

SKAPP STATION NOTES FOR 20180515 RACHEL CARSON SOCAL EXPEDITION

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Project: Continental Margins

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Day 1: San Pedro Mound Site 05/15/2018 V4116

Predive

- NTP was missing on euler and quaternion, so now both are set to 134.89.22.5 or ntp.rc.mbari.org
- Mission script is mono-directional, in that the heading will not change for all of the primary lines. Filename is 20180515SanPedroMound_m1v2_rovcmnd_ed.txt
- Kearfott is serial no. 9`

Log

```
0805 In water, tested tilt for full range above water on launch.
0840 Parosci depth sensor has issues, wrong reading and high levels
of noise.
0845 Lidar seems to have lost comms to both heads. Rebooting.
0852 Lidar still unresponsive, cycling.
0900 Recovery underway, lidar unresponsive, and PPS irregular
0931 on deck
```

Day 1: San Pedro Mound Site 05/15/2018 V4117

Notes

- Prepping for dive. Problem was upstream ethernet hub on 10/100 line was squishy, so we replaced it.
- We accidentally put the images on ttl=1 thus broadcasting, which caused issues with the zda data and the GSS system.

- Also experienced a midsurvey telemetry dropout. Not caused by a fault, but we had to realign.
- AMT Deployed and left overnight.

Day 2: Santa Monica Mound 05/16/2018 V4118

Notes

- tuned the heading loop gains, there was a large shimmy present mostly driven by high lateral use.

Day 3: Santa Monica Mound 05/17/2018 V4119

Notes

- Decided this morning to pursue obtaining a GSS rep onsite to troubleshoot this issue.
- Changed default settings on GSS so that F0120VAC, GigE 120VAC, Stbd Sci 24 Data, Toolsled 120VAC, and Ethernet Gigabit Hub are all defaulted to on to maybe avoid losing alignment during these events.
- Tilt-A-Sled is now running natively on Quaternion, pcdas has to send two streams here now.

Log

```
0836 ROV in water
0916 On bottom
0931 Moving along bottom to start of survey
0941 At survey start, re-zeroed
0946 Starting survey, currents are strong on the tether
1330 Issues with the tether, may be caught up, investigating
1430 On deck
```

Day 4: Santa Monica Mount 05/18/2018 V4120

Notes

- We have been investigating a time issue in the lidar data. It seems that once each minute a large adjustment is being made to the clock, but we cannot find these jumps in the OS logs.
- Teaching Erik T how to use the SKAPP.
- Could not conduct surveys here at NE/SW headings, Ventana does not have enough lateral to stay on lines when oriented orthogonally to the dominant current, especially when the tether is under the same current.

Log

```
0850 ROV in water
0930 On Bottom
0952 Done path test
0955 Starting Survey SantaMonicaMoundv4
1435 Off bottom
1500 End of dive
```

Day 5: Santa Monica Mound 05/19/2018 V4121

Notes

- Still troubleshooting the time tears in the lidar data, but Brett Nickerson at 3D@Depth has been responding and detailing out how the adjustments are done. It is unclear why the offsets are so large and inconsistent.
- Fourth day at this site, hopefully will wrap it up today.

Log

```
1102 Done with Survey
1108 Tried turning down streambytes created a triggering issue in
cameras
1109 Start of second survey
???? Did a rotating survey of a large hole
1500 Off bottom
```

Day 6: San Gabriel Canyon SDFT 05/20/2018 V4122

Notes

- Planning on running wall following today
- The oscillation on the up'd gains was too much, i'm tuning it down again.
Kp=20, Ki=0.1, Kd=12
- When entering test mode, the heading gets latched to actual vs SP, let's swap that.
- Heading changes in test mode lead to unusual behavior when attempting to move down or up

Log (from D. Caress)

```
1255Z 0555L 20 May 2018 Left dock San Pedro
1520Z 0820L Arrive on site at the San Gabriel Canyon channel where
it
    intersects the San Diego Trough Fault - site name
    SanGabrielCanyonSDTF Going to launch the AMT
1531Z 0831L AMT deployed
1540Z 0840L ROV Ventana in water, dive 4122
1600Z 0900L ROV descending depth 419 m AMT tracked on USBL -
drifted
    towards the survey area.
Location about: Lon: -118.1409660 Lat: 33.3571732 Depth: -771.684 m
Lon: 118 8.457959 W Lat: 33 21.430394 N Depth: -771.684 m
1602Z 0902L ROV video recording on
1612Z 0912L ROV on bottom, depth 765
Looking for AMT since it drifted close to our operation zone
It's safely out of the way 40-m to the east of our operations
1624Z 0924L Looking for the corner of the fault offset in the
scanning
    sonar to get the offset between the AUV map and reality (USBL
    tracking today)
1628Z 0928L Looks like the map is well located relative to our
tracking.
    Going to place the marker about 30-m south of the corner
1633Z 0933L Deploy marker
33.357658 -118.141557 763.3 m (ROV depth)
1635Z 0935L Start data logging
    Zero nav
```

USBL aiding off
 Both images recording on cameras
 1641Z 0941L Starting survey.
 Working lines up the wall at heading 280
 Starting depth 763, going to 733 m
 Lidar power set to 1000
 multibeam receive gain 37
 Lowest part of the wall was run using line following
 with manual moves
 - transition to wall following at 25 degree slope
 This happened only 10-m away from the marker.
 1646Z 0946L There is a lot of heading oscillation - Eric is going
 to
 try different control loop gains and heading sources to try
 to reduce that
 1653Z 0953L Eric has changed the gains - it's better while standing
 still
 1658Z 0958L The heading still oscillates while moving. Trying to
 have
 the heading controlled by the ROV
 1707Z 1007L Still experimenting with controls settings
 Left camera has stopped recording
 1711Z 1011L Going down the wall, going back to the marker
 1720Z 1020L Back to marker
 Turn down the controller on the heading
 PID gains: P:20.0 I:0.1 D:12.1
 Survey system depth 767-m
 ROV depth 763-m
 ROV altitude 3.7-m
 1723Z 1023L Stop and restart logging - left camera came back
 Starting real survey
 Depth range 767-m to 737-m
 1731Z 1031L Top of line, lateraling 3-m to right (north), then
 going
 down
 1739Z 1039L Left camera off
 1740Z 1040L bottom of line, lateralling, going up
 1756Z 1056L Bottom of 4th line, lateralling, going up

Multibeam logging wasn't on.
**In practical terms, none of the data logged previously
count without multibeam**
Going to start real survey here...
This 12 m from the marker at bearing 010.

1802Z 1102L Stop and restart data logging
Start actual survey
1810Z 1110L At top of line, laterl 3-m to right (north), head down
1851Z 1151L We are paused for the past five minutes or so
The standoff got too low, but zoomed up when Hans changed it
Going back to the start of this downward line
1858Z 1158L Tried to change heading to 302 at the top of the line
after lateraling 3-m, but then the ROV zoomed off uphill.
1902Z 1202L Moving down on new downward line at heading 302
1915Z 1215L Running lines ok
2121Z 1421L End survey, stop logging, off bottom
Many issues running these vertical transects. The GUI is
complicated and both Eric and Hans made mistakes at times.
The biggest issue was that the 1-m Mapping AUV map is
offset from today's USBL tracking by about 35-m at a
bearing of 200, or 31.5-m south and 12.0-m west.

Day 7: San Gabriel Canyon SDFT 05/21/2018 V4123

Notes

- Returning to the roughly 35 degree wall.
- This was the longest use of the wall following mode on a very consistent grade.
- Its a large problem to have the range adjustments mapped to the jog interface, since when having line spacings of 3m can then send 3m range adjustments. A separate control would be better.
- Replace the vertical rate field with a spin box so that modifications don't have to be typed and then affirmed with button push.

Log (from D. Caress)

1255Z 0555L 21 May 2018
Left dock San Pedro

1515Z 0815L Arrive on site at the San Gabriel Canyon channel where
it
intersects the San Diego Trough Fault - site name
SanGabrielCanyonSDTF

1530Z 0830L ROV Ventana in water, dive 4123

1605Z 0905L ROV on bottom, looking for the marker

1611Z 0911L USBL aiding off, ROV at marker

1613Z 0913L Start data logging

1615Z 0915L Start survey, making moves by interactive commands.
First
we are doing a crossing line along the flats. Then we
will
run up and down the wall

1739Z 0939L Running lines interactively. We have completed three
lines
from bottom to top along the ridge of the fault offset.
We
will go up once more on the west side of these lines,
and
then start running lines down the wall north of the
offset
- these will follow a heading of 115 degrees.

1830Z 1130Z Unfortunate event. We are now running vertical lines
north
of fault offset. At the bottom of the wall, when we
started up the ROV zoomed and almost hit the wall where
the wall goes vertical. We pulled up and went backwards
ten meters or more. Resetting and starting again. There
will be muddy water hanging on the lower wall now.

2116Z 1416Z Stop logging, end survey, off bottom.

2200Z 1500L ROV on deck

Day 8: San Gabriel Canyon SDFT 05/22/2018 V4124

Notes

- After two days, we'll attempt to wrap up this survey today, surveying more vertical wall in the SW sections of the feature.
- BUG: in tilt-a-sled, should verify lvl sensor is on before sending commands.

Day 9: San Gabriel Canyon SDFT 05/23/2018 V4125**Notes**

- Last day, cameras still have problems, and we'll have to sort the issue out back at MBARI.
- Seems like the range loop has been a little too aggressive in its gain setting. Sometime after starting use of this mode and a day where it was banging the thrusters awfully hard seems to have worsened or created a problem in the port horizontal thruster. The crane seal has been damaged between the thruster motor and compensated seal space. Oil is moving from the main hydraulic system into the compensated space. This is also in part because the main hydraulics need extra oil to make up for the volumetric loss of the extended articulation ram.