# 8 open PhD positions in the COMET Project ACWA – Austrian Centre for Water Analysis

Join the ACWA COMET Centre and help shape the future of water security. Backed by Austria's COMET (Competence Centres for Excellent Technologies) Programme, our industry–academia partnership is building an interdisciplinary toolbox for next-generation water monitoring and management. You'll work at the intersection of analytical chemistry, microbiology, ecology, and data science to protect water resources in a changing climate. We are offering 8 PhD positions on a collaborative, high-impact research team.
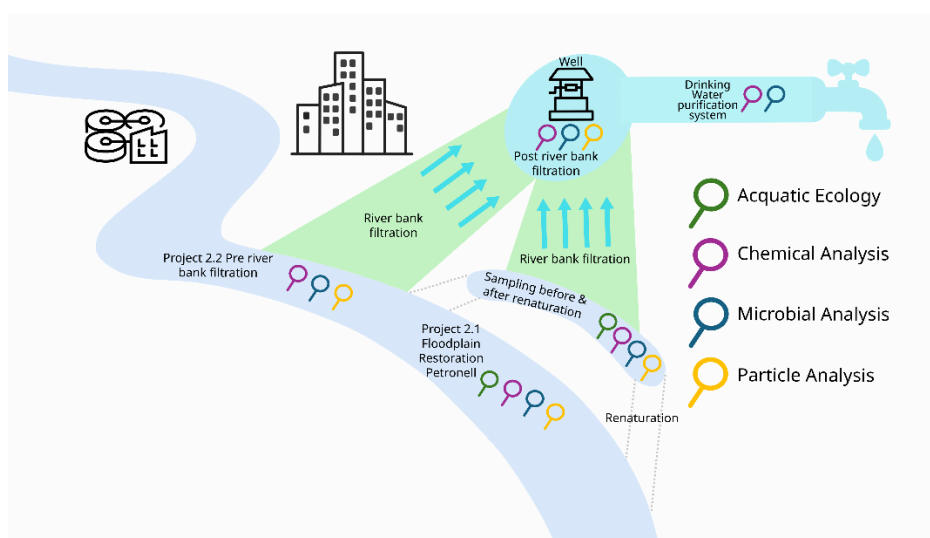
The COMET Project ACWA encompasses two main areas, "R&D of Analytical Methods and Process Technology (Area 1)" and "Assessment, Monitoring, and Control of Water Infrastructure and the Aquatic Environment (Area 2)" Area 1 provides the methodological foundation for methods applied in Area 2. In Project 2.1: "Floodplain Restoration Petronell – Increasing Multi-functionality for Ecosystem Integrity & Drinking Water Supply", we will track the chemical, Project Description microbiological, and ecological changes introduced to the ecosystem by a re-naturation effort that reconnects a floodplain to the Danube River. We aim to study how these changes impact drinking water treatment after riverbank filtration. "Project 2.2: Riverbank Filtration in Urban Systems (Vienna)" focuses on studying the chemical and microbiological processes during riverbank filtration and developing methods to monitor water treatment processes for water derived from river filtrate. "Project 2.3: Data Science Hub" will integrate the data gathered in Projects 2.1 and 2.2, thereby creating a comprehensive toolbox for water monitoring. Sampling sites are indicated by magnifying glasses corresponding to the methods developed in Area 1.

Open PhD Projects – starting Q1/2026

PhD Project 1 – Targeted GC-MS Analysis of Anthropogenic and Geogenic Compounds

Development and optimization of gas chromatography–mass spectrometry (GC-MS) workflows for detecting volatile and semi-volatile organic compounds in surface and drinking water production.

Profile: Master thesis conducted in analytical chemistry. Experience with GC-MS, sample preparation, and data interpretation. Familiarity with environmental contaminant analysis is desirable.

Place of employment: Technical University Graz (Graz, Austria) with regular travels to BOKU University (Vienna, Austria)

PhD Project 2 – Targeted LC-MS Analysis of Anthropogenic and Geogenic Compounds

Development of advanced liquid chromatography–mass spectrometry (LC-MS) workflows for the detection of non-volatile and polar organic contaminants in water.

Profile: Master thesis conducted in analytical chemistry. Hands-on experience with LC-MS/MS, solid-phase extraction, and quantitative analysis. Skills in method validation and trace contaminant quantification are beneficial.

Place of employment: BOKU University (Vienna, Austria)

PhD Project 3 – Non-Targeted High-Resolution Mass Spectrometry (NTA):

Development of high-resolution non-target screening (HRMS) methods to prioritize and identify unknown contaminants and transformation products using AI-supported data analysis.

Profile: Master thesis conducted in analytical chemistry. Experience with HRMS (Orbitrap or TOF), non-targeted analysis, and chemometric or AI-based data processing. Knowledge of environmental fate of pollutants is an advantage.

Place of employment: BOKU University (Vienna, Austria)

PhD Project 4 – Drinking Water Microbiology:

Characterization of microbial communities across the water cycle using molecular and metagenomic methods. **Position already filled**.

PhD Project 5 – High-Throughput Analysis of Micro- and Nanoplastics:

Development of automated sampling and high-resolution detection protocols for plastic particles in aquatic systems.

Profile: Degree in environmental science, analytical chemistry, or materials science. Skills in spectroscopy (e.g., FTIR, Raman) or mass spectrometry-based particle analysis (sp-ICP-MS). Experience with laboratory automation or environmental sampling preferred.
Place of employment: University of Vienna (Vienna, Austria)

PhD Project 6 – Monitoring and Removal of Emerging Chemicals (Sulfamate):

Investigation of chemical and biological removal strategies for emerging contaminants in water treatment processes. **Position already filled**.

PhD Project 7 – Floodplain Restoration Petronell:

Study of ecological, hydrological, and biogeochemical effects of Danube floodplain reconnection on ecosystem functionality and drinking water quality. **Position already filled**.

PhD Project 8 – Data Science Hub:

Development of a data management and AI/ML framework integrating chemical, microbial, and ecological datasets into a water monitoring toolbox.
Profile: MSc in data science, computer science, or environmental informatics. Experience with Python or R, data visualization, and machine learning. Knowledge of environmental datasets or sensor data processing is an asset.
Place of employment: BOKU University (Vienna, Austria)

We Offer

- PhD positions within an interdisciplinary COMET research consortium.

- Close collaboration with industrial and governmental partners *Axel Semrau, Donau Chemie, EVN Wasser, Shimadzu, viadonau, Wiener Wasser*.

- Access to state-of-the-art analytical, microbiological, and data science facilities.

- 3.5 years / 30 h per week, gross monthly salary: ~ 2800 € (14 x p.a.)

- Conference travel support (1–2 conferences per year), publication fees covered

To apply, please send your CV, motivation letter, and transcripts until 15th January 2026 to **acwa@boku.ac.at**, indicating the **project number(s)** you wish to apply for.