Modeling the behavior of pollutants on the Dniester River in Olănești region

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Abstract. Effective prediction and monitoring of pollutants in river-type aquatic systems is critical for protecting aquatic ecosystems and public health. This study presents a comprehensive methodology for simulating and analyzing pollutant behavior in river-type water environments using ANSYS CFD software. By integrating hydrodynamic modeling and transport mechanisms, ANSYS enables the prediction of pollutant dispersion patterns under various environmental conditions. The study focuses on pollutants that exceeded the MAC (maximum admissible concentration) for the period of 2019-2023.

The paper presents a monitoring strategy that uses ANSYS simulations to provide useful information on pollutant concentration, enabling timely interventions in the event of calamities. The results demonstrate the potential of ANSYS in supporting sustainable water quality management practices by improving pollutant prediction and monitoring capabilities in dynamic river environments.

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