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Autore	Puzrin Alexander
Titolo	Constitutive Modelling in Geomechanics [[electronic resource]] : Introduction / / by Alexander Puzrin
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ISBN	1-280-39777-2 3-642-27395-5 9786613575692
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Disciplina	620 620.1 620.11 624.15
Soggetti	Engineering geology Engineering—Geology Foundations Hydraulics Mechanics Mechanics, Applied Geotechnical engineering Materials science Structural materials Geoengineering, Foundations, Hydraulics Solid Mechanics Geotechnical Engineering & Applied Earth Sciences Characterization and Evaluation of Materials Structural Materials
Lingua di pubblicazione	Inglese
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Nota di contenuto	Part I Introduction to Continuum Mechanics -- Part II Constitutive modelling of reversible soil behavior -- Part III Constitutive modelling

of irreversible soil behavior -- Appendices.

Sommario/riassunto

The purpose of this book is to bridge the gap between the traditional Geomechanics and Numerical Geotechnical Modelling with applications in science and practice. Geomechanics is rarely taught within the rigorous context of Continuum Mechanics and Thermodynamics, while when it comes to Numerical Modelling, commercially available finite elements or finite differences software utilize constitutive relationships within the rigorous framework. As a result, young scientists and engineers have to learn the challenging subject of constitutive modelling from a program manual and often end up with using unrealistic models which violate the Laws of Thermodynamics. The book is introductory, by no means does it claim any completeness and state of the art in such a dynamically developing field as numerical and constitutive modelling of soils. The author gives basic understanding of conventional continuum mechanics approaches to constitutive modelling, which can serve as a foundation for exploring more advanced theories. A considerable effort has been invested here into the clarity and brevity of the presentation. A special feature of this book is in exploring thermomechanical consistency of all presented constitutive models in a simple and systematic manner.

2. Record Nr. UNINA9910437871903321

Autore	Rodrigues Regina Eliane
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ISBN	1-283-62439-7 9786613936844 1-4614-4645-7
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Altri autori (Persone)	AchcarJorge Alberto
Disciplina	628.532
Soggetti	Markov processes Air - Pollution - Computer simulation Air - Pollution - Study and teaching
Lingua di pubblicazione	Inglese
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Nota di contenuto	Applications of Discrete-time Markov Chains and Poisson Processes to Air Pollution Modeling and Studies; Acknowledgements; Contents; Chapter1 Introduction; Chapter2 Markov Chain Models; 2.1 Introduction; 2.2 Description of the Mathematical Model; 2.3 Bayesian Formulation; 2.4 Application to Ozone Air Pollution; Chapter3 Poisson Models and Their Application to Ozone Data; 3.1 Introduction; 3.2 Homogeneous Poisson Models; 3.3 Non-homogeneous Poisson Models; 3.4 Models with the Presence of Change-Points; Chapter4 Modeling the Time Between Ozone Exceedances; 4.1 Introduction 4.2 The Mathematical Models4.3 An Application to Ozone Data; Chapter5 Some Counting Processes and Ozone Air Pollution; 5.1 Introduction; 5.2 Description of the Independent and Bivariate Models; 5.3 A Copula Model; Chapter6 Comments; References; Appendix: Program Code; A.1 R Code for the Non-homogeneous Poisson Models with No Change-Points; A.1.1 Weibull Rate Function; A.1.2 Generalized Goel-Okumoto Rate Function; A.1.3 Musa-Okumoto Rate Function; A.2 WinBugs Code; A.2.1 WinBugs Code for the Non-homogeneous Models with One Change-Point; A.2.2 WinBugs Code for the Times Between

Exceedances

A.2.2.1 Model IA.2.2.2 Model II; A.2.2.3 Model III; A.2.2.4 Model IV; A.2.2.5 Multiple Change-Points; Index

Sommario/riassunto

In this brief we consider some stochastic models that may be used to study problems related to environmental matters, in particular, air pollution. The impact of exposure to air pollutants on people's health is a very clear and well documented subject. Therefore, it is very important to obtain ways to predict or explain the behaviour of pollutants in general. Depending on the type of question that one is interested in answering, there are several of ways studying that problem. Among them we may quote, analysis of the time series of the pollutants' measurements, analysis of the information obtained directly from the data, for instance, daily, weekly or monthly averages and standard deviations. Another way to study the behaviour of pollutants in general is through mathematical models. In the mathematical framework we may have for instance deterministic or stochastic models. The type of models that we are going to consider in this brief are the stochastic ones.