

## Comments on Foreword and Table of Contents

1                                   **Written Public Comments on the**  
2                                   ***Strategic Plan for the U.S. Climate Change Science Program***  
3                                   **Foreword and Table of Contents (p 2-3)**  
4                                   **Comments Submitted 11 November 2002 through 18 January 2003**  
5                                   **Collation dated 21 January 2003**  
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7 Page 2, lines 13-14: Here the indication is that the uncertainties underlying the CCRI  
8 have been “identified by policymakers.” On page 17 the text indicates that the areas of  
9 science where uncertainties are largest were identified by the NRC. In addition to  
10 consistency being needed, there is a real question about whether policymakers and the  
11 scientific community have the same perception of what uncertainties are and how the  
12 word is defined and practically applied in each area. If the policymakers referred to here  
13 really have identified the uncertainties, then it is essential that this plan indicate which  
14 uncertainties would need to be reduced by how much to have any influence on their  
15 thinking, or more generally how the uncertainties that they have identified relate to  
16 policy-making.

17 **Michael MacCracken, LLNL (retired)**  
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19 Page 2, lines 16-19: This notion that “answers”—supposedly with no uncertainty as they  
20 are contrasted to the uncertainties that exist in the preceding paragraph—can be  
21 developed in 2-4 years shows a misunderstanding of science and the issues that have been  
22 identified. All that can be expected through sustained effort is an improving  
23 understanding that allows increased confidence to be placed in the statement of  
24 understanding.

25 **Michael MacCracken, LLNL (retired)**  
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27 Page 2, line 21: It would be helpful to list the 13 agencies that are mentioned and to  
28 indicate how many actually are contributing research funding to the enterprise. There is a  
29 list on the top of page 9, and it fails to indicate which agencies are funding this effort.

30 **Michael MacCracken, LLNL (retired)**  
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32 Page 3: In that the enabling legislation (the 1990 Global Change Research Act) calls for  
33 the USGCRP to undertake assessments is a special section of the Act, the Act earlier has  
34 defined research as including assessment. It therefore would seem mandatory for the  
35 research plan called for by Congress to include a section on Assessment (and not refer to  
36 assessments by some other euphemism). In addition, in that the Act not only covers  
37 climate change, but is more general and calls for research on “global change,” there  
38 should be a plan for assessments about global change.

39 **Michael MacCracken, LLNL (retired)**  
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### 41 **OVERVIEW COMMENTS ON THE TABLE OF CONTENTS**

42 First Overview Comment: The Chapter headings have a bias toward climate  
43 system/causes of climate change, as opposed to the implications of climate change. Of  
44 the eleven chapters (i.e. 2-12), that deal with the substance of the science, eight ignore  
45 impacts and three have approximately equal focus on causes and impacts. Chapters 2, 3,  
46 5, 6 and 9 are transparently dedicated to causes of climate change. Chapters 4, 8, and 12

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1 have titles that logically apply to both the causes and effects of climate change, but the  
2 content only addresses the causes. Only chapters 7, 10, and 11 address the implications  
3 of climate change at all: Those chapters have titles that apply equally to causes and  
4 effects of climate change, and they focus equally on the two.

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6 Second Overview Comment: The structure of the report is confusing, and largely  
7 inconsistent with the structure of the existing research—especially when it comes to  
8 effects of climate change. The effects of climate change are spread across three  
9 chapters: ecology, water cycle, and human dimensions. As a result, it is very difficult to  
10 get a coherent picture of the plan for effects research—or to be confident that effects are  
11 not slipping through the cracks. Putting all research on water cycles in one chapter and  
12 all research on people (“human dimension”)- in another chapter strongly suggests that  
13 this document is meant to fit comfortably within the structure with which some research  
14 programs currently fund research—and not to lay the basis for a strategic plan.

15 A strategic plan would focus most of all on the objectives of the research and how  
16 to get there. Once one considers objectives—questions that must be answered—the  
17 effects of climate change on the water cycle, ecosystems, and how people manage our  
18 water systems are all inter-related and must be considered together—yet the report puts  
19 them in totally different chapters. By contrast, assessing the impacts of climate change  
20 on human health or coastal communities has virtually nothing to do with researching how  
21 people may shift consumption patterns—and yet those issues are lumped into a single  
22 chapter. Clearly, the organization of this report is designed to allow presentation of  
23 existing programs with a minimum of difficult inter-programmatic (i.e. strategic) thinking  
24 about the questions that society needs answered (at least for those areas involving  
25 impacts of climate change).

26 The absence of an organization focused on impacts is particularly unfortunate  
27 because this is the area where research is least focussed and in the greatest need of a  
28 strategic plan. Research on causes of climate change ultimately leads into IPCC Work  
29 Group 1 reports which integrate everything so as to produce some key bottom line results  
30 such as expected temperature change which are not only valuable in their own right, but  
31 also highlight uncertainties that are most important for resolution. By contrast, the  
32 effects research tends to start with a few central premises (such as temperature change)  
33 and then head out in different directions, addressing different locations and different  
34 types of problems. Because different researchers are focussing on different locations and  
35 different problems, coordination is much less than in the climate work, where everyone  
36 has a direct interest in knowing about the processes that determine the earth’s climate.  
37 Similarly, different federal agencies are focused on the problems that matter to their  
38 programs, and often have little incentive to coordinate with other agencies who need the  
39 same information. Finally, much of the effects research relies on data collected for  
40 reasons unrelated to climate change—for example, FEMA has \$300 million/yr for flood  
41 mapping, while EPA and NOAA spend less than \$1 million on effects of sea level rise.  
42 Without a federal research plan, these data gathering efforts will not be conducted so as  
43 to maximize the value to the federal government (including climate and non-climate  
44 considerations); instead they will only maximize the value to the particular program  
45 undertaking the efforts.

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1           A better organization would be to start with the 5 questions that the introduction  
2 presents (page 4 continued on page 5) about the causes, effects, and responses to climate  
3 change. Given the decision to largely downplay impacts of climate change, that might  
4 mean combining the impacts program into a single large chapter with sections on each of  
5 the key impacts—or perhaps each of those impacts would warrant a short chapter.

6 **TITUS, EPA**

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