From: Sallee, Jean-Baptiste B.
To: Wallace, Margaret I.
Subject: RE : JC054 and JR276 CTD data
Date: 12 August 2011 11:55:51

Mags,

see my responses below.

Best,
JB

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De : Wallace, Margaret I.
Date d'envoi : vendredi 12 août 2011 11:35
À : Sallee, Jean-Baptiste B.
Objet : RE: JC054 and JR276 CTD data

Dear JB

Thank you for the JC054 bottle files, I downloaded them from the ftp site ok. Can you just let me know when the JR276 files become available? Can you also provide the _ctma.cnv files for JR276? We don't normally receive a post-cruise archive from JCR cruises so don't have a copy of the auxiliary sensor data.

>>>> I will try to investigate, but I am not sure when it will be available (I am not sure who was in charge of backup etc)

I notice that cast 7 has been excluded from the JC054 data file and the cruise report states that this station was aborted. However, there is still a bottle file for the station. Did you just discard the CTD cast in this case? Presumably the same is true for JR276 stations 2 and 16 as I see that your report states that those casts were aborted?

>>>> yes there is a bottle file. It's been automatically generated, but should not exist.

I see in the JR276 report that there were problems with an offset between 'sensor 1' and the bottle sals so 'sensor 2' was used. Does this mean that the salinity data in the matlab files are derived from the secondary temp and cond sensors rather than the primary sensors? Are the temp/potemp data from the secondary sensor? I take it from your comment below about JC054 'best sensor' being sensor 1 that the temp and salin data for that cruise are from temp1 and cond1, correct?

>>>> in the matlab file there is only "good and calibrated data". That means that for JC054 there is only data from sensor 1; and for JR276 only data from sensor 2.

A quick aside, the 'Comments on CTD bottle firing' section of your JR276 refers to JC054 rather than JR276.

>>>> oooups. A copy/paste a bit too quick... I'll try to correct before the final version.

I think that should be all! Thanks so much for your help and quick responses.

Cheers, Mags

-----Original Message-----
From: Sallee, Jean-Baptiste B.
Sent: 11 August 2011 10:39
To: Wallace, Margaret I.
Subject: RE : JC054 and JR276 CTD data

Dear Mags,

1) When I said JC046 I meant JR276. Sorry, I am getting loast with these numbers (I was in charge of JC054 and JR276, and have no idea what have been done for other cruises)

2) The CTD cruise report for JR276 is attached.

3) The cnv files to use for auxiliary sensors are the JC054###_ctma.cnv They are the most processed data (for auxiliary sensors).

4) There is a station list in the JR276 cruise report with station number.

5) I put bottle data files on BAS ftp: ftp://ftp.nerc-bas.ac.uk/jbsall/DIMES_bottle/
There is one file (netcdf) per station.

Variables are:
double pad_variable(n_unity) ; not used
double sampnum(nrows1, ncols1) ; sample number (one unique number per cruise)
double statnum(nrows1, ncols1); station number
double position(nrows1, ncols1) ; position of the bottle on the rosette
double time(nrows1, ncols1) ; time at which bottle has been fired (in second after the "data_time_origin" defined in global attributes)
double wireout(nrows1, ncols1) ; length of cable out when the bottle has been fired in meter
double bottle_number(nrows1, ncols1) ; bottle number
double bottle_qc_flag(nrows1, ncols1) ; bottle number flag (WOCE QC)
double botpsal(nrows1, ncols1) ; practical salinity in the bottle (from salinometer)
double botpsalflag(nrows1, ncols1) ; practical salinity flag (WOCE QC)
double botoxy_per_l(nrows1, ncols1) ; oxygen in the bottle --- not analysed in this cruise --- field not used
double botoxy(nrows1, ncols1) ; oxygen in the bottle --- not analysed in this cruise --- field not used
double botoxyflag(nrows1, ncols1) ; flag oxygen in the bottle --- not analysed in this cruise --- field not used
double botoxytemp(nrows1, ncols1) ; temperature associated with oxygen in the bottle --- not analysed in this cruise --- field not used
double botoxyden(nrows1, ncols1) ; density associated with oxygen in the bottle --- not analysed in this cruise --- field not used
double upress(nrows1, ncols1) ; Pressure from SBE sensor when the bottle has been fired (dba)
double utemp(nrows1, ncols1) ; in situ Temperature from SBE "best" sensor when the bottle has been fired (degree C) -- for JC054 "best sensor" was sensor number 1 for the entire cruise (see cruise report)
double utemp1(nrows1, ncols1) ; in situ Temperature from SBE sensor number 1 when the bottle has been fired (degree C)
double utemp2(nrows1, ncols1) ; in situ Temperature from SBE sensor number 2 when the bottle has been fired (degree C)
double upsal(nrows1, ncols1) ; practical salinity from SBE "best" sensor when the bottle has been fired -- for JC054 "best sensor" was sensor number 1 for the entire cruise (see cruise report)
double upsal1(nrows1, ncols1) ; practical salinity from SBE sensor number 1 when the bottle has been fired
double upsal2(nrows1, ncols1) ; practical salinity from SBE sensor number 2 when the bottle has been fired
double upotemp(nrows1, ncols1) ; potential temperature from SBE "best" sensors (and sw_ptemp) when the bottle has been fired (degree C) -- for JC054 "best sensor" was sensor number 1 for the entire cruise (see cruise report)

double upotemp1(nrows1, ncols1) ; potential temperature from SBE sensors number 1 (and sw_ptemp) when the bottle has been fired (degree C)
double upotemp2(nrows1, ncols1) ; potential temperature from SBE sensors number 2 (and sw_ptemp) when the bottle has been fired (degree C)
double uoxygen(nrows1, ncols1) ; oxygen from SBE sensors when the bottle has been fired (umol/kg)
double cfc13(nrows1, ncols1) ; CFC13 in the bottle analysed by tracer team (fmol/l)

double cfc13_flag(nrows1, ncols1) ; CFC13 flag (WOCE flag)
double cfc12(nrows1, ncols1) ; CFC12 in the bottle analysed by tracer team (fmol/l)
double cfc12_flag(nrows1, ncols1) ; CFC12 flag (WOCE flag)
double sf6(nrows1, ncols1) ; SF6 in the bottle analysed by tracer team (fmol/l)
double sf6_flag(nrows1, ncols1) ; SF6 flag (WOCE flag)
double sf5cf3(nrows1, ncols1) ; SF5CF3 in the bottle analysed by tracer team (fmol/l)
double sf5cf3_flag(nrows1, ncols1) ; SF5CF3 flag (WOCE flag)

Cheers,
JB

De : Wallace, Margaret I.
Date d'envoi : jeudi 11 août 2011 09:42
À : Sallee, Jean-Baptiste B.
Objet : RE: JC054 and JR276 CTD data

Hi Jean-Baptiste

I've had a proper look through this now. Thank you very much for such a clear explanation of the file contents! Thank you also for your additional comments on the JC041 data.

Regarding the auxiliary sensors, even if they haven't been processed we would still like to store the data with the rest of the DIMES project datasets. We have copies of cnv files for all 55 casts in the post-cruise archive. These are labelled JC054### (###=001, 002 etc) and the extensions are .cnv, _ctm.cnv and _ctma.cnv. The _ctma.cnv files seem to be the most recent, and these do contain auxiliary sensor data (from the cruise report it looks like these have had the data conversion, alignment and cell thermal mass correction applied, correct?). Further processing described in the cruise report refers to mstar - am I correct in assuming that the auxiliary data wouldn't have been included in this processing? If so, there is no need for you to send other copies of the files as it looks like we have the 'most processed' versions of the auxiliary data anyway.

Are there salinity calibration sample data available for JC054 and JR276? I appreciate these may not have been used but we would still like to store them here to make sure our DIMES dataset is as complete as possible. If there are SBE35 data from either cruise then can you please also submit those? Your email states that 'JC046' data have been calibrated. Can you clarify whether you meant JC041 or JR276?

Finally, is there any record of station number anywhere other than the respective cruise reports? We need to assign an 'originator identifier' to each profile, which is normally station number for CTDs. We have the JC054 cruise report so can use Table 4.1 to match station to lat/lon in the data files you provided. However, we haven't received the JR276 cruise report as yet, so have no way of matching station numbers to the data. Do you have a list of this information? If so, I would be grateful if you could forward it to me (a copy of the cruise event log should be fine). Also, if there is a 'CTD processing' section of the JR276 cruise report available, could you please send that on? Then we can start ingesting the data into our system, even if we don't have the full cruise report.

Thank you very much for your help.

Best wishes,
Mags

-----Original Message-----
From: Sallee, Jean-Baptiste B.
Sent: 08 August 2011 10:13
To: Wallace, Margaret I.
Subject: RE : JC054 and JR276 CTD data

Dear Mags,

it was indeed good to meet you and see your talk in Cambridge. Sorry for the late reply. Here is a detailed description of the fields of the matrices I provided to Katy.
First a small clarification: I was in charge of the hydrography data (lead on the ship and post-cruise calibration) for JC054 (i.e. DIMES UK2) and JR276 (i.e. DIMES UK2.5). From these two cruises I produced the two files UK2_Sections.mat and UK25_Sections.mat. I know exactly what was done to these data (because I did it) and the entire calibration procedure is explain in the two cruise reports. In order to have comparable data format for different DIMES cruise, I also produce the file DIMES_hydrography_us1_uk1_uk2_uk25.mat, which is a concatenation of the 4 cruises: US1, UK1, UK2, UK2.5. The data for UK2 and UK2.5 are exactly the same as in UK2_Sections.mat and UK25_Sections.mat (although some variable are not present, e.g. pdens0, etc.). The data for US1 and UK1 have been obtained respectively on the US DIMES website and from Peggy Courtois. I do not know what calibrations have been applied for these cruises. I only wanted to have a common format but could not reprocess everything. If you want details about the calibration of UK1 and US1, I would recommend to contact Alberto and Jim to ask who was in charge.

Now, for the file content:

UK2_Sections.mat contains 4 structures S0, S1, S2, and Grid, which correspond to the four sections done during the cruise. I divided the profiles in these four structure to ease the analysis (e.g. easier to plot) but each of these structures contains profiles from the same cruise and have been treated exactly the same way (see cruise report).
Similarly UK25_Sections.mat contains structures S3 and SR1 corresponding to the two section done in UK2.5, which comprise the same variables.

Each of the structure contains the following variables:
time = averaged time at which the profile has been sampled, in julian day reference to Jan-1-0000 (time=1 correspond to Jan-1-0000).
press = pressure in dbar from SBE35
lon = averaged longitude where the profile has been sampled, in degree east.
lat = averaged latitude where the profile has been sampled, in degree north.
psal = practical salinity from SBE35 (calibrated against bottle salinity) ptemp = potential temperature in degree C reference to ocean surface computed from calibrated temperature, pressure and salinity (originally from SBE35) using sw_ptmp.m (UNESCO, 1983) pdens0 = potential density reference to ocean surface computed from calibrated temperature, pressure and salinity (originally from SBE35) using sw_pden.m gamma = neutral density computed from calibrated temperature, pressure and salinity (originally from SBE35) using the Fortran/matlab routine gamma_n.m provided by Trevor McDougall and David Jackett (see: http://www.marine.csiro.au/~jackett/NeutralDensity/)

DIMES_hydrography_us1_uk1_uk2_uk25.mat contains structures UK1, UK2, UK25 and US1, which correspond to the profiles of the four DIMES cruises UK1, UK2, UK2.5, US1.
Each of the structure contains the following variables:
temperature = temperature in degree C
salinity = practical salinity
pressure = pressure in dbar
longitude = averaged longitude where the profile has been sampled, in degree east.
latitude = averaged latitude where the profile has been sampled, in degree north.
time = averaged time at which the profile has been sampled, in julian day reference to Jan-1-0000 (time=1 correspond to Jan-1-0000).

Data from JC054 and JC046 have been calibrated against bottle data. However, for JC054, no correction have been applied because no correction was needed, as said in the cruise report. But they are calibrated.
Auxiliary sensors have not been processed. Because of the work done for the tracer, we chose to not sample for oxygen, for instance. I can provide you with other data, e.g. oxygen but these data

are not usable.
Please let me know if you need any other info.

Cheers,
JB

De : Wallace, Margaret I.
Date d'envoi : mardi 2 août 2011 10:23
À : Sallee, Jean-Baptiste B.
Objet : JC054 and JR276 CTD data

Dear Jean-Baptiste

It was nice to meet you at the DIMES meeting the other week. As I mentioned in Cambridge, I've received the CTD data from Katy Sheen. Can you please clarify the file contents for me when you get the chance? I've listed the files and variables below, so would be grateful if you could provide brief definitions of the form 'temp = temperature in degC, calibrated against SBE35 thermometer', 'pdens0 = potential density in kg/m^3, derived from calibrated temperature and salinity using sw_pden' etc. I'm afraid we do require you to state the glaringly obvious as it ensures that we don't make any incorrect assumptions. Can you please also provide detail of the processing? If it is all explained in the cruise report and no additional processing was undertaken then please let me know and we will refer to the report for our documentation.

UK2_Sections.mat
Contains structures S0, S1, S2 and Grid, each of which contains the following variables:
time
press
lon
lat
psal
ptemp
pdens0
gamma

UK25_Sections.mat contains structures S3 and SR1 which comprise the same variables.

DIMES_hydrography_us1_uk1_uk2_uk25.mat contains structures UK1, UK2, UK25 and US1, each containing variables:
temperature
salinity
pressure
longitude
latitude
time

How does this file relate to the individual cruise files? It looks like the structures in this file are concatenations of the various sections from each cruise, but it contains temp while the individual cruise files above (UK2_Sections and UK25_Sections) contain potemp, pdens etc. Is that correct?

Station numbers are listed in the cruise report but are missing from the data files. Is this information stored anywhere or do we need to match up stations with data using times and

positions recorded in the cruise report? Table 4.1 contains this info for JC054 but we don't currently have such information for JR276, so if you have access to that information I would be grateful if you could send it on.

I gather from the cruise report that the JC054 data at least were not calibrated against salinity samples. However, if those sample data are available, we can archive them at BODC too. As yet, I we haven't seen the JR276 cruise report so I don't know what processing was applied to those data, but if you have that information (and any bottle samples) can you please send it on to me?

Finally, I also see from the JC054 cruise report that auxiliary sensors were deployed on the CTD. Were these data processed at all/is there any intention to process them? Do you know anything about auxiliary sensors from JR276?

Thank you very much in advance for your help and please don't hesitate to get in touch if you have any questions.

Best wishes,
Mags