DESCRIPTION

The primary reference for the modeling of hydrodynamics and water quality in rivers, lake, estuaries, coastal waters, and wetlands

This comprehensive text perfectly illustrates the principles, basic processes, mathematical descriptions, case studies, and practical applications associated with surface waters. It focuses on solving practical problems in rivers, lakes, estuaries, coastal waters, and wetlands. Most of the theories and technical approaches presented within have been implemented in mathematical models and applied to solve practical problems. Throughout the book, case studies are presented to demonstrate how the basic theories and technical approaches are implemented into models, and how these models are applied to solve practical environmental/water resources problems.

This new edition of Hydrodynamics and Water Quality: Modeling Rivers, Lakes, and Estuaries has been updated with more than 40% new information. It features several new chapters, including one devoted to shallow water processes in wetlands as well as another focused on extreme value theory and environmental risk analysis. It is also supplemented with a new website that provides files needed for sample applications, such as source codes, executable codes, input files, output files, model manuals, reports, technical notes, and utility programs. This new edition of the book:

• Includes more than 120 new/updated figures and 450 references

• Covers state-of-the-art hydrodynamics, sediment transport, toxics fate and transport, and water quality in surface waters
• Provides essential and updated information on mathematical models

• Focuses on how to solve practical problems in surface waters—presenting basic theories and technical approaches so that mathematical models can be understood and applied to simulate processes in surface waters

Hailed as “a great addition to any university library” by the Journal of the American Water Resources Association (July 2009), 
Hydrodynamics and Water Quality, Second Edition is an essential reference for practicing engineers, scientists, and water resource managers worldwide.

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🔥 ABOUT THE AUTHOR

Zhen-Gang (Jeff) Ji, PhD, DES, PE, is an oceanographer with the United States Bureau of Ocean Energy Management and is also an adjunct professor at the Catholic University of America. He has more than 20 years of professional experience in surface water modeling and model development. His expertise includes hydrodynamics, wind wave, eutrophication, toxic process, and sediment transport.

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