



Data Policy for the Changing Arctic Ocean Programme

Approved by the CAO Programme Executive Board following community consultation

The programme-specific data policy was agreed by the lead investigators in May 2017.

The following data policy applies to work directly supported by the Changing Arctic Ocean (CAO) research programme funded by the Natural Environment Research Council (NERC) at Higher Education Institutes (HEIs), NERC research centres, and partner institutes. This policy is fully consistent with NERC data policyⁱ, with wording tailored to the programme.

1. Dataⁱⁱ arising from the programme will be lodged with the British Oceanographic Data Centre (BODC) or the UK Polar Data Centre (UK PDC) on acquisitionⁱⁱⁱ, together with such metadata as are defined under the NERC data policy. Data submitted to the data centres must be in a data format agreed between BODC/UK PDC and the submitting researcher.
2. Physical oceanography data (e.g. CTDs, data from the ship's fixed sensors, gliders, etc) will be held at BODC and biology data (e.g. abundance, community structure, etc) will be held at the UK PDC. As CAO will use a British Antarctic Survey (BAS) ship, all raw data will be stored at BAS and available via the UK PDC.
3. Central cruise data^{iv} which complement but are not part of project-specific elements of CAO research will be provided by the data centres to anyone^v who requests them, as soon as they are available. All requests for such openly available data will be supplied under the UK Open Government Licence for Public Sector Information^{vi}.

ⁱ NERC Data Policy: online at <http://www.nerc.ac.uk/research/sites/data/policy.asp>. Note that it is a condition of acceptance of NERC funding (and co-funding) that the NERC Data Policy is followed, together with programme-specific aspects detailed here.

ⁱⁱ Data: include field-based observations, field experiments, laboratory experiments (using field-based samples), selected model output, data syntheses, data-model syntheses, model codes and information on actual samples. In the event of doubt, the CAO Data Manager ([Joana Beja](#)) should be consulted.

ⁱⁱⁱ On acquisition: data are considered to be acquired when definitive values have been established. This may be when observations are directly made (for real-time, underway data) or when samples have been analysed. Whilst some time may be needed for quality control, that period should be as short as possible and within 6 months of the end of a research cruise. This is to ensure that data acquired through CAO support are available to others in the programme within its lifetime.

^{iv} Central cruise data: data considered to be of communal use to the cruise. The central cruise data will depend on the main context of research but usually include CTD, vessel-mounted ADCP, and data from the fixed underway sensors (navigation, bathymetry, sea surface hydrography and meteorology).

^v Anyone is defined as public, including commercial and foreign bodies.

^{vi} Open Government Licence: online at <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/2/>.

4. Most other data will be embargoed for two years from acquisition (for exceptions, see 6 and 7 below) allowing the data collectors and co-workers to exploit them in the first instance. To facilitate the exchange of data between CAO projects where embargo periods have been applied, data will be released to other CAO programme participants without prior approval from the data originators. This release of data will be controlled by BODC and UK PDC based on CAO participants' e-mail requests, or by requests made online, through the BODC or the UK PDC website, to provide a written audit trail, and will involve a BODC or a UK PDC standard data licence agreement^{vii}, stipulating that co-authorship is a requirement of using the data during the embargo period.
5. If requests for data access should be made to BODC or UK PDC by parties outside the programme during the embargo period, these will be forwarded to the data originator to consider their allowability and whether co-authorship is a requirement of using the data. If approved, data would be supplied under a standard BODC or UK PDC licence agreement^{vii} and co-authorship will be stipulated as and when required. Guidance may be sought from the CAO Science Coordinator, Dr Kirsty Crocket, if major data transfers are involved, to avoid compromising the interests of other programme participants.
6. The metadata will not be embargoed, to allow the wider community to be aware of work being carried out under CAO and facilitate additional linkages and profile-raising, at both the national and international level.
7. With the potential exception of studentship-related data (see below) and data for which exceptional circumstances^{viii} apply, data will be made available by BODC and the UK PDC to anyone after the expiry of the embargo period under the UK Open Government Licence for Public Sector Information.
8. Data arising from CAO studentships must also be lodged with BODC or the UK PDC (depending on the type of data), and will also be covered by the two year embargo from acquisition. In addition, studentship data central to the PhD project may be granted an embargo-extension where the two year embargo expires before the end of the studentship, thereby providing additional protection to a student's intellectual property. Justification for such an extension needs to be provided by the supervisor and/or PI to BODC and to the UK PDC when the data are submitted. However, any extension to the embargo period is not expected to increase the total embargo period beyond 3 years from the start of the studentship, neither does it imply that the student has exclusive rights to data obtained through CAO support.
9. Any corrections, improvements or amendments to data must be lodged with BODC or the UK PDC as soon as possible.
10. Researchers making use of CAO data are responsible for ensuring that the data used in publications are the best available at the time.

^{vii} BODC and UK PDC Data Licence: The data licence agreement details how the originator of the data should be acknowledged (such as co-authorship) and limitations to the use of the data (e.g. passing onto to third parties). However, NERC cannot guarantee compliance to these conditions.

^{viii} Exceptional circumstances are limited to those legally allowed under the Freedom of Information Act, primarily relating to commercial confidentiality, or where personal safety or national security might be compromised.

11. Where project participants wish to obtain a Digital Object Identifier (DOI), physical oceanography data sets will be published in BODC's Published Data Library^{ix} (PDL) and biology data sets will be published in the UK PDCs Discovery Metadata System^x (DMS); both will be made openly available to anyone who wishes to download the data. Data sets submitted to BODC/UK PDC for inclusion in the PDL or DMS must remain unchanged for an indefinite period of time or be able to acquire new data whilst the existing data remain unchanged (such as near-real time daily downloads from gliders). Data sets must conform to specific technical criteria^{xi} (see CAO Data Submission), based on good practice criteria adopted across the NERC Environmental Data Centres, to be accepted for publication in the PDL or DMS. DOIs will only be issued to base data sets suitable for future re-use in other applications, rather than data reworked specifically for a single research publication (sometimes termed 'data behind the graph'). It is the responsibility of the data set originator to inform BODC and the UK PDC that they require a DOI upon submission to the appropriate data centre. DOIs will only be issued at BODC's or the UK PDC's discretion.
12. In the event of dispute, the final decision rests with the CAO Programme Executive Board.

^{ix} Published Data Library enables citation in journal papers through the assignment of a Digital Object Identifier (DOI) in collaboration with the British Library and is accessible through https://www.bodc.ac.uk/data/published_data_library/.

^x The Discovery Metadata System enables citation in journal papers through the assignment of a Digital Object Identifier (DOI) in collaboration with the British Library and is accessible through <https://data.bas.ac.uk/>.

^{xi} Specific technical criteria are detailed in the document 'CAO Data Submission' and 'PDC Metadata Template'.

Foot notes

- i. NERC Data Policy: online at <http://www.nerc.ac.uk/research/sites/data/policy.asp>. Note that it is a condition of acceptance of NERC funding (and co-funding) that the NERC Data Policy is followed, together with programme-specific aspects detailed here.
- ii. Data: include field-based observations, field experiments, laboratory experiments (using field-based samples), selected model output, data syntheses, data-model syntheses, model codes and information on actual samples. In the event of doubt, the CAO Data Manager ([Joana Beja](#)) should be consulted.
- iii. On acquisition: data are considered to be acquired when definitive values have been established. This may be when observations are directly made (for real-time, underway data) or when samples have been analysed. Whilst some time may be needed for quality control, that period should be as short as possible and within 6 months of the end of a research cruise. This is to ensure that data acquired through CAO support are available to others in the programme within its lifetime.
- iv. Central cruise data: data considered to be of communal use to the cruise. The central cruise data will depend on the main context of research but usually include CTD, vessel-mounted ADCP, and data from the fixed underway sensors (navigation, bathymetry, sea surface hydrography and meteorology).
- v. Anyone is defined as public, including commercial and foreign bodies.
- vi. Open Government Licence: online at <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/2/>.
- vii. BODC and UK PDC Data Licence: The data licence agreement details how the originator of the data should be acknowledged (such as co-authorship) and limitations to the use of the data (e.g. passing onto to third parties). However, NERC cannot guarantee compliance to these conditions.
- viii. Exceptional circumstances are limited to those legally allowed under the Freedom of Information Act, primarily relating to commercial confidentiality, or where personal safety or national security might be compromised.
- ix. Published Data Library enables citation in journal papers through the assignment of a Digital Object Identifier (DOI) in collaboration with the British Library and is accessible through https://www.bodc.ac.uk/data/published_data_library/.
- x. The Discovery Metadata System enables citation in journal papers through the assignment of a Digital Object Identifier (DOI) in collaboration with the British Library and is accessible through <https://data.bas.ac.uk/>.
- xi. Specific technical criteria are detailed in the document 'CAO Data Submission' and 'PDC Metadata Template'.