

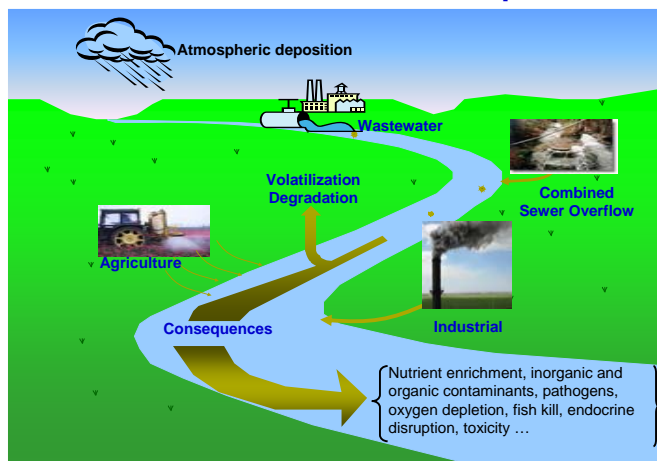
Integrating Water Quality Monitoring and Modeling as a Tool for Water Resource Management in the District of Columbia

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Objectives

- The University of the District of Columbia has established two new laboratories: Water Quality Testing Lab and The Environmental Simulation Lab. Integrating monitoring and mathematical modeling, both labs will serve the research and training needs of our faculty, students as well as water and wastewater operators. The main objectives are:
 - To become an unbiased monitor of surface, ground, and municipal water quality in the District of Columbia to protect water resources and human health.
 - To develop and evaluate the application of mathematical models as a predictive tool for water resource management.

Pollution Sources and Consequences



Water Resource Management Tools

- Water Quality Testing/Monitoring:** to assure compliance with the requirements of environmental regulation.
- Mathematical Models:** to evaluate the future state of bodies of water in view of actual pollution loading as well as alternative management.

Water Quality Testing Lab

A new water quality testing lab has state-of-the-art equipment that can be applied to the analysis of chemical and biological water quality parameters in water and wastewater: (1) Senion2, (2) Titrino, (3) pH electrode, (4) Dissolved Oxygen, (5) Atomic Absorption Spectrophotometer, (6) AutoCat, (7) DR 2800, and (8) Microplate Reader.

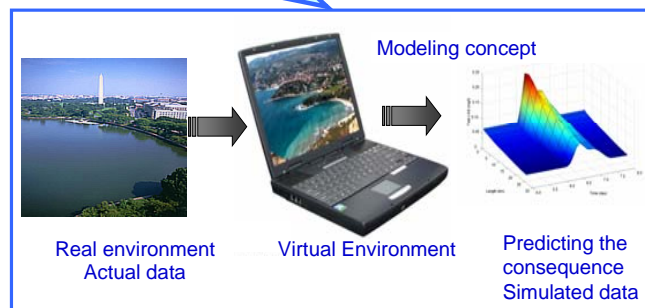


The equipment is applied to analyze the following water quality parameters: (1) Nitrate and ammonia, (2) Carbonates and bicarbonates, volatile fatty acid, (3) pH electrode (4) Dissolved oxygen (5) lead (6) Chlorine residue, (7) Phosphate, Nitrite and COD, and (8) Steroid hormones.

Environmental Simulation Lab

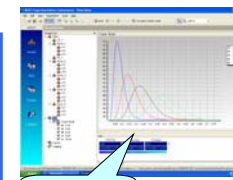
A new modeling and simulation lab has the following capacities:

- Wastewater treatment modeling and process optimization (WEST Model)
- Storm water quantity and quality modeling and urban water system analysis and optimization (SWMM Model)
- Geo-referencing water quality problems in the District of Columbia (GIS Technology).

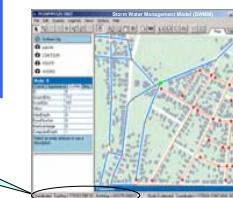


Modeling and simulation capacities at the UDC:

- River water quality
- Ground water quality
- Wastewater treatment plant
- Sanitary Sewer system
- Storm water
- Rainfall runoff



Simulation



Geo-referencing