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Chlorophyll WETStar Characterization

Date: March 13, 2012 S/N: WS3S-1352

Chlorophyll concentration expressed in µg/l can be derived using the equation:

CHL(µg/l) = Scale Factor x (Output - Clean Water Offset)

	Analog output	Digital output
Clean Water Offset (CWO)	0.082 V @	86 counts
Scale Factor (SF)	5.0 µg/l/V @	5.0144 µg/l/count
Maximum Output	5.48 V @	4095 counts
Resolution	0.43 mV	1 counts
Ambient Characterization Temperature	22 ± 1℃	
Current Draw	70 mA @ 12V (typical)	
12-hour Stability	0.23 mV/hr	1 counts/hr
Temperature Stability, 25–2 ℃	0.22 mV/℃	1 counts/℃

Range	
15 µg/l	0
27 µg/l	X
150 µg/l	0

Definitions:

CWO: Clean Water Offset value obtained using pure filtered de-ionized water.

SF: Scale Factor is used to convert the fluorescence response of the instrument into chlorophyll-a concentration. Scale Factor is determined at WET Labs during a cross calibration using a liquid fluorescent standard and a reference fluorometer whose chlorophyll fluorescence response has been characterized in a laboratory using a mono-species lab culture of *Thalassiosira weissflogii* phytoplankton.

Maximum Output: Maximum signal output of the fluorometer.

Resolution: Standard deviation of 1 minute of clean water data, sampled once per second.

Ambient Characterization Temperature: Room temperature at time of characterization.

Current Draw: The amount of current the instrument uses for operation.

12-hour Stability: Deviation of output averaged over 12 hours.

Temperature Stability: Measured output variation per degree.

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WETStar Calibration and Repairs

Date March 13, 2012 **Customer** University of Hawaii Marine Center

S/N# WS3S-1352 **Repair Order** 14931

Standard Service

- Performed noise test: 1 sample/sec for 60 sec
- Performed stability test: 1 sample/min for 12 hrs
- Performed temperature test: 25–2 ℃
- Performed saturation test
- Shake-tested unit
- Pressure-tested unit
- Updated unit's calibration sheet

Additional Repairs

Parts Replaced: Long Nozzle and O-Rings.

Comments

WETStar was re-calibrated with 100ppb Uranine.