

Advice to the New Administration and Congress: Actions to Make our Nation Resilient to Severe Weather and Climate Change



“Understanding the complex, changing planet on which we live, how it supports life, and how human activities affect its ability to do so in the future is one of the greatest intellectual challenges facing humanity. It is also one of the most important challenges for society as it seeks to achieve prosperity, health, and sustainability.”

*National Research Council
2007*

Supporting Organizations

- University Corporation for Atmospheric Research
- Weather Coalition
- American Meteorological Society
- American Geophysical Union
- Consortium of Universities for the Advancement of Hydrologic Science
- National Association of State Universities and Land-Grant Colleges
- Consortium for Ocean Leadership
- Alliance for Earth Observations
- Reinsurance Association of America

More than 75 percent of natural disasters around the world are triggered directly or indirectly by weather and climate. In the U.S., more than a quarter of our gross national product (+\$2 trillion) is sensitive to weather and climate events, which affect our health, safety, economy, environment, transportation systems, and national security. Each year, the U.S. sustains billions of dollars in weather-related damages associated with hurricanes, tornadoes, forest fires, flooding, heavy snows, and drought.

All 50 states are impacted by these events and it isn't fully clear how these impacts will change as the climate changes. The threats associated with extreme weather and climate change are substantial and adapting to climate change will be crucial to economic and social stability, for example by making future water, food and energy supplies reliable and sustainable.

Our concern is that our nation is not prepared to adapt to climate change and related severe weather. Decision makers need local and regional scale information, but our models are hampered by the lack of research, observations, and computing at this scale.

Recommendations

If we are to improve our nation's resilience to severe weather and climate change, the next Administration and Congress must:

1. **Observations.** Fully fund the Earth observing system from satellite and ground-based instruments as recommended by the National Research Council.
2. **Computing.** Greatly increase the computer power available for weather and climate research, predictions, and related applications.

3. **Research and Modeling.** Support a broad fundamental and applied research program in Earth sciences and related fields to advance present understanding of weather and climate and their impacts on society.

4. **Societal Relevance.** Support education, training, and communication efforts to use the observations, models, and application tools for the maximum benefit of society.

5. **Leadership and Management.** Implement effective leadership, management, and evaluation approaches to ensure that these investments are done in the best interest of the nation.

Resource Needs and Implementation Details

This document is intended to ensure that the new Administration and Congress understand this challenge our nation is facing.

Implementing these recommendations over the next five years will cost roughly \$9 billion beyond what our nation is planning to invest in this area between 2010-2014 and will require the involvement of all sectors of the weather and climate enterprise (private, public, and academic).

Given the substantial impact severe weather and climate change are projected to have on our nation, we believe these are critical investments toward better local and regional information and a nation that is more resilient to severe weather and climate change impacts.

For more specific details on the organizations involved in this effort, the recommendations, budget estimates, and nominations for key weather and climate leadership positions in the new Administration see www.ucar.edu/td.