# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

## *CRUISEID*-ADCP – *Acoustic Doppler Current Profiler*

**Os38bb (38 kHz broad band)**
**Os38nb (38 kHz narrow band)**
**Wh300 (300 kHz Workhorse)**

## *CRUISEID*-CTD – *Conductivity, Temperature, Depth*

**File Extensions**

**.DAT/HEX** *– CTD Cast Data File*
**.HDR** *– CTD Cast Header File*
**.CON** *– CTD Cast Configuration File*
**.BL** *– CTD Cast Bottle File*

**SeaBird Software –** *software to manipulate and export CTD data to text, spreadsheets, etc.*

## *CRUISEID*-UnderwayData

## Calibrations_info

**CALIBRATIONS**
**USSW_CALIBRATIONS:** SBE45 thermosalinograph, SBE38 remote temperature probe, & WETStar fluorometer calibration documentation.
**MET_CALIBRATIONS:** Calibration documentation for all Meteorological Instrumentation including Eppley PIR, PSP, and Biospherical PAR sensors.
**PROC_TOOLS:** We have provided some useful tools for processing the logged data in this directory.

## *CRUISEID*-Rawdata (UN-CORRECTED/UN-PROCESSED)

**Standard Abbreviations:** YEAR: Calendar year    JDAY: Julian Day    HR: Hour    MIN: Minute    MSEC: Millisecond    CODE: System logging code
SOG: Speed Over Ground    COG: Course Over Ground    EL: Elevation    #SATs: Number of Satellites used in position fix
QUAL: Signal Quality; 3=PYCode; 2=Differential; 1=GPS; 0=DR    HDOP: Horizontal Dilution Of Precision

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

## Primary-Logger

### ADU5: *Ashtech ADU5 GPS; (adu5_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | EL (m) | HDOP | SOG (kts) | COG (deg) | #SATs | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | QUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 29 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.1 | 202.68 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.09 | 214.35 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 31 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.29 | 185.56 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 32 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.15 | 182.34 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |

### ATTD: *True Heading - derived from Ashtech ADU5; (attd_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | SECONDS IN WEEK | TRUE HEADING (deg) | PITCH (deg) | ROLL (deg) | MRMS | BRMS | AFLAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 323 | 2 | 6 | 52 | 0 | Attd | 7627 | 85.20 | 0 | 0 | 0.0024 | 1321.653 | 1 |
| 2006 | 323 | 2 | 6 | 53 | 0 | Attd | 7628 | 85.12 | 0 | 0 | 0.0022 | 1320.950 | 1 |
| 2006 | 323 | 2 | 6 | 54 | 0 | Attd | 7629 | 84.92 | 0 | 0 | 0.0028 | 1321.153 | 1 |
| 2006 | 323 | 2 | 6 | 55 | 0 | Attd | 7630 | 84.91 | 0 | 0 | 0.0024 | 1321.343 | 1 |

### BAROM: *Vaisala Digital Barometer; (barom_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PRESSURE | UNITS |
|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 29 | 88 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 30 | 70 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 31 | 71 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 32 | 70 | bar1 | 1019.33 | mbar |

### BGM3GRAV: *Bell Aerospace BGM3 Gravimeter; (bgm3grav_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PULSES (counts) | FLAGS | mGAL |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 40 | 938 | rbgm3 | 022262 | 00 | 112940.270681 |
| 2006 | 350 | 17 | 12 | 50 | 933 | rbgm3 | 024753 | 00 | 125577.689344 |
| 2006 | 350 | 17 | 13 | 0 | 922 | rbgm3 | 027532 | 00 | 139676.198563 |
| 2006 | 350 | 17 | 13 | 10 | 914 | rbgm3 | 029583 | 00 | 150081.395543 |

Pulses = digital output of sensor subsystem    Flags = Error Codes    mGal= gravity units after scale factor is applied to pulse count

### CALEY: *Caley Oceanographic Winch; (Caley_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RATE (meters/min) | WIRE OUT (meters) | TENSION (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 353 | 4 | 47 | 46 | 901 | w322 | 32 | 206.6 | 565 |
| 2006 | 353 | 4 | 47 | 47 | 893 | w322 | 32 | 206.8 | 579 |
| 2006 | 353 | 4 | 47 | 48 | 369 | w322 | 32 | 207.4 | 561 |
| 2006 | 353 | 4 | 47 | 50 | 67 | w322 | 32 | 208.1 | 439 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**CTD**: *SeaBird 911+ Conductivity, Temperature, Depth System; (ctd_jday/hr/min)*

| DEPTH (decibars) | TEMPERATURE ($^{o}$C) | SALINITY (units) | OXYGEN (units) | FLUORESCENCE (units) | SCAN# |
|---|---|---|---|---|---|
| 15.3361 | 24.79486 | 35.03756 | 4.41452 | 0.15263 | 1 |
| 16.4216 | 24.79611 | 35.03785 | 4.43613 | 0.15873 | 25 |
| 17.0742 | 24.79448 | 35.03796 | 4.43855 | 0.17949 | 49 |
| 15.7289 | 24.79665 | 35.03793 | 4.43055 | 0.15140 | 73 |

**DPTH**: *Kongsberg-Simrad EM122/EM1002 Multibeam Depths; (dpth_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | EM122_DEPTH (meters) | EM1002_DEPTH (meters) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 352 | 15 | 26 | 6 | 420 | Dpth | 0 | 480.6 |
| 2006 | 352 | 15 | 26 | 7 | 932 | Dpth | 0 | 480.9 |
| 2006 | 352 | 15 | 26 | 9 | 486 | Dpth | 0 | 480.41 |
| 2006 | 352 | 15 | 26 | 11 | 42 | Dpth | 0 | 480.35 |

**FLUORO**: *Wetlabs WETStar Chlorophyll Fluorometer; (fluoro_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RAW SCALE_COUNT |
|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 28 | 842 | Flor | 220 |
| 2006 | 350 | 17 | 12 | 29 | 922 | Flor | 223 |
| 2006 | 350 | 17 | 12 | 31 | 2 | Flor | 222 |
| 2006 | 350 | 17 | 12 | 32 | 82 | Flor | 221 |

**GYRO**: *Sperry Marine Digital Gyroscope (gyro_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | HEADING (deg) |
|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 28 | 374 | gyr1 | 241.1 |
| 2006 | 350 | 17 | 12 | 29 | 371 | gyr1 | 240.9 |
| 2006 | 350 | 17 | 12 | 30 | 373 | gyr1 | 240.9 |
| 2006 | 350 | 17 | 12 | 31 | 374 | gyr1 | 240.9 |

**MAGY**: *Geometrics G-882 Cesium Marine Magnetometer; (magy_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TOT FIELD | SIGNAL LEVEL | DEPTH (meters) |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 28 | 0 | 35 | 58 | 444 | Magy | 66350.18 | 42 | 0 |
| 2006 | 28 | 0 | 35 | 59 | 444 | Magy | 44382.68 | 39 | 0 |
| 2006 | 28 | 0 | 36 | 0 | 444 | Magy | 40180.02 | 39 | 0 |
| 2006 | 28 | 0 | 36 | 1 | 444 | Magy | 37704.17 | 39 | 0 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**MET**: *RM Young Resistive Temperature Device (RTD); Rotronic Instrument Corp. Humidity Probe (HUMIDITY); RM Young Precipitation Guage (PRECIPITATION); Eppley Precision Spectral Pyranometer (PSP); Eppley Precision Infrared Radiometer (PIR); Biospherical Quantum Scalar Reference (PAR); RM Young Ultrasonic Anemometer (ULTRA); OSI Optical Rain Gauge (ORG); (met_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PANEL TEMP (°C) | RTD TEMP (°C) | HUMIDITY (%) | HUM TEMP (°C) | PRECIPITATION (mm) | PSP (mVolts) | PIRc (mVolts) | PIR CASE (Volts) | PIR HEMIS (Volts) | RTD Fan (mVolts) | HUM Fan (mVolts) | PAR (mVolts) | ULTRA Relative Speed (knots) | ULTRA Relative Direction (degrees) | ULTRA True Speed (knots) | ULTRA True Speed (knots) | ORG Precipitaion (R if rain) | ORG Rate (mm/hr) | ORG Accumulation (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 290 | 0 | 0 | 1 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 6.946 | -0.145 | 2.242 | 2.186 | 2.5 | 2.5 | 1470.9 | 12.3 | 192.7 | 12.2 | 326.9 | | 0 | 0.0 |
| 2006 | 290 | 0 | 0 | 2 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 6.943 | -0.147 | 2.241 | 2.184 | 2.5 | 2.5 | 1463.6 | 11.2 | 191.4 | 11.3 | 324.9 | R- | 10.0 | 0.1 |
| 2006 | 290 | 0 | 0 | 3 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 6.959 | -0.149 | 2.241 | 2.184 | 2.5 | 2.5 | 1476.8 | 11.3 | 190.8 | 11.5 | 324.8 | R- | 10.0 | 0.1 |
| 2006 | 290 | 0 | 0 | 4 | 307 | met | 31.005 | 28.013 | 67.947 | 28.344 | 2.728 | 6.977 | -0.152 | 2.241 | 2.184 | 2.5 | 2.5 | 1481.5 | 11.5 | 191.5 | 11.6 | 325.1 | | 0 | 0.1 |

**POS-MV**: *Applanix POS-MV GPS/Inertial Measurement Unit; (pos-mv_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | HDOP | SOG (kts) | COG (deg) | #SATs | QUAL | HEADING (deg) | ROLL (deg) | PITCH (deg) | HEAVE (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 27 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 181.4 | 9 | 1 | 250.85 | 0.24 | 0.58 | 0.14 |
| 2006 | 350 | 17 | 12 | 28 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 190.6 | 9 | 1 | 250.88 | 0.26 | 0.59 | 0.14 |
| 2006 | 350 | 17 | 12 | 29 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 230.6 | 9 | 1 | 250.9 | 0.28 | 0.6 | 0.15 |
| 2006 | 350 | 17 | 12 | 30 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 234.9 | 9 | 1 | 250.92 | 0.3 | 0.61 | 0.15 |

**RPM**: *Shipboard Propulsion System; (rpm_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PORT (rpm) | STBD (rpm) | BOW THRUSTER (%) | BOW THRUSTER AZIMUTH (deg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 59 | 58 | 810 | *rpm | 0 | -89.1 | 64.8 | 263.5 |
| 2006 | 350 | 17 | 59 | 59 | 810 | *rpm | 0 | -89.1 | 65.2 | 263.5 |
| 2006 | 350 | 18 | 0 | 0 | 810 | *rpm | 0 | -89 | 65.6 | 264.5 |
| 2006 | 350 | 18 | 0 | 1 | 810 | *rpm | 0 | -89.1 | 66 | 259.1 |

**SIMRAD**: *Simrad GPS; (simrad_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | HEIGHT (m) | HDOP | SOG (kts) | COG (hdg) | #SATs | QUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 28 | 50 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 29 | 28 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 7 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 87 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |

**SSV**: *Applied MicroSystems Sound Velocity & Temperature; (ssv_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TEMP (°C) | SOUND SPEED (m/s) |
|---|---|---|---|---|---|---|---|---|
| 2008 | 77 | 0 | 0 | 0 | 286 | *ssv | 28.452 | 1541.88 |
| 2008 | 77 | 0 | 0 | 1 | 175 | *ssv | 28.45 | 1542.42 |
| 2008 | 77 | 0 | 0 | 2 | 61 | *ssv | 28.45 | 1542.48 |
| 2008 | 77 | 0 | 0 | 2 | 950 | *ssv | 28.452 | 1541.75 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**STW**: *Magnetic Speed Log (Speed Thru Water); (stw_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | SPEED THRU WATER (kts) | CROSS TRACT SPEED (kts) | COG (deg) | SOG (kts) |
|------|------|----|-----|-----|------|------|------------------------|-------------------------|-----------|-----------|
| 2006 | 351 | 4 | 7 | 4 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 5 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 6 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 7 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |

**TFLORO**: *Turner 10AU Fluorometer; (tfloro_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | INTERNAL CLOCK | DIRECT CONCENTRATION |
|------|------|----|-----|-----|------|------|----------------|----------------------|
| 2006 | 350 | 17 | 12 | 28 | 842 | tflor | (16:42:11) | 0.135 |
| 2006 | 350 | 17 | 12 | 29 | 922 | tflor | (16:42:16) | 0.131 |
| 2006 | 350 | 17 | 12 | 31 | 2 | tflor | (16:42:21) | 0.129 |
| 2006 | 350 | 17 | 12 | 32 | 82 | tflor | (16:42:26) | 0.135 |

**uTHSL**: *Seabird SBE45 MicroThermosalinograph; (uthsl_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TEMP ($^o$C) | COND (Siemens/m) | SALINITY (PSU) | RTEMP ($^o$C) |
|------|------|----|-----|-----|------|------|--------------|------------------|----------------|---------------|
| 2008 | 77 | 12 | 0 | 1 | 241 | Uthsl | 28.929701 | 5.77001 | 35.334599 | 28.929701 |
| 2008 | 77 | 12 | 0 | 2 | 241 | Uthsl | 28.929899 | 5.77012 | 35.335201 | 28.929899 |
| 2008 | 77 | 12 | 0 | 3 | 241 | Uthsl | 28.9296 | 5.77021 | 35.336102 | 28.9296 |
| 2008 | 77 | 12 | 0 | 4 | 241 | Uthsl | 28.930099 | 5.77035 | 35.336601 | 28.930099 |

*REMOTE TEMP is the sensor closest to uncontaminated scientific seawater intake, 8 meters below surface.

**WINCH680**: *Dynacon Hydrographic Winch; (winch680_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RATE (meters/min) | WIRE OUT (meters) | TENSION (lbs) |
|------|------|----|-----|-----|------|------|-------------------|-------------------|---------------|
| 2006 | 335 | 7 | 33 | 25 | 793 | w680 | 20 | 462.9 | 386 |
| 2006 | 335 | 7 | 33 | 26 | 367 | w680 | 20 | 462.9 | 388 |
| 2006 | 335 | 7 | 33 | 27 | 212 | w680 | 20 | 463.2 | 386 |
| 2006 | 335 | 7 | 33 | 28 | 21 | w680 | 20 | 463.6 | 382 |

**WIND1**: *RM Young Anemometer; (wind1_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PORT WIND RELATIVE SPD (kts) | PORT WIND RELATIVE HDG (deg) | SOG (kts) | COG (deg) | POSMV HDG (deg) | WIND TRUE SPD (kts) | WIND TRUE HDG (deg) |
|------|------|----|-----|-----|------|------|------------------------------|------------------------------|-----------|-----------|-----------------|---------------------|---------------------|
| 2006 | 350 | 17 | 12 | 30 | 614 | rwd1 | 6 | 167 | 0 | 230.6 | 250.9 | 6 | 57.9 |
| 2006 | 350 | 17 | 12 | 32 | 605 | rwd1 | 5 | 161 | 0 | 230.1 | 250.9 | 5 | 51.9 |
| 2006 | 350 | 17 | 12 | 34 | 606 | rwd1 | 5 | 166 | 0 | 195.8 | 251 | 5 | 57 |
| 2006 | 350 | 17 | 12 | 36 | 605 | rwd1 | 6 | 159 | 0.1 | 141 | 251 | 6 | 49 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**WIND2**: *RM Young Anemometer; (wind2_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | STARBOARD WIND RELATIVE SPD (kts) | STARBOARD WIND RELATIVE HDG (deg) | SOG (kts) | COG (deg) | POSMV HDG (deg) | WIND TRUE SPD (kts) | WIND TRUE HDG (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 | 77 | 12 | 0 | 0 | 727 | rwd2 | 23 | 317 | 12.1 | 181.4 | 176.4 | 17.4 | 102.3 |
| 2008 | 77 | 12 | 0 | 2 | 728 | rwd2 | 23 | 315 | 11.8 | 181 | 176.8 | 17.7 | 101.5 |
| 2008 | 77 | 12 | 0 | 4 | 726 | rwd2 | 23 | 314 | 11.8 | 181.1 | 177.3 | 17.8 | 100.9 |
| 2008 | 77 | 12 | 0 | 6 | 730 | rwd2 | 24 | 317 | 11.9 | 182 | 177.2 | 18.3 | 105.3 |

**XBT**: *Sippican MK21 eXpendable Bathymetric Temperature probe; (xbt_######)*

| DEPTH(M) | TEMP | SOUND_VEL |
|---|---|---|
| 0.6 | 25.14 | 1534.53* |
| 1.3 | 25.13 | 1534.52* |
| 1.9 | 25.11 | 1534.48* |

# Secondary Logger  (Secondary backup of all raw data)

**All data formats are the same as Primary_Logger**

# *CRUISEID*-finaldata (CORRECTED/PROCESSED)

**pCO$_2$-data**: *General Oceanics 8050 Automated Flowing pCO$_2$ Measuring System*; *(C076533106_jday-start time)* *(C076533106 = sensor serial number)*

| TYPE | ERROR | DATE (dd/mm/yy) | PC TIME | equ TEMP (°C) | std val | CO2 mv | CO2 (um/m) | H2O mv | H2O (mm/m) | LICOR TEMP (°C) | LICOR PRESSURE (mbar) | equ PRESS | H2O FLOW (liters/min) | LICOR flow | equ pump | vent flow | atm cond | equ cond |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATM | 0 | 20/09/07 | 0:01:58 | 26.71 | NaN | 12969595 | 379.93 | 13149538 | 2.9 | 24.82 | 1018.11 | 0.75 | 2.79 | 90.96 | 106 | 0.89 | 9.9 | 9.9 |
| ATM | 0 | 20/09/07 | 0:03:18 | 26.71 | NaN | 12979352 | 379.94 | 13175928 | 2.86 | 24.82 | 1018.16 | 0.76 | 2.81 | 92.19 | 106 | 2.06 | 9.92 | 9.91 |
| EQU | 0 | 20/09/07 | 0:08:04 | 26.7 | NaN | 12954023 | 382.56 | 13234403 | 1.62 | 24.83 | 1018.37 | 0.84 | 2.8 | 101.79 | 106 | -0.32 | 9.91 | 9.91 |
| EQU | 0 | 20/09/07 | 0:09:24 | 26.7 | NaN | 12961814 | 382.2 | 13248906 | 1.62 | 24.84 | 1018.53 | 0.82 | 2.83 | 100.22 | 106 | 3.06 | 9.9 | 9.89 |

### pCO$_2$ Continued…

| drip 1 | drip 2 | CONDENSER TEMP (°C) | DRY BOX TEMP (°C) | GPS TIME | LATITUDE (deg) | LONGITUDE (deg) | ATMOSPHERIC PRESSURE (mbar) | TSG TEMP (°C) | TSG SALINITY (PSU) | TEMP INTERNAL? (°C) | RELATIVE WIND SPEED (kts) | RELATIVE WIND DIR (deg) | SOG (deg) | COG (deg) | TRUE HDG (deg) | TRUE WIND SPEED (kts) | TRUE WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.02 | 0.01 | 4.06 | 22.06 | | 0 | 0 | 1015.53 | 26.81046 | 35.12822 | 28.07145 | 24 | 315 | 10.8 | 153.5 | 149.7 | 18.7 | 79 |
| 0.02 | 0.02 | 4.69 | 22.06 | | 0 | 0 | 1015.49 | 26.81109 | 35.12775 | 28.06773 | 28 | 313 | 10.8 | 150.8 | 148.8 | 22.4 | 80.5 |
| 0.02 | 0.02 | 4.69 | 22 | | 0 | 0 | 1015.54 | | | | 28 | 309 | 11.4 | 153.7 | 150.9 | 23.2 | 76.5 |
| 0.02 | 0.02 | 4.81 | 22.06 | | 0 | 0 | 1015.57 | | | | 26 | 308 | 11.1 | 158.8 | 149.9 | 22.8 | 72.6 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

### CRUISEID-ADU5: *Ashtech ADU5 GPS;* *(CRUISEID_ADU5)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | EL (m) | HDOP | SOG (kts) | COG (deg) | #SATs | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | SV | QUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 29 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.1 | 202.68 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.09 | 214.35 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 31 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.29 | 185.56 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |
| 2006 | 350 | 17 | 12 | 32 | 0 | *gpa | 21.3155 | -157.887 | 27 | 2.1 | 0.15 | 182.34 | 6 | 12 | 0 | 0 | 29 | 0 | 5 | 0 | 0 | 26 | 17 | 0 | 0 | 48 | 0 | 1 |

### CRUISEID-ATTD: *True Heading - derived from Ashtech ADU5;* *(CRUISEID_ATTD)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | SECONDS IN WEEK | TRUE HEADING (deg) | PITCH (deg) | ROLL (deg) | MRMS | BRMS | AFLAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 323 | 2 | 6 | 52 | 0 | Attd | 7627 | 85.20 | 0 | 0 | 0.0024 | 1321.653 | 1 |
| 2006 | 323 | 2 | 6 | 53 | 0 | Attd | 7628 | 85.12 | 0 | 0 | 0.0022 | 1320.950 | 1 |
| 2006 | 323 | 2 | 6 | 54 | 0 | Attd | 7629 | 84.92 | 0 | 0 | 0.0028 | 1321.153 | 1 |
| 2006 | 323 | 2 | 6 | 55 | 0 | Attd | 7630 | 84.91 | 0 | 0 | 0.0024 | 1321.343 | 1 |

### CRUISEID-BAROM: *Vaisala Digital Barometer;* *(CRUISEID_BAROM)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PRESSURE | UNITS |
|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 29 | 88 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 30 | 70 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 31 | 71 | bar1 | 1019.34 | mbar |
| 2006 | 350 | 17 | 12 | 32 | 70 | bar1 | 1019.33 | mbar |

### CRUISEID-CALEY: *Caley Oceanographic Winch*; *(CRUISEID_caley)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RATE (meters/min) | WIRE OUT (meters) | TENSION (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 353 | 4 | 47 | 46 | 901 | w322 | 32 | 206.6 | 565 |
| 2006 | 353 | 4 | 47 | 47 | 893 | w322 | 32 | 206.8 | 579 |
| 2006 | 353 | 4 | 47 | 48 | 369 | w322 | 32 | 207.4 | 561 |
| 2006 | 353 | 4 | 47 | 50 | 67 | w322 | 32 | 208.1 | 439 |

### CRUISEID-FLUORO: *Wetlabs WETStar Chlorophyll Fluorometer;* *(CRUISEID_FLUORO)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RAW SCALE_COUNT |
|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 28 | 842 | flor | 220 |
| 2006 | 350 | 17 | 12 | 29 | 922 | flor | 223 |
| 2006 | 350 | 17 | 12 | 31 | 2 | flor | 222 |
| 2006 | 350 | 17 | 12 | 32 | 82 | flor | 221 |

### CRUISEID-FLUORO_wfix: *Wetlabs WETStar Chlorophyll Fluorometer;* *(CRUISEID_FLUORO_wfix)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RAW SCALE_COUNT | LATITUDE (deg) | LONGITUDE (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 28 | 842 | flor | 220 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 29 | 922 | flor | 223 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 31 | 2 | flor | 222 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 32 | 82 | flor | 221 | 21.3155 | -157.887 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**CRUISEID-GYRO**: *Sperry Marine Digital Gyroscope* (CRUISEID_GYRO)

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | HEADING (deg) |
|------|------|----|-----|-----|------|------|---------------|
| 2006 | 350 | 17 | 12 | 28 | 374 | gyr1 | 241.1 |
| 2006 | 350 | 17 | 12 | 29 | 371 | gyr1 | 240.9 |
| 2006 | 350 | 17 | 12 | 30 | 373 | gyr1 | 240.9 |
| 2006 | 350 | 17 | 12 | 31 | 374 | gyr1 | 240.9 |

**CRUISEID-RDEPTH**: *Depth, selecting for most accurate multibeam system given depth range (EM1002= 20m-800m; EM122=300m-7000m);* (CRUISEID_RDPTH)

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | EM122 DEPTH (m) | EM1002 DEPTH (m) |
|------|------|----|-----|-----|------|------|-----------------|------------------|
| 2006 | 321 | 19 | 17 | 16 | 681 | dpth | 4744.62 | 0 |
| 2006 | 321 | 19 | 17 | 31 | 419 | dpth | 4741.73 | 0 |
| 2006 | 321 | 19 | 17 | 46 | 973 | dpth | 4744.53 | 0 |
| 2006 | 321 | 19 | 18 | 2 | 26 | dpth | 4745.93 | 0 |

**CRUISEID-RMAGY**: *Geometrics G-882 Cesium Marine Magnetometer;* (CRUISEID_RMAGY)

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TOT FIELD | SIGNAL LEVEL | DEPTH (meters) |
|------|------|----|-----|-----|------|------|-----------|--------------|----------------|
| 2006 | 28 | 0 | 35 | 58 | 444 | magy | 66350.18 | 42 | 0 |
| 2006 | 28 | 0 | 35 | 59 | 444 | magy | 44382.68 | 39 | 0 |
| 2006 | 28 | 0 | 36 | 0 | 444 | magy | 40180.02 | 39 | 0 |
| 2006 | 28 | 0 | 36 | 1 | 444 | magy | 37704.17 | 39 | 0 |

**CRUISEID-RPM**: *Shipboard Propulsion System;* (CRUISEID_RPM)

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PORT (rpm) | STBD (rpm) | BOW THRUSTER (%) | BOW THRUSTER AZIMUTH (deg) |
|------|------|----|-----|-----|------|------|------------|------------|------------------|----------------------------|
| 2006 | 350 | 17 | 59 | 58 | 810 | *rpm | 0 | -89.1 | 64.8 | 263.5 |
| 2006 | 350 | 17 | 59 | 59 | 810 | *rpm | 0 | -89.1 | 65.2 | 263.5 |
| 2006 | 350 | 18 | 0 | 0 | 810 | *rpm | 0 | -89 | 65.6 | 264.5 |
| 2006 | 350 | 18 | 0 | 1 | 810 | *rpm | 0 | -89.1 | 66 | 259.1 |

**CRUISEID-MET**: *RM Young Resistive Temperature Device (RTD); Rotronic Instrument Corp. Humidity Probe (HUMIDITY); RM Young Precipitation Gauge (PRECIPITATION); Eppley Precision Spectral Pyranometer (PSP); Eppley Precision Infrared Radiometer (PIR); Biospherical Quantum Scalar Reference (PAR); OSI Optical Rain Gauge (ORG);* (CRUISEID_MET)

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PANEL TEMP ($^{o}$C) | RTD TEMP ($^{o}$C) | HUMIDITY (%) | HUM TEMP ($^{o}$C) | PRECIPITATION (mm) | PSP (W/m$^2$) | PIR (W/m$^2$) | TEMP PIR CASE ($^{o}$K) | TEMP PIR HEMIS ($^{o}$K) | RTD Fan (mVolts) | HUM Fan (mVolts) | PAR (W/m$^2$) | ORG Rate (mm/hr) | ORG Accumulation (mm) |
|------|------|----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 2006 | 290 | 0 | 0 | 1 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 350.452564 | 350.525621 | 290.452564 | 291.752564 | 2.5 | 2.5 | 269.556714 | 0 | 0.0 |
| 2006 | 290 | 0 | 0 | 2 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 351.645764 | 351.672166 | 290.645764 | 292.785764 | 2.5 | 2.5 | 270.459112 | 10.0 | 0.1 |
| 2006 | 290 | 0 | 0 | 3 | 307 | met | 31.005 | 28.013 | 68.013 | 28.344 | 2.722 | 350.242264 | 350.242268 | 290.242264 | 292.287454 | 2.5 | 2.5 | 270.490214 | 10.0 | 0.1 |
| 2006 | 290 | 0 | 0 | 4 | 307 | met | 31.005 | 28.013 | 67.947 | 28.344 | 2.728 | 349.442564 | 349.111564 | 290.442564 | 291.752564 | 2.5 | 2.5 | 271.456787 | 0 | 0.1 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**CRUISEID-NAV**: *Master navigation file, generally derived from POS/MV data;* *(CRUISEID_NAV)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 39 | 0 | 0 | *nav | 21.31542 | -157.887 |
| 2006 | 320 | 17 | 39 | 10 | 0 | *nav | 21.31542 | -157.887 |
| 2006 | 320 | 17 | 39 | 20 | 0 | *nav | 21.31542 | -157.887 |
| 2006 | 320 | 17 | 39 | 30 | 0 | *nav | 21.31542 | -157.887 |

**CRUISEID-POS-MV**: *Applanix POS-MV GPS/Inertial Measurement Unit;* *(CRUISEID_POS-MV)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | HDOP | SOG (kts) | COG (deg) | #SATs | QUAL | HEADING (deg) | ROLL (deg) | PITCH (deg) | HEAVE (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 27 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 181.4 | 9 | 1 | 250.85 | 0.24 | 0.58 | 0.14 |
| 2006 | 350 | 17 | 12 | 28 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 190.6 | 9 | 1 | 250.88 | 0.26 | 0.59 | 0.14 |
| 2006 | 350 | 17 | 12 | 29 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 230.6 | 9 | 1 | 250.9 | 0.28 | 0.6 | 0.15 |
| 2006 | 350 | 17 | 12 | 30 | 895 | *gpo | 21.31541 | -157.887 | 0.9 | 0 | 234.9 | 9 | 1 | 250.92 | 0.3 | 0.61 | 0.15 |

**CRUISEID-RWIND1**: *RM Young Anemometer;* *(CRUISEID_ RWIND1)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | PORT WIND RELATIVE SPD (kts) | PORT WIND RELATIVE HDG (deg) | SOG (kts) | COG (deg) | POSMV HDG (deg) | WIND TRUE SPD (kts) | WIND TRUE HDG (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 350 | 17 | 12 | 30 | 614 | rwd1 | 6 | 167 | 0 | 230.6 | 250.9 | 6 | 57.9 |
| 2006 | 350 | 17 | 12 | 32 | 605 | rwd1 | 5 | 161 | 0 | 230.1 | 250.9 | 5 | 51.9 |
| 2006 | 350 | 17 | 12 | 34 | 606 | rwd1 | 5 | 166 | 0 | 195.8 | 251 | 5 | 57 |
| 2006 | 350 | 17 | 12 | 36 | 605 | rwd1 | 6 | 159 | 0.1 | 141 | 251 | 6 | 49 |

**CRUISEID-RWIND2**: *RM Young Anemometer;* *(CRUISEID_RWIND2)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | STARBOARD WIND RELATIVE SPD (kts) | STARBOARD WIND RELATIVE HDG (deg) | SOG (kts) | COG (deg) | POSMV HDG (deg) | WIND TRUE SPD (kts) | WIND TRUE HDG (deg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 | 77 | 12 | 0 | 0 | 727 | rwd2 | 23 | 317 | 12.1 | 181.4 | 176.4 | 17.4 | 102.3 |
| 2008 | 77 | 12 | 0 | 2 | 728 | rwd2 | 23 | 315 | 11.8 | 181 | 176.8 | 17.7 | 101.5 |
| 2008 | 77 | 12 | 0 | 4 | 726 | rwd2 | 23 | 314 | 11.8 | 181.1 | 177.3 | 17.8 | 100.9 |
| 2008 | 77 | 12 | 0 | 6 | 730 | rwd2 | 24 | 317 | 11.9 | 182 | 177.2 | 18.3 | 105.3 |

**CRUISEID-SPDHDG**: *Speed and Heading, derived from ship's gyro and magnetic speed log (STW);* *(CRUISEID_SPDHDG)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | SPEED (kts) | HEADING (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 322 | 18 | 23 | 0 | 0 | sphd | 7.34 | 195.5 |
| 2006 | 322 | 18 | 23 | 10 | 0 | sphd | 7.41 | 195.7 |
| 2006 | 322 | 18 | 23 | 20 | 0 | sphd | 7.52 | 195.8 |
| 2006 | 322 | 18 | 23 | 30 | 0 | sphd | 7.46 | 195.5 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

### CRUISEID-SIMRAD: *Simrad GPS; (CRUISEID_SIMRAD)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | HEIGHT (m) | HDOP | SOG (kts) | COG (hdg) | #SATs | QUAL |
|------|------|----|-----|-----|------|------|----------------|-----------------|------------|------|-----------|-----------|-------|------|
| 2006 | 350 | 17 | 12 | 28 | 50 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 29 | 28 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 7 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |
| 2006 | 350 | 17 | 12 | 30 | 87 | *sim | 21.31549 | -157.887 | 28 | 1.5 | 0 | 0.1 | 8 | 1 |

### CRUISEID-SSV: *Applied MicroSystems Sound Velocity & Temperature; (CRUISEID_SSV)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TEMP ($^oC$) | SOUND SPEED (m/s) |
|------|------|----|-----|-----|------|------|--------------|-------------------|
| 2008 | 77 | 0 | 0 | 0 | 286 | *ssv | 28.452 | 1541.88 |
| 2008 | 77 | 0 | 0 | 1 | 175 | *ssv | 28.45 | 1542.42 |
| 2008 | 77 | 0 | 0 | 2 | 61 | *ssv | 28.45 | 1542.48 |
| 2008 | 77 | 0 | 0 | 2 | 950 | *ssv | 28.452 | 1541.75 |

### CRUISEID-STW: *Magnetic Speed Log (Speed Thru Water); (CRUISEID_STW)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | SPEED THRU WATER (kts) | CROSS TRACT SPEED (kts) | COG (deg) | SOG (kts) |
|------|------|----|-----|-----|------|------|------------------------|-------------------------|-----------|-----------|
| 2006 | 351 | 4 | 7 | 4 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 5 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 6 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |
| 2006 | 351 | 4 | 7 | 7 | 717 | stw1 | 0.2 | -2.6 | 0 | 0 |

### CRUISEID-TFLORO: *Turner 10AU Fluorometer; (tfloro_jday_raw)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | INTERNAL CLOCK | DIRECT CONCENTRATION |
|------|------|----|-----|-----|------|------|----------------|----------------------|
| 2006 | 350 | 17 | 12 | 28 | 842 | tflor | (16:42:11) | 0.135 |
| 2006 | 350 | 17 | 12 | 29 | 922 | tflor | (16:42:16) | 0.131 |
| 2006 | 350 | 17 | 12 | 31 | 2 | tflor | (16:42:21) | 0.129 |
| 2006 | 350 | 17 | 12 | 32 | 82 | tflor | (16:42:26) | 0.135 |

### CRUISEID-TFLORO_wfix: *Turner 10AU Fluorometer matched with GPS; (CRUISEID_TFLORO_wfix)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | INTERNAL CLOCK | DIRECT CONCENTRATION | LATITUDE (deg) | LONGITUDE (deg) |
|------|------|----|-----|-----|------|------|----------------|----------------------|----------------|-----------------|
| 2006 | 350 | 17 | 12 | 28 | 842 | tflor | (16:42:11) | 0.135 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 29 | 922 | tflor | (16:42:16) | 0.131 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 31 | 2 | tflor | (16:42:21) | 0.129 | 21.3155 | -157.887 |
| 2006 | 350 | 17 | 12 | 32 | 82 | tflor | (16:42:26) | 0.135 | 21.3155 | -157.887 |

### CRUISEID-UTHSL: *Seabird SBE45 MicroThermosalinograph; (CRUISEID_UTHSL)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | TEMP ($^oC$) | COND (Siemens/m) | SALINITY (PSU) | RTEMP ($^oC$) |
|------|------|----|-----|-----|------|------|--------------|------------------|----------------|---------------|
| 2008 | 77 | 12 | 0 | 1 | 241 | uthsl | 28.929701 | 5.77001 | 35.334599 | 28.929701 |
| 2008 | 77 | 12 | 0 | 2 | 241 | uthsl | 28.929899 | 5.77012 | 35.335201 | 28.929899 |
| 2008 | 77 | 12 | 0 | 3 | 241 | uthsl | 28.9296 | 5.77021 | 35.336102 | 28.9296 |
| 2008 | 77 | 12 | 0 | 4 | 241 | uthsl | 28.930099 | 5.77035 | 35.336601 | 28.930099 |

*REMOTE TEMP is the sensor closest to uncontaminated scientific seawater intake, 8 meters below surface.

**CRUISEID-UTHSL_WFIX:** *Thermosalinograph data matched with GPS;* *(CRUISEID_UTHSL_WFIX)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | LATITUDE (deg) | LONGITUDE (deg) | TEMP (°C) | COND (Siemens/m) | SALINITY (PSU) | REMOTE TEMP* (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 19 | 37 | 30 | 0 | thsl | 21.24665 | -158.095 | 27.13551 | 5.51874 | 34.91502 | 27.14373 |
| 2006 | 320 | 19 | 37 | 40 | 0 | thsl | 21.24664 | -158.096 | 27.13924 | 5.5196 | 34.91833 | 27.13936 |
| 2006 | 320 | 19 | 37 | 50 | 0 | thsl | 21.24664 | -158.096 | 27.14049 | 5.51998 | 34.92011 | 27.13127 |
| 2006 | 320 | 19 | 38 | 0 | 0 | thsl | 21.24663 | -158.097 | 27.14173 | 5.52045 | 34.92257 | 27.13563 |

*REMOTE TEMP is the sensor closest to uncontaminated scientific seawater intake, 8 meters below surface.

**CRUISEID-TWIND1-ITW:** *True Wind data, instantaneous;* *(CRUISEID_TWIND1_ITW)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 38 | 21 | 811 | twnd | 4.1 | 65.9 |
| 2006 | 320 | 17 | 38 | 23 | 801 | twnd | 4.1 | 66.9 |
| 2006 | 320 | 17 | 38 | 25 | 799 | twnd | 4.1 | 61.2 |
| 2006 | 320 | 17 | 38 | 27 | 803 | twnd | 5.1 | 53.3 |

**CRUISEID-TWIND1-T1:** *True Wind data, 1 minute averages;* *(CRUISEID_TWIND1_T1)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 41 | 0 | 0 | twnd | 4.28 | 58.7 |
| 2006 | 320 | 17 | 42 | 0 | 0 | twnd | 3.13 | 52 |
| 2006 | 320 | 17 | 43 | 0 | 0 | twnd | 2.91 | 59.9 |
| 2006 | 320 | 17 | 44 | 0 | 0 | twnd | 3.38 | 57.6 |

**CRUISEID-TWIND1-T5:** *True Wind data, 5-minute averages;* *(CRUISEID_WIND1_T5)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 55 | 0 | 0 | twnd | 4.75 | 53 |
| 2006 | 320 | 18 | 0 | 0 | 0 | twnd | 5.31 | 56.2 |
| 2006 | 320 | 18 | 5 | 0 | 0 | twnd | 5.51 | 58.5 |
| 2006 | 320 | 18 | 10 | 0 | 0 | twnd | 5.77 | 59.8 |

**CRUISEID-TWIND2-ITW:** *True Wind data, instantaneous;* *(CRUISEID_TWIND2_ITW)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 38 | 21 | 811 | twnd | 4.1 | 65.9 |
| 2006 | 320 | 17 | 38 | 23 | 801 | twnd | 4.1 | 66.9 |
| 2006 | 320 | 17 | 38 | 25 | 799 | twnd | 4.1 | 61.2 |
| 2006 | 320 | 17 | 38 | 27 | 803 | twnd | 5.1 | 53.3 |

**CRUISEID-TWIND2-T1:** *True Wind data, 1 minute averages;* *(CRUISEID_TWIND2_T1)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|---|---|---|---|---|---|---|---|---|
| 2006 | 320 | 17 | 41 | 0 | 0 | twnd | 4.28 | 58.7 |
| 2006 | 320 | 17 | 42 | 0 | 0 | twnd | 3.13 | 52 |
| 2006 | 320 | 17 | 43 | 0 | 0 | twnd | 2.91 | 59.9 |
| 2006 | 320 | 17 | 44 | 0 | 0 | twnd | 3.38 | 57.6 |

# FORMATS OF LOGGED DATA: *UPDATED 2-Feb-13*

**_CRUISEID_-TWIND2-T5**: *True Wind data, 5-minute averages;* *(CRUISEID_WIND2_T5)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | WIND SPEED (kts) | WIND DIRECTION (deg) |
|------|------|-----|-----|-----|------|------|------------------|----------------------|
| 2006 | 320 | 17 | 55 | 0 | 0 | twnd | 4.75 | 53 |
| 2006 | 320 | 18 | 0 | 0 | 0 | twnd | 5.31 | 56.2 |
| 2006 | 320 | 18 | 5 | 0 | 0 | twnd | 5.51 | 58.5 |
| 2006 | 320 | 18 | 10 | 0 | 0 | twnd | 5.77 | 59.8 |

**_CRUISEID_-WINCH680**: *Dynacon Hydrographic Winch;* *(CRUISEID_WINCH680)*

| YEAR | JDAY | HR | MIN | SEC | MSEC | CODE | RATE (meters/min) | WIRE OUT (meters) | TENSION (lbs) |
|------|------|-----|-----|-----|------|------|-------------------|-------------------|---------------|
| 2006 | 335 | 7 | 33 | 25 | 793 | w680 | 20 | 462.9 | 386 |
| 2006 | 335 | 7 | 33 | 26 | 367 | w680 | 20 | 462.9 | 388 |
| 2006 | 335 | 7 | 33 | 27 | 212 | w680 | 20 | 463.2 | 386 |
| 2006 | 335 | 7 | 33 | 28 | 21 | w680 | 20 | 463.6 | 382 |

*** EDIT HISTORY ***

| | |
|---|---|
| 1-Feb-13 | Deleted extra ultra sonic column from Rawdata Met |
| | Deleted Carson Gravimeter |
| | Added Bgm3grav to Rawdata |
| | Added tfloro and tfloro_wfix to Finaldata |
| | Changed winch322 to caley |
| | Minor formatting issues. -BJC |
| 15-Apr-12 | Kuhio, ??? |
| 23-Jul-10: | Cleaned up some formatting and added a missing final data file formats -JES |
| 20-Jul-10: | Updated all logged file and data structure -JES |
| 6-Jun-08: | Major update on file structure of all data.  - *tm* |
| 3-Apr-08: | Sound velocity data definitions added - *tm* |
| | Micro thermosalinograph data definitions added |
| | Wind2 data definitions added |
| | MET definitions corrected to reflect new Campbell data logger |
| | Wind1 data definitions corrected to remove wind2 data |
| | |
| 22-Sep-07: | Raw magnetometer concatenated file name added to Prelim directory CRUISE_ID definitions – *tm* |
| | Corrected magnetometer data definitions added |
| | Raw gravity data header definitions corrected |
| | pCO2 data definitions added |
| | |
| 4-Apr-07: | Logged CTD data added. – *tm* |
| | |
| 31-Jan-07: | First version submitted. – *tm* |