EC JOURNAL

The Online Journal of the Harvard University Extension School Environmental Club

Winter 2008 Vol. I, No. 1

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Speaking Truth to Power

The IPCC 4th AssessmentSummary Reports and the Climate News the Public Needs To Hear

Dr. Timothy C. Weiskel

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Speaking Truth to Power

The IPCC *4th Assessment Summary Reports* and the Climate News the Public Needs To Hear

Photo: Catherine Weiskel

As far back in time as the Book of Daniel in ancient Hebrew texts it has been recognized that it is the enduring and inescapable obligation of the intellectual to speak truth to power. Yet, as many of the world's most venerable texts have revealed over the ages this onerous task has not been easy to achieve. The reason for this is simple. Those in power often do not like to hear the truth about the world they dominate—particularly when the news is not pleasant and they are somehow thought to be responsible for that sorry state of affairs.

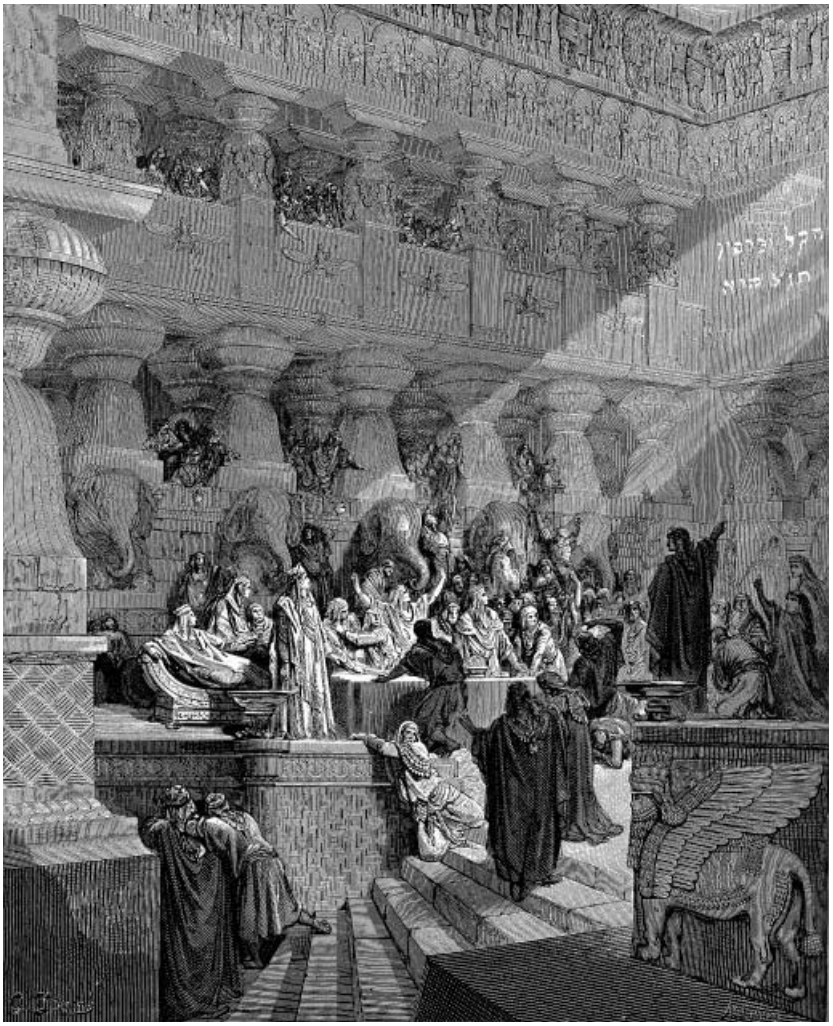
Surrounding themselves with sycophants and soothsayers those in power have found—ever since Biblical times—numerous and ingenious means to discredit the visionaries of their age and distance themselves from the messages those prophets struggled mightily to deliver to the world.

It may be thought: "…well, that was then, but this is now." Things are much different now in the Internet age, so the argument goes. A well-equipped and ubiquitous commercial press is more than ready to pounce on any fragment of information and ply it for profit to a news hungry public. We need not worry about the message or the messenger any longer. With print, radio, broadcast TV, cable and Internet media available on every hand, 24/7, the truth will out—whether those in power like it or not.

TIMOTHY C. WEISKEL, DPhil graduated *magnum cum laude* from Yale University. He trained as a social anthropologist and an historian as a Rhodes Scholar in Oxford, England and the Ecole Pratique des Hautes Etudes in Paris. Following field work in West Africa he received his D.Phil. from Oxford University and returned to the United States to teach anthropology and history at Williams College, Yale University and Harvard Divinity School. His research concentrates upon belief systems within cultures and how core cultural beliefs either change or serve to resist change over time. In particular, he has examined how shared belief systems serve to impede or enable different cultures to perceive the changing environmental conditions they must now confront. He currently teaches courses on global climate change, environmental ethics and environmental justice at Harvard University's Extension School where he focuses upon the ideological and conceptual barriers to transforming industrial culture to a post-carbon fueled world.

Perhaps this is so when it comes to sex scandals and celebrity news. But this is not true concerning less trivial issues—matters that will affect the future of all our lives.

We need to ask ourselves: what happens to truth when leadership does not want to hear the message and their followers do not want to "buy it?" Commercial media outlets have undoubted strengths, but their blind spots are notorious as well. What about endemic problems, chronic crises, and systemic dilemmas for which there are no market-based solutions? If you are trying to "sell" the news, rather than tell it, perhaps it is better *not* to mention these embarrassing issues because no one will "buy"them.



DANIEL INTERPRETING THE WRITING ON THE WALL.
Engraving Paul Gustave Dore,

This is the dilemma we now face as a culture. In a consumer society we have become co-conspirators in our own ignorance. We would rather not hear what our leaders would rather not tell us. The result is that public political discourse has become a kind of fantasy world of double meanings, euphemisms and shadow-boxing. Truth has given way to spin, and political operatives of all stripes have become mired in the politics of distraction, engaging in a sustained effort to keep the public from knowing what is being done in its name and with its tax dollars.[1]

Yet if we are to survive as a democracy—and perhaps, indeed, as a civilization—we must now muster the strength to overcome the politics of distraction and start listening in depth to what the scientists—the prophets of our age—have been striving so doggedly to communicate to us.

For their part, Earth scientists realized more than twenty years ago that if they were going to be able to communicate effectively to political leaders around the world about global problems they would have to construct new kinds of institutions to convey the message. No one nation-state on its own could hope to acquire and continuously monitor all the necessary information on the globe's changing ecosystems. The task was simply too large. In part, for that reason, no single nation could expect to speak authoritatively on the state of the world. Moreover, even if one

nation were to launch unprecedented global monitoring facilities, the problem of credibility would remain. Which political leaders of whatever state in the world would ever agree to accept the findings of scientists working in the confines and with the sole funding of another state?

It rapidly became apparent to scientists that in order to have the results of their global research reliably delivered to the full range of global political leaders the scientists themselves would have to create and develop new kinds of institutions to make this possible. With this goal in mind, in 1988 the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) agreed to form the Intergovernmental Panel on Climate Change (IPCC). It has been the role of the IPCC ever since to convene committees of scientists to consider the scientific literature in peer-reviewed publications relating to climate and from time to time to publish periodic "Assessment Reports" of what the published scientific literature reveals.

The tasks of the IPCC have been divided into three separate Working Groups, each of which is expected to draw up an Assessment report approximately once every five years relating to the specific realms of published research they have reviewed.

- **Working Group I** has addressed itself to the physical evidence of climate change and the driving forces of Earth's climate system.
- **Working Group II** has focused upon the impacts, adaptation and potential vulnerabilities of human communities to observed and expected climate change.
- **Working Group III** has focused upon how the human community might best act to mitigate the impact of climate changes.

Descriptions of the respective tasks of the IPCC Working Groups and technical task forces were developed initially in 1989 and amended in 1993, and the procedures governing their operation are available for all interested parties to inspect and consider.

It is important to understand that the IPCC does not itself conduct research. Nor does it monitor the global climate. Rather, the IPCC plays the more limited role of reviewing and evaluating the vast range of research published in peer-reviewed scientific journals. On the basis of reviewing this literature it renders periodic assessment reports and technical papers based on what it deems to be the most significant trends revealed in the published literature related to the realms of the respective Working Groups.

… What happens to truth when leadership does not want to hear the message and their followers do not want to "buy it?" This is the dilemma we now face as a culture. In a consumer society we have become co-conspirators in our own ignorance. We would rather not hear what our leaders would rather not tell us.

Yet if we are to survive as a democracy—and perhaps, indeed, as a civilization—we must now muster the strength to overcome the politics of distraction and start listening in depth to what the scientists—the prophets of our age—have been striving so doggedly to communicate to us.

Thus, since 1988 the IPCC has published periodic "Assessment Reports" accompanied by specific "Summaries for Policymakers" from each of its three Working Groups.[2] The first assessment report was completed in 1990, while the second was published in 1995. The Reports provided crucial information for the negotiations which led to the adoption of the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). The series of volumes constituting the Third Assessment Report and the Technical and Special Reports that supported it appeared in early 2001, the year that George W. Bush took office as President.

The Third Assessment Report (TAR) was widely diffused in both printed and online electronic formats. With the evolution of the Internet as a rapidly growing means of effective mass communication by 2001, the full set of reports associated with the TAR was made available in both HTML and PDF formats. The Synthesis Report itself was made available in English, French, Spanish, Arabic, Chinese, and Russian, providing one of the largest repositories of scientific information released in history.[3]

But the compilation of scientific information did not stop there. Since The Third Assessment Report of 2001, the IPCC has continued its steady work of reviewing the scientific literature and compiling its next Assessment Report with its accompanying Summaries for Policymakers for each of its three Working Groups. By the beginning of 2007 the collaboration had involved more than 2,500 scientific expert reviewers, more than 800 contributing authors, and more than 450 lead authors from over 130 countries who had worked over a six-year period to compile the 2007 assessment report—the 4th in the ongoing series titled "Climate Change 2007" and referred to as 4AR.[4]

TABLE 1

The IPCC 4th Assessment Reports—Summaries for Policymakers

- **Climate Change 2007: The Physical Science Basis: Summary for Policymakers [Contribution of Working Group I]** to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (This Summary for Policymakers was formally approved at the 10th Session of Working Group I of the IPCC, Paris, February 2007.)], (Geneva, Switzerland, IPCC, 2 February 2007).
- **Climate Change Impacts, Adaptation and Vulnerability: Summary for Policymakers: Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report Climate Change 2007** [IPCC WGII Fourth Assessment Report], (Geneva, Switzerland, Brussles, Belgium, 6 April 2006).
- **IPCC Fourth Assessment Report, Working Group III — Summary for Policymakers**, (Bangkok, Thailand, 4 May 2007), and
- **Intergovernmental Panel on Climate Change Fourth Assessment Report—Climate Change 2007: Synthesis Report—Summary for Policymakers**. UNFCCC. (17 November 2007)

For the 4AR, the *Summary for Policymakers* for Working Group I was the first to appear on 2 February 2007. Working Group I had been tasked to investigate and summarize the scientific basis for judgments about climate change and to assess the significance of the human contribution to the observed changes. The Working Group II *Summary for Policymakers* appeared on 6 April 2007, and it focused upon the vulnerability of the human community to present and foreseen changes in climate. The *Summary for Policymakers* from Working Group III was released less than a month later on 4 May, and it looked at possible steps that might be taken to mitigate the impact of climate change throughout the world. A final synthesis report, summarizing the entire set of findings, was released by the Chairman of the IPCC at a meeting in Valencia, Spain in the week of 12-17 November 2007 during the 27th Session of the meeting of the IPCC.[5]

The results were stark and impressive. Within a year, the world's scientists had delivered a series of succinct and compelling reports that amounted to the largest single peer-reviewed collaboration in human history, an effort devoted to the collective crisis facing all of humankind. In addition to these IPCC reports focused on climate, two further major U.N. synthesis reports—from the two U. N. agencies responsible for environment and development—were published during the same period. On 25 October 2007, the United Nations Environment Program (UNEP), issued its report titled "GEO 4", and on 27 November 2007, the United Nations Development Program (UNDP) published "Human Development Report—2007/2008—Climate change and human development."[6]

TABLE 2

IPCC REPORT DEFINITIONS

Probability of occurrence:

virtually certain	more than 99%
extremely likely	more than 95%
very likely	more than 90%
likely	more than 60%
more likely than not	more than 50%
unlikely	less than 33%
very unlikely	less than 10%
extremely unlikely	less than 5%

Source: IPCC

The cumulative information conveyed in the three Working Group Summaries of the IPCC, its final synthesis report, and these two further U.N. agency reports is very impressive indeed. In fact, it is quite sobering for the entire global community. The BBC summarized the key findings of the 2 February Group I Summary Report in these terms:[7]

- It is very likely that human activities are causing global warming.
- Probable temperature rise by the end of the century will be between 1.8C and 4C (3.2-7.2F).
- Possible temperature rise by the end of the century ranges between 1.1C and 6.4C (2-11.5F) .
- Sea levels are likely to rise by 28-43cm.
- Arctic summer sea ice is likely to disappear in second half of century.
- It is very likely that parts of the world will see an increase in the number of heat-waves.
- Climate change is likely to lead to increased intensity of tropical storms.

TIM WEISKEL teaches "Environmental Ethics and Land Management" through the Harvard Extension School. This course explores the cultural and historical evolution of environmental values and invites students to focus upon what will be needed to develop the kind of environmental ethics required for humans to survive in our complex ecosystem. Beyond this Dr. Weiskel co-teaches two further courses: "Introduction to Environmental Justice" with James Hoyte and "Global Climate Change" with William Moomaw. All three courses are offered with a distance learning option. In addition, Dr. Weiskel contributes to The Climate Consortium—a citizen/scientist forum for the exchange of timely news and public policy discussion on global climate issues.

The BBC report on the Working Group II Summary Report was no less striking. Under a headline that read "Billions face climate change risk", the world's largest English-language news organization presented a story that summarized the Working Group II report and quoted the Chairman of the IPCC, Rajendra Pachauri, as saying: "It's the poorest of the poor in the world, and this includes poor people even in prosperous societies, who are going to be the worst hit."

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Last Updated: Friday, 6 April 2007, 15:54 GMT 16:54 UK
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Billions face climate change risk
Billions of people face shortages of food and water and increased risk of flooding, experts at a major climate change conference have warned.
The bleak conclusion came ahead of the publication of a key report by hundreds of international environmental experts.
Agreement on the final wording of the report was reached after a marathon debate through the night in Brussels.
People living in poverty would be worst affected by the effects of climate change, the gathered experts said.
The impact of climate change has been a major source of dispute
VIDEO AND AUDIO NEWS
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Through the climate window
GLOBAL POLITICS
Politicians sign new climate pact
Nairobi climate talks end in deal

The BBC report went on to quote Martin Parry, the Co-Chair of Working Group II, saying: "For the first time, we are no longer arm-waving with models; this is empirical data, we can actually measure it," thereby dispelling the skepticism of those who seemed to think that IPCC assessments were extrapolated from climate models rather than from the accumulated instrumental record.

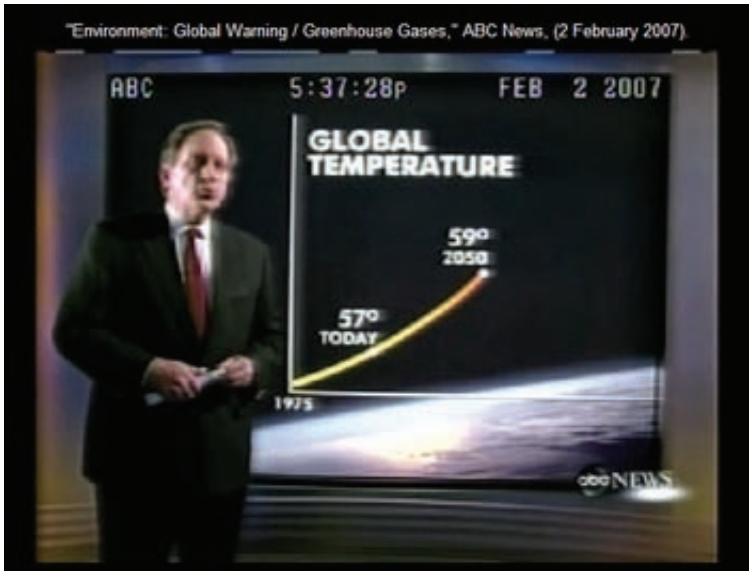
According to the BBC report other key findings of the Group II Summary Report, focusing upon the impact of climate changes, included that in the future the world community can expect that:[8]

- 75-250 million people across Africa could face water shortages by 2020.
- Crop yields could increase by 20% in East and Southeast Asia, but decrease by up to 30% in Central and South Asia
- Agriculture fed by rainfall could drop by 50% in some African countries by 2020.
- 20-30% of all plant and animal species at increased risk of extinction if temperatures rise between 1.5-2.5C.
- Glaciers and snow cover expected to decline, reducing water availability in countries supplied by melt water.

… the IPCC does not itself conduct research. Nor does it monitor the global climate. Rather, the IPCC plays the more limited role of reviewing and evaluating the vast range of research published in peer-reviewed scientific journals. On the basis of reviewing this literature it renders periodic assessment reports. …

[Collectively the 2007 IPCC Assessment] results were stark and impressive. Within a year, the world's scientists had delivered a series of succinct and compelling reports that amounted to the largest single peer-reviewed collaboration in human history, an effort devoted to the collective crisis facing all of humankind.

The release of the Summary *Reports for Policymakers* of Working Groups I and II did not generally have a dramatic impact on the public mind in America. In fact, these reports passed without much detailed discussion in the American press. There were notable exceptions, however, to the generalized stupor of the corporate press. For example, under the leadership of news anchor, Charles Gibson and drawing upon the incisive reporting of Bill Blakemore, ABC Evening News presented several stories in February, April and May 2007 on these key IPCC *Summary Reports*.



ABC's Bill Blakemore

Beyond Bill Blakemore's reporting, however, the American press seemed much more preoccupied with celebrity news and the state of Paris Hilton's delicate psyche than it was with the escalating transformation of the world's ecosystems or the future of human civilization. The IPCC *Summary Reports* have not received sustained or serious discussion in America's mainstream media.

It may have been for this reason that when Working Group III released its Summary Report for Policymakers on 4 May in Bangkok, Thailand it sought to reach out directly to the public around the world, to what might best be called the "global citizenry." It is as if the IPCC no longer wanted to be filtered through the news media of any one country or the corporate media conglomerates that dominate "broadcast" airwaves. For the first time on a worldwide scale the IPCC scientists provided a full-length webcast of the "Press Launch" of the Working Group III *Summary Report for Policymakers*. The webcast lasts over an hour and five minutes and it was still available as a streaming video on their website several months after the event.[9]

It is important to underscore the significance of this innovative use of Internet technology, especially if it is sustained by the IPCC in the future. With this gesture the scientists of the IPCC are no longer waiting to have the commercial media "get the message" or for political leaders to spin their reports. Instead they are seeking to speak directly to a newly emerging global citizenry that is beginning to coalesce in numerous countries around the world to bring public pressure to bear on all governments to arrive at much needed global solutions to the challenges of climate change.

In 1988 when it was created the IPCC represented a remarkable institutional innovation on the part of the World Meteorological Organization (WMO) and the United Nations Environment

Rajendra Pachauri, Chair, IPCC
WMO—UNEP—IPCC Working Group II Press Launch

Program (UNEP). It was a newly conceived entity to bring the best scientific information on climate to the world's top leaders in a manner that would protect the integrity of international scientific research and remove the reporting of data from the distortion of political concerns.

With the publication throughout 2007—nearly twenty years later—of the 4th Assessment Reports, many of the world's leaders have shown themselves unwilling or incapable of acting upon that world's most thoroughly reviewed information on climate. In the face of this sad circumstance, the scientists are now reaching out to global citizens through the Internet to press their respective governments everywhere to move forward with effective climate policies.

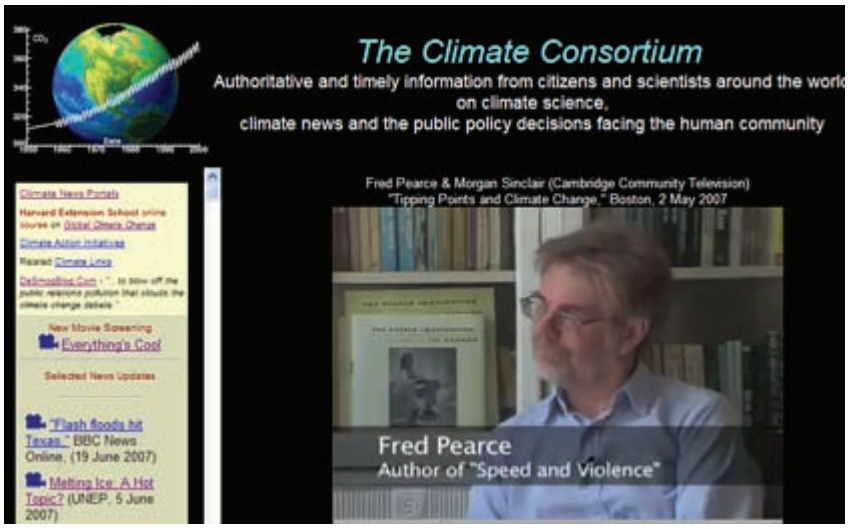
The IPCC "Press Launch" webcast from Bangkok on 4 May of 2007 was not entirely without precedent in the wider scientific community. In fact, only a few months earlier in February 2007, just after the release of the Group I *Summary Report for Policymakers*, the American Association for the Advancement of Science (AAAS), at its annual meeting in San Francisco, chose to webcast the proceedings of what it called a "Climate-Change Town Hall."[10] In addition, the AAAS posted a 12-minute webcast, featuring interview material with several American scientists and the 2007 AAAS President, John Holdren, explaining the potential impact of climate change.[11] As Teresa and John Heinz Professor of Environmental Policy at Harvard's John F. Kennedy School of Government, John Holdren has also used webcasting facilities of the Kennedy School to convey an important message about window of opportunity which he feels now exists to move governments to effective action on climate issues.[12]

Dr. John Holdren, President, AAAS
Webcasts from AAAS Climate-Change Town Hall and **AAAS Special Webcast Video** explaining climate change

Numerous cases like these illustrate the novel use of the Internet to build direct bridges between research scientists and global citizens. They provide timely and encouraging examples of the kind of communication infrastructure that will need to be constructed to keep pace with the rapid evolution of the climate system itself. Earth's climate is not waiting around for research scientists to complete their

studies, and new methods of communication that accelerate the standard research-review-and-publishing process may well need to be devised.

The comprehensive IPCC reports appear every five years or so, but in the intervals between these reports there is a great deal of detailed scientific information that needs to be conveyed to the public. For researchers concerned with polar ice and glaciers, for example, it was clear that the three IPCC Working Group reports issued in February, April and May were, in some respects, outdated even before they were published. This was because the IPCC review process requires that the data they consider come from material already published in peer-reviewed journals. The "cut-off" date for relevant material to be included in the 2007 *Assessment Report* was effectively late June of 2006. Since then, however—most notably in the Fall of 2006 and in scientific reports published in 2007—more recent data is available suggesting that the melting rates of both the glaciers and the Greenland ice sheet are more rapid that was previously documented. The results are that the statements about the rate and scope of climate change presented in the Working Group *Summary Reports* may well prove to be underestimates of the climate change already underway.[13]



Interview with science writer Fred Pearce about "tipping points" and climate change.

The recently published book by Fred Pearce called *With Speed and Violence* provides several examples of these kinds of phenomena. He refers to them as "tipping points" in climate change—points beyond which the direction and pace of shifts in climate can occur rapidly, well beyond human control, as positive feedback mechanisms in the geophysical systems of the earth come into play when certain thresholds are exceeded. The melting of polar and tundra ice is one such kind of mechanism, and because the data is so new in this realm it is this kind of change that is not fully covered even in the latest IPCC *Summary Reports*.

Information of this nature could prove vital to policymakers trying to develop strategies to cope with sea-level rise or land subsidence from permafrost melting. For this reason, in addition and as a supplement to the IPCC authoritative reports, novel methods of communicating the latest scientific knowledge to the public will need to be developed very soon to keep pace with the rapid emergence of new scientific evidence. Simply publishing the data in the customary scientific journals will no longer be sufficient to communicate the urgency of the need to act.

After receiving … an Oscar for An Inconvenient Truth and after having been named a co-recipient of the 2008 Nobel Peace Prize for addressing the global public about climate issues, former Vice President Al Gore has become a prominent spokesman for advocating private venture capital approaches to address climate change issues. The stated attempt is both to "save the planet" and to make money …

By creating the global Internet infrastructure for the real-time transmission of this conference and by providing access to NGO statements, the UNFCCC, in effect, developed a highly important, new vehicle for speaking truth to power. NGO delegates used it openly to challenge the seemingly popular logic of market-based solutions for climate change policy.

In the final analysis any effective means of delivering vital scientific information to those in power may have to deploy a twofold strategy. First, the information must be conveyed effectively to the public in whose name these policymakers try to claim legitimacy. Secondly, this information must be communicated clearly to the special interest groups that place policymakers in power in the first place.

The first strategy—communicating vital information to the general public so it can elect new leadership—may well not be sufficient on its own. This is because, as the world has witnessed in America over the last decade, the public's will can be manipulated through a distorted and dysfunctional electoral system. The United States Presidential election of 2000 proved that merely winning the majority of votes from the nation's electorate was not sufficient in America to determine who holds office. The will of the people was not registered in the electoral process.

In the face of failed democratic institutions in the United States, therefore, some environmentalists have argued that even when the public is fully informed about the stark character of the choices they must make, the electoral process on its own can no longer be expected to deliver the policy changes in the time frame that will be required to address the imminent problems of global climate chaos. What is needed instead, they argue, is a more immediate strategy to convince the corporate special interests that changes in climate policy are in their particular self interest.

There are signs that this is strategy is succeeding—at least outside of America. In Europe, business leaders are far ahead of governments on climate issues. In December 2007, for example, a group of influential businessmen from 150 of the world's biggest corporations published an advertisement in The Financial Times of London, calling upon world governments to devise new and more strict ground rules for limiting carbon emissions through binding regulation.[14] In fact, large and influential coalitions of private firms acting in conjunction with local municipal authorities have emerged in England as an inspiring example of society-wide determination to change climate policies of the existing governments.[15]

Within the United States—for the time being, at least—a narrow range of energy firms, armaments suppliers, war provisioning companies and engineering firms continue to exercise inordinate influence over the White House. National enforcement of environmental laws has lapsed, and federal agencies like the Environmental Protection Agency have actively intervened to prevent individual states like California from implementing effective regulations to curb the emission of greenhouse gases.[16]

It may well be for this reason that the most forceful public voices are addressing the private sector. After receiving, along with the film's producers, an Oscar for *An Inconvenient Truth* and after having been named a co-recipient of the 2008 Nobel Peace Prize for addressing the global public about climate issues, former Vice President Al Gore has become a prominent spokesman for advocating private venture capital approaches to address climate change issues. The stated attempt is both to "save the planet" and to make money by trying to afford new possibilities for profit-making to entrepreneurs to whose inventions need assistance in getting to the marketplace.[17]

Al Gore has joined a private equity firm to stimlate the developmnet of profitable private sector responses to climate change, but many are asking whether this is an adequate substitute for effective public policy.

Al Gore is not alone in this effort to mobilize the private sector. On 17 May 2007, former President Clinton launched an initiative designed to bring together private construction firms, private banks and municipal governments in some of the world's largest cities to facilitate the implementation of energy efficiency and carbon saving strategies.[18] In England—where both former Prime Minister, Tony Blair, and the current Prime Minister, Gordon Brown, have been forceful in promoting the responsibility for changing public policy on a global climate issues—it seems that the appeal of the private sector and market-based approaches to climate change is also gaining ascendancy. Sir David King—who for many years served as the British government's primary science advisor on climate issues to former Prime Minister Tony Blair—has announced that he is to head a new School of Enterprise and the Environment at Oxford University.[19]

With all this high-profile enthusiasm for market-based approaches to climate issues, it is important, however, to keep a clear focus on the need for strong public policy. Forceful advocates from non-governmental organizations (NGOs) at the UNFCCC Conference of the Parties (COP 13) which took place in Bali, Indonesia from December 3rd to the 16th made this abundantly clear. Indeed, their daily press briefings presented a very impressive array of voices and gained international recognition and global exposure through the website that the UNFCCC constructed for the global web streaming of the events. By creating the global Internet infrastructure for the real-time transmission of this conference and by providing access to NGO statements, the UNFCCC, in effect, developed a highly important, new vehicle for speaking truth to power. NGO delegates

used it openly to challenge the seemingly popular logic of market-based solutions for climate change policy.[20]

Because of this video-streaming infrastructure, when Al Gore arrived at the conference he had the opportunity to give a full-length speech to those assembled at Bali—although, as he emphasized, he had no official standing as a representative of anything.[21] In subsequent days his speech was webcast around the world from the U.N. website, and it was made available through the same web facilities that gave the world as a whole access to the opinions of NGOs.[22]

Activists from non-governmental organizations representing women and Third World countries publicly challenged the "market approach" to addressing global climate issues in the Bali, Indonesia conference of the UNFCCC.

Never before, it could be argued, had a major international diplomatic conference received such continuous and complete coverage from such a wide variety of perspectives. The "official statement" at the close of the Conference fell far short in conveying the true significance of the conference proceedings. In effect, the new means of immediate global communication through the Internet changed the nature of both truth and power during the course of the meetings themselves.

In an embarrasing confrontation in Bali, the United States delebation was told by the delegate from Papua New Guinea, in the plenary session broadcast to the world:

"... please get out of the way ... "

The United States was widely perceived to have played a negative role in trying to oppose many of the features of the international accord reached by others at the conference. In normal diplomatic meetings, the "news" of this kind of diplomatic maneuvering could well have been suppressed or glossed over by journalists who focused merely on outcomes. With the ubiquity of Internet coverage, however, it became impossible to conceal the stark opposition between the United States and the Third World on several key points. Indeed, in the closing public sessions, the United States was publicly rebuked and told to "…please get out of the way" by a delegate from Papua New Guinea. Shortly thereafter—in what some reporters characterized as a dramatic "U-turn"—the U.S. delegation announced it would want to be part of the emerging consensus document.[23]

Techniques for speaking truth to power will have to evolve as new communications media become available in the coming years, but for the moment it appears that the rapid evolution of web videocasting through the Internet provides a new means for citizens and scientists to communicate with one another in ways never before possible. Mainstream news media in America have been bought and repackaged as part of the entertainment industry, so they cannot any longer be relied upon to deliver timely and important news on issues of pressing public policy concern. This is tragic in many respects, particularly during a critical year for national elections where citizens will be required to make choices on the basis of information available to them.

Nevertheless, Internet innovations like the YouTube or the VeohTV video sharing portals and the video webcasts of global news organizations like Sky TV, Channel 4 TV or the BBC in England can provide English-speaking citizens from numerous countries with news in greater depth than they could every have hoped to receive through the standard commercial media in the past. A recent study by the League of Conservation Voters revealed that of over 2,200 questions put to American presidential candidates by the mainstream media in recent months only three addressed global warming directly.[24] Fortunately, Internet technology has provided a substitute for this massive failure of the American commercial media coverage.

In this manner as well, through the YouTube video sharing website, individual organizations have been able to reach a world audience wider than any of their publicity efforts afforded ever before. Greenpeace, for example, used the YouTube site to place both news and advertisements before a global public.[25] Furthermore, professional news outlets can provide special coverage of special events that help to highlight their news concerns or present a new emphasis in their work. The Al Jazeera English language service, for example, otherwise not known for its extensive coverage of climate issues, nevertheless used the YouTube video sharing platform to provide extended reports on the UNFCCC Bali Conference as well as other reports on the impact of climate change on various parts of the world.[26]

Similarly, concerned individuals have used these same Internet technologies to launch innovative platforms upon which to make an appeal for a new kind of global citizenry and global participation in addressing our planet's most pressing crises. Using YouTube, for example, Leonardo

The webcast initiatives during 2007 of leading scientific institutions like the AAAS, the IPCC, and the UNFCCC may only prove to be passing phenomena. On the other hand, these efforts could mark a new departure, and perhaps a hopeful new strategy, for speaking truth to power. …

In effect, Internet streaming-video technology makes it possible to envision on a large scale what the reality of effective global citizenship entails. … This means that there are not only new mechanisms through which global citizens can speak truth to power, but also now —perhaps as never before—there are effective new means to reconstitute power itself.

DiCaprio has launched a global appeal for citizens around the world to submit statements and case studies to his platform where visitors can both hear about his new film, *The 11th Hour*, and view individual statements from key world thinkers and environmental activists on the need for urgent action on climate issues.[27] Morever, the UNFCCC itself used the vehicle of the YouTube platform to share selected news briefings with the world of their Executive Secretary, Yvo de Boer, throughout the conference.[28]

Interview with Vandana Shiva. With video-sharing platforms operating with standard video-streaming software, it is now possible for a wide variety of previously marginalized voices to speak truth to power in ways that cannot be ignored.

The webcast initiatives during 2007 of leading scientific institutions like the AAAS, the IPCC, and the UNFCCC may only prove to be passing phenomena. On the other hand, these efforts could mark a new departure, and perhaps a hopeful new strategy, for speaking truth to power. In fact, the adoption of standard streaming media formats for video webcasting now makes it possible for views of key leaders from the Third World like Vandana Shiva to be heard around the world. Her integrated critique of global climate change and the forces of economic globalization provides a powerful new voice that needs to reach those in positions of power throughout the world.[29]

In effect, Internet streaming-video technology makes it possible to envision on a large scale what the reality of effective global citizenship entails. Beyond specific interviews or speeches it is now technically feasible to create subject-focused news portals like The Climate Consortium as vehicles through which both global scientists and global citizens can share the news we should be all be hearing on the evolution of the world's climate. This means that there are not only new mechanisms through which global citizens can speak truth to power, but also now—perhaps as never before—there are effective new means to reconstitute power itself.

The Internet can provide the news that the public needs to know in order to select the leaders it needs to guide us toward a survivable future. If the new virtual communities of the Internet can be converted in to real communities focused on common action the nature of political power itself will change. It remains to be seen whether the public can act quickly and decisively enough on the basis of this news in time to anticipate and adapt to some of the worst of the climate chaos that scientists warn us will be in store for global civilization if we do not make changes in global human behavior very soon. ■

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Notes & References

[1] For a more extensive discussion of the politics of distraction see "From Sidekick to Sideshow—Celebrity, Entertainment, and the Politics of Distraction Why Americans Are 'Sleepwalking Toward the End of the Earth,'" American Behavioral Scientist, 49, 3 (November 2005), pp. 393-409.

[2] For a history of the successive publications of the IPCC see the website describing their activities at http://www.ipcc.ch/about/index.htm. The formal publications are listed, and the publication process is explained at the IPCC official publication site at http://www.ipcc.ch/ipccreports/index.htm. Past Assessment Reports can be found at http://www.ipcc.ch/ipccreports/assessments-reports.htm.

[3] See http://www.grida.no/climate/ipcc_tar/ and particularly http://www.grida.no/climate/ipcc_tar/vol4/index.htm for the different language versions.

[4] See the IPCC web page [http://www.ipcc.ch/] for a description of their activities in 2007 and access to the *Summary Reports for Policymakers* of Working Group I, Working Group II and Working Group III, as well as the full reports from for Working Group I and Working Group III.

The British government's Met Office at the Hadley Center in Exeter, England has provided convenient access and summary reference material for the IPCC Fourth Assessment Report at: http://www.metoffice.gov.uk/research/hadleycentre/ar4/index.html

[5] "UN warning on climate change," BBC News Online (17 November 2007); "UN says climate change is our 'defining challenge,'" BBC News Online (17 November 2007); "On The Verge Of A Catastrophe Climate Warning," Sky News, (17 November 2007); "IPCC—Summary Report," BBC—The World Today (17 November 2007); and "U.N. Science Panel Sees Faster Warming of Earth", NPR—All Things Considered, (17 November 2007).

[6] Global Environment Outlook (GEO-4) (UNEP) and UNDP, Human Development Report 2007/2008: Fighting climate change: Human solidarity in a divided world.

[7] "At a glance: IPCC report," BBC News Online (2 February 2007, 13:47 GMT Friday).

[8] See "Billions face climate change risk," BBC News Online (6 April 2007, 13:30 GMT 14:30 UK Friday).

[9] Viewers can see the webcast at: http://ipcc.bravehost.com/

[10] See "Climate-Change Town Hall, Communicating and Learning About Global Climate Change: An Event for Teachers, Students, and Other Communicators and Learners" posted at http://www.aaas.org/news/press_room/climate_change/mtg_200702/

[11] See particularly: Dr. John P. Holdren, AAAS President, http://www.aaas.org/news/press_room/climate_change/mtg_200702/holdren.ram and the AAAS overview video webcast at http://www.aaas.org/news/press_room/climate_change/media/climate_change_2007a.wmv

[12] See "John Holdren on Climate Change," Kennedy School Insight (22 March 2007).

[13] Even before the Working Group I report appeared on 2 February, doubts concerning the incomplete information on ice melting were apparent. See "New climate report sugarcoated, experts say," CTV.CA—Associated Press, (28 January 2007). On the day the report was released the New York Times carried an article citing similar concerns: Cornelia Dean, "Even Before Its Release, World Climate Report Is Criticized as Too Optimistic," The New York Times (2 February 2007). In subsequent months the theme has been reiterated, See: PRESS RELEASE: Models Underestimate Loss of Arctic Sea Ice, National Snow and Ice Data Center (30 April 2007).

[14] See the BBC report on the request of major business CEOs, "Business call for plan on climate," BBC News Online (30 November 2007, 07:39 GMT Friday), and the subsequent worldwide on-air discussion in the "World Have Your Say" program, "Climate Change and Business," BBC—World Have Your Say (30 November 2007).

[15] See for example, the coalition work of The Climate Group in London, particularly their latest general report which was published at the same time as the first of the IPCC reports in 2007—*Carbon Down, Profits Up (Third Edition)*, London, England. The Climate Group (20 February 2007).

[16] See John M. Broder and Felicity Barringer, "E.P.A. Says 17 States Can't Set Emission Rules," The New York Times (20 December 2007).

[17] See particularly "Gore to join private equity firm," BBC News Online (12 November 2007, 21:28 GMT Monday) including the BBC interview with Al Gore.

[18] See the video report and interview in the New York Times, "Clinton on Climate Change," The New York Times Video (17 May 2007).

[19] Oxford University "The University of Oxford and Sir David King create School of Enterprise and the Environment," Oxford University—Media (29 November 2007).

[20] See excerpt from "Gender and Climate Change," UNFCCC (7 December 2007).

[21] See Al Gore, "The climate crisis: the way forward," UNFCCC (13 December 2007).

[22] The proceedings of the entire conference are available for viewing at http://www.un.org/webcast/unfccc/2007/index.asp. This web platform provides the world with unprecedented view of this major international diplomatic conference. If this tradition of access and archival reference is maintained in the future the mechanisms for speaking truth to power will have changed substantially. Through web facilities like this a wide variety of stakeholders will have the power to access information and use it to clarify their positions and strengthen their ability to speak to those in power who they wish to address.

[23] For selected coverage of the Bali Conference and events leading up to it and emerging after it, see The Bali Conference—Supplementary Material.

[24] See "Study: Of Over 2,000 Sunday Talk Show Questions to Candidates, Only Three On Global Warming," *Democracy Now*, (10 January 2008). The League of Conservation Voters became so irritated by this failure of mainstream news that they created their own website called "WhatAreTheyWaitingFor.Com" to address this news crisis. Moreover, they have used YouTube to make available the statements of major candidates from campaign speeches across the country. See the YouTube—LCVheatison portal.

[25] See their eye-witness coverage of the Antarctic whaling issues on YouTube—GreenpeaceVideo.

[26] See, for example, "Inside Story—Greenhouse gas emissions—Part 1," YouTube—Al Jazeera News, (14 December 2007); "Inside Story—Greenhouse gas emissions—Part 2," YouTube—Al Jazeera News, (14 December 2007); and "Abnormal weather in the Philippines," YouTube—Al Jazeera News, (12 December 2007). Sky TV in England provided some of the most incisive coverage of the Bali Conference. See "Climate Change Deal Is 'Historic Breakthrough,'" Sky TV News (15 December 2007). Channel 4 TV made its coverage available through the VeohTV streaming portal. See "US Wrecking Tactics at Bali Climate Change Conference," Channel 4 News—VeohTV, (15 December 2007). The BBC coverage was extended as well, summarizing complex interactions in brief and succinct reports. See particularly "US backs new climate accord," BBC News Online, (15 December 2007); "US U-turn seals climate deal," BBC News Online (15 December 2007); and "Climate deal sealed by US U-turn," BBC News Online (15 December 2007). In addition, the BBC was one of the only major news sources to capture the qualified character of the U.S. position, emphasizing that the White House expressed reservations about the accord as soon as it had been signed. See "US voices 'concerns' on Bali," BBC News Online (16 December 2007).

[27] See the appeal by Leonardo DiCaprio at "Leonardo DiCaprio's YouTube Message," YouTube —11thhouraction (29 May 2007).

[28] See YouTube – ClimateConference and the UNFCCC summary page including several embedded YouTube videos.

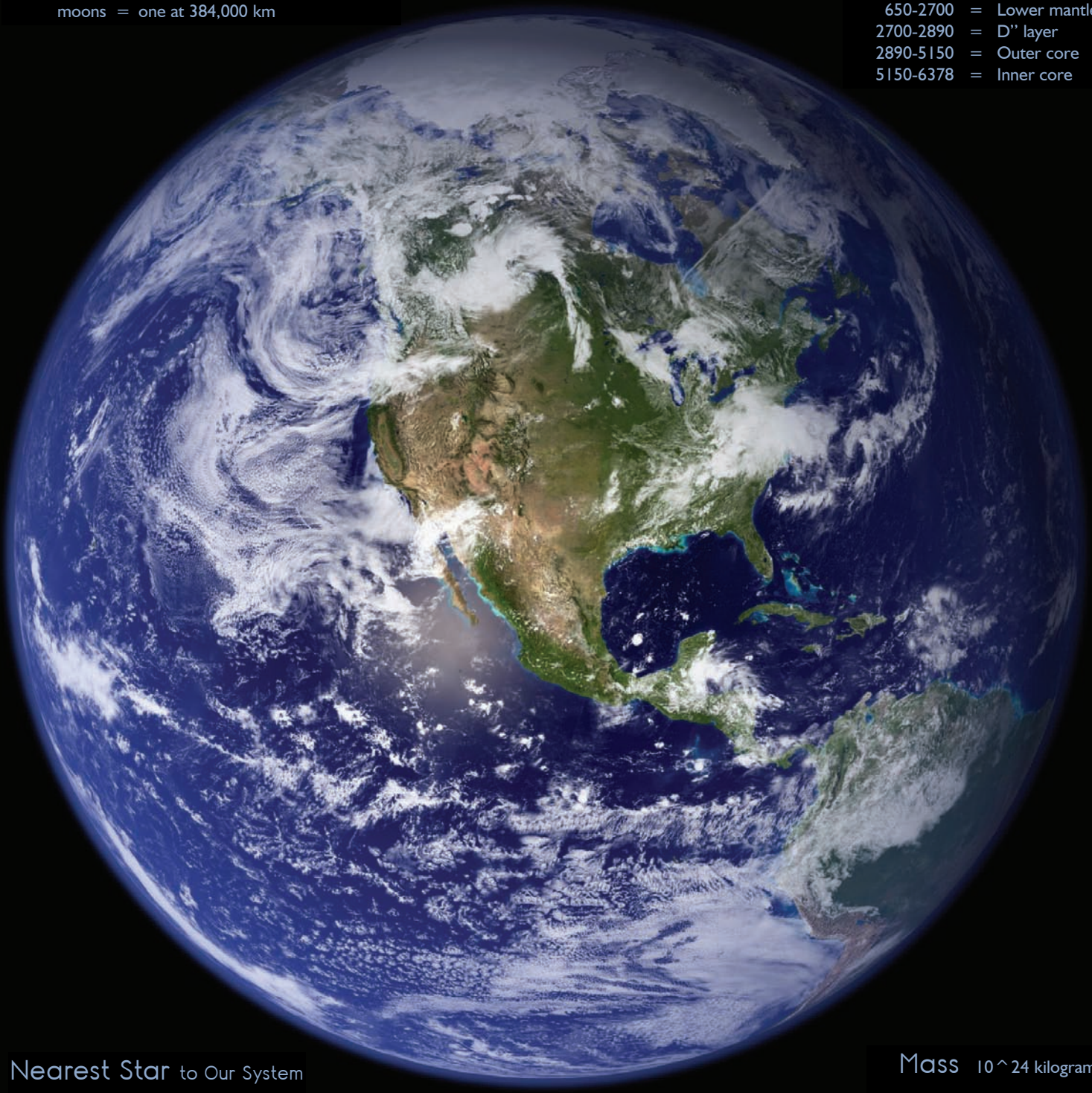
[29] See the PBS Newshour rebroadcast on 1 January 2008 of an earlier interview they conducted with Vandana Shiva, titled "Environmental Activist Questions the Goals of Globalization," PBS Newshour (1 January 2008 - originally broadcast on 23 March 2007).

Earth

orbit = 49,600,000 km (1.00 AU) from Sun
diameter = 12,756.3 km
mass = 5.972e24 kg
moons = one at 384,000 km

Layers, in km

mass = 5.972e24 kg
0- 40 = Crust
40- 400 = Upper manttle
400- 650 = Transition region
650-2700 = Lower mantle
2700-2890 = D'' layer
2890-5150 = Outer core
5150-6378 = Inner core



Nearest Star to Our System

Proxima Centauri
Distance: 4.2 years at the speed of light

Mass 10^24 kilograms:

atmosphere = 0.0000051
oceans = 0.0014
crust = 0.026
mantle = 4.043
outer core = 1.835
inner core = 0.09675

Visible Earth, Western Hemisphere, Courtesy NASA
<http://visibleearth.nasa.gov/view_rec.php?id=2429>

Earth Data: SEDS at Arizona State University Department of Planetary Science.
http://seds.lpl.arizona.edu/nineplanets/nineplanets/earth.html