UK- Environmental Observation Framework

Sharing environmental monitoring data; Benefits, barriers and future standards

Workshop Report

19th February 2013

Maple House, Birmingham

Executive summary

Thirty-three people representing 22 organisations from academia, public, private and the third sector attended the 'Sharing environmental monitoring data workshop' in Birmingham on Tuesday February 19th 2013, jointly hosted by the UK Environmental Observation Framework (UK-EOF) and the UK Location Programme (UKLP).

Experts in the INSPIRE Directive, environmental monitoring, data sharing and interoperability presented different aspects of INSPIRE compliance, with the focus on environmental observations and monitoring. The audience comprised representatives from organisations at various stages of preparedness for implementing the INSPIRE Annex III Environmental Monitoring Facilities (EF) theme. Discussions focussed on data user and data provider perspectives and enabled delegates to consider the barriers, benefits and future opportunities to be gained from standardising environmental monitoring metadata and sharing their organisation's data via the INSPIRE European spatial data infrastructure.

Most organisations are progressing steadily to meeting the upcoming INSPIRE Annex III EF theme deadlines and several are working to confirm which datasets are included and the extent of work required. In conclusion, the UK is therefore relatively well positioned to meet the requirements of the INSPIRE Directive for the environmental monitoring theme.

Key messages

- There is a huge complexity for organisations to contend with in order to comply with INSPIRE.
- The preparedness for INSPIRE EF organisations ranges from very little preparedness to best practice.
- There are many benefits and opportunities to be derived from standardising environmental observation metadata, such as reduced project costs, more open data, improved research and development.
- The barriers to achieving compliance with the INSPIRE Directive can largely be overcome by increased communication between the EC, the UKLP and data providers. A standing forum of these actors might therefore be beneficial.
- Improved consultation on INSPIRE specifications, standards and requirements is needed between the European Commission and Member States. DAG can assist this process.
- Encouraging private organisations, such as utility companies, to publish their metadata on the UK-EOF Catalogue, alongside public sector metadata would be of substantial benefit to the UK.

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1. Introduction

1.1 Background

The UK-EOF community will need to ensure that they comply with the INSPIRE Environmental Monitoring Facilities theme (EF) by December 2013, and populated with data by 2015 (new or modified data sets) or 2020 (existing data).Many organisations struggle to understand and interpret INSPIRE specifications, which presents a business risk as they are legally binding regulations. This lack of understanding among the EF community in the UK was communicated to the UKLP and UK-EOF, who agreed to host a joint workshop to try and overcome these issues and aid the community in better understanding the requirements of the INSPIRE EF theme.

The Legal definition of the EF theme is:

"Location and operation of environmental monitoring facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters (biodiversity, ecological conditions of vegetation, etc.) by or on behalf of public authorities [Directive 2007/2/EC].

A generic model [for monitoring facilities] which can be used across various domains and leave the necessary freedom to thematic domains to bring in specific needs while keeping a shared structure. So the data specification provides a common structure but not a thematic harmonisation across domains"

In summary, the EF theme is asking us to describe:

What *is being observed?* **Where** *is it being observed?* **When** *is it being observed?*
Why *is it being observed?* **Who** *is doing the observation?* **How** *is it being observed?*

1.2 Workshop aims

The joint workshop was therefore established to bring together members of the community to:
- consider the state of environmental monitoring in the UK
- show case examples of how the EF theme will be implemented and discuss what this means for data users and providers
- share good practice to ensure the UK can maximise the benefits of INSPIRE
- draw on existing expertise within the public sector community.

The deadlines for INSPIRE Annex III are closing in and the workshop brought together members of the environmental data community to consider these deadlines and how their organisations will be implementing the directive. A list of attendees and the workshop agenda can be found at Annex 1 and 2.

Dec 2013	*Full Discovery Metadata, View Services & Download made available for INSPIRE Annex III datasets*
Dec 2015	*Any new or extensively restructured Annex II & III datasets must be available in accordance with the data specifications set out in the Implementing Rules*
By 2020	*Publish INSPIRE Annex II & III compliant Data*

2.   Morning session

After a welcome and introduction to the workshop aims (see section 1.2) from the Chair of the UK-EOF Data Advisory Group, Stefan Carlyle, attendees were engaged with a set of presentations from members of the UK-EOF Data Advisory Group.

2.1 UK-EOF Data Advisory Group overview
Chair Stefan Carlyle started the day with an introduction to the Data Advisory Group and its role in supporting the UKLP deliver INSPIRE EF theme in the UK. The group has so far been successful in responding to the INSPIRE consultation on behalf of the UK and will continue to support organisations and share knowledge with the public sector environmental data community and beyond. Delegates were invited to review the role of the Data Advisory Group and contact the UK-EOF secretariat if they would like more information about membership or Terms of Reference.

2.2 Environmental monitoring in the UK
Helen Beadman, programme manager of the UK-EOF provided background, an overview of current activities and achievements as well as a forward look at the programme deliverables. The importance of the UK-EOF as a neutral body to bring together the environmental monitoring community was highlighted. Helen explained how the community were working together on a variety of broad ranging activities, with the catalogue at the centre of many of these, to provide evidence to guide current and future environmental management, policy, and science and innovation priorities for environmental and economic benefit.

2.3 UK Location Programme overview
Tim Ashelford from the UKLP delivered an overview of INSPIRE, covering the background and high level overview of the regulations. Tim provided guidance as to which organisations would need to comply and which datasets will need to be published - clarifying for participants which organisations need to act and by when. Delegates were reminded that it was all public funded organisations need to comply with the INSPIRE regulations, or in general terms those organisations who have to respond to Freedom of Information (FOI) requests. Other organisations, while not statutorily bound to comply, such as private businesses such as utility companies would be encouraged to comply on a voluntary basis.

2.4 INSPIRE Environmental Monitoring Facilities Theme
Keiran Millard (HR Wallingford) followed up with a more detailed insight into the Environmental Monitoring Facilities theme and what this really means for those organisations that will have to comply. Keiran provided some excellent real life examples of the type, format and level of detail that the metadata will look like and highlighted how similar the UK-EOF catalogue schema is to the proposed EF schema; a real benefit to the catalogue redevelopment plans.
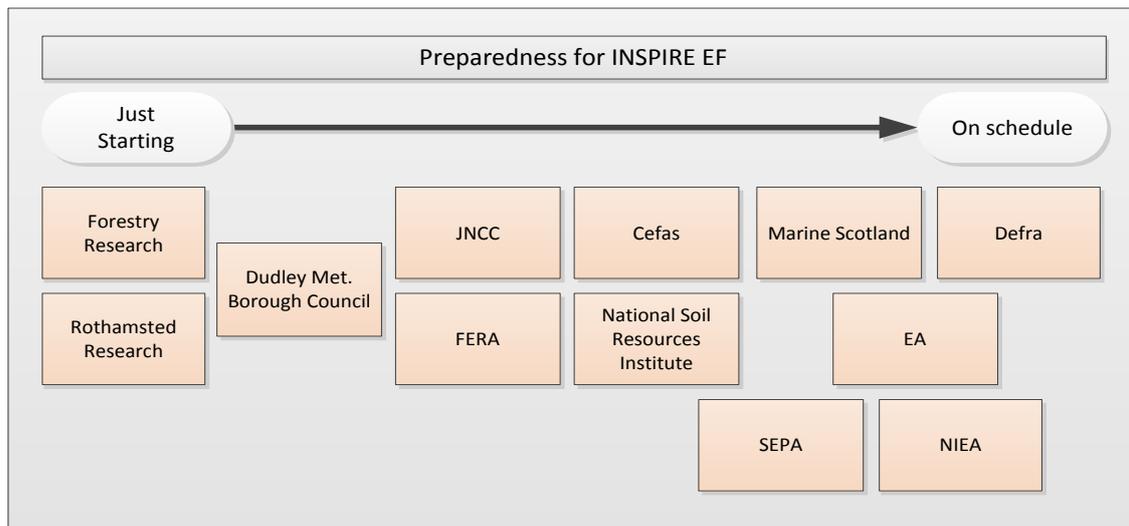
2.5 Next Steps for EF INSPIRE data
Finally Mike Brown, from NERC CEH Lancaster, talked about how the current UK-EOF catalogue is being upgraded to INSPIRE EF theme standards. The catalogue will include a mapping tool so users can view where sites are locations as well as the other metadata about what, why and how monitoring activities are being carried out. Many of the delegates were keen to ensure that internal databases were harvested where possible to save time and effort in providing updated metadata for the new catalogue. UK-EOF and the CEH project team will be holding a data provider workshop and noted members who have internal databases that could be harvested.

2.6 Preparedness for INSPIRE EF
Over lunch, attendees were asked to summarise their organisations 'preparedness for INSPIRE EF'. A full description is provided in Annex 3 and a summary in Box 1[1]. The complexities of the INSPIRE were apparent and many organisations were not yet in a position to consider the Annex III theme as Annex I and II are incredibly demanding.

It was clear that many of the larger data providers are on target to fulfil their requirements, however many of the smaller organisations still have some work to do to confirm which of their datasets need to comply and how they will be able to achieve this. There was also positive feedback from organisations that are under no obligation to comply. These organisations see the benefit to standardisation which may provide opportunities for better sharing and reuse of data.
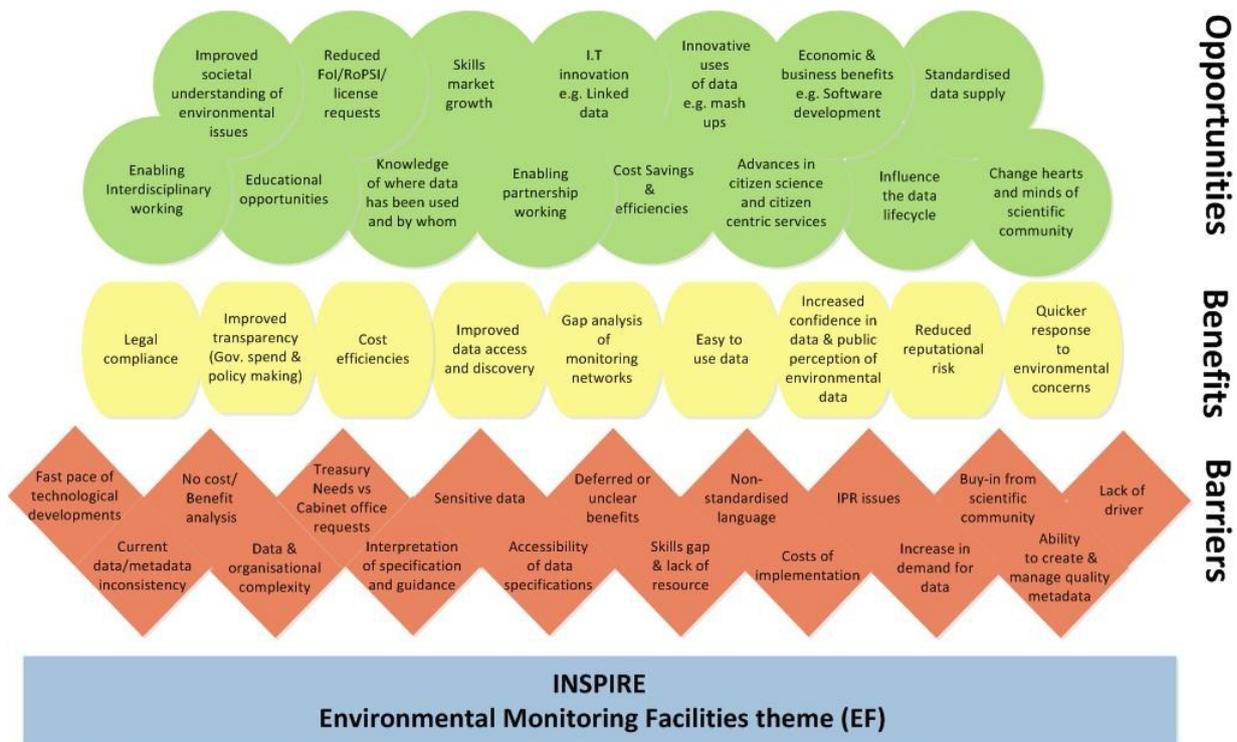
Box 1: Organisations Preparedness for the INSPIRE EF theme

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[1] Only organisations with legal obligation feature in the diagram. A full list is given in Annex 3.

3. Discussion session: The benefits, barriers and opportunities of implementing the EF theme in the UK

The discussion is summarised by the following diagram of barriers, benefits and opportunities. There was widespread acknowledgement of the current barriers but general positive agreement that there are many benefits and a wide scope for opportunities.

3.1 Key barriers to address
- INSPIRE Data Specifications are not finalised, with the result that organisations have to second guess EF standards.
- The definition of 'new' and existing' data is unclear and is delaying organisational planning.
- Communication from the European Commission is needed to both motivate and reassure the community.

3.2 Major benefits
- Legal compliance.
- Efficiency savings in re-use of data and planning monitoring programmes.
- Reduced number and easier handling of FOI/EIR requests.

3.3 Major opportunities
- Standardisation and improved transparency will encourage re-use of datasets beyond their initial purpose for collection which will provide opportunities to stimulate economic growth, increase the demand for skills and lead to cost efficiencies in the data life cycle.
- Improved societal understanding of environmental issues and evidence based decision-making by Government, business and members of the public.

4.   Wrap up

4.1 Key messages
The key messages from the day can be summarised as follows:

- The preparedness for INSPIRE EF organisations ranges from very little preparedness to best practice.
- There are many benefits and opportunities to be derived from standardising environmental observation metadata, such as reduced project costs, more open data, improved research and development.
- The barriers to achieving compliance with the INSPIRE Directive can largely be overcome by increased communication between the EC, the UKLP and data providers. A standing forum of these actors might therefore be beneficial.
- Improved consultation on INSPIRE specifications, standards and requirements is needed between the European Commission and Member States. DAG can assist this process.
- Encouraging private organisations, such as utility companies, to publish their metadata on the UK-EOF Catalogue, alongside public sector metadata would be of substantial benefit to the UK.

The Chair summed up the day and reminded delegates to review their Data Advisory Group membership and to contact the UK-EOF secretariat with any further questions. Delegates were thanked for attending and participating in the event and were informed that the workshop conclusions would be fed back to EU INSPIRE group and any further information would be communicated as appropriate to the community.

5.   Next steps

- UKLP to provide feedback about the UK position to EU INSPIRE officials group
- DAG to continue to provide a communication route for any guidance produced for the EF theme
- The UK-EOF Catalogue upgrade project would consider the content and findings of the workshop in establishing the requirements for the upgrade.
- DAG and UKLP to consider the benefits of a further workshop to assist the community
- DAG secretariat to communicate the day's presentations and summary report to the attendees and wider audience via the UK-EOF website http://www.ukeof.org.uk/di_inspire.aspx.

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Annex 1 - Attendee list

Amber Vater	UK-EOF
Andy Musgrove	BTO
Caroline Keay	Cranfield University
Chris Higgins	EDINA
Dave Chambers	JNCC
Dave Morris	CEFAS
David Charlton	NIEA
Duncan Taylor	SEPA
Dylan Lloyd	CCW
Emily Connolly	Defra
Helen Beadman	UK-EOF
Jason King	Defra
Jens Rasmussen	Marine Scotland
Jessica Durkota	EA
Keiran Millard	HR Wallingford
Keith Vincent	AEA
Mark Hallard	SEPA
Mark Lambert	FERA
Martin Fowell	Defra
Mike Brown	NERC CEH
Miles Gabriel	EA & GIS Ltd
Paul Taylor	Forest Research
Peter Langmaid	Dudley Metropolitan Borough
Phil Trembath	NERC CEH
Phil Wyndham	OS
Richard Harrington	Rothamsted Research
Savania Chinamaringa	Defra
Sharon Hayton	NERC CEH
Stefan Carlyle	EA (Chair)
Stuart Baker	EA
Thomas Lankester	Astrium Services
Tim Ashelford	Defra
Tony Bush	Ricardo-AEA

Annex 2 - Workshop agenda

Time	Item	Lead
10.30	**Welcome** **Workshop aims & objectives** **UK-EOF Data Advisory Group overview**	Stefan Carlyle (Chair) Environment Agency
10.50	**Environmental monitoring in the UK** - The UK-EOF Environmental Observations Activity Catalogue	Helen Beadman UK-EOF Programme Manager
11.10	**UK Location Programme overview** - The UK Location Strategy - Transparency and open data - Introduction to the INSPIRE regulations - Requirements, Timeline, Scope - What is available now & where to find it. - What has already been achieved? - How will it apply to Environmental Monitoring community?	Tim Ashelford Defra, UKLP
11.40	**INSPIRE Environmental Monitoring Facilities Theme** - INSPIRE Data Specifications - EF theme - Implementation in the UK - UK-EOF role in implementation and harmonisation with other data themes	Keiran Millard HR Wallingford
12.10 Refreshment break		
12.30	**Next Steps for EF INSPIRE data:** - User case: Working with the new UK- EOF catalogue	Mike Brown NERC CEH
13.00	**Introduction to discussion sessions** - The benefits, barriers and opportunities of implementing the EF theme in the UK	Stefan Carlyle
13.15 Lunch & networking		
14.00	**Discussion session** - The benefits, barriers and opportunities of implementing the EF theme in the UK	Facilitators and group nominated rapporteurs
14.45	**Feedback from rapporteurs**	Stefan Carlyle
15.15	**Wrap up and Next steps**	Stefan Carlyle
15.30	**Close**	Stefan Carlyle

Annex 3 – Organisations responses; 'How ready are public organisations for INSPIRE EF compliance?'

- **Cefas** – plan, means and process are in place.

- **Defra (Air quality)** – metadata managed in a single database ; on track to meet

- **Dudley Met. Borough Council** – Currently auditing data holdings.

- **EA** – View, download and discover services in place (data.gov). Metadata already formatted in near-INSPIRE format (UK-EOF catalogue) so will be reviewing internal systems.

- **FERA** – Will use data.gov publish metadata from internal system which could be harvested by UK-EOF in the future.

- **Forest Research** – Just starting. No funding or concrete plans in place but good metadata already exist for many datasets.

- **JNCC** – preparedness depends on the classification of datasets. If all are 'existing' then JNCC will follow deadlines for 2020.

- **Marine Scotland** – 90% of infrastructure/mechanics are in place but still need a culture change.

- **National Soils Resources Institute** – metadata available in INSPIRE format already but needs to be linked to geo locations. Transformation to soil data specification had been considered.

- **NIEA** – Well placed to implement EF. A technical group will assist departments with no previous INSPIRE experience.

- **Rothamsted Research** – Only experience so far of INSPIRE is through UK-EOF. There are other data suppliers in RR which may also need to comply but may consider using UK-EOF catalogue.

- **SEPA** – Discovery, view and 50% of download services are complete. Still working on defining which datasets should be included.

Non-public organisations

- **Astrium** – in house expertise exist but commercial organisation so no legal obligation to comply.

- **BTO** – Not a public body but are keen to engage at some level.

- **Ricard-AEA** – checking holdings; do not need to comply.