

## **NERC Science Information Strategy in Summary**

### **1. Introduction**

- 1.1 The NERC Science Information Strategy (SIS) has been created to provide the framework for NERC to work more closely and effectively with its scientific communities, both internal and external, in delivering data and information management services to support its 5 year science strategy, the Next Generation Science for Planet Earth (NGSPE).
- 1.2 The NERC Science Information Strategy was approved by Council in July 2009. The NERC Executive Board approved the Implementation Plan in February 2010. The implementation programme is expected to run for 4 years.

### **2. Scope and Objectives**

- 2.1 The strategy focuses on the continuing development of NERC's information management processes and sets the context under which all of its science data and information activities, especially the operations of the data centres, will be carried out in the future. Emphasis is placed on managing and curating data with potential for reuse and on data that are of significant evidential benefit to the research record. The strategy applies to both digital and analogue information but with an initial focus on managing digital data.
- 2.2 The objectives of the SIS are to;
  - Actively facilitate closer co-operation between NERC's 6 Environmental Data Centres (EDCs)
  - Ensure greater consistency of service provided to the customers and suppliers of the EDCs
  - Enable more efficient use of resources within the EDCs, rationalising activities and infrastructure where appropriate
  - Actively engage with key users to develop services and prioritise data delivery to better support their requirements

### **3. Challenges and Drivers**

- 3.1 Several challenges exist that the SIS will overcome, specifically;
  - Ensuring the foundation is in place for delivering the data management commitments made in the Next Generation Science for Planet Earth
  - Effectively underpinning the Science in Society agenda
  - Enabling NERC to maintain its reputation for taking on a leadership role in developing and implementing EU legislation around environmental and geo-spatial data
  - Balancing the reduction in National Capability funding against the need for increased performance
  - Incorporating the opportunities and challenges from changing technologies
  - Gaining a greater understanding and transparency of the costs associated with data management for NERC funded research

#### 4. Implementation Plan

4.1 The Science Information Strategy will be implemented in 3 phases beginning from April 2010

4.2 Phase 1: This phase will focus on taking strategic decisions that will be delivered in subsequent phases. This phase will also base-line all elements of the data centre functions, update NERC's Data Policy and deliver several 'quick wins'.

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| <b>Strategic</b>  | <ul style="list-style-type: none"> <li>• Data Centre Analysis – providing a clear definition of the role of a NERC data centre and its core activities, including a shared understanding of data centre and information management cost bases and processes</li> <li>• Information Architecture – defining an agreed information architecture for NERC</li> <li>• Data Charging – defining a NERC framework for a consistent approach to data sales, licensing and charging</li> <li>• Stakeholder Engagement – working more closely with its scientific and commercial users and suppliers</li> <li>• Data Value Checklist – defining criteria to identify data of long-term value that will be ingested by the data centres</li> <li>• Data Peer Review Plan &amp; Data Citation – delivering statements of how NERC intends to progress on issues around the citation, peer-review and publication of data sets</li> <li>• Data Policy – defining a revised NERC Data Policy, with input from stakeholders, and a clear understanding of rights and responsibilities for all communities</li> </ul> |
| <b>Ongoing</b>    | <ul style="list-style-type: none"> <li>• Catalogue Data Holdings - INSPIRE data 'discovery' compliance through continued development of the Discovery Service and ongoing cataloguing of datasets</li> <li>• Data Conditioning – continued development of view and download services for data held by the data centres</li> </ul>  |
| <b>Quick Wins</b> | <ul style="list-style-type: none"> <li>• Data Centre Metrics - implementing an initial set of performance metrics for the data centres</li> <li>• Data Acquisition - increasing the quality and timeliness of information provided to the data centres about funding awards made by NERC</li> <li>• Data Discovery Service - revitalising the NERC Data Discovery Service</li> </ul>   |

4.3 Phase 2: This phase will focus on implementing the high priority transformational changes and efficiency savings identified in Phase 1. The key outcomes of this phase are likely to be;

- First stages of transformational changes to the data centres following on from the understanding of data centre cost bases and processes, and potential efficiency savings
- A clear funding model for all data and science information activities across NERC
- Implementation of the agreed information architecture within NERC



- Continuing implementation of the INSPIRE compliant 'single face' of NERC data through a common set of services for web access to its data
- Identification of non-NERC data that are crucial to delivery of NGSPE, working with third-party data management partners to secure access to these data
- Continued informatics research

4.4 Phase 3: This phase will focus on implementing a second wave of transformational change, informed by a review of the impact of the changes in phases 1 and 2. This phase will also establish processes for the effective management of data arising from Responsive Mode programmes. The key outcomes are likely to be;

- More datasets will be 'conditioned' to enable interoperability, and meet the requirements of INSPIRE
- Greater transparency on the supply of data and information, including gaining Information Fair Trader accreditation where appropriate
- Clarified approach and support for Open Access publishing
- Improved level and structure of feedback routinely received from stakeholders
- Linked archive and library catalogues with data discovery services where appropriate

## **5. Assumptions**

5.1 The following assumptions have been made:

- NERC will continue to undertake long-term environmental data management through a network of data centres
- The structure of the data centre network will remain aligned to NERC's defined National Capability sectors
- NERC will continue to fund the data management activities of its data centres and provide funds for project and programme data management activities for research grants
- User expectations of how they can access and use public sector information will continue to develop and will have the potential to challenge how NERC makes its scientific information available
- NERC data centres need to work in partnership with other major environmental data holders to ensure access to data fundamental to NERC's mission
- Institutional repositories within the HEI sector will continue to develop and have an increasing role in the dissemination of research information
- Government will continue to review the charging and licensing policies and guidelines for public sector information, with greater expectation on more innovative licensing regimes
- Organisations such as the Research Information Network, Digital Curation Centre and British Library will continue their roles in developing and supporting the relationships between research and data management communities

## **6. Success Factors**

6.1 Success of the strategy and its implementation will be measured against the following criteria;

### 6.2 Data acquisition

- NERC and its community will understand what data NERC wishes to curate for the long-term and why
- Clear guidelines will exist to guide a NERC funded Principal Investigator as to:
  - how to successfully address data management in a bid to NERC
  - how to manage data during the life of the grant
  - how NERC Data Centres will support them at each stage

### 6.3 Data curation

- Data curation and conditioning practices across NERC's Data Centres will be optimised to enable simple information access and exploitation for stakeholders requiring data from across a range of NERC's Data Centres, without significantly compromising the needs of the stakeholder communities served from only one
- NERC will identify (or set) the appropriate international standards for information management and demonstrate that it meets them

### 6.4 Information exploitation and access

- NERC and its data centres will lead the UK environmental science community in complying fully with the requirements of the INSPIRE directive
- NERC will provide appropriate routes of access and consistent charging regimes for its range of data holdings to all stakeholder communities (i.e. science, government, regulators, private, public and voluntary sectors)
- NERC will work with other UK and international bodies to provide users with the ability to access location based data across a range of providers

### 6.5 Organisation and funding

- NERC Data Centres are clearly established to serve the integrated NERC communities described in Next Generation Science for Planet Earth, and will be funded to a defined service level
- NERC Data Centres are funded transparently in relation to the NC (including National Good), RP (Research Programme) and RM (Responsive Mode) support that they give
- NERC will be compliant with all legislation, and actively influence future UK and EU policy concerning data management

### 6.6 Metrics and indicators

- Appropriate key performance indicators (KPIs) and user feedback mechanisms will be used to demonstrate Data Centre excellence, assess policy compliance, support benchmarking and drive continuous improvement, within financial constraints
- Appropriate management information will be generated to show the totality of the Data Centre's activities where they are broadly like-for-like, particularly in Data Acquisition and Information Access/Exploitation