Press Release:
FOR IMMEDIATE RELEASE

Chelsea Technologies Introduces MicroSTAF, a compact, deployable Single Turnover Active Fluorometer

MicroSTAF delivers the same exceptional sensitivity and automation as LabSTAF in a low-power, deployable format designed for Marine Autonomous Systems.

Chelsea Technologies, a global leader in optical sensing and marine science instrumentation, is proud to announce the launch of MicroSTAF, a deployable Single Turnover Active Fluorometer (STAF) derived from the company's renowned LabSTAF platform.

Building on LabSTAF's proven reputation for the continuous interrogation of phytoplankton photosynthesis, MicroSTAF delivers the same scientific precision in a compact and low power format that is ideal for integration with Marine Autonomous Systems, including Autonomous Underwater Vehicles (AUVs), Autonomous Surface Vehicles (ASV), gliders and floats.

The high level of automation available in LabSTAF has made it the platform of choice for ship based underway systems worldwide, with tens of thousands of Fluorescence Light Curves now recorded from research vessels.

MicroSTAF inherits this automation and exceptional sensitivity while requiring only 2 W of power. This creates new opportunities for wide scale and long duration measurements and increases both the spatial and temporal coverage of STAF based assessments of phytoplankton photosynthesis.

Benefitting from the same scientific advancements that have made LabSTAF a research standard, MicroSTAF features:

- Photochemical Excitation Profiles (PEPs) – enhancing STAF-based assessments through improved characterisation of phytoplankton photosynthetic parameters.
- Dual Waveband Measurements (DWMs) – providing full spectral correction and compensation for the package effect for more accurate fluorescence readings.

These features ensure that MicroSTAF delivers high quality and comparable data across a wide range of environments, from coastal zones to open oceans.

With an integrated pump for automated sample exchange and an optional Spectral Photosynthetically Active Radiation (SPAR) sensor, MicroSTAF brings full laboratory capability into the field.

In measuring SPAR at the point of sampling,it optimises Fluorescence Light Curve protocols in real time, applying automated spectral correction to enhance data quality.

Key features include:

- Windows 11-based interface for protocol design and post-processing
- Autonomous sample acquisition and real-time analysis
- <2 W typical power requirement
- Real-time data output via RS232
- Internal logging of all primary data for post-processing
- Accurate measurements in extreme oligotrophic conditions
- Seven excitation wavebands for PEP-based spectral correction
- Dual Waveband Measurement (DWM) for Package Effect Correction (PEC)

“With MicroSTAF, we have taken the accuracy and automation of LabSTAF and made it fully deployable,” said John Attridge, Research Director. “This opens new opportunities for large scale and autonomous observation of phytoplankton processes, which are critical for understanding the changing ocean environment.”

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Who is Chelsea Technologies?
Chelsea Technologies, established over 60 years ago, is a leading provider of innovative sensors and systems for environmental monitoring. Our fluorometers, sensors, and optical systems are used worldwide to support oceanographic research, monitor pollution and contaminants, enhance water treatment processes, and ensure compliance with ballast water and exhaust gas wash water monitoring regulations. We take pride in our deep engineering and scientific expertise, which is ingeniously applied to create some of the world’s most sensitive, accurate, and reliable environmental monitoring sensors and systems.