

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Thursday, October 11

Poster Session 4

10:30–12:00

## Poster 44

### ADVANCES IN OIL SPILL RESPONSE PLUME TRACKING: TOOLS FOR DECISION-MAKING

Oil spill monitoring efforts in remote locations such as the deep sea, offshore waters and under-ice environs is vastly improved by advances with in situ optical measurements. Parameters such as fluorescence, scattering, radiometry and reflectance provide for droplet size distribution, hydrocarbon (particulate and dissolved) and gas concentration, and proxies for dispersion efficiency. This is critical information for decision-making during spill response efforts. Presented here will be an examination of reliability of fluorescence measurements (Sea-Bird Scientific WET Labs Inc. ECO and Chelsea Technologies Group AQUA Tracka) at providing a subsurface oil footprint and estimating oil concentrations during the large-scale Deepwater Horizon Oil Spill in the Gulf of Mexico, USA. This spill served to demonstrate the forensic value of in situ optical data during such events. More recently, in 2017 a Remote Environmental Monitoring UnitS Autonomous Underwater Vehicle (REMUS AUV) equipped with fluorescence and backscatter (Sea-Bird Scientific WET Labs Inc. ECO Puck) capabilities was used to track a 90 m subsea oil plume discharged from a chronic leak site within the Northern Gulf of Mexico. Data from this mission further supports the need for high-spatial and temporal resolution measurements to allow for improved understanding of the behavior and transport of spilled oil.

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