
LMG04-01

PALMER LTER

Cruise Data Report

Jan 01, 2004 – Feb 07, 2004

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Introduction

The LMG data acquisition systems continuously log data from a suite of instrumentation throughout the cruise. This document describes the format of that data and its location on the distribution CDs. It also contains important information that describes how this data was processed and points out instrument failures or other known problems with acquisition.

The data collected during this cruise is distributed on a CD-ROM written in ISO9660 level-1 format. This data format has very strict requirements on filenames and organization. However, it is readable by virtually every computing platform.

All of the data has been archived with the Unix "tar" command and/or compressed using Unix "gzip" compression. Tar files have a ".tar" extension and Gzipped files have a ".gz" extension. Tools are available on all platforms for uncompressing and de-archiving these formats. On Macintosh, Stuffit Expander with DropStuff will open a tar archive and uncompress gzipped and Unix compressed files. For Windows9X, WinZip, a shareware utility included on this CD (remember, it is shareware) will open these files.

IMPORTANT: Read the last section in this document, Acquisition Problems and Events, for important information that may affect the processing of this data.

Archive Data Extraction

It is often useful to know exactly how an archive was produced when expanding its contents. Tar files were created using the following commands:

```
tar cvLf archive-file files-to-be-archived
```

To create a list of the files in the archive:

```
tar tvf archive-file > contents.list
```

To extract the files from the archive:

```
tar xvf archive-file file(s)-to-extract
```

G-zipped files will have a “.gz” extension on the filename. These files can be decompressed after de-archiving, using:

```
gunzip filename.gz
```

CD Directory Structure – CD #1

ADCP/

- Pingdata/
 - PINGDATA.###
- Boot.log
- Start
- UE4
- Exit
- Gentoo/
 - Gentoo.tar

CAL/

- MET.tar
- UW.tar
- SVP.tar
- CTD.tar

CTD/

- Process/
- Raw/
- Scripts/

ISOBARS/

- ISOBARS.tar

JGOF/

- Imgjgof.tar

MAP/

- *.jpg
- *.ps

PCO2/

- Imgpco2.tar

QC_PLOTS/

- Imgqc.tar

REPORT/

- report.doc
- report.html
- report.txt

SALINITY/

- Transect.xls
- Salts.tar

TCO2/

- TCO2.jpg

UTILITY/

- Winzip
- Stuffit Expander

XBT/

- dat.tar
- efiles.tar
- log.tar
- nav.tar
- sfiles.tar

XCTD/

- C3_[n].edf
- C3_[n].rdf
- Xctdlog/
 - Page_*.jpg

CD Directory Structure – CD #2

/RVDAS

 Imguw.tar

 Imgnav.tar



Distribution Contents

ADCP

Adcp/

The ADCP data set is broken up into files representing 24 hours of data collection. The files are named pingdata.xxx (xxx representing a day number). Note that these extensions do NOT represent Julian day numbers. Please refer to the file's creation date.

Some ADCP data is also transmitted to RVDAS. East and North vectors for ship's speed relative to the reference layer and ship's heading are archived in the navigational data section of RVDAS.

Calibration

Cal/

The tar files in the Cal directory contain images of calibration sheets for each of the following systems: Sound Velocity Probe, Meteorological System, Underway System, GUV, and CTD

CTD

CTD/

The ctd data was collected and processed on a windows 98 computer, using Seasave Win32 – Version 5.25a and SBE Data Processing – Version 5.21.

For more information and software visit the web site at www.seabird.com.

CTD/Scripts/

This directory contains the batch file and psu files that we used for post processing the data. The data was processed with the standard seabird processing method. This is just a preliminary processing which was done to verify that the sensors were functioning properly during the cruise. The raw data should be re-processed using the pre and post cruise sensor calibrations.

CTD/Data/raw

The raw.gz file is a tar archive file that has been compressed with gzip, for more information on this see the above *Introduction* section. This archive contains the raw file collect at each CTD cast, which is represented by a set of four files containing a bottle-firing file (.bl), a configuration file (.con), a data file (.dat) and a header file (.hdr). Casts are named with the following g301L#S.ext, where g is for the LMG, 309 is the cruise 0309, # is the Leg number, S is the station number, and ext is the extension (bl, con, dat, hdr). For example; the raw files associated with the Leg 1 and Station A on this cruise are: g0301L1A.bl, g0301L1A.con, g0301L1A.dat, g0301L1A .hdr. The raw data files(*.dat) are binary files.

CTD/Data/process

The process.gz file is a tar archive file that has been compressed with gzip. For more information on this see the above *Introduction* section. This archive contains the processed data files for each CTD cast, the processing method used is briefly described in the above section *CTD/Pscripts/*. Also see the above section *CTD/Data/raw* for a description of the file naming convention used. Each processed cast is represented here by a set of eight files:

g301L1A.con	A copy of the configuration file for the cast.
g301L1A.cnv	The converted file for the whole cast.
dg301L1A.cnv	The converted file for the down cast.
dg301L1A.asc	An ASCII formatted file for the down cast without a header.

dg301L1A.hdr	The header for the down cast.
ug301L1A.cnv	The converted file for the up cast.
ug301L1A.asc	An ASCII formatted file for the up cast without a header.
ug301L1A.hdr	The header for the up cast.

Cruise Track

Map/

PostScript and JPG cruise track plots have been produced for this cruise: <cruise_#>.ps and <cruise_#>.jpg.

Isobar Charts

Isobars/

Analysis of mean sea level pressure from the National Center for Environmental Prediction's Medium Range Forecast Model. Updated every 12 hours.

Data and Science Report

Report/

Copies of this report in MS Word, HTML, and text formats. The weekly science reports in text format may be included upon request of the Principal Investigator.

QC Plots

QC_Plots/

Postscript files of data stored each day on RVDAS for quality control analysis during the cruise. There are 3 types of files, named metXXX.ps, navXXX.ps, and oceanXXX.ps, where XXX is represents the Julian day. Met files are a summary of the data from the meteorological instruments, Nav files are a summary of navigational data, and Ocean files are a summary of the underway seawater and bathymetry data.

JGOFS Data Set

JGOF/

The JGOFS data set consists of a single file produced each day named jg<julian_day>.dat.gz where <julian_day> is the day the data was acquired. The ".gz" extension indicates that the individual files are compressed before archiving. The daily file consists of 22 separate columnar fields in text format, which are described below. The JGOFS data set is obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. However, several fields are derived measurements from more than a single raw input. *Note: Null, unused, or unknown fields are filled with 9's in the JGOFS data.*

Additionally, 3 separate QC plots are generated daily by the ET using the JGOFS data set. These plots include TSG and Bathymetry data, meteorological data, and navigation data. The files are called ocean<julian_day>.ps, met<julian_day>.ps, and nav<julian_day>.ps respectively.

Field	Data	Units
01	GMT date	dd/mm/yy

Field	Data	Units
02	GMT time	hh:mm:ss
03	PCOD latitude (negative is South)	Ddd.dddd
04	PCOD longitude (negative is West)	Ddd.dddd
05	Ships speed	Knots
06	GPS HDOP	-
07	Gyro Heading	Degrees (azimuth)
08	Course over ground	Degrees (azimuth)
09	Mast PAR	μ Einsteins/meters ² sec
10	Sea surface temperature	°C
11	Not used	-
12	Sea surface salinity	PSU
13	Sea depth (uncorrected, calc. sw sound vel. 1500 m/s)	meters
14	True wind speed (port windbird)	meters/sec
15	True wind direction (port windbird)	degrees (azimuth)
16	Ambient air temperature	°C
17	Relative humidity	%
18	Barometric pressure	mBars
19	Sea surface fluorometry	volts (0-5 FSO)
20	Not used	-
21	PSP	W/m ²
22	PIR	W/m ²

RVDAS

rvdas/

RVDAS (Research Vessel Data Acquisition System) was developed at Lamont-Doherty Earth Observatory of Columbia University and has been used on the R/V Maurice Ewing for several years. It was adapted for use on the Nathaniel B. Palmer and her sister ship, the R/V Laurence M. Gould.

Below you will find detailed information on the data included. Be sure to read the "Significant Acquisition Events" section below for important information about data acquisition during this cruise.

Meteorological and Light Data

Measurement	File ID	Collect. Status	Rate	Instrument
Air Temperature	lmet	continuous	1 sec	R. M. young 41372VC
Relative Humidity	lmet	continuous	1 sec	R. M. young 41372VC
Wind Speed/Direction	lmet	continuous	1 sec	R. M. young 5106
PIR (LW radiation)	lmet	continuous	1 sec	Eppley PIR
PSP (SW radiation)	lmet	continuous	1 sec	Eppley PSP
Photosynthetically-Available Radiation	lmet	continuous	1 sec	BSI QSR-240
Barometer	lmet	continuous	1 sec	R. M. young 61201
GUV & PUV	lpuv	continuous	1 sec	GUV2511 & PUV2510

Navigational Data

Measurement	File ID	Collect. Status	Rate	Instrument
Attitude GPS	lash	continuous	1 sec	Ashtec ADU-2
P-Code GPS	lpcd	continuous	1 sec	Trimble 20636-00SM
Gyro	lgyr	continuous	0.2 sec	Anschutz Gyro
Trimble GPS	tgps	continuous	1 sec	NT200

Geophysical Data

Measurement	File ID	Collect. Status	Rate	Instrument
Bathymetry	lknu	variable	Varies	Knudsen 320B/R

Oceanographic Data

Measurement	File ID	Collect. Status	Rate	Instrument
Salinity	ltsg	continuous	15 sec	SeaBird 21
Sea S Temperature	ltsg	continuous	15 sec	SeaBird 3-01/S
Fluorometry (analog)	ltsg	continuous	15 sec	Turner 10-AU-005
ADCP	ladc	continuous	1 sec	RD Instruments

Data File Names and Structures

RVDAS data is divided into two broad categories, *Underway* and *Navigation*. The groups are abbreviated “uw” and “nav”. Thus, these two tar files, lmguw.tar and lmgnav.tar exist under the top-level rvdas directory. The instruments are broken down as shown. Each data file is g-zipped to save space on the distribution. Not all data types are collected everyday or on every cruise.

RVDAS data files are named following the convention: [FileID].dDDD.

- The FileID is a 4-character code representing the system being logged, for example: lmet (for meteorology)
- DDD is the Julian day of the data collection

Underway Data	File ID
Metrological	lmet
Knudsen	lknu
Thermosalinograph	ltsg
ADCP	ladc
Sound Velocity Probe	lsvp
GUV & PUV	lpuv

Navigation Data	File ID
Gyro Compass	lgyr
P-CODE GPS	lpcd
Ashtech ADU2 GPS	lash
Trimble NT2100 GPS	tgps
PCO2 System	lpcd

Data is received by the RVDAS system via RS-232 serial connections. The data files that comprise the rvdas data set are described below. A time tag is added to each line of data received and the data is written to disk.

```
YY+DDD:HH:MM:SS.SSS [data stream from instrument]
```

Where, YY: two-digit year, DDD: Julian Day, HH: 2 digit hours, MM: 2 digit minutes SS.SSS: seconds. All times are UTC.

The delimiters used to separate fields in the raw data files are usually spaces and commas, but other delimiters are used (:, =, @) and occasionally there is no delimiter. Care should be taken when reprocessing the data that the fields separations are clearly understood. An example data

lknu

```
99+099:00:18:19.775 hf,305.2,lf,304.3
```

Field	Data	Units
1	RVDAS Time Tag	
2	hf – high frequency flag (12 kHz)	
3	high fequency depth	meters
4	lf – low frequency flag (3.5 kHz)	
5	low frequency depth	meters

lmet

```
02+314:23:59:50.067 01.2 047 028 01.3 063 042 0988.8 001.7 084 -000.2192 0000.9358 0025.5875
```

Field	Data	Units
1	RVDAS Time Tag	
2	Port Wind Speed	m/s
3	Port Wind Direction	deg
4	Port Wind Direction (standard deviation)	deg
5	Starboard Wind Speed	m/s
6	Starboard Wind Direction	deg
7	Starboard Wind Direction (standard deviation)	deg
8	Barometer	millibars
9	Temperature	°C

Field	Data	Units
10	Relative humidity	%
11	PSP (long wave radiometer)	Volts
12	PIR (short wave radiometer)	Volts
13	PAR (photo-synthetically available radiation, 400 - 700 nm)	Volts

Itsg

02+310:23:57:30.200 8542 -1.2580 34.1740 -1.2030 3.435 0.349 27.361205

Field	Data	Units
1	RVDAS Time Tag	
2	Scan number	
3	Internal water temperature	°C
4	Salinity	PSU
5	External water temperature	°C
6	Transmissometer signal	Volts
7	Fluorometer signal (analog)	Volts
8	Conductivity	mS/cm

** Please see note regarding TSG calibration information on the last page of the Cruise Data Report under the section entitled Acquisition and Processing Information – Errors and Events. **

Ipco

02+319:23:59:13.748 2002319.99851 7154.27 26.49 1033.6 325.79 6.74 329.3
53.76 0 Equil

Field	Data	Units
1	RVDAS Time Tag	
2	Julian date file string	Julian
3	IR voltage reading	mV
4	Cell temperature	°C
5	Barometer	millibars
6	VCO2	mL
7	Equilibrator temperature	°C
8	PCO2	millibars
9	Gas flow	mL/min
10	Solenoid position ID	number
11	Measured gas	name

lpuv

03+354:15:56:13.346 122003 155612 -.00007 4.632E-4 8.417E-5 1.027E-4 3.824E-2 -4.492E-6 5.196E-4
5.2E-1 2.793E-3 23.876 -.804 26.812 26.852 -1.238 3.525 .000099 2.581E1 5.058E1 1.442E1 2.73E0
6.136E1 1.406E-1 6.187E1 39.989

GUV only

Field	Data	Units
1	RVDAS Time Tag	
2	GUV Computer Date	mmddyy
3	GUV Computer Time	hhmmss
4	Ed0Gnd - GUV	Volts
5	Ed0320 - GUV	μW/cm ² nm
6	Ed0340 - GUV	μW/cm ² nm
7	Ed0313 - GUV	μW/cm ² nm

GUV and PUV

Field	Data	Units
1	RVDAS Time Tag	
2	GUV Computer Date	mmddyy
3	GUV Computer Time	hhmmss
4	EdZGnd -PUV	Volts
5	EdZ305 -PUV	μW/cm ² nm
6	EdZ313 -PUV	μW/cm ² nm
7	EdZ320 -PUV	μW/cm ² nm

8	Ed0305 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
9	Ed0380 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
10	Ed0PAR - GUV	$\mu\text{E}/\text{cm}^2\text{sec}$
11	Ed0395 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
12	Ed0Temp - GUV	$^{\circ}\text{C}$

8	EdZ395 -PUV	$\mu\text{W}/\text{cm}^2\text{nm}$
9	EdZ340 -PUV	$\mu\text{W}/\text{cm}^2\text{nm}$
10	EdZPAR -PUV	$\mu\text{E}/\text{cm}^2\text{sec}$
11	LuZChl -PUV	$\mu\text{E}/\text{srm}^2\text{sec}$
12	EdZ380 -PUV	$\mu\text{W}/\text{cm}^2\text{nm}$
13	WTemp -PUV	$^{\circ}\text{C}$
14	Depth -PUV	m
15	EdZTemp -PUV	$^{\circ}\text{C}$
16	LuZTemp -PUV	$^{\circ}\text{C}$
17	Tilt -PUV	Degrees
18	Roll -PUV	Degrees
19	Ed0Gnd - GUV	Volts
20	Ed0320 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
21	Ed0340 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
22	Ed0313 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
23	Ed0305 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
24	Ed0380 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
25	Ed0PAR - GUV	$\mu\text{E}/\text{cm}^2\text{sec}$
26	Ed0395 - GUV	$\mu\text{W}/\text{cm}^2\text{nm}$
27	Ed0Temp - GUV	$^{\circ}\text{C}$

lsvp

00+348:01:59:52.128 1539.40

Field	Data	Units
1	RVDAS Time Tag	
2	Sound velocity	m/s

ladc

00+019:23:59:59.099 \$PUHAW,UVH,-1.48,-0.51,250.6

Field	Data	Units
1	RVDAS Time Tag	
2	\$PUHAW	
3	UVH (E-W, N-S, Heading)	
4	Ship Speed relative to reference layer ¹ velocity ² , East vector	knots
5	Ship Speed relative to reference layer ¹ velocity ² , North vector	knots
6	Ship heading	degrees

¹The reference layer is an average velocity measured in a number of depth "bins". On the LMG, the bins are eight meters deep and bins 3-10 define the reference layer. Hence, the reference layer is the water column from 16-80 meters beneath the ship.

²The speed output is water velocity relative to the ship's hull and is therefore opposite of the actual movement of the ship. For example, if the ship's heading is due north, the North/South reference layer velocity is likely to be negative (southerly).

lash

ATTD: Attitude Data

01+081:00:00:00.806 \$PASHR,ATT,345605.0,165.03,+001.86,-01.96,0.0018,0.0173,0*22

Field	Data	Units
1	RVDAS Time Tag \$PASHR	
2	ATT	
3	GPS Time sec. of the week	seconds
4	heading (rel. to true North)	degrees
5	pitch	degrees
6	roll	degrees
7	Measurement RMS error	meters
8	Baseline RMS error	meters
9	attitude reset flag	

01+081:00:00:00.966 \$GPGGA,235952.00,6051.7937,S,06030.2175,W,1,08,01.0,+00068,M,,M,,*79

Field	Data	Units
1	RVDAS Time Tag \$GPGGA	
2	UTC time at position	hhmmss.ss
3	Latitude	ddmm.mmm
4	North (N) or South (S)	
5	Longitude	ddmm.mmm
6	East (E) or West (W)	
7	GPS quality (1=GPS 2=DGPS)	
8	Number of GPS satellites used	
9	HDOP	
10	Antenna Height	meters
11	M for Meters	
12	Geoidal height	meters
13	M for meters	
14	age of diff. GPS data	sss
15	differential reference station ID	aaaa

Igyr

02+315:23:59:58.194 \$PASVW,00.1,A*1D

02+315:23:59:58.414 \$IIVHW,287.7,T,,M,,N,,K*71

02+315:23:59:58.616 \$HEHDT,287.7,T*25

02+315:23:59:58.821 \$HEROT,001.6,A*2C

02+315:23:59:58.984 \$HCHDT,,T*07

HDT: True Heading

01+083:00:00:02.893 \$HEHDT,246.3,T*2C

Field	Data	Units
1	RVDAS Time Tag \$HEHDT	
2	Heading XXXXX = ddd.d	degrees
3	T flag for true heading, checksum	

ROT: Rate of Turn

01+083:00:00:03.093 \$HEROT,-006.3,A*03

Field	Data	Units
1	RVDAS Time Tag \$HEROT	
2	Rate of turn	degrees/min

Field	Data	Units
3	Status: A = data valid, checksum	

tgps

GGA: Global Positioning Fix Data

00+040:00:00:00.985 \$GPGGA,000003,6139.961,S,05949.422,W,1,6,001.64,-00036,M,00000,M,,

Field	Data	Units
1	RVDAS Time Tag \$GPGGA	
2	Latitude in degrees with decimal minutes	ddmm.mmm
3	North (N) or South (S)	
4	Longitude in degrees with decimal minutes	ddmm.mmm
5	East (E) or West (W)	
6	GPS quality (1=GPS 2=DGPS)	
7	Number of GPS satellites used	
8	Horizontal dilution of precision (HDOP)	
9	Antenna height above/below mean-sea-level (geoid)	meters
10	Units for antenna height (M = Meters)	
11	Geoidal Separation ¹	
12	Units for Geoidal Separation (M = Meters)	meters
13	Age of differential GPS data, number of seconds since last SC104 Type 1 or 9	
14	Differential reference station ID	

¹Geoidal Separation: the difference between the WGS-84 earth ellipsoid and mean-sea-level (geoid). A negative value represents mean-sea-level below ellipsoid.

GLL: Geographic Position – Latitude/Logitude

00+040:00:00:00.065 \$GPGLL,6139.96,S,05949.42,W,000002,A

Field	Data	Units
1	RVDAS Time Tag \$GPGLL	
2	Latitude	ddmm.mmm
3	North (N) or South (S)	
4	Logitude	ddmm.mmm
5	East (E) or West (W)	
6	UTC of position	hhmmss.ss
7	Status: A = Data Valid	

VTG: Track Made Good and Speed over Ground

00+040:00:00:00.213 \$GPVTG,161,T,149,M,009.6,N,017.8,K

Field	Data	Units
1	RVDAS Time Tag \$GPVTG	
2	Track, degrees true	degrees
3	T flag for True	
4	Track, degrees magnetic	degrees
5	M flag for Magnetic	
6	Speed over Ground	knots
7	N flag for Knots	
8	Speed over Ground	kmhr
9	K flag for km/hr	

VHW: Speed Through Water and Heading

00+040:00:00:00.212 \$GPVHW,246,T,234,M,012.3,N,022.8,K

Field	Data	Units
1	RVDAS Time Tag \$GPVHW	
2	Heading, degrees True	degrees
3	T flag for True	
4	Heading, degrees Magnetic	degrees
5	M flag for Magnetic	
6	Speed through water	knots
7	N flag for Knots	
8	Speed through water	km/hr
9	K flag for km/hr	

ZDA: Time and Date

00+040:00:00:00.285 \$GPZDA,000002,09,02,2000,00,00

Field	Data	Units
1	RVDAS Time Tag \$GPZDA	
2	UTC time	hhmmss.ss
3	Day: 01 – 31	dd
4	Month: 01 – 12	mm
5	Year	yyy
6	Local time zone description ¹ , 00 +/-13 hrs	
7	Local time zone minutes description, same sign as local hours	

¹Zone description is the number of whole hours added to local time to obtain GMT, values are negative for East longitudes.

BWC: Bearing and Distance to Waypoint

00+040:00:00:00.865 \$GPBWC,000003,6209.70,S,05824.00,W,127.2,T,115.3,M,050.1,N,014

Field	Data	Units
1	RVDAS Time Tag \$GPBWC	
2	UTC of bearing	hhmmss.ss
3	Destination waypoint latitude in degrees, decimal minutes	ddmm.mmm
4	Hemisphere Flag: N or S	
5	Destination waypoint longitude in degrees, decimal minutes	ddmm.mmm
6	Hemisphere Flag: E or W	
7	Bearing, degrees true	degrees
8	T flag for True	
9	Bearing, degrees magnetic	degrees
10	M flag for Magnetic	
11	Distance to waypoint in nautical miles	nm
12	N flag for Nautical Miles	
13	Waypoint ID	

Ipcd

GGA: GPS Position Fix – Geoid/Ellipsoid

00+019:23:59:59.301 \$GPGGA,235958.409,6849.6944,S,13712.8472,W,1,06,1.2,092.4,M,047.3,M,,*67

Field	Data	Units
1	RVDAS Time Tag \$GPGGA	
2	UTC time at position	hhmmss.sss
3	Latitude	ddmm.mmm
4	North (N) or South (S)	
5	Longitude	ddmm.mmm
6	East (E) or West (W)	
7	GPS quality (1=GPS 2=DGPS 3=P-CODE)	
8	Number of GPS satellites used	
9	HDOP	
10	Antenna Height	meters
11	M for Meters	
12	Geoidal height	meters
13	M for meters	
14	Null field	
15	Checksum	

GLL: GPS Latitude/Longitude

00+019:23:59:59.381 \$GPGLL,6849.6944,S,13712.8472,W,235958.409,A*35

Field	Data	Units
1	RVDAS Time Tag \$GPGLL	
2	Latitude	degrees
3	North or South	
4	Longitude	degrees
5	East or West	
6	UTC of position	hhmmss.sss
7	status of data (A = valid)	
8	Checksum	

VTG: GPS Track and Ground Speed

00+019:23:59:59.382 \$GPVTG,238.7,T,182.3,M,001.8,N,003.3,K*41

Field	Data	Units
1	RVDAS Time Tag \$GPVTG	
2	Heading	degrees
3	degrees True (T)	
4	Heading	degrees
5	degrees magnetic (M)	
6	Ship speed	knots
7	N = knots	
8	Speed	km/hr
9	Checksum	

LMG Sensors

Shipboard Sensors

Sensor	Description	Serial #	Cal. Date	Status
Port Anemometer	R.M. Young 105106	WM35061	6/26/03	collect
Stbd Anemometer	R.M. Young 105106	WM38392	4/14/03	collect
Barometer	R.M. Young 61201	BP001150	2/26/03	collect
Humidity/Wet Temp	R.M. Young 41372VC	06719	5/22/03	collect
Mast PAR	BSI QSR-240	6394	8/1/03	
Pyranometer	Eppley PSP	28933F3	2/19/03	collect
Pyrgeometer	Eppley PIR	28903F3	2/19/03	collect
GUV	Biospherical GUV-2511	0203113		collect
TSG	SeaBird SBE21	1789	1/10/03	collect
TSG Remote Temp	SeaBird 3-01/S	1620	3/6/03	collect
Fluorometer	Turner 10-AU-005 Lamp: daylight 10-045, reference filter: 10-052, emission filter: 10-051, excitation filter: 10-050.	6592 RTX	-	collect
Transmissometer	WET Labs 9707017	CST-168R	4/8/03	collect
P-Code GPS	Trimble 20636-00 (SM)	0220035265	-	CIV
Bathymetry	Knudsen 320B/R	-	-	collect

CTD Sensors

Sensor	Description	Serial #	Cal. Date	Status
CTD Fish	Sea-Bird 9Plus-3400m	0312	9/17/03	collect
CTD Deck Unit	Sea-Bird 11Plus	0288	-	-
Prim. Temp. Sensor	Sea-Bird 3-02/F	2205	29-Apr-03	collect
Sec. Temp. Sensor	Sea-Bird 3Plus	1542	29-Apr-03	collect
Prim. Cond. Sensor	Sea-Bird 4-02/0	1223	29-Apr-03	collect
Sec. Cond. Sensor	Sea-Bird 4-02/0	1200	29-Apr-03	Collect
Surface PAR	Biospherical QSP-2004LS	4470	04/02/03	Collect
Fluorometer	Chelsea AquaTrack MkIII	088211	2/23/03	collect
Dissolved Oxygen	Seabird SBE-43	0181	11-Mar-03	collect

Acquisition and Processing Information

Processing Specifics

Refer to the instrmnt.cof file along with the specific instrument calibration sheets(located in the Cal/ directory of the data distribution), for information on how the RVDAS data was collected and processed.

Errors and Events

This section lists all significant events and known problems with acquisition during this cruise including instrument failures, data acquisition system failures, and other factors affecting this data set.

Date (Julian)	Time (GMT)	Event	Location
001	16:00	Depart Punta Arenas, Gyro offline	Punta Arenas
002	03:50	Begin data collection	68W
	03:50	No ADCP due no Gyro	68W
	05:50	TSG changed to S/N 1789	
	14:00	PCO2 system up and running	
	14:05	Seawater system adjusted	
	17:38	Inadvertently rebooted TSG instead of XBT computer.	
	21:34	Gyro up. ADCP On.	
003	01:12	ADCP locks up	
	01:16	ADCP back up. BT ON	
004	16:12	Ashtech reset	
	22:03	Loss of Ashtech attitude data	
005	01:31	ADCP locks up	
	02:26	Ashtech reset	
	17:08	Seawater systems down	Arrive Palmer Station
006	21:00	Mast sensors cleaned	
007	00:40	Replaced antenna 4 on ashtech	
	10:48	Restart underway systems	Depart Palmer Station
008	00:30	Adjusted PCO2 flows	
010	20:40	Shipwide power failure	
	21:03	TSG restarted after power failure	
011	19:20	SVP offline.	
	19:34	Restarted SVP	
012	??	Grantees changed GUV settings to enable local logging	
013	10:28	Reset Ashtech	
014	23:35	Reset Ashtech	
015	02:23	Restarted GUV computer	
017	03:20	Adjusted PCO2	
	13:31	Reset Ashtech	
	19:30	Gentoo restarted. No idea why it had died, or when.	
021	23:01	Two minute lapse in GUV data due grantee work w/ GUV logging	
022	02:46	Adjusted PCO2	
	09:39	Reset Ashtech	
024	14:10	Reset Ashtech	
029	07:41	Reset Ashtech	

	11:30	Shipwide Power Failure	
	14:22	Seawater systems back on line	
032	10:18	Shut down Seawater systems	Arrive Palmer Station
034	01:25	Turned on Seawater systems	Depart Palmer station
	16:20	Adj. PCO2	
035	07:57	Reset Ashtech	
036	17:39	Temp interruption in TSG collection to check configs	
	21:53	Temp interruption in TSG collection to check configs	
	22:05	Interruption in TSG collection	
037	00:20	Interruption in TSG collection	
	~19:00	Stop logging all systems	68W data limit

TSG – Due to complications with an emergency change of thermosalinograph (TSG) units at the onset of the cruise, the TSG data collected was inadvertently processed with incorrect calibration values from the original sensor. The raw data from the TSG is instantaneously processed with these values and then logged to the DAS so it is not possible to simply reprocess the data with corrected values. However, the calibration numbers for both the original TSG unit (s/n 3208) and the replacement unit (s/n 1789) have been provided in the Cruise Data CD so that more advanced correction techniques can be applied.