

Oil Sensor-equipped Smart Buoy Delivers Data via Satellite



A smart navigation buoy system has started delivering real-time measurement data via satellites of oil and some other water quality parameters in the Baltic Sea. It is located south of Helsinki in the Gulf of Finland. The monitoring data gives many advantages to oil spill response teams and helps revealing illegal oil discharges. The system is part of SYKE's Grace project cooperation and is manufactured by [Meritaito](#). The data is freely available online.

The real-time remote measurement is a big advance in oil detection and environmental monitoring. It is significantly quicker with satellite data transfer and can provide more accurate data compared to old systems. A network of oil detecting smart buoys could easily be used to form an early warning system for oil pollution. The sooner oil spill

response is started, the better the results.

Ice covered areas

The Meritaito (SeaHow) Smart Buoy concept is a combination of a polyethylene navigation buoy and modern sensor technology with wireless real-time data delivery. The concept has been tested and found to be reliable with other sensors for different qualities. This time, the test will give information on the durability and reliability of the oil monitoring sensors.

SeaHow navigation buoys are designed for ice-covered areas and therefore high seas is not a problem for the buoy itself. The first oil-detecting Smart Buoy was deployed in 2016 near the Neste Refinery at Porvoo in the Gulf of Finland. The data was delivered by the GSM network instead of satellite data transfer.

On-line data helps to fight oil spills

The online oil monitoring data can later be linked directly to the awareness system of the oil spill response authorities. Buoys placed along fairways and monitoring 24/7 could also reveal and confirm illegal oil discharges. Furthermore, the results can be used by ports that are requested to survey an area where they are active. The monitoring data is also valuable for the environmental authorities responsible for assessing the environmental status of the marine environment.

Smart Buoy

The Smart Buoy technology for monitoring oil spills is being developed within the [EU Horizon 2020](#)-funded project GRACE coordinated by the [Finnish Environment Institute SYKE](#). The Finnish company Meritaito Ltd-SeaHow and their subcontractor [Luode Consulting](#) are responsible for the Smart Buoy development work.

The GRACE project started in the spring of 2016 and focuses on developing, comparing and evaluating the effectiveness and environmental effects of different oil spill response methods in cold climates. Furthermore, the project develops real-time observation of underwater oil spills and a strategic tool for choosing oil response methods.

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