NOAA’s National Climatic Data Center

*World’s Largest Archive of Climate and Weather Data*

Presented to: Coastal Environmental Disasters Data Management Workshop
September 16, 2014

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NCDC Strategic Vision

**MISSION**

*Steward the Nation’s Climate Information*

NCDC is responsible for preserving, monitoring, assessing, and providing public access to the Nation’s treasure of climate and historical weather data and information.

**VISION**

*Be the Nation’s Trusted Authority on Climate and Historical Weather Information*

NCDC will be the most comprehensive, accessible, and trusted source of state-of-the-art climate and historical weather data, information, and climate monitoring.
NCDC Geographic Locations

- 160 Federal Employees
  - Alaska, Colorado, Hawaii, Maryland, Missouri, New York, North Carolina, Texas, Washington, Wisconsin
- 153 NCDC Headquarter Contractors
- 6 Regional Climate Centers
- 2 Cooperative Institutes

Rising Demand for Climate Information

- Sustainability of Marine Ecosystems
- Coasts and Climate Resilience
- Climate Impacts on Water Resources
- Changes in Extremes of Weather and Climate
- Agriculture
- Energy
- Health
- Transportation
Climate Products and Services

- **Weekly**
  - Snowfall Impact Index
  - FEMA, disaster response
- **Monthly**
  - Heating & Cooling Degree Days
  - Energy Sector
- **Seasonal – Annual**
  - Temperature & Precipitation Outlooks
  - Agriculture
- **Decadal**
  - Billion $ Disasters, Climate Extremes Index
  - Insurance

- **Local**
  - Snowfall Impact Index
  - FEMA, disaster response
  - Heating & Cooling Degree Days
  - Energy Sector
  - Temperature & Precipitation Outlooks
  - Agriculture
  - Billion $ Disasters, Climate Extremes Index
  - Insurance

- **Regional**
  - Hurricane Tracks
  - Emergency Planners
  - Heat Wave Prediction
  - Public Health Officials
  - Drought Outlook
  - Agriculture
  - Climate Normals
  - Construction, Infrastructure, Agriculture

- **National & Global**
  - Drought Monitor
  - Agriculture
  - Monthly State of the Climate Reports
  - Decision Makers
  - Annual State of the Climate Reports
  - Decision Makers
  - National Climate Assessment
  - Decision Makers

**Storage Volume and Ingest Rate**

Total Archive Volume: 13.4 Petabytes
NCDC Access to Data Received from Many Sources

- Voluntary U.S. Observers
- Global Weather Reports
- NCEP Weather Charts & Models
- Ship, Buoy Reports
- Rocketsonde
- Weather Balloons
- Storm Data
- Doppler Radar
- (GOES, POES, NPOESS, and many other Satellites)
- Aircraft Observations
- Wind Profiler
- Airport Weather Reports (ASOS)
- U.S. Climate Reference Network
- Climate Models
- Paleoclimate Data

NCDC Homepage/Website

- [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)
- New site design implemented in 2012 with continued enhancements since then
- Provides access to NCDC datasets, products, and services
- NCDC’s regional partners are also featured
- Data are accessed from disk (Storage Area Network) and tape (robotics system)
- Google Analytics used to provide usage statistics and patterns
- Drupal Content Management System provides the website content infrastructure
- Contact information is provided so that customers can call or email as needed
Monitor and Describe the Climate

- http://www.ncdc.noaa.gov/climate-information
- Numerous monitoring products at the US and global levels
- Products related to extreme events, hurricanes, tornados, etc.
- Temperature and precipitation data monitored in detail, regarding climate variability and change

Data Access Portals
NOAA Climate.gov Portal, Drought Portal, Model Portal

- Ongoing development and integrated to provide one-stop access to widely distributed datasets, products, services
- Drought Portal geared toward providing critical information to decision-makers
- Climate.gov Portal designed to reach a very wide segment of users – scientists, businesses, decision/policy-makers, news media, public, etc
- Model Portal provides access to reanalyses and numerical model output
- Many partners involved across NOAA, other agencies, and at the regional/state level
**Data Access – International Partnerships**

**Global Observing Systems Information Center, World Data Centers for Meteorology and Paleoclimatology**

- GOSIC Portal and the World Data Centers for Meteorology and Paleoclimatology are hosted by NCDC
- GOSIC Portal provides one-stop access to data and information identified by the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System (GTOS) and their partner programs
- The World Data Centers are a component of a global network of sub-centers that acquire, catalog, archive, and facilitate international exchange of scientific data without restriction

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**Data Access**

**Access to Model Data**

**Climate Forecast System Reanalyses (CFSR)**

- 350 TBs of CFSR data now accessible online via NOMADS, along with other model data
- 60-80 TBs per month of model data downloaded
- Data volumes continue to grow as data are ingested from NCEP
- Access provided via OPeNDAP/HTTP/FTP/GridFTP
- Accommodates user’s most requested data by sub-setting long time series
- Fosters research within geo-science communities (ocean, weather, and climate)
Data Access
Climate Data Online (CDO) System

- Centralized access to numerous US and global datasets and products
- Web Services allow users direct machine-to-machine access for use in applications
- “Batch” process allows users to submit orders for data (e.g., by station, state, country, etc), then receive email with link to the data
- Underlying structure includes Oracle databases with tiered server infrastructure
- Services continue to be built-out for additional datasets and products

Data Access
Map/Web Services and Data Visualization

- GIS Map Services provide centralized access to numerous US and global datasets and products
- Web Services such as WMS, WFS, KML/KMZ (for Google Earth, etc)
- Access to the data and metadata, including machine to machine access
- Data visualization via tools such as Multigraph provide graphical display of various parameters
- Services continue to be built-out for additional datasets and products
CLASS Data Access

The CLASS Website

- CLASS Website
  - The CLASS Web Interface provides users with access to CLASS information holdings.
  - Displays the CLASS welcome page and help pages
  - Manages user login
  - Maintains each user’s contact information and preferences for searching and ordering
  - Receives users’ requests for information
  - Obtains requested information from other functions (e.g., browse images from Generate Associated Descriptions, result sets from the Data Management, metrics reports from Administration)
  - Maintains result sets and shopping carts for users
  - Forwards order specifications to the Process Orders function
  - HTML pages generate requested information, and return responses to users
  - Software components: Cocoon, Tomcat, HTTPD

www.class.noaa.gov
Data Access

Weather and Climate Toolkit

- Desktop application providing simple visualization and data export of weather and climate data
- Supports 22 data formats (Model, Satellite and Radar)
- Based on community developed tools and standards
- Data interoperability with diverse user communities
- Export data to GIS, KMZ, NetCDF and text formats

Data Access

Interoperability with Google Earth

- Weather and Climate Toolkit export of 3D Radar sweeps and isosurfaces for Google Earth visualization
NCDC offers a wide range of products and services. Our users range from large engineering firms designing the latest in safe energy efficient structures to the attorney documenting a weather event to the individual planning for a retirement move to universities and government agencies engaged in climate research.

Services offered include data resource consultations, publications, copies of original records, certifications, and a wide range of online datasets, products, and reports. Services are delivered on a variety of media including online access, CD-ROM, DVD, computer tabulations, maps, and publications.

The NCDC 2014 Products and Services Guide provides a good overview of everything we have to offer. A free PDF copy of the guide is available on the NCDC website. Free hard copies of the guide are also available for order via the Online Store.