

Estimating Global Co Emission Constraints And Energy

The Intergovernmental Panel on Climate Change (IPCC) was set up jointly by UNEP and the World Meteorological Organisation in 1988 to provide periodic scientific analysis of the causes, impacts and possible policy response options to climate change issues. This synthesis report is the 4th and final part of the IPCC's third assessment report, and contains information on nine policy-relevant questions regarding the IPCC's 2001 assessment. It is intended to assist governments, individually and collectively, to formulate appropriate adaptation and mitigation responses to the threat of human-induced climate change.

"Energy is indispensable in present society. All depend on a constant and reliable source of energy, whether it be for transport, industrial or home applications. The use of such energy sources can present some inconveniences, such as source depletion, pol"

This book is based on the 2014 Special Issue 124(3) of Climatic Change. It brings together 16 key papers presented at, or produced, subsequent to the 2010 (3rd) International Workshop on Uncertainty in Greenhouse Gas (GHG) Inventories. The Workshop was jointly organized by the Lviv Polytechnic National University, Ukraine; the Systems Research Institute of the Polish Academy of Sciences; and the International Institute for Applied Systems Analysis, Austria. This book has been written to enhance understanding of the uncertainty encountered in estimating greenhouse gas (GHG) emissions and in dealing with the challenges resulting from those estimates. Such challenges include, but are not limited to i) monitoring emissions; ii) adhering to emission commitments; iii) securing the proper functioning of emission trading markets; and iv) meeting low-carbon or low-GHG futures in the long term. The approaches to addressing uncertainty discussed by all authors attempt to improve national inventories, not only for their own sake but also from a wider, systems analytical perspective that seeks to strengthen their usefulness under a compliance and/or global monitoring and reporting framework. These approaches show the challenges and benefits of including inventory uncertainty in policy analysis and where advances are being made.

The GHG Protocol Corporate Accounting and Reporting Standard helps companies and other organizations to identify, calculate, and report GHG emissions. It is designed to set the standard for accurate, complete, consistent, relevant and transparent accounting and reporting of GHG emissions.

Phase 1 Report on a Near-Term Update

Buying Greenhouse Insurance

Mercury in the Environment

Report to Congress

Climate Stabilization Targets

Soil Emission of Nitrous Oxide and its Mitigation

Direct and Indirect Effects of Changing Hydrological, Pedological, and Plant Physiological Processes

Atmospheric Chemistry has been a rapidly growing field with a recent focus on the major aspects of global environmental change, including stratospheric ozone depletion, UV-B change, and global warming. This book describes recent developments in our understanding of the global aspects of the chemistry in the main parts of the atmosphere, troposphere, and stratosphere, as obtained from field observations, laboratory investigations, and modeling studies. Although this chemistry is largely driven by reactions between gas phase species, recent progress made in the understanding of chemical reactions occurring in clouds and on the surface of aerosols is also reported.

The Department for Energy and Climate Change's (DECC) official CO2 figures - that count territorial emissions from power stations and transport, etc. within UK borders - show nearly 20% reduction between 1990-2009. But research commissioned for the Department for the Environment Food and Rural Affairs reveals that CO2 emissions were 20% higher in 2009 if consumption based emissions - from imported goods - are included. The fall in territorial emissions was not mainly the consequence of the Government's climate policy. Rather it was the result of the shift in manufacturing industries away from the UK and the switch from coal to gas-fired electricity generation that began in the early 1990s. Since 1990 carbon dioxide emissions from imports have almost doubled (from 166 million tonnes (Mt) CO2 to 331 Mt CO2 in 2009). If the UK wishes to encourage emissions reductions in countries that manufacture and export goods to the UK, the MPs say the Government should recognise the growth in the UK's consumption-based emissions. Acknowledging that UK consumption is driving up territorial emissions in other countries could increase the UK's leverage over those emissions and help to secure a binding global agreement on carbon cuts. There is sufficiently robust data available to develop new policy options and identify carbon-intensive behaviours that are overlooked by concentrating on territorial emissions alone. Ministers should explore the options for incorporating consumption-based emissions data in to the policy making process and setting emissions targets on a consumption-basis at the national level.

This book grows out of a 2001 workshop on "Emission of Chemical Species and Aerosols into the Atmosphere." The contents deal with inventories of emissions related to anthropogenic emissions or biomass burning; emissions from vegetation and soils; emissions of mineral and sea-salt aerosols; and emissions of sulphur compounds from the oceans. Concluding chapters show how atmospheric observations have been used to improve our knowledge of emissions.

The world's nations are moving toward agreements that will bind us together in an effort to limit future greenhouse gas emissions. With such agreements will come the need for all nations to make accurate estimates of greenhouse gas emissions and to monitor changes over time. In this context, the present book focuses on the greenhouse gases that result from human activities, have long lifetimes in the atmosphere and thus will change global climate for decades to millennia or more, and are currently included in international agreements. The book devotes considerably more space to CO2 than to the other gases because CO2 is the largest single contributor to global climate change and is thus the focus of many mitigation efforts. Only data in the public domain were considered because public access and transparency are necessary to build trust in a climate treaty. The book concludes that each country could estimate fossil-fuel CO2 emissions accurately enough to support monitoring of a climate treaty. However, current methods are not sufficiently accurate to check these self-reported estimates against independent data or to estimate other greenhouse gas emissions. Strategic investments would, within 5 years, improve reporting of emissions by countries and yield a useful capability for independent verification of greenhouse gas emissions reported by countries.

Emerging Carbon Constraints and Strategic Management Options

A UNEP Synthesis Report

Global Climate Change and Agricultural Production

Biomass Burning and Global Change: Biomass burning in South America, Southeast Asia, and temperate and boreal ecosystems, and the oil fires of Kuwait

Hearings Before the Subcommittee on Energy and Environment of the Committee on Science, U.S. House of Representatives, One Hundred Fifth Congress, First Session, October 7, 9, and November 6, 1997

Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2 ° C or 1.5 ° C?

Saving Energy and Reducing CO2 Emissions with Electricity

The UN Environment Emissions Gap Report assesses the latest scientific studies on current and estimated future greenhouse gas emissions and compares these with the emission levels permissible for the world to progress on a least-cost pathway to achieve the goals of the Paris Agreement. This difference between [where we are likely to be and where we need to be] is known as the [emissions gap]. The report explores some of the most important options available for countries to bridge the gap.

International concern for the continued growth of greenhouse gas emissions, and the potentially damaging consequences of resultant global climate change, led to the signing of the United Nations Framework Convention on Climate Change by 155 nations at the Earth Summit in June 1992. The Convention came into force on 21 March 1994, three months after receiving its 50th ratification. All Parties to the Convention are required to compile, periodically update, and publish national inventories of anthropogenic greenhouse gas emissions and sinks using comparable methodologies. In support of this process, the US Country Studies Program (US CSP) is providing financial and technical assistance to 56 developing and transition countries for conducting national inventories. This book presents the results of preliminary national inventories prepared by countries participating in the US CSP that are ready to share their interim findings. In some cases, inventories were prepared with support from other organizations. Preliminary inventories of twenty countries in Africa, Asia, Central and Eastern Europe and the Newly Independent States, and Latin America are presented, as well as regional and global syntheses of the national results. The regional and global syntheses also discuss results of eleven other preliminary national inventories that have been published elsewhere with the assistance of other programs. Results are discussed in the context of national and regional socioeconomic characteristics, and the regional and global syntheses compare national inventory estimates to other published estimates that are based largely on international databases. Papers also discuss inventory development issues, such as data collection and emission factor determination, and problems associated with applying the IPCC inventory methodologies. The preliminary inventory results reported here represent significant progress towards meeting country commitments under the Framework Convention, and provide useful information for refining international greenhouse gas emission databases and improving inventory methodologies. As the first book to compile national greenhouse gas emission estimates prepared by national experts in developing countries and countries with economies in transition, this will be an invaluable resource to scientists, policymakers, and development specialists in national, regional and global anthropogenic sources and sinks of greenhouse gases.

Cepal Review is the leading journal for the study of economic and social development issues in Latin America and the Caribbean. Edited by the Economic Commission for Latin America, each issue focuses on economic trends, industrialization, income distribution, technological development and monetary systems, as well as the implementation of reforms and transfer of technology. Written in English and Spanish (Revista De La Cepal), each tri-annual issue brings you approximately 12 studies and essays undertaken by authoritative experts or gathered from conference proceedings.

Rice production is affected by changing climate conditions and has the dual role of contributing to global warming through emissions of the greenhouse gas methane. Climate change has been recognized as a major threat to the global environment. Because of insufficient field data, rice-growing countries face a problem when trying to comply with the United Nations Framework Convention on Climate Change stipulations to compile a national inventory of emissions and to explore mitigation options. Given the expected doubling in rice production in Asia, the need to evaluate the interaction between climate change and rice production is critical to forming a sound basis for future directions of technology developments by policy makers, agriculturists, environmentalists, rice producers, and rice consumers. The present book comprises two sections. The first part documents a comprehensive overview of the results achieved from an interregional research effort to quantify methane emission from major rice ecosystems and to identify efficient mitigation options. This research report broadens understanding of the contribution of rice cultivation to methane emissions and clarifies that emissions are relatively low, except in specific rice ecosystems, and that these high emissions could be ameliorated without sacrificing yield. The second section shows results from other projects that investigated the role of rice cultivators in field and laboratory approaches. The findings represent inputs for future modeling approaches in the role of rice cultivators. The expanded database generated by other projects is reflected in modeling efforts.

The Greenhouse Gas Protocol

Agriculture, Forestry, And Natural Resources

1990-2000

Emissions of Atmospheric Trace Compounds

Revolutions that Made the Earth

Rethinking Infrastructure for Development

Past to Present

, Buying Greenhouse Insurance outlines a way to think about greenhouse-effect decisions under uncertainty. It describes an insightful model for determining the economic costs of limiting carbon dioxide emissions produced by burning fossil fuels and provides a solid analytical base for rethinking public policy on the far-reaching issue of global warming. In recent years a growing concern that the increasing accumulation of greenhouse gases will lead to undesirable changes in global climate has resulted in a number of proposals, both in the United States and internationally, to set physical targets for reducing greenhouse gas emissions. But what will these proposals cost? Based on the authors' earlier ground-breaking work, Buying Greenhouse Insurance outlines a way to think about greenhouse-effect decisions under uncertainty. It describes an insightful model for determining the economic costs of limiting carbon dioxide emissions produced by burning fossil fuels and provides a solid analytical base for rethinking public policy on the far-reaching issue of global warming. Manne and Richels present region-by-region estimates of the costs that would underlie an international agreement. Using a computer model known as Global 2100, they analyze the economic impacts of limiting CO2 emissions under alternative supply and conservation scenarios. The results clearly indicate that a reduction in emissions is not the sole policy response to potential climate change. Following a summary of the greenhouse effect, its likely causes, and possible consequences, Manne and Richels take up issues that concern the public at large. They provide an overview of Global 2100, look at how the U.S. energy sector is likely to evolve under business-as-usual conditions and under carbon constraints, and describe the concept of "greenhouse insurance." They consider possible global agreements, including an estimate of benefits that might result from trading in an international market in emission rights. They conclude with a technical description directed toward modeling specialists.

This book is the result of a research project entitled "Reference function for Global Air Pollution/CO " initiated by RIVM. It deals with the description 2 of a computer simulation model of the greenhouse effect. This model, IMAGE, tries to capture the fundamentals of the complex problem of climate change in a simplified way. The model is a multidisciplinary product and is based on knowledge from disciplines as economics, atmospheric chemistry, marine and terrestrial biogeochemistry, ecology, climatology, and glaciology. This book might be of interest for anyone working in the broad field of climate change. Furthermore, it can be useful for model builders, simulation experts, mathematicians etc. A PC version of the model will become avail able free of charge. Requests can be sent to the author. Although being the only author of this book, I could never have written it without the help of many other people. First of all I would like to thank Koos Vriese, originally a colleague at RIVM, later my professor. Without his inspiring attitude I would have never finished this thesis. I am also very grateful to RIVM for giving me the opportunity to write this thesis. lowe many thanks to Hans de Boois and Rob Swart for their support and assis tance during the research. Furthermore, I would like to thank my trainees who have substantially contributed to the contents of this book.

Plant-driven volatile organic compound (BVOC) emissions play a major role in atmospheric chemistry, including ozone and photochemical smog formation in the troposphere, and they extend the atmospheric lifetime of the key greenhouse gas, methane. Furthermore, condensation of photo-oxidation products of BVOCs leads to formation of secondary organic aerosols with profound implications for the earth's solar radiation budget and climate. Trees represent the plant life form that most contributes to BVOC emissions, which gives global forests a unique role in regulating atmospheric chemistry. Written by leading experts in the field, the focus is on recent advancements in understanding the controls on plant-driven BVOC emissions, including efforts to quantitatively predict emissions using computer models, particularly on elicitation of emissions under biotic and abiotic stresses, molecular mechanisms of volatile synthesis and emission and the role of emissions in plant stress tolerance.

Through different applications, electricity provides the energy required for light, heat, comfort, and mechanical work. In order to sustain society's expectation for comfort, convenience and productivity, it will remain necessary to continue to seek and find reasonable quantities of energy in forms which are accessible, affordable and have modest or zero environmental impacts. This in turn will call for an international imperative to make existing uses of electricity both efficient and practical. This book will guide the reader toward a clearer vision of that goal, with explanations of the concept of electrification, along with CO2 reductions through expanded end-use applications of electricity. Topics will include electric cars; airport, seaport, railroad and mining electrification; industrial uses of electricity in a variety of processes; residential building use of electricity; and enhancing energy efficiency and demand response.

Policy Options for Stabilizing Global Climate

Global Aspects of Atmospheric Chemistry

Interim Results from the U.S. Country Studies Program

Methods to Support International Climate Agreements

Uncertainties in Greenhouse Gas Inventories

Methane Emissions from Major Rice Ecosystems in Asia

Third Assessment Report of the Intergovernmental Panel on Climate Change

"Mercury deposition and contamination is widespread and well documented, and it continues to be a public-health concern for certain sectors of the global human population in both developed and developing countries. This edited volume focuses on integrating the diverse sciences involved in the process of mercury cycling in the environment--from the atmosphere, through terrestrial and aquatic food webs, and human populations--to develop a comprehensive perspective on this important environmental pollutant. Using a systems-level approach, this book provides recommendations on mercury remediation, risk communication, education, and monitoring. In response to a growing need for understanding the cycling of this ubiquitous pollutant, the science of mercury has grown rapidly, expanding into several interdisciplinary fields and encompassing such disparate academic and scientific disciplines as biogeochemistry, economics, sociology, public health, decision sciences, physics, global change, and mathematics. Only recently have scientists really begun to establish more holistic approaches to studying mercury pollution, giving rise to investigations that have furthered the integration of a multi-tiered approach, especially by using chemistry, biology, and human health sciences collectively. The study of mercury pollution has produced a variety of contributions to domestic and international policies related to the management of mercury in the environment"--Provided by publisher.

A comprehensive guide to carbon inside Earth - its quantities, movements, forms, origins, changes over time and impact on planetary processes. This title is also available as Open Access on Cambridge Core.

To achieve goals for climate and economic growth, "negative emissions technologies" (NETs) that remove and sequester carbon dioxide from the air will need to play a significant role in mitigating climate change. Unlike carbon capture and storage technologies that remove carbon dioxide emissions directly from large point sources such as coal power plants, NETs remove carbon dioxide directly from the atmosphere or enhance natural carbon sinks. Storing the carbon dioxide from NETs has the same impact on the atmosphere and climate as simultaneously preventing an equal amount of carbon dioxide from being emitted. Recent analyses found that deploying NETs may be less expensive and less disruptive than reducing some emissions, such as a substantial portion of agricultural and land-use emissions and some transportation emissions. In 2015, the National Academies published Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration, which described and initially assessed NETs and sequestration technologies. This report acknowledged the relative paucity of research on NETs and recommended development of a research agenda that covers all aspects of NETs from fundamental science to full-scale deployment. To address this need, Negative Emissions Technologies and Reliable Sequestration: A Research Agenda assesses the benefits, risks, and "sustainable scale potential" for NETs and sequestration. This report also defines the essential components of a research and development program, including its estimated costs and potential impact.

The Earth that sustains us today was born out of a few remarkable, near-catastrophic revolutions, started by biological innovations and marked by global environmental consequences. The revolutions have certain features in common, such as an increase in complexity, energy utilization, and information processing by life. This book describes these revolutions, showing the fundamental interdependence of the evolution of life and its non-living environment. We would not exist unless these upheavals had led eventually to 'successful' outcomes - meaning that after each one, at length, a new stable world emerged. The current planet-reshaping activities of our species may be the start of another great Earth system revolution, but there is no guarantee that this one will be successful. The book explains what a successful transition through it might look like, if we are wise enough to steer such a course. This book places humanity in context as part of the Earth system, using a new scientific synthesis to illustrate our debt to the deep past and our potential for the future.

Hearings Before the Subcommittee on Health and the Environment of the Committee on Energy and Commerce, House of Representatives, One Hundred Second Congress, First Session, February 21 and August 1, 1991

Deep Carbon

The Climate System

The Energy Journal

Interim Report

Global Climate Change and Greenhouse Emissions

Expanding Our Perspective

For at least a decade the science of climate change has warned us of the dire need for action – particularly by corporations who are the main engines of economic production and consumption. Yet managerial and corporate understanding of climate change and related energy issues remains fragmented and present actions lack the urgency this critical problem deserves. There is a whole new economy – the low-carbon economy – looming on the horizon. But our consumption and production patterns remain in a carbon-locked position. What we are risking is a global carbon crisis and a case of history repeating. Humankind's failure to adequately recognise the onset of and address the effects of the global financial crisis mirrors our similar failures with the carbon crisis. There are many parallels: both are and were predictable and both will have direct implications on humanity on a sweeping, indiscriminate and severe scale. The difference is that we cannot reverse the effects of climate change and fossil fuel scarcity as easily as we can repair the global financial system. It is of paramount importance that we wake up to the risks and begin tackling the issues early enough. To successfully address the risks, business needs to be aware of the consequences that a changing climate and finite carbon resources will have on their business performance. The element carbon – both as a resource and as an emission – is both an economic threat as well as an opportunity for companies. It is a threat for carbon-intense production systems that will need to be changed to avoid further harmful climatic change, and take into account the limited availability of carbon-based fuels. At the same time, new opportunities will emerge for companies who can creatively design and produce goods and services that fit the new emerging carbon-constrained business environment. Many sectors of the economy – for example, renewable energy, energy and resources conservation, waste reduction and

management, carbon finance markets – will expand rapidly, as other carbon- and resource-intensive sectors decline. The Global Carbon Crisis succinctly translates important insights from the natural sciences, economics and equity discussions, for the business reader. It reviews important aspects of these discussions and clarifies misunderstandings with respect to climate change and fossil fuel availability and their implications for business. The book provides simple, direct, pragmatic and effective solutions that policy-makers and corporate managers can implement. The aim is to provoke action – thoughtful action – towards developing a low-carbon future for companies on three levels. At the macro level, the authors discuss the importance of tough industrial policies for climate change and propose the idea of an international carbon-equal fund. At the meso level, they elaborate on the role of inter-firm collaborations for establishing low-carbon industries and production systems. At the micro level, they illustrate the virtue of proactive carbon strategies and suggest a corporate carbon management framework. Getting the message of the carbon crisis across to a business audience has proved challenging. This book successfully makes the case that they are intricately connected to one another and practising managers and business students will benefit from viewing the carbon crisis in parallel to the financial meltdown. The book will be essential reading for all businesses grappling with carbon-related issues and for many in academia, including those in management, strategy, finance, corporate social responsibility and sustainable development, globalisation and innovation studies.

These results from the National Research Programme on Climate Change of the Netherlands offer a synthesis of present knowledge in the fields of: source and sinks of greenhouse gases and aerosols; land-atmosphere interactions; the global energy balance; and radiative forcing and climate variability.

Global Biomass Burning provides a convenient and current reference on such topics as the remote sensing of biomass burning from space, the geographical distribution of burning; the combustion products of burning in tropical, temperate, and boreal ecosystems; burning as a global source of atmospheric gases and particulates; the impact of biomass burning gases and particulates on global climate; and the role of biomass burning on biodiversity and past global extinctions."--Pub. desc.

Emissions of carbon dioxide from the burning of fossil fuels have ushered in a new epoch where human activities will largely determine the evolution of Earth's climate. Because carbon dioxide in the atmosphere is long lived, it can effectively lock the Earth and future generations into a range of impacts, some of which could become very severe. Emissions reductions decisions made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia. According to Climate Stabilization Targets: Emissions, Concentrations, and Impacts Over Decades to Millennia, important policy decisions can be informed by recent advances in climate science that quantify the relationships between increases in carbon dioxide and global warming, related climate changes, and resulting impacts, such as changes in streamflow, wildfires, crop productivity, extreme hot summers, and sea level rise. One way to inform these choices is to consider the projected climate changes and impacts that would occur if greenhouse gases in the atmosphere were stabilized at a particular concentration level. The book quantifies the outcomes of different stabilization targets for greenhouse gas concentrations using analyses and information drawn from the scientific literature. Although it does not recommend or justify any particular stabilization target, it does provide important scientific insights about the relationships among emissions, greenhouse gas concentrations, temperatures, and impacts. Climate Stabilization Targets emphasizes the importance of 21st century choices regarding long-term climate stabilization. It is a useful resource for scientists, educators and policy makers, among others.

Assessment of Approaches to Updating the Social Cost of Carbon

Verifying Greenhouse Gas Emissions

Atmospheric, Climatic, and Biospheric Implications

Inventory of U.S. Greenhouse Gas Emissions and Sinks

A Research Agenda

Green Energy and Technology

Pattern and Process

This book provides profiles of over 50 countries with 54 development indicators about people, environment, economy, technology, infrastructure, trade and finance, all in one handy, pocket-sized volume. A must have for anyone interested in today's development challenges in sub-Saharan Africa.

The social cost of carbon (SCC) for a given year is an estimate, in dollars, of the present discounted value of the damage caused by a 1-metric ton increase in CO2 emissions into the atmosphere in that year; or equivalently, the benefits of reducing CO2 emissions by the same amount in that given year. The SCC is intended to provide a comprehensive measure of the monetized value of the net damages from global climate change from an additional unit of CO2, including, but not limited to, changes in net agricultural productivity, energy use, human health effects, and property damages from increased flood risk. Federal agencies use the SCC to value the CO2 emissions impacts of various policies including emission and fuel economy standards for vehicles, regulations of industrial air pollutants from industrial manufacturing, emission standards for power plants and solid waste incineration, and appliance energy efficiency standards. There are significant challenges to estimating a dollar value that reflects all the physical, human, ecological, and economic impacts of climate change. Recognizing that the models and scientific data underlying the SCC estimates evolve and improve over time, the federal government made a commitment to provide regular updates to the estimates. To assist with future revisions of the SCC, the Interagency Working Group on the Social Cost of Carbon (IWG) requested the National Academies of Sciences, Engineering, and Medicine complete a study that assessed the merits and challenges of a limited near-term update to the SCC and of a comprehensive update of the SCC to ensure that the estimates reflect the best available science. This interim report focuses on near-term updates to the SCC estimates.

This comprehensive volume is the first to consider biomass burning as a global phenomenon and to assess its impact on the atmosphere, on climate, and on the biosphere itself.

Understanding, quantifying, and tracking atmospheric methane and emissions is essential for addressing concerns and informing decisions that affect the climate, economy, and human health and safety.

Atmospheric methane is a potent greenhouse gas (GHG) that contributes to global warming. While carbon dioxide is by far the dominant cause of the rise in global average temperatures, methane also plays a significant role because it absorbs more energy per unit mass than carbon dioxide does, giving it a disproportionately large effect on global radiative forcing. In addition to contributing to climate change, methane also affects human health as a precursor to ozone pollution in the lower atmosphere. Improving Characterization of Anthropogenic Methane Emissions in the United States summarizes the current state of understanding of methane emissions sources and the measurement approaches and evaluates opportunities for methodological and inventory development improvements. This report will inform future research agendas of various U.S. agencies, including NOAA, the EPA, the DOE, NASA, the U.S. Department of Agriculture (USDA), and the National Science Foundation (NSF).

Economic Issues In Global Climate Change

Effects of Changes in Stratospheric Ozone and Global Climate

Negative Emissions Technologies and Reliable Sequestration

Emissions, Concentrations, and Impacts over Decades to Millennia

Countdown to Kyoto, Parts I-III

A Corporate Accounting and Reporting Standard

Climate Change 2001: Synthesis Report

Nitrous oxide gas is a long-lived relatively active greenhouse gas (GHG) with an atmospheric lifetime of approximately 120 years, and heat trapping effects about 310 times more powerful than carbon dioxide per molecule basis. It contributes about 6% of observed global warming. Nitrous oxide is not only a potent GHG, but it also plays a significant role in the depletion of stratospheric ozone. This book describes the anthropogenic sources of N2O with major emphasis on agricultural activities. It summarizes an overview of global cycling of N and the role of nitrous oxide on global warming and ozone depletion, and then focus on major source, soil borne nitrous oxide emissions. The spatial-temporal variation of soil nitrous oxide fluxes and underlying biogeochemical processes are described, as well as approaches to quantify fluxes of N2O from soils. Mitigation strategies to reduce the emissions, especially from agricultural soils, and fertilizer nitrogen sources are described in detail in the latter part of the book.

This book provides a snapshot on economic thinking about global change and provides a starting point for researchers for evaluating the economics of global change in the context of agriculture, forestry, and resource issues. It attempts to rectify the scarcity of economic analysis in global change.

This is an interim report of the ad hoc Committee on Air Emissions from Animal Feeding Operations of the National Research Council's Committee on Animal Nutrition. A final report is expected to be issued by the end of 2002. The interim report is intended to provide the committee's findings to date on assessment of the scientific issues involved in estimating air emissions from individual animal feeding operations (swine, beef, dairy, and poultry) as related to current animal production systems and practices in the United States. The committee's final report will include an additional assessment within eight broad categories: industry size and structure, emission measurement methodology, mitigation technology and best management plans, short- and long-term research priorities, alternative approaches for estimating emissions, human health and environmental impacts, economic analyses, and other potential air emissions of concern. This interim report focuses on identifying the scientific criteria needed to ensure that estimates of air emission rates are accurate, the basis for these criteria in the scientific literature, and uncertainties associated with them. It also includes an assessment of the emission-estimating approaches in a recent U.S. Environmental Protection Agency (EPA) report Air Emissions from Animal Feeding Operations. Finally, it identifies economic criteria needed to assess emission mitigation techniques and best management practices.

twelfth report of session 2010-12, Vol. 1: Report, together with formal minutes, oral and written evidence

Global Biomass Burning

Image: An Integrated Model to Assess the Greenhouse Effect

The Emissions Gap Report 2016

The Emissions Gap Report

The Global Carbon Crisis

The Scientific Basis for Estimating Air Emissions from Animal Feeding Operations