



UK Ocean Acidification
Research Programme



British Oceanographic
Data Centre

NATURAL ENVIRONMENT RESEARCH COUNCIL

UKOARP Data Management

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NERC's Environmental Data Centre Network

Atmospheric Science

BADC – British Atmospheric Data Centre (RAL Didcot)

Earth Sciences

NGDC – National Geoscience Data Centre (BGS)

Earth observation

NEODC – NERC Earth Observation Data Centre (RAL Didcot)

Marine Science

BODC – British Oceanographic Data Centre (NOC-L)

Polar Science

PDC – Polar Data Centre (BAS)

Terrestrial & freshwater science

EIDC – Environmental Information Data Centre (CEH Wallingford)



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BODC – roles and responsibilities

Nationally:

- NERC marine data centre
- National Oceanographic Database
- UK Tide Gauge Network
- Marine Environment Data Information Network (MEDIN)

Internationally:

- IOC – UK representative in the IODE network of data centres
- ICES Working Group on Marine Data Management
- International Coastal Atlas Network
- SeaDataNet UK partner
- ARGO/GLOSS/GEOTRACES/GEBSCO



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NERC Data Policy

The data policy was substantially revised in conjunction with SISB before being approved by NEB in Sept 2010.

<http://www.nerc.ac.uk/research/sites/data/policy2011.asp>

It was published late 2010 and applies from January 2011.

The policy has been developed to be consistent with legal frameworks (Environmental Information Regulations 2004 and INSPIRE regulations 2009) .

Reflects NERC's continuing commitment to openness and transparency in the research process.



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Access to data

Environmental data produced by NERC funded activities are considered a public good and will be made openly available for others to use

- data openly available to any person or organisation that requests them.
- clear definition of how long researchers are entitled to exclusive access to the data they generate.
“Right of first use” will normally be 2 years from the end of data collection
- all environmental data are issued by NERC accompanied by a data licence.
- the source of the data provided by NERC must be acknowledged by those using the data.



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Data collection

NERC expects everyone it funds to manage the data they produce in an effective manner for the lifetime of their project

- NERC-funded projects must work with the appropriate data centre to produce and implement a data management plan.
- data of long-term value are submitted to the agreed time-scale, in an agreed format and accompanied by all necessary metadata.
- those who do not meet these requirements risk having award payments withheld or becoming ineligible for future funding from NERC.



Access to data underpinning research publications

Ensure integrity, transparency and robustness of the research record

- all research publications arising from NERC funding must include a statement on how the supporting data and any other relevant research materials can be accessed.

- for all research publications produced by NERC's own staff, the supporting data will be made available through the NERC data centres.

36°N	RRS <i>Charles Darwin</i>	-74.81°W to -7.82°W	1 May to 15 June 2005	48	McDonagh [2007]
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^aStns, number of stations where samples for organic nutrient measurements were taken. The meridional cruises are part of the Atlantic Meridional Transect (AMT) Programme [Robinson *et al.*, 2006a, 2006b] (see <http://www.amt-uk.org>). The zonal cruise at 36°N is part of the consortium programme of same name (<http://www.bodc.ac.uk/36n>), and the 24°N zonal cruise was part of the core strategic research programme "Ocean Variability and Climate" at the National Oceanography Centre, Southampton, United Kingdom [Bryden *et al.*, 2005; Cunningham, 2005]. Data are available at the British Oceanographic Data Centre (BODC) (<http://www.bodc.ac.uk>.)



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NERC Data Policy – Key principles

- NERC is committed to supporting long-term environmental data management to enable continuing access to these data.
- all environmental data held by NERC data centres will be made freely available without any restrictions on use (a few special case exceptions).
- all data of long-term value generated through NERC-funded activities must be submitted to NERC for long-term management and dissemination.

The NERC data policy is only one part of NERC's larger Science Information Strategy which has an implementation programme set out over 4 years. The implementation plan was approved in February 2010.

<http://www.nerc.ac.uk/research/sites/data/sis.asp>



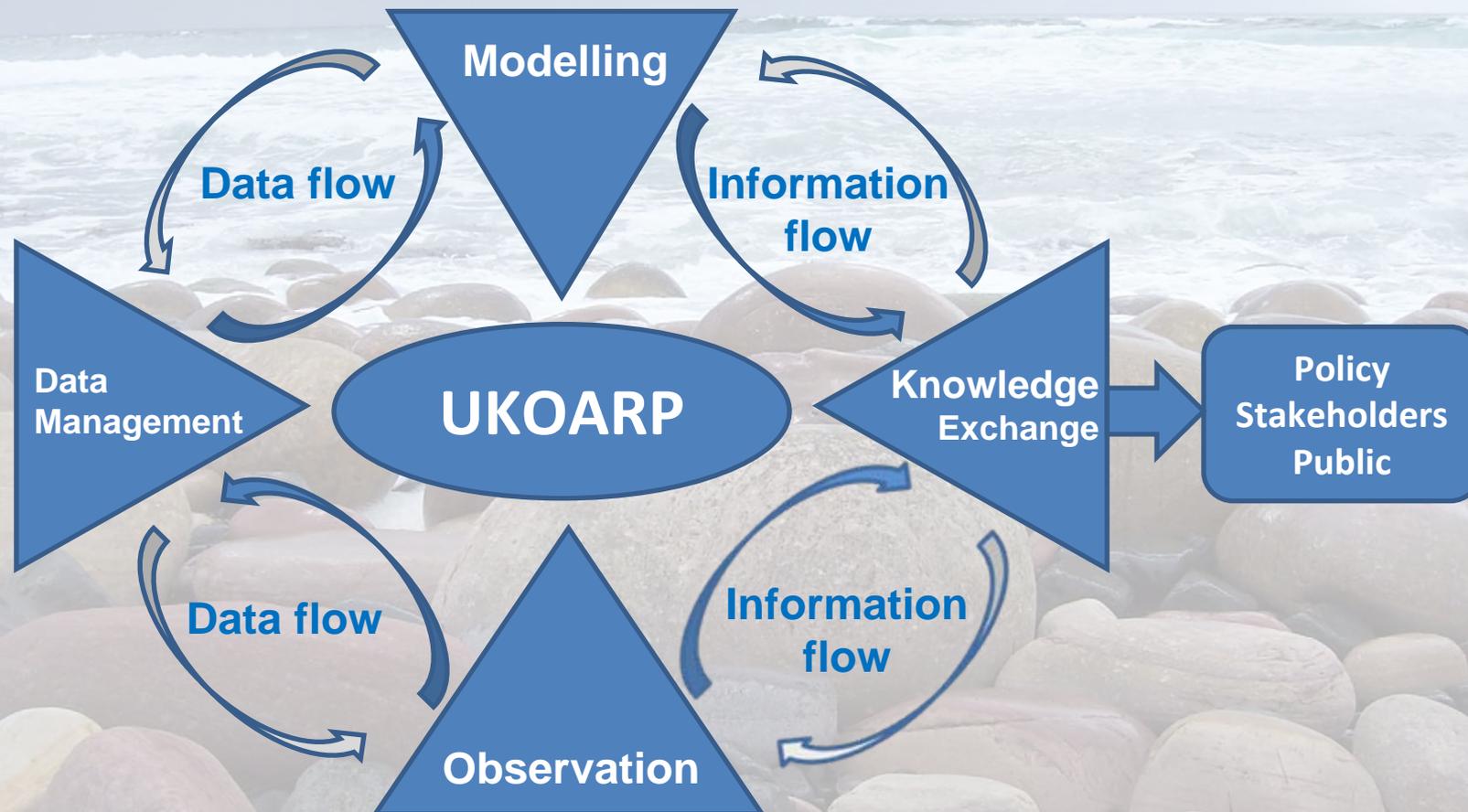
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UKOARP and Data management



Conceptual diagram adapted from EPOCA Best Practice Guidelines chapter on data management



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Provision of Data

Data available to UKOARP for model parameterisation and/or validation.
BODC has been collecting oceanographic datasets (physical, biological, chemical parameters) from UK based marine researchers for >40 years.

Access the inventories at:

https://www.bodc.ac.uk/data/where_to_find_data/

As of January 2011 the inventories cover:

- >125 marine research programmes

- +7000 cruises

- [>77,000 CTD cast, current meter and wave data series](#)

- 407 underway series (over 120,000 hours of data)

- >2.4 million bottle samples



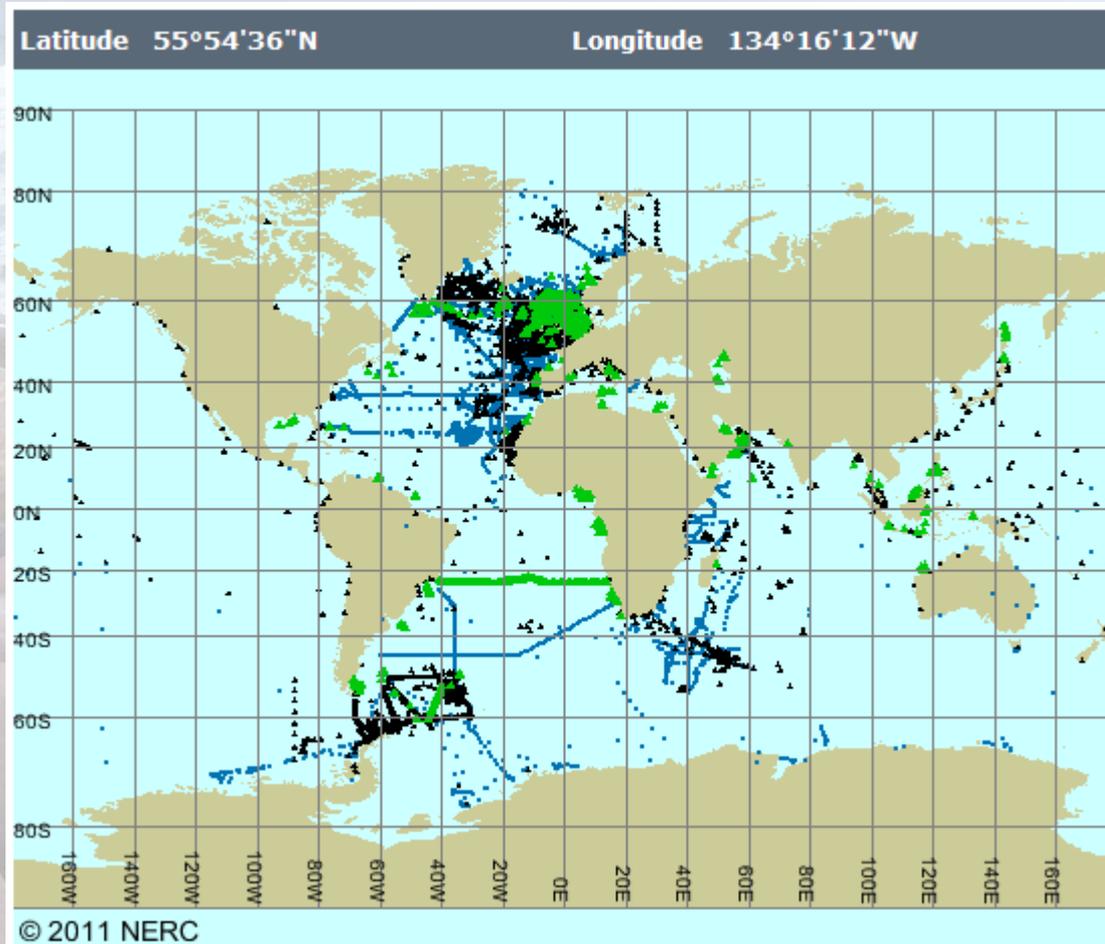
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Data holding coverage (as of January 2011)





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UKOARP Data management plan

First quarter 2011:

BODC in conjunction with the Theme leaders and workpackage PIs

Identify datasets of long-term value and expected submission time-scales

cruise data – within 6 months of cruise end;

mesocosm data – within 6 months of final time step sampling;

Agree format for data submission and details of accompanying metadata

BODC to then create a data inventory on the website (e.g. AMT and SOLAS)

http://www.bodc.ac.uk/projects/uk/amt/data_inventories/cruise/jr20081003/

http://www.bodc.ac.uk/projects/uk/uksolas/data_inventories/

Inventory should be first port of call to check data availability.

As the programme proceeds:

Advise BODC of changes to expected submission time-scales

Submit datasets with supporting metadata

Data then available for model parameterisation and validation as appropriate.



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Data submission & supporting metadata

Datasets should stand alone and not require the user to have to return to the data originator

The data management chapter in the EPOCA Best Practice guide is very comprehensive and can be used as a reference for rationale behind and explanation of what metadata should be submitted with data.

If in doubt over what metadata should accompany a data set please contact BODC for clarification.

Riebesell U., Fabry V. J., Hansson L. & Gattuso J.-P. (Eds.), 2010. [Guide to best practices for ocean acidification research and data reporting](#), 260 p. Luxembourg: Publications Office of the European Union.



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Brief overview:

Environmental datasets

- data fully referenced geospatially and temporally
- full details of sampling, analytical protocols and data quality

Laboratory/Perturbation results

- discuss requirements with BODC prior to submission

Model results

- Exemplar runs should be submitted
- Supported with:
 - model version used
 - details of forcing conditions & initial parameterisation
 - any other relevant methodology or validation details



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Data availability and restrictions

“Right of first use” will normally be 2 years from the end of data collection

Data collection is considered the point at which data are ready for use in model parameterisation, validation or prior to analysis for publication etc.

- anticipated this should be within 6 months of cruise end for cruise data sets or within 6 months of final time step sampling for mesocosm data

Data sets restricted to PI and co-workers for 1 year from data collection

- PI can agree to wider release on a case by case basis for external requests

Data sets available to UKOARP community after 1 year from collection

- PI & Science Co-ordinator can agree wider release on a case by case basis

Data sets publically available 2 years after data collection

PhD data core to the student's thesis are automatically restricted for the duration of the studentship (requests will be forwarded to student and supervisor)



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Data submission to third-party data centres

EPOCA best practice states all OA datasets to be submitted to the National Oceanographic Data Centre of the research country as the primary data archive. This complies with NERC's data policy.

Data sets may also be deposited with a non-NERC data centre where there will be real scientific / community benefit above and beyond what NERC can provide through its data centres.

Any data set deposited with additional third-party data centres should include sufficient metadata to acknowledge you as the creator of those data, and NERC as the funder of the data creation activity.

So saying, from a data management perspective, there is an issue about having multiple copies of the same data set in existence. Therefore, if any changes have to be made to a data set, all holders of the data set must apply those changes.

N.B. PI is responsible for informing/updating all data centres holding a copy of the data set of subsequent revisions, versions or quality issues.



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Digital Object Identifiers (DOI)

BODC can issue DOI for environmental datasets, laboratory derived results and model results in connection with the British Library

- Datasets **MUST** be final version
- Strict metadata requirements to be met before a DOI assigned
- Datasets **MUST** be publically available for a DOI to be issued
- DOI then available for quotation or reference in publications



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