Free epub By millett granger morgan uncertainty a guide to dealing with uncertainty in quantitative risk and policy analysis 1st first edition (Read Only)

a risk analysis textbook which is intended as a basic text for students as well as a reference for practitioners and researchers it provides a basis for policy analysis and draws upon a variety of case studies practitioners of policy analysis will better understand the tools of their trade and the broader contexts in which analysis contributes this report is one of 21 synthesis and assessment products commissioned by the u s climate change science program as part of an effort to integrate fed research on climate change and to facilitate a nat understanding of the critical elements of climate change most of these reports are focused on specific substantive issues in climate science impacts and related topics in contrast the focus of this report is methodological this report provides a tutorial to the climate analysis and decision making communities on current best practice in describing and analyzing uncertainty in climate related problems while the language is semi technical much of it should also be accessible to non expert readers who are comfortable with the treatment of technical topics illus this book is an extensive survey and critical examination of the literature on the use of expert opinion in scientific inquiry and policy making the elicitation representation and use of expert opinion is increasingly important for two reasons advancing technology leads to more and more complex decision problems and technologists are turning in greater numbers to expert systems and other similar artifacts of artificial intelligence cooke here considers how expert opinion is being used today how an expert s uncertainty is or should be represented how people do or should reason with uncertainty how the quality and usefulness of expert opinion can be assessed and how the views of several experts might be combined he argues for the importance of developing practical models with a transparent mathematic foundation for the use of expert opinion in science and presents three tested models termed classical bayesian and psychological scaling detailed case studies illustrate how they can be applied to a diversity of real problems in engineering and planning modelling has permeated virtually all areas of industrial environmental economic bio medical or civil engineering yet the use of models for decision making raises a number of issues to which this book is dedicated how uncertain is my model is it truly valuable to support decision making what kind of decision can be truly supported and how can i handle residual uncertainty how much refined should the mathematical description be given the true data limitations could the uncertainty be reduced through more data increased modeling investment or computational budget should it be reduced now or later how robust is the analysis or the computational methods involved should could those methods be more robust does it make sense to handle uncertainty risk lack of knowledge variability or errors altogether how reasonable is the choice of probabilistic modeling for rare events how rare are the events to be considered how far does it make sense to handle extreme events and elaborate confidence figures can i take advantage of expert phenomenological knowledge to tighten the probabilistic figures are there connex domains that could provide models or inspiration for my problem written by a leader at the crossroads of industry academia and engineering and based on decades of multi disciplinary field experience modelling under risk and uncertainty gives a self consistent introduction to the methods involved by any type of modeling development acknowledging the inevitable uncertainty and associated risks it goes beyond the black box view that some analysts modelers risk experts or statisticians develop on the underlying phenomenology of the environmental or industrial processes without valuing enough their physical properties and inner modelling potential nor challenging the practical plausibility of mathematical hypotheses conversely it is also to attract environmental or engineering modellers to better handle model confidence issues through finer statistical and risk analysis material taking advantage of advanced scientific computing to face new regulations departing from deterministic design or support robust decision making modelling under risk and uncertainty addresses a concern of growing interest for large industries environmentalists or analysts robust modeling for decision making in complex systems gives new insights into the peculiar mathematical and computational challenges generated by recent

industrial safety or environmental control analysis for rare events implements decision theory choices differentiating or aggregating the dimensions of risk aleatory and epistemic uncertainty through a consistent multi disciplinary set of statistical estimation physical modelling robust computation and risk analysis provides an original review of the advanced inverse probabilistic approaches for model identification calibration or data assimilation key to digest fast growing multi physical data acquisition illustrated with one favourite pedagogical example crossing natural risk engineering and economics developed throughout the book to facilitate the reading and understanding supports master phd level course as well as advanced tutorials for professional training analysts and researchers in numerical modeling applied statistics scientific computing reliability advanced engineering natural risk or environmental science will benefit from this book managing uncertainties in industrial systems is a daily challenge to ensure improved design robust operation accountable performance and responsive risk control authored by a leading european network of experts representing a cross section of industries uncertainty in industrial practice aims to provide a reference for the dissemination of uncertainty treatment in any type of industry it is concerned with the quantification of uncertainties in the presence of data model s and knowledge about the system and offers a technical contribution to decision making processes whilst acknowledging industrial constraints the approach presented can be applied to a range of different business contexts from research or early design through to certification or in service processes the authors aim to foster optimal trade offs between literature referenced methodologies and the simplified approaches often inevitable in practice owing to data time or budget limitations of technical decision makers uncertainty in industrial practice features recent uncertainty case studies carried out in the nuclear air space oil mechanical and civil engineering industries set in a common methodological framework presents methods for organizing and treating uncertainties in a generic and prioritized perspective illustrates practical difficulties and solutions encountered according to the level of complexity information available and regulatory and financial constraints discusses best practice in uncertainty modeling propagation and sensitivity analysis through a variety of statistical and numerical methods reviews recent standards references and available software providing an essential resource for engineers and risk analysts in a wide variety of industries this book provides a guide to dealing with quantitative uncertainty in engineering and modelling and is aimed at practitioners including risk industry regulators and academics wishing to develop industry realistic methodologies the u s environmental protection agency epa is one of several federal agencies responsible for protecting americans against significant risks to human health and the environment as part of that mission epa estimates the nature magnitude and likelihood of risks to human health and the environment identifies the potential regulatory actions that will mitigate those risks and protect public health1 and the environment and uses that information to decide on appropriate regulatory action uncertainties both qualitative and quantitative in the data and analyses on which these decisions are based enter into the process at each step as a result the informed identification and use of the uncertainties inherent in the process is an essential feature of environmental decision making epa requested that the institute of medicine iom convene a committee to provide guidance to its decision makers and their partners in states and localities on approaches to managing risk in different contexts when uncertainty is present it also sought guidance on how information on uncertainty should be presented to help risk managers make sound decisions and to increase transparency in its communications with the public about those decisions given that its charge is not limited to human health risk assessment and includes broad questions about managing risks and decision making in this report the committee examines the analysis of uncertainty in those other areas in addition to human health risks environmental decisions in the face of uncertainty explains the statement of task and summarizes the findings of the committee medical uncertainty has been with us for centuries and remains a recurrent problem for patients doctors and researchers alike yet uncertainty in health care is still poorly understood and ineffectively managed it is generally feared and avoided rather than directly confronted this systemic disregard of uncertainty leads us to treat medical uncertainty as a pathological condition to be cured through the pursuit of knowledge but often further medical knowledge begets further uncertainty in kind uncertainty in medicine offers an alternative multi disciplinary perspective on this challenging problem integrating insights across clinical medicine and social science dr paul han argues that uncertainty is an essential form of knowledge to be cultivated rather than eradicated in medical practice he makes the case that the paradigm of medicine should be expanded to include not only the pursuit of medical knowledge but the

treatment and palliation of medical uncertainty and its effects on physicians other health professionals and patients using clear language and a textbook approach he analyzes the nature etiology and natural history of medical uncertainty and develops a conceptual framework to guide its management by promoting a more systematic way of conceptualizing the problem this framework can enable clinicians and patients to better address medical uncertainty and can help make uncertainty tolerance a more central focus of medical care rational and reassuring uncertainty in medicine forges a new path for approaching medical uncertainty by arming readers from an array of disciplines with the tools they need to diagnose treat and confront its challenges more intentionally and effectively based on the lectures given during the eurocourse on technologies for environmental cleanup soil and groundwater held at the joint research centre ispra italy september 21 25 1992 as desired the infonnation demand correspondence is single valued at equilibrium prices hence no planner is needed to assign infonnation allocations to individuals proposition 4 for any given infonnation price system p e p f almost every a e a demands a unique combined infonnation structure although traders may be indifferent among partial infonnation sales from different information allocations etc in particular the aggregate excess demand correspondence for net combined infonnation trades is a continuous function proof uniqueness fails only if an agent can obtain the same expected utility from two or more net combined infonnation allocations if this happens appropriate slight perturbations of personal probability vectors destroy the equality unless the utility functions and wealth allocations were independent across states yet when utilities and wealths don t depend on states in s no infonnation to distinguish the states is desired so that the demand for such infonnation structures must equal zero to show the second claim recall that if the correspondence is single valued for almost every agent then its integral is also single valued finally note that an upper hemicontinuous by proposition 2 correspondence which is single valued everywhere is in fact a continuous function references allen beth 1986a the demand for differentiated infonnation review of economic studies 53 311 323 allen beth 1986b general equilibrium with infonnation sales theory and decision 21 1 33 allen beth 1990 infonnation as an economic commodity american economic review 80 268 273 a graduate level textbook on probabilistic risk analysis aimed at statisticians operations researchers and engineers containing papers presented at the 18th european safety and reliability conference esrel 2009 in prague czech republic september 2009 reliability risk and safety theory and applications will be of interest for academics and professionals working in a wide range of industrial and governmental sectors including aeronautics and aerospace aut this book explores the role and importance of interdisciplinary research in addressing key issues in climate and energy decision making for over 30 years an interdisciplinary team of faculty and students anchored at carnegie mellon university joined by investigators and students from a number of other collaborating institutions across north america europe and australia have worked together to better understand the global changes that are being caused by both human activities and natural causes this book tells the story of their successful interdisciplinary work with each chapter written in the first person the authors have three key objectives 1 to document and provide an accessible account of how they have framed and addressed a range of the key problems that are posed by the human dimensions of global change 2 to illustrate how investigators and graduate students have worked together productively across different disciplines and locations on common problems and 3 to encourage funders and scholars across the world to undertake similar large scale interdisciplinary research activities to meet the world s largest challenges exploring topics such as energy efficiency public health and climate adaptation and with a final chapter dedicated to lessons learned this innovative volume will be of great interest to students and scholars of climate change energy transitions and environmental studies more broadly the primary objective of this report is to provide a tutorial to the climate analysis and decision making communities on current best practice in describing and analyzing uncertainty in climate related problems the report discusses a number of formulations of uncertainty and the various ways in which uncertainty can arise it introduces several alternative perspectives on uncertainty including both the classical or frequentist view of probability which defines probability as the property of a large number of repeated trials of some process such as the toss of a coin and the subjectivist view in which probability is an indication of degree of belief informed by all available evidence a distinction is drawn between uncertainty about the value of specific quantities and uncertainty about the underlying functional relationships among key variables finally the report addresses a number of issues that arise in communicating about uncertainty the report includes lessons from both the mitigation and adaptation domain reference granger morgan m

dowlatabadi h henrion m keith d lempert r mcbride s small m and wilbanks t eds 2009 best practice approaches for characterizing communicating and incorporating scientific uncertainty in decisionmaking a report by the climate change science program and the subcommittee on global change research national oceanic and atmospheric administration washington dc us the united states produces over seventy per cent of all its electricity from fossil fuels and nearly fifty per cent from coal alone worldwide forty one per cent of all electricity is generated from coal making it the single most important fuel source for electricity generation followed by natural gas this means that an essential part of any portfolio for greenhouse gas emissions reductions will be technology to capture carbon dioxide and permanently sequester it in suitable geologic formations while many nations have created incentives to develop of ccs technology large regulatory and legal barriers exist that must still be addressed this book identifies current law and regulation that applies to geologic sequestration in the u s the regulatory needs to ensure that geologic sequestration is carried out safely and effectively and barriers that current law and regulation present to timely deployment of ccs the authors find the three most significant barriers to be an ill defined process to access pore space in deep saline formations a piecemeal procedural and static permitting system and the lack of a clear responsible plan to address long term liability associated with sequestered co2 the book provides legislative options to remove these barriers and address the regulatory needs and makes recommendations on the best options to encourage safe effective deployment of ccs the authors propose recommendations in legislative language which is of particular use to policy makers faced with the challenge of addressing climate change and energy issues for feb 1965 aug 1967 include bulletin of the institute of management sciences conceptual basis for risk assessment use of toxicity test data in the estimation of risks to human health interspecies extrapolation basic concepts of the dose response relationship high to low dose extrapolation in animals legal considerations in risk assessment under federal regulatory statutes inter risk comparisons uncertainty and quantitative assessment in risk management use of risk assessment and safety evaluation the need for risk assessment of chemicals in corporate decision making chemical industry perspectives on regulatory impact analysis this monograph addresses the analytical concerns raised by the critics it makes four points first summary measures of the impact of regulations have made important contributions to our understanding of the regulatory process a point often overlooked by the critics second many of the critics concerns could be addressed by making refinements to scorecards rather than wholly rejecting them as an analytical tool third some of the suggestions made by the critics are legitimate but many are not and finally the solution to legitimate concerns raised by the critics is not to eliminate quantitative economic analysis but to gain a deeper understanding of its strengths and weaknesses and to use it wisely book jacket this text provides both the mathematical foundations and practical applications in this rapidly expanding area including an up to date comprehensive overview of the foundations and applications of uncertainty analysis all the key topics including uncertainty elicitation dependence modelling sensitivity analysis and probabilistic inversion numerous worked examples and applications workbook problems enabling use for teaching software support for the examples using unicorn a windows based uncertainty modelling package developed by the authors and a website featuring a version of the unicorn software tailored specifically for the book as well as computer programs and data sets to support the examples an underlying assumption of traditional hydrologic frequency analysis is that climate and hence the frequency of hydrologic events is stationary or unchanging over time a stationary series is relatively easy to forecast one simply predicts that statistical properties will be the same in the future as they have been in the past anthropogenic climate change and better understanding of decadal and multi decadal climate variability present a challenge to the validity of this assumption the workshop was organized to present and discuss possible operational alternatives to the assumption of stationarity in hydrologic frequency analysis abstract this report focuses on the first two elements

Uncertainty

1990

a risk analysis textbook which is intended as a basic text for students as well as a reference for practitioners and researchers it provides a basis for policy analysis and draws upon a variety of case studies

Theory and Practice in Policy Analysis

2017-10-12

practitioners of policy analysis will better understand the tools of their trade and the broader contexts in which analysis contributes

Best Practice Approaches for Characterizing, Communicating and Incorporating Scientific Uncertainty in Climate Decision Making

2009-05

this report is one of 21 synthesis and assessment products commissioned by the u s climate change science program as part of an effort to integrate fed research on climate change and to facilitate a nat understanding of the critical elements of climate change most of these reports are focused on specific substantive issues in climate science impacts and related topics in contrast the focus of this report is methodological this report provides a tutorial to the climate analysis and decision making communities on current best practice in describing and analyzing uncertainty in climate related problems while the language is semi technical much of it should also be accessible to non expert readers who are comfortable with the treatment of technical topics illus

Experts in Uncertainty

1991-10-24

this book is an extensive survey and critical examination of the literature on the use of expert opinion in scientific inquiry and policy making the elicitation representation and use of expert opinion is increasingly important for two reasons advancing technology leads to more and more complex decision problems and technologists are turning in greater numbers to expert systems and other similar artifacts of artificial intelligence cooke here considers how expert opinion is being used today how an expert s uncertainty is or should be represented how people do or should reason with uncertainty how the quality and usefulness of expert opinion can be assessed and how the views of several experts might be combined he argues for the importance of developing practical models with a transparent mathematic foundation for the use of expert opinion in science and presents three tested models termed classical bayesian and psychological scaling detailed case studies illustrate how they can be applied to a diversity of real problems in engineering and planning

Global Change Research

1993

modelling has permeated virtually all areas of industrial environmental economic bio medical or civil engineering yet the use of models for decision making raises a number of issues to which this book is dedicated how uncertain is my model is it truly valuable to support decision making what kind of decision can be truly supported and how can i handle residual uncertainty how much refined should the mathematical description be given the true data limitations could the uncertainty be reduced through more data increased modeling investment or computational budget

should it be reduced now or later how robust is the analysis or the computational methods involved should could those methods be more robust does it make sense to handle uncertainty risk lack of knowledge variability or errors altogether how reasonable is the choice of probabilistic modeling for rare events how rare are the events to be considered how far does it make sense to handle extreme events and elaborate confidence figures can i take advantage of expert phenomenological knowledge to tighten the probabilistic figures are there connex domains that could provide models or inspiration for my problem written by a leader at the crossroads of industry academia and engineering and based on decades of multi disciplinary field experience modelling under risk and uncertainty gives a self consistent introduction to the methods involved by any type of modeling development acknowledging the inevitable uncertainty and associated risks it goes beyond the black box view that some analysts modelers risk experts or statisticians develop on the underlying phenomenology of the environmental or industrial processes without valuing enough their physical properties and inner modelling potential nor challenging the practical plausibility of mathematical hypotheses conversely it is also to attract environmental or engineering modellers to better handle model confidence issues through finer statistical and risk analysis material taking advantage of advanced scientific computing to face new regulations departing from deterministic design or support robust decision making modelling under risk and uncertainty addresses a concern of growing interest for large industries environmentalists or analysts robust modeling for decision making in complex systems gives new insights into the peculiar mathematical and computational challenges generated by recent industrial safety or environmental control analysis for rare events implements decision theory choices differentiating or aggregating the dimensions of risk aleatory and epistemic uncertainty through a consistent multi disciplinary set of statistical estimation physical modelling robust computation and risk analysis provides an original review of the advanced inverse probabilistic approaches for model identification calibration or data assimilation key to digest fast growing multi physical data acquisition illustrated with one favourite pedagogical example crossing natural risk engineering and economics developed throughout the book to facilitate the reading and understanding supports master phd level course as well as advanced tutorials for professional training analysts and researchers in numerical modeling applied statistics scientific computing reliability advanced engineering natural risk or environmental science will benefit from this book

Best Practice Approaches for Characterizing, Communicating and Incorporating Scientific Uncertainty in Climate Decision Making : Synthesis and Assessment Product 5.2 Report

2009

managing uncertainties in industrial systems is a daily challenge to ensure improved design robust operation accountable performance and responsive risk control authored by a leading european network of experts representing a cross section of industries uncertainty in industrial practice aims to provide a reference for the dissemination of uncertainty treatment in any type of industry it is concerned with the quantification of uncertainties in the presence of data model s and knowledge about the system and offers a technical contribution to decision making processes whilst acknowledging industrial constraints the approach presented can be applied to a range of different business contexts from research or early design through to certification or in service processes the authors aim to foster optimal trade offs between literature referenced methodologies and the simplified approaches often inevitable in practice owing to data time or budget limitations of technical decision makers uncertainty in industrial practice features recent uncertainty case studies carried out in the nuclear air space oil mechanical and civil engineering industries set in a common methodological framework presents methods for organizing and treating uncertainties in a generic and prioritized perspective illustrates practical difficulties and solutions encountered according to the level of complexity information available and regulatory and financial constraints discusses best practice in uncertainty modeling propagation and sensitivity analysis through a variety of statistical and numerical methods reviews recent standards references and available software providing an essential resource for engineers and risk analysts in a wide variety of industries this book provides a guide to dealing with quantitative uncertainty in engineering and modelling and is aimed at practitioners

including risk industry regulators and academics wishing to develop industry realistic methodologies

Modelling Under Risk and Uncertainty

2012-04-12

the u s environmental protection agency epa is one of several federal agencies responsible for protecting americans against significant risks to human health and the environment as part of that mission epa estimates the nature magnitude and likelihood of risks to human health and the environment identifies the potential regulatory actions that will mitigate those risks and protect public health1 and the environment and uses that information to decide on appropriate regulatory action uncertainties both qualitative and quantitative in the data and analyses on which these decisions are based enter into the process at each step as a result the informed identification and use of the uncertainties inherent in the process is an essential feature of environmental decision making epa requested that the institute of medicine iom convene a committee to provide guidance to its decision makers and their partners in states and localities on approaches to managing risk in different contexts when uncertainty is present it also sought guidance on how information on uncertainty should be presented to help risk managers make sound decisions and to increase transparency in its communications with the public about those decisions given that its charge is not limited to human health risk assessment and includes broad questions about managing risks and decision making in this report the committee examines the analysis of uncertainty in those other areas in addition to human health risks environmental decisions in the face of uncertainty explains the statement of task and summarizes the findings of the committee

Uncertainty in Industrial Practice

2008-09-15

medical uncertainty has been with us for centuries and remains a recurrent problem for patients doctors and researchers alike yet uncertainty in health care is still poorly understood and ineffectively managed it is generally feared and avoided rather than directly confronted this systemic disregard of uncertainty leads us to treat medical uncertainty as a pathological condition to be cured through the pursuit of knowledge but often further medical knowledge begets further uncertainty in kind uncertainty in medicine offers an alternative multi disciplinary perspective on this challenging problem integrating insights across clinical medicine and social science dr paul han argues that uncertainty is an essential form of knowledge to be cultivated rather than eradicated in medical practice he makes the case that the paradigm of medicine should be expanded to include not only the pursuit of medical knowledge but the treatment and palliation of medical uncertainty and its effects on physicians other health professionals and patients using clear language and a textbook approach he analyzes the nature etiology and natural history of medical uncertainty and develops a conceptual framework to guide its management by promoting a more systematic way of conceptualizing the problem this framework can enable clinicians and patients to better address medical uncertainty and can help make uncertainty tolerance a more central focus of medical care rational and reassuring uncertainty in medicine forges a new path for approaching medical uncertainty by arming readers from an array of disciplines with the tools they need to diagnose treat and confront its challenges more intentionally and effectively

Environmental Decisions in the Face of Uncertainty

2013-05-20

based on the lectures given during the eurocourse on technologies for environmental cleanup soil and groundwater held at the joint research centre ispra italy september 21 25 1992

Uncertainty in Medicine

2021-07-09

as desired the infonnation demand correspondence is single valued at equilibrium prices hence no planner is needed to assign infonnation allocations to individuals proposition 4 for any given infonnation price system p e p f almost every a e a demands a unique combined infonnation structure although traders may be indifferent among partial infonnation sales from different information allocations etc in particular the aggregate excess demand correspondence for net combined infonnation trades is a continuous function proof uniqueness fails only if an agent can obtain the same expected utility from two or more net combined infonnation allocations if this happens appropriate slight perturbations of personal probability vectors destroy the equality unless the utility functions and wealth allocations were independent across states yet when utilities and wealths don t depend on states in s no infonnation to distinguish the states is desired so that the demand for such infonnation structures must equal zero to show the second claim recall that if the correspondence is single valued for almost every agent then its integral is also single valued finally note that an upper hemicontinuous by proposition 2 correspondence which is single valued everywhere is in fact a continuous function references allen beth 1986a the demand for differentiated infonnation review of economic studies 53 311 323 allen beth 1986b general equilibrium with infonnation sales theory and decision 21 1 33 allen beth 1990 infonnation as an economic commodity american economic review 80 268 273

Technologies for Environmental Cleanup: Soil and Groundwater

1993-02-28

a graduate level textbook on probabilistic risk analysis aimed at statisticians operations researchers and engineers

An Introduction to Risk and Uncertainty in the Evaluation of Environmental Investments

1982

containing papers presented at the 18th european safety and reliability conference esrel 2009 in prague czech republic september 2009 reliability risk and safety theory and applications will be of interest for academics and professionals working in a wide range of industrial and governmental sectors including aeronautics and aerospace aut

Technological Uncertainty in Policy Analysis

2012-12-06

this book explores the role and importance of interdisciplinary research in addressing key issues in climate and energy decision making for over 30 years an interdisciplinary team of faculty and students anchored at carnegie mellon university joined by investigators and students from a number of other collaborating institutions across north america europe and australia have worked together to better understand the global changes that are being caused by both human activities and natural causes this book tells the story of their successful interdisciplinary work with each chapter written in the first person the authors have three key objectives 1 to document and provide an accessible account of how they have framed and addressed a range of the key problems that are posed by the human dimensions of global change 2 to illustrate how investigators and graduate students have worked together productively across different disciplines and locations on common problems and 3 to encourage funders and scholars across the world to undertake similar large scale interdisciplinary research activities to meet the world s largest challenges exploring topics such as energy efficiency public health and climate adaptation and with a final chapter dedicated to lessons learned this innovative volume will be of great interest to students

and scholars of climate change energy transitions and environmental studies more broadly

Decision Making Under Risk and Uncertainty

2001-04-30

the primary objective of this report is to provide a tutorial to the climate analysis and decision making communities on current best practice in describing and analyzing uncertainty in climate related problems the report discusses a number of formulations of uncertainty and the various ways in which uncertainty can arise it introduces several alternative perspectives on uncertainty including both the classical or frequentist view of probability which defines probability as the property of a large number of repeated trials of some process such as the toss of a coin and the subjectivist view in which probability is an indication of degree of belief informed by all available evidence a distinction is drawn between uncertainty about the value of specific quantities and uncertainty about the underlying functional relationships among key variables finally the report addresses a number of issues that arise in communicating about uncertainty the report includes lessons from both the mitigation and adaptation domain reference granger morgan m dowlatabadi h henrion m keith d lempert r mcbride s small m and wilbanks t eds 2009 best practice approaches for characterizing communicating and incorporating scientific uncertainty in decisionmaking a report by the climate change science program and the subcommittee on global change research national oceanic and atmospheric administration washington dc us

Probabilistic Risk Analysis

2009-08-20

the united states produces over seventy per cent of all its electricity from fossil fuels and nearly fifty per cent from coal alone worldwide forty one per cent of all electricity is generated from coal making it the single most important fuel source for electricity generation followed by natural gas this means that an essential part of any portfolio for greenhouse gas emissions reductions will be technology to capture carbon dioxide and permanently sequester it in suitable geologic formations while many nations have created incentives to develop of ccs technology large regulatory and legal barriers exist that must still be addressed this book identifies current law and regulation that applies to geologic sequestration in the u s the regulatory needs to ensure that geologic sequestration is carried out safely and effectively and barriers that current law and regulation present to timely deployment of ccs the authors find the three most significant barriers to be an ill defined process to access pore space in deep saline formations a piecemeal procedural and static permitting system and the lack of a clear responsible plan to address long term liability associated with sequestered co2 the book provides legislative options to remove these barriers and address the regulatory needs and makes recommendations on the best options to encourage safe effective deployment of ccs the authors propose recommendations in legislative language which is of particular use to policy makers faced with the challenge of addressing climate change and energy

Reliability, Risk, and Safety, Three Volume Set

2022-12-16

issues for feb 1965 aug 1967 include bulletin of the institute of management sciences

Interdisciplinary Research on Climate and Energy Decision Making

2000

conceptual basis for risk assessment use of toxicity test data in the estimation of risks to human health interspecies extrapolation basic concepts of the dose response relationship high to low dose extrapolation in animals legal considerations in risk assessment under federal regulatory statutes inter risk comparisons uncertainty and quantitative assessment in risk

management use of risk assessment and safety evaluation the need for risk assessment of chemicals in corporate decision making chemical industry perspectives on regulatory impact analysis

Expert Judgement and Accident Consequence Uncertainty Analysis

2014-07-10

this monograph addresses the analytical concerns raised by the critics it makes four points first summary measures of the impact of regulations have made important contributions to our understanding of the regulatory process a point often overlooked by the critics second many of the critics concerns could be addressed by making refinements to scorecards rather than wholly rejecting them as an analytical tool third some of the suggestions made by the critics are legitimate but many are not and finally the solution to legitimate concerns raised by the critics is not to eliminate quantitative economic analysis but to gain a deeper understanding of its strengths and weaknesses and to use it wisely book jacket

Best Practicing Approaching for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Climate Decision Making

2012

this text provides both the mathematical foundations and practical applications in this rapidly expanding area including an up to date comprehensive overview of the foundations and applications of uncertainty analysis all the key topics including uncertainty elicitation dependence modelling sensitivity analysis and probabilistic inversion numerous worked examples and applications workbook problems enabling use for teaching software support for the examples using unicorn a windows based uncertainty modelling package developed by the authors and a website featuring a version of the unicorn software tailored specifically for the book as well as computer programs and data sets to support the examples

Carbon Capture and Sequestration

2008

an underlying assumption of traditional hydrologic frequency analysis is that climate and hence the frequency of hydrologic events is stationary or unchanging over time a stationary series is relatively easy to forecast one simply predicts that statistical properties will be the same in the future as they have been in the past anthropogenic climate change and better understanding of decadal and multi decadal climate variability present a challenge to the validity of this assumption the workshop was organized to present and discuss possible operational alternatives to the assumption of stationarity in hydrologic frequency analysis abstract

Symposium

2004

this report focuses on the first two elements

Environmental Risk

2002

Expertise and Uncertainty in Environmental Regulation

1996

The American Economic Review

1992

Management Science

2005

Environmental Law

1994

New York University Environmental Law Journal

1984

Assessment and Management of Chemical Risks

2005

In Defense of the Economic Analysis of Regulation

1991

Uncertainty and Risk Assessment

1997

Decision Making Support for Off-site Emergency Management

2006-03-31

Uncertainty Analysis with High Dimensional Dependence Modelling

2010

Workshop on Nonstationarity, Hydrologic Frequency Analysis, and Water Management, January 13-15, 2010, Boulder, Colorado

1994

Risk

1995

Scanning the Global Environment

1995

Microeconomics Reading Lists

1995

Economics Reading Lists, Course Outlines, Exams, Puzzles & Problems: Microeconomics reading lists

2005

Hastings Law Journal

2004

The Hastings Law Journal

1995

Proceedings of a Tri-lateral Workshop on Natural Hazards

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