LISST-OST

Optical Sediment Trap

Diffuse Attenuation • Sinking POC Flux • Particle Flux

The LISST-OST is designed for integration onto Argo and other robotic and autonomous profiling floats. The sensor monitors sinking particles by measuring changes in diffuse attenuation as particles settle onto a large collection window and accumulate over time. Changes in the measured attenuation can be correlated with particle flux and used as a proxy for particulate organic carbon (POC) flux. Although designed for Lagrangian floats to perform measurements when parked at 2,000 meters, the LISST-OST can also be mounted on fixed platforms for long-term deployments with an optional wiper accessory to help mitigate biofouling.

SEQUOIA

Tools and Research for Particle Intelligence

FEATURES

- Measures diffuse optical transmission
- Off-axis optical geometry to reduce interference with settling particles
- Large optical beam cross section (approximately 5 cm at the receive window)
- Ambient light rejection through light modulation and synchronous detection
- Externally powered
- RS-232 real-time output
- Onboard temperature compensation
- Optional wiper accessory available for long-term deployments with depth rating of 30 m (standard) or 100 m (extended); ONLY recommended for use in Eulerian mode, NEVER in Lagrangian mode
- Optional data logger available: NexSens X3 (IP68 rated) or NexSens X3-SUB (depth rated to 100 m)
- Software included with the instrument for transmission measurements; does not include interpretations of attenuance flux or relationships to POC flux, which must be established by the user
- Custom cable lengths available

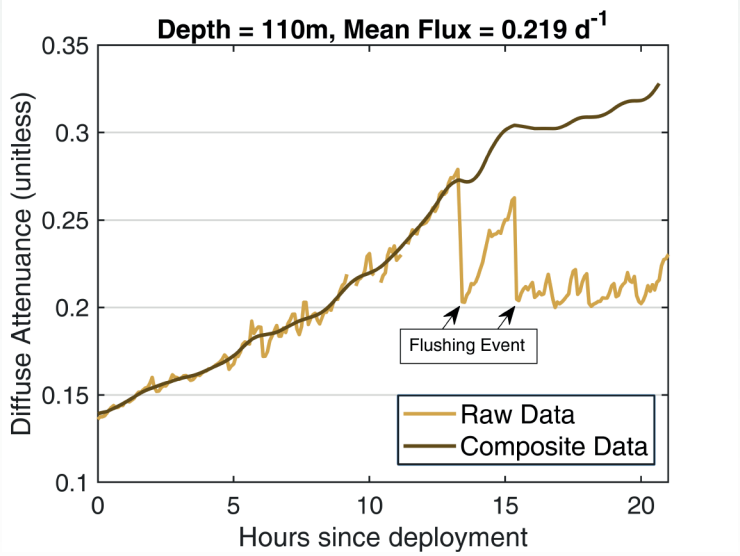
SPECIFICATIONS (subject to change without notice)

Parameters Measured

- Diffuse optical transmission at 16-bit resolution
- Diffuse attenuation

Technology

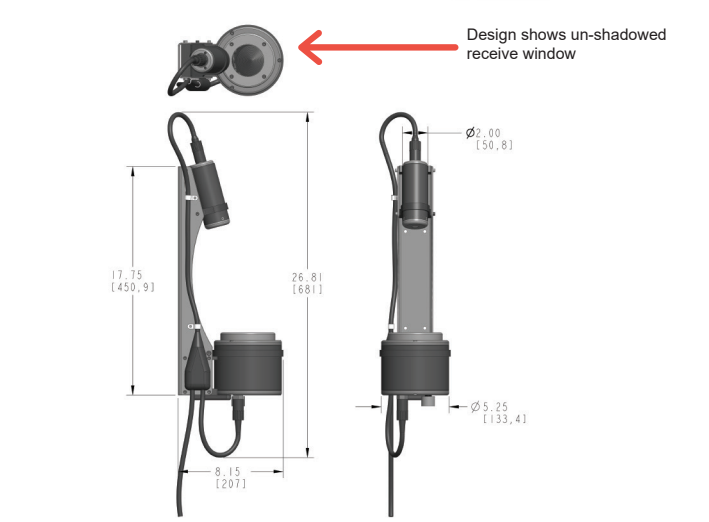
- Source wavelength: ~650 nm (Red) LED
- Large-aperture sapphire receive window



Raw diffuse attenuance data collected every five minutes from a deployment in Monterey Bay. Composite data shown post smoothing (1.5 hour window), and corrected for "negative jumps" where settled particles are flushed due to float vertical movement. Courtesy of Dr. Meg Estapa.

Mechanical and Electrical

- Dimensions [H x D x W]: 50.5 cm x 21.3 cm x 13.3 cm (19.90” x 8.38" x 5.25")
- Weight [air / water]: 4 kg / 1.2 kg (8.8 lbs / 2.6 lbs)
- Depth rating: 2,000 m
- Sampling rate: 1 Hz
- Temperature (operating): -3 °C to 40 °C
- Temperature (storage): -20 °C to 60 °C
- Material: black anodized aluminum w/sacrificial anode protection
- External power input: 7 VDC to 25 VDC
- Current drain @ 12V: 42 mA average during sampling
- Connectors: SubConn MCBH8M, MCBH3M



LISST-OST dimensions. Top, side and front view.

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