SBE9PLUS 941

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Fisheries and Oceans Canada

IOS Arctic Research

9860 West Saanich Road, Sidney, BC V8L 4B2

Date

Date

~~2019-06-03.~~

2019-01-30

receive sensors back from Seabird
RMA 100550640I

2019-06-03

clean connectors on JB.
re goop #10 screws on TE/pair.
re-fill P tube with mineral oil

	T	C	P	SBE43	SCF
1°	5048	3579	55043	1117	—
2°	5073	3581	55248	—	3575

~~Kept~~ Cleaned and greased connector
Replaced DO hose clamp HAS 96 only
SCF is A620b/A630b with 3X gain
cable (also A620b).

2019

Date 4 June 2019

SWL PC is new one for this year.
It is running Windows 10
Running Seasave on bench gives
"RS232 communications timeout"
after running well for ~5 min (17000 scans)

Possible problems: cables
LAVA card - I COM4+5 not working properly w/ Win 10
GPS puck - currently we left the "power management" tab on device manager > Ports > Prolific USB all checked but this would allow computer to power down device...

1) cable1 Solo serial w/ null modem adapter CTD → com 4 on Lava card
cable2 ~~Modem~~ using "cable bundle to COM1 on PC
GPS puck to USB ~~com~~ "com 8"
gave "RS232 comm time. timeout" @ ~17,000 scans
2) cable3 Solo serial cable to "com 9" (STARTECH USB → 2x serial cable)

Date

swapped serial to COM4 TOK
20 mins.

Open voltages

V0	0.0000	V4	0.0000
V1	0.0000	V5	0.0000
V2	0.0000	V6	0.0000
V3	0.0000	V7	0.0000

with TT2 plugged in and SCF
V0 0.061
V1 0.0269

Kimwipe SCF 3575 on V0
V0 0.5018 FS @ 3x gain.
V1 0.0268

Xmiss Ø1 V1
V1 4.8462 light 0.0012 dark
92.7804% 0.0008 %
new Calc 19.072 -0.023
old 19.145 -0.046
with new Cal
V1 4.8498 92.47% light
0.0012 0.0003% TOK.

SBE43 1117
V2 2.674V 5.92 ml/l 102% sat in tube
tube off V: 2.6996 103.5 %

Date

check Cal.
Cal OK.
seems to read high
Atm 103.9%

Altimer 40853
V3 = 4.917

PAR QSP 2300 70123
V4 0.0049 1.0E-12 dark
2.3563 2.053 E1

Rinko V6 test with 370 (ARB).
Optode V7 016.

V6 1.2943 set Upoly to
V7 1.6239 slope 1.0 B = ∅

Optode calculations

160 µM = 1V
1 mg/mL = 31.25 µM
$1V = \frac{160}{31.25} = 5.12$ mg/L

now 1.5885 V = 8.12 mg/L

if 10 ml/L ≃ 13.3 mg/L

Date

new $A1 = \frac{5.12}{1.33} = 3.850$

✱ Optode set up to display mL/L but does not have corrections for ρ or S.
use raw voltage and calculate ✱

(confirm setup) ✓V∅ SCF 3575 ✓V4 PAR 70123
✓V1 XMISS 1666 V5 Free
(can't see) → V2 SBE43 1117 V6 Rinko ✓0370
✓V3 Altimeter 40853 V7 Optode 016 (can't see)

Removed SCF 3575 for cal
~~Removed Rinko 370 - will replace~~
~~with~~ Use Rinko 370 (Polar) for 2019-86.

2019-06-05
replace 25-9 serial cable
use startech 2 ser - USB Ports 9 & 10
T OK

2019-06-06
#88 Replace hose clamps on pumps
replaced impellor bushings + orings on pumps

tested pumps + nylon T OK

Date

mounted Optode under CTD on 2° side and Rinko under CTD on 1° side.

2019 - 06 - 19

CTD SBE 911 installed in SWL Rosette along w Aux sensors

V1 ✓ 1) Xmiss 1666
V3 ✓ 2) Alt 40853
V0 V4 ✓ 3) PAR QSP 2300-70123
V ~~[illegible]~~ V2 ✓ 4) FIR 3575 w 3X Gain

CTD oriented Pumps up with instake Near Bottle 1

2019-06-21 SZ on board SWL test on deck - all good except no SPAR.

D/U SBE11 SN 800

Pylon SN

June 24 - FROSTI SPAR also didn't work... but then realized con file did NOT have SPAR checked and this turns interface off so no LED display on thumbwheel #9 of

Date

deck unit.

Easy fix :). Modify con, save setting + all good.

SPAR 20281 now installed on top of box on deck above CTD winch (Bridge deck), behind stack so slight obstruction ... 300° to 30° ?

Real con file from Mike still needs to be set

26 June 2019 CTD doesn't talk through cable, (chenter only).

Termination cable o_1 o_2 — Sea cable — pins: o B, o A

CTD

Slip ring deck cable — 300 Ω signal so set to 2000

test 1: Power up DU w/ sea cable attached and put multimeter into termination ends 1,2 Multimeter set to 200 V. No signal

Date

1, 4 249 V DC
+ -

winch

Test 2 @ connection of deck cable to winch
Power on D.U. and @ end of deck cable see 249 V DC between sockets 1 and 4, where 1 is positive and 4 is negative.

So although ~~sea~~ deck cable @ winch had a cut to the rubber sheath, the ~~wi~~ wires looked fine. Lorey tapped it back up.

Test 3 Connectivity btw termination & connector on winch (ie where deck cable attaches)
Multimeter on 2000 Ω setting since cable resistance will be ~ 300 Ω
No connection btw any configuration...

Termination to outside of sea cable -
NO connection

Which connector does have connection btw outside of sea cable and pin 4.

CTD 1 = ground
2 = signal

Underwater cable
1 = white GROUND
2 = black

Soldering iron

Lanyards need restocking
#7

Date

So looks like something is amiss with the black cable since (it looks like shield was tied to ground (pin 4) @ the termination, but no connection to the end of the cable 2m later...

Electrical termination remade. Enough length on wire + black cable to reuse. All OK now.
- EXCEPT -
; SPAR ;. SPAR is reading Ø.

Rosette: 3 niskins had lanyards caught ~~in~~ under hoseclamps holding bottles to frame. Fixed.

Note - ADCP + SPAR cable coming in through CTD lab ~~A~~ window (to Rosette deck) Senior says we have permission ~~for~~ to do this.

NP 9 ~~an~~ lanyard unkno
NP2 12 maybe leaking; 16 lanyard released

5 July 52: Finally went through + confirmed all lanyards were attached at bottom endcap w/ latch facing the center. Had to adjust a few.

2 studding Nisklin 15 was closed but NOT fixed?

Date

+0.5 db offset - will update con file (SU)
(but haven't done yet)

6 July 2019 Cast/Event NP 3, 4, 5
10, 13, 18

Last 3 casts we only tripped 14 Niskins but Niskin #15 has been coming up closed.

Confirmed on deck that command to trip #14 closes #14+15
AND command to close #15 also closes the pair. So, ~~the~~ sending command to trip either one will close both.

See form 2018 rosette sheets that we will never need to close all 24 bottles so will leave pylon in place & work around this issue.

If time we will swap trigger heads to confirm trouble is in the pylon.

Summary of tests so far:

Date

And we have been looking at data (oxy t^{emp}, oxy) to confirm data 1-14 niskins look good and on cast 18 NP05 we tripped 16-24 @ surface and visually confirmed all was good. On deck we tripped bottles 1→24 Feeling for multiple trigger releases and did the same for #24→1.

~~CONFIRMED CROWN w/ Trigger~~ ↓ is also #452

Current pylon is SN # 452 based on packing notes.

Instruments: T C
Pumps: 1° 55043 w/O_2 3048 can't see 3579
2° 55248 w/flr 3073 can't see 3581

Deck Unit 11P53201-0800
SPAR SN 20281 w/ Frosti cable

CTD sensors as listed on pg 51 though can't visually see SBE 43 SN OR OPTODE #

Niskin 14 has chipped bottom of Lid ? Did not dry fire?

Date

10 July 2019 - coming into Dutch Harbor

PYLON PROBLEM.

Took of pylon trigger head (crown) and confirmed w/ out head that solonoids for 14+15 both activate (become strongly magnetic) when either 14 or 15 is fired.
Cleaned CROWN w/ Triton-X + hot water.

Cable has been well greased and trigger head felt a bit tacky but no grease balls. All triggers were releasing freely when CROWN held upside down even before cleaning.

Went through CON File - Found that 0.2°C diff btw. T1 + T2 due to rounded off coefficients. Put in full coeff and T1 + T2 agree w/in 0.001°C

Also changed SPAR units to μEin/m²sec to stay consistant w/ prior years + match PAR

Now file SBE9_941_SWL_V2019-07-10

Par: μEinstein/m² · sec
SPAR: Δ to μE/m² · sec
Optode User:
160 μM = 1V
1 mg/mL = 31.25 μM
1V = 160/31.25 mg/L ?

now 1.5885 V = 8.12 mg/L
User set to give approximate mL/L NOT real data!

Date

Niskins bottoms have chips -

1 - very small
2 - yes
3 - yes — Tends to drip, usually after opened top valve
4 - very small
5 - yes
6 - yes
7 - yes
8 - yes
12 - small
14 - big! — Big leaker usually
18 - small

This program tends to use just first 12 bottles so can jump/skip Niskins as needed.

- END of Lg 1

22 July 2019

Removal
- Oxygen Rinko
- " Optode
Put little tube on to SBE-43 oxygen sensor

Removed SPAR sensor.