NOAA's National Climatic Data Center Sectoral Engagement Fact Sheet

WATER RESOURCES

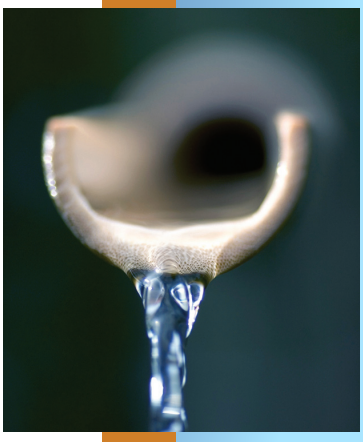
OVERVIEW

Water is a fundamental component of life and water resources are directly dependent on climate. Climate change is altering the water cycle, affecting where, when, and how much water is available. Extreme weather events such as droughts and heavy precipitation, which are expected to increase as climate changes, can significantly impact water resources. A lack of adequate water supplies, an overabundance of water, or degraded water quality has a substantial influence on civilization—now and throughout history—affecting the economy, energy production and use, human health, transportation, agriculture, national security, natural ecosystems, and recreation. Providing access to relevant climate information is essential to understanding how weather patterns and climate trends influence water resources and to developing appropriate planning, response, and adaptation strategies.

KEY STAKEHOLDERS

NOAA's National Climatic Data Center (NCDC) works with various groups, both as an information provider and as an applied research partner, to examine the effects of weather and climate on water resources. This helps decision makers within the water resources sector determine practical responses to climate changes and variations. There are many different governmental and non-governmental organizations, public and private groups and businesses, and individuals that can benefit from using pertinent climate and weather-related information. Some major groups include:

- Federal, state, regional, county, and city water managers
- State drought task forces and water resources agencies
- Federal agencies, such as NOAA, U.S. Geological Survey, U.S. Dept. of Agriculture, U.S. Environmental Protection Agency, U.S. Army Corp of Engineers, National Park Service, and the Federal Emergency Management Agency
- Federal, state, regional, and local planners
- Industry, such as agriculture, transportation, energy, and recreation
- Academia and other researchers



SECTOR NEEDS

Climate information is often available only as raw observations or in the form of tables, graphs, or written summaries, which may be difficult for users who are not well-versed in climate science to fully interpret. To bridge this gap, NCDC is partnering with the water resources sector to translate climate data into accessible, useful, and accurate products; and to leverage NCDC's climate expertise to better understand what the information means and how it can be used most effectively.

Climate information can be used in a variety of ways. Some examples include:

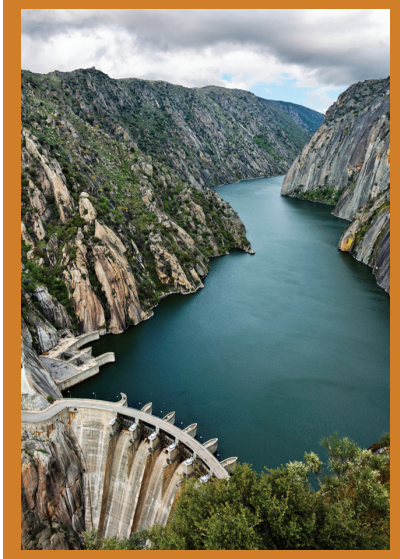
- Using short-duration rainfall values and rain gauge charts to design retarding basins that will help reduce stormwater-borne pollutants.
- Using the amount, location, and duration of rainfall from a heavy precipitation event to define the magnitude of a storm in order to assess and estimate property damage.
- Using drought information to determine when water rationing may be required in areas where lake levels are declining.
- Using temperature and snowpack trends to determine changes in the timing of runoff. Warmer temperatures cause snowpack to melt earlier in the spring, causing lower streamflow later in the summer.

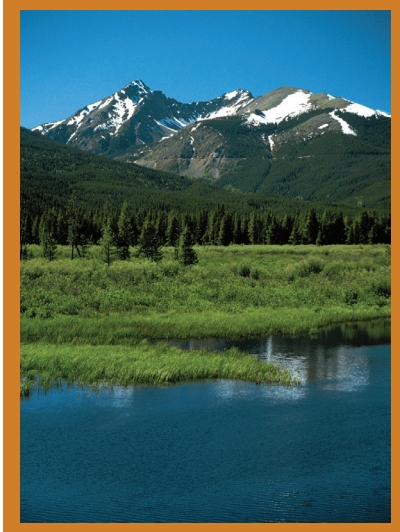
NCDC Data and Products

There are many different types of useful climate information available. Some examples include:

- The *Global Historical Climate Network*, which contains historical temperature and precipitation data for thousands of land stations around the world.
- Summaries produced from data, such as temperature and precipitation frequency distributions.
- The *U.S.* and *North American Drought Monitor*, which synthesize products because U.S. Drought Monitor and North American Drought Monitor are two different products, therefore she be synthesized.
- *United States Snow Climatology*, which includes daily, monthly, and seasonal snowfall and snow depth summaries across the United States.
- Publications, including *Local Climatological Data* (provides a monthly summary of daily observations), *Climatological Data* (provides annual average values), and *Comparative Climatic Data* (provides monthly average and extreme values at hundreds of local stations).

Collaboration between climate scientists and the water resources community is essential in helping to build the necessary bridges that will transform climate data into information that is relevant and credible. Ongoing communication is important to ensure that the information NCDC provides is appropriate and applicable to water resource sector needs. As climate changes in the years ahead and the effects become more noticeable, new information needs will emerge. NCDC will work closely with this sector, attending trade meetings and sponsoring future workshops and conferences, in order to better understand, address, and anticipate these needs.





Additional details about available NOAA products and the economic benefits of these products are provided at:
http://www.economics.noaa.gov

For further information on obtaining NCDC climate services and products related to water resources please contact:

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NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)
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