



Online ad in-situ nutrient water quality monitoring: technology overview and applications



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Marketing manager



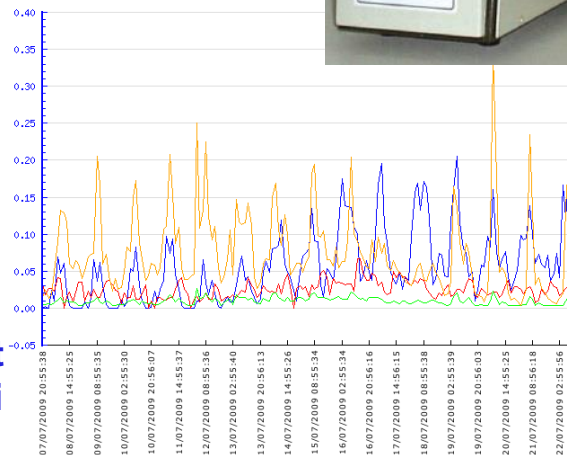
μLFR technology and its application for nutrients monitoring in water

WIZ (Water In-situ analyZer):
In-situ automation of lab analysis

Micromac-1000:
Compact online analyzer for
Ferrybox applications

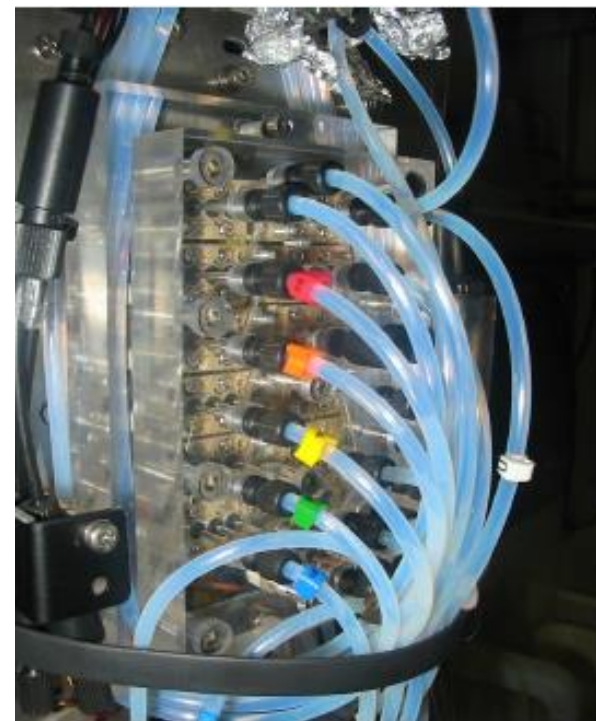
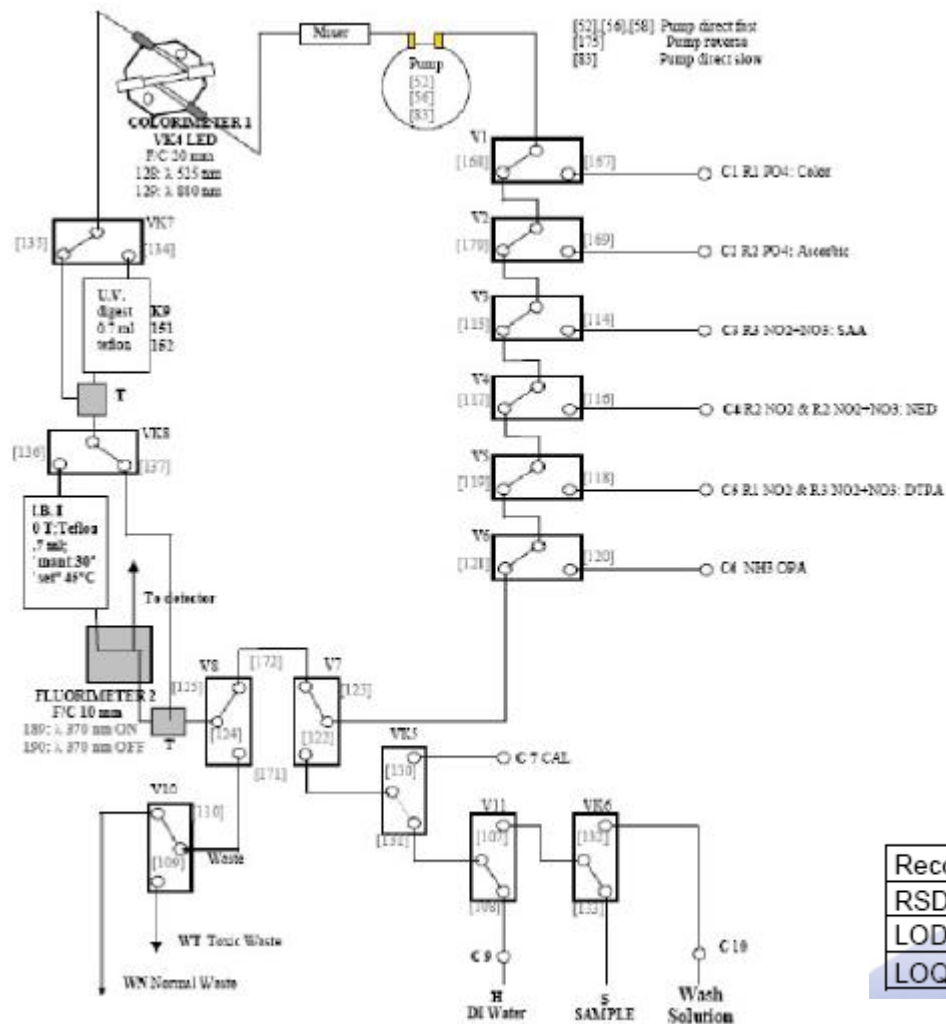


Project WARMER: field test
in Venice lagoon (Palude di
Cona - VE, July 2009)



- ❑ **Multiparametric**
- ❑ **High sensitivity**
- ❑ **Low reagents consumption**
- ❑ **Enhanced reliability**

The micro Loop Flow Reactor



	NH ₄ -N	NO ₂ -N	NO ₃ -N	PO ₄ -P
Recovery (%)	96	126	94	109
RSD (%)	22.3	1.2	8.6	4.2
LOD (ppb)	6	1	5	3
LOQ (ppb)	20	3	15	10

Source: BOKU Vienna, project WARMER

<http://www.projectwarmer.eu>

Ferrybox applications with Micromac nutrient analyzers



**AWI-BAH
(Helgoland)
2005**



**Marine Institute Tallinn
2007**



**MUMM (Belgica)
2011**



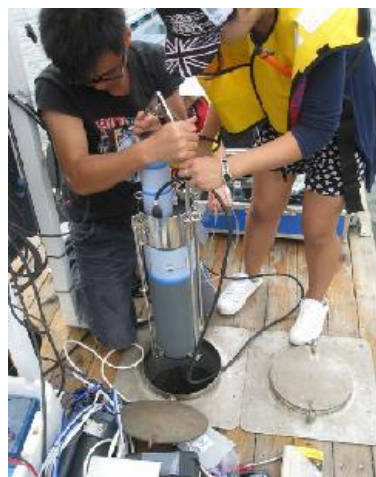
**NIVA
(Color Fantasy)
2019**





WIZ TP&TN first installations

WIZ TP, TOP and PO₄ in alpine
lake catchment, University
Salzburg, Austria (2014)



WIZ TN and WIZ TP in
Zhuhai lake, P.R.
China (2010)

WIZ TN and WIZ TP+NH₃ in
Taihu lake, P.R. China (2011)





Zhejiang fishery water quality monitoring network, P.R. China (2012-2015)



20 WIZ nutrients in-situ probes are in operation in this water quality monitoring network

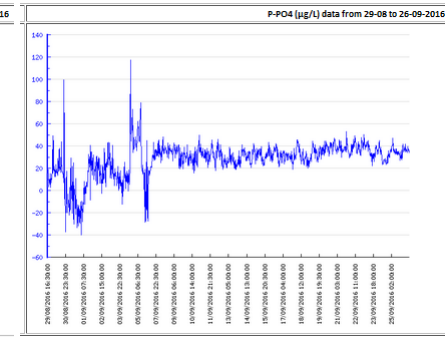
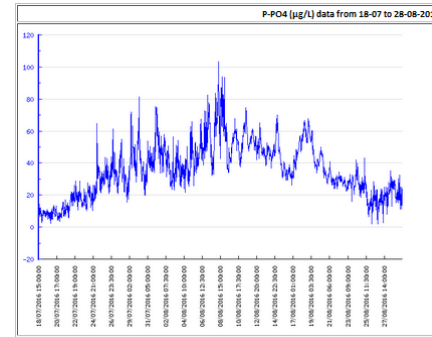
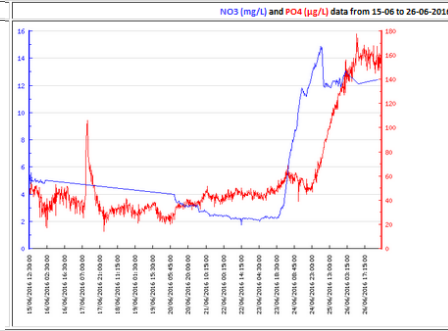
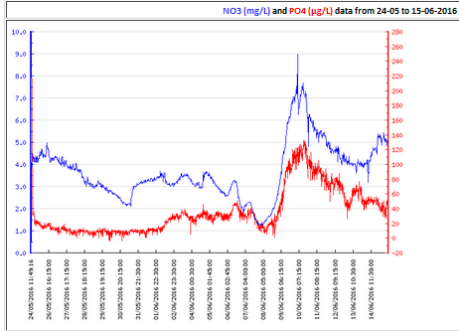




Nutrient Sensor Challenge (2016):

I field test in Maumee river (OH)

II field test at CBL, Cheesepeake (MD)

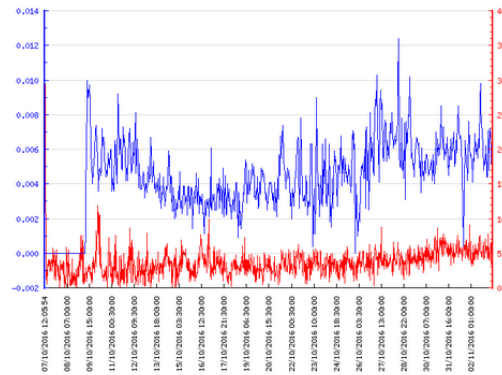




Nutrient Sensor Challenge: III field test in Hawaii ASLO conference in Hawaii, 02/03/2017



NO₃ (mg/L) and PO₄ (µg/L) data from 07-10 to 03-11-2016



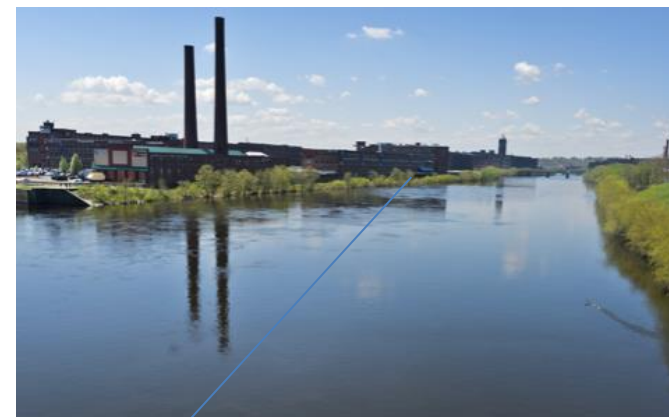
**SYSTEAL awarded
for both Nitrate
and Phosphate
sensors !**



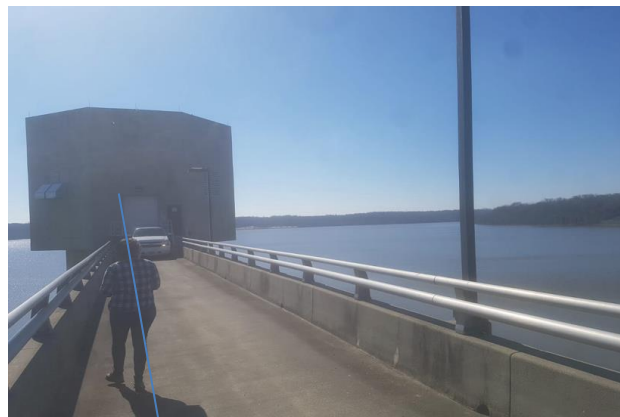
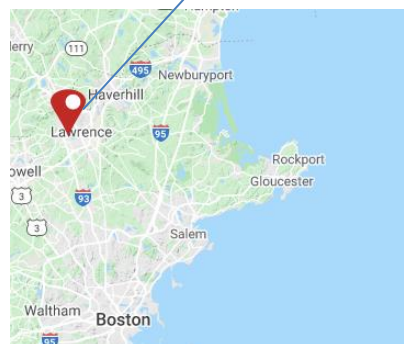


WIZ installations in North America

**WIZ NO₃ and PO₄ in
Merrimack river, Lawrence
MA, USA (2017)**

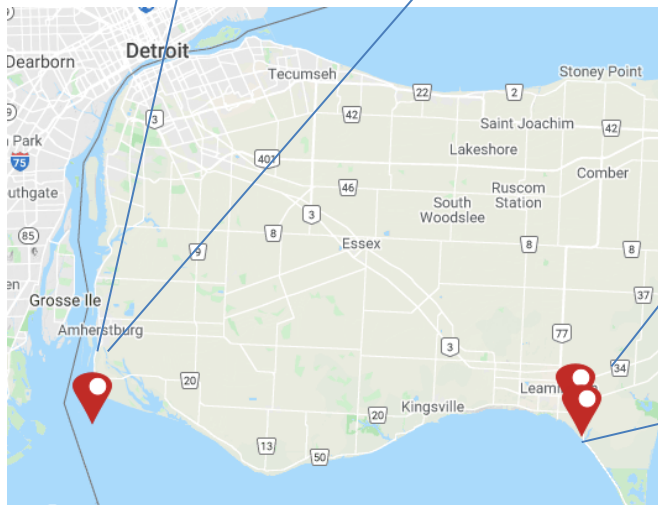
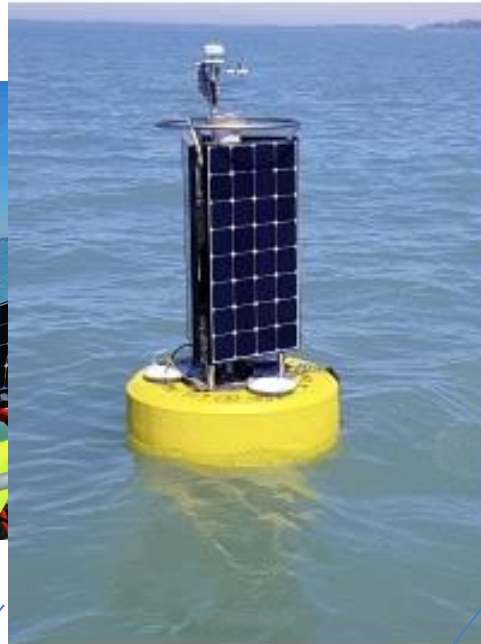


**WIZ NO₃ and PO₄ in William
H. Harsha lake reservoir,
USA (2017)**





Four WIZ probes + WIZbuoys lake Erie, Canada (2018-2019)





Our target Customers

- Environmental Protection Agency for eutrophication control in lakes and water reservoirs
- Universities and Research Institutes for environmental control of surface water and coastal areas

Micromac-1000 and WIZ are recognized standards for online and in-situ nutrients analysis in surface and coastal water.

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