

ENVIRONMENTAL MODELLING

Aqua Drone®

An unmanned surface vessel with 4D environmental mapping services.

Aqua Drone® is a VITO mobile sensor platform, called an Unmanned Surface Vessel (USV) for environmental survey purposes on inland waters. Information can be gathered in 4D, both in space (3D by navigation and profiling) and time.



Unmanned and autonomous

Aqua Drone® operates autonomously and produces survey data in shallow and hard-to-reach locations, and is programmed with a mission plan and uses an advanced GPS system, along with onboard intelligence to retrieve the information.

Mobile sensor platforms are complementary to earth observation, as they increase the information depth compared to remote sensing and can also be used to validate earth observation data, while the earth observation is better placed to spot possible action areas where to deploy the Aqua Drone®.

Scope

The survey data can be integrated in a decision support system, e.g. to identify (drinking) water quality threats. As Aqua Drone® is very flexible towards payload (sensors), a broad range of parameters can be monitored. The system can be deployed in rivers, lakes, ponds and canals. Using Aqua Drone®, high resolution water quality and quantity data can be compiled in a short time span in order to determine the water status.

The information obtained will support :

- » water managers;
- » water companies;
- » chemical industry;
- » dredging companies;
- » port authorities;
- » research centers;
- » environmental government services.

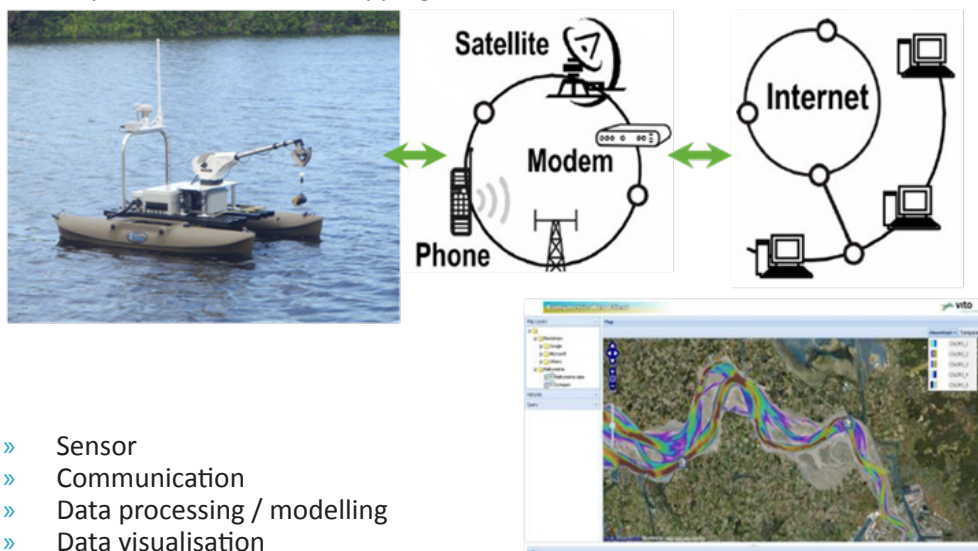
Benefits

Aqua Drone® is the solution for:

- » monitoring water quality in canals, rivers, streams, reservoirs, lakes, docks and basins
- » hydrographic measurements including shallow waters and hard-to-reach areas

Architecture

General architecture for Aqua Drone® with 4D mapping services:



- » Sensor
- » Communication
- » Data processing / modelling
- » Data visualisation

Technical Specifications

USV Aqua Drone®		Units	Comment		
Mechanical					
Length	1.92	Meters	Single piece central hull construction		
Width	1.32	Meters			
Height	1	Meters	Height above water with RF antenna down		
Draft	0.35	Meters	Waterline to bottom of skeg		
Weight	109	kg	With payload		
Speed over water (max.)	5	kts			
Endurance					
1 kts	40	hr			
2 kts	16	hr			
3 kts	6	hr			
4 kts	1	hr			
Water quality parameters					
Dissolved oxygen	Conductivity (EC)	ORP (Redox)	Temperature	Salinity	pH
Depth	Turbidity	Nitrate Nitrogen	Nitrite Nitrogen	Chloride	Rhodamine
Blue-Green Algae - Phycocyanin	Blue-Green Algae - Phycoerythrin	Chlorophyll	SAC UV254 (organic load)	Optical backscatter	
Water quantity parameter					
ADCP					

Who is VITO?

VITO delivers services related to monitoring and modeling of surface water, groundwater and soil pollution. The expertise is used to support public authorities and industries in finding cost effective solutions for pollution control when faced with soil and water pollution problems.

For more information contact: aquadrone@vito.be or call +32 14 33 68 07

For references, contract terms
and additional information, please contact:
aquadrone@vito.be or call +32 14 33 68 07

VITO NV
Boeretang 200 – 2400 MOL – BELGIUM
www.vito.be
RPR 0244.195.916