Minutes Integration Meeting

9 am to ~5 pm, Tuesday 17 April 2018

Radisson Blu Edwardian, Grafton, 130 Tottenham Court Road, London W1T 5AY

Contents

Participants

Present

	Name	*Institution*	*Project/Role*
1	David Thomas	Bangor	Programme Advisory Group Chair
2	Mike Webb	NERC	Head of Research - Marine
3	Jess Surma	NERC	Senior Programme Manager
4	Nicky Lewis	NERC	Programme Manager
5	Lydia Gustavs	BMBF	Project Management Jülich
6	Christin Lambertz	BMBF	Project Management Jülich
7	Kirsty Crocket	St Andrews	Science Coordinator
8	Yevgeny Askenov	NOC	APEAR
9	Sinhue Torres Valdes	AWI	APEAR and PEANUTS
10	Finlo Cottier	SAMS	Arctic PRIZE
11	Sian Henley	Edinburgh	Arctic PRIZE
12	Claire Mahaffey	Liverpool	ARISE
13	Rachel Jeffreys	Liverpool	ARISE
14	Paul James Mann	Northumbria	CACOON
15	Hendrik Grotheer	AWI	CACOON
16	Johan Faust	Leeds	ChAOS
17	Steve Widdicombe	PML	ChAOS
18	Kim Last	SAMS	CHASE
19	Jurgen Groeneveld	Dresden	CHASE
20	Clive Trueman	Southampton	Coldfish
21	Hauke Flores	AWI	Coldfish
22	David Pond	Stirling	DIAPOD
23	Dan Mayor	NOC	DIAPOD
24	Alexandre Anesio	Bristol	Diatom-ARCTIC
25	Marcel Nicolaus	AWI	Diatom-ARCTIC
26	Jeremy Wilkinson	BAS	Eco-Light
27	Giulia Castellani	AWI	Eco-Light
28	Crispin Halsall	Lancaster	EISPAC
29	Tina Sanders	HZG	EISPAC
30	Norman Ratcliffe	BAS	LOMVIA
31	Thomas Larsen	Leibniz Laboratory	LOMVIA
32	Michael Cunliffe	MBA	Micro-Arc
33	Anja Engel	GEOMAR	Micro-Arc
34	Mike Heath	Strathclyde	MiMeMo
35	Ute Daewel	HZG	MiMeMo
36	Yueng-Djern Lenn	Bangor	PEANUTS
37	Andy Rees	PML	PETRA
38	Hermann Bange	GEOMAR	PETRA

Apologies

Uli Wolf, BMBF

Welcome/Introduction

David Thomas, Chair of the Programme Advisory Group, opened the meeting.

Lydia Gustavs, Project Management Jülich, presented an overview of marine research in Germany, with information on structure, budgets and support. A copy of her talk will be available to view in the "Members" area of the CAO website when the start date for the second round projects has been confirmed.

Project presentations

Projects were allocated 5 minutes for presentations and 5 minutes for discussion. Projects were presented in the following order and by the following investigators:

1. DIAPOD – David Pond
2. Eco-Light – Jeremy Wilkinson
3. ChAOS – Steve Widdicombe (for Christian März)
4. LOMVIA – Norman Ratcliffe
5. EISPAC – Crispin Halsall
6. CHASE – Kim Last
7. MiMeMo – Mike Heath
8. PEANUTS – Yueng-Djern Lenn
9. CACOON – Paul James Mann
10. APEAR – Yevgeny Askenov
11. Micro-ARC – Michael Cunliffe
12. PETRA – Andy Rees
13. ARISE – Claire Mahaffey
14. Diatom-ARCTIC – Alex Anesio
15. Coldfish – Clive Trueman (for Nick Polunin)
16. Arctic PRIZE – Finlo Cottier

A common theme amongst the presentations was the offer of collecting or making available samples for other projects, and also requests for specific sample types by some projects. This was discussed during the afternoon session under the heading "Sampling opportunities" (see below).

Copies of all talks will be available to view in the "Members" area of the CAO website when the start date for the second round projects has been confirmed.

Afternoon discussion

New project start dates

The funding from BMBF is likely to be approved late May/early June, with a common start date for the new projects on 1 July 2018. If this is not convenient due to individual project logistics, a delayed start is possible any time up until end December 2018. This deadline reflects the requirement to start the project within the current financial year of both BMBF and NERC.

If a project would benefit from a delayed start date, the UK project leader should inform Nicky Lewis (CAO@NERC.ac.uk) and the German project leader should inform Lydia Gustavs (l.gustavs@fz-juelich.de) as soon as possible with the revised start date. A signed statement will be required from the German project leader.

CAO user groups

To facilitate the exchange of data between projects and cross-project collaboration and integration, and on a similar basis to the existing **"Modelling and Synthesis Group"**, a number

of new user groups were discussed. These will be open to investigators in the programme who have an active interest in the targeted data.

- **"Isotopes"** covering light stable isotopes in various matrices.
- **"Nutrients"** covering organic and inorganic nutrient concentrations. This includes nitrate/nitrite, silicate, phosphate, and ammonia, as well as DON, DOC, TOC, DOP, and DIC.
- **"Microbiomass"** covering chlorophyll-a concentrations, characterisation and species identification, taxonomy and other characteristics of the microbiomass.
- **"Seabed properties"** covering aspects of seafloor sediments and marine geology. Steve Widdicombe and Mike Heath discussed the utility of this group after the Integration Meeting, and are keen to go ahead with it. There are a number of people in several of the projects who would benefit from discussion in this group.
- **"Sea Ice"** to facilitate provision of relevant sea ice data to the projects. Phil Hwang has already made available some measures of ice presence as part of the Integration Data. However, the topic is so fundamental to the whole programme that a discussion platform on Slack would be useful. In addition, the diverse range of sea ice properties would benefit from user group expertise to help deliver relevant data to the projects.

Group organisation is likely to be routed through Slack (www.slack.com). Confirmation of the final list of user groups, instructions on how to join the groups, and their leadership will be confirmed in due course.

Sampling opportunities

A recurrent theme during the individual project presentations was the offer of collecting or making available samples for other projects, and also requests for specific sample types by some projects. This spans stored sample material that an investigator is willing to make available, as well as new sampling opportunities on future cruises.

To summarise the opportunities to gain new sample material and to encourage cross-project collaboration, Kirsty Crocket has set up a Google table called **"CAO: Project collaboration"** that investigators can complete. The link is:

https://tinyurl.com/CAO-collaboration

or

https://docs.google.com/spreadsheets/d/1npA_kt6Qj5Wqi3SFmFWPhzbIBHzef0MDqHnh2ZnhzBY/edit?usp=sharing

To note, the Google table is available to anyone with the link, it can be edited by anyone, and it is not password protected.

Kirsty will also investigate options to represent the sample locations on a map.

The link will be circulated to all in the programme by Kirsty after the start date of the new projects has been confirmed, but please start populating it with your offers/requests for samples as soon as possible.

Data repositories

A few questions were raised about CAO data submission to the data repositories:

1. Are raw data or processed data submitted?
2. If the data sets are very large, should only the metadata be submitted?
3. Where should the UK- and German-based investigators submit their respective datasets, to BODC/PDC or to Pangaea?

Raw or processed data

With reference to the "Data Submission" information on the CAO website (https://www.changing-arctic-ocean.ac.uk/people/data-management/data-submission/), data should be submitted in the final format, without need for further processing, and ready to be analysed. A general guideline is that "data are considered to be acquired when definitive values have been established."

Further description is available on the "Data Submission" page, including cases when it may be appropriate to submit raw data files.

Large datasets

As data can be submitted by email, FTP server or by post on CD, DVD or Zip disk, the size of the dataset shouldn't represent a barrier to submission. Further details are available on "Data Submission" on the CAO website (https://www.changing-arctic-ocean.ac.uk/people/data-management/data-submission/).

Submission of data to BODC or Pangaea

Data from UK-based CAO investigators funded by NERC should be submitted to the British Oceanographic Data Centre (BODC) or the Polar Data Centre (PDC). Data that have been funded by non-UK organisations should sit with that country's designated data centre (e.g. Pangaea in the case of Germany).

BODC and the PDC are the designated data centres for NERC funded data and there is an obligation for the data to be submitted to them. It is not optional. However, BODC is not expecting data originating from CAO investigators based in Germany to be submitted to BODC. The end result will be programme data partly hosted by BODC/PDC and partly hosted by Pangaea.

To note, the alternative is submission of data to both NERC and Pangaea (i.e. doubling of submission), but this is not encouraged as it creates multiple copies of the data in multiple places.

Sharing of data between BODC and Pangaea

There is no agreement in place between BODC and Pangaea to share submitted data across both repositories. Pangaea's work procedures are different from BODC. They have in the past harvested data from other data centres (including BODC). This is not guaranteed to happen for the CAO.

Jo Beja, CAO Data Manager, is in the process of contacting Pangaea about CAO data submission to establish a collaborative approach to ensure that all data submitted to either BODC/PDC or Pangaea are available and users are aware of where they can find the data. She will request a static URL from Pangaea to add to the metadata record (described below) to inform users of all the data sets available and which data centre hosts the data.

Access to CAO data hosted by BODC

The CAO Programme Oceanographic Dataset has metadata records that can be used to check which data types and sets are available, as well as a few other details (https://www.bodc.ac.uk/resources/inventories/edmed/report/6777/). To note, no ingested data are currently available – coming soon.

An expanded Data Policy with specific regard to CAO data access for investigators based in Germany is being worked on. The final Data Policy for the second round projects will be circulated once available.

Full details of the existing CAO Data Policy and the conditions associated with access to the data can be found on the CAO website (https://www.changing-arctic-ocean.ac.uk/people/data-management/data-policy/).

Russian samples

The difficulties in exporting samples from Russia were discussed. To avoid these, one option is to measure the samples while still in Russia and only take the data out of the country, or at least a partially processed and reduced sample size. AWI have a lab in St Petersburg that could be useful for this purpose. Interested parties to enquire with their AWI co-investigators.

Modelling

David Thomas emphasised the importance of the programme developing predictive capability through incorporation of observational data in the modelling and synthesis activities. The programme needs to be able to deliver statements that describe the projections to policy makers. The question to bear in mind are: how confident are the projects are about delivering the end products, and how unified are the modellers in working towards these?

The point was made that investigators need to know what the key questions are from policy makers in order to align integration activities in the programme. It was suggested that speakers linked to internationally relevant Arctic policy be invited to the next Annual Science Meeting (e.g. CAFF). An end-to-end model such as ATLANTIS for the Nordic Seas would be useful to integrate with.