to ensure better coordination of climate observing activities within the UK. However progress has been delayed by changes of staff at DECC.

3.5. Communication

Raising awareness of UKEOF and increasing the recognition and value of longer term observation activities amongst funders, users and potential users will be achieved via newsletters, the website, social media and workshops.

3.6. Additional initiatives and cross-cutting work

Some UKEOF time will be spent addressing the linkages with other initiatives and cross-cutting issues.

Other initiatives that UKEOF has shared interests with include (but are not limited to):

- Coordinated Agenda for Marine, Environment and Rural Affairs Science (CAMERAS)
- Global Monitoring for the Environment and Security (GMES)
- Group on Earth Observations (GEO)
- Infrastructure for Spatial Information for Europe (INSPIRE)
- Marine Science Coordination Committee (MSCC)
- National Biodiversity Network (NBN)
- National Ecosystems Assessment (NEA)
- Natural Capital Committee (NCC)
- Satellite Applications catapult: Space for Smarter Government Programme
- Shared Environmental Information System (SEIS)
- The UK Location Strategy
- UK Marine Monitoring and Assessment Strategy (UKMMAS)

3. Current Work Plan

Note: tasks whose due date has passed by Dec 2015 are included only if they are not yet completed.

No.	Activity	Output/expected output	Timescale	Resource	RAG Status
1. Management Group					
1.1	Facilitate MG	Provide forum for understanding the landscape of environmental observations and sharing knowledge, priorities and expertise. Circulation of information generated by the group.	Ongoing – Quarterly as necessary	UKEOF secretariat, MG Chair, Community provide updates and attend	G
1.2	Natural Capital	Stronger shared understanding of the importance of natural capital to the partners' strategies across UK; identify which existing monitoring activities contribute to NC metrics and how.	Sept 2016	UKEOF secretariat, Community MGM champions: Andy Nisbet, Ben Ditchburn, Terry Parr.	A
1.3	Modelling and monitoring	Workshop and brief report; better understanding amongst partners and modellers about the scope to improve monitoring and make better use of existing data.	Sept 2016	UKEOF secretariat, Community MGM champion: TBC	A
1.4	Sustainable futures for UKEOF	Agreed funding for the programme, and agreement about how and where it will be delivered.	On-going – annual negotiations.	UKEOF secretariat, Cofunders MGM champions: Doug Wilson, Defra rep, Bill Eason, Terry Parr.	A
1.6	Support decisions on long-term monitoring, including work with GO Science and other government science advisers, and appointment of high-level champion for UKEOF.	High-level arrangements for a strategic approach, including escalating decisions about long term monitoring programmes, to avoid unforeseen and unintended consequences if they are cut.	March 2016	UKEOF secretariat, MGM chair	A

No.	Activity	Output/expected output	Timescale	Resource	RAG Status
1.7	Facilitate discussion around upcoming changes to environmental monitoring	Facilitated meeting of partners from the water monitoring community; note of meeting.	December 2015	UKEOF secretariat, MGM champion: Nathan Critchlow-Watton	G
2. Data Advisory Group					
2.1	Facilitate DAG	Provide forum for understanding the data initiatives landscape and sharing knowledge and expertise. Circulation of information generated by the group.	Ongoing – Quarterly as necessary	UKEOF secretariat, DAG Chair, Community provide updates and attend	G
2.2	Manage the catalogue	Maintain functioning catalogue; support community to update their entries as required. Catalogue allows access to information on the UK's observation activities and is INSPIRE compliant.	Ongoing	UKEOF secretariat, CEH Lancaster, Community	G ¹
2.3	Assess UK Satellite entries in the Catalogue and establish a coherent method for their inclusion	Up to date, and comprehensive listing of UK Satellite environmental observing activities included in the Catalogue	Ongoing	UKSA, Space Applications Catapult, UKEOF secretariat	A
2.4	Update Catalogue vocabularies	Allow for identification of records through defined keywords for specific project (Climate change variables, Natural Capital metrics)	Climate Change variables: due 2014 NC metrics: tbc	Part of maintenance contract with CEH Lancaster. Management by UKEOF secretariat	A
2.5	Support the community in the implementation of the INSPIRE Annex III Environmental Facilities Theme.	UK realises the benefits of the INSPIRE Directive in a timely manner	Participate in BGS workshop for Local Authority data holders, March 2016.	DAG, UKEOF secretariat, UKLP (Defra)	G
2.6	Produce a series of Advice Notes	Community supported by relevant information on key data issues	On-going	DAG, UKEOF secretariat	G

¹ Recorded as Green, because the catalogue is still maintained and is functional. However very few partners have updated or expanded their records since the upgrade, and if this remains a priority, then this activity should be Amber or even Red. Discussions to assess the priority of this are planned at the DAG meeting in Feb 2016.

No.	Activity	Output/expected output	Timescale	Resource	RAG Status
2.7	Informing the community on 'emerging' topics Big Data, Open Data and linked data and the use of models	Community supported by relevant information	On-going	DAG, UKEOF secretariat	A
3. Citizen Science Working Group					
3.1	Facilitate Citizen Science Working Group	Provide forum for sharing good practice, discussing future needs for using volunteers to provide environmental observation data, including areas where UKEOF could potentially best add value	Ongoing – Quarterly as necessary	UKEOF secretariat, Citizen Science Working Group Chair, Community provide updates and attend	G
3.2	Contract on Motivations	A. Report and supporting materials on UKEOF website	April 2016	Citizen Science Working Group, UKEOF Secretariat, external contractors led by University of Reading	G
		B. Peer review publications produced	End of 2016		
3.3	Contract on Opportunities, Costs and Benefits	A. Report and supporting materials on UKEOF website	April 2016	Citizen Science Working Group, UKEOF Secretariat, external contractors led by WRC	G
		B. Peer review publications produced	End of 2016		
4. Coordinating Climate Observations Group					
4.1	Coordinating Climate Observations Group	Work plan developed for CCOG	Depends on DECC providing chair.	Coordinating Climate Observations Group, UKEOF secretariat	G
5. Communication					
5.1	Raise awareness of UKEOF and increase the recognition and value of longer term observation activities	Update standard UKEOF materials as required	Website: ongoing UKEOF leaflet: by Feb 2016	UKEOF secretariat and Management Group	G
		Monitor and report UKEOF impact	On-going	UKEOF secretariat	G
		Production of Newsletter	6 monthly	UKEOF secretariat	G
		Social Media (twitter)	On-going	UKEOF secretariat	G

4. Outputs and Outcomes to date

The last [delivery plan](#) covered progress from 2008-2014. It is useful in planning delivery to understand the scope of previous activity, so outputs and outcomes from 2013 are included in Annex 3.

Over the life of UKEOF there have been some significant outcomes, with UKEOF influencing the way monitoring and observations are managed in the UK and further afield. The UKEOF partners now have a strong evidence base to support their activities in environmental observations, and the programme gives them capacity to adapt their activities to new opportunities and changing resources.

5. Risk Log

Note: PM = Programme Manager PO = Programme Officers

MG = Management Group

Score = Impact (Extreme= 5, Major =4, Moderate=3, Minor=2, Low=1) x Probability (Remote=1, Unlikely=2, Possible=3, Probable =4, Highly probable=5). See Annex 1 for matrix linking scores to RAG status

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
PM	Funding: Committed funds not realised/ met	4	3	A	Co-funding agreement in place. Gain early confirmation before start of financial year, and handle paperwork promptly. Plan ahead and realign work	A	Scale down tasks and re-prioritise as far in advance as possible with revised funding schemes
PM & MG	Funding: Multiple partners impacted by funding constraints	4	3	A	Maintain good communication with MG members throughout the year to ensure any issues are identified early	A	Re-prioritise and investigate different funding models to support project activities
PM & MG	Funding: major funders (DEFRA & NERC) unable to maintain current level of contributions	5	4	R	Maintain good communications with core partners and identify risks early	R	Re-prioritise and scale down; viability of programme would depend on the scale of reduction
PM	Personnel: Team sickness delays progress (small team)	3	2	G	Ensure team are aware of progress in all areas, so that urgent matters can be taken up & resolved by another member of the team	G	Reprioritise the work loads of the team to ensure that critical tasks are delivered; if possible access NERC's pool of staff
PM	Personnel: Team members leaving	3	4	A	Ensure team are aware of progress in all areas, and work backed up on central systems. Advertise vacant posts quickly	A	Reprioritise workloads to critical tasks; access NERC's pool of staff

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
PM	Personnel: Unable to use secondment mechanism / recruitment freeze	3	3	A	Ensure flexibility within the team to pick up urgent matters. Reprioritise workloads to cover critical tasks	A	Reprioritise workloads to critical tasks and re-programme milestones; if possible access NERC's pool of staff.
PM	Programme: UKEOF duplicates work of other groups	3	2	G	Strong communication with MG and their organisations. Outreach to wider community	G	Adjust work programme to avoid duplication and ensure it adds value
PM & MG	Programme: UKEOF core focus (Natural Capital metrics) does not align with current monitoring community priorities	4	2	A	Ensure that there is buy in from the community. Engage with key external partners throughout the process	G	Step-by-step approach to allow on-going review; project to be closed if necessary.
PM & PO	Activities: UKEOF commissioned projects citizen science contracts not delivered	4	2	G	Strong communication with the contracted parties and the citizen science working group; good contract management by secretariat.	G	Reprioritise delivery dates and outcomes
PM & pm	Programme: Slippage	34	2	G	Strong project/ programme management. Review progress regularly	G	Realign work plan.
PM & MG	Programme: Creep	3	2	G	Allow a degree of flexibility in the programme, and review regularly with the MG	G	Realign the work plan to accommodate new priorities and reset goals

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
PM & MG	Programme: Outputs/ recommendations incorrectly interpreted	4	1	G	Progress transparent and directed by partners. Outputs/ recommendations signed off by the MG. Caveats should be clearly stated	G	Withdrawal of outputs/recommendations or rewording to clarify the issues
MG	Management: Too many bosses – management by committee	3	2	G	Empower the secretariat for day to day decisions. Have clear work programmes and MG Champions to support work and report to MG meetings	G	Create a smaller executive to make timely decision where necessary
MG	Partners: Lack of engagement / time input from senior staff	4	3	A	Maintain good engagement with the MG representatives. Have clear tangible milestones	A	Arrange meetings to discuss the relevance to organisations and the need for their support
PM	Partners: Organisational changes	3	4	A	Swift engagement with new personnel to maintain network	A	Ensure that contact is maintained and new personnel identified
MG	Partners: Organisations do not take ownership of the work / outputs/ engage	4	2	A	Ensure that any work is fully supported by the MG and resources are available to provide the required information	A	Understand why there is a lack of engagement & if necessary alter the focus of the work to ensure it meets the MG needs

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
MG	Partners: Engagement lost from Devolved Administrations with a perceived London-centric or one size fits all approach	3	4	A	Be aware of and open to the issues. Ensure that activities are based UK wide, including MG meetings. Demonstrate value of UK approach where appropriate	A	Encourage policy makers to consider the benefits of coordinated observation programmes and include this in their policies
PM	Community: Events not well attended	3	2	G	Canvass for dates & advance advertising. Good organisation, set clear objectives and target the audience needed to achieve the outcome. Seek feedback	G	Alter the focus or format of the events. Provide incentives for attendance and input

Annex 1: Risk Model (Ref Forestry Commission Corporate risk register 26/07/2012)

Category 1-7: Manageable Risks

Category 8-14: Material Risk

Category 15-25: Significant Risk

Likelihood \ Impact	Remote (1)	Unlikely (2)	Possible (3)	Probable (4)	Highly Probable (5)
Extreme (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Low (1)	1	2	3	4	5

Annex 2: 2013 Review - summary of recommendations and implementation

The key findings of the 2013 review (Assimila for NERC/Defra (2013): *Review of the UK Environmental Observation Framework (UK-EOF)*. Final Report, have in large part been addressed. It is recognised however that more can be done to better link UKEOF work planning more directly to partner strategic needs across research and operations.

Recommendations from the review, and summary of the UKEOF response.

1. **Continue to support UK-EOF to provide a unique cross public sector, cross UK view of environmental observations.** Adopted.
2. **The primary focus should be on providing partners with a good basis to make informed decisions about observing systems and programmes, particularly in the context of sustaining long term observations in the face of falling budgets.** Ongoing focus.
3. **Recognise that it is very valuable to share skills and expertise in a neutral forum amongst people trying to answer the same or similar questions, including forward looking strategic discussions.** In response to this and to concerns raised by NERC following the review, work is ongoing to understand and where possible align partners' strategic directions, and to strengthen links with the academic community. During 2015 MG began reviewing partner strategic needs in order to inform future work planning. This will be subject to periodic update and review, following the outcome of the CSR in autumn 2015.
4. **The catalogue is a key asset to provide a complete picture of who is monitoring what, where, why and related costs. It should continue to be developed.....** Catalogue now INSPIRE-compliant; work ongoing to develop functionality and populate the catalogue.
5. **Be clear about the scope of UK-EOF, including the catalogue, in relation to satellite observations funded by the UK, socio-economic observationsand international observing systems** Some progress.
6. **Continue to fund well focused, high profile activities of interest to a broad range of partners including coincidence mapping, climate observations and citizen science.** Coincidence-mapping was developed a bit further but now parked; climate observations awaiting DECC lead; good progress on citizen science.
7. **Continue to support the GSCA's Observations Committee.....** although the committee did not last, UKEOF continues to pursue this area of work, which concerns long term monitoring, adapting to new technologies, and approaches at UK level.
8. **Do not develop the Cost Guidance, Statement of Need, Assessment Tool or Decision Support Framework any further.** Adopted.
9. **Be very selective in the data issues tackled by the Data Advisory Group to minimize overlap** Adopted.

10. **Keep the governance structure as it is** Adopted.
11. **Retain the corporate knowledge and expertise in the Secretariat by minimising staff turnover.....** Adopted so far as possible.
12. **Raise the profile of UK-EOF in partner organisations, with a carefully planned campaign at the time of the catalogue re-launch.....** Webpages upgraded, and newsletter produced after the launch; more outreach to promote knowledge of the catalogue planned for 2016.
13. **Examine the structure and contents of Management Group meetings to ensure the agenda is relevant to all partners.....** Adopted.
14. **Consider occasional meetings in Scotland and Wales.....** Adopted.
15. **Consider the merits and relevance of widening membership, e.g. to Space Applications Catapult and NGOs.....** MG has discussed this.
16. **..... consider bringing more representation from NERC Centres onto the Management Group.** Adopted, BGS now on MG and CEH now chairs DAG and represents it on MG.
17. **In view of the stronger emphasis on climate observations, seek a financial contribution from DECC.....** Adopted.
18. **Maintain flexibility and keep up to date with changes in the landscape.....** ongoing review of partners' strategic priorities.

Annex 3: Progress 2013-2015

Please refer to the UKEOF website for documents and reports www.ukeof.org.uk.

1.1. Outcomes

Management Group/Secretariat

- There is a neutral space for public bodies to discuss collaboration and efficiencies in environmental observations through the UKEOF Management Group;
- The Statement of Need evidence has been used by the UK Space Agency to highlight the opportunities for the use of remote sensing to provide key evidence streams;
- An influential response to the consultation on the implementation of the Environmental Monitoring Facilities Theme (EF) of INSPIRE² Annex III was able to be produced, utilising the network and knowledge of UKEOF;
- advice to a range of stakeholders, eg the Royal Society, as UKEOF became the focal point for national and international discussions, leading indirectly to the report by the Royal Society (2015). *Observing the Earth – Expert views on environmental observation of the UK.*

Data Advisory Group

- The UKEOF Catalogue has been used as a key evidence base for the Consolidated Evidence work stream of the Defra network Strategic Alignment project;
- The Catalogue is being recognised as best practice internationally and means we can begin to understand: *What is being observed, Who funds UK observations, Who leads, Why, How long observations have been continuing?*;
- A user focal point to support the implementation of the INSPIRE EF Theme is being provided through the Data Advisory Group (DAG). This is one of the few Themes with such a support mechanism. The DAG has been charged to act as this focal point by the UKLP as a result of the key role it plays in coordination for the major environmental data initiatives including SEIS, GMES and INSPIRE;
- An influential response to the consultation on the implementation of the Environmental Monitoring Facilities Theme (EF) of INSPIRE Annex III was able to be produced, utilising the network and knowledge of UKEOF;
- Data Advisory note #1 *“The principles of good data and information Management”* was distributed to NERC staff
- The Natural England mapping of monitoring sites was greatly facilitated by the existing network UKEOF provides and the UKEOF Catalogue was a source of key evidence. The project allowed members to look at their monitoring networks alongside Natural England’s and investigate collaborative opportunities.

² INSPIRE is a European directive establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment.

Annex 3: Progress 2013-2015 continued

Citizen Science working group

- The UKEOF commissioned Guide to Citizen Science is part of the USA Federal Citizen Science toolkit, helping USA federal agencies to innovate, collaborate and discover through implementing of citizen science
- The Guide to Citizen Science is also referenced in the European Commission Environmental Citizen Science report, published in December 2013
- The Chair of the Working Group sits on the Citizen Science Task Group of the European Network of the Heads of Environmental Protection Agencies, enabling discussions around what role the Working Group might have in the wider international citizen science community.

Coordinating climate observations group

- The Systematic Observations section of the UK's Sixth National Communication, a report required of Parties to the UNFCCC (UN Framework Convention on Climate Change) was drafted for DECC by drawing on the UKEOF Catalogue, and work by the UKEOF Secretariat and a contractor, to provide a comprehensive overview of UK activities making observations of the climate system;

1.2. Outputs

Management Group/Secretariat

- A workshop in October 2013 on finding opportunities to improve monitoring activities (FIOMA), followed by a project report and impact report.
- A **workshop** in March 2014: Space for Smarter Government, environmental monitoring workshop.
- A **workshop** held in March 2015 on environmental monitoring: challenges and new approaches

Data Advisory Group

- Upgraded **catalogue** of observation programmes and activities in the UK, to include geolocation and information and being INSPIRE compliant, released June 2014.
- A series of four **Advice Notes**, published between 2013 and 2015, on the following topics: *The principles of good data management*; *The principles of planning, collecting and using citizen science*; *Data Governance*; *Data citation and publication for researchers* ([link](#)).
- A joint **workshop** held in September 2013 with SEPA and CAMERAS on new technologies for environmental monitoring, summarizing recent advance and low cost data gathering.
- A Joint **workshop** in February 2013 with UK Location Programme (UKLP) on INSPIRE EF theme specification

Annex 3: Progress 2013-2015 continued

Citizen Science working group

- A practical **guide** to developing, implementing and evaluating **citizen science** (**'Guide to Citizen Science'**), and a comprehensive report from the UKEOF commissioned review 'Understanding Citizen Science and Environmental Monitoring', published 2012;
- Contributions to the production of a POSTnote on 'Environmental Citizen Science' in 2014, which summarises the different types of citizen science projects, policy-relevant applications and the benefits and challenges of volunteer collected data.
- A **workshop** in September 2014 on best practices in Citizen Science: Invasive non-native species workshop

Coordinating climate observations group

- A climate change report commissioned to improve understanding of the relevance of UK climate-related observation activities to the Global Climate Observing systems (GCOS) and 'Essential Climate Variables' (ECVs), identifying those UK observations that contribute to GCOS and assessing where there are gaps in knowledge about UK observational data supporting the ECVs (February 2014).
- Keywords identifying the GCOS ECVs assigned to relevant catalogue data records, awaiting catalogue update.

Communication

- Newsletter circulated to over 700 subscribers (September 2015).
- Twitter account with 300 subscribers (September 2015).

Annex 4: Overview of UKEOF groups

Champion

Champion: Ian Boyd, Defra CSA

- Purpose:**
- To champion the vision for better integration and co-ordination of observation activities
 - To promote the objectives and role of UKEOF with CSAs across Government
 - To support the UKEOF aims of:
 - achieving effective partnership working in environmental observations
 - maximising the benefits of observations to the UK including for science, policy and economic growth

UKEOF Management Group

Chair: Doug Wilson (EA)

Membership: Scientific and policy representatives (Grade 7/Band 4) drawn from sponsoring Agencies and Institutes. Chair of DAG. Representatives from other relevant parties may be included in activities as appropriate.

Secretariat: UKEOF

Purpose: Programme overview

- Define and co-ordinate the UKEOF programme and ensure that it is supported by the appropriate structures, processes and strategies.
- Monitor progress, high-level risks and issues, take decisions and provide strategic guidance and direction to meet the outcomes/objectives.
- Regularly review the likelihood of the Programme meeting its goals and take appropriate action.

Resources Input

- Approve major deviations from the Programme Plan and allocate resources accordingly.

Add expertise

- Define and articulate the international and national obligations and commitments, including operational forecasts, which require environmental observations, looking across all of the UKEOF domains.
- Provide overall direction to observation programmes ensuring that the maximum efficiency and effectiveness is made of UK resources devoted to observations and assessments.
- Assign a champion to each area of work/ project to guide the activities, liaise with the secretariat and represent the activity at Management Group meetings.

Outreach and Communications

- Identify and highlight to the appropriate board any emerging issues.
- Ensure alignment between the Programme and their organisation's strategies (transfer the outcomes of UKEOF and embed them within these strategies).
- Engage with other stakeholders (non member organisations) to encourage the uptake and adoption of UKEOF outcomes.
- Provide a platform for discussion of UK interests in observations.

Frequency of meetings: 3-4 per year as necessary

Annex 4: Overview of UKEOF groups continued

UKEOF Programme Manager and Secretariat

PM: Vicky Morgan

Reports to: UKEOF Management Group

Duties:

- Responsible for the health of the programme
- Responsible for coherence and coordination between the work areas
- Identifies key cross-cutting issues
- Plans the programme and monitors overall progress
- Resolves issues and initiates corrective action
- Ensures quality assurance and overall integrity of the Programme
- Manages third party contributions
- Stakeholder communications
- Manages project dependencies and interfaces
- Coordinates/facilitates risk management activities
- Progress reporting to the Management Group and others

A secretariat (the UKEOF team) will support the Programme Manager. Where appropriate team members will have project manager duties which include:

- Responsibility for the timely delivery of outputs to the agreed cost & quality
- Monitoring progress
- Use of appropriate project management techniques

The secretariat will provide programme and project management, communication and facilitation between the work areas, services and research to enable delivery.

Data Advisory Group (Full Terms of Reference available at www.ukeof.org.uk)

Chair: Mike Brown (CEH)

Reports to: UKEOF Management Group, where appropriate Defra environment sector data and information governance group(s)

Membership: Representatives of the broadest environmental data and information community and /or those with specific technical and/or policy relevant roles in observation and monitoring at a UK, European or international level

Secretariat: Provided by UKEOF (Lucy Hopewell)

Purpose: To deliver Transparency and Open Data across the Environment Sector with a particular focus on observation and monitoring facilitated by exchange of knowledge on local, national and international data and information initiatives

Frequency of meetings: up to quarterly

Coordinating Climate Observations Group (Full Terms of Reference available at www.ukeof.org.uk)

Chair: TBC (DECC)

Reports to: UKEOF Management Group

Membership: CEH, DECC, DFID, Met Office, NERC, STFC

Secretariat: Provided by UKEOF (tbc)

Purpose: To provide an 'executive' function, overseeing coordination of UK Global Climate Observing System (GCOS) activities

Frequency of meetings: 3 per year (tbc)

Annex 4: Overview of UKEOF groups continued

Citizen Science Working Group (Full Terms of Reference available at www.ukeof.org.uk)

Chair: Rob Grew (EA)

Reports to: UKEOF Management Group and to members' organisations where appropriate

Membership: Public sector organisations with an interest in Citizen Science

Secretariat: Provided by UKEOF (Natalie Clark)

Purpose: To provide a forum where member organisations ('partners') can share good practice and discuss future needs and plans for using volunteers to provide environmental observation data

Frequency of meetings: Twice a year and communicate regularly by telephone conference

Observation Community

The observation community will be asked to provide input to consultations/workshops to ensure that progress is in line with their needs. In the long-term this will ensure greater integration of existing evidence collection and co-ordination of initiatives and assessments. Ad hoc groups or workshops to facilitate the work areas will be arranged where necessary.

Annex 5: Glossary of Acronyms

CEH	Centre for Ecology and Hydrology
DECC	Department of Energy and Climate Change
DFID	Department for International Development
ECV	Essential Climate Variables
EA	Environment Agency
EF	Environmental Monitoring Facility (Annex III of INSPIRE)
ERFF	Environment Research Funders Forum
GCOS	Global Climate Observing System
GCSA	Government Chief Scientific Adviser
GEO	Group on Earth Observations
INSPIRE	Infrastructure for Spatial Information in Europe
LWEC	Living with Environmental Change
Met Office	Meteorological Office
NERC	Natural Environment Research Council
NGO	Non-Governmental Organisation
STFC	Science and Technology Facilities Council
UKEOF	UK Environmental Observation Framework
UKLP	UK Location Programme
UNFCCC	United Nations Framework Convention on Climate Change