ERFF and the UK-EOF Programme

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UK-EOF Programme Manager

GEOSS 28 May 2009
‘Maximising the coherence and effectiveness of UK environmental research funding’
UK Environmental Observation Framework

Coordination of observations UK-EOF

Joint ERFF activities
- Key Questions
- Horizon Scanning
- Communications
- Skills needs
- National Capability
- Data

Coordination of research efforts
Environmental observations

Vital source of evidence from global to local scale for:

- understanding and managing our changing environment
- guiding current and future policy, science and innovation
- economic benefit and quality of life

Includes all monitoring/surveillance, all technologies from satellite data to butterfly counts or genomics - for or by the UK
Conclusions from the ERFF Review of Environmental Monitoring, 2006

- FRAGMENTED
- UNCOORDINATED
- LACKS STRATEGIC DIRECTION
- NO OVERALL OWNER

Risk of
- Missed opportunities for knowledge
- Poor data sharing
- Funding stopped for key time series data
- Duplication of effort

Outcomes for Observations by 2013

- Develop a holistic picture of the overall evidence needs of the UK and the role of observations in providing the information
- Share Knowledge & Information i.e. who is investing in what, where, how.
- Understand the range of assessments using observation data & the tools for knowledge transfer
- Enable funding mechanisms for long-term observation needs
- Strong community sharing data & expertise
UK-EOF Structure

ENVIRONMENT RESEARCH FUNDER'S FORUM MAIN BOARD
Own framework, collective aspiration and outputs. Ask for the evidence and use the outputs
Biannual meetings
Key funders and senior policy players across government and the Devolved Administrations.
Champion of the UK-EOF Professor Bob Watson, Defra

UK-EOF Management Group
Decision making group to facilitate the workstreams and initiate, advocate and champion the issues.
Responsible for active project management of the work streams, UK-EOF accounting and guidance of the Programme Manager
All parts of the community represented.
Up to 4 meetings per year

Central Coordination
UK-EOF Programme Manager and Secretariat

Data Advisory Group

Work Programme

WORKSTREAM 1
Collective Aspiration
Articulating the questions
Decision-making framework

WORKSTREAM 2
Knowledge Base
Metadata including costs and quality
Data policy
Sound Science

WORKSTREAM 3
Assessments co-ordination and Knowledge Transfer
Assessments catalogue

WORKSTREAM 4
Financing Mechanisms
Internal Inter-Departmental International Long-term

WORKSTREAM 5
Community Communications
Annual Conference Website Newsletter Who's Who

Evidence Groups e.g. Marine, Land
Issues e.g. Data management,
Technology e.g. Satellites
The Community: in clusters delivering efficient and effective evidence.
2009 UK-Environmental Observation:
Strategic Analysis

Will ask:
• Why does the UK observe the environment?
• What questions do we want/need to answer?
• How close are we to having the evidence we need?
• How much are we investing and in what?
• What are the risks/financial security of observations?
• What are the strategic gaps in observation programmes?
• Initial recommendations — action plan for next 2 yrs.
The evidence will be taken from:

- ‘Towards a Statement of Need’ document and workshops (WS1) - articulating what observations we need for each domain and fundamental issue future?

- The Observation Activity catalogue (WS2a) - what observations are being undertaken and by whom?

- The Investment Study (WS4a) – how much are we currently spending on observations and where?

- Financial Mechanisms case studies (W4b) – what are the issues that organisations have identified in funding observation activities?
Investments?

The observing process

- Requirement
  - Requirements analysis
  - Trade-offs analysis
  - Feasibility studies
  - Pilot projects
  - Inter-calibration

- Definition and planning
  - Major capital items and one-off start-up costs
    - Buy/make platforms
    - Equipment, labs
    - Training
    - Guidance documents
    - Detailed procedures

- Implementation
  - Taking measurements
  - Laboratory analysis
  - Maintaining assets

- Operations - data gathering
  - Quality control
  - Quality assurance
  - Archiving, curation
  - Dissemination

- Operations - data handling

- Primary use

Excluded from the definition of the observing process

Research and development on new observing and data handling technology

Secondary use:
- Assessments
- Reporting
- Applications
- Research Services

UK Environmental Observation Framework
‘Towards a Statement of Need’

Aim

• Holistic picture of overall current and future natural environmental evidence needs & role of observations in providing this.

• Inform future phases of the UK-EOF (infrastructure, skills, funding, gap identification).

• Inform strategic decision making in organisations.
9 issues: How can observations help us understand .......

• Pressure on the environment in the light of population growth and associated pollution.
• Reconciliation of economic growth with sustainable use of natural resources.
• Future States of the Earth and particularly the Carbon Cycle
• The effects of environmental change on agriculture, food security and water supply.
• Consequences of environmental change for human health, wealth and well being
• Extreme Events and Disasters
• Impacts of environmental change on biological diversity, ecosystems and ecosystem services
• Climate variability & Climate Change: Challenges in Earth System Science
• Stimulation of Scientific & Technological Advance and Innovation
Data Issues – simplified!

UK Environmental Observation Framework
UK-EOF Concept “valuing observations for all needs”

- Expand knowledge
- Contribute to International activities
- Improve responses to the changing environment
- Improve Operational Capabilities
- Stimulate a market for innovation
- Inform policy decisions

Note this is schematic only
2. Conceptual model from the Think Tank

Addressing data issues in the UK

- Unanimous agreement at senior Gov level – there are complex and challenging problems across the UK
- Existing / forthcoming legislation tackles only part of the story but the new ‘Location Strategy’, INSPIRE and SEIS will help
- Senior leadership is essential to change the culture and organisational issues
- A project is required to realise the objectives – this is called the UK-EOF: DI
A vision for success

People/organisations in UK plc actually share and reuse environmental observation data to inform policy decisions, expand knowledge, improve their responses to a changing environment, contribute to international activities and stimulate markets for innovation.
Quality & Access Standards – Best Practice for data collection, vocab control etc.

Data Policy – transparent and published, check list established

Discovery Catalogue (Interim June 2009 first full catalogue June 2010)

Data Policy – Implemented through contract and citation process

Quality & Access Standards – Best Practice for data collection, vocab control etc.

Defining storage and national environment data infrastructure (costed Sept 2009)

Implement infrastructure using UK-SDI and ongoing development of the Catalogue

Phase 1
To April 2010

Phase 2
April 2010 to April 2013

Phase 3
From 2013

SCOPE

IMPLEMENT & ENFORCE

STEADY STATE

ENVIRONMENTAL DATA INITIATIVE - EDI

Business Case
EDI: Scope

- **Observation Activity Catalogue:**

  A tool for discovering information about programmes and activities relating to the collection of UK environmental observations. It will also point to how to access the data generated and its suitability for re-use.
A tool for discovering information about programmes and activities collecting environmental observations in or on behalf of the UK. It will also point to how to access the data generated and its suitability for re-use.
Environmental Data - Terminology

UK Environmental Observation Framework
Phase 1 – Scenario 1 The Observation Activity Catalogue in 2010

Data collection e.g.

- NBN
- EA
- NERC
- Other

Phase 1 – Scenario 1

Observation Activity Catalogue
Programme and activity info allowing discovery of data

~ 250 Collectors
Private Sector

Activity information
Funders

Users

Observation activity metadata supplied by collectors either directly or via funders
EDI: Scope

• Quality and Access Standards – Best Practice:
  – Coordination with other initiatives e.g. INSPIRE, Location Strategy, SEIS, GEOSS etc.
  – Translating and promoting best practice standards and guidelines across the diverse community
  – Providing points of contact/ simple tools.
  – Scoping study (Atkins) to define way forward in this area
ENVIRONMENTAL DATA INITIATIVE – INITIATIVES MAP

Global

Ongoing Initiatives

European

UK

GEOSS

INSPIRE

GMES

SEIS

Location Strategy

UK SDI

UK-EOF EDI

Defra/SPIRE

NERC/NDG

EA

MEDIN

NBN

Atlantis

Others

UK RDS

WISE

Other data e.g. transport, education, health etc.

Data regulation & legislation e.g. ROPSI, DPA, FOI, ISO etc.
EDI: Scope

- **Data Policy:**
  - Working with data funders, collectors, users and storage organisations to implement a data policy.
  - Organisations to enforce their own policy but will be given tools and examples of best practice (and compliance) to 'encourage' the adoption of standard language and clauses.
  - Transparency and clarity are key.
  - Reporting and enforcement to Location Council using Data Status Table.
Observation activity metadata supplied in agreed format by collectors / funders

UK-EOF DATA POLICY

Phase 1 A – Scenario 1
June 2010

Collectors

Data Warehouses

Private Sector

NBN

EA

NERC

Other

Users

Observation Activity Catalogue
EDI: Scope

- National Environmental Data Infrastructure:
  - Identify requirements for infrastructure for EDI to achieve vision
  - Identify how existing and planned capability can be harnessed
  - Develop a costed plan for filling the gaps – Business Case Oct 2009
EDI: Implement & Enforce

- Data Policy implemented through contract and citation (carrots and sticks)
  - Contract clause, similar to MEDIN, required to be included in all future environmental data gathering contracts. Existing contracts encouraged to adopt new clause.
  - Data citation system implemented to bring reward to researchers who share good quality data
  - Both require/stimulate a change in attitude to data
EDI: Implement & Enforce

• Infrastructure implemented using UK-SDI as much as possible

• Ongoing development of the systems in line with other initiatives e.g. INSPIRE, Location Strategy, SEIS, GEOSS, Nerc Data Grid etc

• Data quality and status monitored and managed through the Data Status Table
Users interrogate the discovery catalogue to identify what observations have been done, costs etc.

From the Catalogue, users are able to connect directly with the collectors or data warehouses to access and retrieve data.

Data stored close to source with easy to use licence conditions.

Some users continue to connect directly with collectors to access and retrieve data.

EDI as part of UK-SDI

Users interrogate the discovery catalogue to identify what observations have been done, costs etc.

Data Users

Private Sector

Collectors

Data Warehouses

NBN

EA

NERC

Other

Phase 2 & 3 Scenario

CONTRACTS & STANDARDS (via Location Council)

Users

UK-EOF

Data Users
## UK-EOF Environment Data Initiative – Data Status Table Example

<table>
<thead>
<tr>
<th></th>
<th>Data Generation</th>
<th>Storing &amp; Archiving</th>
<th>Publishing/ Sharing</th>
<th>Access Agreements</th>
<th>Summary Ability to re-use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Collection Standards</td>
<td>Data entry/ digitisation</td>
<td>Quality Assurance i.e. checking &amp; Cleaning</td>
<td>Creation of data document &amp; Metadata</td>
<td>Place to store raw data</td>
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<tr>
<td></td>
<td>Atmospheric</td>
<td>Surface precip</td>
<td>Surface wind</td>
<td>TOA radn budget</td>
<td>Red</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limited conformity with collection standards</td>
</tr>
<tr>
<td></td>
<td>No collection standards followed</td>
<td>Un-acceptable</td>
<td>No strategy in place</td>
<td>No strategy in place</td>
<td>Data not published</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td></td>
<td></td>
<td></td>
<td>Limited conformity with publication standards</td>
</tr>
<tr>
<td></td>
<td>Limited conformity with collection standards</td>
<td>Some issues to sort out</td>
<td>Limited publicati on</td>
<td>Limited publicati on</td>
<td>Limited conformity with publication standards</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td></td>
<td></td>
<td></td>
<td>Full conformity with collection standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</table>
All data collectors adhere to best practice (as opposed to minimum compliance with legislation)

Each organisation has and enforces a transparent and well publicised data policy which balances open access with economic and societal pressures
Next Steps

Phased implementation

1. Use Cases to be developed from April 2009 with stakeholder input
2. Interim Discovery Catalogue solution – June 2009
3. Encourage all organisations to supply metadata in a common, INSPIRE compliant format – from June 2009
5. Interface with SEIS and INSPIRE – from 2010 onwards
Summary

• EDI looks to future and ideal scenario- its ambitious but all agree that’s where we want to be.
• A number of work areas progressing in parallel
• We still need to demonstrate progress so intermediate goals e.g. the catalogue, contract clauses, defining the infrastructure etc
• We need champions to drive it in right direction
UK -EOF Summary

• Ambitious programme but much enthusiasm at across all stakeholders
• Honeymoon period over: expectations raised now need
  – real examples and clear thinking to turn anecdotal to real evidence of need v capability
  – Willingness to provide information
  – Willingness to change !!
The requirement

The gap?

The Evidence we have
New Plans: 2009 Strategic Analysis

• UKEOF launched 2008 – expectations raised
• Working on all workstreams in parallel and should be able to report strategic results for ERFF/ LWEC meeting Nov 09.
• To inform discussions within funders and spending review
What will the UK-EOF deliver in 2009?

• ‘Towards a Statement of Need’ – articulating needs
• Upgrade ‘observation catalogue’ - listing what's going on now
• Data sharing policy – EDI business case and workshop
• Overall investments estimated
• Plus – Strategic Analysis

See Delivery Plan 2008-2013
Towards a Statement of Need
Strategic Conclusions and Mapping

- Appoint Experts to draft Table Entries (& chair the workshops)
- 3 Workshops each hosting 2 domains.
  - Table Completion/verification
  - Initial mapping needs to current programmes
- Table Completion & Workshop Report
- Wash up meeting (MG Champion, UK-EOF and Workshop Chairs)
- Develop Strategic Conclusions and Mapping
- Management Group Meeting: Mapping Analysis (3rd September 2009)
- Report to ERFF Main Board

Wider Consultation

Apr-09
Complete Document Editing
Towards a Statement of Need out to wider consultation
Collate consultation responses

May-09

Jun-09

Jul-09

Aug-09

Sep-09

Oct-09

Nov-09
Statement of Need: Process and structure

These form the basis of the information chapters in the SoN. Initial Expert consultation has been obtained via the inaugural workshop and email.

Currently Developing first attempt: Towards a SoN. Owned by the ERFF Main Board.

Based on SD overarching principles.

The next stage of developing a useful decision making tool for use by decision makers e.g. NCAG, policy, agencies etc.
UK-EOF and GERC

- Capturing need – how do we cover your interests?
- Case studies re financial issues?
- Data issues – good and bad examples?
- ERFF – review of coordination bodies
- Research database available now
- Research outputs search tool also available