

1 **Climate Change and the American People**

2 *(A transmittal letter to appear at the front of the Third National Climate Assessment Report)*

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4 Climate change, once considered an issue for a distant future, has moved firmly into the present.
5 Corn producers in Iowa, oyster growers in Washington State, and maple syrup producers in
6 Vermont are all observing climate-related changes that are outside of recent experience. So, too,
7 are coastal planners in Florida, water managers in the arid Southwest, city dwellers from Phoenix
8 to New York, and Native Peoples on tribal lands from Louisiana to Alaska. This National
9 Climate Assessment concludes that the evidence of human-induced climate change continues to
10 strengthen and that impacts are increasing across the country.

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12 Americans are noticing changes all around them. Summers are longer and hotter, and extended
13 periods of unusual heat last longer than any living American has ever experienced. The summer
14 of 2012, for example, was the hottest on record in the United States. Winters are generally
15 shorter and warmer. Rain comes in heavier downpours, and there are longer dry spells in
16 between. People are seeing changes in the length and severity of seasonal allergies, the plant
17 varieties that thrive in their gardens, and the kinds of birds they see in any particular month in
18 their neighborhoods.

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20 Other changes are even more dramatic. Residents of some coastal cities see their streets flood
21 more regularly during storms and high tides. Inland cities near large rivers also experience more
22 flooding, especially in the Midwest and Northeast. Insurance rates are rising in some vulnerable
23 locations and insurance is no longer available in others. Hotter and drier weather and earlier
24 snow melt mean that wildfires in the West start earlier in the spring, last later into the fall, and
25 threaten more homes, cause more evacuations, and burn more acreage. In Alaska, the summer
26 sea ice that once protected the coasts has receded, and autumn storms now cause more erosion,
27 threatening many communities with relocation.

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29 Scientists who study climate change confirm that these observations are consistent with
30 significant changes in Earth's climatic trends. Long-term, independent records from weather
31 stations, satellites, ocean buoys, tide gauges, and many other data sources all confirm that our
32 country, like the rest of the world, is warming. Precipitation patterns are changing, sea level is
33 rising, the oceans are becoming more acidic, and the frequency and intensity of some extreme
34 weather events are increasing. Many lines of independent evidence demonstrate that the rapid
35 warming of the past half-century is due primarily to human activities.

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37 The observed warming and other climatic changes are triggering wide-ranging impacts in every
38 region of our country and throughout our economy. Some of these changes can be beneficial
39 over the short run, such as a longer growing season in some regions and a longer shipping season
40 on the Great Lakes. But many more are detrimental, largely because our society and its
41 infrastructure were designed for the climate that we have had, not the rapidly changing climate
42 we now have and can expect in the future. In addition, climate change does not occur in
43 isolation. Rather, it is superimposed on other stresses, which combine to create new challenges.

1 This National Climate Assessment collects, integrates, and assesses observations and research
2 from around the country, helping us to see what is actually happening and understand what it
3 means for our lives, our livelihoods, and our future. The report includes analyses of impacts on
4 seven sectors – human health, water, energy, transportation, agriculture, forests, and ecosystems
5 – and the interactions among sectors at the national level. The report also assesses key impacts
6 on all U.S. regions: Northeast, Southeast and Caribbean, Midwest, Great Plains, Southwest,
7 Northwest, Alaska, Hawai`i and the Pacific Islands, as well as the country’s coastal areas,
8 oceans, and marine resources.
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10 Over recent decades, climate science has advanced significantly. Increased scrutiny has led to
11 increased certainty that we are now seeing impacts associated with human-induced climate
12 change. With each passing year, the accumulating evidence further expands our understanding
13 and extends the record of observed trends in temperature, precipitation, sea level, ice mass, and
14 many other variables recorded by a variety of measuring systems and analyzed by independent
15 research groups from around the world. It is notable that as these data records have grown longer
16 and climate models have become more comprehensive, earlier predictions have largely been
17 confirmed. The only real surprises have been that some changes, such as sea level rise and Arctic
18 sea ice decline, have outpaced earlier projections.
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20 What is new over the last decade is that we know with increasing certainty that climate change is
21 happening *now*. While scientists continue to refine projections of the future, observations
22 unequivocally show that climate is changing and that the warming of the past 50 years is
23 primarily due to human-induced emissions of heat-trapping gases. These emissions come mainly
24 from burning coal, oil, and gas, with additional contributions from forest clearing and some
25 agricultural practices.
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27 Global climate is projected to continue to change over this century and beyond, but there is still
28 time to act to limit the amount of change and some of the most damaging impacts.
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30 This report documents the changes already observed and those projected for the future. It is
31 important that these findings and response options be shared broadly. Climate change presents a
32 major challenge for society. This report advances our understanding of that challenge and the
33 need for the American people to prepare for and respond to its far-reaching implications.
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35 Jerry Melillo, Chair
36 National Climate Assessment and Development Advisory Committee
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39 Terese Neu Richmond, Vice Chair
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42 Gary W. Yohe, Vice Chair