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OA/ID Number: 29157
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Folder Title:
Global Warming 1990 (1 of 2) [1]

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Withdrawal/Redaction Sheet

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Doc. No. / Type	Subject/Title	Date	Restriction	Classification
01a. Paper	Tab A Re: The Environment (3 pp.)	8/28/90	(b)(1)	
01b. Report	Report of the Economic Analysis Group Re: Impact of the Oil Supply Situation (4 pp.)	8/14/90	(b)(1)	S
02. Report	Update on the UK, Global Change, and the U.S. (1 pp.)	8/31/90	(b)(1)	
03. Notes	Background notes on Science and Policy Issues Related to Global Change (drafted by Robert Corell) (5 pp.)	8/28/90	P-5	
04. Memo	From J.R. Spradley to John Knauss Re: IPCC-IV Meeting (2 pp.)	8/31/90	P-5	

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Collection:

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WHORM Cat.:
File Location: Global Warming 1990 (1 of 2) [1]

Pinksheet Number: KO0785
OA/ID Number: 29157-001
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George Bush Presidential Library Transfer Sheet

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The U.S. Global Change Research Program: An Assessment of the FY 1991 Plans

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Print Record

UNCLASSIFIED (with SECRET attachment)

THE WHITE HOUSE

WASHINGTON

August 28, 1990

MEMORANDUM FOR ROGER B. PORTER

FROM:

STEPHEN P. FARRAR *SPF*

SUBJECT:

Your Meeting with Prime Minister Thatcher

As you requested, attached is background material on the environment and energy for your meeting with Prime Minister Thatcher.

At Tab A is a paper summarizing the Houston Summit outcome, British views, and current and upcoming international meetings on the environment. The paper incorporates contributions from State, EPA, and OSTP.

At Tab B are talking points for a recent briefing Governor Sununu received from Alan Bromley and Robert Corell on new developments in the science of global change. It provides a useful checklist of issues.

At Tab C is the executive summary of a recent interagency study of the impact of the oil supply situation.

Let me know if you need additional information.

Attachments

UNCLASSIFIED (with SECRET attachment)

TAB A

August 28, 1990

THE ENVIRONMENTHouston Economic Summit

There was extensive discussion of environmental issues at Houston. President Bush argued for the need to strike a balance between economic growth and environmental considerations. Additional study of all sources and sinks of greenhouse gases is needed to achieve this balance. He also endorsed the concept of a forestry protocol.

Prime Minister Thatcher reviewed Britain's accomplishments in cleaning up the environment (reducing use of sulphur coal, cleaner water and beaches). Concerning greenhouse gasses, she acknowledged the uncertainty. She said that, while many countries are taking precautions, such as by limiting emissions of CO₂ and methane, we know relatively little about the costs of action and inaction. She did not press for endorsement of her offer (made in her May 25 speech opening the Hadley Center in Bracknell, Berkshire) to stabilize CO₂ at 1990 levels by the year 2005, provided other countries do the same.

Mrs. Thatcher helped the President at Houston by urging support for a World Bank initiative on biodiversity, aimed at preserving the Brazilian rain forest. Mitterrand and Kohl were pushing hard for Summit endorsement of EC rather than World Bank leadership of the Brazilian rain forest initiative.

At Houston, Summit leaders agreed to several steps on the environment, including:

- o Ask the World Bank, in close cooperation with the EC Commission, to prepare a comprehensive pilot program to counteract the threat to tropical rain forests in Brazil;
- o Begin negotiations, in the appropriate fora, on a global forest convention or agreement, to be completed no later than 1992;
- o Work to increase energy efficiency, to develop alternative energy sources, and to ensure the highest performance standards for nuclear energy; and
- o Expand cooperative scientific and economic research.

Status of Forestry Convention

Since Houston, the U.S. has offered to host a meeting early next year to begin discussions on a forestry convention. There is still no international consensus on the appropriate forum for the convention. The U.S. has supported a free-standing convention. The UN Food and Agriculture Organization (FAO) has proposed that the convention be developed within the FAO's framework.

The British Want to Work With Us on Global Change

Representatives of the British government have recently approached U.S. officials (OSTP, NSF, NASA) to urge closer cooperation on global change issues. They feel that the two countries are close on the substance and can effectively work together. Specifically, they proposed that we join together in preparing for the framework convention. Last week, Sir Terrance Heiser (Permanent Secretary, Department of the Environment) visited Washington to make this point. He is completing a White Paper on global change.

The U.K. and its scientific community have been strong supporters of global change research, including human dimensions and economic research. The Prime Minister is considered to be a strong advocate of basic research, including research on global change.

Ongoing Meeting: Intergovernmental Panel on Climate Change (IPCC)

The IPCC is meeting this week (August 27-30) in Sundsvall, Sweden to attempt to reach agreement on the threat of potential climate change and to provide options for addressing that threat. The U.S. is concerned that the draft report circulated prior to the meeting overstates the certainty of the scientific findings on the timing, magnitude, and regional distribution of climate change. In our view, the draft also does not adequately address many of the economic aspects of the issue, such as:

- o The lack of economic analysis of the impacts and proposed response strategies;
- o The need to take measures now which are justified in their own right;
- o The need to take a comprehensive approach which considers all greenhouse gases sources and sinks; and

- o The need to consider both the limitation of emissions and adaptation.

Another issue at the meeting is the role the IPCC should play as negotiations begin on a framework convention. The U.S. has urged that the IPCC serve as secretariat, rather than create a new organization or (as some developing countries prefer) use the UN General Assembly.

The IPCC functions under the auspices of the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP), both UN organizations.

Upcoming Meeting: Working Group on a Framework Convention

The WMO and UNEP are hosting a meeting of legal and technical experts on September 24-26 to begin preparations for negotiations on a framework convention on climate change. Our understanding is that the meeting will define the process through which such a convention should be developed. The U.S. has offered to host the initial session of the negotiations, probably in February 1991 in Washington. The U.S. position is that such a convention should remain focussed on "climate change" and should not be broadened to address the much wider range of issues associated with "global change".

Upcoming Meeting: Second World Climate Conference (SWCC)

The SWCC will take place in Geneva on November 6-7. (The first World Climate Conference was held in 1979, and resulted in the establishment of the World Climate Program and the World Climate Research Program.) Prime Minister Thatcher reportedly will head the British delegation.

A draft declaration has been circulated which raises many of the same concerns noted above for the IPCC draft. The U.S. has argued that the purpose of the declaration (consistent with the original goal of the conference) should be to address specific international needs and commitments for monitoring, detecting, and studying climate change, and for the free and open exchange of climate data.

Upcoming Meeting: Environment 1992

Environment 1992 will be held in Brazil in June, 1992. The first meeting of this kind was held in Stockholm in 1972, known as Environment '72. The U.S. participation was led by Russell Train (head of CEQ) and Howard Baker. One of the results of the meeting was the formation of the UNEP. It has been proposed that the U.S. appoint a "Special Ambassador" to oversee U.S. preparations for and participation in the meeting.

TAB B

Talking Points for Science Briefing on Global Change

KEY SCIENCE ISSUES (AUGUST 1990)

o GREENHOUSE GASES--SOURCES AND SINKS

- **CARBON SEQUESTRATION (CARBON DIOXIDE)**
 - * **OCEAN VS TERRESTRIAL BIOSPHERE**
- **METHANE**

o ROLE OF OCEAN IN CLIMATE

- **EL NINO/SOUTHERN OSCILLATION--INTERANNUAL TIMESCALES**
- **AIR-SEA COUPLING--DECADAL TIMESCALES**
 - * **NORTH ATLANTIC--THERMOHALINE FORCING**
 - * **ANTARCTIC HEAT UPTAKE**

o **EARTH SYSTEM MODELLING**

- **CLOUDS/RADIATION BALANCE/LIQUID WATER**
- **VALIDATION OF QUANTITATIVE OCEAN MODELS**
- **REGIONAL MODELS/PREDICTION--ENSO READY TO GO**
- **ROLE OF LAND SURFACE IN TRACE GASES, ENERGY
AND WATER EXCHANGE**
- **SNOWMASS INSTITUTE--FULLY-COUPLED SIMPLE MODELS
AVAILABLE IN 4-5 YEARS**

o **TRENDS**

- **LONG-TERM VARIABILITY IN TEMPERATURE WELL-DOCUMENTED**
- **OBSERVED INCREASE IN TEMPERATURE OVER LAST ONE HUNDRED YEARS; CAUSE AND EFFECT NOT ESTABLISHED**
- **DETECTION OF PREDICTED ANTHROPOGENIC WARMING WILL TAKE 10 TO 50 YEARS**
- **SEA LEVEL RISE-ROLE OF POLAR ICE SHEETS UNCERTAIN**
- **RESPECTIVE CONTRIBUTIONS OF DEFORESTATION-TROPICAL AND MID-LATITUDE UNCERTAIN**

o **RESEARCH PRIORITIES**

- **CARBON CYCLE**
- **GLOBAL WATER AND ENERGY CYCLES**
- **GLOBAL MODELS WITH REGIONAL RESOLUTION**
- **ECOSYSTEMS AND POPULATION DYNAMICS**

TAB C

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Report of the

ECONOMIC ANALYSIS GROUP

on the

IMPACT OF THE OIL SUPPLY SITUATION

August 14, 1990

Participating Agencies:

Central Intelligence Agency
Council of Economic Advisors
Economic Policy Council
Department of Energy
Energy Information Administration
Federal Reserve Board
National Security Council
Office of Management and Budget
Office of the Vice President
Department of State
Department of the Treasury
White House Office of Policy Development

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EXECUTIVE SUMMARY

Against the background of the loss 4.3 million barrels per day ("mmbd") of Kuwaiti and Iraqi oil, this report analyzes the economic effects of several alternative oil supply scenarios. These scenarios cover a range of net supply losses, without addressing the likelihood of any particular scenario.

Offsets to Loss of Supply

- o Increased Production: There is enough available unused oil production capacity worldwide to offset the loss of Kuwaiti and Iraqi oil, assuming all such capacity were brought on stream.
- o Excess Stocks: Substantial excess stocks exist worldwide which could be used to make up a supply shortfall.
- o The combination of potential increased production and potential stock usage more than equals the 4.3 mmbd loss from Kuwait and Iraq. However, this paper addresses only the technical availability of production capacity and stocks to offset supply losses. It does not address the likelihood that these potential sources of supply will actually come on stream on a timely basis.

Reduced Demand

- o Demand will decrease due to lower economic activity, fuel switching and reduced consumption. However, any stockpiling or hoarding could offset demand reductions.

Domestic Economic Effects

- o The economic effects of loss of Kuwaiti and Iraqi oil will depend principally on the duration of the supply loss and the extent to which the loss is offset by other supplies and various market factors.
 - A three month supply loss of 1.5 mmbd (about 1/3 of combined Kuwait-Iraq supply) would have a short-term effect on economic growth, but the economy would be expected to recover quickly with a negligible effect when averaged over a full year.
 - A six month net supply loss of 1.5 mmbd would likely reduce annual growth by 0.2-0.5%, increase inflation by 0.4-0.7%, and increase unemployment by 0.1-0.2%.
 - A full year net supply loss of 2.9 mmbd (about 2/3 of combined Kuwait-Iraq supply) would likely reduce growth by 1.0-2.1%, increase inflation by 1.6-3.1%, and increase unemployment by 0.4-0.8%.

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Global Economic Effects

o Other Major Industrial Countries ("G-6"):

- Lower real GNP growth: Growth would be reduced by 0.5% for a 1.5 mmbd loss over 1 year; 1.0% for a 2.9 mmbd loss over 1 year. Negative consequences are less than for the U.S. because of a smaller energy to output relationship for the G-6.
- Inflation: Inflation rates would rise 0.75% for the 1.5 mmbd loss, and 1.3% for the 2.9 mmbd loss. Smaller increases for G-6 are due to lower energy use relative to GNP, smaller increases in retail prices due to higher excise taxes, and currency appreciation.
- Current accounts: Japan's surplus would be reduced noticeably. The U.K. as a net exporter would see a moderately smaller deficit.

o Developing Countries (Impact on Current Account Balances):

- Losers: Among the larger economies of the 20 losers, Philippines and Turkey would be hardest hit. Other major losers would include: Brazil, India, Korea and Ivory Coast.
- Winners: Nigeria and Venezuela would be primary beneficiaries. Other winners would include: Egypt, Mexico, Colombia and Indonesia.

o Eastern Europe:

- Increased oil import bill would sharply reduce GDP, increase inflation, and worsen current accounts; it would also cut deeply into debt service capability.
- Soviet shift to both world prices and hard currency settlement for oil imports in 1991 would greatly intensify these effects.

o Soviet Union:

- Soviet oil export revenues would benefit greatly, as would gas export revenues (\$3 billion last year) which rise by roughly same percentage as oil prices.

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TABLE 1
OIL PRODUCTION AND EXCESS CAPACITY ^{1/}
(millions of barrels per day)

Country	Production		Capacity		
	July	August	Sustained	Excess	Additional Surge
OPEC					
Saudi Arabia	6.2	6.2	8.2	2.0	.2
Iran	2.9	3.0	3.2	0.2	.2
U.A.E.	2.1	1.7	2.3	0.6	.2
Qatar	0.4	0.4	0.4	---	
Algeria	1.1	1.1	1.2	0.1	
Ecuador	0.3	0.3	0.3	---	
Gabon	0.3	0.3	0.3	---	
Indonesia	1.4	1.4	1.4	---	
Libya	1.3	1.3	1.6	0.3	
Venezuela	2.3	2.3	2.5	0.2	
Nigeria	<u>1.6</u>	<u>1.6</u>	<u>1.8</u>	<u>0.2</u>	<u>.1</u>
SUBTOTAL	19.9	19.5	23.3	3.6	.7
Iraq	3.0	0.4			
Kuwait	1.8	0.0			
TOTAL	24.7	19.9	23.3	3.6	.7
United States	8.8	8.8	9.0	0.2	
Other	<u>19.4</u>	<u>19.4</u>	<u>19.9</u>	<u>0.5</u>	---
TOTAL	52.9	48.1	52.2	4.3	.7

^{1/} Technically achievable production levels which do not reflect considerations such as availability of tankers and qualified personnel, and without regard to policy constraints. The conditions required for achievement of these production levels are not analyzed in this report, nor is Iraqi and Kuwaiti capacity considered.

Observations

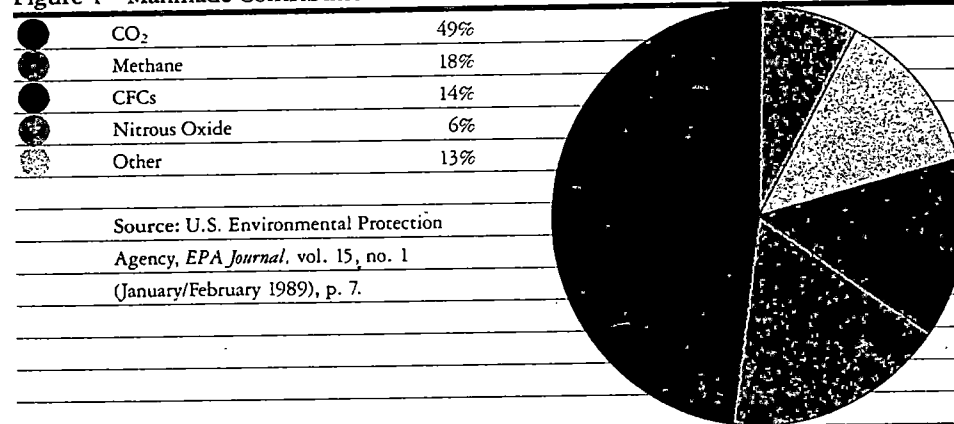
- o Enough worldwide oil production capacity existed as of August 2 to offset the loss of Kuwaiti and Iraqi oil supplies (4.3 mmbd), if all available unused capacity were brought on stream.
- o "Surge" production levels are levels that can only be sustained for 1-2 months without damaging fields; output would decline thereafter until maintenance operations were performed.

Table 2 Global Carbon Dioxide Balance

Carbon Dioxide Released Source	Amount per Year (in 10 ⁹ tons)	Percentage
Natural Sources		
Oceans (Ocean-atmosphere interactions, upwelling from deep oceans)	381	60
Land (Biological decomposition releases from soils, forest fires)	216	36
Total Natural Sources	597	96
Human Sources		
Fossil fuel use (Utilities, automobiles, heating, etc.)	18	3
Land use (Deforestation)	7	1
Total Human Sources	25	4
Total from all Sources	622	100
Carbon Dioxide Removed Source		
Ocean (Ocean-atmosphere interactions, photosynthesis, biological activity)	392	63
Land (Photosynthesis)	220	35
Total	612	98
Carbon Dioxide Accumulated in Atmosphere		
Total	10	1

Source: Florentin Krause et al., *Energy Policy in the Greenhouse* (El Cerrito, Calif.: International Project for Sustainable Energy Paths, 1989), p. 1.3-28.

Figure 4 Manmade Contributions to the Greenhouse Effect in the 1980s



While the science of global climate change is relatively new, studies have been conducted to examine the potential effects of a global temperature increase. These studies indicate that a doubling of atmospheric carbon dioxide could result in far-reaching—even disastrous—changes in the earth's climate. EPA's report to Congress, *The Potential Effects of Global Climate Change on the United States*, compiles data from numerous studies and analyzes the results region by region and sector by sector. The numerous

effects described in the report suggest that global climate change may be among the greatest threats humanity has ever faced.

Water Resources

Significant global temperature increases could cause more frequent and more severe droughts and floods. It is not yet known whether an increase or decrease in average rainfall is likely to result from the greenhouse effect, but most

predictions point to increases in extreme weather events such as droughts and floods.¹⁵ The regional and seasonal distribution of rainfall may also shift. Several studies suggest that mid-continental areas—such as the American Midwest—will become drier.

Other effects could include:

- Greater demand for water and decreasing supply. Irrigation and electric power production could be adversely affected in many areas.
- Lower river flows, negatively affecting hydropower, navigation, aquatic ecosystems, wildlife, and recreation.
- Earlier winter melts and the replacement of snow with rain, exacerbating seasonal flooding problems.
- Greater variability in the levels of rivers and lakes between months and years, which greatly complicates water management.
- Decreased water quality due to lower river flows and lake levels.

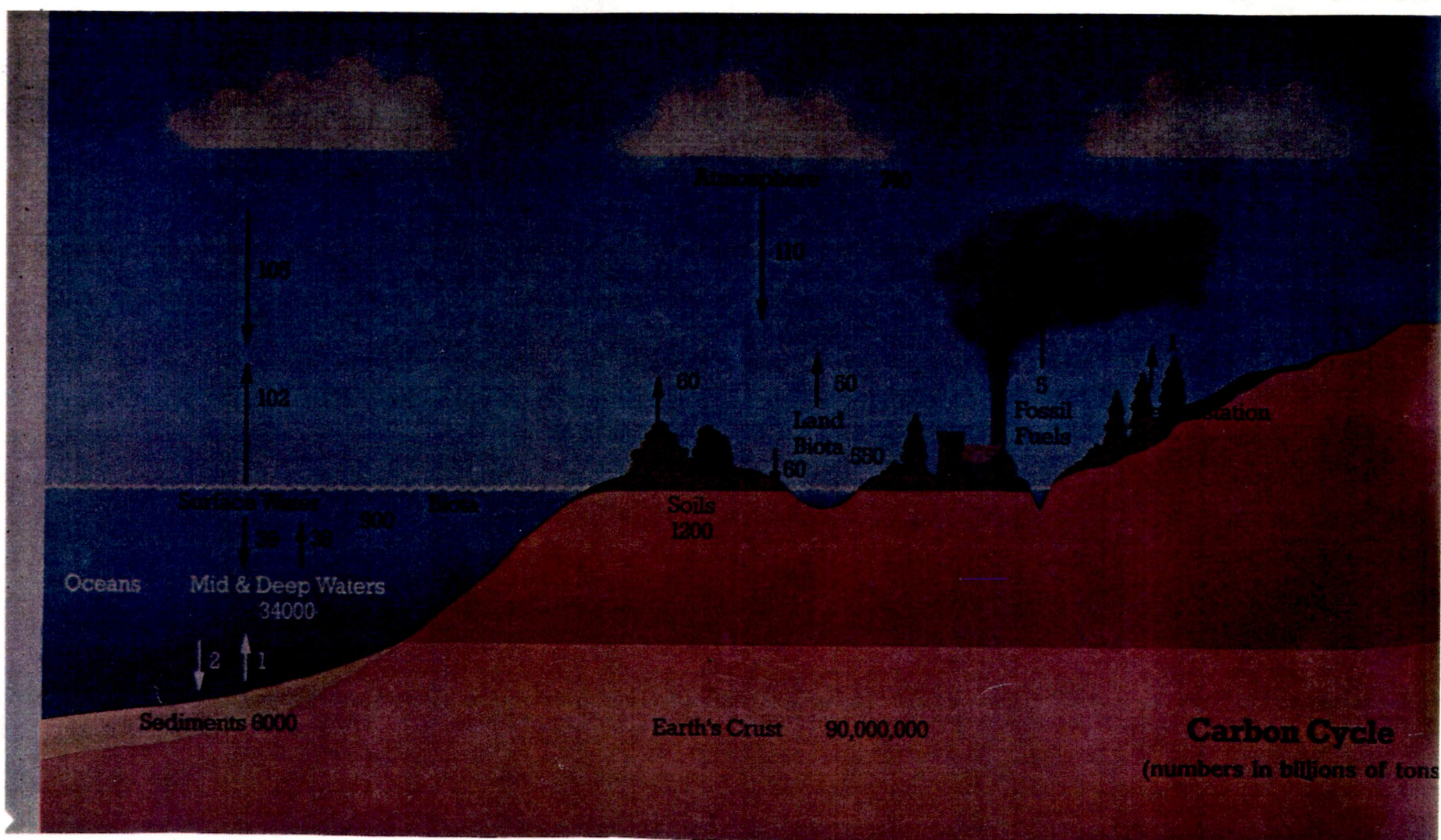
As mentioned earlier, today's state-of-the-art climate models cannot confidently predict regional climate change effects. The regional data that exists indicates that areas that currently experience water supply difficulties would face even greater problems associated with global warming.

Agricultural Changes

The effects of global warming on agriculture are uncertain but potentially serious.¹⁶ The stress from increased heat, lower moisture, irrigation pressures, and expanded pest ranges must be balanced against any potential improvements in plant growth that result from increased concentrations of carbon dioxide and

"Global climate change poses a wide-ranging threat to the entire world. We must take reasonable steps now to reduce this threat and at the same time achieve other benefits such as increased energy efficiency and cleaner air."

- Governor James R. Thompson
Illinois



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PAGE.001

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

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FAX Transmittal Sheet

DATE: 31 Aug '90

TO: Governor Sununu
ORGANIZATION: US Embassy London
Winfield House
TELEPHONE: _____
FAX: 011 44 71 262 5596

FROM: William S. Busch
ORGANIZATION: OFFICE OF SCIENCE AND TECHNOLOGY POLICY
TELEPHONE: (202) 395-3817
FAX: 202-395-3719

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file

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
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August 28, 1990

MEMORANDUM TO STEPHEN FARRAR
SPECIAL ASSISTANT TO THE PRESIDENT FOR
POLICY DEVELOPMENT AND ASSOCIATE DIRECTOR FOR
INTERNATIONAL ECONOMIC POLICY

FROM: NANCY MAYNARD *NM*
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

ROBERT W. CORELL *RC*
NATIONAL SCIENCE FOUNDATION

SUBJECT: REFERENCE MATERIAL ON GLOBAL CHANGE FOR MEETING
WITH PRIME MINISTER THATCHER

In preparation for the upcoming meeting with Prime Minister Thatcher, we have put together some reference materials for Drs. Sununu and Porter. Included is a set of background notes on major upcoming events or meetings on global change as well as some information from recent conversations with representatives of the UK government to provide clues to their current thinking. If you have any questions, please do not hesitate to call.

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PAGE.003

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Update - The UK, Global Change, and the US

1. Representatives from the British government have recently approached several of us (OSTP, NSF, NASA) to urge that the US and UK work much more closely on the issue of global change because they feel that we are not very far apart on the substance of the issue and that we can make alot more progress on essentially common interests if we work together. Specifically, they feel quite strongly that we should join together in our preparations for the Framework Convention in order to negotiate an agreement which is most acceptable to both countries.

*** Last week, in fact, Sir Terrance Heiser (Permanent Secretary, Dept. Environment) was in Washington and made a point to meet with EOP and agency people on the need for the 2 countries to work together as we approach the Framework Convention negotiations and the Second World Climate Conference. (He was very interested in both President Bush's and Dr. Sununu's views on various aspects of global change.)

Specifically, he noted that they feel quite strongly that we should join together in our preparations for the Framework Convention in order to negotiate an agreement which is most acceptable to both countries.

- . They assume that we, like they, want to negotiate a Vienna-type Convention with protocols. (If we do not plan to follow this model, we may want to consider working with them to plan a joint strategy.)
- . They think we should be working on the Protocols within the near future (e.g., a Science Protocol)
- . Sir Heiser is just completing a government white paper on "UK Policy on Global Change"; however, we haven't been able to get a copy or any hint of its substance.

Withdrawal/Redaction Sheet

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03. Notes	Background notes on Science and Policy Issues Related to Global Change (drafted by Robert Corell) (5 pp.)	8/28/90	P5	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
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WHORM Cat.:
File Location: Global Warming 1990 (1 of 2) [1]

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(Document Follows)
By JP (NLGB) on 10/28/05

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Re-review Case #:	2005-0426-S	Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

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(b)(9) Release would disclose geological or geophysical information

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PAGE.004

Photo Copy Preservation**Background Notes
on
Science and Policy Issues Related to Global Change
(August, 1990)****MAJOR EVENTS OR MEETINGS:****IPCC - The Intergovernmental Panel on Climate Change (IPCC)**

The IPCC is holding its fourth Plenary Session in Sundsvall, Sweden, August 27-30, 1990. The IPCC functions under the auspices of the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP), both UN organizations. The principle agenda items of the meeting are:

1. Approve the Final IPCC Report, in particular the Policymakers Summary. The U.S. position on the Policymakers Summary, also known as the July 1990 Draft "IPCC Overview and Conclusion Summary" was articulated to the IPCC Chairman, Dr. Bert Bolin, in a letter from Dr. Fred Bernthal dated August 20, which stated that the U.S. position on the Overview and Conclusions Summary is "that the careful balance which was struck in the Working Groups and conveyed in their Reports has not been maintained in this draft." The U.S. suggested to Bolin that "you may wish to consider a significantly shorter Overview and Conclusions document, drawing heavily on the three executive summaries (taken from the three IPCC Working Group Reports on Science, Impacts, and Response Strategies) to which the underlying summaries for Policymakers would be attached." A telephone report from Dr. Robert Watson who is the lead scientist on the U.S. delegation in Sundsvall indicates:
 - o As of Monday night, only broad delegation statements and general talks (Obasai and Tolba) had been made.
 - o Watson had gone over US comments with Bolin and thought there was a good chance our points will be incorporated but cautioned that it was early in the meeting to predict outcome. He will try to call in each day for update.
2. Consider the future workplan and structure of the IPCC.

There are several other items that may be considered at the Sundsvall IPCC meeting, including the fact that the Noordwijk ministerial meeting on climate change approved a "remand" that specifically requested the IPCC to provide inputs to the Second World Climate Conference (

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October 29, November 7, 1990) concerning greenhouse gas emissions targets. The other issue that is likely to be addressed is the Framework Convention on Climate Change that is proposed for February 1991, and which the President Bush has indicated the U.S. will host.

WMO - UNEP MEETINGS

The WMO and UNEP have scheduled several important meetings in September.

Ad Hoc Working Group of Government Representatives to Prepare for Negotiations on a Framework Convention on Climate Change

Secretary-General Obassi of the WMO and Executive Director Tolba of the UNEP have invited governments to send "legal and technical experts" to an "open-ended" ad hoc meeting on 24-26 September 1990 in Geneva to assist Messrs. Obasi and Tolba "begin preparations for negotiations on a framework convention on climate change . . . taking into account (the recent) work of the IPCC". The United States has not yet received an agenda and other documentation for this meeting.

Nevertheless, the present U.S. understanding is that this meeting will define the process through which such a convention should be developed. It is expected that the U.S. offer to host the initial session of the negotiations, probably in February 1991 in Washington. The U.S. position is that such a convention should remain focussed on "climate change" and should not be broadened to address the much wider range of issues associated with "global change".

It may be important to note that Prime Minister Thatcher has proposed that the United Kingdom stabilize carbon dioxide emissions by the year 2005 at 1990 levels, if other countries are willing to do so as well.

International Coordination of Global Change Research

The international global change research effort has concentrated to date on physical and natural sciences research. Research on the "human dimensions" and economics of global change is being slowly but effectively fed into this effort. The physical and natural sciences components are well-coordinated at the international level, primarily by the WMO and ICSU through the World Climate Research Programme (WCRP) and the International Geosphere-Biosphere Programme (IGBP).

ICSU has convened a series of major meetings on the IGBP on 3-7 September 1990 in Paris. The scientific communities of both the U.K.

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and the U.S. will be solidly represented at these meetings. ICSU has also recently established a new advisory committee to assist ICSU to identify and fill any gaps which might exist between the WCRP and the IGBP in addressing the full range of global research needs.

Governmental agencies which fund global change research in a number of countries have begun meeting twice a year on a relatively informal basis to review the status of such funding on a truly international level. This Group is called the International Group of Funding Agencies for Global Change Research (IGFA), the UK member of which is Dr. Eileen Buttle, Head of NERC, and the U.S. member is Dr. Robert Corell, Chairman of the US/Global Change Research Program Working Group of CES. A key objective of this Group is to identify any important needs for research and/or supporting technology which are not being met and to assure that these needs are met through appropriate existing national funding mechanisms. The U.S. CEES initiated this effort in response to advice from ICSU. The CEES hosted the first meeting in January of 1990; the FRG hosted the second in July of 1990; and the U.K. will host the third in February of 1991.

The U.K. and its scientific community have been and are expected to continue to be strong supporters of global change research, including human dimensions and economic research. The Prime Minister is considered to be a strong advocate of basic research, including research on global change.

SECOND WORLD CLIMATE CONFERENCE (October 29 - November 7, 1990)

The Second World Climate Conference will be held in Geneva, Switzerland, October 29 - November 7, 1990. The First World Climate Conference was held in Geneva, in 1979, and resulted in the establishment of the World Climate Program, and the World Climate Research Program, one of the key components in the global change research programs in the U.S. and in other countries. The Second World Climate Conference is divided into two parts, a scientific meeting of experts and a ministerial meeting. The major purposes of the two meetings are:

Scientific Meeting (Attended by Experts, no delegation):

- o "To create an awareness through specific case studies or examples drawn from experience in the World Climate Programme or the economic of climate and benefits from climate applications"

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o "To assess the current state of knowledge on the global issues of climate change and greenhouse gases, and requirements for future scientific activity and implications for public policy"

U.S. attendees include scientists and representatives of government offices and agencies, including the CES, and scientists and experts from the non-governmental science community.

Ministerial Meeting (There will be country delegations):

o The Ministerial part of the SWCC will be held in Geneva November 6-7, 1990. It is expected to culminate in the adoption of a declaration, a draft of which was sent to governments on July 14, 1990 by WMO Secretary General Obasi. The draft declaration has been made available to all interested US agencies and discussed at two interagency meetings in early August. US comments should have been returned to Obasi as well as specific amendments by August 24th so another version of the declaration can be prepared for the preparatory meeting scheduled to take place in Geneva September 27-29, 1990.

o US concerns about the declaration have been transmitted in a letter to Obasi from Under Secretary McCormack. Essentially they are:

*** the primary thrust of the declaration should be closely connected with needs and commitments for monitoring, detecting and studying climate change,**

*** SWCC is an appropriate forum for launching international cooperation in understanding climate change and related issues such as - global radiation balance, cloud amounts and types, the role of oceans, chemical reactions in the atmosphere, and economic aspects,**

*** significant uncertainties regarding timing, magnitude, and regional aspects of climate change are not made clear,**

*** many statements regarding policy actions are premature and prejudice the outcome of the future negotiations on a framework convention on climate**

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change,

* there should be a focus on widespread implementation of measures that are beneficial in their own right as well as beneficial from a climate change viewpoint,

* areas where further scientific and economic work is needed should be identified.

There have been indications that as many as ten Heads of State may address or attend the Ministerial portion of the SWCC, including Prime Minister Thatcher. The level of participation and specific individuals for a U.S. delegation have not been decided.

ENVIRONMENT 1992 - A Meeting of Major Importance in Brazil in 1992

The meeting will be held in Rio in June of 1992. U.S. preparation are being coordinated through a Policy Coordinating Committee (PCC), chaired by the DOS.

The first meeting of this kind was held in Stockholm in 1972, known as Environment '72. The U.S. participation was lead by a team of Russell Train, as Head of CEQ, and Howard Baker, who at that time was a Congressman. We understand that neither Baker nor Train held the title of Ambassador, though we are still checking these facts. One of the most important results of this meeting was the formation of the United Nation Environment Program (UNEP).

It has been proposed that the U.S. appoint a "Special Ambassador to oversee the complex U.S. efforts required to be successful at the meeting" and to serve as head of the U.S. delegation. OMB has the lead to consider this proposal.

SCIENCE ISSUES

The major new developments in the science of global change were discussed at a recent briefing, lead by Drs. D. Allan Bromley and Robert W. Corell. The Talking Points for this briefing are appended.

Drafted by Robert W. Corell
August 28, 1990

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Talking Points for Science Briefing on Global Change

KEY SCIENCE ISSUES (AUGUST 1990)

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- o **GREENHOUSE GASES--SOURCES AND SINKS**
 - **CARBON SEQUESTRATION (CARBON DIOXIDE)**
 - * **OCEAN VS TERRESTRIAL BIOSPHERE**
 - **METHANE**
- o **ROLE OF OCEAN IN CLIMATE**
 - **EL NINO/SOUTHERN OSCILLATION--INTERANNUAL TIMESCALES**
 - **AIR-SEA COUPLING--DECADAL TIMESCALES**
 - * **NORTH ATLANTIC--THERMOHALINE FORCING**
 - * **ANTARCTIC HEAT UPTAKE**

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*Photo Copy Preservation***o EARTH SYSTEM MODELLING**

- CLOUDS/RADIATION BALANCE/LIQUID WATER
- VALIDATION OF QUANTITATIVE OCEAN MODELS
- REGIONAL MODELS/PREDICTION-ENSO READY TO GO
- ROLE OF LAND SURFACE IN TRACE GASES, ENERGY AND WATER EXCHANGE
- SNOWMASS INSTITUTE-FULLY-COUPLED SIMPLE MODELS AVAILABLE IN 4-5 YEARS

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Photo Copy Preservation**o TRENDS**

- **LONG-TERM VARIABILITY IN TEMPERATURE WELL-DOCUMENTED**
- **OBSERVED INCREASE IN TEMPERATURE OVER LAST ONE HUNDRED YEARS; CAUSE AND EFFECT NOT ESTABLISHED**
- **DETECTION OF PREDICTED ANTHROPOGENIC WARMING WILL TAKE 10 TO 50 YEARS**
- **SEA LEVEL RISE-ROLE OF POLAR ICE SHEETS UNCERTAIN**
- **RESPECTIVE CONTRIBUTIONS OF DEFORESTATION-TROPICAL AND MID-LATITUDE UNCERTAIN**

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o **RESEARCH PRIORITIES**

- **CARBON CYCLE**
- **GLOBAL WATER AND ENERGY CYCLES**
- **GLOBAL MODELS WITH REGIONAL RESOLUTION**
- **ECOSYSTEMS AND POPULATION DYNAMICS**

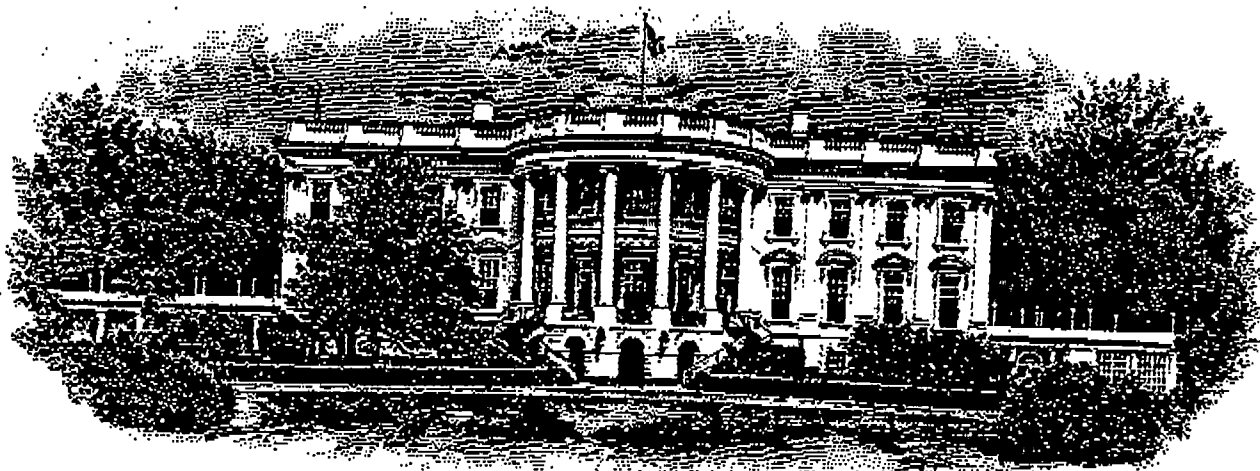
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THE WHITE HOUSE HOUSE
WASHINGTON

FACSIMILE TRANSMISSION

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FROM: Wm. F Busch, OSTP

TO: Governor Sununu

Number of Pages including this header 3

Note Dr. Bromley asked that this
be forwarded to you as soon as possible.

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
04. Memo	From J.R. Spradley to John Knauss Re: IPCC-IV Meeting (2 pp.)	8/31/90	P5	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: Issues Files
WHORM Cat.:
File Location: Global Warming 1990 (1 of 2) [1]

Open on Expiration of PRA
(Document Follows)

By JP (NLGB) on 10/28/05

Date Closed: 12/20/2004	OA/ID Number: 29157-001
FOIA/SYS Case #: 1998-0004-F[1]	Appeal Case #:
Re-review Case #: 2005-0426-S	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
 P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
 P-3 Release would violate a Federal statute [(a)(3) of the PRA]
 P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
 P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
 P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

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Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
 (b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
 (b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
 (b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
 (b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
 (b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
 (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
 (b)(9) Release would disclose geological or geophysical information

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ATTN: E. Bieby 2017 / ITS

ID:

SID 1

Fax Message to Dr. John Knauss, Undersecretary of Commerce for
Oceans and Atmosphere

Fax: 202-377-8203

Also, please pass to Dr. E.W. Friday, Jr., Assistant
Administrator for

Weather Services

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Fax: 301-587-4524

By Thursday at 6 PM, the IPCC-IV had only completed work on the scientific part of the Executive Summary of the Overview and Conclusions document as well as about 20 pages of the main text. The impacts part of the Executive Summary was available in draft but had not yet been discussed in plenary while the response strategies part was being hotly debated word for word in plenary. A working group meeting was unable to produce a draft of the response strategies part of the document after three hours discussions the evening before.

Most delegates still feel that an executive summary can be finished by 11 PM despite the departure at 6 PM of the interpreters and a few of the delegates who had originally expected the session to conclude by noon. The First Assessment Report may consist of the agreed Executive Summary plus five annexes: the three Policymakers Summaries, the report of the developing countries, and the legal measures paper.

Some delegations (notably USSR, Brazil, and Saudi Arabia) proposed a 3-day meeting in September in Geneva before the preparatory meeting for the framework convention to finish the main text of the Overview and Conclusions with the idea that the Executive Summary would be issued as a report of this meeting only. The Western Europeans, the U.S. and others were not in favor of this additional meeting. Most felt that it would look bad to leave this meeting without an IPCC Report of some form.

The conduct of the meeting left much to be desired. Perhaps entertaining written comments before the meeting and coming in with new text with comments would have made things go more smoothly. Because of the many U.S. interventions, we are being perceived as obstructionists to the production of a report by other delegations and the press. By Thursday, the number of U.S. interventions had been greatly reduced leaving most comments to be made by others first, but the obstructionist perception persisted and whatever intervention was made by the U.S. was usually debated strongly by others.

A lot of hallway discussion took place regarding the preparations for the framework convention including the chairman and secretariat, and the drafting session for the SWCC ministerial declaration and its chairman. The U.S. passed out its own draft for the SWCC ministerial declaration and found much sympathy for our approach especially among the several WHO Perm Reps at this meeting.

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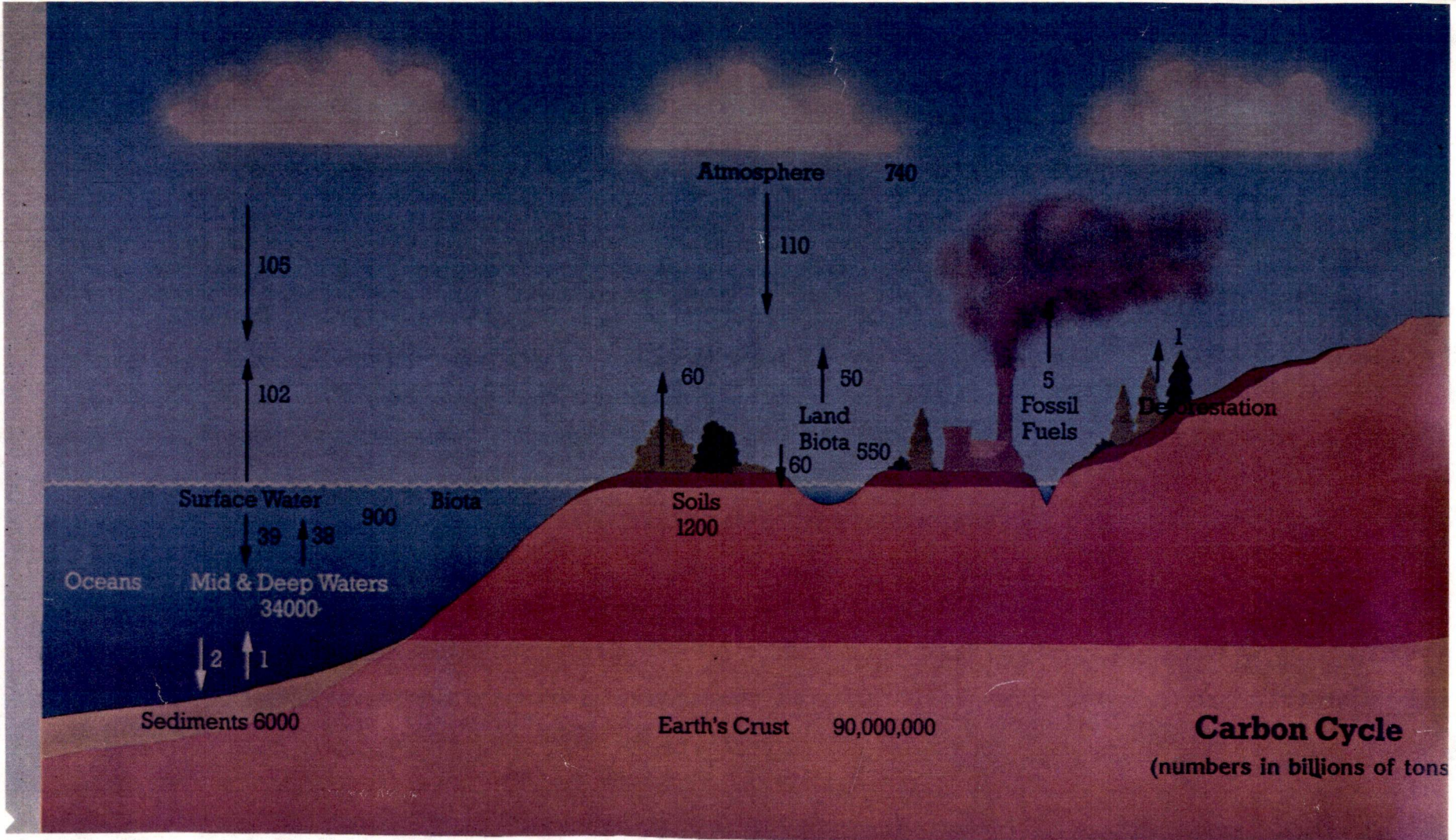
- 2 -

While the exact handling of the secretariat for the framework convention was unresolved, Tolba had suggested that it be split between WMO and UNEP while Obasi wanted it to be at WMO headquarters for economy of effort, making use of the vacated offices of the SWCC Coordinating Office after December 1990.

The likely chairman for the framework convention preparatory meeting will be Topkov (Bulgaria) who is the current UNEP Governing Council Chairman. The likely co-chairman for the drafting session for the SWCC ministerial declaration will be Zou (China), WMO President and Topkov.

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J. R. Spradley
Martin C. Verg, Jr.



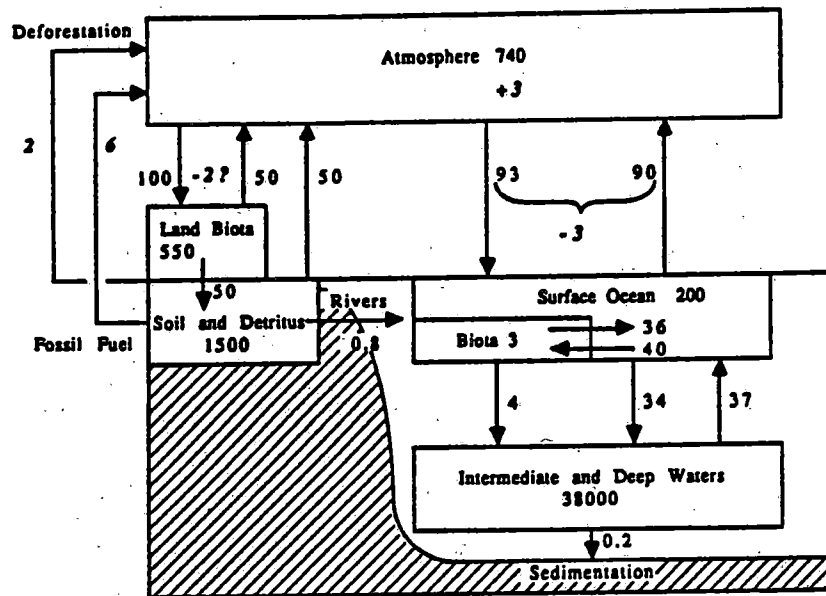


Figure 1: Global carbon reservoirs and fluxes. The numbers apply for the present-day situation and represent typical literature values. Fluxes, e.g. between atmosphere and surface ocean, are gross annual exchanges. Numbers in bold-face italics indicate net annual perturbation fluxes to the atmosphere and annual atmospheric CO_2 increase due to human action. Units are gigatons of carbon (GtC ; $1\text{Gt} = 10^9$ metric tons $= 10^{12}\text{kg}$) for reservoir sizes and GtC yr^{-1} for fluxes. More details and discussions are found in several reviews (Sundquist, 1985; Trabalka, 1985; Bolin, 1986; Siegenthaler, 1986).

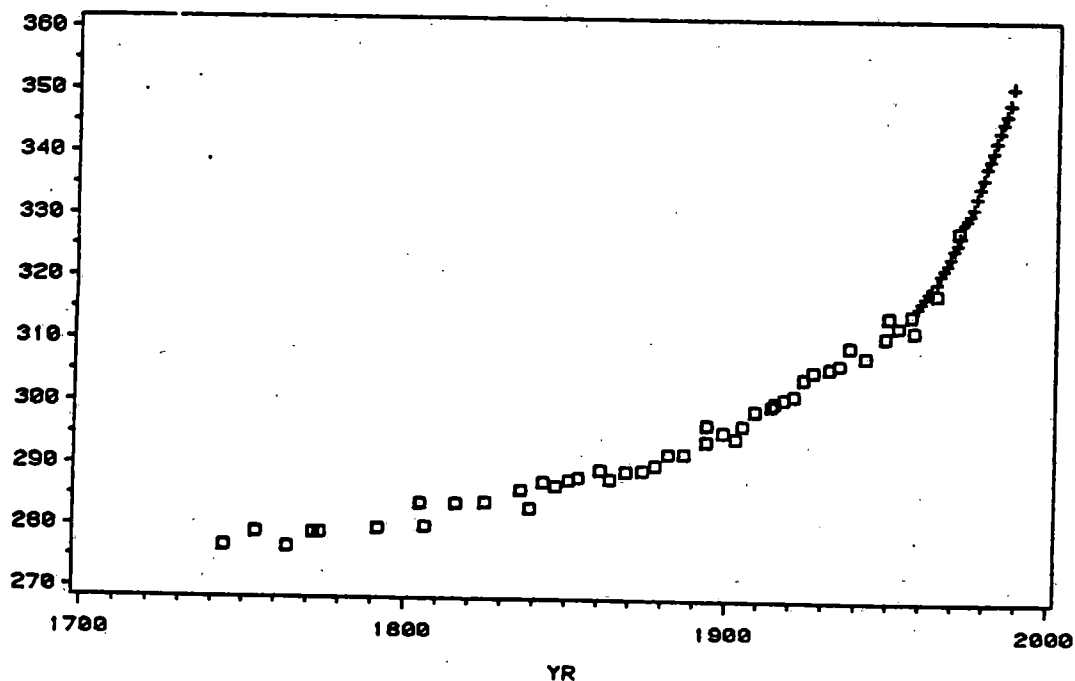


Figure 2: Atmospheric CO_2 increase in the past 200 years, as indicated by measurements on air trapped in ice from Siple Station, Antarctica (squares; Neftel et al., 1985a; Friedli et al., 1986) and by direct atmospheric measurements at Mauna Loa, Hawaii (crosses; Keeling, et al., 1989). Units: parts per million by volume (ppmv).

GLOBAL WARMING POTENTIALSThe warming effect of an emission of 1kg of each gas relative to that of CO₂

	time horizon		
	20 yr	100 yr	500 yr
Carbon dioxide	1	1	1
Methane	63	21	9
Nitrous oxide	270	290	190
CFC11	4500	3500	1500
CFC12	7100	7300	4500
HCFC22	4100	1500	510

Global Warming Potentials for a range of CFCs and potential replacements are given in the full text

Although the table shows carbon dioxide to be the least effective greenhouse gas on an equal emissions basis, the warming effect will depend on the size of emissions. In the example shown below, 1990 emissions of carbon dioxide will contribute well over half the man-made warming effect over the next 100 years.

THE RELATIVE CUMULATIVE CLIMATE EFFECT OF 1990 EMISSIONS

	GWP (100yr horizon)	1990 emissions (Tg)	relative contribution over 100yr
carbon dioxide	1	26000†	61%
methane	21	300	15%
nitrous oxide	290	6	4%
CFC11	3500	0.3	2%
CFC12	7300	0.4	7%
HCFC22	1500	0.1	0.4%

Others (including indirect effects, eg that of NO₂ on surface ozone) 10.6%

†26000Tg of carbon dioxide = 7Gt of carbon

The term "atmospheric stabilisation" is often used to describe the limiting at present day values of the concentration of the greenhouse gases. The amount by which man-made emissions of a greenhouse gas must be reduced in order to achieve this is shown in the box below.

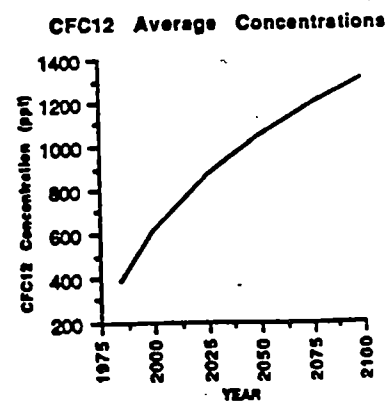
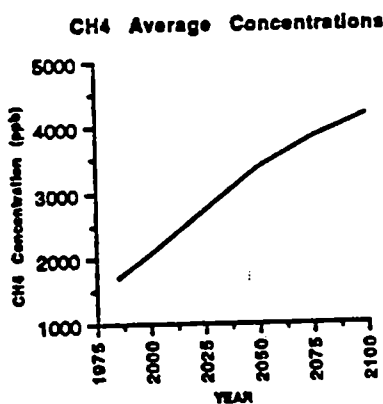
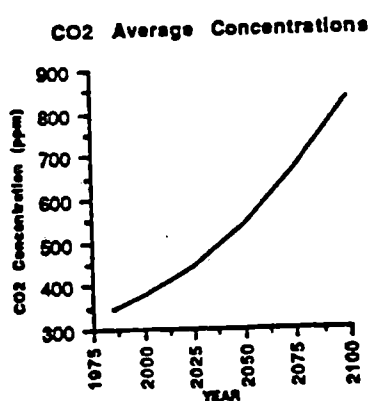
STABILISATION OF ATMOSPHERIC CONCENTRATIONS

Reductions in the man-made emissions of greenhouse gases required to stabilise concentrations at present day levels:

Carbon Dioxide	60 - 80%
Methane	15 - 20%
Nitrous Oxide	70 - 80%
CFC11	70 - 75%
CFC12	75 - 85%
HCFC22	40 - 50%

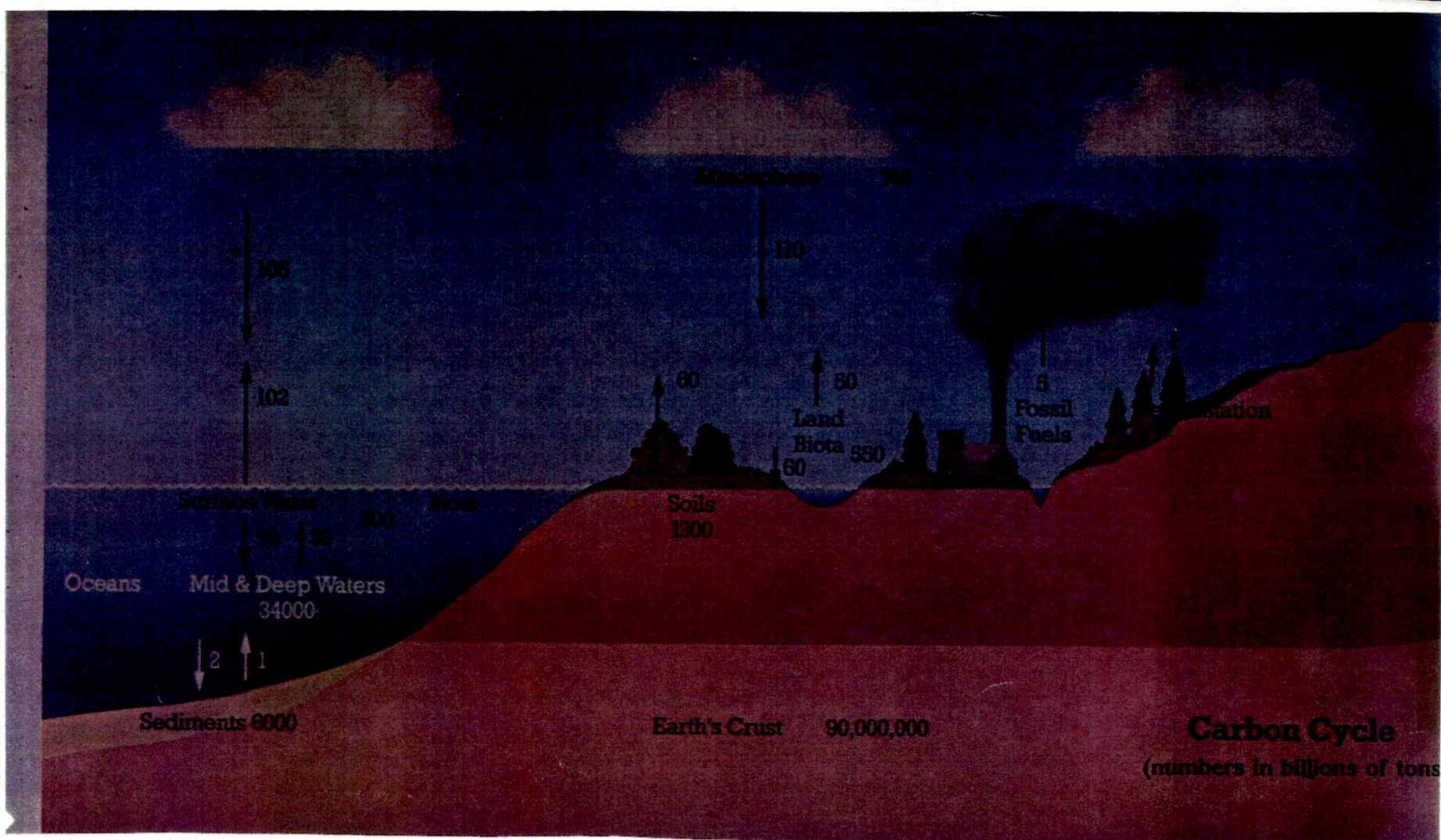
Natural sources and sinks are assumed to remain unchanged
Note that the stabilisation of each of these gases would have different effects on climate, as explained in the next section.

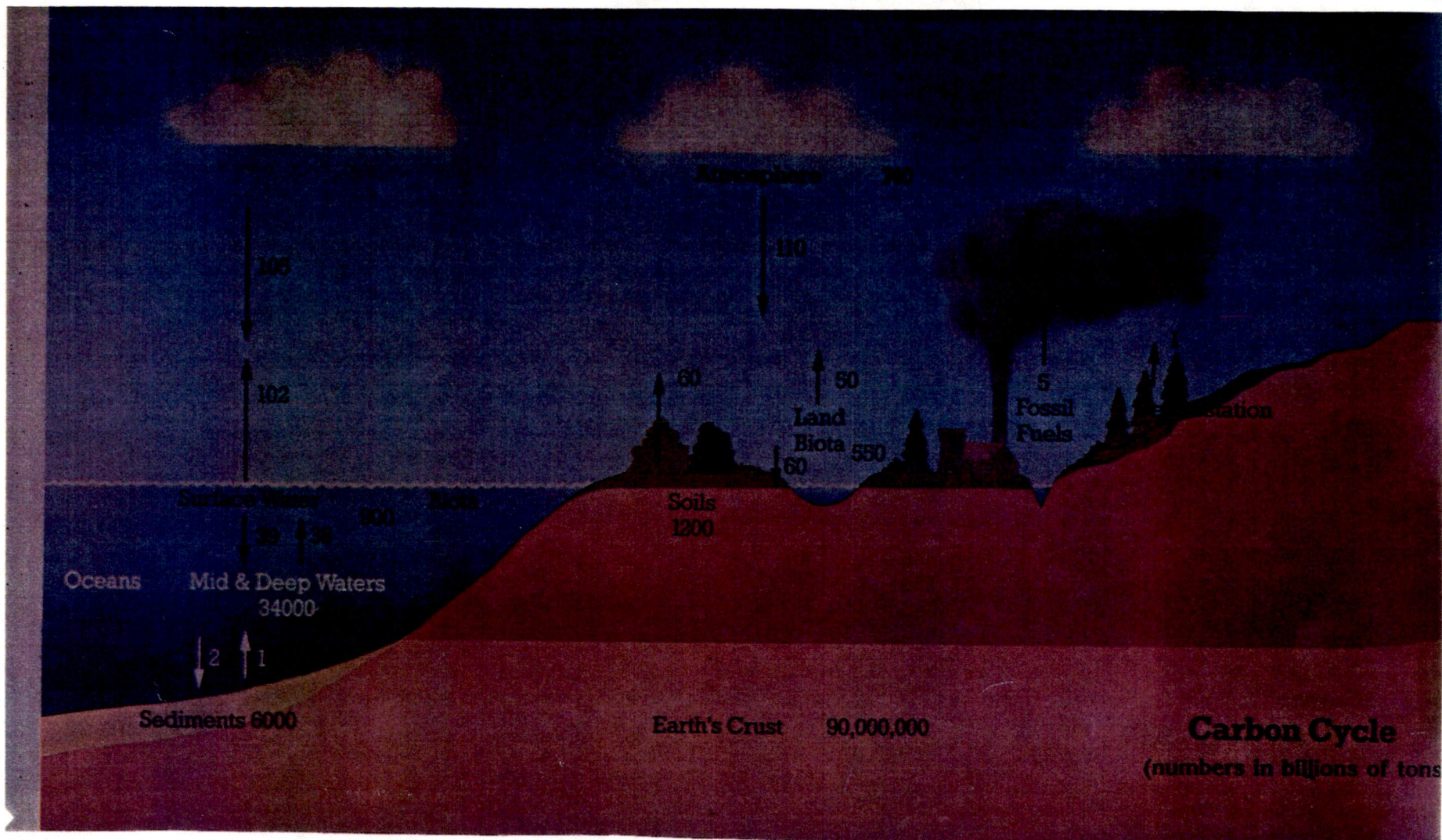
The same models used for these calculations are also used to determine future concentrations of the greenhouse gases which would arise from scenarios of future emissions generated by IPCC Working Group 3. Shown below are the concentration trends of some of the greenhouse gases expected to result from the High Emissions scenario.

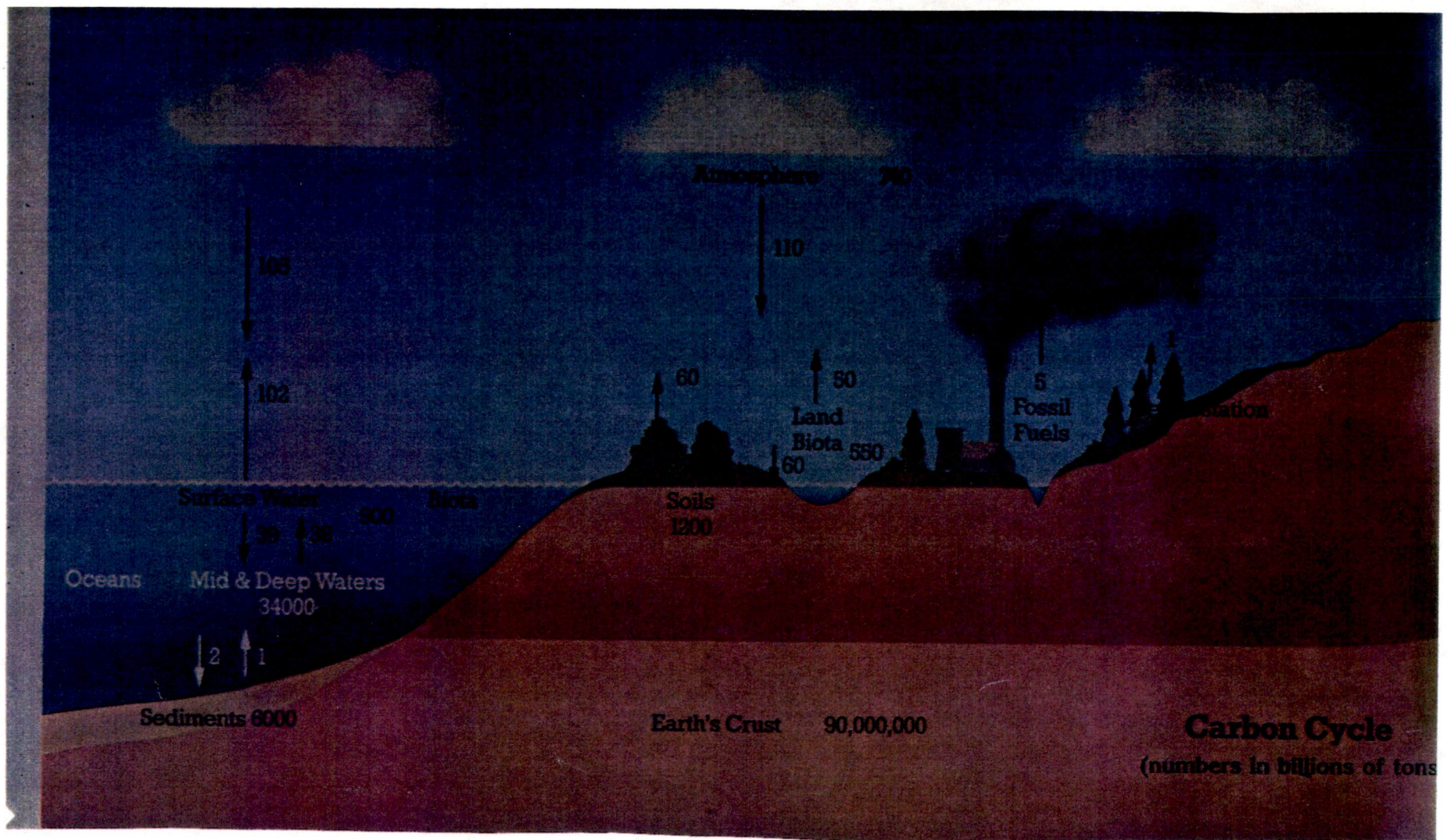


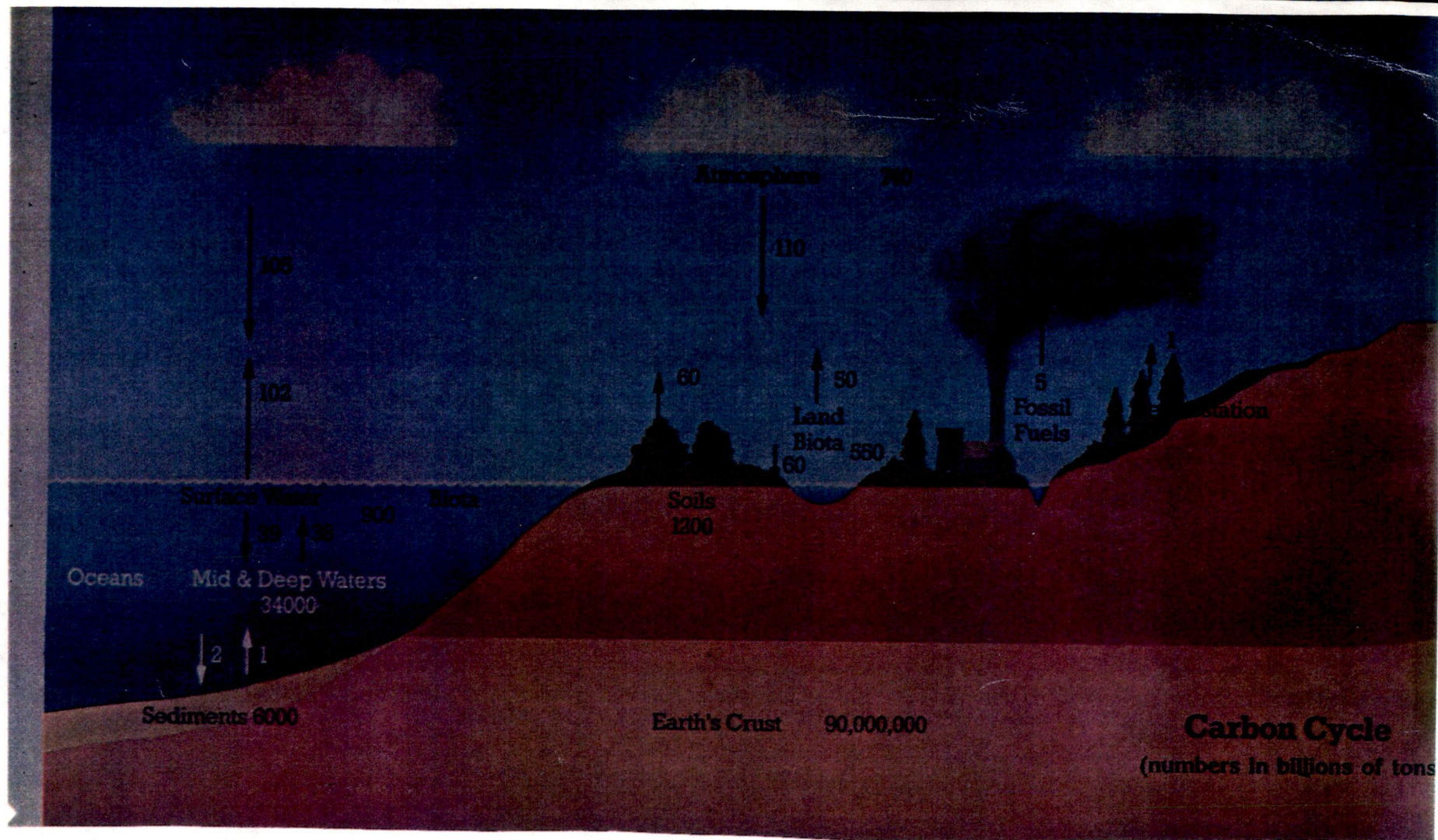
Which gases are the most important?

We know, with certainty, that more greenhouse gases means more radiative forcing and hence a global warming. We can calculate the the radiative forcing due to the increase in concentration of each gas with much more confidence than the calculation of the resulting climate change because the former only involves laboratory measurements of the gases: how strongly, and where in the spectrum,









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CONSENSUS

FOR CHANGE



A WORLD OF DIFFERENCE

REPORT OF THE
TASK FORCE ON GLOBAL
CLIMATE CHANGE



NATIONAL GOVERNORS' ASSOCIATION