LIFeLiDAR

Laser-Induced Fluorescence environmental

LIFL.11

EXPLORING THE SEA UPPER LAYER

Scientific Research / Environmental Monitoring / Satellite Cal/Val

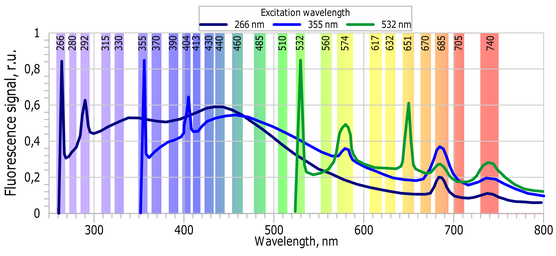
LIF-Elastic-Raman Compact LiDAR

Excitation	355 + 532 nm or 266 + 532 nm / 10 Hz
Profiling	Up to 50 m at 532 nm in water Up to 300 m at 532 nm in air ~0.5 m resolution
Spectral bands	48 bands / ~250-800 nm

Real-time water quality mapping & cloud data transfer

44 × 33 × 28 cm / 21 kg

Multi-wavelength fluorescence



LiDAR techniques

Fluorescence
Phytoplankton pigments, FDOM, Oil products, wastewaters, Pollution of organic origin

Elastic scattering
Suspended matter and optical structure within the water column.

Water Raman (To wavelength excitation)
An internal reference for quantitative retrievals.

Vertical profiling
Elastic backscatter & Fluorescence

Measured parameters

Phytoplankton
Chlorophyll-a, phycoerythrin, phycocyanin

FDOM
Fluorescent dissolved organic matter

Suspended matter
TSM / TSS

Oil / Wastewaters
Petroleum, tryptophan and phenolic compounds

HAB
Harmful algal blooms

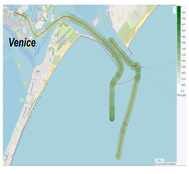
Floating litter
UV fluorescence signatures

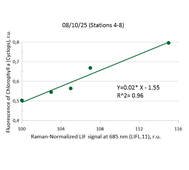
Expeditions

Italy / Venice
7-9 October 2025

ESA PHY2FLEX / CNR

LIFL.11b - 266 / 532 / 266+532 nm

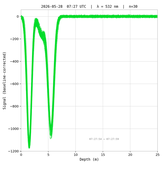




France / Boulogne-sur-Mer
26-28 May 2026

Laboratoire d'Océanologie et de Géosciences (LOG)

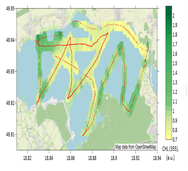
LIFL.11a - 355 / 532 / 355+532 nm

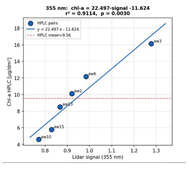


Poland / Goczałkowice
16-19 June 2026

University of Warsaw / University of Silesia

LIFL.11a - 355 / 532 / 355+532 nm

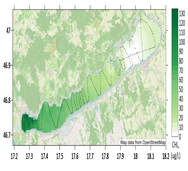


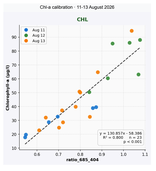


Hungary / Lake Balaton
10-21 August 2026

HUN-REN Balaton Limnological Research Institute

LIFL.11a - 355 / 532 / 355+532 nm



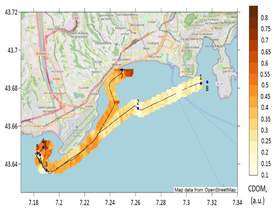


France / Villefranche-sur-Mer
7 May 2026 / LOV - IMEV

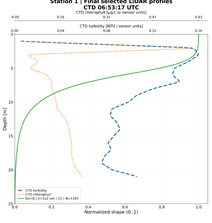
LIFL.11a - 355 / 532 / 355+532 nm

Profiling mode resolves vertical optical structure beneath the surface. During the Var plume campaign, LIFL.11 recorded 29,791 depth profiles across eight stations, alongside CTD casts and surface mapping.

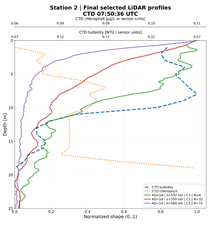
Field deployment



Surface map & sampling stations



Station 1 / LiDAR & CTD profiles



Station 2 / LiDAR & CTD profiles

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