

Gulf research Cruise August 2-12, 2012  
10'

Thursday, August 2<sup>nd</sup>, 2012

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10900 underway

Setting up equipment

- I have the Aft pH & CO<sub>2</sub> which should be fixed <sup>since</sup> from the last cruise
- Also have the sonde
- I will be taking samples at each station & depths for Bo Yang
- Also taking surface samples every hour to two while transiting

1130 Sonde logging started  
- data file AUG2

1150 Computer trouble  
- not loading correct user

1156 looks okay - Computer logged in

1202 Aft CO<sub>2</sub> started (Com 5)  
Computer time 1205

1204 Aft pH started Com 4  
Comp time 1207

check in an hour or so

1213 Surface Sample 1  
29.01°C 36.02 Sal

1344 Aft pH seems to be running fine (7.9-8)  
Switching to CO<sub>2</sub> & checking

1348 Stopped CO<sub>2</sub>, seems to be recording okay  
Values more scattered (320-420)

1350 Relaunching Aft CO<sub>2</sub>

1353 Surface Sample 2 27.93°C 36.22 Sal

①

- 1603 Surface Sample 3  
Temp 27.76 Sal 35.94
- 1705 Surface Sample 4  
28.46°C 35.58 sal
- 1846 Surface Sample 5  
27.96°C 35.98 sal
- 1850 Sonde battery low; replacing
- 1900 Started Sonde again  
- batteries ~ 50%; previously used? Should ~~not~~  
last through night.  
- File name Aug 02
- 2000 Surface Sample 6  
27.61°C 35.79 sal
- 2102 Surface Sample 7  
~~28.14~~ 28.14°C 35.87 sal
- 2302 Surface Sample 8 LRM  
27.10°C 35.72 sal

Friday, August 3<sup>rd</sup>, 2012

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- 0100 Surface Sample 9 JB  
26.00°C 35.72 sal
- 0302 Surface Sample 10 JHC  
25.71°C 35.84 sal
- 0459 Surface Sample 11 KD  
24.87°C 36.02 sal
- 0719 Sonde battery low, & no flow → turned up nozzle
- 0734 Sonde & logger batteries changed; new file AUG 03

- 0736 Winch test since ~4m; not much movement.  
Will take a surface sample when we start moving
- 0827 Sonde froze  
Sonde flowthrough clogged (aft drag)  
Still stationary for test so, turning off sonde
- 0906 Andrew shut off flow through
- 0910 turning off afts
- 1045 Flowthrough intake clogged (probably sargassum)  
Doesn't look like they can fix it.
- 1258 juryriggered a system that pumps water backwards  
through the flow through system using the saltwater  
hose from the deck
- Cannot run continuously, pump burns out after 30min  
So, no Aft, or continuous sonde data
- run for 15 min to flush out, fill bucket after  
& put in sonde to read Sal & pH, take sample
- 1330 Surface Samples 12 & 12 dup  
Temp: 30.26°C 36.08 Sal
- o Testing out the juryriggered flowthrough system
  - o Samples taken while stationary
- 1351 ~~Blowing~~  
Blowing high pressure air through flowthrough system  
to see if it unclogs.
- 357 Flowthrough works!  
Sonde Logging started  
File name Aug03-2

- 1403 Aft CO<sub>2</sub> started  
(~~6 min fast?~~) (3 min fast)
- 1406 Aft pH started  
3 min fast
- 2100 Winch Testing done  
CTD test then head to Panama City to  
drop off / pick up people (night transit)
- 2200 headed to Panama City, FL
- 2233 Surface Sample 13 (normal flow through setup!)  
29.59°C 35.67 Sal

Saturday, August 4<sup>th</sup>, 2012

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- 0000 Surface Sample 14 LRM  
29.01°C 35.65 Sal
- 0200 Surface Sample 15 LSW  
28.04°C 35.77 Sal
- 0413 Surface Sample 16 Increased flow to sonde  
27.82°C 35.75 Sal
- 0733 Surface Sample 17  
28.25°C 35.66 Sal
- 0856 Surface Sample 18  
28.22°C 35.37 Sal
- Sonde at 2 1/2 batteries; seems to be going through  
these much faster. have one extra set, might need  
to pick some up in Panama City
- 1005 Surface Sample 19  
27.87°C 34.98 Sal  
adjusted sonde flow

- 1157 Surface Sample 20  
28.36°C 33.8 Sal
- 1347 Surface Sample 21 LSW  
28.28°C 33.09 Sal
- 1500 surface Sample 22 Increased sonde flow  
28.39°C 33.9 Sal
- 1604 approaching Panama City, FL port, shutting down  
flow through instruments
- 2205 departing Panama City, flowthrough on, turning  
on sonde & Aft systems
- 2206 Sonde started
- 2208 Aft pH started
- 2209 Aft CO<sub>2</sub> started

2326 PCB01 Station

| Sample | depth | bottle # |
|--------|-------|----------|
| 1      | 18m   | 2        |
| 2      | 15m   | 4        |
| 3      | 10m   | 6        |
| 6      | 5m    | 8        |
| 5      | 2m    | 10       |

Sample  
Station<sup>1</sup> bottles not fired -  
still have water, allowing it  
to overflow more when sampling  
broke bottle #4

Sunday, August 5<sup>th</sup>, 2012

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- 0309 Surface Sample 23 increased sonde flow  
28.67°C 33.49 Sal

### PCB02 Station

|      |        |    |        |    |           |     |
|------|--------|----|--------|----|-----------|-----|
| 0640 | Sample | 7  | bottle | 11 | depth (m) | 2m  |
|      |        | 8  |        | 10 |           | 5m  |
|      |        | 9  |        | 9  |           | 10m |
|      |        | 10 |        | 6  |           | 20m |
|      |        | 11 |        | 4  |           | 30m |
|      |        | 12 |        | 2  |           | 50m |

0948 Surface Sample 24  
28.77°C 32.58‰

### PCB03 Station

|      |        |    |       |       |        |    |
|------|--------|----|-------|-------|--------|----|
| 1056 | Sample | 13 | depth | 20    | bottle | 7  |
|      |        | 14 |       | 15    |        | 8  |
|      |        | 15 |       | 10    |        | 9  |
|      |        | 16 |       | broke |        |    |
|      |        | 17 |       | 2     |        | 12 |
|      |        | 18 |       | 30    |        | 6  |
|      |        | 19 |       | 50    |        | 5  |
|      |        | 20 |       | 75    |        | 4  |
|      |        | 21 |       | 94    |        | 2  |
|      |        | 22 |       | 5     |        | 10 |

1610 surface Sample 25  
28.16°C 33.53‰

1612 ✓ Sonde power low, Changing batteries  
Logger power low too

1626 batteries replaced in both, logging started  
switched logging interval from 15 to  
5 min

## PCB04 Station

| 1710 | Sample | bottle | depth      |
|------|--------|--------|------------|
|      | 23     | 12     | 2m         |
|      | 24     | 11     | 5m         |
|      | 25     | 10     | 10m        |
|      | 26     | 9      | 15m        |
|      | 27     | 8      | 20m        |
|      | 28     | 7      | 30m        |
|      | 29     | 6      | 50m Cast 2 |
|      | 30     | 5      | 60m        |
|      | 31     | 4      | 75m        |
|      | 32     | 3      | 100m       |
|      | 33     | 2      | 150m       |
|      | 34     | 1      | 195m       |

2102 Surface Sample KD 26  
28.31°C 33.85 Sec

## PCB05 Station

| 2340<br>Cast 1 | Sample        | bottle        | depth | Cast 2 | Sample | bottle | depth |
|----------------|---------------|---------------|-------|--------|--------|--------|-------|
|                | <del>34</del> | <del>12</del> |       | 0157   | 41     | 11     | 2m    |
|                | 35            | 12            | 75    |        | 42     | 9      | 10m   |
|                | 36            | 10            | 100   |        | 43     | 7      | 15    |
|                | 37            | 8             | 125   |        | 44     | 5      | 20    |
|                | 38            | 6             | 200   |        | 45     | 3      | 30    |
|                | 39            | 4             | 300   |        | 46     | 1      | 47    |
|                | 40            | 2             | 401   |        |        |        |       |

Monday, August 6<sup>th</sup>, 2012

0910 surface Sample 27 KLD  
24.61°C 34.46 Sal

1057 surface Sample 28  
28.0°C 34.17 Sal

1104 Sonde logging stopped  
- checking settings

logger was powering Sonde  
- unchecked

→ hopefully this means it won't chew through batteries

1108 ~~restarting~~  
sonde started logging  
Aug06 is file name

1330  
Cast 1

PCBOG Station

| Sample | Bottle | depth |
|--------|--------|-------|
| 47     | 11     | 200   |
| 48     | 9      | 300   |
| 49     | 7      | 400   |
| 50     | 5      | 500   |
| 51     | 3      | 750   |
| 52     | 1      | 1000m |

Cast 2  
1500

| Sample        | Bottle | depth |
|---------------|--------|-------|
| 53            | 11     | 2     |
| 54            | 9      | 10    |
| 55            | 7      | 25    |
| 56            | 5      | 50    |
| <del>57</del> | 3      | 70    |
| 58            | 1      | 100   |

1843 surface Sample 29  
Sal 33.15 27.29°C

2115 surface Sample 30 KLD  
26.86°C 34.09 Sal

(8)



Tuesday, August 7<sup>th</sup>, 2012

PCB11 Station

| Cast 1 | Sample # | Bottle | Depth |
|--------|----------|--------|-------|
| 0228   | 59       | 12     | 200   |
|        | 60       | 10     | 300   |
|        | 61       | 9      | 400   |
|        | 62       | 8      | 500   |
|        | 63       | 6      | 750   |
|        | 64       | 5      | 1000  |
|        | 65       | 4      | 1100  |
|        | 66       | 2      | 1160  |

| Cast 2 | Sample # | Bottle | Depth |
|--------|----------|--------|-------|
| 0237   | 67       | 11     | 2     |
|        | 68       | 9      | 10    |
|        | 69       | 7      | 25    |
|        | 70       | 5      | 48    |
|        | 71       | 3      | 70    |
|        | 72       | 1      | 100   |

0927 Surface Sample 31 no visible flow to sonde  
23.79°C 34.51 Sal turned + up.

DSH104 Station

| Cast 1 | Sample # | Bottle         | Depth |
|--------|----------|----------------|-------|
| 1500   | 73       | 12             | 400   |
|        | 74       | 10             | 500   |
|        | 75       | 9              | 750   |
|        | 76       | 8              | 1000  |
|        | 77       | <del>8</del> 7 | 1100  |
|        | 78       | <del>8</del> 5 | 1200  |
|        | 79       | 3              | 1500  |
|        | 80       | 1              | 2070  |

| Cast 2 | #  | Bottle | Depth |
|--------|----|--------|-------|
| 1630   | 81 | 11     | 2     |
|        | 82 | 10     | 10    |
|        | 83 | 9      | 25    |
|        | 84 | 7      | 50    |
|        | 85 | 5      | 64    |
|        | 86 | 4      | 100   |
|        | 87 | 3      | 200   |
|        | 88 | 1      | 300   |

(4)

1557 Checking Aft Systems  
CO<sub>2</sub> looks good

1559 Launched Aft CO<sub>2</sub>  
Checking Aft pH  
data looks okay  
- few -1# INDs

1602 Launched Aft pH

2018 Surface Sample 32  
29.63°C 35.21 S<sub>al</sub>

2236 Surface Sample 33  
29.43°C 35.16 S<sub>al</sub>

Wednesday, August 8<sup>th</sup>, 2012

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0000 Surface Sample 35 KLD  
28.61°C 34.76 S<sub>al</sub>

0250 Sonde flow too much, turned down

~~DWH~~ DWH Station

| Cast 1 | #  | bottle | depth |
|--------|----|--------|-------|
| 0310   | 89 | 12     | 300   |
|        | 90 | 11     | 400   |
|        | 91 | 9      | 500   |
|        | 92 | 8      | 750   |
|        | 93 | 7      | 1000  |
|        | 94 | 5      | 1100  |
|        | 95 | 3      | 1200  |
|        | 96 | 1      | 1450  |

| Cast 2 | #   | bottle | depth |
|--------|-----|--------|-------|
| 0400   | 97  | 11     | 2     |
|        | 98  | 9      | 10    |
|        | 99  | 8      | 25    |
|        | 100 | 7      | 50    |
|        | 101 | 5      | 65    |
|        | 102 | 3      | 100   |
|        | 103 | 1      | 200   |

1302 Surface Sample 36 (dup)  
24.25°C 34.84 S<sub>al</sub>

## DSH10 Station

| Cast 1 | #   | bottle | depth |
|--------|-----|--------|-------|
| 1452   | 104 | 12     | 300   |
|        | 105 | 11     | 400   |
|        | 106 | 9      | 500   |
|        | 107 | 8      | 750   |
|        | 108 | 7      | 1000  |
|        | 109 | 5      | 1100  |
|        | 110 | 3      | 1200  |
|        | 111 | 1      | 1518  |

| Cast 2 | #   | bottle | depth |
|--------|-----|--------|-------|
| 1700   | 112 | 11     | 2     |
|        | 113 | 9      | 10    |
|        | 114 | 7      | 25    |
|        | 115 | 6      | 50    |
|        | 116 | 5      | 65    |
|        | 117 | 3      | 100   |
|        | 118 | 1      | 200   |

Thursday, August 9<sup>th</sup>, 2012

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## DSH08 Station

| Cast 1 | #   | bottle | depth |
|--------|-----|--------|-------|
| 0327   | 119 | 11     | 200   |
|        | 120 | 9      | 300   |
|        | 121 | 8      | 400   |
|        | 122 | 7      | 500   |
|        | 123 | 5      | 750   |
|        | 124 | 3      | 1000  |
|        | 125 | 1      | 1100  |

| Cast 2 | #   | bottle | depth |
|--------|-----|--------|-------|
|        | 126 | 11     | 2     |
|        | 127 | 9      | 10    |
|        | 128 | 7      | 25    |
|        | 129 | 5      | 50    |
|        | 130 | 3      | 64    |
|        | 131 | 1      | 100   |

0602 Surface Sample 37  
28.56°C 34.15 Sal

0919 Surface Sample 38  
27.21°C 33.19 increased sonde flow

1147 Surface Sample 39  
28.59°C 33.31 Sal

(11)

# DSHOT Station

| Cast 1 | #   | bottle | depth |
|--------|-----|--------|-------|
| 1230   | 132 | 11     | 75    |
|        | 133 | 4      | 100   |
|        | 134 | 8      | 150   |
|        | 135 | 7      | 150   |
|        | 136 | 5      | 200   |
|        | 137 | 3      | 300   |
|        | 138 | 1      | 400   |

| Cast 2 | #   | bottle | depth |
|--------|-----|--------|-------|
| 1400   | 139 | 11     | 2     |
|        | 140 | 9      | 10    |
|        | 141 | 7      | 15    |
|        | 142 | 5      | 20    |
|        | 143 | 3      | 38    |
|        | 144 | 1      | 50    |

1523 Surface Sample 40  
28.76°C 32.98 sal

1731 Surface Sample 41  
28.96°C 32.95 sal

1938 Surface Sample 42      Increased sonde & aft flows  
28.41°C 33.00 sal

2242 Surface Sample 43      KLD  
28.95°C 33.72 sal

## Friday, August 10<sup>th</sup>, 2012

0017 Surface Sample 44  
28.89°C 33.61 sal

0914 Surface Sample 45  
24.90°C 34.30 sal

1001 Stopping aft & sonde

1030 Aft CO<sub>2</sub> - Cycle Pump twice 30x 3 sec interval

1035 Aft pH - pH flush 50x 3 sec interval

1109 Downloading & exporting Sonde Data  
At Oceanic City FL