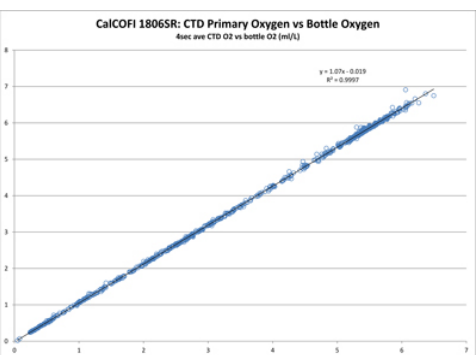
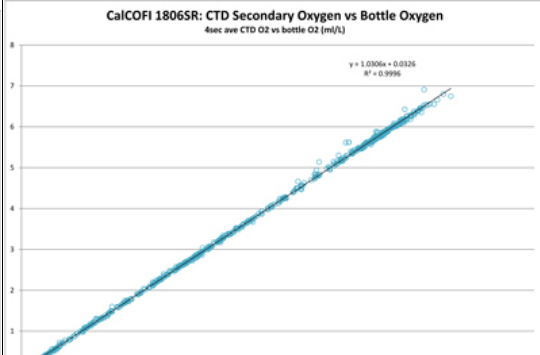
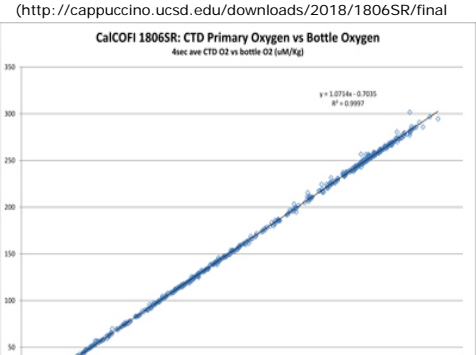
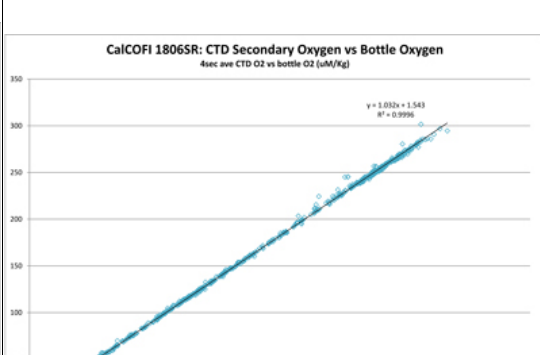
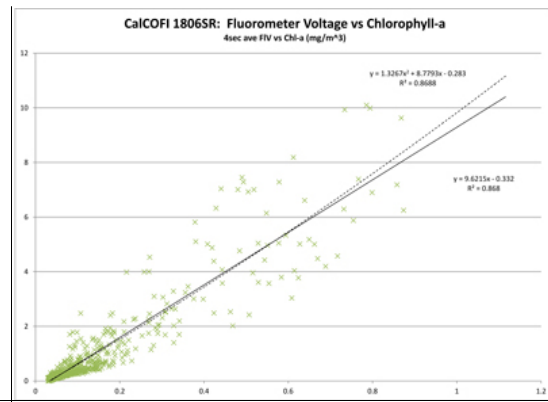


1806SR CTD Processing Summary

Parent Category: 2018 Cruises (/cruises/2018-cruises.html)
Category: CalCOFI 1806SR (/cruises/2018-cruises/calcofi-1806sr.html)
C Last Updated: 26 June 2019

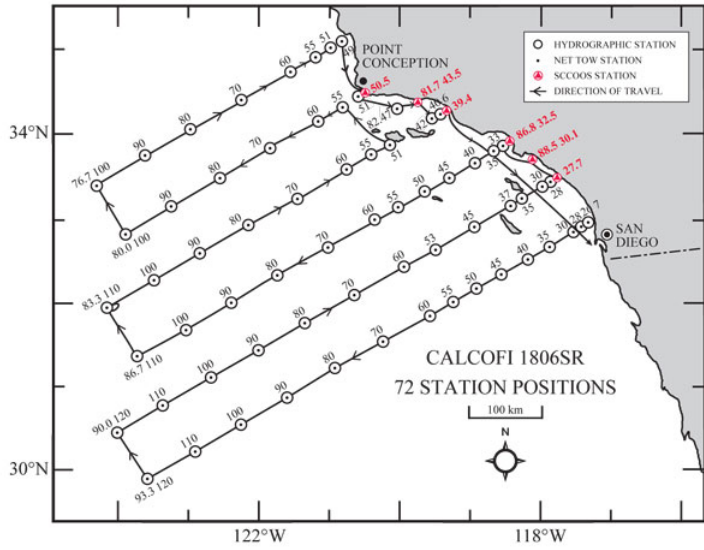
CTD Processing Summary CalCOFI 1806SR CTD Final Data		
Download 1806SR CTD raw cast files zipped (http://cappuccino.ucsd.edu/downloads/2018/20-1806SR_CTDCast.zip)		Download 1806SR FinalQC CTD + bottle data (http://cappuccino.ucsd.edu/downloads/2018/20-1806SR_CTDFinalQC.zip)
General CTD Notes - data acquisition notes, logistics, processing - see below. Please note that these regressions are generated from FINAL CTD vs bottle data and have been reprocessed. CTD temperatures and salinities do not usually change compared to preliminary data but oxygen, estimated chlorophyll-a, estimated nitrate may change significantly after point-checking. Questionable or mistrip bottle data are removed from these comparisons but may be visible on the CTD.csv plots. For this cruise and future cruises, both primary & secondary sensor profiles vs bottle data will be generated and archived in the downloadable CTD+Bottle data files. These plots are under the "csv-plots\Primary" & "csv-plots\Secondary" subdirectories.		
CTD sensor corrections derived by comparing CTD sensor data, 4sec averages prior-to-bottle closure, to bottle samples		
Dual T, S, & O2	Primary Sensor	Secondary Sensor
Salinity offset (bottle - CTD salinity: > 350m only; Seabird SBE4)	-0.0045	-0.0071
Oxygen ml/L (dual Seabird SBE43)	y = 1.07x - 0.019 R ² = 0.9997	y = 1.0306x + 0.0326 R ² = 0.9996
Oxygen umol/Kg (dual Seabird SBE43)	y = 1.0714x - 0.7035 R ² = 0.9997	y = 1.032x + 1.543 R ² = 0.9996
Single sensors	Linear	Polynomial
Nitrate - ISUS 4sec ave voltage vs Bottle NO3 (Satlantic ISUS v3 SN111)	y = 27.652x - 10.323 R ² = 0.9958	
Fluorometer - linear & polynomial regressions	y = 9.6215x - 0.332 R ² = 0.868	y = 1.3267x ² + 8.7793x - 0.283 R ² = 0.8688
<div><div><div>CalCOFI 1806SR: CTD Primary Oxygen vs Bottle Oxygen 4sec ave CTD O2 vs bottle O2 (ml/L)</div><div>(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_Ox1MLvsOxBML.jpg)</div></div><div><div>CalCOFI 1806SR: CTD Secondary Oxygen vs Bottle Oxygen 4sec ave CTD O2 vs bottle O2 (ml/L)</div><div>(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_Ox2MLvsOxBML.jpg)</div></div></div>		
<div><div><div>CalCOFI 1806SR: CTD Primary Oxygen vs Bottle Oxygen 4sec ave CTD O2 vs bottle O2 (uM/Kg)</div><div>(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_Ox1UMvsOxBUM.jpg)</div></div><div><div>CalCOFI 1806SR: CTD Secondary Oxygen vs Bottle Oxygen 4sec ave CTD O2 vs bottle O2 (uM/Kg)</div><div>(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_Ox2UMvsOxBUM.jpg)</div></div></div>		

(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_ISUSVsNO3.jpg)



(http://cappuccino.ucsd.edu/downloads/2018/1806SR/final/1806SR_FIVvsChla.jpg)

General notes: These are cast & preliminary CTD Processing Notes from 1806SR cruise



(<http://cappuccino.ucsd.edu/downloads/2018/1802SH/1802ActualCruiseTrack.jpg>)

CalCOFI 1806SR General Cruise & Cast Notes:

CalCOFI Summer Cruise 1806SR was scheduled to occupy 73 stations from San Diego to Pt Conception. All stations were occupied except one - sta 85.4 35.8 Pt Dume SCCOOS - which was dropped due to time lost to bad weather. This was an unusually early summer cruise and late Spring winds and rough seas were prevalent.

CTD General Notes and Problems:

CalCOFI used their 24-10L CTD-rosette on RV Sally Ride's infrastructure - two-pin termination, cable grip, & shackle; deck unit, monitor, trackball, & network. SIO-CalCOFI's Seabird 911+, 24-bottle epoxy-coated LARS rosette was deployed by the forward LARS winch arm on 72 stations.

Standard sensor configuration: dual T, C, & O2 on separately plumbed & pumped horizontal arrays; Wetlabs ECO-FI fluorometer; C-Star transmissometer; Biospherical PAR & Surface PAR (mounted on the LTER GP van); MBARI-ISUS v3 w/ battery; SBE18 pH; altimeter. Refer to .hdr files for serial & model numbers or the table below. Primary & secondary T, C, & O2 sensors were not changed from the last cruise, 1804SH, since their calibration & agreement were still on target. ISUS was DI lab calibrated prior to the cruise. Both sensor sets worked fine throughout the cruise and no changes were necessary.

Setup: Using SIO-CalCOFI's 24-10L bottle CTD-rosette epoxy-coated LARS frame. CTD - SBE 9+ (SN#3161-0936) Sensor Configuration	
1° Sensors:	2° Sensors:
SBE 3plus temperature sensor (SN#5102); Conductivity SBE 4 Sensor (SN#3569) Oxygen SBE 43 Sensor (SN#1590) Pump	SBE 3plus temperature sensor (SN#5109); Conductivity SBE 4 Sensor (SN#2206) Oxygen SBE 43 Sensor (SN#1075) Pump
Other sensors (unpumped)	
Wetlabs ECO/FL Fluorometer SN#3122 Wetlabs C-Star Transmissometer SN#CST-811DR pH SBE 18 SN#0709 Remote PAR SN#70209	CCE-LTER MBARI-ISUS v3 SN#111 Altimeter SN#46604 Carousel SBE 32 3217964-0225 Reference PAR SN#20514

Logistics & General System/Sampling Notes:

Cast Notes (transcribed from console ops, clipboard notes, & data processing):

CalCOFI 1806SR CTD Setup & Cast Notes:

CalCOFI 1806SR CTD & Sample Notes

CalCOFI 1806SR CTD & Sample Notes

Cast 001 93.3 26.7: prodo station; tripped all 24 to test carousel, all closed except #23 top hung up on stanchion; bottles #11-17 closed at 21m, #18-24 closed at 12m

Cast 002 93.3 28.0: 0 & 30m DIC/pH

Cast 003 93.3 30.0: DIC sta

Cast 004 93.3 35.0: extra marker #17 @38m

Cast 005 93.3 40.0: high chl max @30m; pH sensor misbehaving, odd dips @230, 240, 295, 320m downcast; slightly moderate seas

Cast 006 93.3 45.0: moderate seas already, underway seawater off; winch operator 20min delay

Cast 007 93.3 50.0: prodo station; uway pH from underway seawater #15265; nutrients samples: #1 & #9 look questionable, #5 not drawn

Cast 008 93.3 55.0: nothing noted

Cast 009 93.3 60.0: mistrip bottle #9 - skip

Cast 010 93.3 70.0: moderate-rough seas; pH sensor still funky 100-200m downcast, serviced the cable post-cast

Cast 011 93.3 80.0: moderate seas, CTD at surface in air (popped out), pumps off, lowered 2m deeper, waited ~90secs before sending down to 515m

Cast 012 93.3 90.0: prodo station; Uway pH #15266

Cast 013 93.3 100.0: event log offline on bridge, DMW unable to help them get re-started

Cast 014 93.3 110.0: moderate seas but calming; deep chl max ~120m; salinity inversion 70-140m; pH bad 90-280m on downcast; Slight salinity spikes on upcast at stops 175m, 160m, 150m, 140m, 130m, 120m - biofouling?

Cast 015 93.3 120.0: prodo station; pH sensor cable changed, pH sensor signal looks good; wave buoy drifter deployed #621

Cast 016 90.0 120.0: 0&30m DIC/pH+NCOG; Uway pH #15267

Cast 017 90.0 110.0: depth sounder unable to find bottom, stuck at 3129m - should be ~4000m

Cast 018 90.0 100.0: moderate seas but improving; chl max @ 97m; pH sensor working well finally; depth sounder settings needed new ranges

Cast 019 90.0 90.0: prodo station; DIC+NCOG

Cast 020 90.0 80.0: 55m chl max; UWay pH #15271

Cast 021 90.0 70.0: 50m chl max; NCOG station

Cast 022 90.0 60.0: couple of chl spikes on downcast - "bugs on the windshield?"; shallow depth sounder working after restech tweaking; DIC station (only 3)

Cast 023 90.0 53.0: prodo station with DIC+NCOG; extra bottle tripped @50m bottle #16 - ignore, not needed; nutrient #24 missed, not drawn

Cast 024 90.0 45.0: 0&30m DIC/pH; extra bottle tripped at surface, "just in case"

Cast 025 90.0 37.0: 0&30m DIC/pH+NCOG

Cast 026 90.0 35.0: lots of kelp fragments floating by on launch; calm warm night off Catalina Is. - shallow bottom depth ~320m, 18 bottle cast; chl max ~46m, 8m mixed layer

Cast 027 90.0 30.0: getting light out, land visible; DIC station

Cast 028 90.0 27.7: SCCOOS station, 18m bottom, 3 bottles tripped

Cast 029 90.0 28.0: prodo station; 0&30m DIC/pH, Uway pH #15284; 105m bottom so 14 bottle cast to 90m

Cast 030 88.5 30.1: 18m bottom, 6-bottle 15m SCCOOS station

Cast 031 86.8 32.5: 24m bottom, 5-bottle 20m SCCOOS station

Cast 032 86.7 33.0: 0&30m DIC/pH; 54m bottom, 7-bottle 50m cast

Cast 033 86.7 35.0: DIC station

Cast 034 86.7 40.0: Santa Monica Basin station, CTD profile to 730m, 1st bottle closed at 515m; red tuna crabs in net tows (PRPOOS 3 pints; 4 individuals in Bongo) but not visible at surface, one came up caught between bottle 16 & 17

Cast 035 86.7 45.0: Calm night, 21 bottle cast to 515m

Cast 036 86.7 50.0: San Nicolas Island 10-bottle 70m station, 75m bottom; shallow chl max ~4-10m; cast number mislabeled 037 in hdr - fixed

Cast 037 86.7 55.0: 24-bottle prodo cast to 515m;

Cast 038 86.7 60.0: 21-bottle cast to 515m; bottles #15 & #16 tripped in reverse, CTD yo-yo'd

Cast 039 86.7 70.0: 21-bottle cast to 515m; "Weird surface Sal & O2 on downcast" noted - looks like the CTD came out of the water upon returning to surface & the pumps turned off. This was not noticed before the CTD started down. Pumps came back on at ~13m so T, S, O2 data from surface to 13m on downcast are bad, use upcast data; Uway pH #15290; downcast O2 data looks questionable from 0-11m, coded "8"

Cast 040 86.7 80.0: 21-bottle cast to 515m; 94m chl max, 69m mixed layer

Cast 041 86.7 90.0: 24-bottle prodo cast to 515m; 80m chl max; uway pH #15291

Cast 042 86.7 100.0: 21-bottle cast to 515m, 82m chl max

Cast 043 86.7 110.0: 21-bottle cast to 515m; winch reading 5m offset this cast, not sure why (not zeroed at surface?); Sabrina on the con from bottles 6-21; wave buoy drifter #622 deployed

Cast 044 83.3 110.0: 21-bottle cast to 515m; strange fluctuations around 60-90m on downcast noted; Hannah training this cast by JRW - took longer than usual; surface bottle #21 tripped but didn't close - lanyard on right, needs to be on left; second surface bottle not closed so surface samples from underway seawater effluent

Cast 045 83.3 100.0: 24-bottle prodo cast to 515m;

Cast 046 83.3 90.0: 21-bottle cast to 515m; uway pH #152292

Cast 047 83.3 80.0: 21-bottle cast to 515m;

Cast 048 83.3 70.0: 21-bottle cast to 515m; -0.5pr offset applied to CTD pressure in cfg; Hannah running CTD, much quicker this time (47mins)

Cast 049 83.3 60.0: 24-bottle prodo cast to 515m;

Cast 050 83.3 55.0: 22-bottle cast to 515m;

Cast 051 83.3 51.0: 11-bottle cast to 90m, 97m bottom; heading north to line 80 after this station

Cast 052 80.0 55.0: 23-bottle cast to 515m -DIC+NCOG at 10m plus 40m bottle; a couple anchovies washed up on deck, seas confused, 21kt winds; shallow gradient, green @ surface-20m; major wire jerk on landing (4000lb spike)

Cast 053 80.0 60.0: 21-bottle cast to 515m; chl 0-35m with no distinct peak; winds dropped from 25 to 20kts; sunrise but heavy overcast, no sun; DIC+uway pH #15299

Cast 054 80.0 70.0: 24-bottle prodo cast to 515m; DIC+NCOG; CTD salt & O2 data looks questionable from 0-5m on downcast, coded "8"

Cast 055 80.0 80.0: 22-bottle cast to 515m; DIC+NCOG; bottle #13 85m not tripped = missed; #18 25m & #19 40m tripped out of order - CTD yo-yo'd again; nutrient #2 not drawn

Cast 056 80.0 90.0: 20-bottle cast to 515m; DIC+uway pH #15309; chl max @75m, mixed layer 32, jogs slightly, then steady to 70m; moderate-rough seas; chl spike @352m downcast; nice landing this time, no jerk of wire

Cast 057 80.0 100.0: 22-bottle cast to 515m; chl max 85m, 41m mixed layer; DIC+NCOG; wave buoy drifter #636 deployed; winch operator late - launch delayed, problematic launch - autodeploy not working, CTD freefell ~3m when jibbed out, not boomed out, tension spiked to 6500lbs; auto-recovery not working either, recovered by switching to manual/auto/manual

CalCOFI Line.Sta in .hdr incorrect - listed as 80.0 1000.0, corrected to 80.0 100.0

Cast 058 76.7 100.0: 24-bottle prodo cast to 515m; wave buoy drifter #637 deployed; uway pH #15314; on Line 76.7; CTD O2 data looks questionable from 0-5m on downcast, coded "8"

Cast 059 76.7 90.0: 21-bottle cast to 515m;

Cast 060 76.7 80.0: 20-bottle cast to 515m; rough seas but ship riding okay; some wire angle at 515m; interesting O2 inversion noticed at 150-300m downcast; lots of biomass in Bongo (krill, copepods, myctophiids)

Cast 061 76.7 70.0: 24-bottle prodo cast; uway pH #15315; Seasave locked up in some weird mode - unable to trip bottles or create markers, bottles #23 & #24 closed manually using the deck unit.

Note: Seasave was still acquiring data (background data acquisition scan count was updating) but program was frozen <Ctrl><Alt> required. Data files seem okay; PC was rebooted, plots regenerated

Cast 062 76.7 60.0: 21-bottle cast to 515m; no software problems

Cast 063 76.7 55.0: 21-bottle cast to 515m; nutrient #12 (85m) looks bad, possible mistrip

Cast 064 76.7 51.0: 17-bottle cast to 230m, 236m bottom; #12 mistripped again, no water

Cast 065 76.7 49.0: 9-bottle cast to 60m, 66m bottom; bottles #10, #11, #12 test fired - all closed; uway pH #15316; shallow station, moon clearly visible for the 1st time this cruise; pretty calm finally, high surface chl visible

Cast 066 80.0 51.0: 10-bottle cast to 68m, 74m bottom; DIC+uway pH #15317; calm overcast/foggy sunrise station; surface T noticeably warmer since last sta, Line 77

Cast 067 80.0 50.5: 5-bottle cast to 15m, 20m SCCOOS station

Cast 068 81.8 46.9: 24-bottle Santa Barbara Basin prodo station w/ DIC+NCOG, CTD to 565m, 575m bottom.

Cast 069 81.7 43.5: 5-bottle cast to 19m, 23m SCCOOS station

Cast 070 83.3 42.0: 13-bottle cast to 125m, 135m bottom; O&30m DIC/pH; #12 mistripped at surface so #13 was tripped

Cast 071 83.3 40.6: 6-bottle cast to 30m, 32m bottom (4.7m noted on altimeter); O&30m DIC/pH+uway pH #15329

Cast 072 83.3 39.4: 5-bottle cast to 16m, 19m SCCOOS station - last station

JRW 26 Jun 2019