

1501NH CTD Processing Summary (/cruises/2015-cruises/calcofi-1501nh/553-1501nh-ctd-processing-summary.html)

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Last Updated: 10 March 2017

CTD Processing Summary CalCOFI 1501NH CTD Final Data

Download 1501NH CTD raw cast files zipped

(http://cappuccino.ucsd.edu/downloads/2015/20-1501NH_CTDcast.zip)

Download 1501NH FinalQC CTD + bottle data

(http://cappuccino.ucsd.edu/downloads/2015/20-1501NH_CTDFinalQC.zip)

Note: Metadata files compiled from CTD processing are split 1-64 (dual TCO), 65-100 (single TCO)

General CTD Notes - data acquisition notes, logistics, processing - see below

CTD sensor corrections derived by comparing 4 secs of CTD sensor data (prior to bottle closure) to bottle samples

Dual T, S, & O₂

Primary Sensor

Secondary Sensor

Salinity offset (bottle - CTD salinity; > 350m only; Seabird SBE4)

-0.00232

0.00084

Oxygen ml/L (dual Seabird SBE43)

$y = 1.0507x - 0.0094$
 $R^2 = 0.9997$

$y = 1.0397x - 0.0132$
 $R^2 = 0.9998$

Oxygen umoles/Kg (dual Seabird SBE43)

$y = 1.0507x - 0.4099$
 $R^2 = 0.9997$

$y = 1.0397x - 0.5732$
 $R^2 = 0.9998$

Single sensors

Linear

Polynomial

Nitrate - ISUS 4sec ave voltage vs Bottle Nitrate (Satlantic MBARI-ISUS v2)

$y = 27.23x - 7.1464$
 $R^2 = 0.9945$

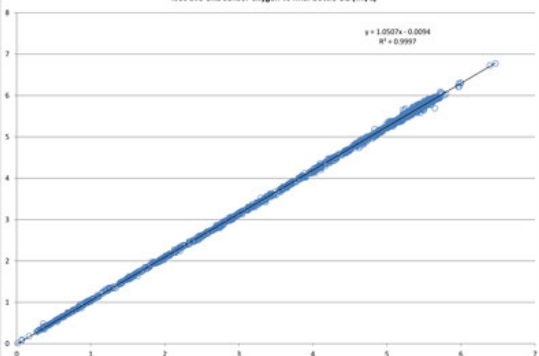
Fluorometer - linear & polynomial regressions

$y = 7.1988x - 0.2187$
 $R^2 = 0.8363$

$y = 7.2289x^2 + 5.7762x - 0.1677$
 $R^2 = 0.839$

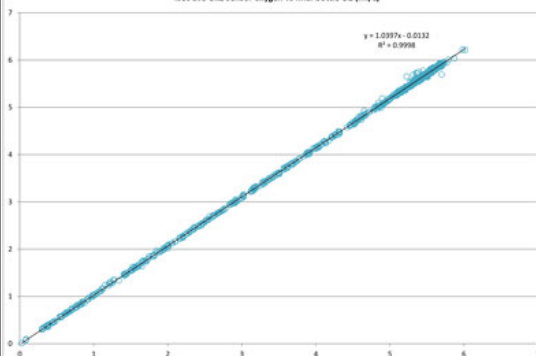
CalCOFI 1501NH: Primary CTD Oxygen vs Bottle Oxygen

4sec ave O₂ sensor oxygen vs final bottle O₂ (ml/L)



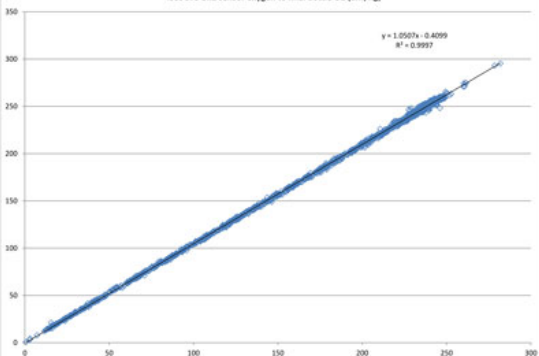
CalCOFI 1501NH: Secondary CTD Oxygen vs Bottle Oxygen

4sec ave O₂ sensor oxygen vs final bottle O₂ (ml/L)



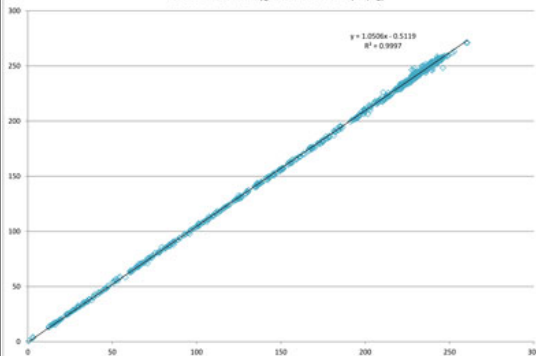
CalCOFI 1501NH: Primary CTD Oxygen vs Bottle Oxygen

4sec ave O₂ sensor oxygen vs final bottle O₂ (μM/Kg)



CalCOFI 1501NH: Secondary CTD Oxygen vs Bottle Oxygen

4sec ave O₂ sensor oxygen vs final bottle O₂ (μM/Kg)



(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_Ox1MLvsOxBML.jpg)

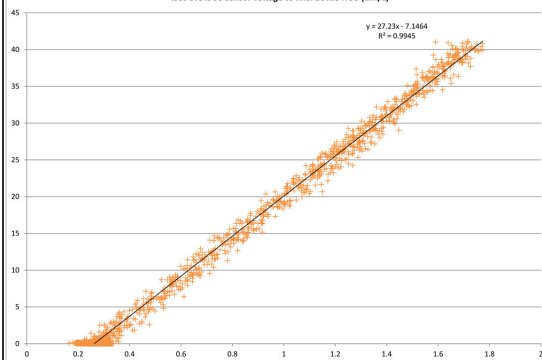
(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_Ox2MLvsOxBML.jpg)

(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_Ox1UMvsOxBUM.jpg)

(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_Ox2UMvsOxBUM.jpg)

CalCOFI 1501NH: ISUS Voltage vs Bottle Nitrate

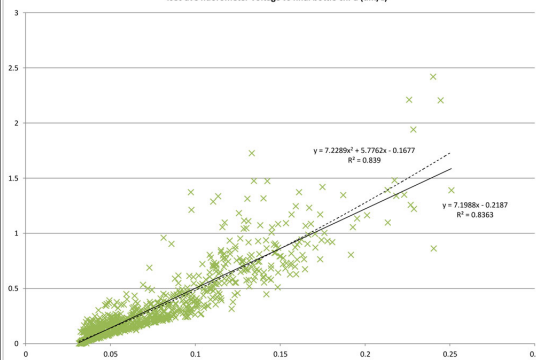
4sec ave ISUS sensor voltage vs final bottle NO3 (µM/L)



(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_ISUSVsNO3.jpg)

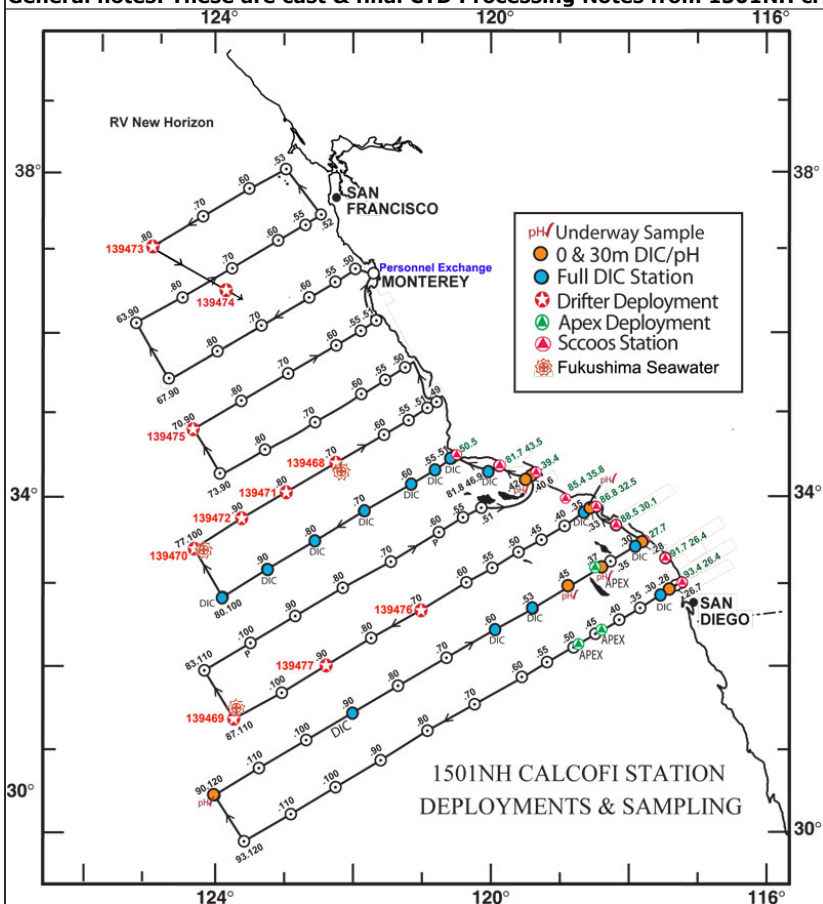
CalCOFI 1501NH: Fluorometer Voltage vs Bottle Chlorophyll-a

4sec ave fluorometer voltage vs final bottle chl-a (µm/L)



(http://www.calcofi.org/downloads/cruise_data/2015/1501NH/1501NH_FIVvsChla.jpg)

General notes: These are cast & final CTD Processing Notes from 1501NH cruise



Cast 03 - SCCOOS shallow station; downcast profiles look okay; upcast: 5m bottle #4 did not close - carousel jumped from 4 to 2 so additional trips were necessary to catchup. CTD reterminated post-cast.

Cast 04 - 93.28 severe problems, lost 12hrs troubleshooting CTD issues; CTD reterminated after 150m of wire removed. CTD pumps are turning off at ~50m on downcast. Additional solutions attempted: 1) 1st conductivity sensor changed before cast; 2) carousel changes as per DAG suggestion; 3) new pump cable; 4) new pylon cable; 5) spare deck unit used; 6) dummied secondary pump WORKED. So secondary sensor data on casts 004 - 011 are bad.

Cast 04 - 11 primary sensor data good, secondary sensor bad - no pump

Cast 06 - bottom valves on bottle #1 & #20 replaced post-cast, drippy

Cast 08 - bottle #10 replaced, bottom o-ring leaking

Cast 12 - backup pump installed as 2nd; dual conductors - black & white combined for signal, shield as ground. Both pumps & sensor sets are working.

Cast 15 - rockin-rolling

Cast 19 - 15kt winds but relatively calm

Cast 20 - some big rolls

Cast 21 - rolling

Cast 22 - windy, rolling

Cast 23 - going down slow 30m/min then 40m/min; sunny but windy & rough

Cast 24 - going down slow 30 then 40 - rough seas

Cast 25 - mid-size rollers

Cast 27 - calmer; two markers at 440m - file edited/corrected

Cast 29 - calm sunny

Cast 37 - calm bright but cloudy; transmissometer dropout @ 500m downcast

Cast 40 - small pH spike at 330m on downcast

Cast 45 - calm morning; Fukushima water collected from underway since all bottle needed

Cast 48 - no nav file; created one from marker file

Cast 60 - RS232 issues, deck unit reset seemed to fix the glitch; MET system froze & was reset as well. Extra 40m tripped & ignored

Cast 61 - relatively calm with some big rolls - trough

Cast 62 - deck unit error lights flashed red at 35m downcast; spikes in O2 135m downcast; fluorometer spike @ 458m upcast. Connectors checked and serviced post-cast.

Cast 63 - all sensors glitched out at 85m on downcast but transient

Cast 64 - carousel reset after major spike, RJ did not fire enough bottles to "catch-up" so no bottles closed less than 200m ie only the 1st 7 depths from 515 to 200 trapped water. Downcast does not look bad but the transmissometer dropped out at 450-515m downcast. Pre-cast notes by RJ: deck unit displaying zeros on all channels, changed sea cable slo-blow fuse & fast-blow fuse. Numbers came back but it was decided to run only primary sensors and disable secondary sensors & pump.

Cast 65T - test cast, primary T, C, O2 & pump only on white & black conductors. Looked at slings but did not see any obvious problem. Test successful.

Cast 65 - single sensors no problems at all

Cast 66 - Fukushima seawater collected at 25m bottle 19 (should have tripped another for 20L; used remainder of bottle 18) and surface bottle 22. Pr offset adjusted by -0.05.

Cast 69 - rough seas again

Cast 70 - 71 - moderate rollers

Cast 73 - no nav file created - will create one from marker

Cast 75 - big rollers, transmissometer failure 450-515m downcast.

Cast 76 - big rollers, hard to hit target depths; transmissometer out at 500-515m

Cast 77 - big rollers, hard to hit target depths; transmissometer out at 480-515m

Cast 78 - big rollers, hard to hit target depths; transmissometer out at 480-515m

Cast 79 - rough sunny weather; Windex bottle broke in wetlab (ammonia?); transmissometer okay

Cast 80 - moderate seas; transmissometer dropped out ~450-515m downcast

Cast 81 - Transmissometer spikes ~430-490m

Cast 82 - 84 - Transmissometer squirrely ~450-500m downcast; no spare (Goericke's spare uses older connector)

Cast 85 - crossed lanyards on bottles #2-3

Cast 86 - 100 - 12 bottle casts, Leg II after 8 scientists disembarked in Santa Cruz/Monterey

Cast 88 - 100 - Transmissometer squirrely ~400-515m downcast; no spare (Goericke's spare uses older connector)

Cast 92 - moderate rollers

File notes:

08Mar2017 update to 20-1501NH_CTDFinalQC.zip file:

Seasoft-generated asc-hdr files are available renamed to 20-1501NH_LLLLLSSSS_####d or u.asc & .hdr. Voltages in the .asc files were also relabeled. Since this makes it difficult to reprocess & merge with bottle data if necessary, the original .asc, .hdr, & .btl have also been archived. Their voltage header labels have not been changed so refer to the corresponding .hdr file for sensor configuration. This cruise had both single T,C & O2 and dual T,C, & O2 - refer to notes.

Missing nav files created from mrk files: Cast 41, 62, & 73

Mislabeled found and corrected:

Cast 09 - cast mislabeled 08 in hdr, hdr & hex files corrected using text & hex editors.
Cast 68 - sta mislabeled 90.0 in hdr, should be 80.0; hdr & hex files corrected using text & hex editors.
26Feb2015 / 16Aug2016(final update) / 08Mar2017 (CTD.csv file renaming; .asc file sensor-voltage relabeling)