



Toward a New Era of Climate Change Science

ACC Science Report: Advancing the
Science of Climate Change

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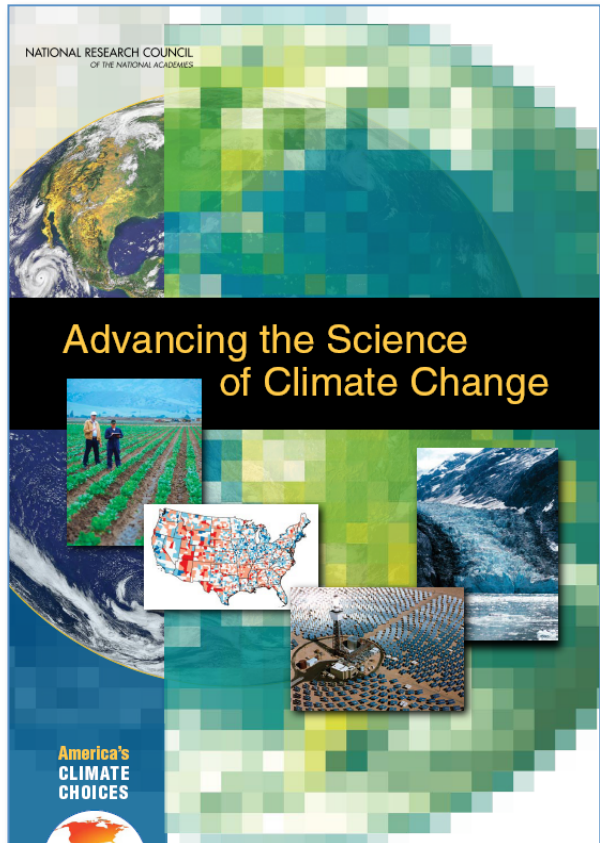
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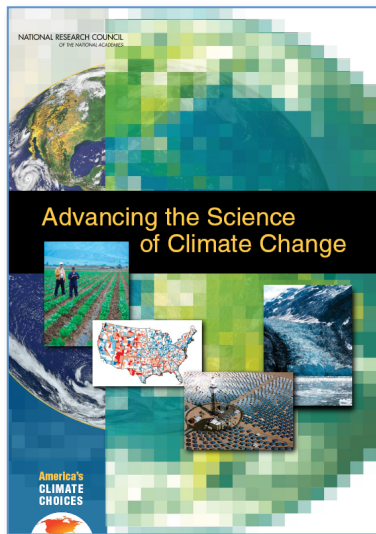


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STATEMENT OF TASK



- Provide a concise overview of past, present, and future climate change, including its causes and its impacts
- Recommend steps to advance our current understanding, including advances needed to improve the effectiveness of actions to limit and adapt to climate change.

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Source: Frits Ahlefeldt, HikingArtist.com

TWO MAIN CONCLUSIONS

- (1) Climate change is occurring, is caused largely by human activities, and poses significant risks for a broad range of human and natural systems.**
 - **Synthesis chapter:** A single chapter that provides an overview of what is known about climate change and its interactions with human and environmental systems
 - **Technical chapters:** Still concise but more detailed, referenced technical chapters that summarize what is known about climate change in 12 sectors/areas of interest to decision makers

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Source: Frits Ahlefeldt, HikingArtist.com

TWO MAIN CONCLUSIONS

- (2) The nation needs a comprehensive and integrative climate change science enterprise, one that not only contributes to our fundamental understanding of climate change but also informs and expands America's climate choices.

“A New Era of Climate Change Research”

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Seven Cross-Cutting Themes for the New Era of Climate Change Research

1. Climate Forcings, Feedbacks, Responses, and Thresholds
2. Human Behaviors and Institutions
3. Vulnerability and Adaptation Analyses
4. Research to Support Strategies for Limiting Climate Change
5. Effective Information and Decision Support Systems
6. Integrated Climate Observing Systems
7. Improved Projections, Models, Analyses, and Assessments



Source: CoolFunPics.com

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OPPORTUNITIES
FOR
COLLABORATION!

RECOMMENDATIONS

The nation's climate change research enterprise:

- Should be **integrative and interdisciplinary**, including research within and across a wide range of fields
- Should focus on **fundamental, use-inspired** research that contributes to both improved understanding and improved decision making
- Should be **linked with action-oriented programs** focused on limiting, adapting and informing decisions
- Should be **flexible**, able to respond to emerging needs and changing demands

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A single federal interagency program or other entity should be given the authority and resources to coordinate and implement a comprehensive, integrated climate change research effort...

The U.S. Global Change Research Program could serve this role, if the following modifications are made:

- An **expanded mission** that includes both understanding and supporting effective responses to climate change
- More and better **mechanisms for stakeholder interactions**
- Improved **mechanisms for identifying and addressing weaknesses, gaps, and barriers**
- High-level, forward-looking **leadership**
- **Budgeting oversight and authority**



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The federal climate change research program, working in partnership with other relevant domestic and international bodies, should:

- Redouble efforts to develop, deploy, and maintain a **comprehensive climate observing system**
- Accelerate the development of **advanced models and other analytical tools**
- Expand and engage the **human capital** needed to carry out climate change research and response programs

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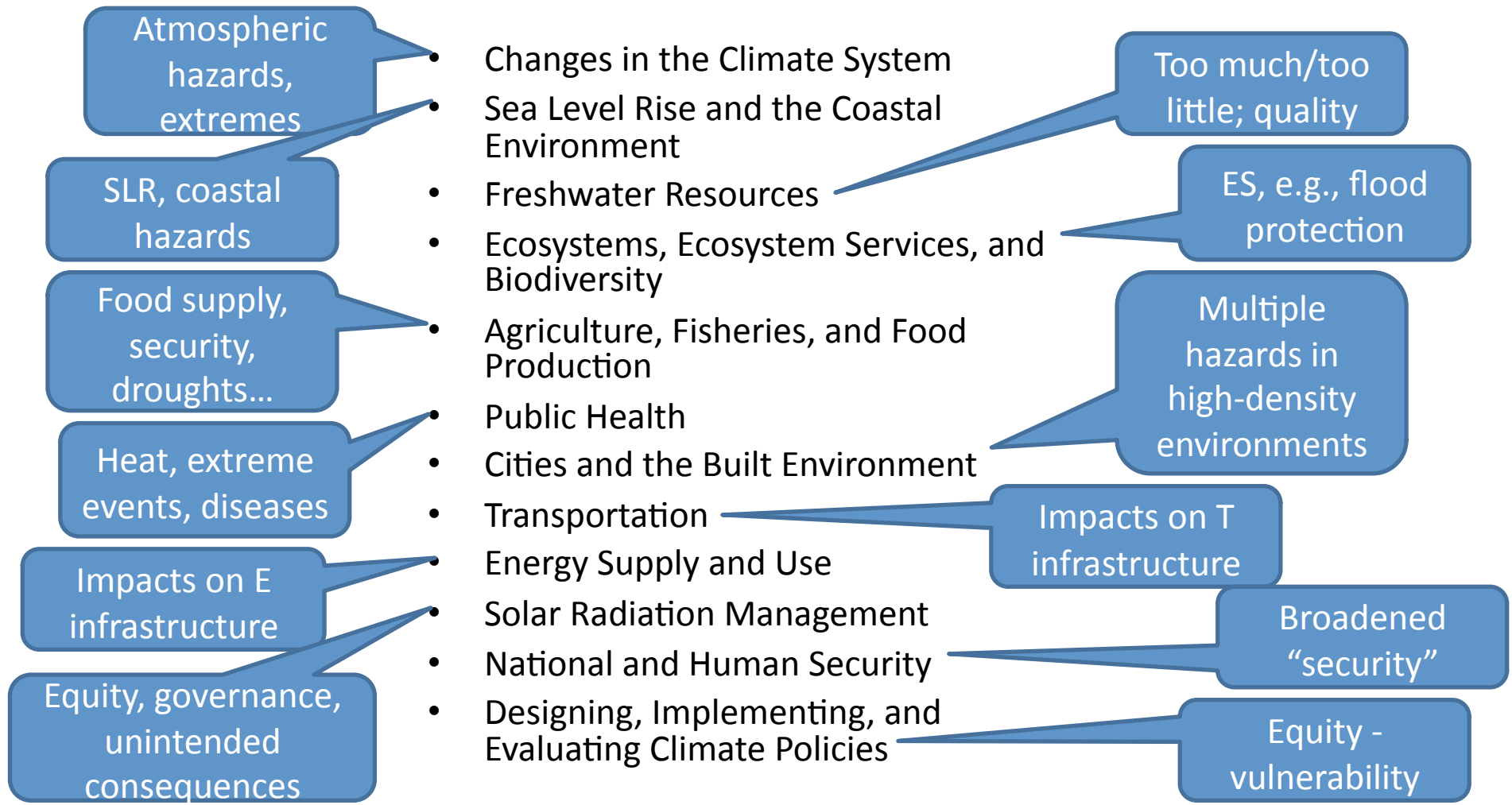
What does it say that is relevant to the hazards community?

- In the face of an uncertain and rapidly changing climate, a **risk management (governance) approach** is the most appropriate and prudent approach
 - *Risk identification, assessment, and evaluation*
 - *Iterative decision making and deliberate learning*
 - *Maximizing flexibility*
 - *Maximizing robustness*
 - *Ensuring durability*
 - *A portfolio of approaches*
 - *Effective communication*
 - *Inclusive process*



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What does it say that is relevant to the hazards community?



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What does it say that is relevant to the hazards community?

INTEGRATIVE THEMES

- 1: Climate Forcings, Feedbacks, Responses, and **Thresholds** in the Earth System
- 2: Climate-Related Human **Behaviors and Institutions**
- 3: **Vulnerability and Adaptation Analyses of Coupled Human-Environment Systems**
- 4: Research to Support **Strategies** for Limiting Climate Change
- 5: **Effective Information and Decision Support Systems**
- 6: Integrated Climate **Observing Systems**
- 7: **Improved Projections, Analyses, and Assessments**

Some Personal Conclusions

- There is no world of hazards without climate change
- There is no world of climate change without hazards
- We don't have enough time or money to reinvent the wheel
- There are not enough of us to work apart and get the job done



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Source: www.gapsante.uoftawa.ca

Thank you!

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Resources & Additional Information

For more information about America's Climate Choices:

<http://americasclimatechoices.org>

For full report text online, free PDFs of Report Summaries, or to order copies:

<http://www.nap.edu>

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