NOAA’s National Climatic Data Center: Opportunities in an Age of Climate Services

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NCDC Organization and Mission

To provide access and stewardship to the Nation's resource of global climate- and weather-related data and information, and assess and monitor climate variation and change.

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Why Asheville?

The U.S. Government took over the Grove Arcade during World War II because it was large and located in a safe, remote place.

- In 1950, the National Weather Records Center (NWRC) was established.
- By 1964, the U.S. Weather Bureau consolidated regional record centers with the NWRC.
- In 1982, the National Climatic Center became the National Climatic Data Center (NCDC).
- The Grove Arcade housed NCDC from 1951 until 1995, when it moved to its current location on Patton Avenue.

The Climate Services Challenge

The nation requires a comprehensive and coordinated approach to providing information to support adaptation, management, and mitigation of climate change and its impacts.

A meltwater stream on the Greenland Ice Sheet flows into the ice through a tunnel called a moulin. Source: Roger J. Braithwaite, The University of Manchester, UK.
Key Definitions

**Mitigation:** Human interventions to *reduce the sources* of greenhouse gases or *enhance the sinks* that remove them from the atmosphere.

**Vulnerability:** The degree to which physical, biological, and socio-economic systems are susceptible to and *unable to cope* with adverse impacts of climate change.

**Adaptation:** Initiatives and measures to *reduce the vulnerability* of natural and human systems against actual or expected climate change effects.

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Why Climate Information Matters

Climate information will need to be considered in a myriad of environmental, economic and social *decisions* in response to *impacts*:

- Air Quality
- Water
- Weather (Extreme Events)
- Sustainable Food
- Security
- Coastal Inundation
- Ocean Life and Ecosystems

_Iowa National Guard preparing to put sandbags in place on a levee in Kingston, Iowa, to protect roughly 50,000 acres of farmland threatened by flood waters._

*Source: Iowa National Guard photo by Sgt. Chad D. Nelson*
Types of Information – Coastal Inundation

**Monitoring Data and Predictions:** Pulling together consistent baseline data across the federal government and serving as a trusted resource in providing predictions for decision making.

**Risk and Vulnerability Assessment:** Information on how sea level rise will affect risks associated with extreme events (floods, hurricanes) and impacts (social, economic, structural) will provide the scientific foundation for evaluating investment options.

**Decision Support Tools, Maps and Visualizations:** Visualization products and decision support tools are essential to ensuring the usefulness of information for public works investments and green infrastructure such as land conservation and resource restoration.

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**What NCDC Can Do**

- Be an **honest broker**
  - Science (research to operations)
  - Timely assessment
  - Climate products and services
- Link anthropogenic climate change and variability to meet broad **user needs**
- Strengthen observations, standards, and **data stewardship**
- Foster **climate literacy**
Research to Operations: New Normals

Normals can be used for three main applications:

Reference Normals (past)
- Put anomalies in a historical perspective
- Involves averaging over an observed time range
- Traditional 30-Year Normals, Annual Updates, Optimal Normals

Real-time Normals (present)
- Estimates of current state of the climate
- Hinge Fit, Endpoint Techniques, etc.

Projected Normals (future)
- Projects climate conditions into the future – planning
- Climate Model projections

Timely Assessments

U.S. Drought Monitor
April 14, 2009

North American Drought Map
February 28, 2009

http://drought.usda.gov/ndmp
Climate Products: Sectoral Teams

- Agriculture
- Civil Infrastructure
- Coastal Hazards
- Energy
- Health
- Insurance
- Litigation
- Marine / Coastal Ecosystems
- Tourism
- Transportation*
- Water Resources

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What YOU Can Do

- www.ncdc.noaa.gov
- climatescience.gov
- earthobservatory.nasa.gov
- www.epa.gov/climatechange
- www.education.noaa.gov
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