

**From:** Diana.Davies@csiro.au  
**Subject:** Re: Pigment data from AU1306 K-Axis  
**Date:** November 8, 2017 at 19:48

**To:** ltalley@ucsd.edu, nils.haentjens@maine.edu, Karen.Westwood@aad.gov.au  
**Cc:** emmanuel.boss@maine.edu, sescher@ucsd.edu, key@princeton.edu, johnson@mbari.org, Tom.Trull@csiro.au



Hi Nils,

I've copied in Karen Westwood who was on board and collected and organised analysis of pigments. I should explain that we both had our own programs, that the samples were not collected as dedicated samples for the SOCCOM floats but that we are both providing subsamples from our data sets to support the floats. The data sets will eventually be published as part of the k-axis effort. In the case of the POC analysis, it is a little different to usual and developed for k-axis and HEOBI.

The POC/PN/BSi collection for analysis:

- The decarbonated encapsulated POC samples were analysed by elemental analysis at the CSL UTAS by Dr Thomas Rodemann (EA TCD 960C, single point standardisation every 12 samples)
- The air dried filters (60C) were analysed on 30/6/2016 for CTD4 and 6, 11/7/2016 for CTD 44
- Protocol will be published. Clean transfer from the Niskins (<210um to remove zooplankton) to a closed dedicated filtration rig ( a) total POC and a separate filter for (b) POC<20um. 20% of the filter area was removed for biogenic silica digest.
- Sterlitech 1.2um silver membrane filters 1.2um, 13mm diameter.
- EA detection limit 0.001umol POC
- Volume filtered varied from 1L to 2L, the choice being dependent on CTD transmissometer and underway CO2 data to achieve maximum loading without blockage.
- No capacity for replication
- Blanks were process blanks (seawater) and 7% of the average for the combined data n=177. 1sd=0.12uM

Cheers Di

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**From:** Lynne Talley <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)>  
**Date:** Thursday, 9 November 2017 at 5:03 am  
**To:** Nils Haëntjens <[nils.haentjens@maine.edu](mailto:nils.haentjens@maine.edu)>  
**Cc:** Lynne Talley <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)>, Emmanuel Boss <[emmanuel.boss@maine.edu](mailto:emmanuel.boss@maine.edu)>, Sharon escher <[sescher@ucsd.edu](mailto:sescher@ucsd.edu)>, Robert Key <[key@princeton.edu](mailto:key@princeton.edu)>, Ken Johnson <[johnson@mbari.org](mailto:johnson@mbari.org)>, Diana Davies <[diana.davies@csiro.au](mailto:diana.davies@csiro.au)>  
**Subject:** Re: Pigment data from AU1306 K-Axis

Hi Nils,  
Thanks on this.

Diana Davies provided the data set, and looked at all of the logistics really carefully to figure it out over the last couple of weeks, so I think she would have access to the information you are looking for. I'm copying her here.

Lynne

On Nov 8, 2017, at 2:02 AM, Nils Haëntjens <[nils.haentjens@maine.edu](mailto:nils.haentjens@maine.edu)> wrote:

Hi Lynne,

Thank you for the dataset, I can submit Total Chlorophyll a and POC to SeaBASS for SOCCOM. Those are the two measurements I use to calibrate the optical sensor on the float. However, having all the pigments of the HPLC analysis can be really interesting, as the current dataset in the SO is limited.

In order to submit the data to SeaBASS I need a few things (see list below), do you know who should I contact to get the answers ?

For both HPLC and POC analysis:

- Analysis Lab and Operator
- Date of analysis
- Protocol followed
- Filter type
- Detection limits
- Volume filtered
- If there is replicates

For HPLC, if dry blanks are performed and are below detection limits.

For POC, if Wet blank or dry blank were collected

Thank you,  
Best,  
Nils

On Nov 6, 2017, at 10:45, Lynne Talley <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

Hi Emmanuel,

Here's a data set from Australia CSIRO.

I am pretty confused about HPLC and chl<sub>a</sub>. The previous message from Diana said that they had not been able to analyze something from the HPLC because of funding. but this does provide some information.

Can you have a look and see if this is what you need, or if we should ask them to do further analysis (which we have offered to pay for somehow)

Lynne

Begin forwarded message:

**From:** <[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)>

**Subject: Re: Pigment data from AU1306 K-Axis**

**Date:** November 3, 2017 at 1:01:41 AM PDT

**To:** <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)>

**Cc:** <[Tom.Trull@csiro.au](mailto:Tom.Trull@csiro.au)>, <[sescher@ucsd.edu](mailto:sescher@ucsd.edu)>

**Resent-From:** <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)>

Hi Lynne,

I have attached the data that we have. Note that the chla is by HPLC. Pigments have been processed to completion for CTD5 (closest to the float drop position) but not CTD44 which had been run but the data is waiting for processing. I've included chla for CTD3,4,5,6 because of the misdirection caused by the waypoint number early in the cruise and the problems of putting together a complete nutrient profile (thanks for letting me know Sharon). There is now a new version of the nutrients issued as of 8th September 2017. Mark Rosenberg has worked through the files and reissued flags. In looking through the nutrient data it seems more complete with good data for station 4 which is why I have included CTD4.

CTD44: I organised/sampled the CO2 profile and the POC and the information is consistent with my notes. The float deployment was done before we left station.

Hope this helps, Cheers Di

On 3/11/17, 1:34 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

wonderful - let me know if there is a way that I can help. We are shipping floats for the SR3 cruise of Steve Rintoul's. If it's difficult for us to transfer funds, perhaps there is equipment that we can donate in kind.

How much do you think it would be?

Lynne

On Nov 1, 2017, at 11:50 PM, <[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)>  
<[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)> wrote:

Hi Lynne, I've got to extract a bit more information and will send you what I have tomorrow. The pigments have been run, it's finding some money for someone to extract the data from the chromatograms that is the stumbling block. Cheers Di

On 2/11/17, 4:58 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

Hi Di,  
Tom and I discussed having the HPLC run quite a few times over several years, and that I could pay, but we never got into the details of how we would do that. We definitely do need/want the data. HPLC has been the most valuable of all of the SOCCOM shipboard data sets for QC/calibration/validation and we are eager to expand the data set as much as possible.

Alternatively if the samples are well preserved and could be shipped to us (which we would pay for of course, but it might involve logistics such as our getting a dry shipper to you first), we could have them run at

NΔSΔ

FROM:

thanks - Lynne

On Nov 1, 2017, at 10:46 PM, <[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)>  
<[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)> wrote:

All I have is Chla total and Chla<20um. I think one station has been run for pigments and I don't have that data. There has been some discussion recently about funding the remaining analyses. Happy to go with just the chlorophyll?

On 2/11/17, 4:39 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

OK - thanks very much -  
Do you also have HPLC data in addition to POC data?  
Lynne

On Nov 1, 2017, at 10:34 PM, <[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)>  
<[Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au)> wrote:

Hi Lynne,

It was the incorrect reporting of wp207, which has been associated with CTD03, as the deployment position instead of CTD05 which is the correct position. It was early in the cruise and chaotic. I am digging out the closest POC station. We had a limits on the number of samples we could take and the float deployment happened without announcement.

Cheers Di

On 2/11/17, 4:13 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

Hi Di,  
On this table  
[http://socom.ucsd.edu/floats/SOCCOM\\_data\\_ref.html](http://socom.ucsd.edu/floats/SOCCOM_data_ref.html)  
the droplat and droplong were positions from the float's first profile, which occurs after a test profile and then about 24 hours later, so it would not exactly match the ship position at the time of deployment of the float.

Kaxis 5,3 1 20160123 1416 -62.9980 93.5617 20160123  
1803  
-62.9833 93.6417 'wp0207'

Kaxis 44 1 20160214 2015 -61.8297 74.1058 20160215  
0140  
-61.8133 74.1733 'wp0906'

I think I see why you are confused - I am too. The first one should be Kaxis 5, and I'm checking on why we had a ',3' listed there. From my notes it looks like I made a mistake, partially corrected it to be 'station 5', but didn't have the '3' removed.  
Lynne

On Nov 1, 2017, at 8:29 PM, [Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au) wrote:

Hi Lynne,

Im trying to clear up some confusion as to CTD station vs actual drop position for the SOCCOM floats, k-axis. Can you confirm or otherwise that the dropLAT and dropLONG in the SOCCOM data reference table was transmitted by the float.

Thanks Di

On 2/11/17, 12:02 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

thanks very much Diana - Lynne

On Nov 1, 2017, at 3:59 PM, [Diana.Davies@csiro.au](mailto:Diana.Davies@csiro.au) wrote:

Hi Lynne, putting together what we have today. Cheers Di

On 1/11/17, 5:52 pm, "Lynne Talley" <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

Hi Tom,  
I should have included this with the IN2016\_V01 question:

Have the pigment samples from AU1306 (K-Axis) been run?

Thanks,  
Lynne

On Oct 31, 2017, at 11:45 PM, Lynne Talley <[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)> wrote:

Hi Tom,  
We are going through cruise data for SOCCOM float stations.

Have the HPLC (pigment) samples from IN2016\_V01 been run?

Pete Strutton indicated that IN2016\_V02 samples have gone astray,  
so  
we  
won't be asking about them further.

Thanks very much - Lynne

On May 10, 2017, at 10:05 PM, [Tom.Trull@csiro.au](mailto:Tom.Trull@csiro.au) wrote:

Hi Lynne,  
Replies to specific issues in CAPITALS below.  
Tom

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1. LT: According to our records, our floats were at stations  
2,  
4,  
and  
6, so we still need the POC from station 6?  
TT: AS STATED IN NOTES IN FILE I SENT YOU, WHILE CTD 6  
WAS  
CLOSER  
IN  
TIME TO THIS SOCCOM DEPLOYMENT, THE SAMPLES WERE  
TAKEN FROM  
CTD 5  
DONE  
FARI IFR AT THE SAME STATION

I CAN'T REMEMBER WHY THIS HAPPENED, BUT MY RECORDS SAY THAT THIS IS WHAT HAPPENED. SO NO FURTHER DATA WILL BE SENT TO YOU.

2. LT For pigment samples (HPLC), yes, it would be great if you could run them from those 3 stations.

TT: OKAY, WE WILL PROCEED ON THE BASIS THAT AT SOME POINT YOU WILL REIMBURSE US FOR THOSE ADDITIONAL COSTS, AND GET THEM INTO THE QUEUE IN LESLEY CLEMENTSON'S LAB AT CSIRO.

3. IN2016\_v02 (Strutton cruise)

PETE'S TEAM DID THEIR OWN POC AND PIGMENT SAMPLING - BEST TO ASK HIM DIRECTLY FOR DETAILS AND RESULTS. I COPIED HIM ON THIS MESSAGE TO GET THAT DISCUSSION STARTED.

4. KAxis on the Aurora Australis (Constable cruise)?

DIANA DAVIES AND I ARE WILLING TO ROUND UP THESE RESULTS. DIANA DAVIES DID THE POC SAMPLING AND ANALYSES USING SAME PROTOCOLS AS FOR IN2016\_V01 HEOBI - and we don't need to charge you. DIANA ALSO DID THE SAMPLING FOR DIC/ALK ANALYSED BY BRONTE TILBROOK'S TEAM - AND WILL SEEK DATA FROM THEM. PIGMENTS WERE SAMPLED BY KAREN WESTWOOD FOR ANALYSIS AT AAD. WE DON'T KNOW STATUS OF THOSE SAMPLES, BUT WE'LL FIND OUT. SO, WE'LL GET BACK TO YOU WITH DATA FROM THIS VOYAGE. !!!!!!!!! IT WILL HELP US TO DO THIS IF YOU CAN SEND THE LOCATIONS WHERE YOUR FLOATS WERE DEPLOYED ON THIS VOYAGE !!!!!!!!!

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If all of these samples were to be run at the same lab, it might be most efficient to run at the same time and make a single payment?  
THESE ARE DIFFERENT LABS.

Before doing anything, we should first figure out a way to pay for the samples.  
I'll check with my business office about how we might best transfer funds.

Lynne

On May 9, 2017, at 11:56 PM, [tom.trull@csiro.au](mailto:tom.trull@csiro.au) wrote:

Lynne, Isa,  
Data are attached.  
Note that there are 8 more SOCCOM related samples that could still be run for pigments. They are stored in liquid nitrogen. Pigment samples here cost ~A\$130 (US\$100). Let us know if you want to fund running them.  
[We have run out of \$ in the HEOBI project, and have a total of 62 samples of our own matched with Bozena's BO-PAK deployments for which we are still seeking funds.]  
Other questions? - fire away....  
Tom  
p.s. Isa, I assume you have CTD and hydrochem data for these already  
but if not let us know



- but if not let us know.

<IN2016\_V01\_SOCCOM\_POC&Pigments.xlsx>

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9500 Gilman Dr. Email: ltalley at [ucsd.edu](http://ucsd.edu)  
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Delivery address (FedEx, DHL, UPS, etc)  
8810 Shellback Way, Nierenberg Hall Room 307, La Jolla, CA  
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<k\_axis\_soccom\_chla\_POC.xlsx>

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