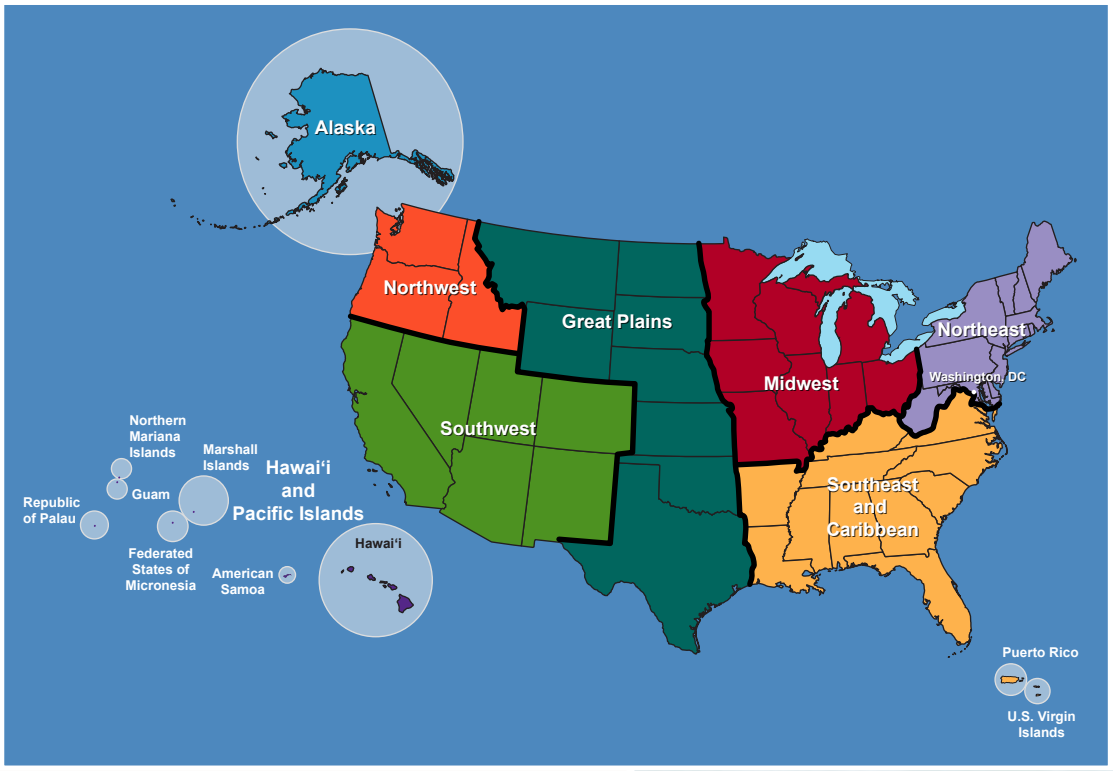
REGIONS

From the Rocky Mountains to the Shenandoah Valley, the Great Lakes to the Gulf of Mexico, our country's landscapes and communities vary dramatically. But amidst our geographical and economic diversity, we share many common attributes and challenges. One common challenge facing every U.S. region is a new and dynamic set of realities resulting from our changing climate.

The evidence can be found in every region, and impacts are visible in every state. Some of the most dramatic changes are in Alaska, where average temperatures have increased more than twice as fast as the rest of the country. The rapid decline of Arctic sea ice cover in the last decade is reshaping that region. In the Southwest, a combination of increased temperatures and reductions in annual precipitation are already affecting forests and diminishing water supplies. Meanwhile, that region's population continues to grow at double-digit rates, increasing the stress on water supplies. In various regions, evidence of climate change is apparent in ecosystem changes, such as species moving northward, increases in invasive species and insect outbreaks, and changes in the length of the growing season. In many cities, impacts to the urban environment are closely linked to the changing climate, with increased flooding, greater incidence of heat waves, and diminished air quality. Along most of our coastlines, increasing sea levels and associated threats to coastal areas and infrastructure are becoming a common experience.



For all U.S. regions, warming in the future is projected to be very large compared to historical variations. Precipitation patterns will be altered as well, with some regions becoming drier and some wetter. The exact location of some of these future changes is not easy to pinpoint, because the continental U.S. straddles a transition zone between projected drier conditions in the sub-tropics (south) and wetter conditions at higher latitudes (north). As a result, projected precipitation changes in the northernmost states (which will get wetter) and southernmost states (which will get drier) are more certain than those for the central areas of the country. The heaviest precipitation events are projected to increase everywhere, and by large amounts. Extended dry spells are also projected to increase in length.

Regional differences in climate change impacts provide opportunities as well as challenges. A changing climate requires alterations in historical agricultural practices, which, if properly anticipated, can have some benefits. Warmer winters mean reductions in heating costs for those in the northern portions of the country. Well-designed adaptation and mitigation actions that take advantage of regional conditions can significantly enhance the nation's resilience in the face of multiple challenges, which include many factors in addition to climate change.

The regions defined in this report intentionally follow state lines (see Figure 1 and Table 1), but landscape features such as forests and mountain ranges do not follow these artificial boundaries. The array of distinct landscapes within each region required difficult choices of emphasis for the authors. The chapters that follow provide a summary of changes and impacts that are observed and anticipated in each of the eight regions of the United States, as well as on oceans and coasts.

For more information about the regional climate histories and projections[1] and sea level rise scenarios[2] developed for the National Climate Assessment, and used throughout this report, see Ch. 2: Our Changing Climate and Appendix 5: Scenarios and Model

Table 1: Composition of NCA Regions

Region	Composition
Northeast	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, District of Columbia,
Southeast and Caribbean	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, Puerto Rico, U.S. Virgin Islands
Midwest	Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin
Great Plains	Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, Wyoming
Northwest	Idaho, Oregon, Washington
Southwest	Arizona, California, Colorado, Nevada, New Mexico, Utah
Alaska	Alaska
Hawai'i and U.S. Pacific Islands	Hawai'i, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Republic of the Marshall Islands, Republic of Palau, Territory of American Samoa, Territory of Guam

References

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2. Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R. Horton, K. Knuuti, R. Moss, J. Obeysekera, A. Sallenger, and J. Weiss, 2012: Global Sea Level Rise Scenarios for the United States National Climate Assessment. NOAA Tech Memo OAR CPO-1, 37 pp., National Oceanic and Atmospheric Administration, Silver Spring, MD. [Available online at http://scenarios.globalchange.gov/sites/default/files/NOAA_SLR_r3_0.pdf]