Use of continuous measurements of trichloramine in air for an optimised management of aquatic centers

Source Image : Adobestock

23/11/2021

ENGIE Lab

Continuous measurements of trichloramine in air

01

Air Quality in pools

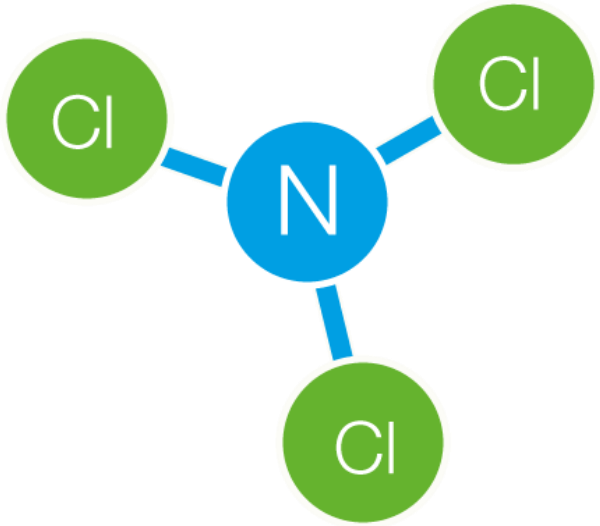
02

Use of the trichloramine sensor

03

On-site examples

Trichloramine: problematic molecule



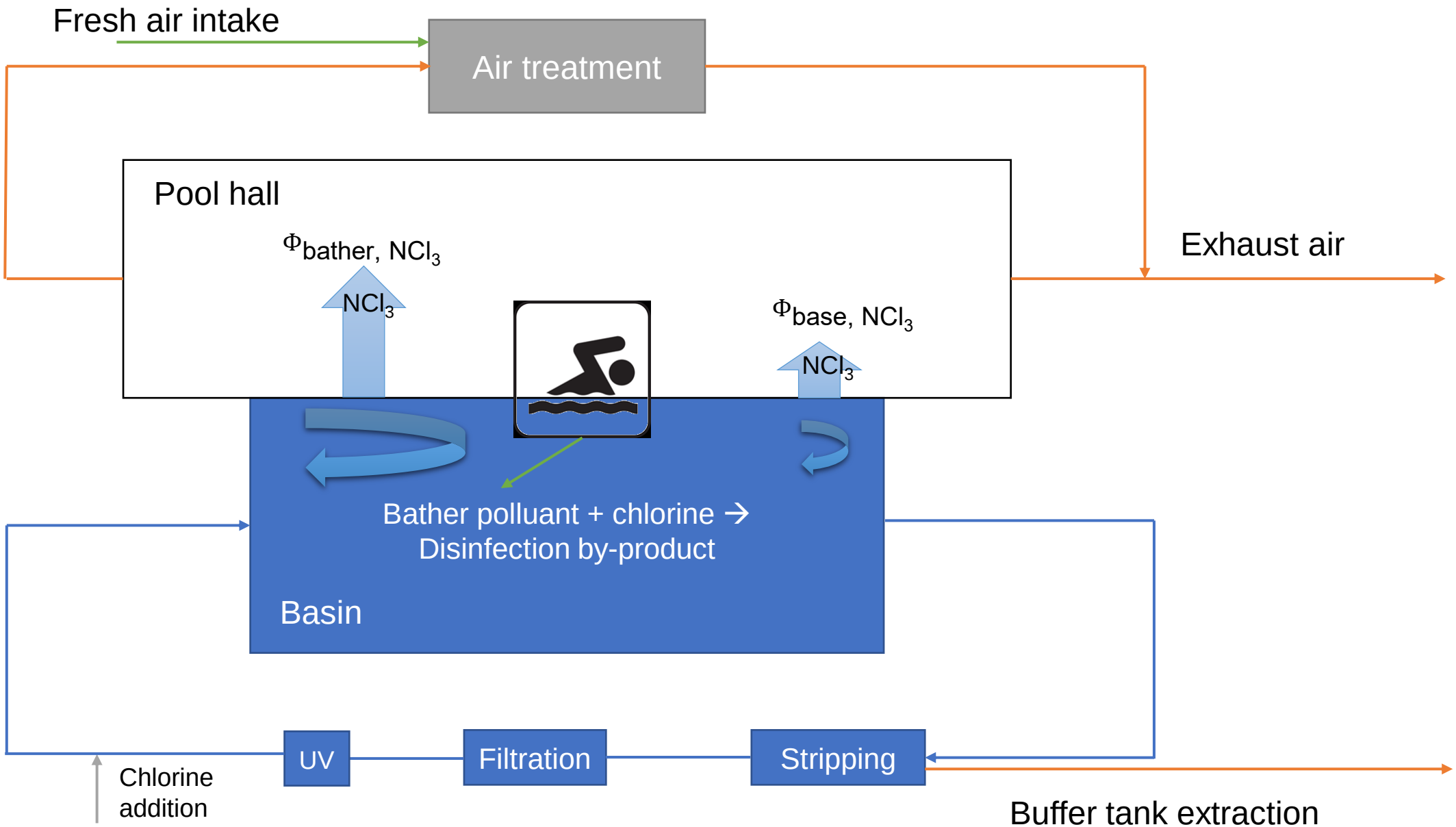
What is trichloramine?

A molecule produced by the action of chlorine on nitrogenous matter brought by bathers (sweat, urine, etc.)
A disinfection by-product formed in the water which is found in the air because it is very volatile.

Consequences

- Irritation of mucous membranes (eye, skin, respiratory)
- Can cause pathologies recognized as occupational diseases (rhinitis, asthma)
- Very corrosive (degradation of the building)

Pool modeling



Objective: to limit the level of trichloramine

ANSES recommendation: 0.30 mg/m^3 in air

WHO recommendation: 0.50 mg/m^3 in air

Means of mitigation:

AVOID
Bathers' hygiene
Raising awareness

ELIMINATE
Adapted water treatment
Stripping

DILUTE and EVACUATE
Air treatment
Air renewal

Limiting the level of trichloramine means knowing the level of trichloramine

Trichloramine: problematic molecule

Current measurement methods

In Water

Colorimetric chlorine analyzer

Combined chlorine measurement

In air

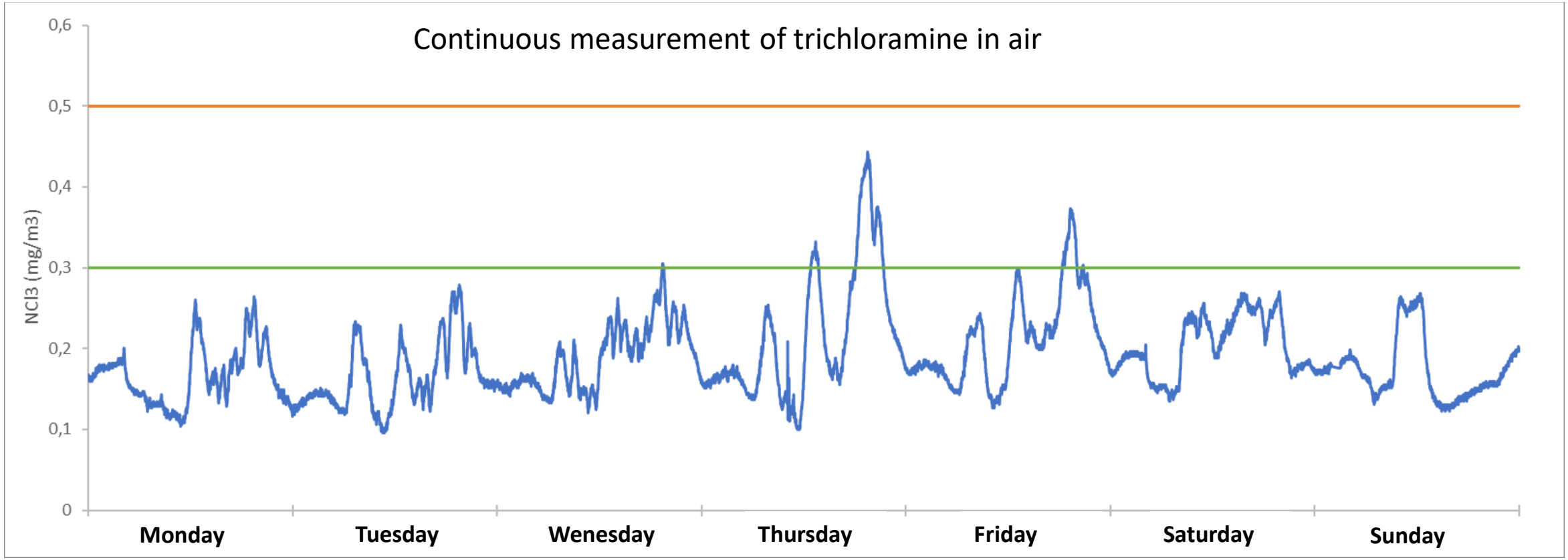
Measurement on impregnated filters

POINT MEASUREMENT

Innovation ENGIE Lab Cylergie : Continuous measurement of trichloramine

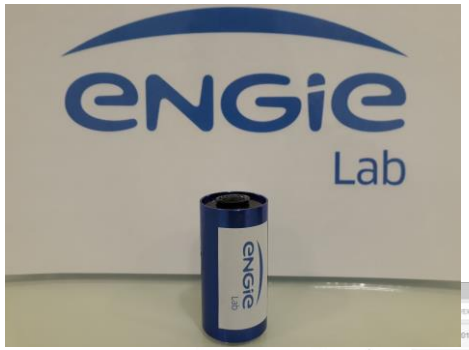
Continuous measurement of trichloramine

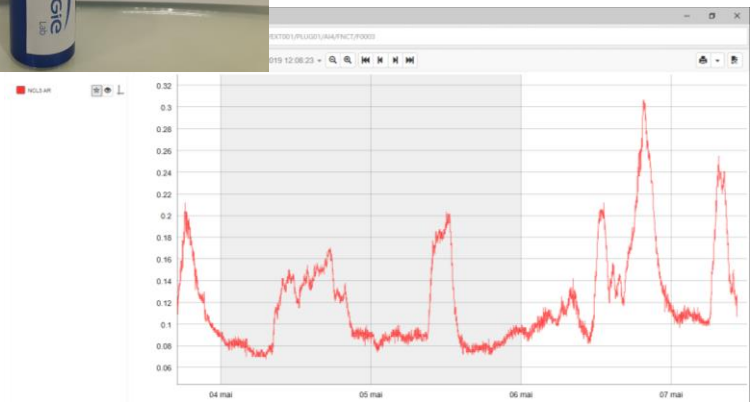
True continuous measurement



Continuous measurement of trichloramine

Duct installation





Technician alert threshold (via BMS)

Communication to the pool user

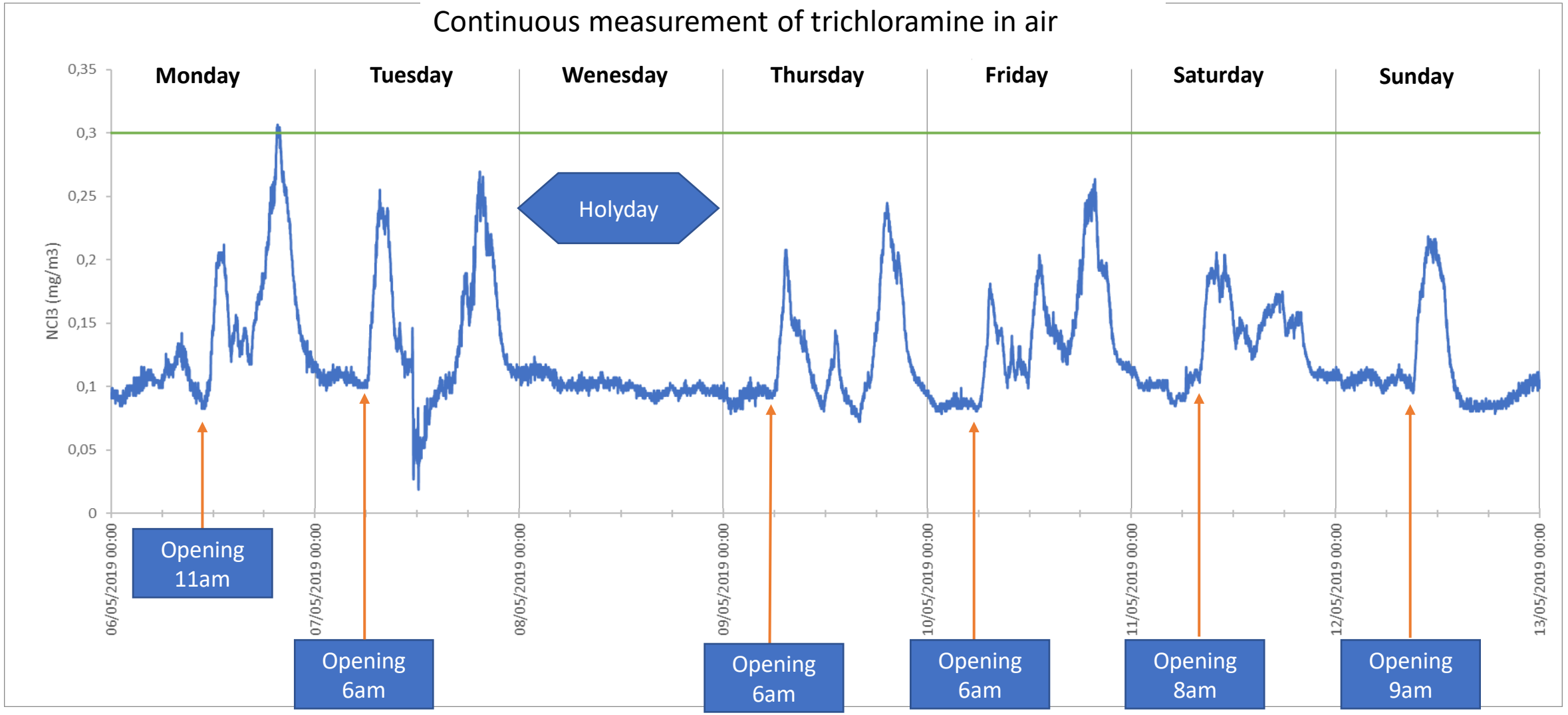
HVAC control

Currently deployed on

35

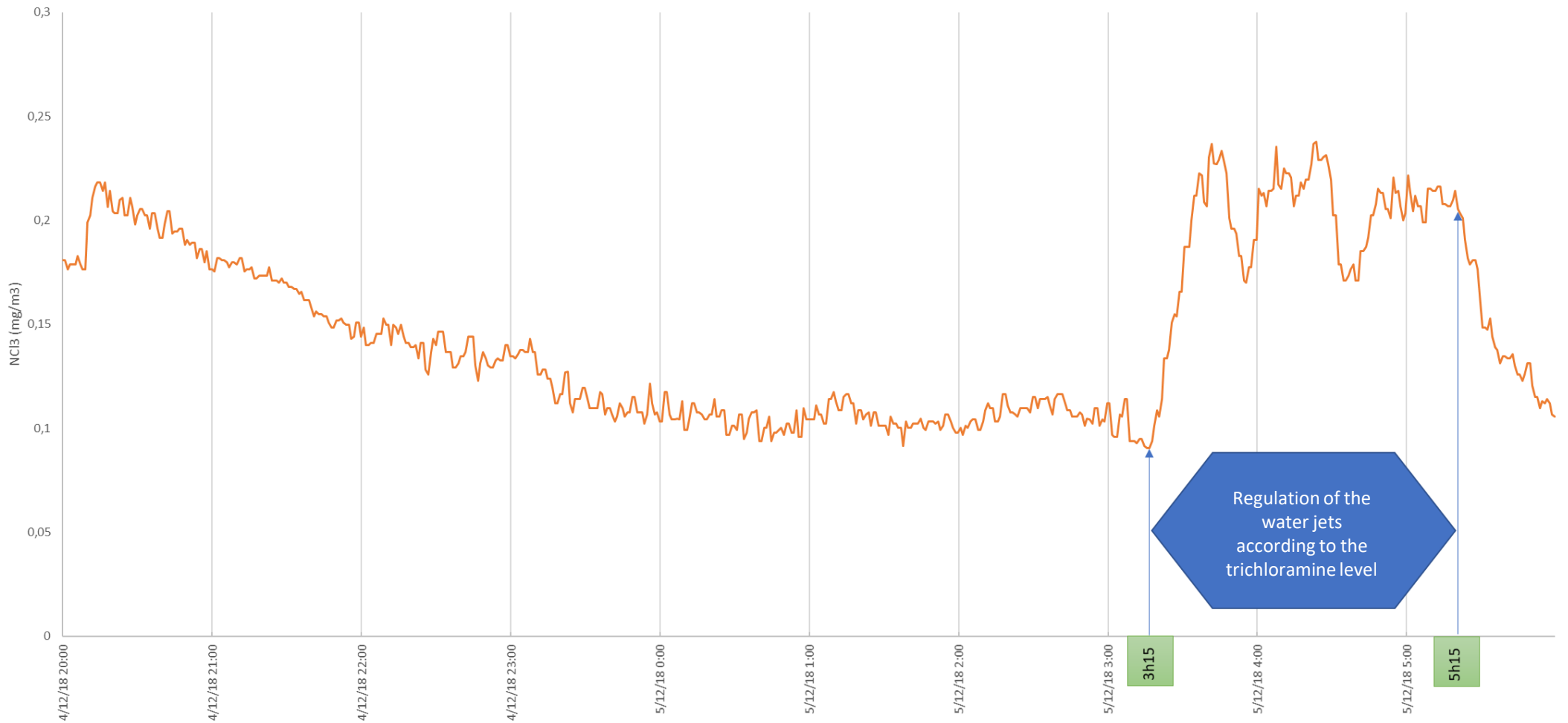
sites

Application to the management of an aquatic center



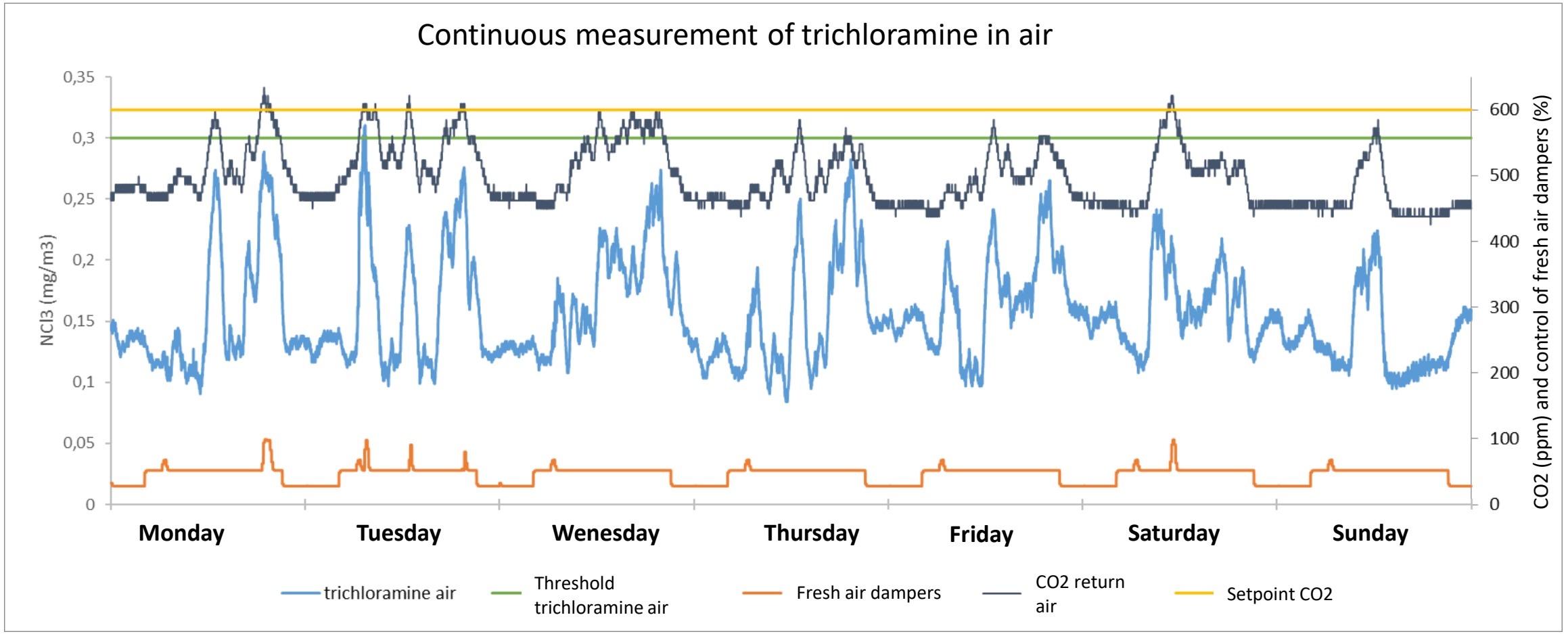
Application to the management of an aquatic center

Continuous measurement of trichloramine in air



Application to the management of an aquatic center

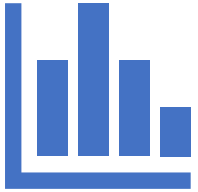
Optimizing the air treatment regulation



Conclusions

Contribution of the continuous measurement for a technical operator:

Diagnostic tool
Identify the right course of action



Monitoring tool
Alert in case of problem

Training tool
Raise awareness of air quality issues among the operator and stakeholders

Question ?