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## **Book review - Risk analysis of water pollution**

HydroLink

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# Risk Analysis of Water Pollution

2nd Edition by Jacques Ganoulis, Wiley, 2009, 311p. ISBN: 978-3-527-32173-5

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Risk Analysis of Water Pollution (second revised and expanded edition) follows the structure of the first edition and covers a very broad range of topics. At over 300 pages, with 6 chapters and 3 appendices, this book presents risk and uncertainty as a support for water quality decision-making processes. The main objective of the text is to offer in one place a comprehensive discussion of relevant issues related to uncertainty, risk and reliability as they relate to water quality management. The topics included in this book usually form the subject matter of a graduate course on risk and reliability in water resources. The six chapters of the book include water resources quantity and quality, risk identification, risk quantification, risk assessment of environmental water quality, risk management and case

studies. Two appendices are devoted to the probabilistic approach and fuzzy set theory.

This new edition of the book reflects the European Union Water Framework Directive and the new paradigm of water pollution, where water quality is closely connected to aquatic, ecological and biological characteristics. The first chapter presents water quantity and quality issues linking water pollution and risk analysis. The second chapter defines risk and presents the sources of uncertainty in water pollution problems. The third chapter is more theoretical in the discussion of risk quantification using both the probabilistic and fuzzy approaches.

The main strength of the book (as introduced in the first edition) is the combination of the two approaches to risk quantification. The fourth chapter presents details of water quality risk assessment. A large number of water quality problems, from coastal water pollution, over river water quality, to groundwater contamination are presented in this chapter.

Risk management is the topic of the fifth chapter. Discussion includes performance indices, basic

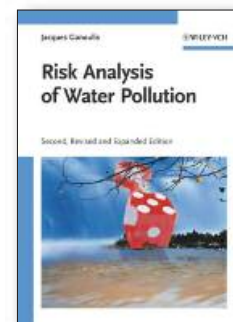
decision theory and elements of the utility theory. The final chapter follows the structure of the fourth

chapter and presents case studies on three main areas, such as (1) coastal pollution, (2) river water quality and (3) groundwater pollution.

A book with such a clear focus does not sacrifice depth for breadth. Many topics of importance for civil and environmental engineering are incorporated and well addressed in the book. The presentation of the three main areas of water quality problems (both in theory and using case studies) is of high value for both water resources practitioners and researchers.

The book could be well used by senior undergraduate and beginner graduate students, as well as by water resources practitioners.

This book is an excellent addition to a civil and environmental engineering library as a source in one location of many risk concepts related to water quality.



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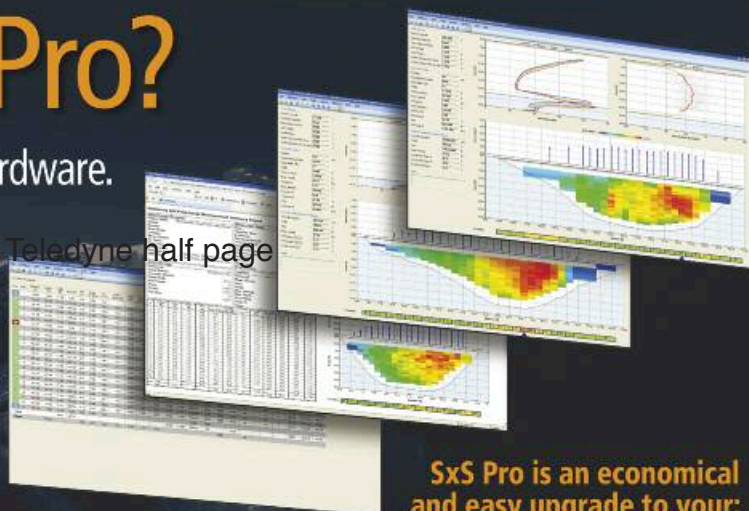
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