National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Strategic Priority

Establishing a NOAA Climate Service

Observations tell us that there has been an unequivocal warming of the Earth's climate system. Climate scientists from more than 130 countries concluded that global surface temperature has increased by 1.5 degrees F since 1900, very likely due to the increases in human-influenced greenhouse gas concentrations, and it is expected to rise by another 2.0 to 11.5 degrees F by 2100.

In the United States, growing seasons are growing longer. Extreme weather events, such as heat waves and heavy precipitation, are becoming more common. River flows are weakening due to declining snowpack. Residents of western states face longer and more severe droughts with increased damages from wildfires.

Arctic sea ice, Greenland's ice sheet, and glacier ice have all decreased dramatically. Sea level is rising in many populated coastal areas and threatens to contaminate freshwater resources for humans, crops, and livestock. Coastal communities in the Gulf of Mexico and much of the eastern U.S. are increasingly challenged by the combined effects of local sea level rise, erosion, and stronger storm surges.

Atmospheric concentrations of climate-influencing greenhouse gases and aerosols are also changing. In addition to the long-term global warming trend, we know that natural climate variations affect weather, temperature, and precipitation patterns on local and regional scales, and over shorter time spans. For example, the combination of a moderate El Niño in the tropical Pacific Ocean with a strongly negative phase of the Arctic Oscillation brought bitter cold temperatures and record-setting snowstorms to the mid-Atlantic region during the 2009-10 winter while global temperatures were at record highs and North American snow cover was at records lows this past April.

Climate change and variability and the associated impacts affect all sectors of the economy and society. NOAA plays a key role in helping us better understand the climate system — providing vital information in a coordinated effort to help decision makers, resource managers, business leaders, emergency responders, and citizens make more informed climate-related decisions.

A Comprehensive Resource for an Uncertain Future

The aforementioned climate phenomena involve complex sets of processes and their resulting impacts on society are not fully understood. Moreover, today there is no end-to-end approach to both advancing the science about those issues and delivering the resulting knowledge to society in the form of usable tools for decision-making, at scales of time and geographic region that are needed.

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To address this problem, in February 2010, the U.S. Department of Commerce announced the intent to create a NOAA Climate Service line office that will both advance critical aspects of climate science and connect scientific understanding of the causes and consequences of climate change to user-driven needs.

Formation of the new line office is only the beginning. Ultimately, NOAA's Climate Service will be a comprehensive office for integrating climate science, climate-relevant data, information, and services. It will provide a one-stop shop for users across the nation in a manner analogous to NOAA's Weather Service has been providing weather information and services for 140 years.

A NOAA Climate Service will bring together many of the agency's existing climate assets. The climate observations and monitoring, modeling, research and understanding, predictions and assessments generated by NOAA's top scientists — including Nobel Peace Prize award-winners — will continue to provide the scientific foundation for extensive climate services that respond to millions of requests annually for data and other critical information.

An Essential Alliance

No single agency can address the climate challenge alone. No single agency is able to leverage the full knowledge that exists about the myriad of climate-related impacts and opportunities facing the nation including characterization of the uncertainties. A new approach is needed to bridge the needs and issues faced by public stakeholders with the climate science community's knowledge, data, and tools.

To advance climate understanding and to broaden and focus the application of that knowledge for societal benefit, a more cohesive continuum of partners is needed across international, federal, regional, state, and local governments, academia, NGOs, and the private sector — all working collaboratively together to assess climate impacts on regional and local scales around the nation and world, and to share our evolving understanding of climate with the public in timely, relevant, and commercially viable ways.

Benefits of NOAA's Climate Service

As the leading provider of climate, weather, and water information to the nation and the world, NOAA is poised to provide *authoritative, reliable, timely*, and *relevant* climate information and services that will assist the nation's leaders and citizens in making climate-related decisions that enhance their lives and livelihoods.

Public and private entities are increasingly seeking and incorporating climate information on a variety of timescales into their planning. For example, water resource managers have identified a need for baseline data and projections of precipitation, evaporation, and soil moisture measurements that would aid them in long-term planning.

Farmers routinely request regional and long-term climate forecasts to help them make decisions about when and what to grow. Insurance companies seek more accurate projections at finer spatial scales to help them redraw flood maps and refine their risk models. And federal, state, and local agencies with coastal, marine, and land management mandates have requested scientific information and technical training on the effects of climate change. Decision makers need climate predictions at increasingly smaller spatial scales and climate models are continually being refined to meet the demand for global-to-regional and, eventually, local climate predictions.

Through NOAA's improved climate science and services we will be better able to meet the challenges presented by climate change and climate variability for our environment, security, and economy. In the process, we'll stimulate development of new technologies, new businesses, and new jobs.

To learn more about NOAA's climate science and services, visit http://www.climate.gov or subscribe to our new online *ClimateWatch* magazine at http://www.climatewatch.noaa.gov.

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