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Annotated Bibliography of Ethical Issues in Physics: Climate Change

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Ethical Issues in Physics
Bibliography assembled by
Marshall Thomsen
Eastern Michigan University
February 2012
Climate Change

CLI, SOC
Physics Today – October 2011
Volume 64, Issue 10, p. 39
Science controversies past and present
Steven Sherwood
The author uses the debate over heliocentric theory to discuss how new ideas in science come to be accepted by society at large. Parallels are drawn to the current global climate debate.

CLI, SOC
Physics Today – October 2011
Volume 64, Issue 10, p. 48
Communicating the science of climate change
Richard C. J. Somerville and Susan Joy Hassol
The authors discuss public perception of the climate debate, factors that have led to a distorted perception, and how the scientific community can be more effective at communication.

CLI
APS Forum on Physics and Society Newsletter
Volume 40, Number 3 July 2011
Preparing for Climate Change
Michael D. Mastrandrea and Stephen H. Schneider (reviewed by Don Lichtenberg)
Book Review

CLI, ENE
APS Forum on Physics and Society Newsletter
Volume 40, Number 2 April 2011
Beyond Smoke and Mirrors: Climate Change and Energy in the 21st Century
Burton Richter (reviewed by Steven R. Rogers)
Book Review

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CLI
Physics Today – April 2011
Volume 64, Issue 4, p. 36
The thinning of Arctic sea ice
Ronald Kwok and Norbert Untersteiner
A discussion of what is known about the physics behind the thinning of Arctic sea ice and the challenges with modeling that system.

Physics Today – April 2011
Volume 64, Issue 4, p. 19
Recovery mechanism for Arctic ice
Bertram M. Schwarzschild
A brief article reporting on climate modeling results that suggest the Arctic can recover relatively quickly from a one time complete melt down.

Physics Today – October 2011
Volume 64, Issue 10, p. 10
Flying over thin ice
Thomas R. Jarboe
The author suggests jet contrails may explain the thinning of Arctic ice.

Physics Today – October 2011
Volume 64, Issue 10, p. 10
Flying over thin ice
Ron Kwok and Norbert Untersteiner
The authors of "The thinning of Arctic sea ice" respond to Jarboe.

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CLI
Physics Today – January 2011
Volume 64, Issue 1, p. 33I
Infrared radiation and planetary temperature
Raymond T. Pierrehumbert
The author discusses the physics of thermal radiation in the context of planetary science, with particular attention being paid to the earth.

Physics Today – July 2011
Volume 64, Issue 7, p. 12
Some fine points on radiative forcing
Hardy B. Granberg
Response to Pierrehumbert's article, focusing on emission by CO_2.

Physics Today – July 2011
Volume 64, Issue 7, p. 12
Some fine points on radiative forcing
Raymond T. Pierrehumbert
Raymond T. Pierrehumbert replies.

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CLI
APS Forum on Physics and Society Newsletter
Volume 40, Number 1 January 2011
The Long Thaw
David Archer (book review by Manish Gupta)
Book Review

CLI
Bulletin of the Atomic Scientists
67.1 (January 2011) pp. 9-18
The architecture of climate economics: Designing a global agreement on global warming
William D. Nordhaus
It is argued that a global carbon tax is a mechanism more transparent than those of the Kyoto Accord for developing an international policy to deal with climate change.

CLI
Bulletin of the Atomic Scientists
67.1 (January 2011) pp. 19-27
Finding common ground in the debate between carbon tax and cap-and-trade policies
Rachel Cleetus
The author argues that a hybrid of the cap-and-trade and carbon tax approaches to reducing greenhouse gas emissions is preferable to the current battle over adopting one policy or the other.

CLI
Bulletin of the Atomic Scientists
67.1 (January 2011) pp. 28-40
Earth's ice: Sea level, climate, and our future commitment
Ted Scambos
The author discusses the effect of polar ice melting on both sea levels and on the global energy balance.

CLI
Bulletin of the Atomic Scientists
67.1 (January 2011) pp. 41-50
Global warming: How skepticism became denial
Spencer Weart
This article discusses issues related to how the public draws conclusions about scientific issues and the role scientists should play in guiding the public.

CLI, MIS
Bulletin of the Atomic Scientists
66.6 (November 2010) pp 1-7
Michael E. Mann: A scientist in the crosshairs of climate-change denial
Interview
This interview with a prominent climate scientist covers issues such as the peer review process, public perception, and how the scientific debate is played out in the media.

CLI
Science and Engineering Ethics
Volume 16, Number 3 / JSeptember 2010, pp. 431-445
Climate Change, Responsibility, and Justice
Dale Jamieson
The author argues that concern for climate change grows out of ethical considerations, prudence, and the sometimes overlooked value of respect for nature.

CLI
Science and Engineering Ethics
Volume 16, Number 3 / September 2010, pp. 489-499
Defining Risk, Motivating Responsibility and Rethinking Global Warming
Furio Cerutti
The author argues that global warming should not be thought of as a risk that needs to be managed but rather a moral challenge to society.

CLI
Science and Engineering Ethics
Volume 16, Number 3 / September 2010, pp. 517-533
Complex Governance to Cope with Global Environmental Risk: An Assessment of the United Nations Framework Convention on Climate Change
Bruno Turnheim and Mehmet Y. Tezcan
The UN Framework Convention on Climate Change is analyzed with regard to its relationship with science, its reflexivity, and its governmental structure.

CLI
Physics Today—July 2010
Volume 63, Issue 7, pp. 36-41
Touring the atmosphere aboard the A-Train
Tristan S. L'Ecuyer and Jonathan H. Jiang
This article discusses how a cluster of satellites is used by NASA to acquire different types of climate data in order to improve climate models.

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Physics Today—July 2010
Volume 63, Issue 7, p. 10
Scientific declarations best left to scientists
B. K. Ridley
A letter to the editor indicating that scientists, not scientific societies, should make scientific declarations.

Physics Today—September 2010
Volume 63, Issue 9, pp. 9-10
Scientific societies should speak out
Alfred B. Bortz
Letter in response to Ridley's letter

Physics Today—March 2011
Volume 64, Issue 3, p. 8
Scientists offer opinions about their opinions
James M. Kent
Letter in response to Bortz's and Ridley's letters

Physics Today—March 2011
Volume 64, Issue 3, p. 8
Scientists offer opinions about their opinions
Brian Sutcliffe
Letter in response to Ridley's letter

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CLI/ENE
APS Forum on Physics and Society Newsletter
Volume 39, Number 3 July 2010
Earth: The Sequel, The Race to Reinvent Energy and Stop Global Warming
Fred Krupp (reviewed by Michael DuVernois
Book Review

CLI
APS Forum on Physics and Society Newsletter
Volume 39, Number 3 July 2010
Storms Of My Grandchildren: The truth about the coming climate catastrophe and our last chance to save humanity
James Hansen (reviewed by Art Hobson)
Book Review

SOC, CLI
APS Forum on Physics and Society Newsletter
Volume 39, Number 1 January 2010
Global Warming: Lessons from Ozone Depletion
Art Hobson
This article provides a concise history of international efforts to control CFC release into the atmosphere and argues the cooperation among interested parties demonstrated in that effort is what is needed to combat greenhouse gases in the context of global climate change.

CLI
APS Forum on Physics and Society Newsletter
Volume 38, Number 4 October 2009
Hot, Flat and Crowded: Why We Need a Green Revolution--and How It Can Renew America
By Thomas L. Friedman
Reviewed by Peter Schroeder
Book Review

CLI
APS Forum on Physics and Society Newsletter
Volume 38, Number 4 October 2009
Materials for Sustainable Energy
George Crabtree
This article briefly summarizes technological challenges in seeking solutions to anticipated energy shortages and greenhouse gas emissions.

CLI
APS Forum on Physics and Society Newsletter
Volume 38, Number 3 July 2009
Censoring Science: Inside the Political Attack on Dr. James Hansen and the Truth of Global Warming
Mark Bowen
Review by John L. Roeder
Book Review

CLI
APS Forum on Physics and Society Newsletter
Volume 38, Number 2 April 2009
Changes in the Flow of Energy through the Earth's Climate System
Kevin E. Trenberth
This discussion of energy flows may be of particular interest to students who have had a thermodynamics class.

CLI
APS Forum on Physics and Society Newsletter
Volume 38, Number 2 April 2009
Heat: How to Stop the Planet Burning
By George Monbio
Reviewed By Louis Schwartzkopf
Book Review

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Physics Today -- April 2009
Volume 62, Issue 4, pp. 63-65
Earth: The Sequel: The Race to Reinvent Energy and Stop Global Warming
Fred Krupp, Miriam Horn, and Mark A. Ratner, Reviewer
Book Review

CLI
Physics Today -- March 2009
Volume 62, Issue 3, pp. 52-53
The Great Warming: Climate Change and the Rise and Fall of Civilizations
Brian Fagan and James R. Fleming, Reviewer
Book Review

CLI
Science and Engineering Ethics
Volume 15, Number 1 / March, 2009, pp. 19-23
Data Trimming, Nuclear Emissions, and Climate Change
Kristin Sharon Shrader-Frechette
The author argues a meaningful account of greenhouse gas emissions associated with nuclear power follows the full life cycle of the fuel.

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APS Forum on Physics and Society Newsletter
Volume 38, Number 1 January 2009
Advocacy Threatens Scientific Integrity
By Robert E. Levine
The author argues that the APS statement on climate change is in conflict with its own principles of openness.

APS Forum on Physics and Society Newsletter
Volume 38, Number 3 July 2009
Letter to the Editor
Wallace Manheimer

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Physics Today -- December 2008
Volume 61, Issue 12, pp. 37-42
Environmental consequences of nuclear war
Owen B. Toon, Alan Robock, and Richard P. Turco
Modern climate models have been used to revisit the nuclear winter scenarios put forth in the 1980s. Current models still suggest that a war involving a small fraction of existing nuclear weapons could have a devastating impact on the global climate.

CLI
Physics Today -- November 2008
Volume 61, Issue 11, pp. 54-55
A broader view of the role of humans in the climate system
Roger A. Pielke Sr

CLI
Physics Today -- September 2008
Volume 61, Issue 9, pp. 26-28
G8 nations commit to building a score of CO2 sequestration demonstration projects
David Kramer
Reports on existing sequestration efforts as well as the Bush Administration's proposal to build 10 sequestration facilities in this country.

CLI
Physics Today -- September 2008
Volume 61, Issue 9, pp. 33-38
Modeling the physics of storm surges
Donald T. Resio and Joannes J. Westerink
Storm surges are described in the context of wave mechanics and the present status of modeling them is discussed.

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Physics Today -- August 2008
Volume 61, Issue 8, pp. 26-28
Will desperate climates call for desperate geoengineering measures?
Barbara Goss Levi
The article discusses call for both careful research and international peer review before any major geoengineering fix is implemented.

CLI
APS Forum on Physics and Society Newsletter
Volume 37, Number 3 July 2008
The Essential Exponential! For the Future of Our Planet
By Albert A. Bartlett with Robert G. Fuller, Vicki L. Plano Clark, and John A. Rogers
Reviewed by Manish Gupta
Book Review

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APS Forum on Physics and Society Newsletter
Volume 37, Number 3 July 2008
Climate Sensitivity Reconsidered
By Christopher Monckton
This equation filled paper argues the case that the evidence for CO2 induced global warming is not compelling; rather the temperature fluctuations can be explained by solar variability. It is interesting to note that this paper is preceded by a disclaimer reminding the reader that the FPS newsletter is not peer reviewed.

APS Forum on Physics and Society Newsletter
Volume 37, Number 4 October 2008
Editor's Comments
Jeffrey Marque, Alvin Saperstein

APS Forum on Physics and Society Newsletter
Volume 37, Number 4 October 2008
Simple Question, Simple Answer... Not
By Spencer R. Weart

APS Forum on Physics and Society Newsletter
Volume 37, Number 4 October 2008
Concern About Monckton Article
From Joel D. Shore

APS Forum on Physics and Society Newsletter
Volume 37, Number 4 October 2008
Congratulation on Climate Issue
From Jonathan Wurtele

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Physics Today -- July 2008
Volume 61, Issue 7, p. 51
What We Know About Climate Change
Kerry Emanuel and George Kiladis, Reviewer
Book Review

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APS Forum on Physics and Society Newsletter
Volume 37, Number 3 July 2008
A Tutorial on the Basic Physics of Climate Change
By David Hafemeister & Peter Schwartz
A mathematical look at elements of climate modeling. The authors argue the case that some of the observed global warming is due to increased carbon dioxide levels.

APS Forum on Physics and Society Newsletter
Volume 38, Number 2 April 2009
Climate Change
Vladislav Bevc; Hafemeister & Schwartz Response

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Physics Today -- April 2008
Volume 61, Issue 4, pp. 16-18
Trends in the hydrology of the western US bear the imprint of manmade climate change
Barbara Goss Levi
Report on results from climate models used to study the impact of global climate change on water supplies in the western U. S.

Physics Today -- April 2009
Volume 62, Issue 4, p. 8
Western US droughts: Climate happens
Joseph G. Gallagher, Jr, Robert Ayers, and Barbara Levi

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APS Forum on Physics and Society Newsletter
Volume 37, Number 2 April 2008
Carbon-Free and Nuclear-Free: A Roadmap for US Energy Policy
Arjun Makhijani
A mostly policy-oriented discussion of how the triple threat of global warming, dwindling oil reserves, and nuclear proliferation can be addressed through seeking alternative energy sources and improving energy efficiency.

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APS Forum on Physics and Society Newsletter
Volume 37, Number 2 April 2008
Climate Stability and Policy
Gerald E. Marsh
The author argues that the onset of the next ice age is a more serious threat than anthropogenic global warming.

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Physics Today -- March 2008
Volume 61, Issue 3, pp. 50-51
Is climate sensitive to solar variability?
Nicola Scafetta and Bruce J. West
The authors argue that solar fluctuations are influencing global climate far more than the IPCC estimates.

Physics Today -- October 2008
Volume 61, Issue 10, pp. 10-16
Variations on Sun's role in climate change
Peter Foukal, Diedrich Schmidt, Wim Klaassen, Jay Gulledge, Anthony D. Socci, W. H. Smith, J. R. Smith, Roger W. Cohen, Nicola Scafetta, and Bruce J. West

Physics Today -- January 2009
Volume 62, Issue 1, pp. 48-49
Solar variability does not explain late-20th-century warming
Philip B. Duffy, Benjamin D. Santer, and Tom M. L. Wigley
Opinion piece rebutting the March 2008 piece.

Physics Today -- November 2009
Volume 62, Issue 11, pp. 8-12
Interpretations of climate-change data
Nicola Scafetta, Bruce J. West, Benjamin R. Jordan, Philip Duffy, Benjamin Santer, and Tom Wigley

Physics Today -- November 2009
Volume 62, Issue 11, p. 12
Other climate-change inputs
Brian A. Tinsley

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Bulletin of the Atomic Scientists
63.6 (November-December 2007) pp. 40-47
An inconvenient assessment
Chris Mooney
This essay on a national assessment of climate change discusses the origins of the study as well as the fate of the report. It explores issues at the interface of science with politics.

CLI
APS Forum on Physics and Society Newsletter
Volume 36, Number 4 October 2007
Three Inconvenient Truths
Robert Ehrlich
A short commentary on global warming, concluding that the effect is real, dealing with it will be expensive, and there is still much unknown about the level of seriousness.

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Physics Today -- September 2007
Volume 60, Issue 9, pp. 30-32
A Physicist Proselytizes About Countering Global Warming
Toni Feder
An interview with John Houghton, a retired atmospheric physicist, about his lectures on global warming to Christian groups.

Physics Today -- April 2008
Volume 61, Issue 4, pp. 10-12
Houghton friends and foes weigh in on global warming
Ben Zuckerman, Brahama D. Sharma, Warren Norred, Rustum Roy, and Foster Morrison

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Physics Today -- January 2007
Volume 60, Issue 1, pp. 72-73
The Physics of Climate Modeling
Gavin A. Schmidt
A thumbnail sketch of how climate models are developed and tested.

CLI
Science and Engineering Ethics
Volume 12, Number 4 / December, 2006 pp. 596-606
From stratospheric ozone to climate change: Historical perspective on precaution and scientific responsibility
Gérard Mégie and Robert McGinn
This paper focuses on the CFC/ozone issues and discusses what changes would have resulted from a more rapid response to ozone depletion. In the conclusion, the parallels to the current climate change situation are explored.

CLI
Science and Engineering Ethics
Volume 12, Number 4 / December, 2006 pp. 607-636
Climate change: Do we know enough for policy action?
Stephen H. Schneider
Discussion of climate change involves traditional science, risk analysis, and confronting issues such as “What is safe?” and “What is fair?” The paper includes a discussion of data, models, and possible future scenarios.

CLI
Physics Today -- July 2006
Volume 59, Issue 7, pp. 51-52
Elementary Climate Physics
F. W. Taylor and David J. Lary, Reviewer
Book Review

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Physics Today -- April 2006
Volume 59, Issue 4, pp. 26-28
Is there a Slowing in the Atlantic Ocean's Overturning Circulation?
Barbara Goss Levi
For those not in the climate business, the effect of ocean currents on global climate is often overlooked. This news article provides a brief overview of key issues.

Physics Today -- March 2007
Volume 60, Issue 3, p. 14
Uncertainty Over Weakening Circulation
Petr Chylek

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Physics Today -- June 2005
Volume 58, Issue 6, pp. 32-38
Living with a Variable Sun
Judith Lean
Understanding the influence of the sun on climate variations is an important element in studies of global climate change.

CLI
APS Forum on Physics and Society Newsletter
Volume 34, Number 3 July 2005
Protecting the Ozone Layer: Science and Strategy, by Edward A. Parson
Reviewed by Martin Epstein
Book Review

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Physics Today -- August 2004
Volume 57, Issue 8, pp. 38-44
Satellite-Observed Changes in the Arctic
Josefino C. Comiso and Claire L. Parkinson
Discusses 2-3 decades worth of satellite data as well as data from other sources (weather balloons and airplane flyovers).

Physics Today -- September 2009
Volume 62, Issue 9, pp. 19-21
Satellite altimetry quantifies the alarming thinning of Arctic sea ice
Mark Wilson
A news article update.

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APS Forum on Physics and Society Newsletter
Volume 33, Number 3 July 2004
The Discovery of Global Warming by Spencer R. Weart,
Reviewed by Michael DuVernois
Book Review

Physics Today -- January 2005
Volume 58, Issue 1, pp. 13-14
Cause and Effect in Global Warming
George E. Smith and Spencer Weart

Physics Today -- May 2005
Volume 58, Issue 5, pp. 16-17
More Notes on Global Warming
Edouard Bard, George E. Smith, and Spencer Weart

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Physics Today -- June 2004
Volume 57, Issue 6, pp. 60-61
The Discovery of Global Warming
Spencer R. Weart and Philip Morrison, Reviewer
Book Review

Bulletin of the Atomic Scientists
64.2 (May-June 2008) pp. 9-12
Interview: Spencer R. Weart

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CLI
Physics Today -- August 2003
Volume 56, Issue 8, pp. 30-36
The Discovery of Rapid Climate Change
Spencer Weart
Case study in the importance of being open to new ideas, in this case the idea that a major climate change could occur in as short a period as 1000 years.

Physics Today -- February 2005
Volume 58, Issue 2, p. 12
A Brief History Lesson in Deep Ice Core Drilling
Chester C. Langway, Jr, Johannes Weertman, and Spencer Weart

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APS Forum on Physics and Society Newsletter
Volume 32, Number 2 April 2003
Something New Under the Sun: An Environmental History of the 20th Century World, by J.R. McNeill
Reviewed by Tina Kaarsberg
Book Review

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Physics Today -- January 2003
Volume 56, Issue 1, pp. 38-44
The Atmospheric Radiation Measurement Program
Thomas P. Ackerman and Gerald M. Stokes
A discussion of the Atmospheric Radiation Measurement program and how clouds are modeled in global climate studies.

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Physics Today -- August 2002
Volume 55, Issue 8, pp. 30-36
Sinks for Anthropogenic Carbon
Jorge L. Sarmiento and Nicolas Gruber
Understanding carbon dioxide concentration in the atmosphere requires understanding carbon sinks. This article includes a discussion of how carbon winds up stored in soil.

Physics Today -- May 2003
Volume 56, Issue 5, pp. 12-14
More on Carbon Sinks
Richard L. Pitter, William G. Finnegan, Barbara A. Hinsvark, Thomas R. McGuire, Bernell Argyle, Jorge L. Sarmiento, and Nicolas Gruber

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Physics Today -- March 2002
Volume 55, Issue 3, pp. 35-40
The Puzzle of Global Sea-Level Rise
Bruce C. Douglas and W. Richard Peltier
Global climate change has the potential to alter the Global Sea Level. This article discusses the subtleties of measuring the GSL.

CLI
APS Forum on Physics and Society Newsletter
Volume 30, Number 4 October 2001
Science, Policy and Environment in the 21st century
Richard Benedict
The author discusses the Montreal Protocol that addressed the global problem of ozone-depleting compounds. This protocol is placed in the context of the agreements that will be necessary to address global warming.

CLI
APS Forum on Physics and Society Newsletter
Volume 30, Number 4 October 2001
Past and Future Climate Forcing
Steven Smith
The author provides an overview of radiative forcing, and the role of carbon dioxide and aerosols.

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Physics Today -- June 2001
Volume 54, Issue 6, pp. 19-20
Warming Oceans Appear Linked to Increasing Atmospheric Greenhouse Gases
Barbara Goss Levi
This is a short news article reporting on observations of ocean temperature rise.

Physics Today -- December 2001
Volume 54, Issue 12, pp. 12-13
Greenhouse Gases Warm Things Up
Robert C. Whitten and Barbara Goss Levi

Physics Today -- May 2002
Volume 55, Issue 5, pp. 14-15
More Heat Over Greenhouse Gases
Benjamin M. Herman, Xubin Zeng, Tom Chase, and Roger Pielke Sr

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Physics Today -- November 2000
Volume 53, Issue 11, pp. 29-34
Technologies to Reduce Carbon Dioxide Emissions in the Next Decade
Arthur H. Rosenfeld, Tina M. Kaarsberg, and Joseph Romm
This discussion focuses on using energy more efficiently as a means for reducing carbon emissions.

Physics Today -- June 2001
Volume 54, Issue 6, pp. 15-16
Reducing CO2 Emissions: Turn Down the Heat, Crank Up Efficiency
Berol Robinson, D. G. Karraker, John E. Tanner, John Walmsley, David Lloyd Klepper, Arthur H. Rosenfeld, Tina M. Kaarsberg, and Joseph Romm

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Physics Today -- February 2000
Volume 53, Issue 2 pp. 55-56
Book Review
Greenhouse: The 200-Year Story of Global Warming
Gale E. Christianson and Mark Battle, Reviewer

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Physics Today -- January 2000
Volume 53, Issue 1, pp. 19-20
The Decreasing Arctic Ice Cover
Barbara Goss Levi
Article reports on observational studies of Arctic ice. There is also a reference to the conflict between openness in science and the need to classify information for national security purposes.

CLI
APS Forum on Physics and Society Newsletter
Volume 29, Number 1 January 2000
The Science and Politics of Climate
Freeman J. Dyson
Text of a speech discussing the current status of climate modeling.

