CTD Data processing summary

Southern Surveyor Voyage SS 7/2008

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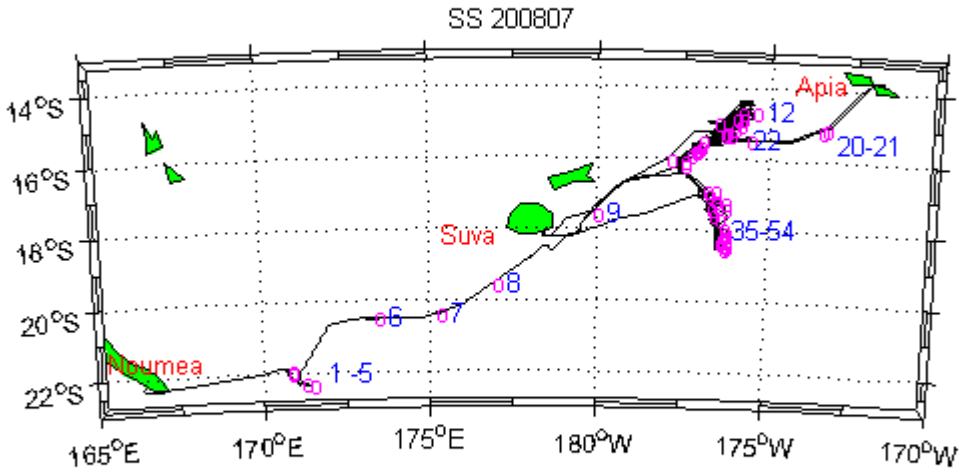
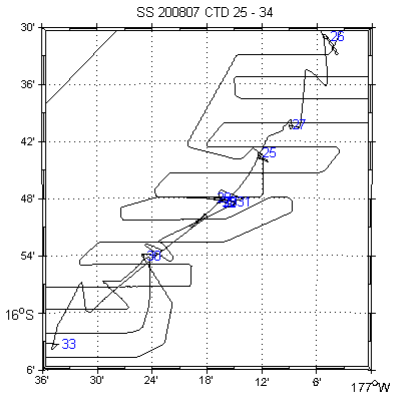
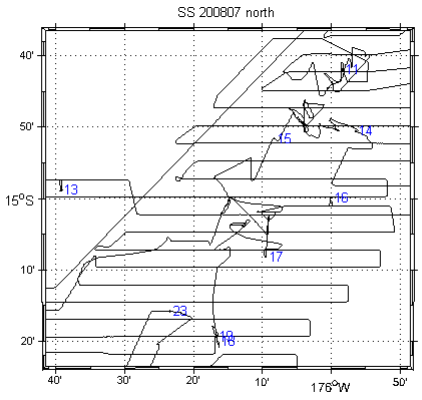
SS 7/2008

CTD Data

CTD Station Locations







Sensor Information

CTD unit #21, a Seabird SBE911 with dual conductivity and temperature sensors was used.

CTD Channel	Serial Number	Calibration
T1	4718	Seabird 4-January-2007
C1	3309	Seabird 18-January-2007
T2	4722	Seabird 18-January-2007
C2	3311	Seabird 18-Jan-2007

also Aanderaa Oxygen Optode Phase (3975) with foil serial no 4804;
Seatech Transmissometer CST-775DR (manufacturer's calibrations 28-July-2004).

Completeness and Data Quality

Stations 1 -34 were recorded on leg 1 (1 May 2008 – 24-May-2008).

Stations 35 – 54 were on leg 2, 28 May 2008 – 5 June 2008).

Water samples were collected on all stations by the scientific party..

Processing Comments

Preliminary processing of CTD data was carried out onboard during the voyage by Bernadette Heaney, Leg 1 and Hiski Kippo, Leg 2.
Netcdf files were created by running readCrw. procCTD was used to apply automated QC and preliminary processing to the data. This included spike removal, identification of water entry and exit times, conductivity sensor lag corrections and the determination of the pressure offsets.

Station 35 was originally recorded on deck for Thermosalinograph calibration. The netcdf file created by readCrw from dips 3 and 4 of station 36 was renamed ss080721035.nc, dips 5 and 6 of station 36 were used to produce ss080721036.nc.

Pressure and temperature calibration

Pressures and temperatures were computed using the manufacutrer's supplied calibrations. An additional pressure offset correction was computed from each deployment by assuming a linear drift between the pre and post-deployment, out-of-water pressures. These offsets are plotted in Figure (1) over
Figure 1

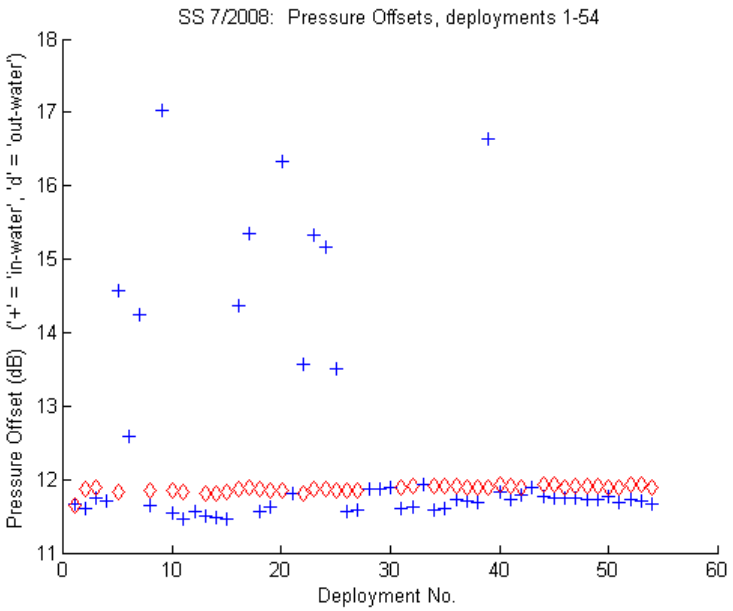
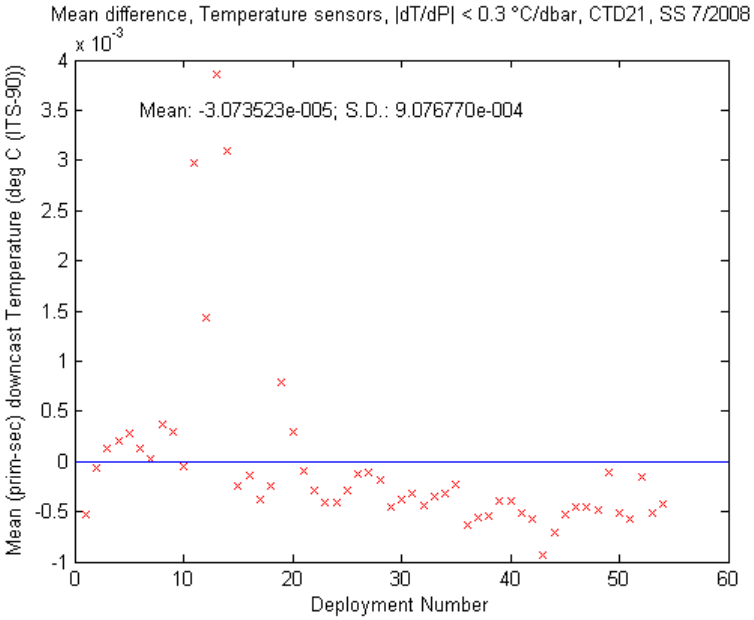
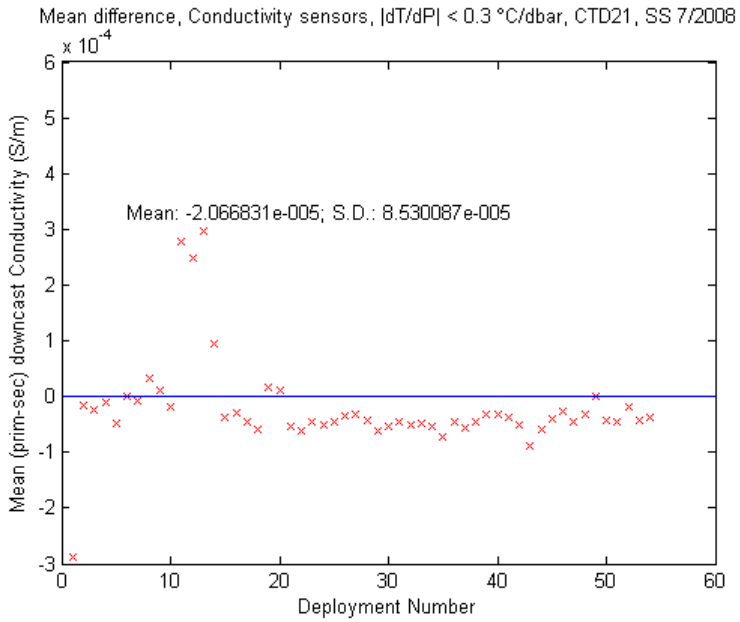

SS 7/2008: Pressure Offsets, deployments 1-54
Pressure Offset (dB) ('+' = 'in-water', 'd' = 'out-water')
Deployment No.

Figure 2


Mean difference, Temperature sensors, |dT/dP| < 0.3 °C/dbar, CTD21, SS 7/2008
x 10^-3
Mean: -3.073523e-005; S.D.: 9.076770e-004
Mean (prim-sec) downcast Temperature (deg C (ITS-90))
Deployment Number

Conductivity

Figure 3



Conductivity calibrations obtained by Bob Beattie when processing data from SS 200802 (Beattie, 2008) were applied to the data.

	Primary	Secondary
Scale factor	1.0001379	1.0002323
Offset	-4.48276E-04	-8.1888E-04

Final CTD Data

Using procCTD the data was 'filtered' to remove pressure reversals.
All data was then binned into 2 dB averaged netCDF files. The binned values were calculated by applying a linear, least-squares fit to the bin data and using this to interpolated the value for the bin mid-point.

Data from the primary conductivity and primary temperature sensors were used for the final data..

References

Beattie, R. D., 2008: CTD Processing Notes for RV Southern Surveyor Voyage SS200802, 4-26 February 2008. (unpub).

Pender, L., 2000. Data Quality Control flags. http://www.marine.csiro.au/datacentre/ext_docs/DataQualityControlFlags. Pdf

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