

Sedimentation Event Sensor and Trigger Trap Deployment Checklist

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~~Dive Objective:~~ 6.5 month deployment of SES and Trigger Trap (TT) together at MARS. Depth is approximately 900m. The SES collection period is 5 minutes and the sampling interval is 68 minutes. Flash memory (1 TB) is split into two equal partitions with redundant backup as well as a backup 512 GB USB stick. The battery is expected to last 6.8 months.

The trigger trap will be deployed ~400m from the SES. SES will trigger the TT to sample on events as calculated using an adaptive sampling algorithm, as well as periodically throughout the deployment. Acoustic communications will try for 3 times or until a successful reply. TT collection period is 3 hours.

Deployment Date: 4 Dec 2024
Person performing checklist: IH

Pre-deployment:

1. Check and, if necessary, change batteries; verify operation:
 - ✓a. SES
 - ✓b. SES acoustic modem
 - ✓c. SES strobe, VHF beacon, and Argos beacon *Crissy*
 - ✓d. SES HomerPro
 - ✓e. Trigger trap *Crissy*
 - ✓f. TT acoustic modem
 - ✓g. TT strobe, VHF beacon, and Argos beacon *Crissy*
 - ✓h. TT HomerPro
 - ✓i. Squirty – ensure pump is disconnected (use dummies), verify w/ LED *Paul*
2. Run syntax check on SES mission code [Rich].
3. Run SES predrive test program and verify operation of the following systems [Rich]:
 - a. Turntable rotates
 - b. Fluorometer returns data
 - c. External LED lights
 - d. Internal LED lights
 - e. Camera returns images
4. Connect USB cable from computer to Trigger Trap and start deployment [Rich].
5. ~~Calibrate pH sensor~~ [Crissy]. *Change current meter battery & start current meter*
- ✓6. Install Trigger Trap cups [Crissy].

Morning of deployment, at dock:

- ✓1. Install SES battery shorting plug and deck comms cable.
- ✓2. Establish comms with SES through deck comms cable; log in and check all ok [Rich].
- ✓3. Check imaging chambers compensation water level; add DI water to tubing if any air.
- ✓4. Inspect all water hoses and fitting for damage and leaks.
- ✓5. Check that SES drop weights are in place, and that release and safety pins are in position.
6. Check SES HomerPro
 - a. Channel number: 10
 - b. Battery expiration date: MAR 2025

8:17 @ MARS

9:14 ROV

hits water

9:58 m bottom

10:36 discovered strange piece of hardware

10:42 leave

- ✓ 7. Check all cable connectors and plugs installed and tight on SES.
8. ~~Check that pH sensor is installed on SES frame, secured and tight.~~
- ✓ 9. Check that cups are installed on Trigger Trap carousel.
- ✓ 10. Confirm that Trigger Trap deployment has been started.
- ✓ 11. Check that TT drop weights are in place, and that release and safety pins are in position.
12. Check TT HomerPro
 - a. Channel number: 26
 - b. Battery expiration date: installed JUN 2024
- ✓ 13. Check all cable connectors and plugs installed and tight on TT.
- ✓ 14. Apply Rain-X to all beacon windows on SES and TT.
15. ~~Check that bicycle flags are installed on SES and TT.~~
- ✓ 16. Check for tools left on and in SES and TT frames.

After arriving at MARS:

- ✓ 17. Turn on SES acoustic modem, listen for chirps. ✓ check modem comms
- ✓ 18. Turn on Trigger Trap acoustic modem, listen for chirps.
19. Activate SES Strobe, VHF beacon, and Argos beacon, noting Beacon frequency and Argos ID. Verify operation of all three.
 - a. Beacon frequency: 154585 MHz 160725
 - b. Argos ID: 213423
20. Activate TT Strobe, VHF Beacon, and Argos beacon, noting Beacon frequency and Argos ID. Verify operation of all three.
 - a. Beacon frequency: 154585 MHz
 - b. Argos ID: 168161
- ✓ 21. Turn off ship power (PSU) to check that SES battery works. - a deck
- ✓ 22. Start SES mission and confirm beginning sequence.
 - a. Time of program start: 9:50 PST
- ✓ 23. Unplug SES deck comms cable and install dummy plug in its place. ✓ Wait for carousel to move (2 min)
- ✓ 24. Check that deck cable dummy plug is installed and tight, and double check all other connectors and plugs on SES and TT.
25. ~~Check that pH sensor cap is removed.~~
- ✓ 26. On TT, remove Squirty dummy plugs and plug in pump. 8:27 check flotation is secured
- ✓ 27. Check again for any tools left on SES and TT frames.
28. Remove SES hold-down straps.
29. Remove Trigger Trap hold-down straps.
30. Record times and positions for SES and Trigger Trap deployments:

	Time (PST)	Latitude (deg)	Longitude (deg)	Depth (m)
SES launch from deck	9:00	N36° 42.638	W122° 10.873	
SES discovered by ROV	9:57	36N 42.650	122W 10.88	893
SES placed by ROV	10:19	36N 42.648	122W 10.87	885
TT launch from deck	4:40	N36° 42.718	W122° 11.204	
TT discovered by ROV	1057	N36° 42.7256	W122° 11.2105	882
TT placed by ROV	DIDN'T MOVE	SAME	SAME	SAME

current meter

8:56 10:22

SES weight S1

TT weight T1

10:26 watched SES roll - plate mixed its wiper brushes

~300' from SES
~5 m E

TT launch first
↑
↑

1400m
B-16h
from TT
rotate to
face modem
to TT

Recovery Date: _____

Person performing checklist: _____

Recovery:

1. Record time that Trigger Trap drop weight is released: _____ PDT
2. Record time that SES drop weight is released: _____ PDT
3. ROV to retrieve set of weights and/or plate on the way up. Second and third dives necessary for retrieving remaining weights/plate
4. Record times for SES appearance and recovery:
 - a. RF signal received: _____ PDT
 - b. Visible on surface: _____ PDT
 - c. SES on deck: _____ PDT
5. Record times for Trigger Trap appearance and recovery:
 - a. RF signal received: _____ PDT
 - b. Visible on surface: _____ PDT
 - c. TT on deck: _____ PDT
6. Unplug Squirty pump on TT and replace with dummy plugs.
7. Deactivate VHF Beacon, Strobe, and Argos on SES.
8. Deactivate VHF Beacon, Strobe, and Argos on TT.
9. Rinse off SES and TT.

Toolbox checklist

Magnet for beacons

MINK shorting plug (deployment) or dummy plug (retrieval)

Squirty dummy plugs (retrieval)

Handheld radio receiver

Channel lock pliers for MINK connectors

Molykote 44 for Subconn connectors

Socket wrench for hose clamps

Electrical tape

Knife

Antiskid mat

TT controller comms cable

Rain-X