CLIMATE CHANGE:
US GLOBAL CHANGE RESEARCH PROGRAM

Background: The US Global Change Research Program (USGCRP) is a National Research Program conducted under the auspices of the National Science and Technology Council (NSTC) Committee on Environment and Natural Resources. The NSTC is a cabinet-level council established by President Clinton in November 1993 and is the principal means for coordinating science and technology issues across the Federal government.

The USGCRP began as a Presidential Initiative, and was codified by the Global Change Research Act of 1990. The program's fundamental purpose is to increase understanding of the Earth system and thus provide a sound scientific basis for national and international decision making on global change issues.

Participants: USDA, DOC (NOAA and NIST), DOD, DOE, HHS, DOI, DOS, EPA, NASA, NSF, the Smithsonian Institution, OMB, and OSTP.

Scientific Focus: The USGCRP supports four key areas of Earth system studies that are of scientific and practical importance:

• *Seasonal to Interannual Climate Variability,* focused on the development and refinement of forecasts of seasonal and interannual climate variability, including study and prediction of the El Niño-Southern Oscillation phenomena in the tropical Pacific Ocean. These forecasts are used for economic planning and development in climate-sensitive sectors such as agriculture, water supply, and public health.

• *Climate Change Over Decades to Centuries,* with an emphasis on prediction of long-term climate change and its impacts on natural resources, public health, and socio-economic sectors. This effort is focused on understanding the effects of increasing atmospheric concentrations of CO_2, and the rising temperatures and changing patterns of precipitation associated with this increase, thus providing the knowledge required for society to address these changes.

• *Changes in Ozone, UV Radiation, and Atmospheric Chemistry,* focused on advancing understanding of the causes, rate, magnitude, and consequences of changes in stratospheric ozone, UV radiation, and atmospheric chemistry. This research has unambiguously identified chlorofluorocarbons (CFCs) from human activities as the cause of the Antarctic ozone hole. Observations of declining CFC growth rates demonstrate the efficacy of the policies adopted to protect the ozone layer.

• *Changes in Land Cover and Terrestrial and Aquatic Ecosystems,* focused on increasing understanding of the basic processes governing the functions and structure of terrestrial, and aquatic ecosystems. A special emphasis is placed on efforts to inventory the current land cover of the Earth and to document and understand the causes and consequences of land-cover changes, including effects on biodiversity.

Background (continued)

New Research Directions: Improved understanding of the impacts of global change is needed to achieve a sustainable future. A series of new research and assessment activities are addressing this need:

• The first National Assessment of Climate Change Impacts has been initiated to examine the vulnerabilities of various U.S. regions and economic and environmental sector to climate change. The Assessment will be completed in 1999. It will become a contribution from the US to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2001.

• As part of this process, the USGCRP sponsored an initial set of regional impacts workshops focused on the Great Plains, Alaska, the Southeast, the Northwest, the Southwest, New England, and the Mid-Atlantic. Additional workshops covering remaining regions of the US will be conducted by mid-1998.

• Additional new activities include increased focus on regional-scale estimates of the rate and magnitude of climate change and other aspects of global change; regional analyses of the environmental and socio-economic consequences of climate change and other global-scale changes in the context of other stresses; and integrated assessments of the implications for society and the environment of climate change and other aspects of global change.

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Talking Points

- It is imperative that we maintain the US Global Change Research Program's (USGCRP) strong effort in climate change science, which provides us with the understanding of the climate system, how it is changing, and the likely impacts of this change on society and on the environment we cherish.

- Design of effective climate change adaptation and mitigation strategies are not possible without the solid knowledge base provided by the USGCRP, and that is why we are continuing strong support for this coordinated interagency effort.

- While the USGCRP shows a minute decrease in overall funding ($3 million out of almost $1.9 billion), taking a closer look reveals that the only decline is in NASA satellite and data system activities.

- Substantial increases are proposed for science activities at other agencies , including $20 million at NSF, $9 million at DOC, $6 million at EPA, and $5 million at DOE.

USGCRP Budget ($millions)

	FY98	FY99 req
USDA	58	59
DOC (NOAA/NIST)	62	71
DOE	108	113
DOI	29	29
EPA	15	21
HHS	4	5
NSF	167	187
SI	7	7
NASA "ground"	275	275
NASA "space"	1092 (50*)	1097
total	1867	1864

***$50 million that may be transferred from NASA Earth Science to Space Station account.**

Questions and Answers

Q: Why is the USGCRP budget declining? I can see that it is a very small change, but with climate change such a high priority it seems strange that the USGCRP is reduced.

You are correct that the decrease is very small: $3 million, which is something like 2/10 of 1% of the budget. If you unpack the numbers a little, you can see that the only decrease is in NASA, and there it is mainly a small reduction in funding of space hardware and data management activities. Many of the other science activities in the USGCRP are getting healthy increases, including those at NSF, EPA, and DOC, and we are seeing some exciting new science in the program, including the initiation of the first National Assessment of climate change impacts.

The Administration remains absolutely committed to support of global change research. Global-scale environmental changes, including ozone depletion, climate change, and loss of biodiversity, are some of the most serious issues facing our nation and the world. We will continue strong support for this activity, as have the past three Administrations. We simply cannot turn away from this challenge. Increased understanding is our most fundamental requirement for dealing with these issues.

To take just one example, we know that the climate is already changing due to human influences. We need improved prediction of the rate, magnitude, and regional consequences of change, and identification of the most effective mitigation and adaptation strategies. The USGCRP is making a major contribution to these critical tasks and has initiated the first National Assessment of Climate Change Impacts to focus on some of these questions.

Q: How do you respond to the criticism of the USGCRP in the NRC Pathways Report?

In the first place, it is clear that the NRC "Pathways" summary (the only part released so far) recognizes that the USGCRP has led to significant advances in our understanding of global change. It also identifies opportunities for improvement, and we believe that study will prove to be a valuable document and will help the Administration and the agencies in our ongoing effort to improve the USGCRP and ensure that it focuses on the highest priority science questions. In fact, the report defines a set of science questions that we feel will be very influential in setting the future research agenda of the USGCRP. We look forward to the release of the remainder of the report.