

# **SOCCOM BGC Floats: Deployment and Cleaning Procedures**

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# **SOCCOM**

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## **1. General information**

There are two types of SOCCOM profiling floats: Apex floats and Seabird Navis floats. Both profile to 2000 m every 10 days. They park at 1000 m between profiles. Most have software that enables them to profile under sea ice, surfacing to report profiles after ice melts.

Do not deploy in water shallower than 2500 m, to avoid grounding.

Please deploy no closer than 50 km to existing ice edge, so that at least first profile, taken within 24 hours, is returned immediately.

## **2. Deploying SOCCOM floats (for Ship's mate and Marine Technician):**

### **2a. Floats that are not in a cardboard box**

The floats do not need to be 'started' as they are already in pressure activation mode. This means that once it is lowered into the water it will sink (not right away but about 3-5 mins after deployment, no need to wait), it will then feel the pressure on the sensor and begin its mission.

Ship speed and float location: After the CTD profile is completed, the ship should get underway and steam to outside the area that was occupied by the ship during the station, which creates a localized oily patch. This might be about 1 km or 1 nm away from the CTD station. Deployment is easiest when conducted on the lee-side (with respect to waves) stern-quarter of the ship and when steaming into the wind with the ship moving 1-2 knots over water. This way there are no worries about the ship running into the float, which will head to the surface shortly after deployment. Please note all deployments should occur in at least 2500m of water. Please deploy floats before you reach the shallows as necessary.

Prior to deploying: clean the nitrate and FLBB (bio-optical) sensors (see next page). Do NOT clean the oxygen sensor, but do make sure that any cap is removed from the sensor if there is one. This can be done anytime before deployment, but the closer to deployment the better.

Step 1 - Remove the float from the crate (please be sure to lift from the pressure case only as the antenna and CTD are not to be used as handles). There are 2 thick foam supports on either end of the crate. Remove those supports and have someone carry those to the fantail (near where you will be deploying). Put the supports on the deck and lay the float into the supports (tie down if necessary). (Sensor cleaning could be done at this point.)

Step 2 - You will need line that is twice the length of free-board plus 10' to tie off to a cleat (so you don't lose your line). Tie one end of line to a cleat near the fantail on the leeward side, then pass the other end through the hole on the deployment disk (white disk with round hole in center of pressure case). Pass enough line through the hole so that you are a little more than the length of your free-board.

Step 3 - Pick up the float & line being sure to keep your line untangled. Lean over the railing and begin to lower the float over the railing in a hand over hand technique (do not move the lines relative to each other as it will saw through the disk and the float will fall precipitously). You will have two pieces of line in your hand, the bitter end and the tied off end. Once the float has been successfully lowered to the water hold the bitter end in one hand and the tied off end in the other and be sure the line is not twisted or tangled before you release the bitter end (you should be able to form a "V" shape with the line between your hands and the deployment ring, the float will drag behind the boat that is not a problem it will be let go shortly). Once all twists have been removed release the bitter end and slowly pull the line through being sure the line does not get tangled on itself. It is important that you don't get them twisted or tangled as you pull the line through the hole. If the line is twisted or tangled you must pull the float back up and untangle it and repeat the procedure.

## **2b. Deploying SOCCOM Floats in Cardboard Boxes**

These floats will be put into cardboard boxes before loading on the ship, and will remain in the boxes.

- Keep in a dry area inside the ship until ready for deployment.
- Do not open.
- [Therefore, do not clean any sensors.]
- Do NOT throw or drop the boxes over the side. (See directions below for handling the line to ease them into the water.)

The floats sensors do not need to be cleaned when using the deployment box. They have been cleaned prior to going into the boxes. The floats do not need to be 'started' as they are already in pressure activation mode inside the box. This means that once it is lowered into the water it will sink (not right away but about 5-10 mins after deployment, no need to wait), the water soluble

tape will dissolve opening the box and releasing the float; the float will then feel the pressure on the sensor and begin its mission.

Ship speed and float location: After the CTD profile is completed, the ship should get underway and steam to outside the area that was occupied by the ship during the station, which creates a localized oily patch. This might be about 1 km or 1 nm away from the CTD station. Deployment is easiest when conducted on the lee-side (with respect to waves) stern-quarter of the ship and when steaming into the wind with the ship moving 1-2 knots over water. This way there are no worries about the ship running into the float, which will head to the surface shortly after deployment. Please note all deployments should occur in at least 2500m of water.

Please deploy floats before you reach the shallows as necessary.

Step 1. Transport float in cardboard box to the deck deployment location. Once ready to deploy remove plastic cover. Please note float orientation as per picture on box.

Step 2 - You will need line that is twice the length of free-board plus 10' to tie off to a cleat (so you don't lose your line). Tie one end of line to a cleat near the fantail on the leeward side, then pass the other end through the handle closest to the top of the cardboard box (as per the picture on the box). Pass enough line through the hole so that you are a little more than the length of your free-board.

Step 3 - Pick up the box & line being sure to keep your line untangled. Lean over the railing and begin to lower the box over the railing in a hand over hand technique (do not move the lines relative to each other as it will saw through the handle of the box and the float will fall precipitously). You will have two pieces of line in your hand, the bitter end and the tied off end. Once the box has been successfully lowered to the water hold the bitter end in one hand and the tied off end in the other and be sure the line is not twisted or tangled before you release the bitter end (you should be able to form a "V" shape with the line between your hands and the deployment ring, the box will drag behind the boat that is not a problem it will be let go shortly). Once all twists have been removed release the bitter end and slowly pull the line through being sure the line does not get tangled on itself. It is important that you don't get them twisted or tangled as you pull the line through the hole. If the line is twisted or tangled you must pull the float back up and untangle it and repeat the procedure.

Please Note: Do Not drop/toss/throw the box over the side: the float will not survive impact. Cardboard must be lowered to water using the deployment line provided.

## **2.c. Float mission description, as background for ship handling after deployment:**

### **How long/when is the float at the surface near the deployment location?**

- Float type A (ice enabled with an inactive mission prelude): Assume these floats are at surface for 10 minutes, and then for 5 hours about 13-17 hours after deployment.
- Float type B (ice enabled with active mission prelude): Assume these floats are at the surface for 8 hours after deployment. (Actually at surface for about 10 minutes, then subsurface for up to 2 hours, then at surface for 6 hours.)

Full description of float missions:

1. Once the float is deployed, it will stay at the surface for 1 to 10 minutes before descending. (Longer for floats in cardboard deployment boxes)
2. At anytime from when float descends beyond 20 dbar and the 2 hour mark the float will self activate.

This where the two versions of floats act differently.

Float A: Ice-enabled with an inactive mission prelude (floats deployed in or near ice)

3A. This float will activate and continue to do an initial profile to full profile depth (~2000 m) and return to the surface, which can occur between 13 - 17 hours after deployment

4A. Once at the surface, the float can be at the surface anywhere from 15 minutes to 5 hours depending on the amount of data to upload but typically 15-30 minutes if all has gone normally.

Float B: Ice-enabled with active mission prelude, usually 360 minutes long (floats not deployed near ice)

3B. After activation, this will begin to ascend to the surface and depending on activation this can happen between 15 minutes to 6 hrs after activation.

4B. After the Prelude is completed the float will descend for its initial profile and can be at the surface from 19 - 24hrs after deployment

5B. Once at the surface the float can be at the surface anywhere from 15 minutes to 5 hours depending on the amount of data to upload but typically 15-30minutes if all has gone normally

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**3. Cleaning optical nitrate (ISUS or SUNA) and biooptical sensors (FLBB) prior to float deployment with optical cleaning pads and lens paper (**unboxed floats only**)**

**DO NOT CLEAN SENSORS IF USING CARDBOARD DEPLOYMENT BOX!  
DO NOT CLEAN THE OXYGEN OPTODE SENSOR!**

**Same procedure for the ISUS (nitrate on Apex), MCOMS (nitrate on Navis) and FLBB (optical on Apex), and SUNA (optical on Navis)**

1. Wash your hands with soap and water to remove oils & grease. Have a squirt bottle with deionized water (as freshly dispensed as possible) and the lens paper and the pre-moistened lens cleaning wipes (or alcohol to moisten paper) readily available. Do 1 instrument at a time and do not reuse the pre-moistened cleaning wipes or lens paper. Once open, the pre-moistened lens cleaning wipes dry out fairly quickly so open just before use.
2. Rinse lenses by squirting with deionized water (DIW). The ISUS lenses are located inside the slot in the titanium tube; lower surface is an optical lens and upper surface is a mirror.
3. Clean the lenses. If necessary, wrap the moistened paper or pre-moistened wipe around the top of a Q-tip. Prioritized choices of lens paper or pre-moistened lens wipe:
  - a. 100% alcohol and lens paper
  - b. Pre-moistened lens cleaning wipe packet
  - c. Isopropyl alcohol and lens paper if neither a or b are available.Gently tap/dab the lens surface with the wipe. Use a new lens cleaning wipe for each instrument.
4. Rinse by squirting with deionized water.
5. Tap/dab dry with the lens paper.

Materials needed: supplied with floats

Pre-Moistened Lens Cleaning Wipes packets (2 per float plus extras)

Squirt bottle. Fill with best quality deionized water possible.

Lens cleaning wipes ('lens paper')

Q-tips (2 per float plus extras)

Materials you supply yourself: deionized water

Absolute alcohol if available (then don't need the premoistened wipes)

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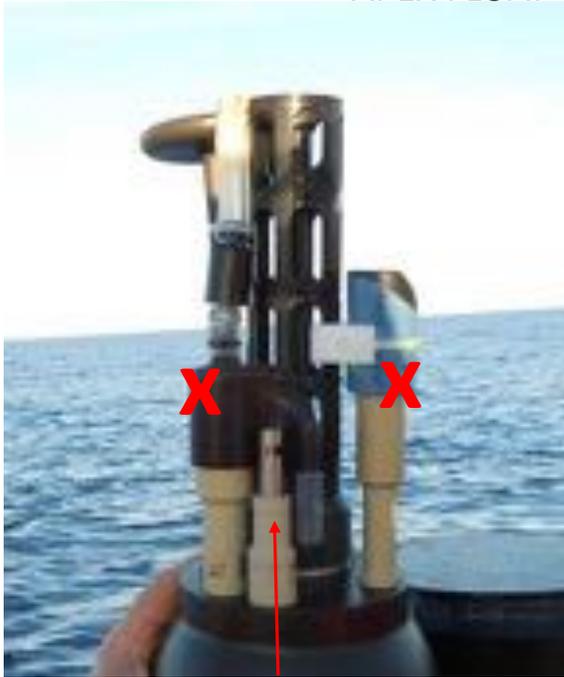
QUESTIONS?

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## APEX FLOAT CLEANING



**ONLY CLEAN THE ISUS  
TITANIUM PROBE ON  
THE ENDCAP**

**DAB THE FLBB  
WITH AN OPTI-  
CAL CLEANING  
PAD WRAPPED  
AROUND A Q-  
TIP AND RINSE  
WITH DIW**



**WIPE THE ISUS WINDOWS  
WITH AN OPTICAL CLEAN-  
ING PAD WRAPPED  
AROUND A Q-TIP AND  
THEN RINSE WITH DIW**



## NAVIS FLOAT CLEANING



MCOMS is the Wetlabs optical properties sensor (chlorophyll a, backscattering, irradiance)

SUNA is the Satlantic nitrate sensor

UNBOXED FLOAT DEPLOYMENT PHOTOS  
(NB PALMER November 2015)



BOXED FLOAT DEPLOYMENTS  
(NB PALMER FEBRUARY 2017)

