

# Mooring Deployment Record

|                   |                    |              |                   |
|-------------------|--------------------|--------------|-------------------|
| Project Name:     | SOG AMP            |              |                   |
| Project Area:     | Strait of Georgia  |              |                   |
| Mooring Name:     | SOGS-I             | Station Name | SOGS              |
| Latitude:         | 49°1.550' N        | Longitude:   | 123°25.786' W     |
| Depth:            | 314 m → 310m datum | Tide:        | +4 m @ Tsawwassen |
| Mag. Declination: |                    | Time Zone:   | UTC               |
| Date:             | 31/10/2010         | Time:        | 2129              |
| Remarks:          |                    |              |                   |

## Recovery

|          |              |       |          |
|----------|--------------|-------|----------|
| Date:    | Apr. 4, 2011 | Time: | 1900 UTC |
| Remarks: |              |       |          |

## Instruments

| Type    | Serial # | Depth | Time In: | Time Out | Notes |
|---------|----------|-------|----------|----------|-------|
| Baker   | 31533    | 54    |          |          |       |
| SBE19+  | 6026     | 55.6  |          |          |       |
| Aquadop | 2649     | 57.7  |          |          |       |
| SBE16   | 4197     | 154   |          |          |       |
| Aquadop | 1611     | 304   |          |          |       |
| SBE37   | 5307     | "     |          |          |       |
| SR420   | 17085    | "     |          |          |       |
|         |          |       |          |          |       |
|         |          |       |          |          |       |
|         |          |       |          |          |       |

## Releases

| Release | Serial # | Range: | Release | Freq | Other |
|---------|----------|--------|---------|------|-------|
| AR191   | 184      | B537   | B538    |      |       |
|         |          |        |         |      |       |

## Pingers

| Pinger | Serial # | Voltage               | Freq |
|--------|----------|-----------------------|------|
| OML    | 506      | 21.2 V <sub>100</sub> | 27   |
| Helle  | 9765     | 21.4 V <sub>100</sub> | 27   |

## Flotation

| Type | Serial # | Size | Colour | Type | Serial # | Size | Colour |
|------|----------|------|--------|------|----------|------|--------|
| SB30 | 3016     | 30"  | Yellow |      |          |      |        |
| SS30 | 1000     | "    | "      |      |          |      |        |
| SB30 | 3001     | "    | "      |      |          |      |        |
|      |          |      |        |      |          |      |        |
|      |          |      |        |      |          |      |        |
|      |          |      |        |      |          |      |        |

Missing Log.

SBE19 6026.

NOTE: RS-422

Sogs -I

2649

Dummy plug may be missing

**Deployment Planning**

Standard

Setup

Measurement interval (s): 900

Average interval (s): 120

Measurement load (%): 4 ☐ Auto

Blanking dist. (m): 0.37

Compass upd. rate (s): 1 ☐ File wrapping

Speed of sound

☒ Measured

Salinity (ppt): 32

☐ Fixed (m/s): 1525

Coordinate system

☒ ENU ☐ XYZ ☐ Beam

Diagnostics

☒ Enable

Interval (min): 1440

Number of samples: 20

Deployment planning

Assumed duration (days): 165

Battery utilization (% of 50 Wh): 158

Memory required (MB): 0.8

Vertical vel. prec. (cm/s): 1

Horizont. vel. prec. (cm/s): 0.7

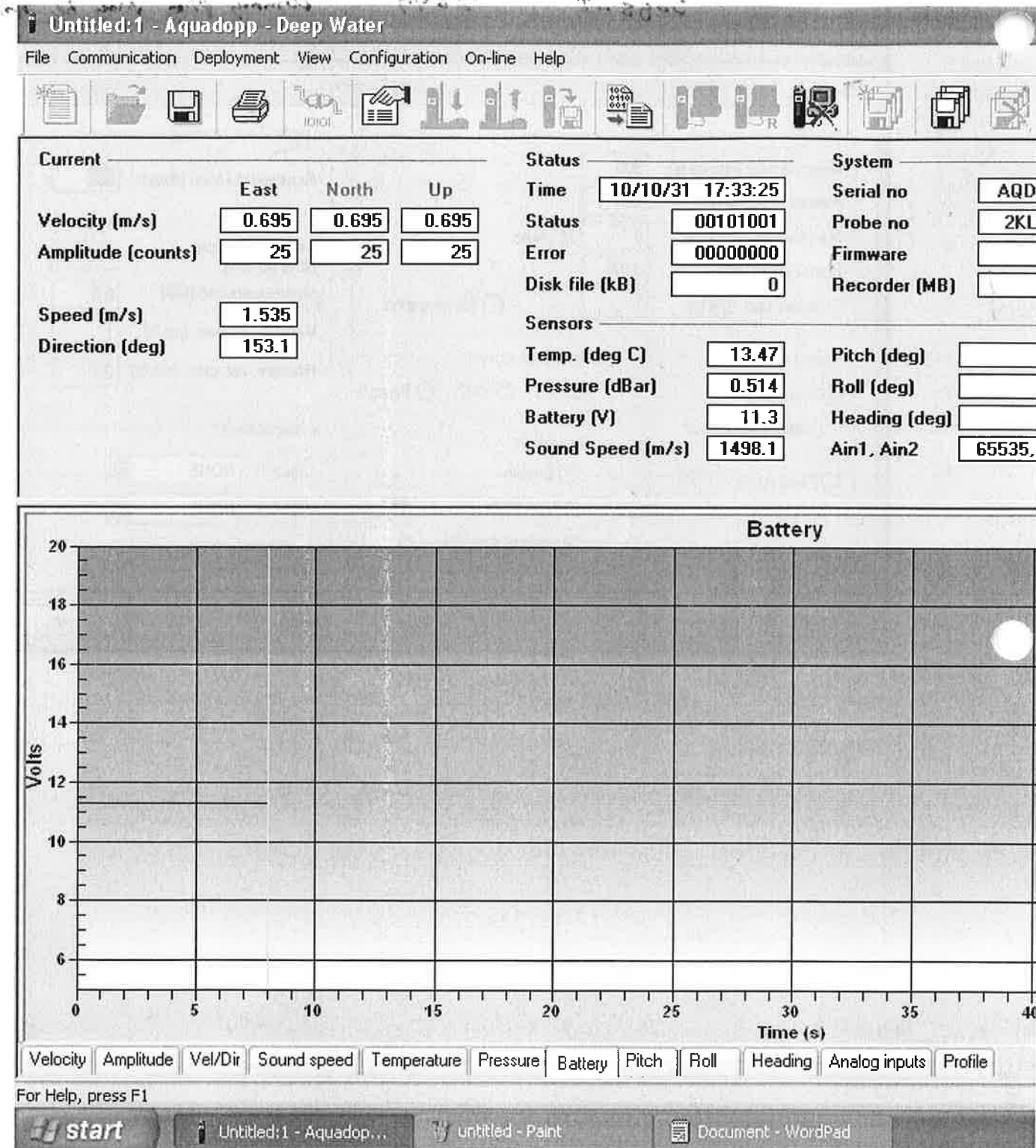
External inputs

Input 1: NONE

Input 2: NONE

☐ Output power

Start Update OK Cancel Apply Help



Deployment : SOGSIB  
Current time : 10/31/2010 17:35:33  
Start at : 10/31/2010 20:00:00  
Comment:

2649-Lithium  
SOGS-I ->Lithium  
Start: 10/31/2010 @ 2000UTC

---

Measurement interval (s) : 900  
Average interval (s) : 120  
Blanking distance (m) : 0.37  
Measurement load (%) : 4  
Power level : HIGH  
Diagnostics interval(min) : 1440  
Diagnostics samples : 20  
Compass upd. rate (s) : 1  
Coordinate System : ENU  
Speed of sound (m/s) : MEASURED  
Salinity (ppt) : 32  
Analog input 1 : NONE  
Analog input 2 : NONE  
Analog input power out : DISABLED  
File wrapping : OFF  
Serial output/TellTale : OFF

---

Assumed duration (days) : 165.0  
Battery utilization (%) : 158.0  
Battery level (V) : 11.4  
Recorder size (MB) : 9  
Recorder free space (MB) : 8.973  
Memory required (MB) : 0.8  
Vertical vel. prec (cm/s) : 1.0  
Horizon. vel. prec (cm/s) : 0.7

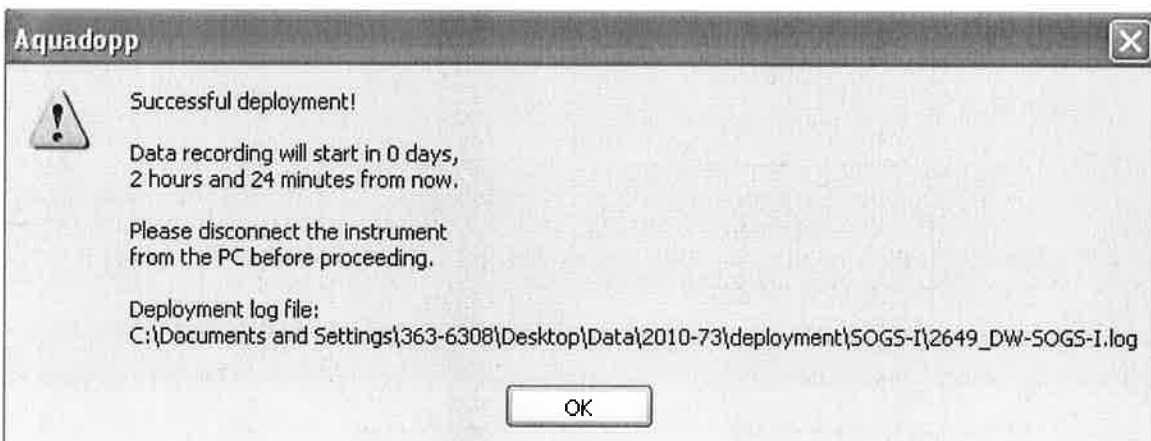
---

Instrument ID : AQD 2649  
Head ID : 2KL 2299  
Firmware version : 1.21

---

Aquadopp Version 1.30  
Copyright (C) Nortek AS

---



PST

4197-SOGS-I.cap

pumpoff

S>ds

SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:18:35  
vbatt = 13.8, vlith = 8.5, ioper = 62.3 ma, ipump = 88.5 ma,  
iext01 = 4.7 ma, iext23 = 0.4 ma,  
status = not logging  
sample interval = 600 seconds, number of measurements per sample = 1  
samples = 0, free = 441074  
mode = moored, run pump during sample, delay before sampling = 1.0 seconds  
transmit real-time = no  
battery type = ALKALINE, battery cutoff = 7.5 volts  
pressure sensor = strain gauge, range = 1450.0  
SBE 38 = no, Gas Tension Device = no  
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = yes, Ext Volt 3 = no  
echo commands = yes  
output format = raw HEX

S>voltn2=2n

this command will change the scan length and initialize logging  
proceed Y/N ? y

scan length has changed, initializing logging

S>pumpon

S>ds

SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:20:39  
vbatt = 13.8, vlith = 8.5, ioper = 62.4 ma, ipump = 0.3 ma,  
iext01 = 4.5 ma,  
status = not logging  
sample interval = 600 seconds, number of measurements per sample = 1  
samples = 0, free = 492965  
mode = moored, run pump during sample, delay before sampling = 1.0 seconds  
transmit real-time = no  
battery type = ALKALINE, battery cutoff = 7.5 volts  
pressure sensor = strain gauge, range = 1450.0  
SBE 38 = no, Gas Tension Device = no  
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no  
echo commands = yes  
output format = raw HEX

S>unplugged to test the pump to test see ds commands without it running  
?cmd S>ds

SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:21:05  
vbatt = 13.8, vlith = 8.5, ioper = 62.4 ma, ipump = 0.3 ma,  
iext01 = 4.5 ma,  
status = not logging  
sample interval = 600 seconds, number of measurements per sample = 1  
samples = 0, free = 492965  
mode = moored, run pump during sample, delay before sampling = 1.0 seconds  
transmit real-time = no  
battery type = ALKALINE, battery cutoff = 7.5 volts  
pressure sensor = strain gauge, range = 1450.0  
SBE 38 = no, Gas Tension Device = no  
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no  
echo commands = yes  
output format = raw HEX

S>dh

no headers stored

S>dcal

SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:21:38  
temperature: 10-sep-10

TA0 = 1.175077e-03

TA1 = 2.835483e-04

TA2 = -2.215886e-06

TA3 = 2.239497e-07

TOFFSET = 0.000000e+00

conductivity: 10-sep-10

```

G = -9.893223e-01
H = 1.435395e-01
I = -4.598390e-04
J = 5.513806e-05
CF0 = 2.632691e+03
CPCOR = -9.570000e-08
CTCOR = 3.250000e-06
CSLOPE = 1.000000e+00
pressure S/N = 1181, range = 1450 psia: 07-sep-10
PA0 = 1.884208e-01
PA1 = 4.441794e-03
PA2 = -1.699950e-11
PTCA0 = 5.218090e+05
PTCA1 = 2.248812e+00
PTCA2 = -1.183399e-02
PTCB0 = 2.487237e+01
PTCB1 = 1.475000e-03
PTCB2 = 0.000000e+00
PTempa0 = -8.007963e+01
PTempa1 = 4.653020e+01
PTempa2 = -4.160928e-02
POFFSET = 0.000000e+00
volt 0: offset = -4.634667e-02, slope = 1.248443e+00
volt 1: offset = -4.653000e-02, slope = 1.248095e+00
volt 2: offset = -4.658333e-02, slope = 1.248916e+00
volt 3: offset = -4.643000e-02, slope = 1.249799e+00
EXTFREQSF = 1.000021e+00
S>ds
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:22:11
vbatt = 13.8, vlith = 8.5, ioper = 62.4 ma, ipump = 0.3 ma,
iext01 = 4.8 ma,
status = not logging
sample interval = 600 seconds, number of measurements per sample = 1
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 1.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>mooredpumpmode=2
S>ds
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:22:48
vbatt = 13.8, vlith = 8.5, ioper = 62.3 ma, ipump = 0.4 ma,
iext01 = 4.5 ma,
status = not logging
sample interval = 600 seconds, number of measurements per sample = 1
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 1.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>delaybefore sa sampling=35
S>ds
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:23:06
vbatt = 13.8, vlith = 8.5, ioper = 62.4 ma, ipump = 0.4 ma,
iext01 = 4.9 ma,

```

4197-SOGS-I.cap

```

status = not logging
sample interval = 600 seconds, number of measurements per sample = 1
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 35.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>sampleinterval=4500
S>ds
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:24:34
vbatt = 13.8, vlith = 8.5, ioper = 62.4 ma, ipump = 0.2 ma,
iext01 = 4.6 ma,
status = not logging
sample interval = 4500 seconds, number of measurements per sample = 1
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 35.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>ncycles=4
S>ds
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:25:15
vbatt = 13.8, vlith = 8.5, ioper = 62.3 ma, ipump = 0.3 ma,
iext01 = 4.2 ma,
status = not logging
sample interval = 4500 seconds, number of measurements per sample = 4
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 35.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>startddmmyy=311010
S>starthhmmss=200000
start time = 31 Oct 2010 20:00:00
send startlater command to start delayed logging
S>startlater
SeacatPlus V 1.3a SERIAL NO. 4197 31 Oct 2010 07:26:05
vbatt = 13.8, vlith = 8.5, ioper = 62.3 ma, ipump = 0.3 ma,
iext01 = 4.7 ma,
status = not logging
sample interval = 4500 seconds, number of measurements per sample = 4
samples = 0, free = 492965
mode = moored, run pump during sample, delay before sampling = 35.0 seconds
transmit real-time = no
battery type = ALKALINE, battery cutoff = 7.5 volts
pressure sensor = strain gauge, range = 1450.0
SBE 38 = no, Gas Tension Device = no
Ext Volt 0 = yes, Ext Volt 1 = no, Ext Volt 2 = no, Ext Volt 3 = no
echo commands = yes
output format = raw HEX
S>startlater

```

start time = 31 oct 2010 20:00:00 4197-SOGS-I.cap

# MicroCat SBE 37 Deployment Sheet

## INSTRUMENT

Serial Number: 5307

Sensors (C,T,P): C T P

Firmware Version: \_\_\_\_\_

Depth Rating: \_\_\_\_\_

## PARAMETERS

SampleNum: 0

Storetime: Y

Interval: 1200

Syncmode: N

Navg/Ncycles: 4

Txrealtime: N

Reference pressure\*:                     

OutputSV: Y

Time Zone: UTC

OutputSal: Y

Start: 2000 UTC @ Oct 31, 2010

\*only needed if there is no pressure sensor for the salinity calculation

## DEPLOYMENT

Station: SOAS-I

Cruise Number: 2010-73

Latitude: \_\_\_\_\_

Water Depth: \_\_\_\_\_

Longitude: \_\_\_\_\_

Instrument Depth: \_\_\_\_\_

Time and Date in Water: \_\_\_\_\_

Comments:

Red Bio cage with bio-ORC and BBR

Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

uCat-dep.xls SFM

Mooring: SOGS-I

uCat - 5307-Pumped

Battery Calculations:

Note: 10 min sampling with a pump lasts about 220 days.

Sampling Time:

$$3.33s + (2.27 * (NAV G - 1))$$

$$3.33s + (2.27 * (4 - 1)) = 10.14s$$

*Example 1:* A standard MicroCAT (no external power option) with pressure sensor is set up to sample autonomously every 10 minutes (6 samples/hour), taking 4 measurement per sample (**NAV G=4**). How long can it be deployed?

$$\text{Sampling time} = 3.33 \text{ seconds} + 2.27 \text{ seconds} * (\text{NAV G} - 1) = 10.14 \text{ seconds}$$

Sampling current consumption = 0.020 amps \* 10.14 seconds = 0.2 amp-seconds/sample

In 1 hour, sampling current consumption = 6 \* 0.2 amp-seconds/sample = 1.2 amp-seconds/hour

**Pump** current consumption = 0.13 amp-seconds/pulse

In 1 hour, pump current consumption = 6 \* 0.13 amp-seconds/pulse = 0.78 amp-seconds/hour

**Quiescent** current 10 microamps = 0.01 mA

In 1 hour, quiescent current consumption = 0.01 mA \* 3600 seconds/hour = 0.036 amp-seconds/hour

**Total** current consumption / hour = 1.2 + 0.78 + 0.036 = 2.02 amp-seconds/hour

Capacity = (5 amp-hours \* 3600 seconds/hr) / (2.02 amp-seconds/hour) = 8910 hours = 371 days = 1.02 years

Number of samples = 8910 hours \* 6 samples/hour = 53460 samples

Command Summary:

DDMMYY=311010

HHMMSS=200000 //(UTC)

OUTPUTSAL=Y

OUTPUTSV=Y

FORMAT=1

NAV G=4

PUMPINSTALLED=Y

SAMPLENUM=0

INTERVAL=1200 (NOTE: 10 min sampling with a pump lasts about 220 days so use 15 mins)

STORETIME=Y

TXREALTIME=N  
STARTDDMMYY=311010  
STARTHHMMSS=200000  
STARTLATER

---

S>ds  
SBE37-SM V 2.6b SERIAL NO. 5307 01 Jan 1980 00:09:57  
logging not started  
sample interval = 600 seconds  
samplenum = 12230, free = 178420  
do not transmit real-time data  
output salinity with each sample  
output sound velocity with each sample  
store time with each sample  
number of samples to average = 4  
serial sync mode disabled  
wait time after serial sync sampling = 30 seconds  
internal pump is installed  
temperature = 16.08 deg C

S>  
S>dc  
SBE37-SM V 2.6b 5307  
temperature: 23-jun-10  
TA0 = -3.703418e-05  
TA1 = 2.753805e-04  
TA2 = -2.333859e-06  
TA3 = 1.506172e-07  
conductivity: 23-jun-10  
G = -9.965747e-01  
H = 1.554545e-01  
I = -1.094080e-04  
J = 3.421967e-05  
CPCOR = -9.570000e-08  
CTCOR = 3.250000e-06  
WBOTC = 2.146660e-05  
pressure S/N 2367430, range = 1450 psia: 22-jun-10  
PA0 = 1.774087e-01  
PA1 = 6.884849e-02  
PA2 = -2.289269e-09  
PTCA0 = -4.305064e+01  
PTCA1 = 2.358977e-01  
PTCA2 = -5.375354e-03  
PTCSB0 = 2.604075e+01  
PTCSB1 = -5.000000e-05  
PTCSB2 = 0.000000e+00  
POFFSET = 0.000000e+00  
rtc: 23-jun-10  
RTCA0 = 9.999718e-01  
RTCA1 = 1.822071e-06  
RTCA2 = -3.094932e-08

S> SBE 37-SM  
S>ds  
SBE37-SM V 2.6b SERIAL NO. 5307 01 Jan 1980 00:12:23  
logging not started  
sample interval = 600 seconds  
samplenum = 12230, free = 178420  
do not transmit real-time data  
output salinity with each sample  
output sound velocity with each sample  
store time with each sample  
number of samples to average = 4  
serial sync mode disabled  
wait time after serial sync sampling = 30 seconds  
internal pump is installed  
temperature = 16.28 deg C  
S>ddmmyy=311010  
S>hhmmss=171530

```

S>outputsal=y
S>outputsv=y
S>format=1
S>navg=4
S>pumpinstalled=y
S>samplenum=00000m=0
S>interval=1200
S>storetime=y
S>txrealtime\time\000000time=y
S>inete\00000interval=5
S>startnow00000000ds
SBE37-SM V 2.6b SERIAL NO. 5307 31 Oct 2010 17:16:34
logging not started
sample interval = 5 seconds
samplenum = 0, free = 190650
transmit real-time data
output salinity with each sample
output sound velocity with each sample
store time with each sample
number of samples to average = 4
serial sync mode disabled
wait time after serial sync sampling = 30 seconds
internal pump is installed
temperature = 16.31 deg C
S>startnow
start now

```

```
# 16.3038, 0.00823, -0.054, 0.0494, 1470.491, 31 Oct 2010, 17:16:49
```

```
# 16.3040, 0.00818, -0.055, 0.0491, 1470.492, 31 Oct 2010, 17:17:04
```

```
# 16.3154, 0.00814, -0.059, 0.0489, 1470.530, 31 Oct 2010, 17:17:19
SBE 37-SM
```

```

S>p
cmd not allowed while logging
stop
SS>

```

```

top
S>stop

```

```

S>ds
SBE37-SM V 2.6b SERIAL NO. 5307 31 Oct 2010 17:17:34

```

```

not logging: received stop command
sample interval = 5 seconds
samplenum = 4, free = 190646
transmit real-time data
output salinity with each sample
output sound velocity with each sample
store time with each sample
number of samples to average = 4
serial sync mode disabled
wait time after serial sync sampling = 30 seconds
internal pump is installed
temperature = 16.35 deg C

```

```

S>pumpinstalled=y
S>nample000000sampo000lenum=0
S>interval=1200
S>storetime=y
S>txrealtime=n
S>startddmmyy=311010
S>starthhmmss=200000
start time = 31 Oct 2010 20:00:00
S>ds

```

```
SBE37-SM V 2.6b SERIAL NO. 5307 31 Oct 2010 17:18:28
```

5307-sogs-i.cap

not logging: received stop command  
sample interval = 1200 seconds  
samplenumber = 0, free = 190650  
do not transmit real-time data  
output salinity with each sample  
output sound velocity with each sample  
store time with each sample  
number of samples to average = 4  
serial sync mode disabled  
wait time after serial sync sampling = 30 seconds  
internal pump is installed  
temperature = 16.42 deg C  
S>startlater  
start time = 31 Oct 2010 20:00:00

1161 -SOGS-I

**Deployment Planning**

Standard

Setup

Measurement interval (s): 900

Average interval (s): 120

Measurement load (%): 4 ☒ Auto

Blanking dist. (m): 0.37

Compass upd. rate (s): 1 ☐ File wrapping

Speed of sound

☒ Measured

Salinity (ppt): 32

☐ Fixed (m/s): 1525

Coordinate system

☒ ENU ☐ XYZ ☐ Beam

Diagnostics

☒ Enable

Interval (min): 1440

Number of samples: 20

Deployment planning

Assumed duration (days): 165

Battery utilization (% of 50 Wh): 150

Memory required (MB): 0.8

Vertical vel. prec. (cm/s): 1

Horizont. vel. prec. (cm/s): 0.7

External inputs

Input 1: NONE

Input 2: NONE

☐ Output power

Start Update OK Cancel Apply Help

**Deployment**

☒ Start At: 10/31/2010 20:00:00 ☐ Start Now

☐ Enable serial output / Telit ale

Name: SOGS-I (max 6 char's)

Comments: (max 120 char's)

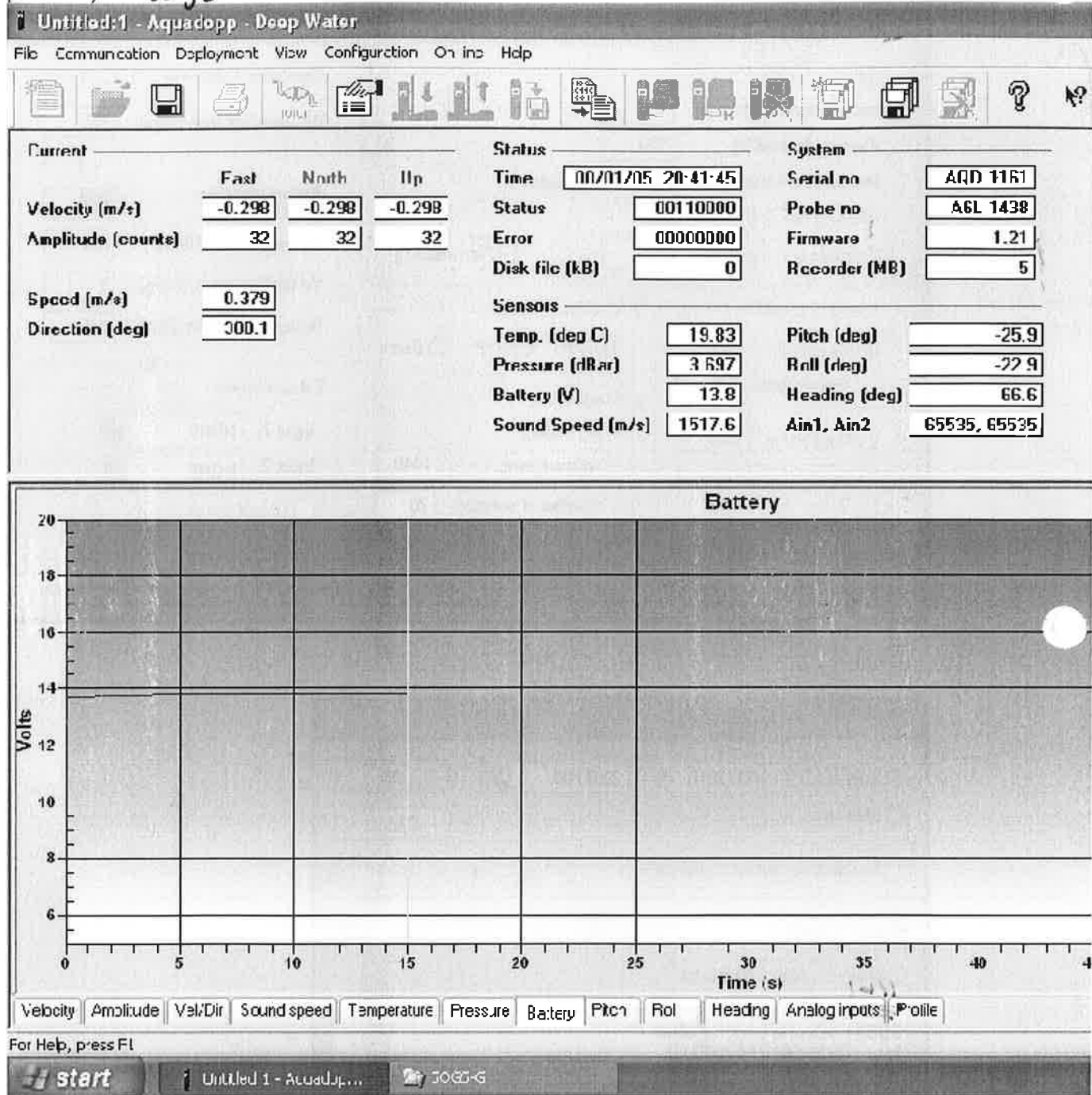
1161  
1196(deepwater)  
SOGS-I ->Double length alkaline  
Start: 10/31/2010 @ 2000UTC

OK Cancel

=====

Deployment : SOGS-I  
 Current time : 10/31/2010 14:52:45  
 Start at : 10/31/2010 20:00:00  
 Comment:  
 1196(deepwater)  
 SOGS-I ->Double length alkaline  
 Start: 10/31/2010 @ 2000UTC

NOTE: In this document I had 1196 on the brain but it is really 1161 (see serial no on this picture->) **Sogs-I**



-----  
Measurement interval (s) : 900  
Average interval (s) : 120  
Blanking distance (m) : 0.37  
Measurement load (%) : 4  
Power level : HIGH  
Diagnostics interval(min) : 1440  
Diagnostics samples : 20  
Compass upd. rate (s) : 1  
Coordinate System : ENU  
Speed of sound (m/s) : MEASURED  
Salinity (ppt) : 32  
Analog input 1 : NONE  
Analog input 2 : NONE  
Analog input power out : DISABLED  
File wrapping : OFF  
Serial output/TellTale : OFF  
-----

Assumed duration (days) : 165.0  
Battery utilization (%) : 158.0  
Battery level (V) : 14.0  
Recorder size (MB) : 5  
Recorder free space (MB) : 4.973  
Memory required (MB) : 0.8  
Vertical vel. prec (cm/s) : 1.0  
Horizon. vel. prec (cm/s) : 0.7  
-----

Instrument ID : AQD 1161  
Head ID : A6L 1438  
Firmware version : 1.21  
-----

Aquadopp Version 1.30  
Copyright (C) Nortek AS  
=====

