

METEOROLOGY DATA**RM Young Air Sensor**

The RM Young Air Sensor outputs 1 NMEA string:

•Weather Information (XDR)

XDR – Weather Information

05/25/2002,00:00:09.764

\$WIXDR, C , -0.9,C,1,H, 97,P,1,C, -1.2,C,1, P,1013,B,2,D,-35, M, 3,*hh

FIELD	DATA	UNITS
1	SCS Date and Time	
2	\$WIXDR	
3	Data type for field 4	Temperature
4	Air Temperature	Celsius
7	Data Type for field 8	Humidity
8	Relative Humidity	Percent
11	Data type for field 12	Temperature
12	Dew Point Temperature	Dewpoint
15	Data type for field 16	Pressure
16	Barometer	hPa
19	Data type for field 19	
20	Elevation	Meters

RM Young Mechanical Wind

The RM Young Mechanical Wind Sensor outputs 1 NMEA string:

•Weather Information (MWV)

MWV- Wind Direction/Speed

05/27/2002,00:00:31.443 \$WIMWV, 167,R, 015.3, N,A

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$WIMWV	
3	Wind Direction	Degrees
4	R= Relative	
5	Wind Speed	Knots
6	N= Knots	
7	A= Valid Data	

True Wind (Derived)

True Wind is Derived using the RM Young Mechanical Wind sensor the Aft Pcode GPS unit, including the COG/SOG

•Wind Speed

•Wind Direction

05/27/2002,00:00:26.583, 0015.9, 0115.8

FIELD	DATA	UNITS
1	SCS Date and Time	
2	Wind Speed	Knots
3	Wind Direction	Degrees

SONAR DATA**Seabeam Centerbeam information**

The Seabeam outputs 1 NMEA string:
 *Centerbeam Information (CTR)

CTR – Centerbeam Information

05/27/2002,00:01:40.567, \$SBCTR, 2002,5,27,00:01:34.757, 72.871948,
 -158.265277,1060.30,102*00

FIELD	DATA	UNITS
1	SCS Date and Time	
2	\$SBCTR	Identifier
3	Seabeam Date/Time	
4	Latitude	DD.mmssss
	South Latitudes = -	
5	Longitude	DDD.mmssss
	West Longitudes = -	
6	Depth	meters
7	Number of Beams	

ADCP 75khz and ADCP 150khz (Current Profilers)

The ADCPs store their information in folders called ADCP75 & ADCP150 respectively. Folders are located on the HLY-SNAP1 Server. (*//192.168.10.17/adcp75*) & (*//192.168.10.17/adcp150*)

Listed below is information about the files and their extensions

FILE NAME	FILE FORMAT	FILE EXTENSION	DEFINITION	PROGRAM REQUIRED
Cruise Name 000000	DeployName/Sequence #.	.ENR	Raw Binary ADCP Data	Vmdas/Visual Basic?
Cruise Name 000001	DeployName/Sequence #.	.ENS	Binary Adcp Data	Vmdas/Visual Basic?
Cruise Name 000002	DeployName/Sequence #.	.ENX	Binary Ensemble Data	Vmdas/Visual Basic?
Cruise Name 000003	DeployName/Sequence #.	.STA	short term average	Vmdas/Visual Basic?
Cruise Name 000004	DeployName/Sequence #.	.LTA	long term average	Vmdas/Visual Basic?
Cruise name 000005	DeployName/Sequence #.	.N1R	Raw NMEA ASCII	VMDAS/ Text Editor
Cruise Name 000006	DeployName/Sequence #.	.N2R	Raw NMEA ASCII	VMDAS/ Text Editor
Cruise Name 000007	DeployName/Sequence #.	.NMS	Averaged Nav Data	Vmdas/Visual Basic?

KNUDSEN 320 B/R Echosounder (Sub Bottom Profiler)

The Knudsen stores its information in a folder called KNUDSEN. The folder is located on the HLY-SNAP1 Server. ([//192.168.10.17/knudsennativ](http://192.168.10.17/knudsennativ)).

Listed below is information about the files and their extensions

FILE NAME	FILE FORMAT	FILE EXTENSION	DEFINITION	PROGRAM REQUIRED
002.1450.keb	Line Number/hhmm	.KEB	Binary File Format	Knudsen Software
002.1450.kea	Line Number/hhmm	.KEA	ASCII File Format	Any Text Editor
002 keb.log	Line Number/File Type	.KEB	Text Document	Any Text Editor
002 kea.log	Line Number/File Type	.KEA	Text Document	Any Text Editor
L002_001.sgy	Line Number/Sequence #	.SGY	Society of Geophysicists	Knudsen Software
L002_sgy	Line Number/File Type	.SGY	Text Document	Any Text Editor

In addition to the above listed file formats the Knudsen includes additional information in the **xxx.xxxx.kea** ASCII file. This output simulates a NMEA Data String and is only available in the ASCII File format. Below is how the data string is broken down.

\$PKEL99, 00328, 29032003, 001441, HF, 00000.00,0, 8.50,LF, 05365.33,1, 8.50,1500, 31 20.567199N, 149 55.249894W ,0644*26

FILE LD	DATA	UNITS
1	\$PKEL99	KEL Proprietary Data String
2	Record Number	
3	Date	DDMMYYYY
4	Time	HHMMSS
5	HF Header	
6	HF Depth to Surface	Meters *
7	HF Draft	8.5 Meters
8	LF Header	
9	LF Depth to Surface	Meters *
10	LF Depth Valid Flag	
	0= Meters	Number
	1= Feet	Number
	2= Fathoms	Number
11	LF Draft	8.5 Meters
12	Sound Speed	1500 Meters Per Second**
13	Position	
	Latitude	DD MM.SSSS/ N or S***
	Longitude	DDD MM.SSSSSS/ W or E***
14	Position Latency	
15	Checksum	

* Knudsen depth is currently set for Meters

** Knudsen default sound speed

*** Current GPS source is the Trimble P-Code-Aft

BATHY2000 VIA BATHY2000W (Sub Bottom Profiler)

The Bathy2000w stores it's information in a folder called BATHY2000W. The folder is located on the HLY-SNAP1 Server. (**//192.168.10.17/bathy2000**)

Listed below is information about the files and their extensions

FILE NAME	FILE FORMAT	FILE EXTENSION	DEFINITION	PROGRAM REQUIRED

OCEANOGRAPHIC DATA**Thermosalinograph (SBE-21) FORWARD information**

The Thermosalinograph (TSG) outputs a serial string, which is collected by SCS and is also save in a folder called "tsg-fwd". The folder is located on the Hly-snap1 server. (//192.168.10.17/tsg-fwd).

01/15/2003,00:01:11.241 683 20.671 4.867 35.06 20.255 1523.37

FIELD	DATA	UNITS
1	SCS Date and Time	
2	Scan Number	
3	Internal Temperature	Celsius
4	Conductivity	Siemens/meter
5	Salinity	Parts per thousand (ppt)
6	External Temperature (sea sfc temp)	Celsius
7	Sound Velocity	Meters per Second (m/s)

Fluorometer (Turner Designs 10-AU-005) information

The Fluorometer outputs a serial string, which is collected by SCS:

03/06/2003,00:05:02.065,0 0232 :: 3/06/03 00:01:20 = 8.605 (mg/l)

FIELD	DATA	UNITS
1	SCS Date/Time Stamp	
2	Scan Number	
3	Fluorometer Date/Time Stamp	
4	Fluorometry Measurement	Mg/l

Thermosalinograph (SBE-21) AFT information

The Thermosalinograph (TSG) outputs a serial string, which is collected by SCS and is also save in a folder called "tsg-aft". The folder is located on the Hly-snap1 server. (//192.168.10.17/tsg-aft).

01/15/2003,00:01:11.241 683 4.867 35.06 20.255 1523.37

FIELD	DATA	UNITS
1	SCS Date and Time	
2	Scan Number	
4	Conductivity	Siemens/meter
5	Salinity	Parts per thousand (ppt)
6	External Temperature (sea sfc temp)	Celsius

7	Sound Velocity	Meters per Second (m/s)
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Expandable Bathythermograph (XBT)

The XBT stores it's information in a folder called XBT. The folder is located on the Hly-snap1 server. ([//192.168.10.17/xbt](http://192.168.10.17/xbt))

Listed below is information about the files and their extensions

FILE NAME	FILE FORMAT	FILE EXTENSION	DEFINITION	PROGRAM REQUIRED
T5_00014.rdf	Probe Type/Sequence #	.RDF	Raw Data Format	Sippican Software
T5_00014.edf	Probe Type/Sequence #	.EDF		

NAVIGATIONAL DATA**Ashtech 3d GPS**

The Ashtech GPS outputs three NMEA data Strings:

- GPS Position fix (GGA)
- Latitude/Longitude (GLL)
- Heading (HDT)
- Position Attitude (PAT)

GGA- GPS Position Fix

05/05/2002,19:33:19.082,

\$GPGGA, 193316.00 ,6425.9899, N ,16523.6547, W,1,08,01.2+00051,M, , M,,*62

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGGA	
3	UTC time at Position	hhmmss.ss
4	Latitude	ddmm.ssss
5	North (N) or South(S)	
6	Longitude	dddmm.ssss
7	East (E) or West (W)	
8	GPS Quality: 1 = GPS 2=DGPS	
9	Number of GPS Satellites Used	
10	HDOP (horizontal dilution of precision)	
11	Antenna height	meters
12	M for Meters	
13	Geoidal Height (no data in the sample string)	meters
14	M for Meters	
15	Age of Diff. GPS Data (no data in sample string)	
16	Differential reference station ID (no data in sample string)	
17	Checksum (no delimiter before this field)	

GLL- Latitude/Longitude)

05/24/2002,00:01:15.402

\$GPGLL, 7327.9307,N, 15738.7552,W, 000114.00,A*13

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGLL	
3	Latitude	ddmm.ssss
4	North or South	
5	Longitude	dddmm.ssss
6	East or West	
7	UTC of Position	hhmmss.ss

8	Status of data (A=valid)	
9	Checksum	

HDT - Heading

05/25/2002,00:00:08.373 , \$GPHDT,188.240,T*32

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPHDT	
3	Heading XXXXXX= ddd.ddd	Degrees
4	True(T), Magnetic(M)	
5	Checksum	

Trimble P-Code GPS (Bridge)

The Pcode GPS outputs three NMEA data Strings:

- GPS Position fix (GGA)
- Latitude/Longitude (GLL)
- Track and Ground speed (VTG)

GGA- GPS Position Fix

05/22/2002,00:00:14.990,
\$GPGGA, 000014.00,7342.461,N, 15909.578,W,3 ,04,1.220,21.82,M,0.035,M,,*4C

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGGA	
3	UTC time at Position	hhmmss.ss
4	Latitude	ddmm.ssss
5	North(N) or South(S)	
6	Longitude	ddmm.ssss
7	East(E) or West (W)	
8	GPS Quality: 0= Fix not available 1= GPS,SPS Mode, fix valid 2=DGPS (differential GPS) SPS mode, fix valid 3=P-Code PPS Mode, Fix valid	
9	Number of GPS Satellites Used	
10	HDOP (horizontal dilution of precision)	
11	Antenna height	meters
12	M for Meters	
13	Geoidal Height	meters
14	M for Meters	
15	Differential reference station ID (no data in sample string)	
16	Checksum (no delimiter before this field)	

GLL- Latitude/Longitude

05/23/2002,00:00:07.186,
\$GPGLL, 7346.333,N,15903.654,W, 000006.00,A*1C

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGLL	
3	Latitude	ddmm.sss
4	North or South	
5	Longitude	dddmm.sss
6	East or West	
7	UTC of Position	hhmmss.sss
8	Status of data (A=valid)	
9	Checksum	

VTG – Track and ground speed

05/24/2002,00:09:51.389, \$GPVTG, 215.8,T, 192.5,M,1.06,N,1.96,K*46

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPVTG	
3	Heading	Degrees
4	Degrees true (T)	ddd.d
5	Heading	Degrees
6	Degrees magnetic (M)	ddd.d
7	Ship Speed	knots
8	N=Knots	
9	Ship Speed	km/hr
10	K=KM per hour	

Trimble P-Code GPS (AFT)

The Pcode GPS outputs four NMEA data Strings:

- GPS Position fix (GGA)
- Latitude/Longitude (GLL)
- Track and Ground speed (VTG)
- Time (ZDA)

GGA- GPS Position Fix

05/22/2002,00:00:14.990,
\$GPGGA, 000014.00,7342.461,N, 15909.578,W,3,04,1.220,21.82,M,0.035,M,, *4C

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGGA	
3	UTC time at Position	hhmmss.sss
4	Latitude	ddmm.sss
5	North (N) or South(S)	
6	Longitude	ddmm.sss
7	East (E) or West (W)	
8	GPS Quality: 0= Fix not available 1= GPS,SPS Mode, fix valid 2=DGPS (differential GPS) SPS mode, fix valid 3=P-Code PPS Mode, Fix valid	
9	Number of GPS Satellites Used	
10	HDOP (horizontal dilution of precision)	
11	Antenna height	meters
12	M for Meters	
13	Geoidal Height	meters
14	M for Meters	
15	Differential reference station ID (no data in sample string)	
16	Checksum (no delimiter before this field)	

GLL- Latitude/Longitude

05/23/2002,00:00:07.186,
\$GPGLL, 7346.333,N, 15903.654,W, 000006.00,A*1C

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGLL	
3	Latitude	ddmm.sss
4	North or South	
5	Longitude	dddmm.sss
6	East or West	
7	UTC of Position	hhmmss.sss
8	Status of data (A=valid)	

9	Checksum	
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VTG – Track and Ground speed

05/23/2002,00:00:07.186

\$GPVTG, 7346.333,N, 15903.654,W, 000006.00,A*1C

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPVTG	
3	Heading	Degrees
4	Degrees true(T)	ddd.d
5	Heading	degrees
6	Degrees magnetic(M)	ddd.d
7	Ship Speed	knots
8	N=Knots	
9	Ship Speed	km/hr
10	K=KM per hour	

ZDA – Time

05/23/2002,00:00:07.186

\$GPZDA, 000007.00, 23, 05, 2002, 00, 00,*4B

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPZDA	
3	Time UTC	HHMMSS.sss
4	Day	DD
5	Month	MM
6	Year	YYYY
7		
8		
9	Checksum	

GLONASS GPS

The Glonass GPS outputs three NMEA data Strings:

- GPS Position fix (GGA)
- Latitude/Longitude (GLL)

GGA – GPS Position Fix

05/25/2002,00:00:38.246,
\$GPGGA, 000038.00 , 7312.993183,N,15809.471674,W,1,3,2.0,39.894,M, -1.79,M,,*55

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGGA	
3	UTC time at Position	hhmmss.ss
4	Latitude	ddmm.mmmmmm
5	North(N) or South(S)	
6	Longitude	dddmm.mmmmmm
7	East(E) or West (W)	
8	GPS Quality: 0= Fix not available 1= GPS,SPS Mode, fix valid, 2=DGPS (differential GPS) SPS mode, fix valid 3=P-Code PPS Mode, Fix valid	
9	Number of GPS Satellites Used	
10	HDOP (horizontal dilution of precision)	
11	Antenna height	meters
12	M for Meters	
13	Geoidal Height	meters
14	M for Meters	
15	Differential reference station ID (no data in sample string)	
16	Checksum (no delimiter before this field)	

GLL- Latitude/Longitude

05/20/2002,00:00:28.086
\$GPGLL, 7319.11259,N, 16012.78866,W, 000028.00,A*1D

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$GPGLL	
3	Latitude	ddmm.mmmmmm
4	North or South	
5	Longitude	dddmm.mmmmmm
6	East or West	
7	UTC of Position	hhmmss.ss
8	Status of data (A=valid)	
9	Checksum	

Gyro, Compass

05/27/2002,00:02:53.924, \$HEHDT,321.492,T*20

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$HEHDT	
3	Heading XXXXXX = ddd.ddd	degrees
4	Degrees true (T)	
5	Checksum	

Sperry SpeedLog

05/28/2002,00:00:20.834, \$VDVBW, -0.07, -0.53,A,,,V*47

FIELD	DATA	UNITS
1	SCS Date/Time Tag	
2	\$VDVBW	
3	Longitudinal Water Speed - = astern	knots
4	Transverse Water Speed - = port	knots
5	A= Data Valid V=Invalid	
10	Checksum	

MISC.**Winch and Wire Information**

The Winch Data Collection outputs 1 NMEA string:

*It includes, Wire tension, speed, scope, winch id. (\$ISSDN)

SDN – Winch Information:

05/17/2002,00:01:04.775

\$ISSDN,LT1,+0,LS1,+0,AS1,+0,DS1,+0,WI1,0,ET1,0:0.0,LT2,+0,LS2,+0,AS2,+0,DS2,+0,WI2,2,ET2,0:0.0,SWCP,+12.90,SWCT,+63.00*

FIELD	DATA	UNITS
1	SCS Date	
2	SCS Time	
3	\$ISSDN	
4	Line Tension 1	Pounds
6	Line Speed 1	Meters/Minute
8	Active Scope 1 (Wire Out)	Meters
	- = Incoming, + = Payout	
10	Desired Scope 1	Meters
12	Winch Id 1	
14	Elapsed Time	hh.mm.ss
16	Line Tension 2	Pounds
18	Line Speed 2	Meters/Minute
20	Active Scope 2 (Wire Out)	Meters
	- = Incoming, + = Payout	
22	Desired Scope 2	Meters
24	Winch Id 2	
26	Elapsed Time	hh.mm.ss
28	Non Contaminated Sea Water Chest Pressure	psi
30	Non Contaminated Sea Water Chest Temperature	Degrees F
31	Checksum	