

Sedimentation Event Sensor Deployment Checklist
14 July 2025

Dive Objective: 4 month deployment of SES at MARS, Trigger Trap to join ~1 month after SES is deployed. The SES is plugged into MARS with backup alkaline batteries. Depth is approximately 900m. 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. Backup algorithm has been updated to speed up process.

Deployment Date: 16 July 2025
Person performing checklist: Irene

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]
 - i. Beacon frequency: 154.580 MHz
 - ii. Argos ID: 284850
 - d. SES HomerPro
 - i. Channel number: 10
 - ii. Battery expiration date: good
- ✓ 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
 - ✓ f. Collection plate passes through brushes
4. Calibrate pH sensors, start deployment [Crissy/Irene].
- ✓ 5. Change current meter batteries, start deployment [Irene].

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 fittings for damage and leaks.
- ✓ 5. Check that SES drop weights are in place, and that release and safety pins are in position.
- ✓ 6. Check that SIIM can and other MARS hardware are installed and secured.
- ✓ 7. Check all cable connectors and plugs installed and tight on SES. *except SIIM*
- not yet* ✓ 8. Check that 2x pH sensors are installed on SES frame, secured and tight.
- ✓ 9. Check that bicycle flags are installed.
- ✓ 10. Check for tools left on and in frame.

pH sensors

B S/N 23430002 — Blue tape = bottom

C S/N 23430001 — Red tape = top

wrapped in electrical tape

*moving in
battery mode
ok
battery V 24.6V*

After arriving at MARS:

- ✓ 11. Turn on SES acoustic modem, listen for chirps. ✓ check Homer Pro installed
- ✓ 12. Activate SES Strobe, VHF beacon, and Argos beacon. Verify operation of all three. *always on*
- 13. Turn off ship power (PSU) to check that SES battery works. *did on deck* *saw strobe activate while on shore dock*
- ✓ 14. Start SES mission and confirm beginning sequence.
 - a. Time of program start: 8:30 AM PST ish
- ✓ 15. Unplug SES deck comms cable and install dummy plug in its place.
- ✓ 16. Check that deck cable dummy plug is installed and tight, and double check all other connectors and plugs.
- ✓ 17. Check that pH sensor cap is removed.
- ✓ 18. Check again for any tools left on frame.
- 19. Remove SES hold-down straps.
- 20. Record times and positions for deployment:

	Time (PST)	Latitude (deg)	Longitude (deg)	Depth (m)
SES launch from deck	<u>8:51 AM</u>	<u>36° 42' 40.713"</u>	<u>122° 11' 7.2 "</u> <i>drifting fast</i>	
SES discovered by ROV	<u>9:49</u>	<u>41.922 42.706"N</u> <i>42.203</i>	<u>11.339"W</u> <i>11.071</i>	<u>877.5</u> <i>882.5</i>
SES placed by ROV	<u>10:11</u> <i>done roughly 10:19</i>	<u>44.591</u>	<u>14.568</u>	<u>885</u> <i>~70m from MARS</i>
SES plugged into MARS	<u>10:55</u>	<u>44.862</u>	<u>12.426</u>	

SES can ~~turn~~ down 10:40 2 44.705 12.948 883-885 *602*

21. Check comms through MARS interface.

.123 pings, not .122. controller is asleep

(from Rich:) ranging to modem - took ~4 tries but ultimately worked

Boat log

1. Leave dock: ~6 AM PST
2. Arrive MARS: 8:20 PST
3. ROV launch: 9:10 PST
4. ROV on bottom: 9:46 PST
5. ROV begins ascent: 12:54 PST
6. ROV on deck: 14:20 PST
7. Arrive back: 16:35 PST

took some pictures of SINKER *handle*
~11:30 back to SES to rearrange ~~tablets~~ etc.

After some config changes, .122 and .123 both ping from shore but not from boat

- Vpn'd into Pumba so Rich can comm from boat
~12:05 it still hasn't rotated

deployed current meter ranged to modem from ship, ~~was~~ used acoustic modem to wake up SES controller then we rebooted controller, ran cleaning sequence and watched it work

12:45 - 1252 recovering weight plate
~14:10 @ 10m depth

Toolbox checklist

Magnet for beacons
MINK shorting plug [Rich]
Handheld radio receiver
Channel lock pliers for MINK connectors
Molykote 44 for Subconn connectors
Socket wrench for hose clamps
Electrical tape
Knife
Antiskid mat