

Navis BGCi

Autonomous Profiling Float with integrated Biogeochemical Sensors

The Navis BGCi autonomous profiling float with integrated optical Dissolved Oxygen sensor (SBE 63) and WET Labs ECO-MCOMS is now available from Sea-Bird Scientific. The sensors take continuous measurements at 1 Hz through ascent, and provide high accuracy, resolution, and stability.

- The SBE 41N CTD measures conductivity, temperature, and pressure (depth). The pump-controlled, T-C ducted flow minimizes salinity spiking caused by mismatch of temperature and conductivity measurements
- The individually calibrated SBE 63 Optical Dissolved Oxygen sensor is integrated within the CTD flow path, providing optimal correlation with CTD measurements
- The ECO-MCOMS uses demonstrated WET Labs technology to supply three optical sensors in one, providing chlorophyll a, backscattering, and CDOM, or chlorophyll a and 2 backscattering channels. MCOMS is integrated directly into the float end cap and co-located with DO and physical measurements

As an option, multiple sensors can be attached to the float hull and cabled to the end cap. Data from all sensors, including the optional bolt-on sensors, is integrated in the data stream by the SBE 41N CTD electronics. Available bolt-on sensors include the Satlantic Deep SUNA (nitrate), Satlantic OCR 504 (4-channel radiometer), and WET Labs C-Rover 2000 (transmissometer).

Navis BGCi Head



Features

- Navis Autonomous Profiling Float.
- SBE 63 Optical Dissolved Oxygen sensor.
- WET Labs ECO-MCOMS fluorometer / backscattering sensor.
- Up to four optional bolt-on sensors.
- SBE 41N CTD — integrated data stream for all sensors on float, and continuous profiling from 2000 dbars; same CTD family as current Argo floats.
- Flexible mission sequencing, allowing more frequent sampling in upper water column.
- Backed by Sea-Bird Scientific warranty. Backed by Sea-Bird Scientific warranty

Initial Accuracy

Temperature	± 0.002 °C
Salinity	± 0.002 PSS-78
Pressure	± 2 decibars
Dissolved Oxygen	± 3 µmol/kg or ± 2%
Chlorophyll Fluorescence	± 0.2% of full scale (relative to specific monoculture of phytoplankton [diatom] grown in specific light/nutrient conditions)
CDOM Fluorescence	± 0.3% of full scale (relative to Quinine sulfate dihydrate)
Backscattering	± 0.2% of full scale (relative to polystyrene beads [2 µm ±0.1 µm mean diameter])

Typical Stability

Temperature	0.0002 °C/year
Salinity	0.001 PSS-78/year
Pressure	0.8 decibars/year
Dissolved Oxygen	<1 µmol/kg/100,000 samples (20 °C; sample-based drift)

Volume Change	1.7% (minimum fractional)
Depth Rating	2000 dbars
Communications	Iridium Transceiver 9523 — RUDICS, circuit switched
Position	GPS, Garmin 15xL-W, mean acquisition time 70 sec
Park Interval	1 - 15 days
Materials	Aluminum hull, seamless natural rubber external bladders
Weight (in air)	< 20 kg (excluding optional bolt-on sensors)
Self-Activation	Starts operating automatically on deployment, when pressure reaches user-programmable setpoint
Internal Batteries	4 packs of 3 DD lithium sulfuryl chloride cells
Power Endurance	250 2000-dbar cycles (mission dependent; excluding optional bolt-on sensors)
Memory	CTD stores one 2000-dbar profile
Dimensions	Hull diameter 14 cm, ring diameter 24 cm, total length 167 cm

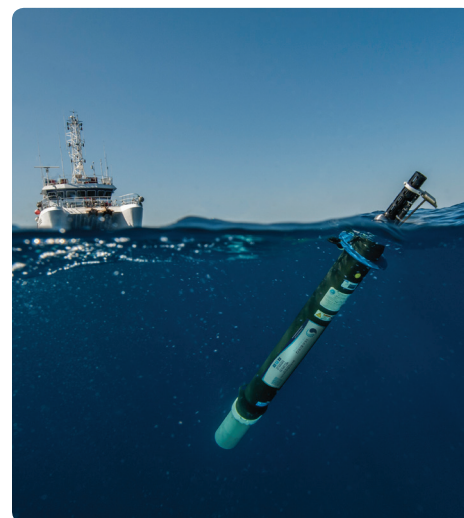
Optional Bolt-on Sensors



With WET Labs C-Rover 2000

With Satlantic Deep SUNA

With Satlantic OCR 504



Navis BioGeoChemical Float Deployment in the Mediterranean
(Photo by Christoph Gerigk, © Sea-Bird Electronics)