



**Co-UDlabs**  
COLLABORATIVE URBAN DRAINAGE  
RESEARCH LABS COMMUNITIES

**eawag**  
aquatic research

# Acoustic monitoring of suspended solids in natural and engineered systems

Webinar, 16 May 2023, 13:00-16:30 CEST

**Eawag**  
Das Wasserforschungsinstitut  
des ETH-Bereichs



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## Goal

Water quality is becoming increasingly important in natural and sewer environments due to sediment-related issues like erosion, transport, and deposition. These problems affect engineered systems, and the environment by causing mechanical obstacles and pollutants attached to sediments.

Total suspended solids (TSS) is a crucial parameter to monitor pollutant levels, but few techniques offer real-time data. Traditional methods involve lab measurements or optical backscatter sensors that require significant calibration and maintenance. However, acoustic turbidity monitoring, based on acoustic backscattering, offers a modern approach to TSS monitoring.

In this webinar we will discuss the latest developments in TSS monitoring using acoustic backscattering methods, including fundamental principles, particle characteristics, instrument calibration, signal analysis, and inversion methods. Practical experiences from monitoring in rivers and wastewater systems will also be shared, as well as limitations of the technique and potential for further development.

## Target audience

The webinar is aimed at engineers, planners, and operators of wastewater systems, representatives of municipalities and authorities, as well as manufacturers of monitoring equipment, who would like to gain further insight into modern technologies for environmental monitoring.

## Date, Time, Place

Tuesday, 16. May 2023, 13:00 – 16:30 CEST  
online

## Contact and registration

[www.Co-UDLabs.eu](http://www.Co-UDLabs.eu)  
[info@co-udlabs.eu](mailto:info@co-udlabs.eu)  
Registration:  
<https://forms.office.com/e/td6294dJMn>  
Participation is free.



## Program

- 13:00 Welcome and introduction**  
Jörg Rieckermann, Eawag, CH
- 13:05 The importance of particles and continuous monitoring in urban drainage systems**  
Peter Vanrolleghem, Université Laval, CA
- 13:20 Acoustic Scattering from particles - theory and scientific instruments**  
Stephane Fischer, Ubertone S.A.S., F
- 13:35 Experimental evaluation of hydro-acoustic models and inversion methods in rivers**  
Céline Berni, INRAE, F
- 13:50 Discussion**
- 14:25 Coffee break**
- 15:00 Monitoring suspended solids with acoustic turbidity in sewers**  
Asmorom Kibrom, NIVUS GmbH, D
- 15:15 Lab-scale characterization of TSS using acoustic backscattering**  
Manuel A. Regueiro Picallo, University of A Coruña, ES
- 15:30 Experiences with acoustic monitoring of fine TSS for stormwater treatment**  
Daniela Böckmann, Dr. Pecher AG, D
- 15:45 Time Resolved Optical Turbidity**  
Anne Pallarès, Université de Strasbourg, F
- 16:00 Discussion**
- 16:30 End**

