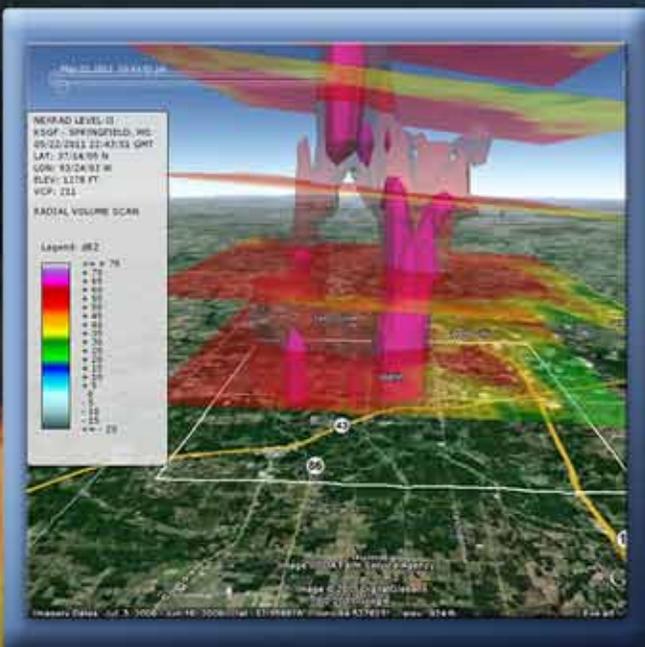


2012

PRODUCTS & SERVICES GUIDE



Protecting the past... Revealing the future

NOAA's NATIONAL CLIMATIC DATA CENTER ■ ASHEVILLE, N.C.

www.ncdc.noaa.gov

PRODUCTS AND SERVICES GUIDE

***NOAA's NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NC***



2012 Edition

Mark Lackey, Bryant Korzeniewski, Tamara Houston, Axel Graumann, John Kobar, Glenn Hyatt, Steve Ansari, Eric Wong, Bruce Bauer, Deb Franklin, Danny Brinegar, Katy Vincent, Sara Veasey

See <http://www.ncdc.noaa.gov/oa/climate/climateproducts.html> for a digital copy of this guide.

Table of Contents

Message from the Director	4
NCDC 2010 Highlights.....	5
Online and Operational Services	9
Web Navigation	11
In-Situ Data	21
NEXRAD Products.....	39
Weather and Climate Toolkit.....	45
Satellite Data, Products and Services	49
Model Data, Products and Services	61
Paleoclimate Data	65
Integrated Data and Environmental Applications (IDEA) Center	67
NOAA’s Regional Climate Centers	73
NOAA’s Regional Climate Service Partnership.....	75
CD-ROM/DVD Products	77
Publications	79
Climate Monitoring	81
NCDC Sectoral Engagement.....	95
NCDC Customer Service Contacts.....	97
Glossary of Acronyms.....	99

A message from the Director, National Climatic Data Center

The National Climatic Data Center 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.

Services offered include data resource consultations, subscription items and publications, copies of original records, certifications, generation of specialized climate studies, and a host of other climate-related activities. Services are delivered on a variety of media including on-line access, CD-ROM, DVD, computer tabulations, maps, and publications.



Tom Karl
Director

About the National Climatic Data Center

The National Oceanic and Atmospheric Administration (NOAA) Data Centers (of which NCDC is the largest) are world-class centers that provide long-term preservation, management, and ready accessibility to environmental data. The combined archive includes records taken even before Ben Franklin's weather observations and continues with the latest real-time satellite imagery. The Centers are part of the National Environmental Satellite, Data and Information Service (NESDIS). The NCDC is located in Asheville, NC.

NCDC Mission Statement

NCDC's mission is to manage the Nation's resource of global climatological in-situ and remotely sensed data and information to promote global environmental stewardship; to describe, monitor and assess the climate; and to support efforts to predict changes in the Earth's environment. This effort requires the acquisition, quality control, processing, summarization, dissemination, and preservation of a vast array of climatological data generated by the national and international meteorological services.

Highlights

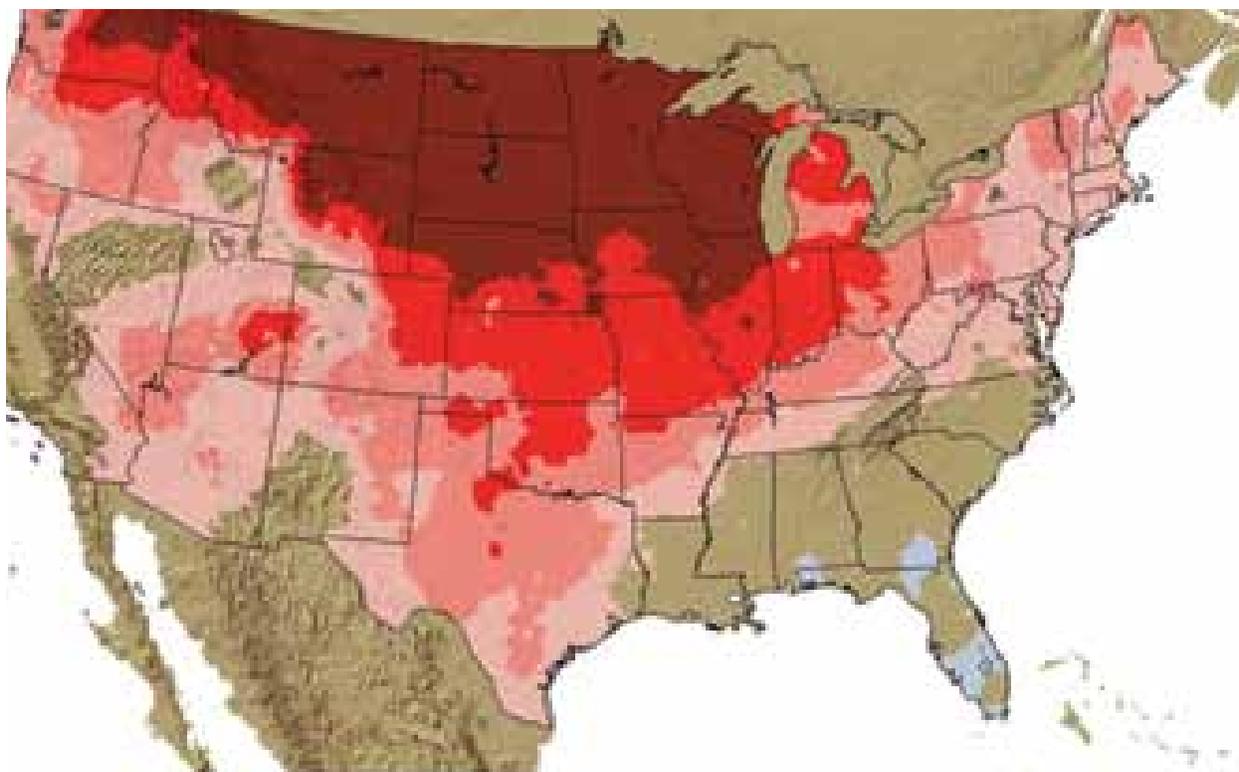
NCDC Generates Climate Data Records for Climate Monitoring

NCDC's Climate Data Record (CDR) Program capitalizes on the five-decade long investment in environmental satellites to use these data to address critical climate questions. By providing authoritative, long-term climate reference sets, NCDC allows users to focus on specific climate issues such as drought, floods, and hurricanes. Consolidating this information enables improved protection of lives, property, economic interests and security. CDR operational production removes and minimizes biases in satellite data; delivers long-term (50+ years), seamless homogeneous records characterizing climate change and variation; and reprocesses the entire period of record as new climate

algorithms and sensor knowledge are developed. This year the CDR Program transitioned five CDRs into production, including the critical tropospheric temperature record. As part of being an operational program, NCDC provides full documentation and routine production of these records.

NCDC Enhances Collaboration to Improve Archive Services

NCDC continued to improve collaboration with NOAA's future polar (NPP/JPSS) and geostationary (GOES-R) satellite programs to ensure the long term preservation of, and access to, essential and irreplaceable data of NOAA's key environmental data products. A key goal of NCDC is to preserve a



January Minimum Temperature (F): 1981-2010 Minus 1971-2000



complete understanding of data so that future users can use the data independent of assistance from the original producer of the data. This goal can only be accomplished through the coordination of Data Producers, such as NOAA's satellite programs, and the NOAA Archive in the early stages of data management to ensure proper establishment of data, metadata, documentation, and level of service. In 2011, NCDC increased collaboration with NOAA satellite ground systems, mission programs, algorithm teams, and IT personnel thereby improving preservation of NOAA's key environmental data products. NCDC supported more than twelve established NPP/JPSS Working Groups and Review Boards and seven GOES-R Team meetings as well as hosted the NPP/JPSS User Conclave/Customer Forum to improve communication and understanding of goals. Additionally, to support archive requests, NCDC developed an interface for Advanced Tracking and Resource tool for Archive Collections (ATRAC) in collaboration with our sister oceanographic (NODC) and geophysical (NGDC) archives. Because of NCDC's efforts, the NCDC Archive was ready to receive, preserve, and distribute the irreplaceable and highly valuable data from the NPP satellite which was launched in October 2011.

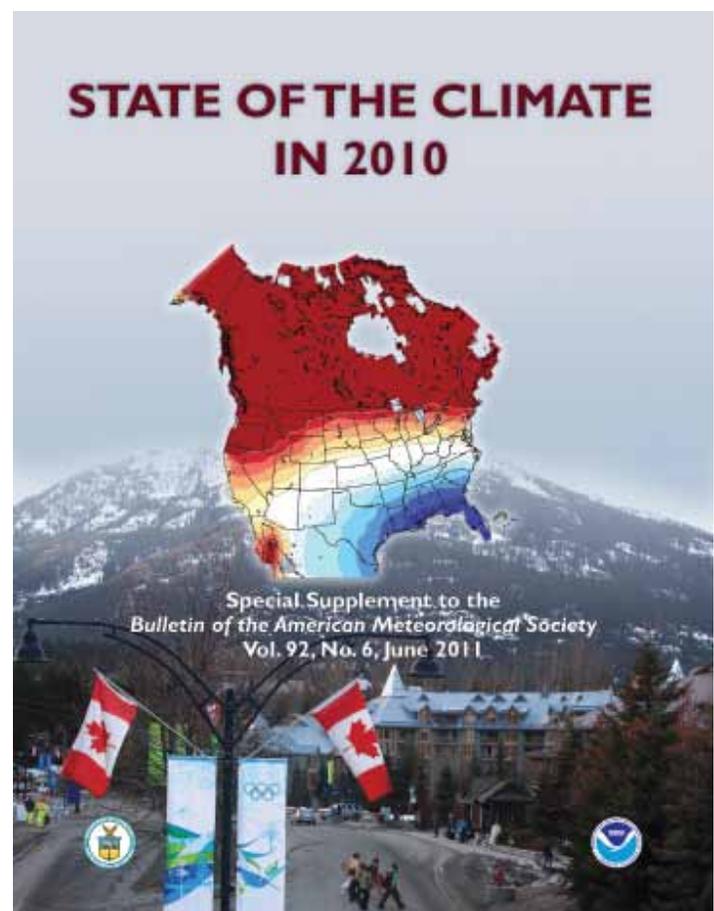
NCDC Releases 1981–2010 Climate Normals

In June 2011, NOAA's National Climatic Data Center (NCDC) released the 1981–2010 Climate Normals, which are commonly used in television weather segments for comparisons with the day's weather conditions. Climate Normals are three-decade averages of many climatological variables, most notably temperature and precipitation. According to the 1981–2010 normals temperatures across the United States were on average, approximately 0.5 degree F warmer than the 1971–2000 time period. In the continental United States, every state's annual maximum and minimum temperature increased on average. They serve as a point of reference for typical climate conditions at a given place and are used in seemingly countless applications across a variety of sectors. Builders, insurers, and engineers use Climate Normals for planning and risk management and Energy companies use the data to predict fuel demand. In addition, Farmers rely on the information to help make decisions on both

crop selection and planting times. This once-a-decade release updates the Climate Normals for more than 7,500 locations across the United States and includes more than a thousand new stations. NCDC produced hourly, daily, monthly, seasonal, and annual Climate Normals for variables such as temperature, precipitation, and snowfall. Data were also calculated for significant quantities, such as heating and cooling degree days and the number of days per month above or below certain thresholds. NCDC made numerous improvements and additions to the scientific methodology used to calculate the 1981–2010 Climate Normals, including improved scientific quality control and statistical techniques. NCDC engaged state and regional climatologists as well as industry users before and after releasing the Climate Normals and incorporated new products, specifically for the agriculture and energy industry based on stakeholder feedback.

NCDC Delivers *State of the Climate Report in 2010*

NOAA's National Climatic Data Center (NCDC) released the *2010 State of the Climate Report*, which provides a



peer-reviewed annual “physical” of the climate system as well as insights into our capacity to measure it using trusted sources of information. The report highlighted how El Niño-Southern Oscillation and other climate patterns play a major role in 2010 and that 2010 one of the two warmest years on record. This year’s report tracks 41 climate indicators — four more than last year — including temperature of the lower and upper atmosphere, precipitation, greenhouse gases, humidity, cloud cover, ocean temperature and salinity, sea ice, glaciers, and snow cover.. In addition, the 2010 report has the most contributors with datasets and/or analyses provided by 362 authors from 45 countries. The *State of the Climate* series has been a trusted source of the most current and reliable information on the world climate and its changes since 1990. The report has grown in scope to become a leading and highly anticipated publication. It is unique among annual major assessments in that it makes no attempt to validate climate models or make projections of future climate conditions. It is strictly built upon data compiled in the world’s agencies and academic institutions—the climate system’s vital signs. NCDC led the document from its commissioning in fall 2010, providing high-level oversight, recruiting editorial leadership, and producing companion materials to make the document more accessible to the public. *The State of the Climate Report* is published as a special supplement in the June 2011 *Bulletin of the American Meteorological Society*. The supplement was 270 pages this year, the longest ever.

NCDC Oversees Installation of the U.S. Climate Reference Network (USCRN) Soil Sensor and Relative Humidity Sensor Installation

Soil temperature and moisture as well as relative humidity are critical climate indicators to aid in long-term drought as well as climate change monitoring. Begun in FY 2009 and completed at the end of FY 2011, NCDC, in partnership with NOAA’s Atmospheric Turbulence and Diffusion Division (ATDD) in Oak Ridge, TN, completed the installation of a triplicate set of soil moisture and temperature sensors at five standard soil depths from five to 100 cm deep, in addition to relative humidity sensors, at all 114 of the USCRN stations in the contiguous United States. These new

soil and relative humidity sensors will go a long way towards enhancing the USCRN’s ability to monitor drought as well as long-term climate indicators. The benefits of this data span the range of many science and applications disciplines including the agriculture and water resources management sectors.

Development of Global Historical Climatology Network-Monthly (GHCN-M) Version 3 Temperature Dataset

Since the early 1990s the Global Historical Climatology Network-Monthly (GHCN-M) dataset has been an internationally recognized source of data for the study of observed land surface temperature variability and change. It provides monthly mean temperature data for 7280 stations from 226 countries and territories, ongoing monthly updates of more than 2000 stations to support monitoring of current and evolving climate conditions, and homogeneity adjustments to remove non-climatic influences that can bias the observed temperature record. In 2011, NCDC released the latest version, GHCN-M Version 3, of this dataset. For this new version, NCDC developed new quality control methodologies, applied a new homogeneity adjustment algorithm to extend and improve bias corrections to stations on every continent, developed a new update system to ensure all updates to source datasets can be incorporated immediately, established a version control and data quality assurance system to improve the traceability of data, and made other changes in response to user requests to broaden the use of this dataset to a wider community.

NCDC Expands Network of Paleoclimatic Reconstructions

In 2011, the NOAA Paleoclimatology Branch significantly augmented its last two-plus millennium Paleoclimate Network (PCN v. 2.0.0). In addition to the 92 high-resolution temperature records and annual/seasonal recalibrations to a common anomaly period that comprised v. 1.0.1, the PCN now encompasses a large accumulation of high-resolution proxy data (1209 time series) that have been used in several recent reconstructions of hemispheric and global temperatures, gridded global instrumental data covering 1850-2009, and other NOAA-related reanalysis

work. With the addition of this proxy and instrumental information, researchers and others interested in later-Holocene climate can now find a complete set of data tools needed to calibrate and make temperature reconstructions, and can compare these with the accumulated high-resolution reconstructions in NOAA-Paleoclimatology's archive.

NCDC Makes Advancements in Climate-related Services

NCDC continued to provide a variety of climate services and introduced new products and partnerships in 2011, including:

- Developed a prototype cell phone tour with the American Public Garden Association talking about gardens and climate change
- Established further regional and local partnership via NCDC's Regional Climate Service Directors
- Provided access to the full suite of Climate Forecast System Reanalysis Data – one of the most downloaded products in NCDC history
- Updated NCDC's popular Billion Dollar Weather and Climate Disasters information as 2011 broke a record for the number of events in a single year since record keeping began in 1980.
- Implemented a Global Drought Monitoring Web Portal to facilitate international collaboration on drought monitoring on a continental scale.
- NCDC and its NOAA Climate Services Portal partners implemented a completely revamped Data and Services section of the Portal, with integrated map services and new search capabilities.
- Climate Data Online (CDO) Version 2 was implemented and placed online, which features many new capabilities, a streamlined interface, and new datasets and products for users.
- A new Online Store was implemented in conjunction with completion of the NOAA National Data Centers E-commerce System (NES) Version 2 effort, which provides a better user experience for customers ordering products which require payment (eg, DVD product ordered online, then delivered by mail).

Online and Operational Service



<http://www.ncdc.noaa.gov/>

The National Climatic Data Center (NCDC) maintains an Internet World Wide Web (WWW) home page service. Some of the datasets and products available via WWW are highlighted in the following pages.

Our Web system includes access to U.S. and global climatic data, model data, satellite data, radar images, inventories of datasets available off-line, publications, climate monitoring reports, special reports on extreme weather events, and an online ordering system. Nearly 1300 terabytes (1.3 petabytes) of data and information were downloaded by our customers during the 2010 fiscal year.

Several useful links are listed below and described further in the following pages:

NCDC and its NOAA Climate Services Portal partners implemented a completely revamped Data and Services section of the Portal, with integrated map services and new search capabilities at <http://www.climate.gov/#dataServices>

A map search GIS interface—Click on “search by map” on left hand side-bar of homepage, or go to <http://gis.ncdc.noaa.gov>

Our most popular products—
<http://www.ncdc.noaa.gov/oa/mpp>

Our Online Store— A new Online Store was implemented in conjunction with completion of the NNDC E-commerce System (NES) Version 2 effort, which provides a better user experience for customers ordering

products which require payment (eg, DVD product ordered online, then delivered by mail).

<http://ols.nndc.noaa.gov/plolstore/plsql/olstore.main?look=1>

NOAA Virtual Data System (NVDS) Climate Data Online Version 2— was implemented and placed online, which features many new capabilities, a streamlined interface, and new datasets and products for users. <http://www.ncdc.noaa.gov/cdo-web/search>

Some of the datasets and products are free of charge for all users, while some require payment through the Online Store. For “.noaa”, “.gov”, “.edu”, “.mil”, “.us”, and “.k12” domain users, all online access to online data products are free of charge as long as the user’s computer allows for reverse domain lookup.



<http://www.ncdc.noaa.gov/oa/land.html>

Web Navigation

The National Climatic Data Center (NCDC) Web site was designed to provide quick access to major types of climatic data. Suggested means of accessing our online data are detailed below.

Land Based Data

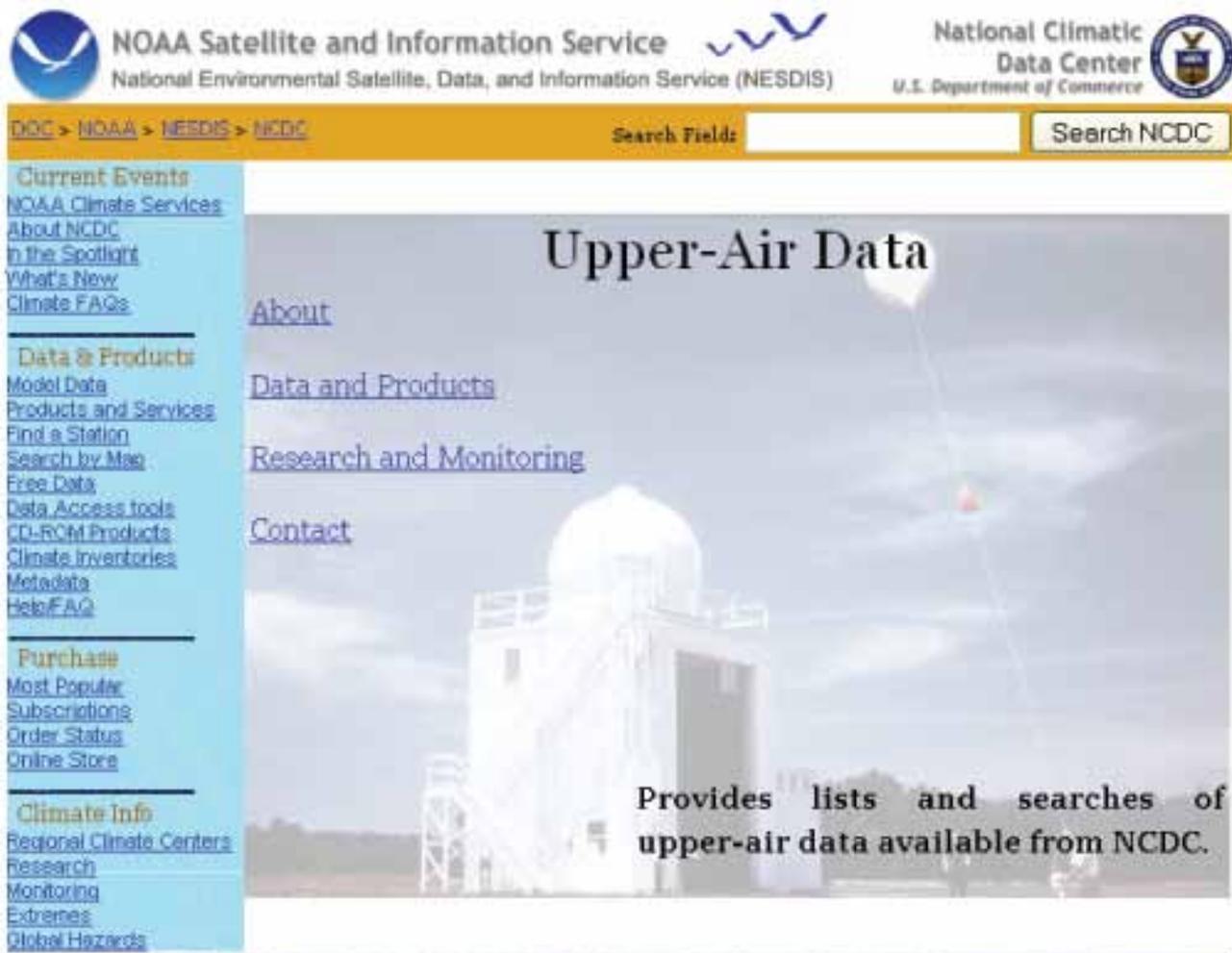
Land based observations contain various meteorological elements (temperature, relative humidity, atmospheric pressure, wind direction/speed, etc.) that over time describe the climate of a location or region. They also include data observed by weather radars. Products derived from these measurements are accessible from <http://www.ncdc.noaa.gov/oa/land.html>.

Example data products: Local Climatological Data, U.S. Hourly Precipitation, Global and U.S. Integrated Surface Hourly Data, Cooperative Data, etc.

Upper Air Data

Upper air data consist of temperature, relative humidity, atmospheric pressure, and wind direction/speed above the earth’s surface. Products derived from these measurements are accessible from <http://www.ncdc.noaa.gov/oa/upperair.html>.

Example data products: Upper Air Charts, NOAA Operational Model Archive and Distribution System (NOMADS), Integrated Global Radiosonde Archive (IGRA), etc.



<http://www.ncdc.noaa.gov/oa/upperair.html>

Marine Data

Marine data include observations from ships at sea as well as buoys, both fixed and free floating. Data products derived from these measurements are accessible online at <http://www.ncdc.noaa.gov/oa/marine.html>.

Example data products: International Comprehensive Ocean-Atmosphere Data Set Project (ICODAS), Global Buoy Data, Voluntary Observing Ship Climate Project (VOSCLIM), etc.

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Search Field: Search NCDC

Marine Data

[About](#)

[Data and Products](#)

[Research and Monitoring](#)

[Contact](#)

Welcome to the NCDC Marine Page

Please hover your mouse over the links to the upper left, or simply scroll down the page to select and view more content from this area of the NCDC website. This is the first in a series of steps we're taking to improve our site. Should you have something specific to look for, submit a search in the golden search bar above.

<http://www.ncdc.noaa.gov/oa/marine.html>

Satellite Data

Satellite data and derived products from NOAA’s satellites are available through the National Climatic Data Center and Comprehensive Large Array-data Stewardship System (CLASS). Details about CLASS and products derived from these measurements are accessible from <http://www.ncdc.noaa.gov/oa/satellite.html>.

Example data products: Raw radiance data from instruments (POES Level 1b, GOES GVAR, DMSP TDR, etc.) and various satellite products, imagery, movies, and animations.



<http://www.ncdc.noaa.gov/oa/satellite.html>

Weather/Climate Events

The Weather/Climate Events section focuses on summaries, statistics, and descriptive information of weather and climate events including extreme events like hurricanes, tornadoes, floods, and severe thunderstorms. Access to these products can be found at <http://www.ncdc.noaa.gov/oa/climate/research.html>.

<http://www.ncdc.noaa.gov/oa/climate/research.html>.

Example data/information: U.S. Storm Events Database, U.S. Climate Normals, Climate Maps of the United States, Extreme Weather and Climate Events, etc.

The screenshot displays the NOAA National Climatic Data Center (NCDC) website. At the top, there are logos for NOAA Satellite and Information Service, National Environmental Satellite, Data, and Information Service (NESDIS), and the National Climatic Data Center, U.S. Department of Commerce. Below the logos is a navigation bar with the breadcrumb trail "NOAA > NESDIS > NCDC" and a search field labeled "Search Fields:" with a "Search NCDC" button. The main content area features a large banner with the title "Weather/Climate Events" and a background image of a storm. Below the banner, there are four menu items: "About", "Data and Products", "Research and Monitoring", and "Contact". To the left of the banner is a vertical sidebar with several categories of links: "Current Events" (including NOAA Climate Services, About NCDC, in the Spotlight, What's New, and Climate FAQs), "Data & Products" (including Model Data, Products and Services, Find a Station, Search by Map, Free Data, Data Access tools, CD-ROM Products, Climate Inventories, Metadata, and Help/FAQ), "Purchase" (including Most Popular, Subscriptions, Order Status, and Online Store), and "Climate Info" (including Regional Climate Centers, Research, Monitoring, Extremes, and Global Hazards). At the bottom right of the banner, there is a text box that reads: "Provides lists and searches of weather/climate events data available from NCDC."

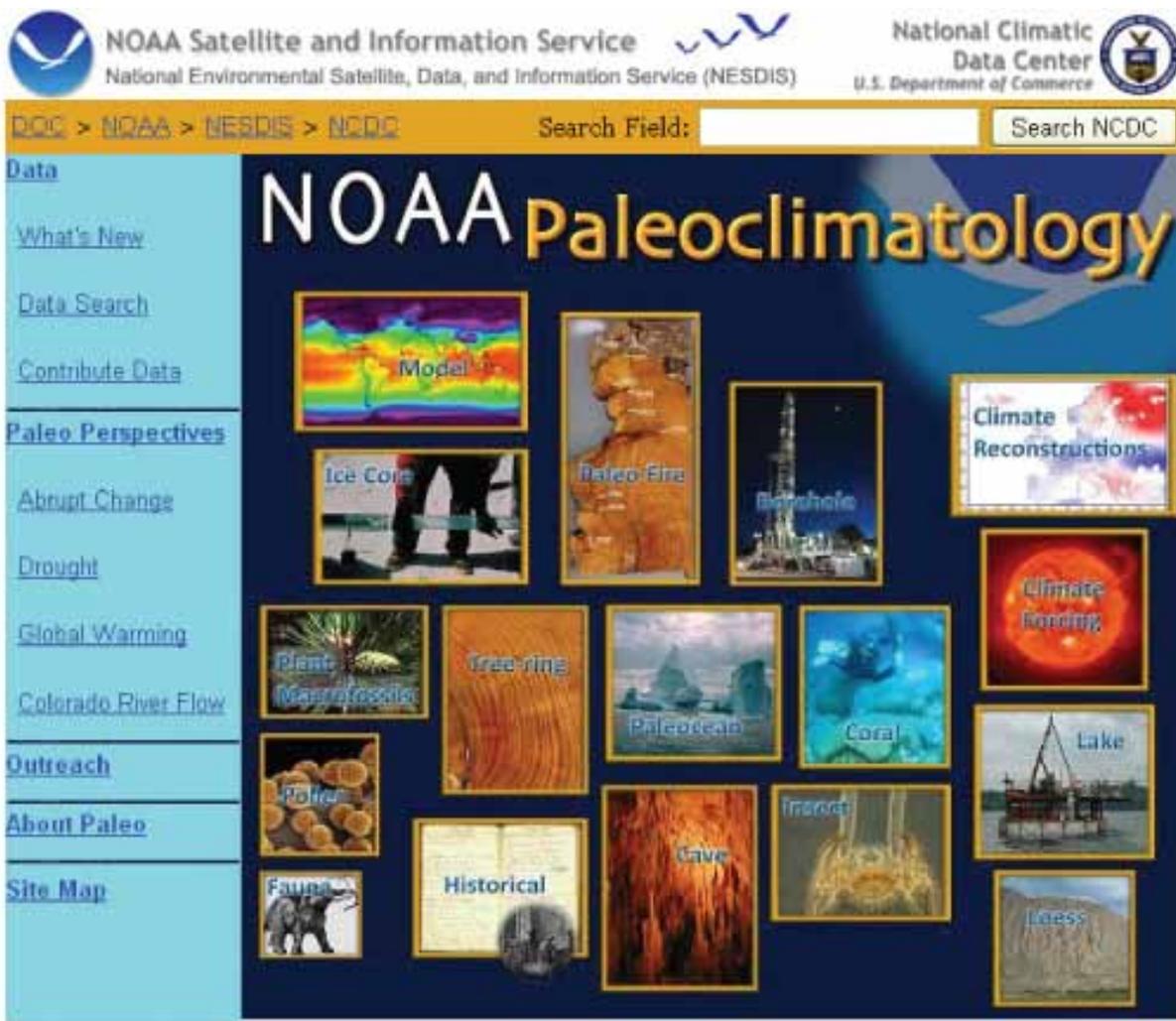
<http://www.ncdc.noaa.gov/oa/climate/research.html>

Paleoclimatology Data

Paleoclimatology is the study of past climate, from times prior to instrumental weather measurements. Paleoclimatologists use information from natural climate “proxies,” such as tree rings, ice cores, corals, and ocean and lake sediments that record variations in past climate. Records of past climate from these proxies are important for several reasons. Instrumental records of climate are limited in many parts of the world to the past 100 years or less and are too short to assess whether climate variability, events, and trends of the 20th and 21st centuries are representative of the long-term natural variability of past

centuries and millennia. For example, was the 1930s Dust Bowl drought a widespread and severe event in the United States, a rare occurrence, or have similar events occurred in past centuries? Knowledge of the long-term natural variability of the Earth climate system, and its causes, will also allow an understanding of the roles of natural climate variability and human induced climate change in the current and future climate. These data products are accessible from <http://www.ncdc.noaa.gov/paleo/paleo.html>.

Example data/information: Paleoclimatology Proxy Data, Climate Reconstructions, Climate Model output, and Climate Synthesis products.



<http://www.ncdc.noaa.gov/paleo/paleo.html>

Additional Online Data Access Portals

The NCDL Web site also includes GIS open system access to data at <http://gis.ncdc.noaa.gov>.

Climate Data Online (CDO) Version 2.0: CDO Version 2.0 was officially released to the public on November 29. The Version 2.0 functionality includes dynamic maps, integrated station/location search capabilities, REST-ful web services, product searches, and access to legacy systems.

NVDS GIS Open System Access to Data

<http://gis.ncdc.noaa.gov>

- OGC compliant WMS, WFS Services implemented
- Access to Metadata Records in Geospatial One Stop and Global Change Master Directory
- Provides access to numerous datasets, products, and graphing of data
- Faster Rich-Client tools implemented (Ajax)
- Google Earth product integration



The screenshot shows the NVDS GIS Open System Access to Data interface. It features a search bar with a 'Discover Data' button and a 'Search' button. Below the search bar, there are links for 'WMS Web Services', 'WFS Web Services', and 'Web Interface Search'. To the right, there is a map of the United States with various data points overlaid. The interface is clean and professional, with a blue and white color scheme.

<http://gis.ncdc.noaa.gov>



The screenshot shows the NOAA National Climatic Data Center website. The header includes the NOAA logo and the text 'NATIONAL CLIMATIC DATA CENTER NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'. Below the header, there is a navigation menu with links for 'Home', 'Climate Data Online', 'Contact Us', 'About NCDL', and 'Help'. A search bar is located on the right side of the header. The main content area is titled 'Climate Data Online' and features a 'Search Interactive Maps' section. This section includes a 'Integrated Map Application' with a 'Go to map now' button. Below this, there is a 'Select a Climate Theme Map' section with a list of themes: 'Hourly/Sub-Hourly Data', 'Daily Data', 'Climate Indices', 'Normals', and 'Precipitation'. A 'Help' sidebar is located on the right side of the main content area, providing links to 'Online help', 'View data samples & documentation', 'Check request status', 'Request assistance', 'NCDL Web Services', 'Web Services Documentation', and 'Contact Us'.

<http://www.ncdc.noaa.gov/cdo-web/search>



Sample of MAP Search Option from CDO

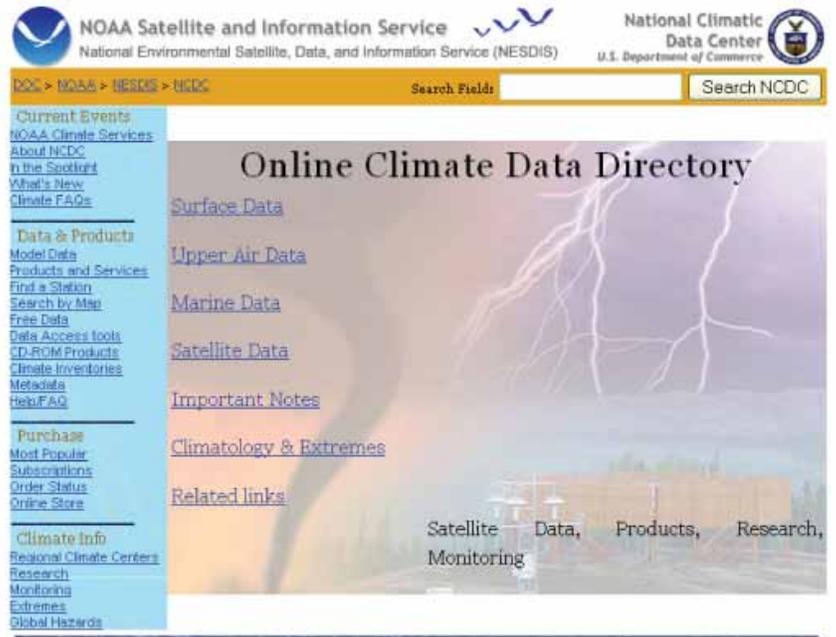
Most Popular Products (MPP):

The NCDC Most Popular Products Web page at <http://www.ncdc.noaa.gov/oa/mpp/> provides access to a wide range of the most commonly requested publications and digital data products. From here you can access all major publications, CD-ROMs, digital datasets, and there are special sections that list subscription products and free products.



<http://www.ncdc.noaa.gov/oa/mpp/>

Online Climate Data Directory: The Online Climate Data Directory Web page at <http://www.ncdc.noaa.gov/oa/climate/climatedata.html> provides a concise listing of all major data types (surface, upper air, marine, satellite, etc.) on one page with various means of accessing each data product listed (FTP, Web page, GIS, etc.).



<http://www.ncdc.noaa.gov/oa/climate/climatedata.html>

NOAA National Data Centers Online Store

The NOAA National Data Centers (NNDC) Online Store provides **centralized access** to in situ data, NEXRAD radar data, GIS Services, CD-ROM & DVD products, publications, and many other products and services.

Note that many of the datasets/products are free of charge to all customers, but some require online payment for non-“gov, edu, mil, k12” users. Please visit the NCDC Free Access Web page at <http://www.ncdc.noaa.gov/oa/about/ncdchelp.html#FREE> for more information on Free Access and the Online Data Access Policy.

Entry Page:

NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

NOAA National Data Centers
U.S. Department of Commerce

NCDC - NGDC - NODC New Order - Shopping Cart - Order Status - Help - Contacts - Subscriptions

NVDS Data and Products

Category /Type

Select Criteria to the Right and Click on Continue

1) Select Category of Data ; Products

- *All
- Climate *All
- Geophysical *All
- Oceanographic *All
- Radar *All
- Satellite *All
- User Description Agriculture

2) Show This Type of Data ; Products Only *All Products

3) Select Action for Above Products

List Search For: _____

Continue

You might want to access some of our systems directly such as [Climate Data Online](#), [HDSS Access System](#), [GIS Map Server](#)

If you are looking for **weather data from a particular location**, you should [Locate a Weather Station](#).

<http://ols.ncdc.noaa.gov/plostore/plsql/olstore.main?look=1>

Shopping Cart

Name	Detail Name	Retail Price	Wholesale Price	Quantity	Item Total
Engineering Weather Data CDEWD	-	\$35.00	\$17.00	1	\$17.00
Order Subtotal:					\$17.00

Shipping Charge: \$3.00
Foreign Service: \$0.00
ORDER TOTAL: \$20.00

Billing Information

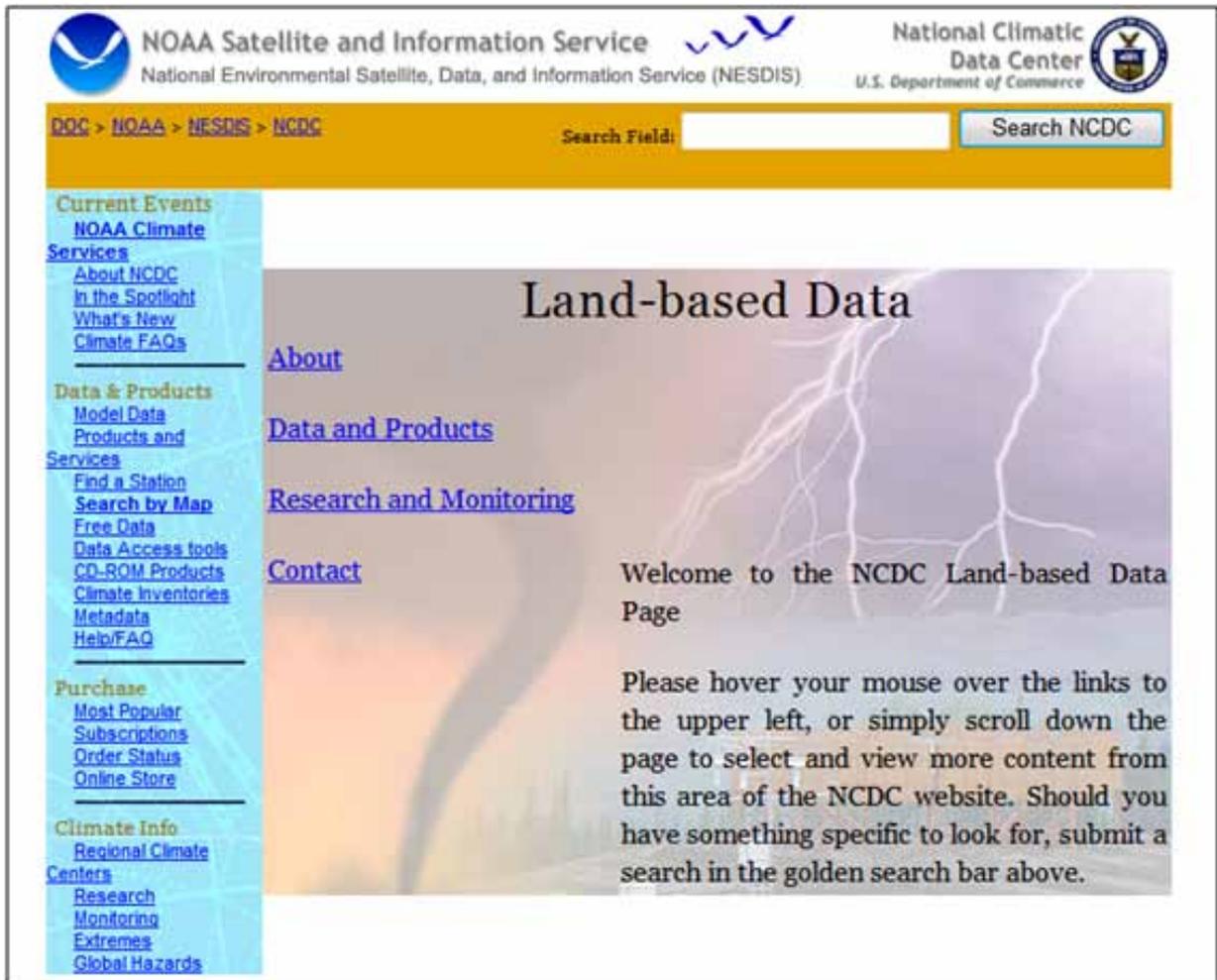
Email Address: deb1060@gmail.com
Customer Id: 0
Country: UNITED STATES
Zip Code: _____
State: _____
City: _____
Organization: _____
First Name: _____
Last Name: _____
Address Line1: _____
Address Line2: _____
Address Line3: _____
Billing Phone (numbers only): _____ Extension: _____

Shipping Information

Shipping Same As Billing Address: YES
Please select a shipping address: 0
Country: UNITED STATES
Zip Code: _____
State/Province: _____
City: _____
Organization: _____
First Name: _____
Last Name: _____
Address Line1: _____
Address Line2: _____
Address Line3: _____
Email Address: deb1060@gmail.com
Shipping Phone (numbers only): _____ Extension: _____
Shipping Method: USPS 1st Class Mail
Customer Reference: _____

Proceed to Order Confirmation

In-Situ Data



<http://www.ncdc.noaa.gov/oa/land.html>

General Information

1. See glossary of acronyms at end of Guide for details on terms used below.
2. The periods of record for these datasets vary considerably depending on data type and station.
3. All reference to QC pertains strictly to data checking and corrections performed within the Federal Climate Complex. Other gross QC is usually performed at the point of origin such as NCEP and AFWA.
4. The media available are: CD-ROM, DVD, and FTP transfer. These options vary depending on the dataset.
5. Cost to customer varies depending on data volume and the processing required for order.
6. This is only a summary of the major digital datasets available from NCDC. Many other datasets/data types (in addition to those listed below) are available. See <http://www.ncdc.noaa.gov/doclib> for a complete list and documentation for datasets.
7. NCDC's WWW Homepage has numerous datasets and data inventories on-line at <http://www.ncdc.noaa.gov>. NCDC makes frequent updates to this system; users are encouraged to review the homepage periodically to see what's available.

8. Points of contact for information, cost estimates, and data requests: National Climatic Data Center User Engagement & Services Branch 151 Patton Avenue Asheville, NC 28801-5001 Telephone: 828-271-4800, Fax: 828-271-4876 Internet: ncdc.info@noaa.gov

DATASET: Worldwide surface observations (hourly/synoptic)

DSI3505—Integrated Surface Data (ISD)--worldwide stations.

- **Data Type** -ASCII character data. Quality Control -Extensive automated QC (all data); additional manual

QC for USAF, Navy, and NWS stations. Data Origin -An integration of data from numerous sources, comprising all stations available historically.

- **Content/Elements**

-About 20,000 stations currently active. -Includes wind speed and direction, wind gust, temperature, dew point, cloud data, sea level pressure, altimeter setting, station pressure, present weather, visibility, precipitation amounts for various time periods, snow depth, and various other elements as observed by each station. -Observational practices vary by country.

The screenshot shows the NOAA National Climatic Data Center (NCDC) website interface for the NNDC Climate Data Online. At the top, there are logos for NOAA Satellite and Information Service and the National Climatic Data Center. A navigation bar includes links for DOC, NOAA, NESDIS, and NCDC, along with a search box for Keyword(s), City, Station Name, and a Search NCDC button. Below the navigation bar, there are links for Land-Based Data, NNDC CDO, Product Search, and Help. The main heading is "NNDC CLIMATE DATA ONLINE". Underneath, there is a section titled "Climate Data Online" with a "Sample Output" list containing links for "IMPORTANT: Changes", "ASCII Space Delimited", "Printable Web Form", "Hourly Summary", "Inventory", "Map Analysis", and "Info / Help". To the right, a "DataSet/Product Options" dropdown menu is open, showing a list of data products: "Surface Data, Annual Summary (Over 18,000 U.S., some non-U.S. sites)", "Surface Data, Daily (Over 19,000 U.S. some non-US sites)", "Surface Data, Global Summary of the Day *", "Surface Data, Hourly Global (Over 10,000 worldwide sites)", "Surface Data, Marine (1662-2007 ICOADS v. 2.5, NCDC 2008-current) *", and "Surface Data, Monthly (Over 18,000 U.S. some non-US sites)". Below the dropdown is an "Access Data/Products" button and a note "* Free Product". At the bottom of the page, there are links for "Privacy Policy", "USA.gov", and "Disclaimer".

<http://cdo.ncdc.noaa.gov/CDO/dataproduct> or via FTP at <ftp://ftp.ncdc.noaa.gov/pub/data/noaa/>

- **Period of Record** -1901 to present (varies greatly by station). Notes -See <http://www.ncdc.noaa.gov/doclib> for further details. The complete dataset for 1995-1999 is available with annual updates for all stations for the period 2000-2010. **Online** -<http://cdo.ncdc.noaa.gov>

DATASET: Global ship and buoy observations (hourly/synoptic). The International Comprehensive Ocean Atmosphere Data Set (ICOADS) and NCDC Global Marine Data.

- **Data Type** -ASCII character data. Quality Control -Undergoes automated QC. Data Origin -Data originate from multiple sources, including GTS + some key entered data. Content/Elements

-Includes elements observed by ships, buoys and Coastal Marine Automated Network (CMAN) stations--temperature and dew point, wind direction and speed, visibility, present weather, sea level pressure, sea surface temperature, cloud data, ice data, and wave/swell heights and periods. -Generally, buoys and CMAN stations only observe temperature, wind, pressure, sea surface temperature, and wave/swell data; while some ship reports include other elements.

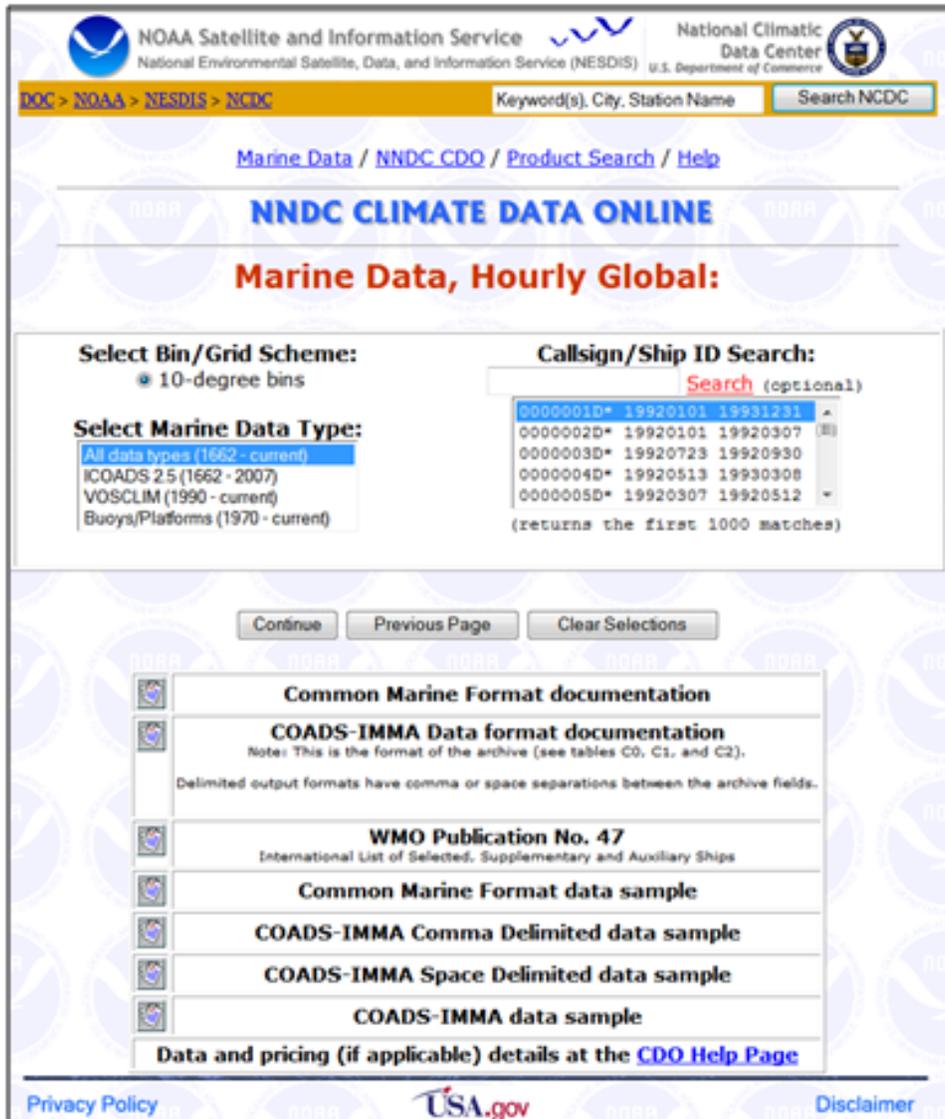
-Elements vary considerably by station. Period of Record -As early as 1662 to present. Notes -See <http://www.ncdc.noaa.gov/doclib> for further details. Online -<http://www7.ncdc.noaa.gov/CDO/CDOMarine-Select.jsp> & <http://has.ncdc.noaa.gov/pls/plhas/HAS.FileAppSelect?datasetname=1173>

ICOADS Release 2.5 (1662-2007) is also available in monthly files via NCDC ftp access. These observations can be retrieved from the following location:

<http://www1.ncdc.noaa.gov/pub/data/icoads2.5>

For information on the ICOADS R2.5 monthly files, please read the following file prior to using the data: **read_icoads2.5.pdf**

For official ICOADS data access at NCDC, the user must select data type "icoads2.5". NCDC offers only "enhanced" R2.5 observations, which were derived using 4.5 standard deviation "trimming" (quality control screening) limits, so as to accommodate more extreme climate events, and using a broad collection of marine observations including ships, buoys and near-surface oceanographic profile temperatures. All three U.S. ICOADS Partners (NOAA/ESRL, NOAA/NCDC, NCAR) offer various data access and format options. To review all available options, please see the ICOADS Products Website at <http://icoads.noaa.gov/products.html>, looking under the "Observations" section.



<http://www7.ncdc.noaa.gov/CDO/CDOMarineSelect.jsp>

DATASET: Global ship observations (hourly/synoptic).
Voluntary Observing Ship Climate (VOSCLIM) Project.

ture, sea surface temperature, winds and relative humidity are also included.

- **Data Type** -ASCII character data. Quality Control -Undergoes automated QC; additional QC is performed by the UKMET Office against corresponding model fields. Data Origin -Data originates from Global Telecommunications Systems (GTS) + some key-entered data.
- **Content/Elements**
 - Includes elements observed by ships--temperature and dew point, wind direction and speed, visibility, present weather, sea level pressure, sea surface temperature, cloud data, ice data, and wave/swell heights and periods. Background model fields for sea level pressure, air tempera-

- **Period of Record** -2001 to present. **Notes** – See <http://www.ncdc.noaa.gov/oa/documentlibrary/vosclim/imma.pdf> for data format details.

-See <http://www1.ncdc.noaa.gov/pub/data/vosclim/vosclimshiplist.xls> for Fleet Ship List. **Online** –

-Monthly ASCII Files:

<http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclimdata.html>

-Database Access for Subsetting Purposes:

<http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclim.html>

DATASET: Hourly precipitation data for NWS and cooperative U.S. stations--DSI3240.

- **Data Type** -ASCII character data. **Quality Control** -Undergoes automated and manual quality control. **Data Origin** -Various sources including ASOS and punched tape from stations. **Content/Elements**

-Hour-by-hour precipitation amounts.
 -About 2800 stations currently active. Period of **Record** -Generally 1948 to present.

Notes -See <http://www.ncdc.noaa.gov/doclib> for further details.

-Data are also available on a CD-ROM set. **Online** -<http://cdo.ncdc.noaa.gov>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Keyword(s), City, Station Name

[Land-Based Data](#) / [NNDC CDO](#) / [Product Search](#) / [Help](#)

Climate Data Online

DataSet/Product Options

Sample Output:
[IMPORTANT: Changes
ASCII Space Delimited
Printable Web Form](#)
[Hourly Summary](#)
[Inventory](#)
[Map Analysis](#)

[Info / Help](#)

- NOMADS--Model Data *
- Nexrad Radar Imagery *
- Precipitation Data, 15 minute (Over 3,400 U.S., some non-U.S. sites)
- Precipitation Data, Hourly (Over 6,100 U.S., some non-US sites)**
- Precipitation Data, Hourly Rainfall Event Statistics *
- Satellite Data

* Free Product

[Privacy Policy](#) [Disclaimer](#)

<http://cdo.ncdc.noaa.gov/CDO/dataproduct>

DATASET: 15-Minute precipitation data for NWS and cooperative U.S. stations--DSI3260.

- **Data Type** -ASCII character data. **Quality Control** -Undergoes automated and manual quality control. **Data Origin** -Various sources including ASOS and punched tape from stations. **Content/Elements**

-Precipitation amounts for 15-minute increments.
 -About 2400 stations currently active. **Period of Record**
 -Generally 1971 to present. **Notes** -See <http://www.ncdc.noaa.gov/doclib> for further details. **Online** -<http://cdo.ncdc.noaa.gov>

<http://cdo.ncdc.noaa.gov/CDO/dataproduct>

DATASET: Cooperative station and NWS summary of day data for the U.S. DSI3200.

- **Data Type** -ASCII character data. **Quality Control** -Undergoes automated and manual quality control. **Data Origin** -Various sources including key-entry from forms and ASOS. **Content/Elements**

-Includes summary of day parameters such as maximum/minimum temperatures, precipitation,

and snowfall/snow depth. Some stations have additional data such as evaporation and soil temperature. -About 8000 stations currently active.

- **Period of Record** -Generally 1948 to 2010 (some late 1800's to 2010). **Notes** -See<http://www.ncdc.noaa.gov/doclib> for further details. -Data are also available on a CD-ROM set. **Online** -<http://cdo.ncdc.noaa.gov>

The screenshot shows the NOAA National Climatic Data Center website. At the top, there are logos for NOAA Satellite and Information Service, National Environmental Satellite, Data, and Information Service (NESDIS), and the National Climatic Data Center, U.S. Department of Commerce. Below the logos is a navigation bar with links: DOC > NOAA > NESDIS > NCDC. To the right of the navigation bar is a search bar with the text 'Keyword(s), City, Station Name' and a 'Search NCDC' button. Below the search bar are links for 'Land-Based Data / NNDC CDO / Product Search / Help'. The main heading is 'NNDC CLIMATE DATA ONLINE'. Underneath is a section titled 'Climate Data Online' and 'DataSet/Product Options'. On the left side of the 'Climate Data Online' section, there are links for 'Sample Output: IMPORTANT: Changes ASCII Space Delimited Printable Web Form Hourly Summary Inventory Map Analysis Info / Help'. In the center, there is a list of data products: Satellite Data, Surface Data, Annual Summary (Over 18,000 U.S., some non-U.S. sites), Surface Data, Daily (Over 19,000 U.S., some non-US sites) (highlighted in blue), Surface Data, Global Summary of the Day *, Surface Data, Hourly Global (Over 10,000 worldwide sites), and Surface Data, Marine (1662-2007 ICOADS v. 2.5, NCDC 2008-current) *. Below the list is an 'Access Data/Products' button. At the bottom right of the product list, there is a note '* Free Product'. At the bottom of the page, there are links for 'Privacy Policy', 'USA.gov', and 'Disclaimer'.

<http://cdo.ncdc.noaa.gov/CDO/dataproduct> or via FTP at <ftp://ftp3.ncdc.noaa.gov/pub/data/>

DATASET: Summary of day data from NOAA’s National Weather Service (U.S.), Community Collaborative Rain, Hail and Snow Network {CoCoRaHS (U.S.)}, Department of Defense (U.S. and foreign), and global sites {Global Historical Climate Network (GHCN-Daily)}.

- **Data Type** -ASCII character data. **Quality Control** -All datasets are QC’ed (automated). **Data Origin** -Various sources including ASOS, directly from stations, and key-entry. **Content/Elements**

-Includes maximum/minimum temperatures, precipitation, snowfall and snow depth. Some U.S. stations have additional data such as evaporation and soil temperature. Element content varies greatly by station. -Approximately 28,000 stations are regularly updated, with over 75,000 having available historical data.

- **Period of Record** -Generally 1890’s to present with the earliest observations beginning in the 1830’s. **Notes** -See <http://www.ncdc.noaa.gov/doclib> for further details.

The screenshot shows the NOAA website page for the Global Historical Climatology Network - Daily dataset. At the top, there are logos for NOAA Satellite and Information Service (NESDIS) and the National Climatic Data Center (U.S. Department of Commerce). The main heading is "Global Historical Climatology Network - Daily". On the left, there is a navigation menu with sections: Access (Data, Metadata), Description (Introduction, Source Data, Data Coverage), Methods (Data Integration, Quality Control, Bias Adjustment), Other (Journal Articles, Related Projects, NCDC Land-based Data, Status Reports, RSS Notifications), and Contacts. The main content area is titled "Description - Introduction" and contains several paragraphs of text. A photo of a weather station is included on the right side of the main content area, with the caption "Photo courtesy Grant Goodge/NCDC". The footer of the page includes a breadcrumb trail "DOC > NOAA > NESDIS > NCDC", a search bar with the text "Enter Search Term(s):" and a "Search NCDC" button, and links for "Privacy Policy", "Open Access to Data", "USA.gov", and "Disclaimer".

<http://cdo.ncdc.noaa.gov/oa/climate/ghcn-daily/>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Keyword(s), City, Station Name

[Land-Based Data](#) / [NNDC CDO](#) / [Product Search](#) / [Help](#)

NNDC CLIMATE DATA ONLINE

Global Summary of the Day (GSOD)

Retrieve data for:

- Worldwide
- Geographic Region
- Country
- Station Range (IDs): to

<input type="checkbox"/>	Data format documentation
<input type="checkbox"/>	Station List
<input type="checkbox"/>	FTP Access
<input type="checkbox"/>	Comma Delimited data sample
<input type="checkbox"/>	Space Delimited data sample
<input type="checkbox"/>	Graph sample

Data and pricing (if applicable) details at the [CDO Help Page](#)

[Privacy Policy](#) [USA.gov](#) [Disclaimer](#)

<http://www7.ncdc.noaa.gov/CDO/cdoselect.cmd?datasetabbv=GSOD&countryabbv=georegionabbv=>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Keyword(s), City, Station Name

Global Surface Summary of Day

Version 8 - Over 9000 Worldwide Stations - Updated Daily

- [Important Notes](#)
- [Informational Files](#)
- [Data Files \(Current\)](#)
- [Data Files \(All Years\)](#)
- [Data Files \(Severe Events\)](#)
- [Map of Station Locations](#)
- [Uncompression Software](#)
- [Anonymous FTP Instructions](#)
- [Details/Format](#)
- [Interactive Selection/Graphing](#)

<http://www.ncdc.noaa.gov/cgi-bin/res40?pagae=gsod.html>

DATASET: Monthly summary data for NWS and cooperative U.S. stations (DSI3220), and global sites (Global Historical Climate Network).

- **Data Type** -ASCII character data. **Quality Control** -Undergoes automated and manual quality control. **Data Origin** -Monthly summaries built from NWS and cooperative daily data as described above; and monthly data provided by individual countries.

- **Content/Elements** -Includes temperature (mean minimum, mean maximum, overall mean, extreme minimum, extreme maximum), precipitation amount, and for selected stations--snowfall, evaporation data, and soil temperature data. -About 8000 stations currently active.
- **Period of Record** -Generally 1948 to present (some late 1800's to present) **Notes** -See <http://www.ncdc.noaa.gov/doclib> for further details. **Online** -<http://cdo.ncdc.noaa.gov>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Keyword(s), City, Station Name

[Land-Based Data](#) / [NNDC CDO](#) / [Product Search](#) / [Help](#)

Climate Data Online

DataSet/Product Options

- Surface Data, Daily (Over 19,000 U.S. some non-US sites)
- Surface Data, Global Summary of the Day *
- Surface Data, Hourly Global (Over 10,000 worldwide sites)
- Surface Data, Marine (1662-2007 ICOADS v. 2.5, NCDC 2008-current) *
- Surface Data, Monthly (Over 18,000 U.S. some non-US sites)**
- Surface Data, Monthly Extremes - U.S. *

* Free Product

[Sample Output:](#)
[IMPORTANT: Changes](#)
[ASCII Space Delimited](#)
[Printable Web Form](#)
[Hourly Summary](#)
[Inventory](#)
[Map Analysis](#)
[Info / Help](#)

[Privacy Policy](#) [Disclaimer](#)

<http://cdo.ncdc.noaa.gov/CDO/dataproduct>

DATASET: Summary of month data for U.S. and global sites {Global Historical Climate Network (GHCN-Monthly)}.

- **Data Type** -ASCII character data. **Quality Control** -All datasets are QC'ed (automated). **Data Origin** -Various international sources. Updated monthly primarily from CLIMAT messages.

- **Content/Elements**

-Includes monthly mean temperature, monthly maximum/minimum temperatures, and monthly total precipitation. Element content varies greatly by station. -Approximately 20,000 stations with precipitation data and 7280 stations with monthly mean temperature. **Period of Record** -Generally late 1800's to present with the earliest observations beginning in the 1700's. **Notes** -See <http://www.ncdc.noaa.gov/doclib> for further details. **Online** -www.ncdc.noaa.gov/ghcnm

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC Search Field: Search NCDC

Climate Monitoring | GHCN Monthly | Help

GHCN Monthly

National Oceanic and Atmospheric Administration
National Climatic Data Center

Effective May 2, 2011, the Global Historical Climatology Network-Monthly (GHCN-M) version 3 dataset of monthly mean temperature will replace GHCN-M version 2 as the dataset for operational climate monitoring activities. Although GHCN-M version 2 will continue to be updated with recent observations until June 30, 2011, users are encouraged to begin using GHCN-M version 3. Please see: [Summary of Recent Changes in the GHCN-M Temperature Dataset and Merged Land-Ocean Surface Temperature Analyses](#).

- [Version 3](#)
- [Version 2](#)

Compare Version 2 vs. Version 3

- [Temperature Anomaly Maps](#)
- [Temperature Anomaly Time Series](#)

Questions?
For all climate questions, please contact the National Climatic Data Center's Climate Services and Monitoring Division:

*Climate Services and Monitoring Division
NOAA/National Climatic Data Center
151 Patton Avenue
Asheville, NC 28801-5001
fax: +1-828-271-4876
phone: +1-828-271-4800
email: ncdc.info@noaa.gov
To request climate data, please E-mail: ncdc.orders@noaa.gov*

For questions specific to GHCNM, please email: ncdc.ghcnm@noaa.gov.

Climate Monitoring | GHCN Monthly | Help

[Privacy Policy](#) [Open Access to Data](#) [USA.gov](#) [Disclaimer](#)

www.ncdc.noaa.gov/ghcnm.

Disclaimer: As of 11/17/2011, the version of GHCN-Monthly for temperature variables is V.3.1; for precipitation variables, the version is v.2.0. The latest information about GHCN-Monthly Version Availability is accessible from the GHCN-Monthly Website.

DATASET: National Solar Radiation Database 1991-2005 for the U.S., Guam, and Puerto Rico--DSI3284.

- **Data Type** -ASCII character data. **Quality Control**- Underwent extensive QC of data. **Data Origin** – National Renewable Energy Laboratory (NREL) Content/ Elements

-The 1991 – 2005 NSRDB contains hourly solar radiation (including global, direct, and diffuse) and meteorological data for 1,454 stations. This update builds on the 1961-1990 NSRDB, which contains data for 239 stations. This includes the conventional

time series for NSRDB ground stations as well as a one-tenth-degree gridded data set that contains hourly solar records for 8 years (1998 – 2005) for the United States (except Alaska above 60° latitude) for about 100,000 pixel locations (at a nominal 10-km-by-10-km pixel size).

- **Period of Record** -1991 to 2005
Notes –See <ftp://ftp.ncdc.noaa.gov/pub/data/nsrdb-solar/solar-only/documentation/NSRDBusermanual.pdf> for further details
Online – <http://ols.nndc.noaa.gov/plolstore/plsql/olstore.prodspecific?prodnum=C00668-TAP-A0001>



*A national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy*

NREL National Renewable Energy Laboratory

Innovation for Our Energy Future

The 1991–2005 National Solar Radiation Database

The success of any solar energy installation depends largely on the site’s solar resource. Therefore, detailed knowledge of an area’s solar resource is critical to installation planning and siting. To help with these efforts, the National Renewable Energy Laboratory (NREL) and the National Climatic Data Center (NCDC) have updated the National Solar Radiation Database (NSRDB). Since 1992, the database has provided solar planners and designers, building architects and engineers, renewable energy analysts, and countless others with extensive solar radiation information.

The 1991–2005 NSRDB contains hourly solar radiation (including global, direct, and diffuse) and



1991 - 2005 Update

- Class I
- Class II
- Class III
- Measured Solar

1961 - 1990 NSRDB

- ☆

<http://www.ncdc.noaa.gov/oa/samples/NSDBfsv5.pdf>

**DATASET: ASOS 1-minute and 5-minute data--
DSI6401-6406.**

- **Data Type** -ASCII character data. **Quality Control** -Undergoes automated QC. **Data Origin** -Data originate from ASOS ingest process. Content/Elements

-Includes most surface elements observed in the U.S.
(wind speed and direction, temperature, dew point, cloud

data, sea level pressure, altimeter setting, station pressure, present weather, visibility, precipitation amount, etc).

-About 900 stations currently active. Period of Record

-Generally 1998 to present (2000 to present online).

Notes -<http://www.ncdc.noaa.gov/doclib>

Online -<http://www.ncdc.noaa.gov/oa/climate/climate-data.html#asosminutedata>

 **Surface Data: 1-Minute/5-Minute**
(Minute readings of temperature, precipitation, winds, pressure, etc)

ASOS 1-Minute Data  
(2000 - present, DSI 6405/page 1 and DSI 6406/page 2 data)

ASOS 5-Minute Data  
(2000 - present, DSI 6401 data)

<http://www.ncdc.noaa.gov/oa/climate/climatedata.html#asosminutedata>

DATASET: Service Records Retention System (SRRS) data.

- **Data Type** -ASCII character and binary data. **Quality Control** -No quality control performed. **Data Origin** -Data originate from ingest of NWS products. **Content/Elements**

-Includes: 1) all surface, upper-air, forecast, warning, and other text bulletins received via SRRS pro-

cesses; 2) many National Weather Service (NWS)/ National Centers for Environmental Prediction (NCEP) Model-Generated Charts and Analyses; and 3) the National Digital Forecast Database (NDFD).

- **Period of Record** -Late 2000 to present. **Notes** -These are the “raw” data as received from NCEP and NWS. **Online** – <http://nomads.ncdc.noaa.gov/ncep/NCEP>



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



National Climatic Data Center
U.S. Department of Commerce

SRRS Analysis and Forecast Charts

Chart Type Selection

The Service Records Retention System (SRRS) is an archive and access system for selected National Weather Service (NWS) operational products maintained at the National Climatic Data Center.

NOTE: This system provides National Weather Service charts that are archived at the National Climatic Data Center. Additional charts from earlier years are available for [offline ordering](#).

- North American Analysis
- North American Forecast
- Northern Hemisphere Analysis
- Northern Hemisphere Forecast
- Ocean Analysis
- Ocean Forecast
- Southern Hemisphere Analysis
- Tropical Analysis
- US Radar Summary

[Define chart terms](#) (opens in new window)

[Privacy Policy](#)

HOW ARE WE DOING?
A user survey



FIRST GOV
The U.S. Government's Official Web Portal

[Disclaimer](#)

<http://nomads.ncdc.noaa.gov/ncep/NCEP>

DATASET: Worldwide upper-air observations—Integrated Global Radiosonde Archive (IGRA)

- **Data Type** -ASCII character data. **Quality Control** -Undergoes some automated QC. **Data Origin** -Various sources including digital data from the stations (U.S. plus some Mexican), key entered data, digital data from source countries, and GTS.
- **Content/Elements** -Replaced Comprehensive Aerological Reference Dataset (CARDS)—DS 6305. -Includes all

elements observed in upper air soundings--generally temperature, dew point depression, atmospheric pressure, wind direction and speed

-About 1500 globally distributed stations; 900 of the stations are currently active. Period of Record -Generally 1946 to present. **Notes**-See <http://www.ncdc.noaa.gov/oa/climate/igra/index.php> for further details. **Online** -<http://www.ncdc.noaa.gov/oa/climate/igra/index.php>



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



National Climatic Data Center
U.S. Department of Commerce

Integrated Global Radiosonde Archive

Data Access
ASCII Files (FTP)
Maps/Charts
Metadata

Description
Introduction
Source Data
Data Coverage

Methods
Data Integration
Quality Control
Bias Adjustment

Other
Journal Articles
Related Projects
Status Reports
NCDC Upper Air Data

Contacts

Introduction

The Integrated Global Radiosonde Archive (IGRA) consists of radiosonde and pilot balloon observations at over 1500 globally distributed stations (Figure 1). Observations are available for standard, surface, tropopause and significant levels. Variables include:

- Pressure
- Temperature
- Geopotential Height
- Dewpoint Depression
- Wind Direction
- Wind Speed

The period of record varies from station to station, with many extending from 1970 to present (Figure 2). Station records are updated daily and are available online at no charge.



Photo courtesy of National Weather Service

DOC > NOAA > NESDIS > NCDC
Enter Search Term(s):
Search NCDC

[Privacy Policy](#)
[Open Access to Data](#)

[Disclaimer](#)

<http://www.ncdc.noaa.gov/oa/climate/igra/index.php>

Specialized In-Situ Products

General Information

These Specialized Products can be provided on CD/DVD or as paper copy (unless otherwise indicated). Please call 828-271-4800 or email “ncdc.info@noaa.gov” for further details. There are charges involved for these services.

Cooperative Station Extremes Tabulation: This tabulation shows daily and monthly extremes for the entire period of record (generally 1948 to 2010) for U.S. cooperative and National Weather Service sites. There are currently over 8,000 active stations. The elements included are maximum/minimum temperature, precipitation, and snowfall.

Wind Rose Summary: This summary provides a statistical summary of wind speed vs. wind direction for any station (U.S. or foreign) reporting adequate observational data. Data are tabulated in incremental ‘bins’ such as 0-3 miles per hour, 4-7 miles per hour, etc. and can be run for periods of record through 2009.

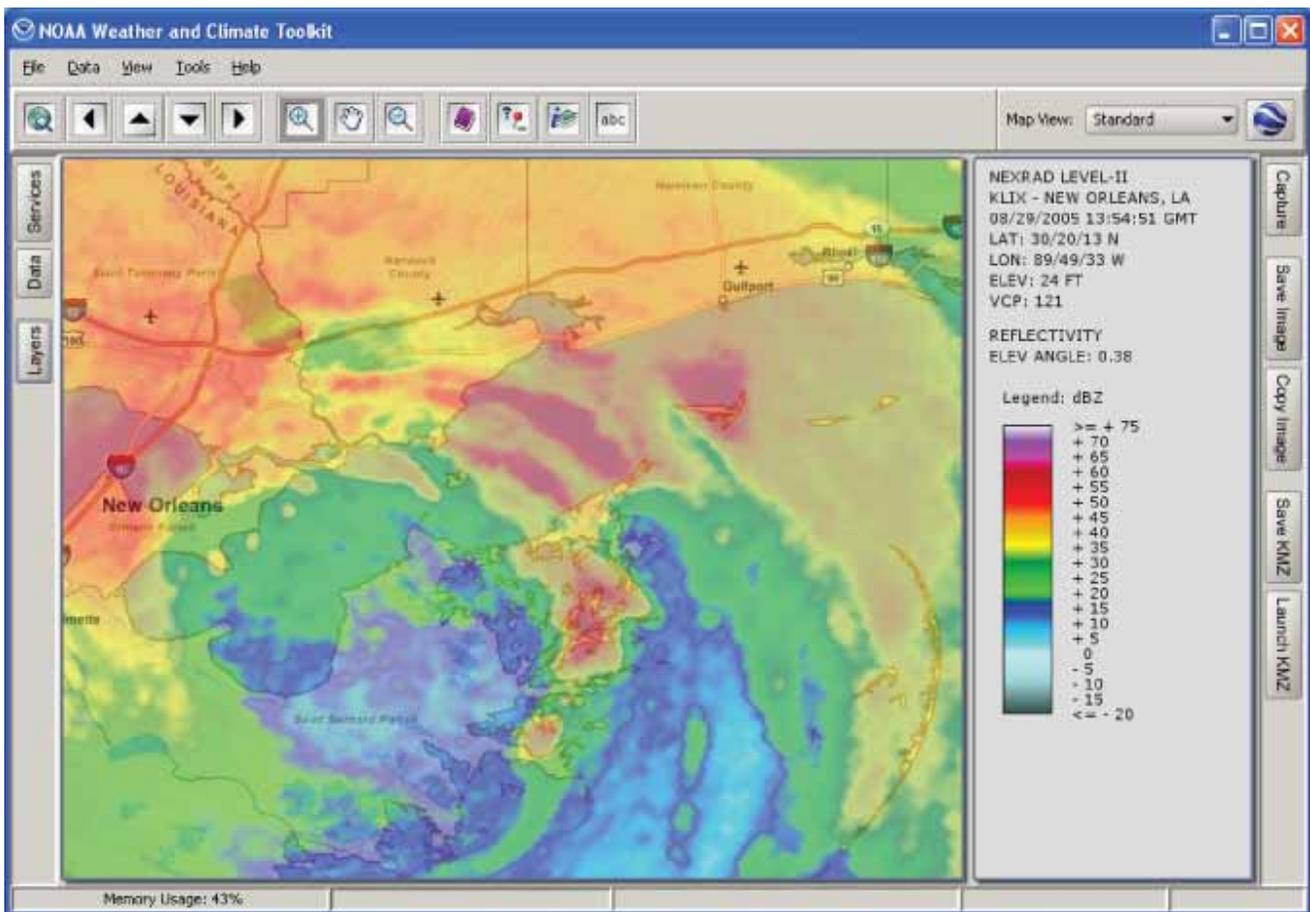
Mixing Height Summary: This summary provides a day by day estimate of the mixing height for the boundary layer by using surface and upper air observational data. It’s often used for pollution and air dispersion models. This product is provided for U.S. sites only and can be run for periods of record through 2009.

Stability Array: This provides month by month averages of surface-based stability in Pasquill stability categories. Hourly or synoptic surface observations are used as input and can be run for periods of record through 2009.

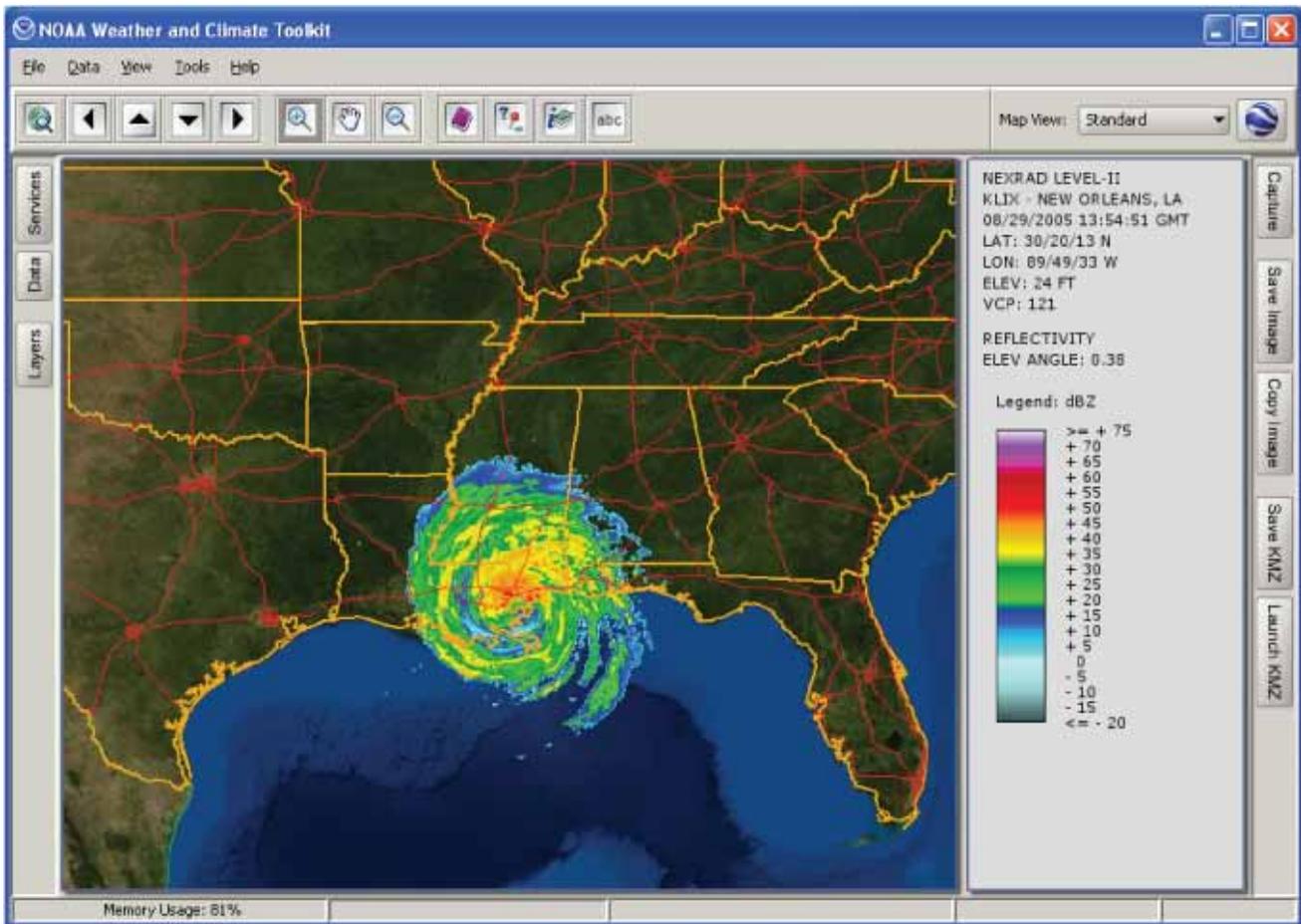
NEXRAD Products

The Next Generation Weather Radar system (NEXRAD) comprises 159 Weather Surveillance Radar-1988 Doppler (WSR-88D) sites throughout the United States and select overseas locations. This system is a joint effort of the United States Departments of Commerce (DOC), Defense (DOD), and Transportation (DOT). The controlling agencies are the National Weather Service (NWS), Air Force Weather Agency (AFWA) and Federal Aviation Administration (FAA), respectively. Level II data are the three meteorological base data quantities: reflectivity, mean radial velocity, and spectrum width. From these quantities, computer processing generates numerous

meteorological analysis products known as Level III data. Level II data are recorded at all NWS and several select CONUS DOD WSR-88D sites. Level III products are recorded at 155 of the 159 sites. The data are sent to the National Climatic Data Center (NCDC) for archiving and dissemination. All WSR-88Ds will undergo a modification to implement dual polarization capability over the next year. This new technology allows the WSR-88D to simultaneously transmit and receive in the horizontal and vertical planes, providing an additional dimension of weather features and giving the weather forecaster additional and improved tools to serve the public. A list



NEXRAD Level-II Base Reflectivity Image with ESRI background map:



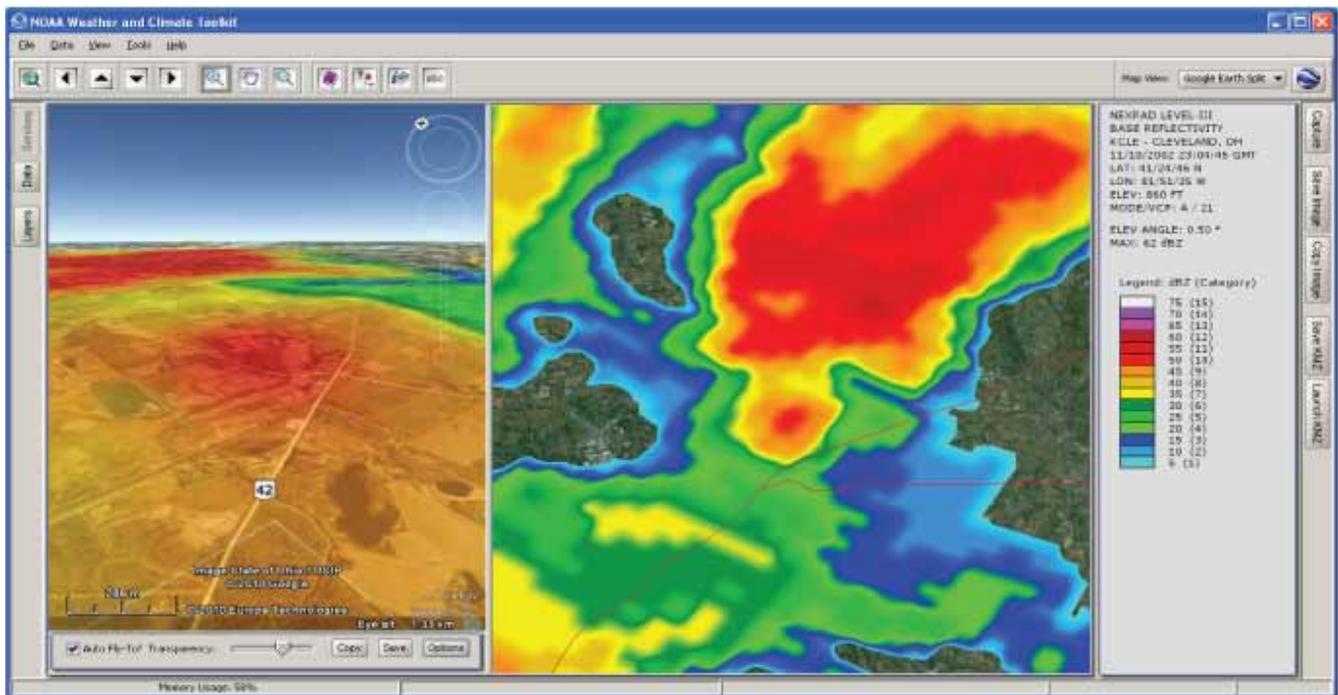
NEXRAD Level-II Base Reflectivity Image with ESRI imagery:

of all NEXRAD Level III products including the new dual polarization products can be found at the following site:

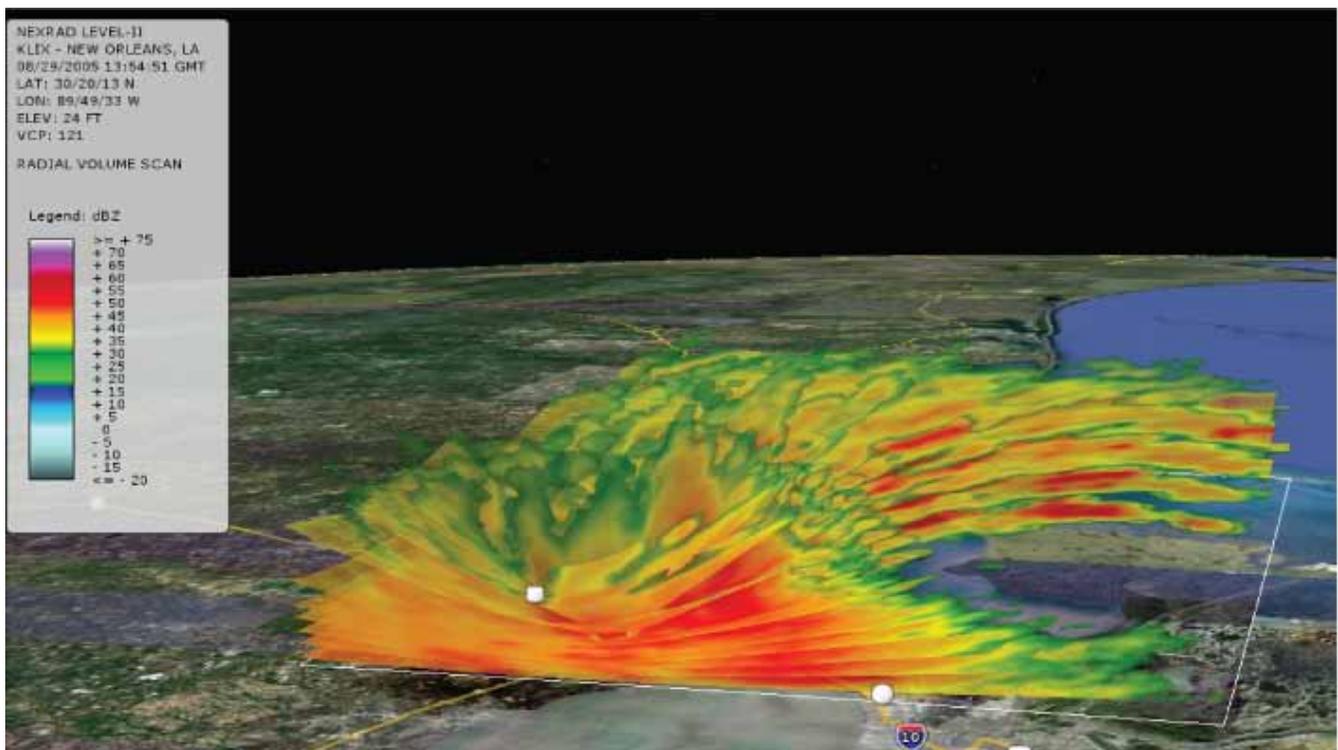
<http://www.ncdc.noaa.gov/oa/radar/radarproducts.html>

The NCDC provides a radar viewer and data export toolkit called NOAA's Weather and Climate Toolkit. It is free software which visualizes WSR-88D Level-II and Level-III NEXRAD Radar data from the NCDC Archive on Windows, Mac, and Linux platforms. This toolkit is the successor to the Java NEXRAD Tools and will visualize the new dual polarization products

Hurricane Katrina: 3-D volume scan KMZ output rendered in Google Earth.



Level-III Base Reflectivity with internal Google Earth plug-in



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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC Search Field: Search NCDC

NCDC Radar Resources

[About Radar Resources](#)

[Download/View Radar Data](#)

[Products](#)

[Data Inventory / Order Data](#)

[Online Document Library](#)

[Contact Information](#)

[Other Resources](#)

Welcome to the NCDC Radar Page

Please hover your mouse over the links to the upper left, or simply scroll down the page to select and view more content from this area of the NCDC website. This is the first in a series of steps we're taking to improve our site. Should you have something specific to look for, submit a search in the golden search bar above.

Latest News

[Weather and Climate Toolkit](#)

[Level-II Format Change - Technical Information Notice](#)

[Level-II Format Change - Notification](#)

[Dual-Polarization Sample Data!](#)

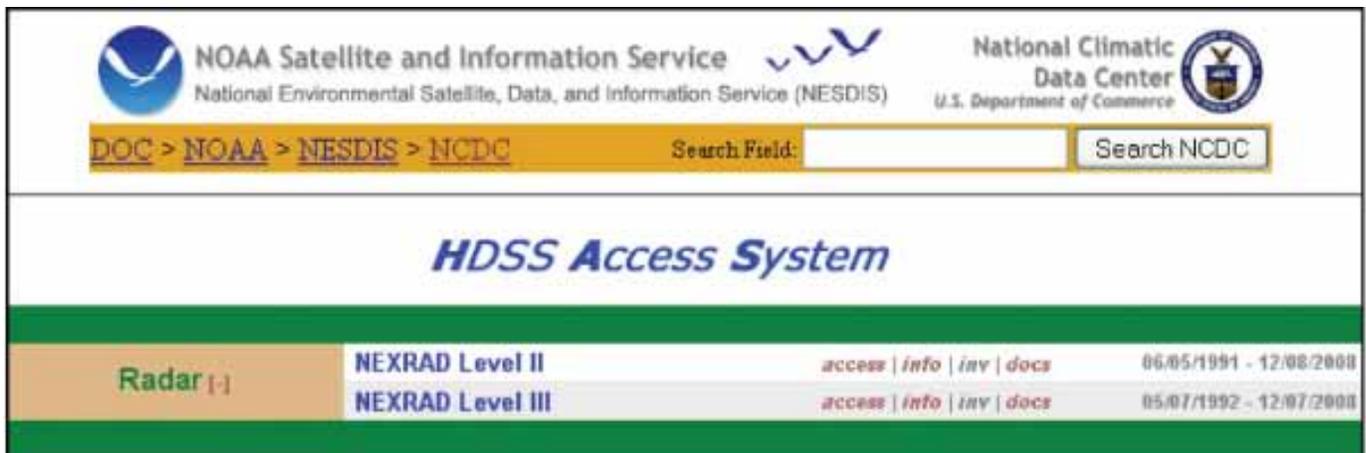
[Korean Data Available](#)

NCDC Radar Resources Web page <http://www.ncdc.noaa.gov/oa/radar>

The following two sites provide access to NEXRAD Level II and III data:
<http://www.ncdc.noaa.gov/nexradinv> and <http://has.ncdc.noaa.gov/>



Web site screenshot of <http://www.ncdc.noaa.gov/nexradinv/>



Web site screenshot of <http://has.ncdc.noaa.gov/>

The Weather and Climate Toolkit

NOAA's Weather and Climate Toolkit is an application that provides simple visualization and data export of weather and climatological data archived at NCDC. The Toolkit also provides access to weather/climate web services provided from NCDC and other organizations, as well as community standard data formats. The Viewer provides tools for displaying custom data overlays, Web Map Services (WMS), animations and basic filters. The export of images and movies is provided in multiple formats. The Data Exporter allows for data export in both vector point/line/polygon and raster grid formats. Additional visualization capabilities include constant altitude slices of radial volume scans and isosurface export to Google Earth.

Major updates in 2011 added support for:

- NEXRAD Dual-Polarization support (Level-II moments and Level-III products)
- Isosurface export to Google Earth (KMZ format)

- CAPPI (Constant Altitude Plan Position Indicator) - a constant altitude cross-section of Radar data.

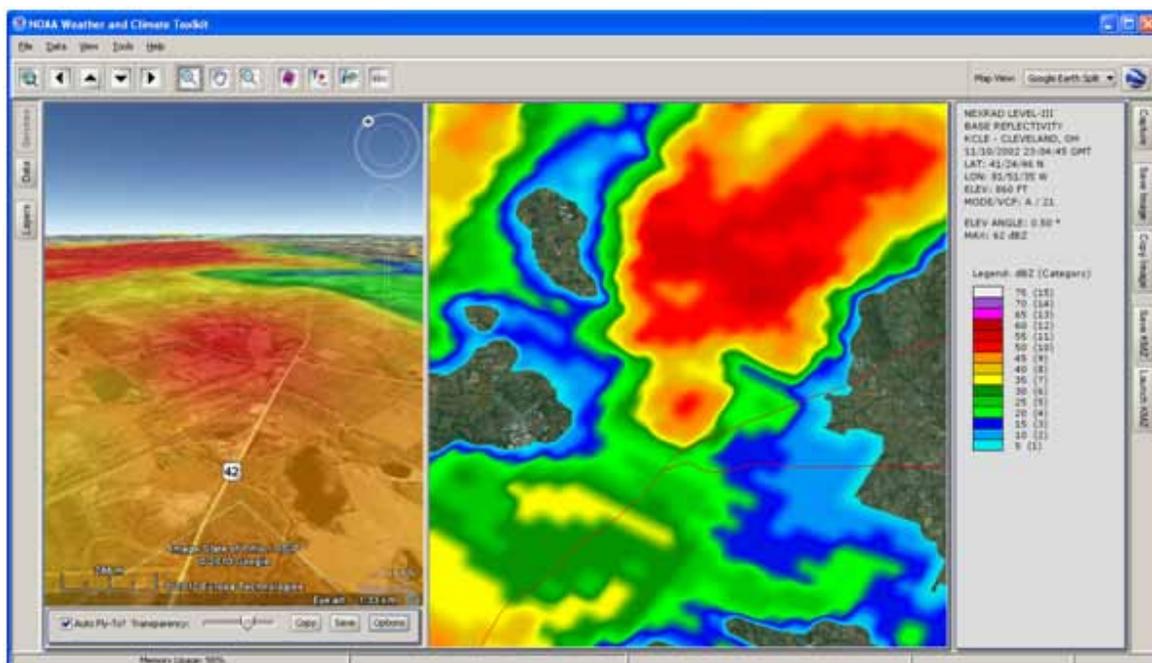
Current data types supported:

- NEXRAD Radar Data (Level-II and Level-III)
- GOES Satellite AREA Files
- Gridded NetCDF, OPeNDAP and HDF following Climate-Forecast (CF) conventions.
- NCML (NetCDF Markup Language)
- GRIB, GINI, Gempak formats

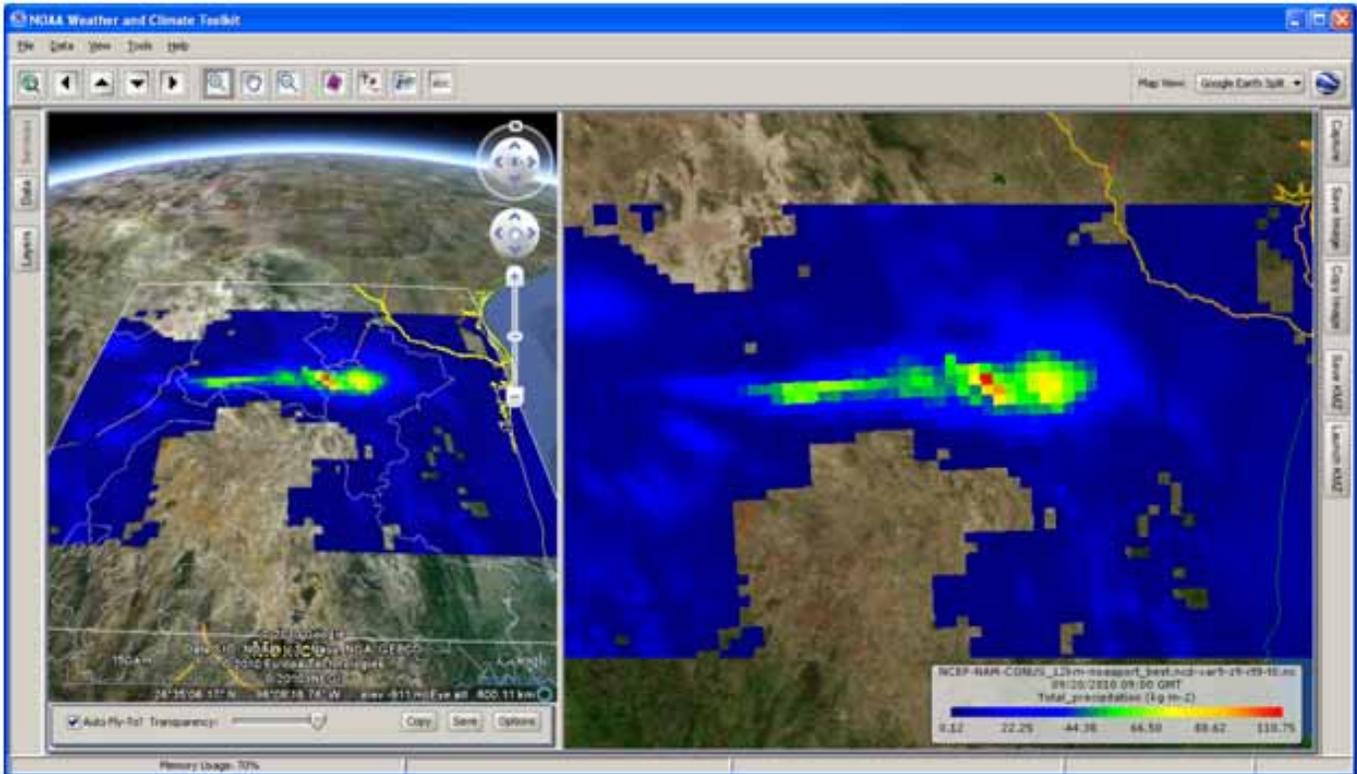
Current data services:

- U.S. Drought Monitor Service (from the National Drought Mitigation Center (NDMC))

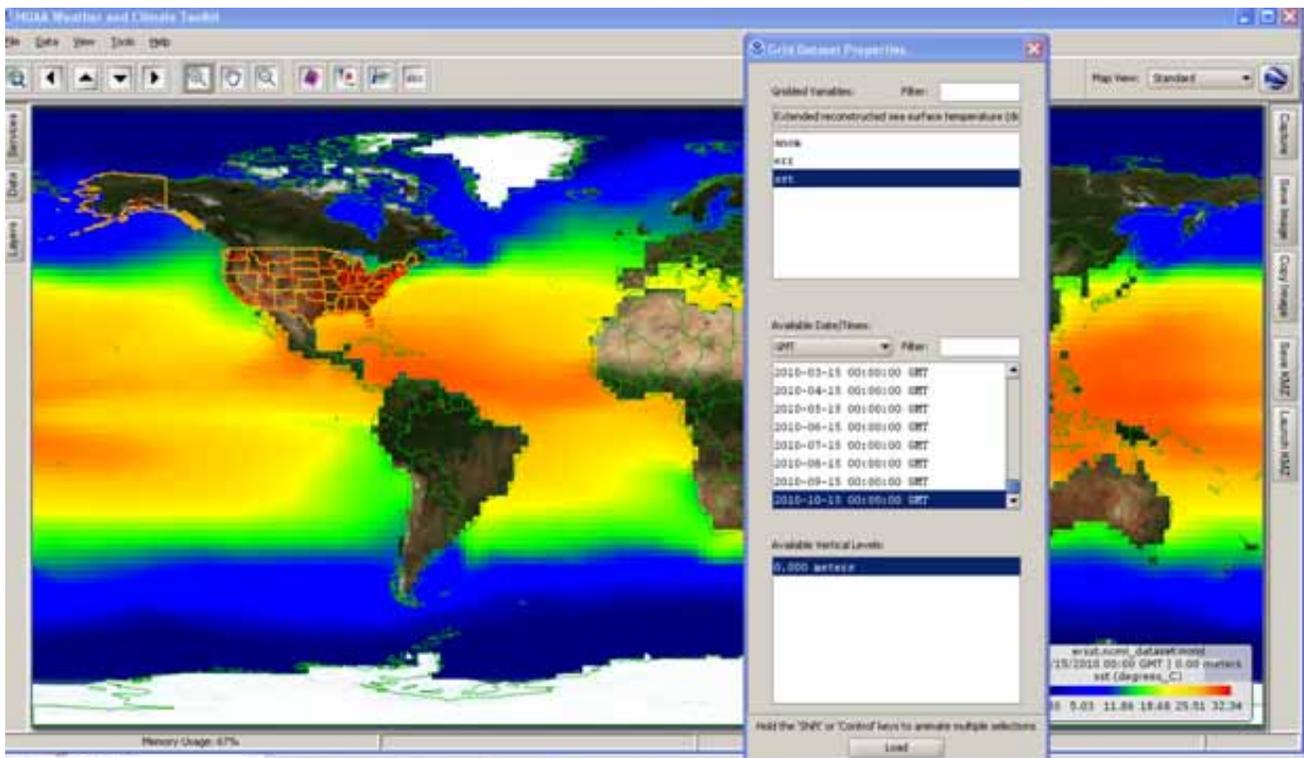
Example screenshots:



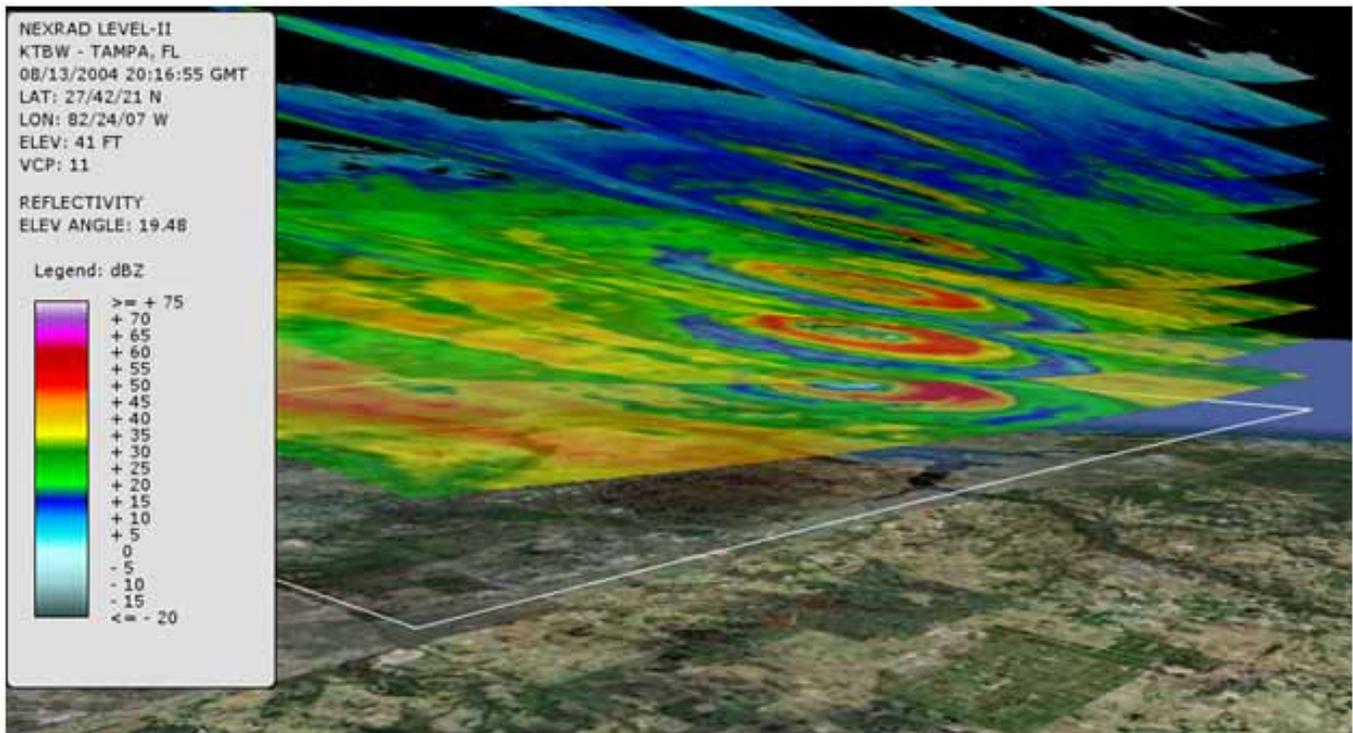
Level-III Base Reflectivity with Google Earth plug-in.



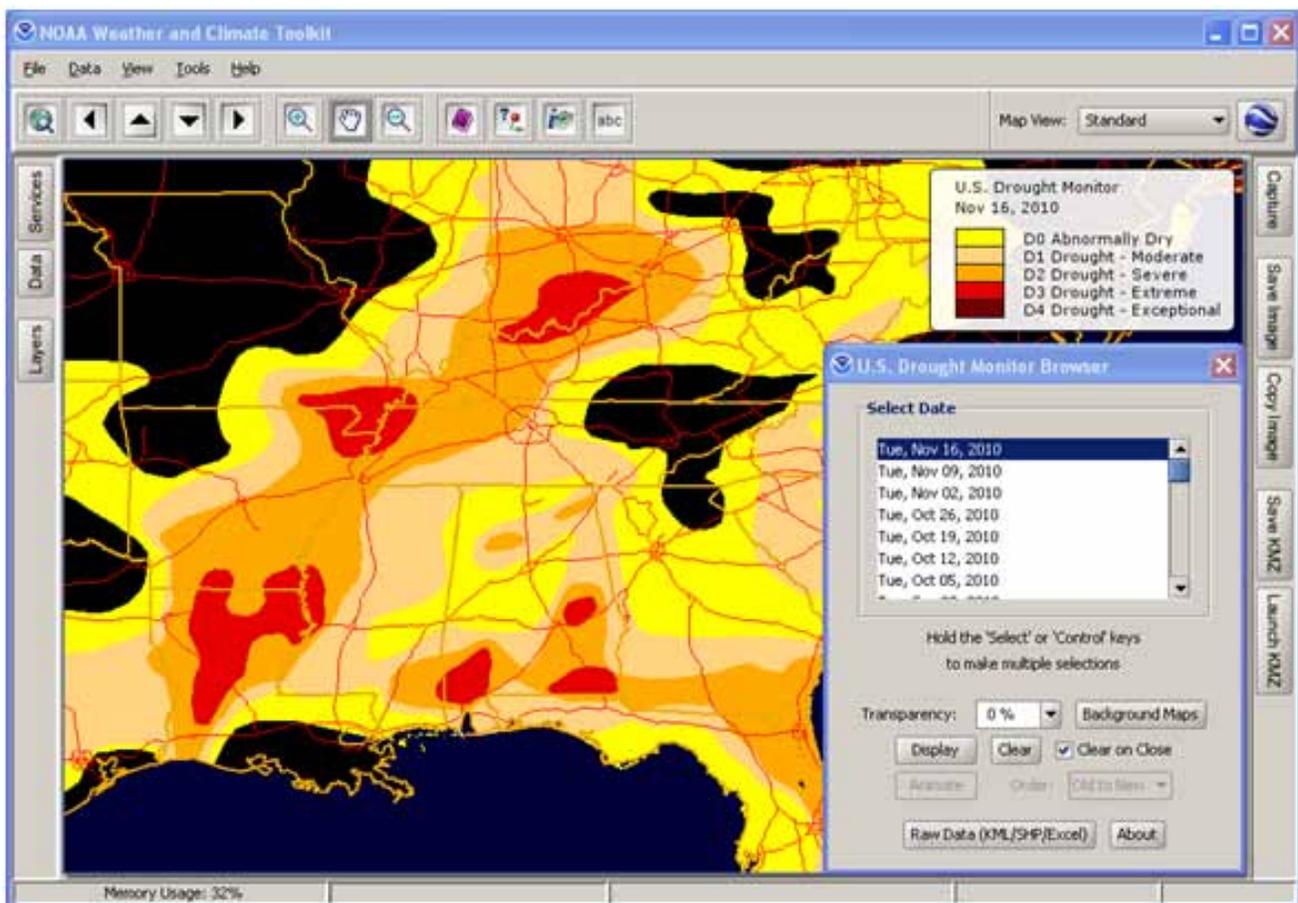
NCEP North American Model (NAM) spatial subset with Google Earth plug-in



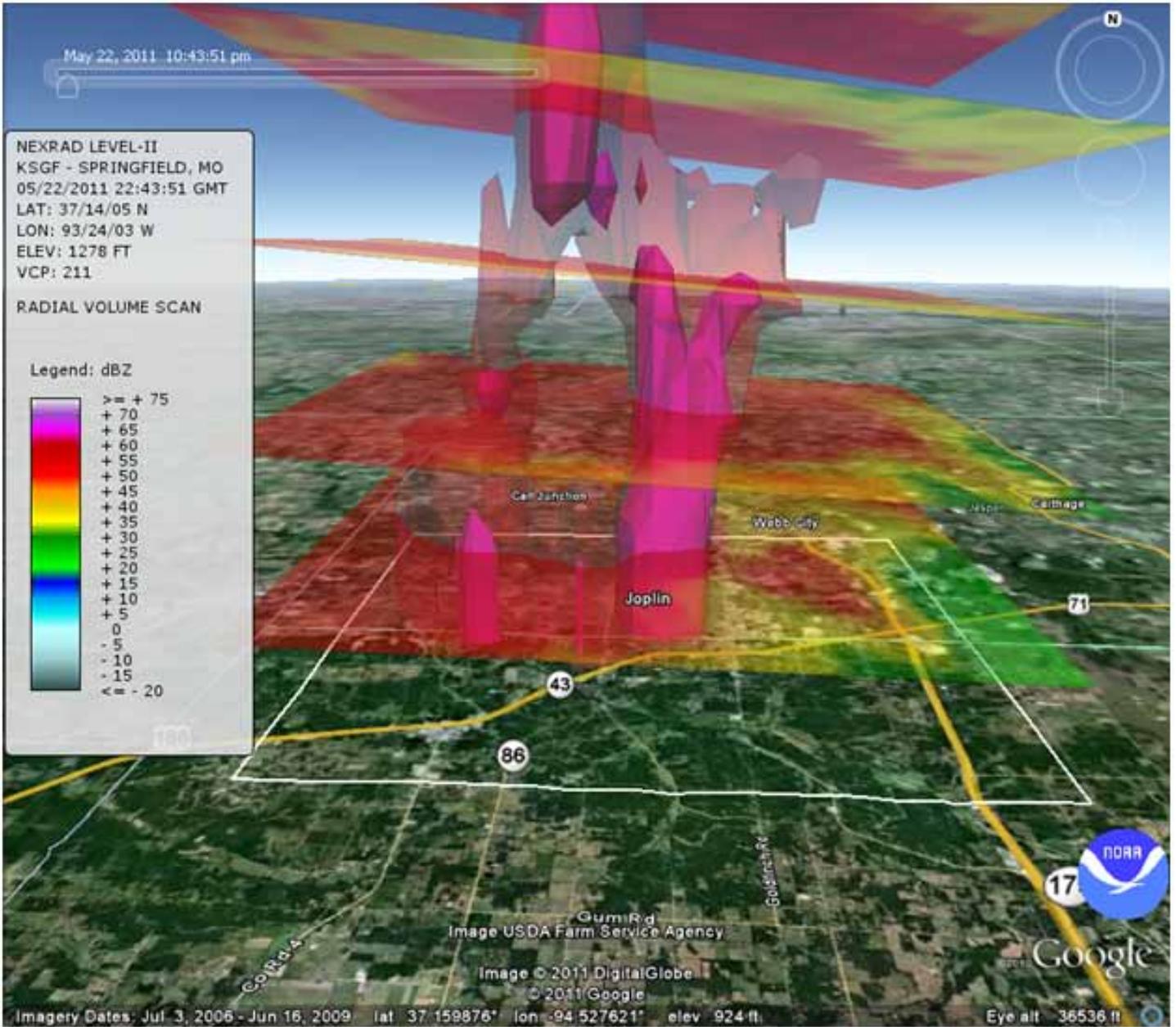
Sea Surface Temperature (remote OPeNDAP dataset)



Hurricane Charley: 3-D volume scan KMZ output rendered in Google Earth



U.S. Drought Monitor—Web Map Service



Isosurface visualization in Google Earth of May 22, 2011 Joplin, MO tornado

Satellite Data, Products & Service

Satellite data and derived products from NOAA's satellites are available through the National Climatic Data Center and the Comprehensive Large Array-data Stewardship System (CLASS). NOAA's two primary satellite systems are the Geostationary Operational Environmental Satellite (GOES) and the Polar-orbiting Operational Environmental Satellite (POES). We also distribute data and products from the Defense Meteorological Satellite Program (DMSP)

and European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Metop satellite. Please check out the many new blended products in common data formats that have been developed for long-term climatological studies.





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



National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC
Search Fields
Search NCDC

Current Events
[About NCDC](#)
[In the Spotlight](#)
[What's New](#)

Data & Products
[Products and Services](#)
[Find a Station](#)
[Search by Map](#)
[Free Data](#)
[Data Access tools](#)
[CD-ROM Products](#)
[Climate Inventories](#)
[Metadata](#)
[Help/FAQ](#)

Purchase
[Most Popular](#)
[Subscriptions](#)
[Order Status](#)
[Online Store](#)

Climate Info
[Regional Climate Centers](#)
[Research](#)
[Monitoring](#)
[Extremes](#)
[Global Hazards](#)

Satellite Data

[Data and Products](#)

[Research and Monitoring](#)

[Contact](#)



Access to online satellite data (i.e. CLASS), inventories, browse and event images, data converters and documentation.

Satellite Data and Products

Free Access to Online Satellite Data

- Raw radiance data from instruments (POES Level 1b, GOES-GVAR, DMSP TDR, etc), as well as satellite products - [Comprehensive Large Array-data Stewardship System \(CLASS\)](#)
- [Air-Sea Surface Processes: Projects and Datasets](#) 
- [Optimum Interpolation 1/4 Degree Daily Sea Surface Temperature Analysis](#)
- Globally gridded calibrated satellite radiance data - [International Satellite Cloud Climatology Project \(ISCCP\)](#)
- Globally gridded high resolution sea surface wind speed products - [Blended Sea Winds Products](#)
- Global infrared soundings from NOAA-2 through NOAA-5 - [Vertical Temperature Profile Radiometer \(VTPR\) Data](#)

<http://www.ncdc.noaa.gov/oa/satellite.html>

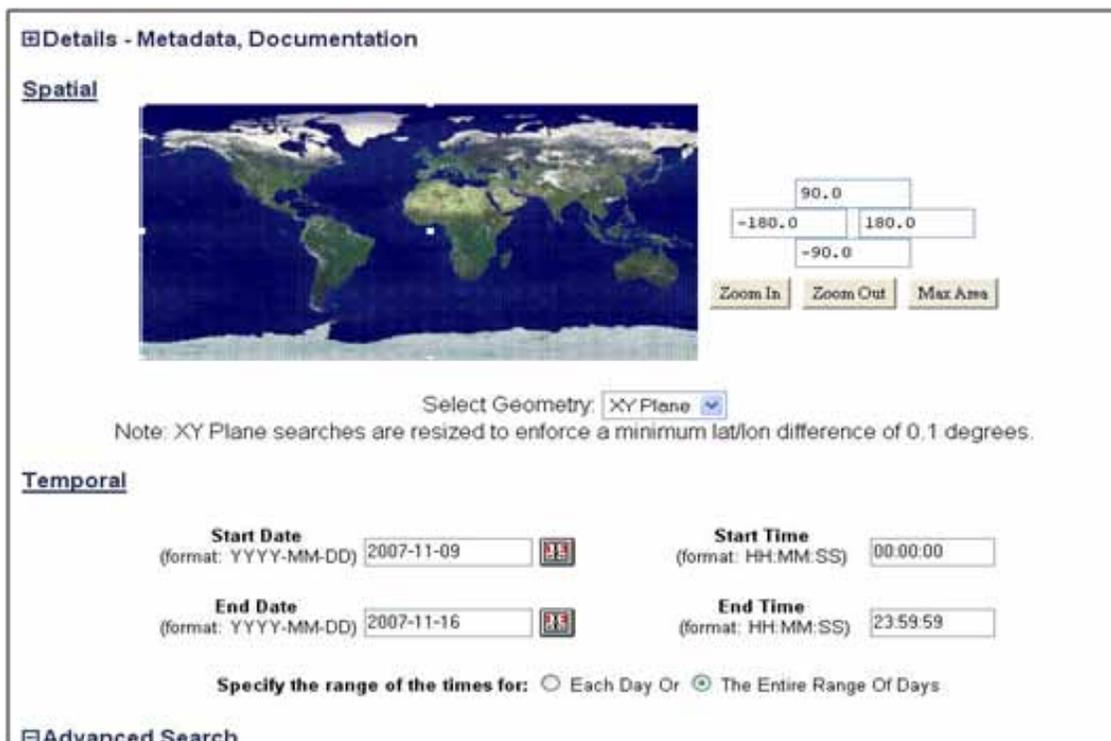
On-line Satellite Data - Comprehensive Large Array-data Stewardship System (CLASS)

CLASS is an IT component of the NOAA Data Centers. It enables users to perform collection level and granule level searches and ordering for polar-orbiting and geostationary satellite level 1 and level 2 products from NOAA, the Department of Defense Meteorological Satellite Program,

and EUMETSAT (Metop satellite only). Data delivery options include FTP, HTTP, and physical digital media. The former two options are free within the constraints provided via the web interface. Subscription services for near real-time data and high volume orders can be requested through the CLASS Help Desk. Below are a few views of the CLASS web system.



CLASS Home Page—www.class.noaa.gov



CLASS Search Criteria Page

Search Results - AVHRR

Currently you have 25 hits out of 880740 entries.
There are 0 (AVHRR) items in your shopping cart. The shopping cart limit is 100.

Shopping Cart: Page 1 Jump To

View Details	Shopping Cart	Inventory ID	Datatype	Orbit	Start Time	End Time	Satellite	Dataset Name
<input type="button" value="1"/>	<input checked="" type="checkbox"/>	9833923	AVHRR_GAC	49430	2007-11-15 22:35:42.612	2007-11-16 00:30:11.105	N15	NSS_GHRR_NK.D07319.S2235.E00 30.B4942931.GC
<input type="button" value="2"/>	<input checked="" type="checkbox"/>	9834223	AVHRR_GAC	5574	2007-11-15 23:18:43.005	2007-11-16 01:01:36.504	M02	NSS_GHRR_M2.D07319.S2318.E01 01.B0557374.SV
<input type="button" value="3"/>	<input checked="" type="checkbox"/>	9834233	AVHRR_FRAC	5574	2007-11-15 23:18:43.005	2007-11-16 01:01:36.671	M02	NSS_FRAC_M2.D07319.S2318.E01 01.B0557374.SV
<input type="button" value="4"/>	<input type="checkbox"/>	9834563	AVHRR_GAC	26034	2007-11-16 02:05:41.247	2007-11-16 03:53:13.247	N17	NSS_GHRR_NM.D07320.S0206.E03 53.B2803434.WI
								NSS_HRPT_NM.D07320.S0211.E02 23.B2803434.MI
								NSS_HRPT_NM.D07320.S0212.E02 27.B2803434.WI
								NSS_GHRR_NH.D07320.S0518.E07 11.B1282929.WI
								NSS_HRPT_NH.D07320.S0631.E05 43.B1282929.WI
								NSS_HRPT_NH.D07320.S0639.E05 45.B1282929.MI
								NSS_GHRR_NH.D07320.S0705.E08 36.B1283031.SV

Please note, any data sets that share the same coordinates will be shifted for visibility.

CLASS Search Results Page with Separate Map Window

Overlapped Region of Geographic Search:

Click on the thumbnail to view the full image.

Temporal (Geographic Overlap):	
Start Date: 2007-11-16 14:34:45.392	End Date: 2007-11-16 14:40:29.33
Seconds: 344	Direction: Descending

Spatial (Geographic Overlap):	
1. NW Lat,Long: 47.14, -77.98	2. NE Lat,Long: 41.38, -41.05
3. SW Lat,Long: 27.3, -78.83	4. SE Lat,Long: 22.75, -50.61

Data Set Browse Imagery:

Channel 2:

Channel 4:

Click on a thumbnail to the left to open a window with a full sized browse image. You may then use the controls above to manipulate the full sized browse image.

Note, thumbnail images have been Histogram Equalized, are in the jpeg format at quality 50% and size 50%. Full browse images are in the jpeg format at quality 100% and sized 200% to bring out more details.

CLASS Detail Page showing Metadata and Browse Images

Shopping Cart

Total size of selected data sets: 113664 Bytes You will be notified at:

Number of data sets: 3 Order Comment:

Cost: Delivery Method:

AVHRR

Order	Dataset Name	Include Digital Signature	Include Archive Header	Scan Line Selection	Bits/Pixel	Channel Number	Spatial Resolution
<input checked="" type="checkbox"/>	Click on a dataset name to see the dataset details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 10 16	1 2 3 4 5	
<input checked="" type="checkbox"/>	AVHRR_GAC NSS_GHRR_NK_D07319_S2235_E00_30_B4942931_GC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8 10 16	1 2 3 4 5	4
<input checked="" type="checkbox"/>	AVHRR_GAC NSS_GHRR_M2_D07319_S2318_E01_01_B0557374_SV	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8 10 16	1 2 3 4 5	4
<input checked="" type="checkbox"/>	AVHRR_FRAC NSS_FRAC_M2_D07319_S2318_E01_01_B0557374_SV	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8 10 16	1 2 3 4 5	1

CLASS Shopping Cart—Order Page

International Satellite Cloud Climatology Project (ISCCP)

Ongoing research at NOAA's National Climatic Data Center (NCDC) is progressing toward producing a new satellite resource for climate science. Originating from the International Satellite Cloud Climatology Project (ISCCP), the data are observations from all channels on the GOES series, the European Meteorological satellite (Meteosat) series, the Japanese Geostationary Meteorological Satellite (GMS) series and the Chinese Fen-yung 2C (FY2) series. The period of record covers 1979 through the present, yet its total size is less than two terabytes since the data are sampled to 10 km and 3 hour resolution. Because the original data was archived in various formats, a consistent format has been developed to make access to the data sets easier. For

the scientific researchers needing a high resolution global gridded data set the new ISCCP B1 product may be the one you need. <http://www.ncdc.noaa.gov/oa/rsad/isccpb1/index.php>

Global ISCCP B1 Browse System (GIBBS)

As a by-product of an effort to recreate a streamlined user friendly ISCCP B1 product, NCDC has produced a satellite browse dataset containing full earth images beginning as early as 1974 and updated daily. The GIBBS contains browse images for every three hours from all geostationary satellites around the world. The link to the GIBBS is located on the left navigation bar of the ISCCP B1 data Rescue web site as shown in the following screen captures.



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



National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC
Search Field:
Search NCDC

[Satellite Data](#) > Global ISCCP B1 Browse System

GIBBS: Global ISCCP B1 Browse System

Select year...		YEAR (# of images)		1974 (985)	1975 (0)	1976 (2)	1977 (0)	1978 (5394)	1979 (19361)
1980 (10467)	1981 (21626)	1982 (30417)	1983 (31581)	1984 (17181)	1985 (16150)	1986 (15779)	1987 (20175)	1988 (19349)	1989 (15903)
1990 (17339)	1991 (17559)	1992 (20419)	1993 (27079)	1994 (26505)	1995 (25309)	1996 (31851)	1997 (32264)	1998 (36901)	1999 (41512)
2000 (42348)	2001 (42484)	2002 (42362)	2003 (42376)	2004 (43235)	2005 (55018)	2006 (58140)	2007 (49085)	2008 (48299)	2009 (44103)
2010 (46860)									

1015418 total satellite images
Last Updated: Sat Nov 20 2010, 04:05:30 EST

<http://www.ncdc.noaa.gov/gibbs/>

Hurricane Satellite ISCCP B1 (HURSAT-B1)

HURSAT-B1 data are derived from International Satellite Cloud Climatology Project (ISCCP) B1 data and spans the period 1978 to 2006. It provides coverage of global tropi-

cal cyclones at 8-km and 3-hourly resolution. Also, check out the list of hurricane movies derived from HURSAT <http://www.ncdc.noaa.gov/oa/rsad/hursat/movie.php>



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



National Climatic Data Center
U.S. Department of Commerce

NCDC > Satellite Data > HURSAT: Hurricane Satellite Data

Introduction

HURSAT-B1
Summary
Details
Revisions
Movies
Data Access
Bibliography

HURSAT Basin
HURSAT-MW
Development
Links
Contacts

Introduction

The purpose of the HURSAT project is to provide Tropical Cyclone-"centric" satellite data. The goal is to keep data small and portable. In doing so, HURSAT data are gridded and stored using the netCDF file format.

The HURSAT data project began with HURSAT-B1, but there is a need for HURSAT data from other satellite data sources (which have different temporal and spatial resolutions). We aim to be responsive to user's needs. So if one of the HURSAT flavors best suits your work, please let us know. Also, if you would like to see a new HURSAT flavor (not shown in the list at left) please contact us.



<http://www.ncdc.noaa.gov/oa/rsad/hursat/index.php>

Climate Data Records (CDR) Program

The Climate Data Records (CDR) program is part of NOAA's mandate to provide the nation with objective data and tools to help characterize, understand, predict, mitigate and adapt to climate change and variability. CDRs are the result of the Scientific Data Stewardship (SDS) Project, an inter-agency partnership originated in 2002 to develop and

implement a robust, sustainable and scientifically defensible approach to producing and preserving climate records from satellite data. In 2009, the SDS Project was renamed the CDR Program (CDRP). Currently, there are nine operational products offered from NCDC with more on the way. Please follow the link below for access and documentation

NOAA NATIONAL CLIMATIC DATA CENTER
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Home Operational CDRs Developmental CDRs Opportunities Library

CLIMATE DATA RECORD PROGRAM

Welcome to NCDC's CDR Program

NOAA's National Climatic Data Center (NCDC) recently initiated a satellite Climate Data Record (CDR) program to continuously provide objective climate information derived from weather satellite data that NOAA has collected for more than 30 years. These data comprise the longest record of global satellite mapping measurements in the world, and are complemented by data from other sources including NASA and Department of Defense satellites as well as foreign satellites.

The mission of NOAA's Climate Data Record Program is to develop and implement a robust, sustainable, and scientifically defensible approach to producing and preserving climate records from satellite data.

WHAT ARE CDRs?
The National Research Council (NRC) defines a CDR as a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change. ([National Research Council, 2004](#)).

For the first time, NOAA is applying modern data analysis methods, which have advanced significantly in the last decade, to these historical global satellite data. This process will unravel the underlying climate trend and variability information and return new economic and scientific value from the records. In parallel, NCDC will maintain and extend these Climate Data Records by applying the same methods to present-day and future satellite measurements.

WHY ARE CDRs IMPORTANT?
The results will provide trustworthy information on how, where and to what extent the land, oceans, atmosphere and ice sheets are changing. In turn, this information will be used by energy, water resources, agriculture, human health,

Serving the Public

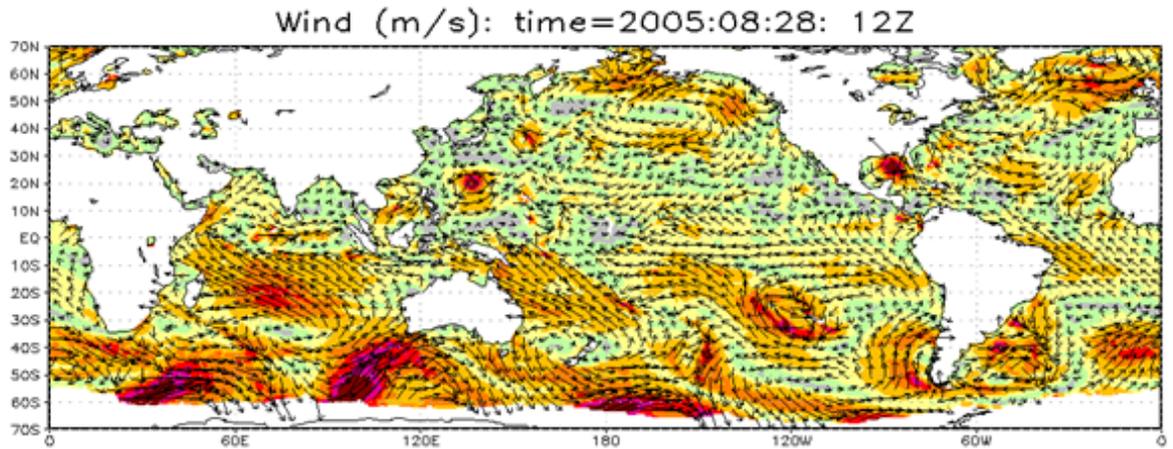
- Energy
- Water
- Disaster
- Agriculture

[NOAA's Climate Portal](#)
[United States Global Change Research Program](#)
[Group on Earth Observations](#)

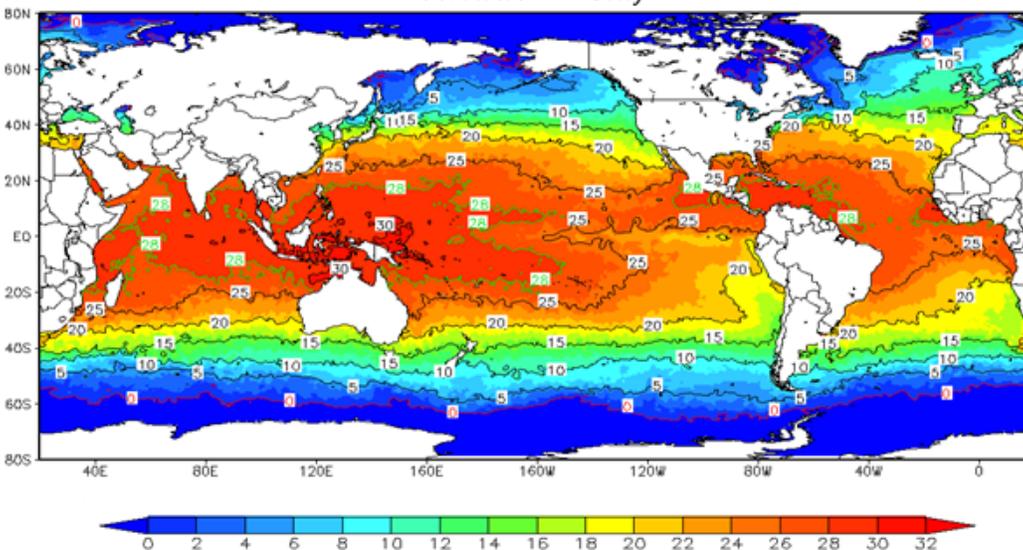
<http://www.ncdc.noaa.gov/sds/operationalcdrs.html>

Blended Sea Winds

The Blended Sea Winds product contains globally gridded, high resolution ocean surface vector winds and wind stresses on a global 0.25° grid, and in multiple time resolutions of 6-hourly, daily, monthly, and a 11-year (1995-2005) climatological monthly analyses. The period of record is 9 July 1987 to present. Data are accessible through FTP or OPeNDAP/THREDDS Data Server. See <http://www.ncdc.noaa.gov/oa/rsad/air-sea/seawinds.html>



Daily OISST Intv2: 28NOV2011
AVHRR – only



NOAA Optimum Interpolation 1/4 Degree Daily Sea Surface Temperature Analysis

The optimum interpolation (OI) sea surface temperature (SST) analysis is produced daily on a 0.25° grid. The analysis uses in situ and satellite SST's plus SST's simulated by sea ice cover. Before the analysis is computed, the satellite data is adjusted for biases. For more

Weather and Climate Toolkit – satellite and radar viewer and more!



NOAA Satellite and Information Service

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



National Climatic Data Center

U.S. Department of Commerce



DOC > NOAA > NESDIS > NCDC

NOAA's Weather and Climate Toolkit

Quick Links

Weather and Climate Toolkit Home

Order NEXRAD Data

NCDC Radar Resources

NOAA Radar Operations Center

NCDC's Storm Events Database

Toolkit

Download/Installation

Find Data

Image Gallery

Java Requirements

Export Formats

Batch Processing

Credits

API / Source Code

Documentation

User Guide/Tutorials

FAQ

Presentations

Introduction

NOAA's Weather and Climate Toolkit is an application that provides simple visualization and data export of weather and climatological data archived at NCDC. The Toolkit also provides access to weather/climate web services provided from NCDC and other organizations.

The Viewer provides tools for displaying custom data overlays, Web Map Services (WMS), animations and basic filters. The export of images and movies is provided in multiple formats. The Data Exporter allows for data export in both vector point/line/polygon and raster grid formats.

Current data types supported:

- CF-compliant Gridded NetCDF
- Generic CF-compliant Irregularly-Spaced/Curvilinear Gridded NetCDF/HDF
- GRIB1, GRIB2, GINI, GEMPAK, HDF (CF-compliant) and more gridded formats
- GOES Satellite AREA Files
- NEXRAD Radar Data (Level-II and Level-III)
- U.S. Drought Monitor Service (from the National Drought Mitigation Center (NDMC))
- OPeNDAP support for Gridded Datasets

Planned future data types:

- Station data access via NetCDF or REST Web Services
- [NOAA/NCDC Severe Weather Data Inventory](#)

Download / Launch

[New Features](#) / [FAQ](#) / [Tutorials](#)

<http://www.ncdc.noaa.gov/oa/wct/>

Satellite Products on THREDDS Data Server



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



National Climatic Data Center
U.S. Department of Commerce

NCDC > Satellite Data > NetCDF Data Access

Introduction

Data converter

AVHRR
GOES

THREDDS Data Access

ISCCP DX
ISCCP D1
ISCCP D2

GPCP (precipitation)
GACP (aerosol)
SRB (radiation)

Links

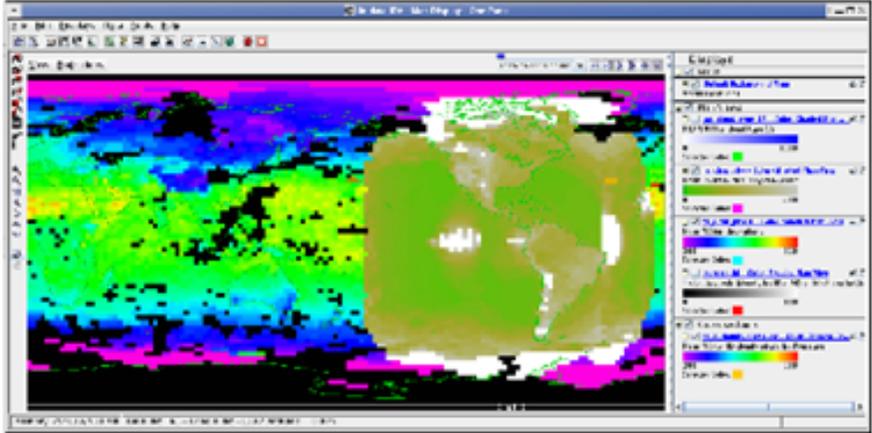
Contacts

Summary

NCDC is the archive of many satellite projects. New data access through THREDDS Data Server allows users to access data without knowing the data format.

The THREDDS Server is available [here](#).

Serving the data using TDS allows data, like ISCCP products, to be visualized using IDV.



Note: Data provided via TDS are not regularly updated. If you are interested in a time period which is not yet available, please email NCDC.SatOrder@noaa.gov to request that a specific data set be updated. Also, note that most data sets are only updated once or twice per year, thus access to real time data is not possible.

DOC > NOAA > NESDIS > NCDC
Enter Search Term(s):
Search NCDC

[Privacy Policy](#)
[Open Access to Data](#)

[Disclaimer](#)

<http://www.ncdc.noaa.gov/oa/rsad/netcdf-access/index.php>

Custom Satellite Images:

NCDC provides custom satellite imagery from NOAA satellites based on user specified criteria. The images can be certified for court use. The minimum service cost is \$82.00. Please contact us for details on total costs and image enhancement options.



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



National Climatic Data Center
U.S. Department of Commerce



DOC > NOAA > NESDIS > NCDC

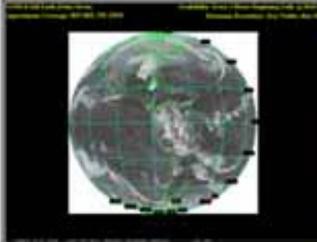
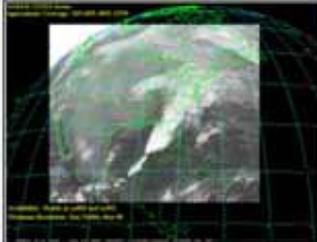
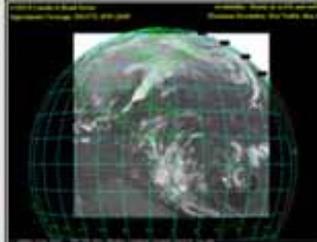
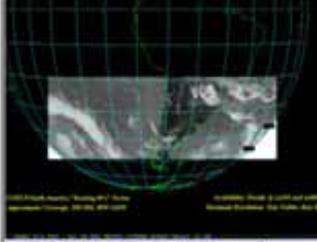
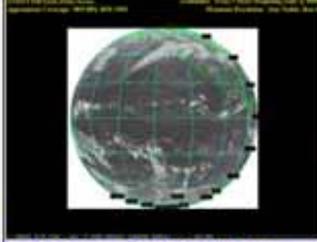
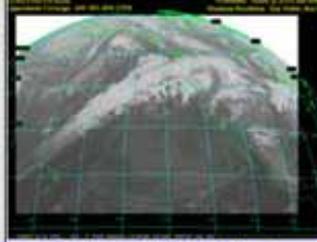
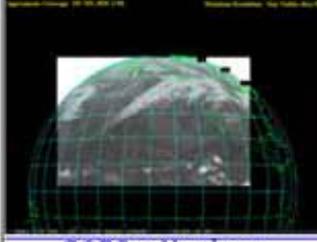
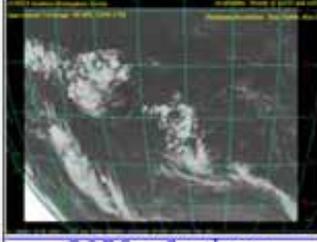
[Return to Satellite Data Page](#)

Sample GOES Image Products

[Sector Coverages](#)
[Resolution](#)
[Mapping](#)
[Enhancements](#)
[Specialized Services](#)

GOES-EAST/WEST Sector Coverages

The table of images just below show the geographical coverages routinely covered by the GOES-East and GOES-West satellites. Clicking on each geographic region of interest will reveal the scheduled times each coverage is available. Additional imagery may be possible over smaller areas where severe or threatening conditions were occurring.

		
GOES-8 Full Disk Sector	GOES-8 CONUS Sector	GOES-8 Ext N. Hemisphere Sector
		
GOES-8 South America Sector	GOES-q Full Disk Sector	GOES-q PACUS Sector
		
GOES-q Northern Hemisphere Sector	GOES-q Southern Hemisphere Sector	

<http://www.ncdc.noaa.gov/oa/satellite/samplegoes.html>

Service Fees: While much of NOAA's NCDC satellite data and products are free to download from online IT systems, such as CLASS, service fees will apply for orders shipped on physical media. Our two most popular media are external disk drives and LTO tapes. Also, service fees may apply to very large orders in excess of 100 GB, which must be manually fulfilled and either copied to physical media or placed on FTP server. These types of orders can take several weeks to process and complete. Please contact the Satellite Services Group with your potential requirements to determine if service fees will apply in your situation.

Contact information for satellite data and products:

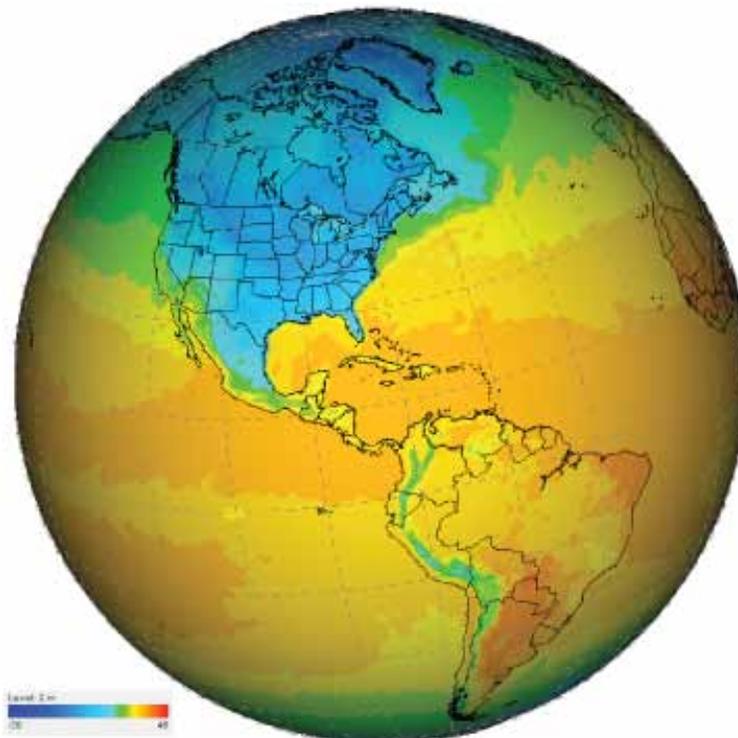
Telephone: 828-271-4850 x3183
Facsimile: 828-271-4876
E-mail: ncdc.satorder@noaa.gov

Model Data, Products &

National Climate Model Portal

Currently in its spin-up phase, the National Climate Model Portal (NCMP) will provide reliable, consistent, long-term public access, interoperability, and intercomparison of climate models and observational data sets for all levels of expertise and will be the initial access point for models under the NOAA Climate Services Portal (NCSP). With the development of tools for improvement and use of climate model data and information underway, an important early NCMP contribution is access to several reanalysis datasets, including the NCEP Climate Forecast System Reanalysis (CFSR) and North American Regional Reanalysis (NARR). Global CFSR data in the figure below depict the very

impressive arctic air mass in place over North America on Christmas Day, 1983, under which numerous temperature records were broken and citrus crop damage measured in the billions. The NCMP website – currently under development and to be available at <http://ncmp.ncdc.noaa.gov> – will direct users to advanced model data services and information.



**12 UTC 25 December 1983
CFSR 2 m Temperature (°C)
Generated from NCMP/NOMADS data with Unidata IDV**

NOAA National Operational Model Archive and Distribution System

To address the growing need for real-time and retrospective access to a wide spectrum of model data the National Climatic Data Center (NCDC), National Centers for Environmental Prediction (NCEP) and Geophysical Fluid Dynamics Laboratory (GFDL) initiated the NOAA National Operational Model Archive and Distribution System (NOMADS). The model dataset archive established by NOMADS includes:

- Numerical Weather Prediction (NWP) models [GFS, NAM, RUC]
- Multi-member ensembles [GENS]
- Global Data Assimilation System (GDAS) model input and restart files

Methods of access for data and derived products:

- Distributed format independent access via OPeNDAP
- FTP and HTTP access to data subsets in their native format
- Web plotting service
- Live Access Server (LAS)
- OpenGIS Web Coverage Service (WCS) and Web Map Service (WMS) via Unidata's THREDDS Data Server (TDS)

Additionally, NOMADS provides customer support for users of advanced model data and information.

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

National Climatic Data Center
U.S. Department of Commerce

NOAA National Operational Model Archive & Distribution System

Data
[Access](#)
[Inventory](#)

Documentation
[User Guide](#)

NOMADS Project
[About NOMADS](#)
[Partners](#)
[Publications & Presentations](#)
[Service Records Retention System](#)

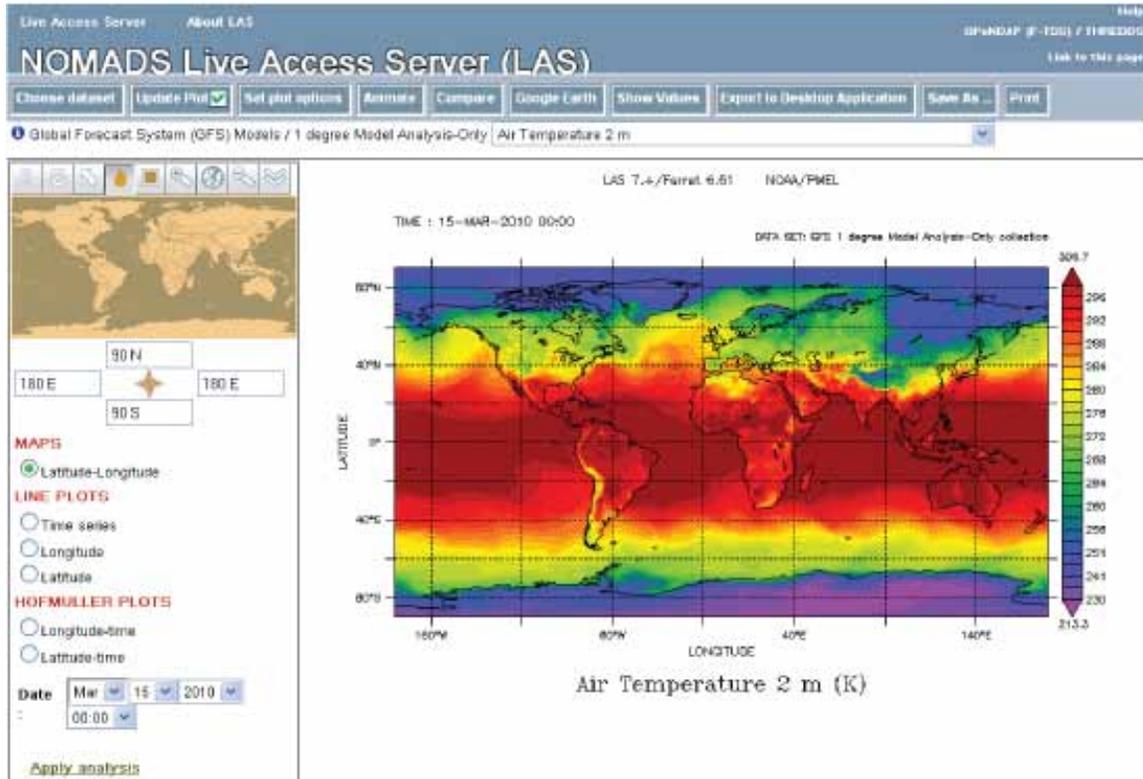
Contact Us
[Contact Info](#)

The NOAA National Operational Model Archive and Distribution System (NOMADS) is a Web-services based project providing both real-time and retrospective format independent access to climate and weather model data.

DOC > NOAA > NESDIS > NCDC

Search Field:
Search NCDC

NOMADS Home Page - <http://nomads.ncdc.noaa.gov/>

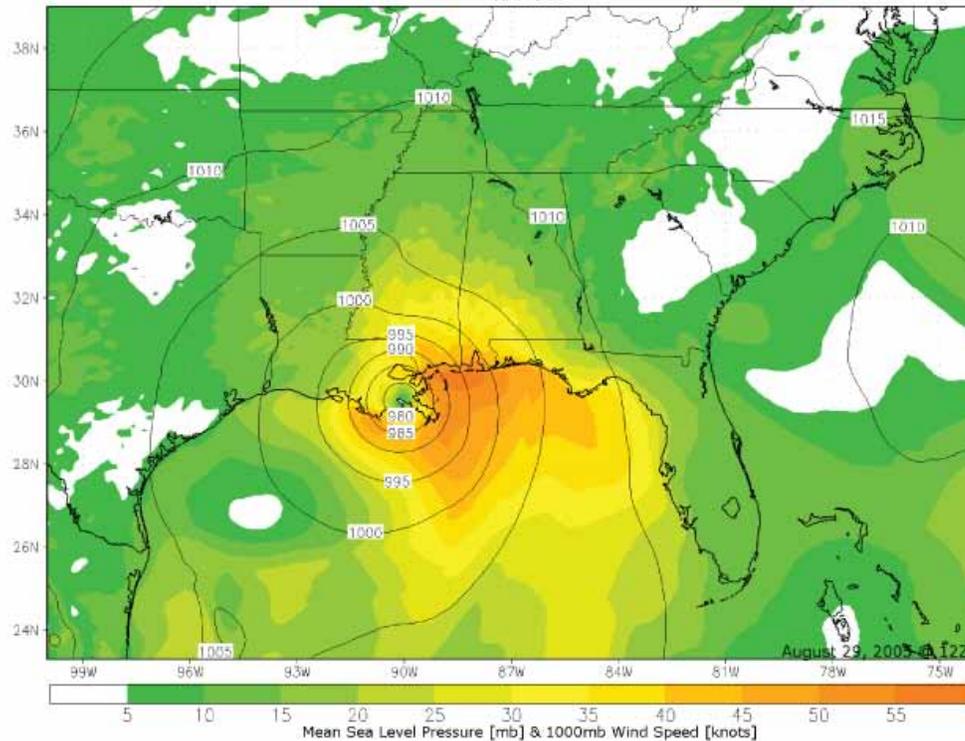


NOMADS Live Access Server (LAS)

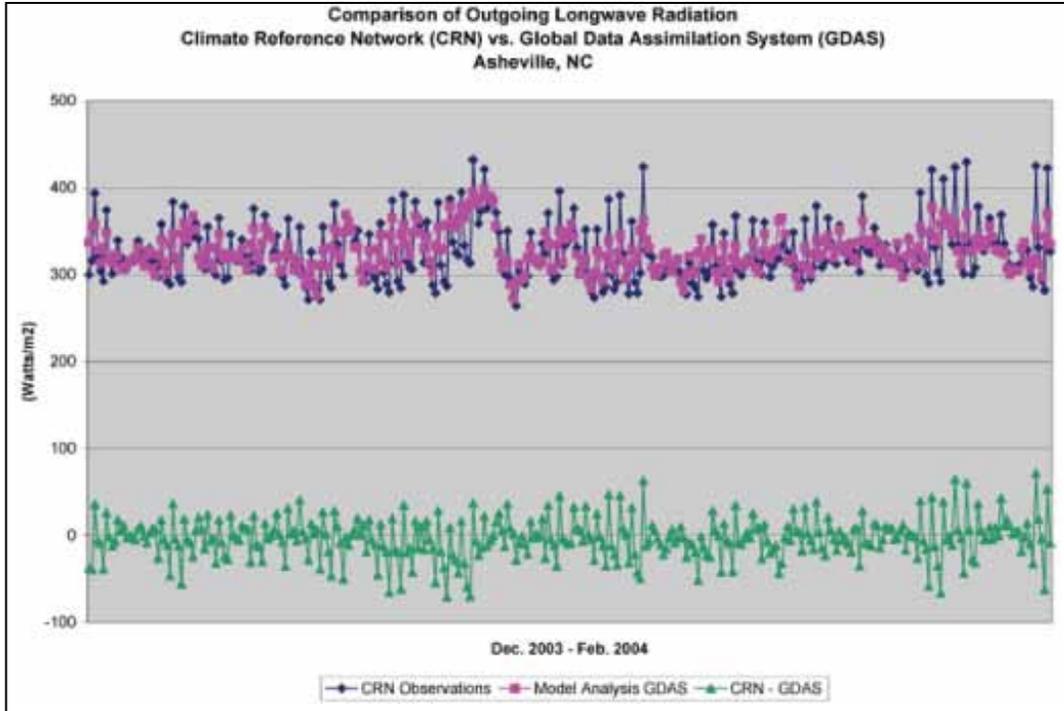
<http://nomads.ncdc.noaa.gov/las>

Hurricane Katrina

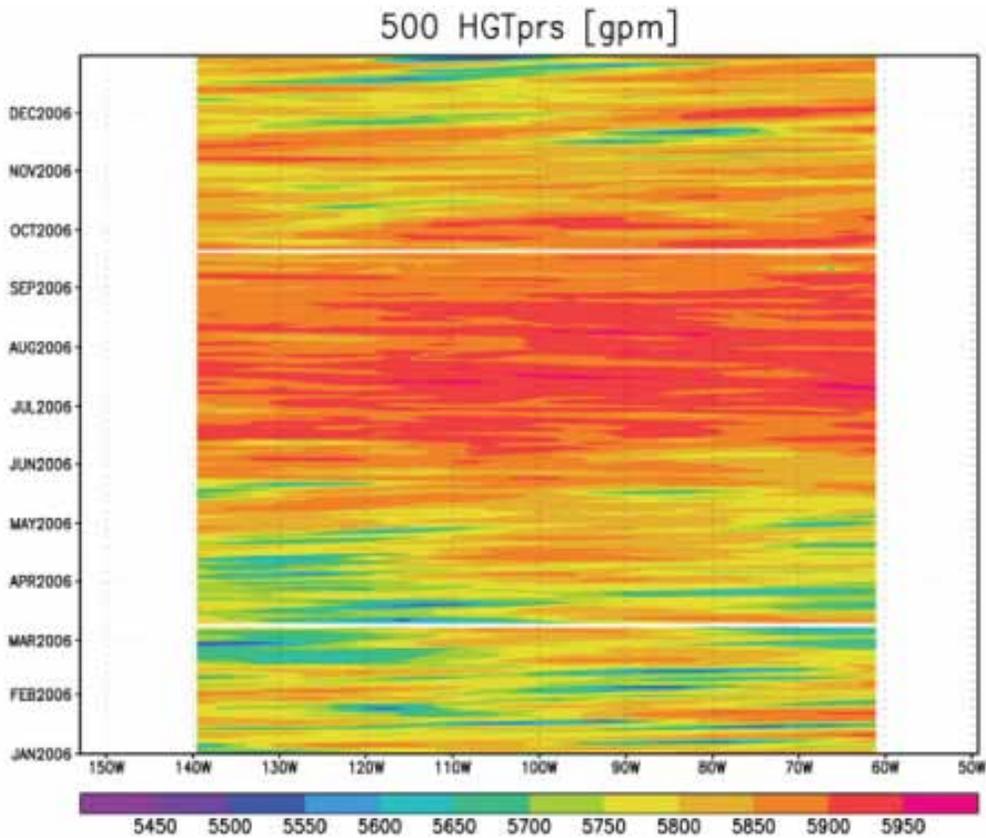
NAM 218



Example product from NCEP's North American Mesoscale (NAM) model



Example comparison of model to in-situ data



Example Hovmöller [time vs. longitude] plot of 500mb heights

Contact information:
E-mail: NOMADS.ncdc@noaa.gov

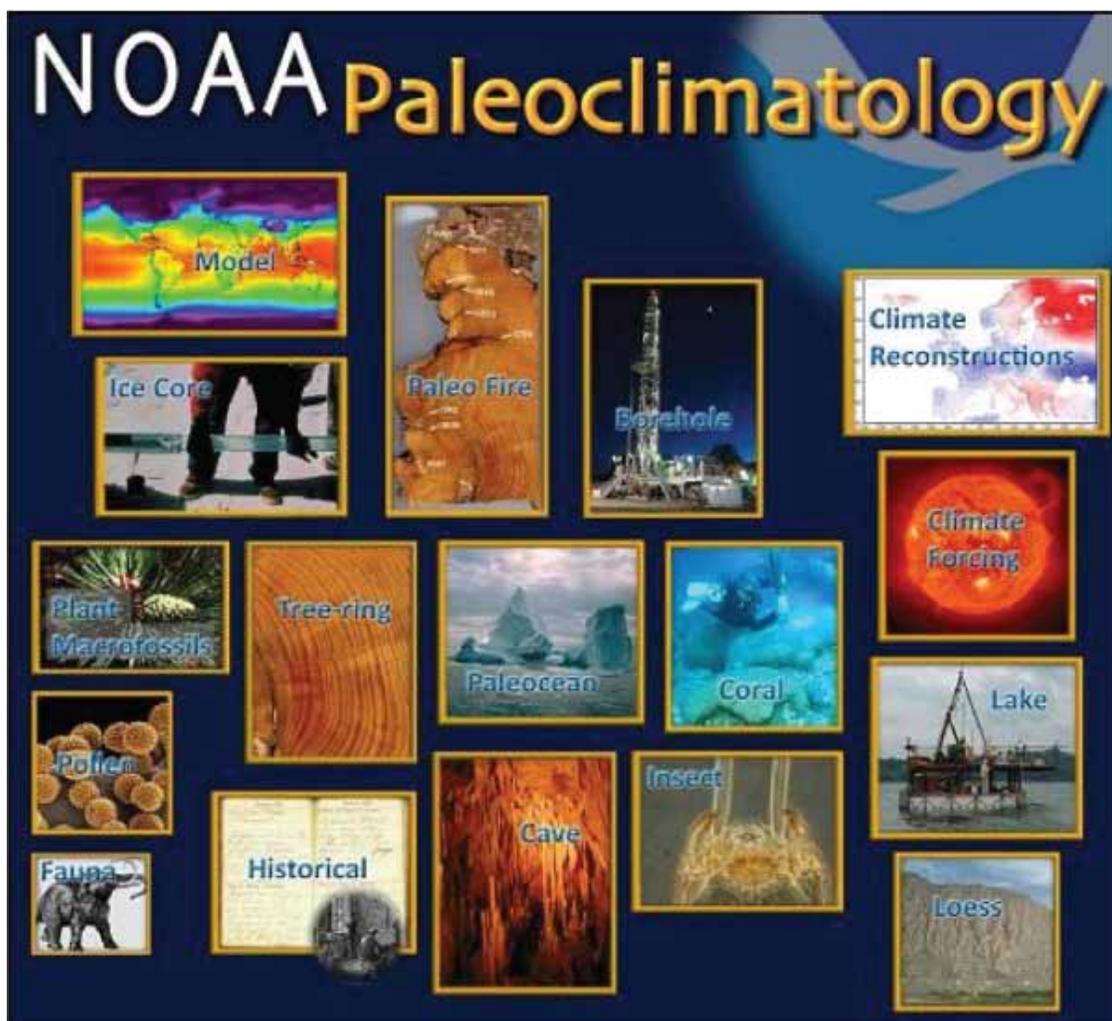
Paleoclimate Data

DATABASE: Paleoclimate Data—data about past climate and environment derived from a diverse range of proxies such as tree rings and ice cores. The data are time series of geophysical or biological measurements, and some include reconstructed climate variables such as temperature and precipitation.

Data Type -ASCII character data **Quality Control** -Undergoes publication peer review and some manual QC **Data Origin** -Academic and Government researchers **Content/Elements** -Time series of

geophysical or biological measurements, processed average proxy values such as tree growth indices, and reconstructed climate variables **Period of Record** -All time periods prior to instrumental weather records, extending from hundreds to millions of years before present

Online—<http://www.ncdc.noaa.gov/paleo/paleo.html>



<http://www.ncdc.noaa.gov/paleo/paleo.html>

Integrated Data and Environmental Applications (IDEA) Center

The Integrated Data and Environmental Applications (IDEA) Center is advancing NOAA’s mission objectives to help meet critical needs for climate, ocean, and ecosystem information to protect lives and property, support economic development and enhance the resilience of Pacific Island and other coastal communities in the face of changing environmental conditions. Program elements of the IDEA Center include:

I. Support for regional and global observing systems and programs with initial priority given to support for the Pacific Islands Global Climate Observing System (PI-GCOS), the Pacific Islands Global Ocean Observing System (PI-GOOS), and the Pacific Islands Integrated Ocean Observing System (PacIOOS) as critical contributions to the emergence of the Global Earth Observation System of Systems (GEOS).

II. Development of new integrated data products and environmental applications, and supporting high priority regional and NOAA needs for enhanced information on:

- Climate vulnerability and adaptation
- Coastal and marine ecosystems
- Hazards risk management

A. The Pacific Storms Climatology Products project is an effort to improve our understanding of patterns and trends of storm frequency and intensity - “storminess” - within the Pacific region. It is exploring how the climate-related processes that govern extreme storm events are expressed within and between three thematic areas: heavy rains, strong winds, and high seas. A key outcome is the development of an integrated suite of extremes climatology-related information

and products that can be used by emergency managers, mitigation planners, government agencies, and decision-makers in key sectors including water and natural resource management, agriculture and fisheries, transportation and communication, and recreation and tourism. For more information go to <http://www.pacificstormsclimatology.org/>

Pacific Storms climatology products are the result of theme-specific data integration and product development teams that have been formed to collaboratively develop regional climatological overviews, identify corresponding extremes indicators, establish data treatment and analysis protocols, and conduct analyses. Products include the delineation of rates of sea level rise and high water return periods, as well as changes in the frequency of both short-lived intense rainfall events and extended periods of heavy rains and the linkages of these patterns and trends to climate indices. Such information is critical to risk assessment scenario development in support of coastal land-use planning and resource management. It also forms the basis for establishing infrastructure (roads, water, and sewer) design criteria, among other things. Collaborators in the

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

PSCP Home About NOAA NOAA Organizations Contacts Staff Directory Help Admin

Pacific Storms Climatology Products (PSCP)

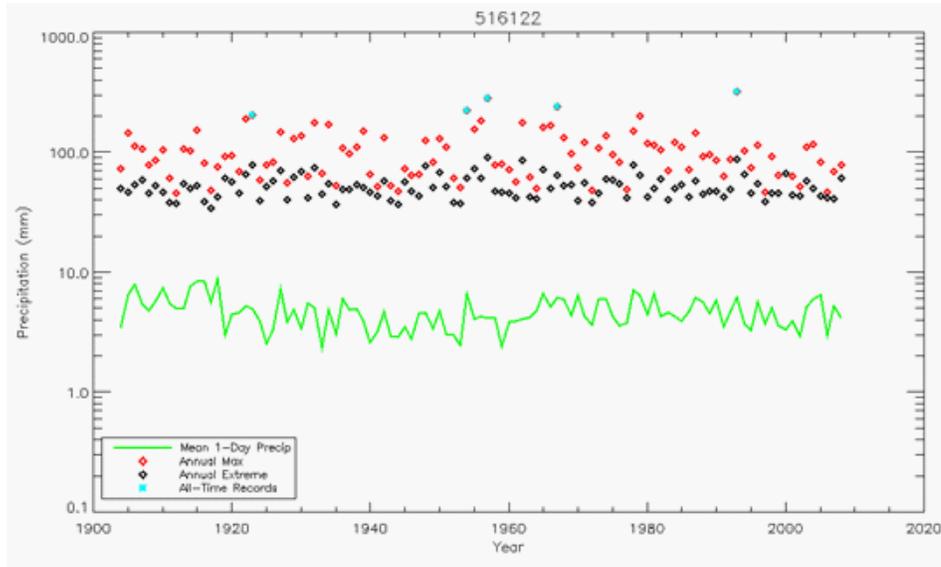
Coastal storms, and the strong winds, heavy rains, and high seas that accompany them, pose a threat to the lives and livelihoods of the peoples of the Pacific.

To reduce their vulnerability to the social, economic, and environmental risks associated with these phenomena, communities and businesses, as well as government agencies and the scientific community, need access to information that enables them to better understand, anticipate, and adapt.

This site provides access to an integrated suite of products that delineate patterns and trends of storm frequency and intensity - "storminess" within the Pacific region. These products will help users to explore how extreme events have been expressed historically and may be expected to be expressed in a changing climate.

These products are derived from analyses of historical records collected from *in situ* stations located throughout the Pacific. They include the delineation of rates of sea level rise and high water return periods, as well as changes in the frequency of both short-lived intense rainfall events and extended periods of heavy rains and the linkages of these patterns and trends to climate indices. Such information is critical to scenario development in support of climate change and natural hazards vulnerability assessment. As such, it is directly applicable to coastal land-use planning and resource management. It also forms the basis for establishing infrastructure (e.g., roads, water, sewer) design criteria.

The primary audience for these products is scientists, engineers, and others with a technical background.



forecast weather and climate. The initial proof-of-concept website is a case study of Hurricane Iniki which struck Hawaii in September 1992. For more information go to <http://www.pricip.org/ea-portal/web/guest/home>. The IDEA Center work with NCDC IT staff to migrate this site to a web portal architecture is currently on hold.

C. The Sea Level Stations Metadata Service is a distributed metadata system describing sea level stations starting with pilot activities in a regional framework and focusing on tsunami detection and warning systems being

development of products include NOAA's NCDC, Center for Operational Products and Services, Coastal Services Center, and National Weather Service, as well as the University of Hawaii, University of Alaska, University of Guam, and Oregon State University. Sources of information for the products include NOAA's Integrated Surface Hourly (ISH) mean sea level pressure and wind speed data; the Global Historical Climate Network (GHCN) precipitation dataset; the National Water Level Observing Network (NWLON) tide gauge records; the National Data Buoy Center's wave buoy records; and the U.S. Army Corps of Engineers' Coastal Data Information (CDIP) buoy data.

developed by various agencies. Sea level station metadata can be viewed within a Google Earth or a Geographic Information System application. Both applications are being enabled by the NOAA Pacific Tsunami Warning Center Tide Tool input data set, exposed per schema developed under the NOAA Pacific Region Integrated Data Enterprise program. For more information go to <http://www.sealevelstations.org/>

B. The Extremes in the Pacific Integrated Case Studies (EP-ICS) project consists of comprehensive overviews of historical storm events. They include a summary of sector-specific socioeconomic impacts associated with a particular extreme event as well as its historic context climatologically. The intent is to convey the impacts associated with extreme events and the causes of them in way that enable users to easily understand them. The case studies are also intended to familiarize users with in-situ and remotely sensed products typically employed to track and

Event Title
Hurricane Iniki
September 5-13, 1992

Event at a Glance

Category 4 Hurricane (SSHG²)	
Maximum Wind Speed ¹	155 mph (135knots, 70m/s)
@ landfall	130mph (115knots, 60m/s)
Minimum Central Pressure (P _c) ¹	938 millibars (27.70 in Hg)
@ landfall	950 millibars (28.05 in Hg)

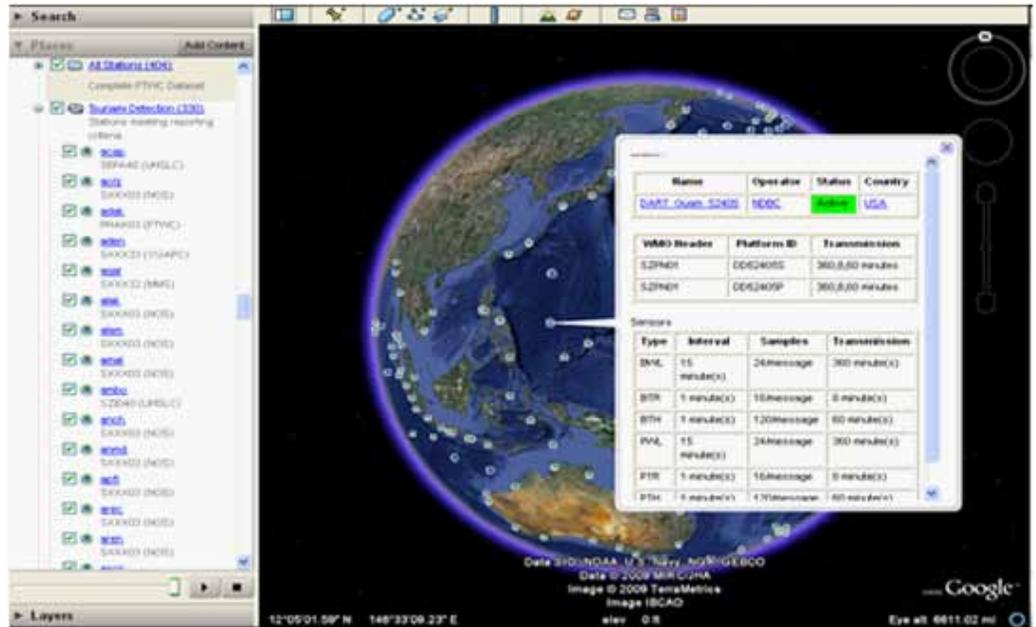
Event Overview
On September 5th Hurricane Iniki formed as a tropical depression over warm waters about 1600 miles southwest of Baja California. Intensifying, it crossed into the central Pacific on the morning of September 6th. On September 7th it was upgraded to Tropical Storm Iniki and on the 8th, when it was 470 miles southwest of Hilo, Hawai'i, it was upgraded from a tropical storm to a hurricane.

Most Intense and Costliest Hurricanes of the 1990s in the United States

HURRICANE	Year	Category	Area of Impact	Cost (\$)
Andrew	1992	5	Florida, Louisiana	\$13,000
Douglas	1994	4	Florida, Louisiana	\$12,000
Erbe	1991	4	North Carolina	\$1,700
Erbe	1991	4	Florida, Alabama	\$1,000
Erbe	1991	4	U.S. Virgin Islands, Puerto Rico, French Polynesia, Hawaii	\$1,000
Erbe	1991	4	Florida	\$1,000
Erbe	1991	4	North Carolina, Virginia	\$1,000

D. The Climate Adaptation Planning Information System (CAPIS) project

is a locally-driven, collaborative effort to provide actionable information on climate change for use in community planning and resource management sectors using historic and modeled data that are scaled down to a specific geographic setting and delivered by a web-based decision-support interface. CAPIS is focused on the Oregon coastal shoreland setting – watersheds, estuaries, open coasts, and shallow ocean. The ultimate intent is to use this initial interface as the basis for development of a similar type of web-based tool in other regions that can be used to evaluate impacts and options related to community development and resource conservation in light of a changing climate. CAPIS is a joint effort between the Oregon Coastal Management Program and the IDEA Center. However, it is being carried out by leveraging the resources of a mix of agency, organization, and institution partners including the NOAA Coastal Services Center, the Oregon Department of Geology and Mineral Industries, Oregon State University, USGS, and NASA.

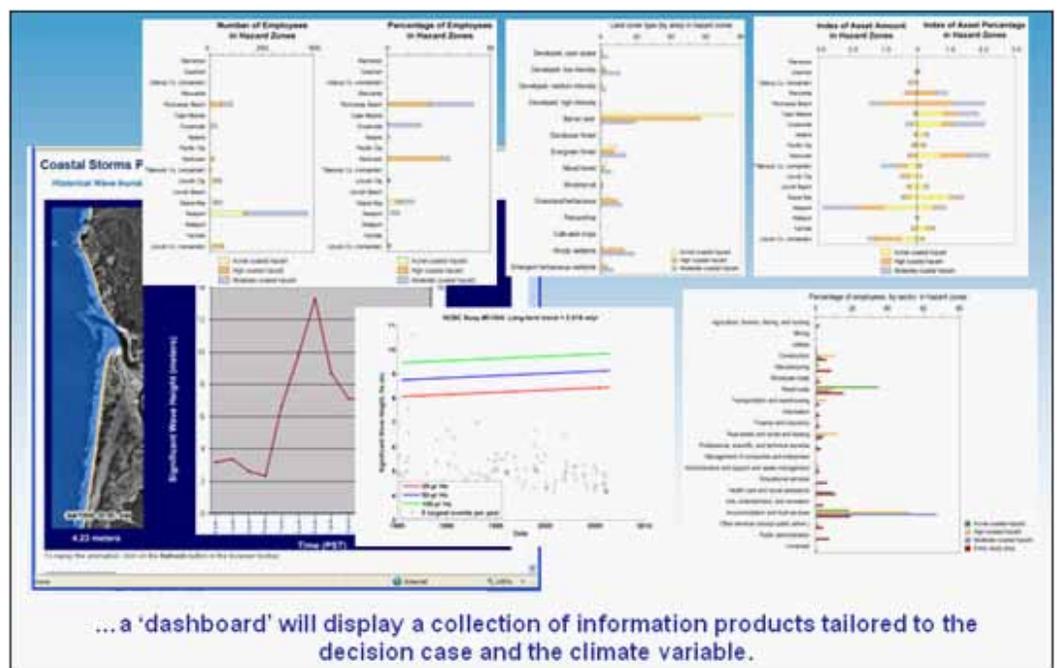


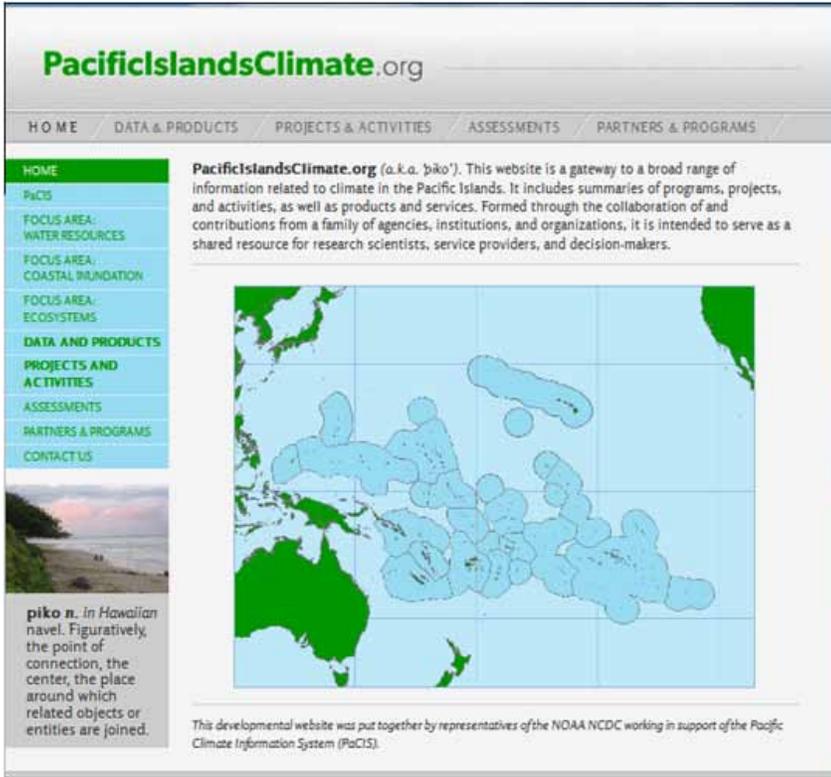
of information related to climate in the Pacific Islands. It includes summaries of programs, projects, and activities, as well as products and services. Formed through the collaboration of and contributions from a family of agencies, institutions, and organizations, it is intended to serve as a shared resource for research scientists, service providers, and decision-makers. For more information go to <http://www.pacificislandsclimate.org/>

III. User engagement, education and outreach

to enhance awareness of NOAA data products and services and support the emergence of an end-to-end environmental information system designed to meet the needs of decision-makers in government, businesses and communities throughout the Pacific.

A. The developmental website, PacificIslandsClimate.org, was put together by IDEA Center staff working in support of the Pacific Climate Information System (PaCIS). This website is a gateway to a broad range



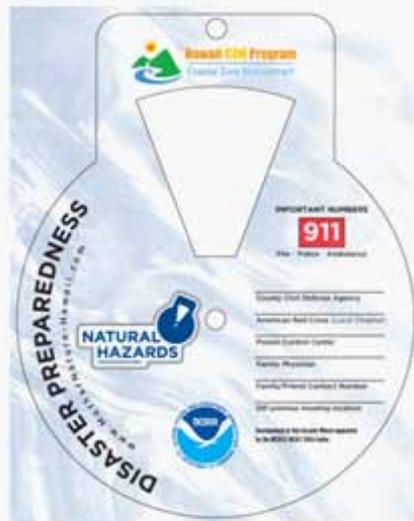


B. The Pacific Climates Impacts Resource Guide will provide citizens and decision-makers a set of Pacific-focused, cultural and currently available materials to help frame and clarify the key issues related to climate change organized around the impact sectors identified in the U.S. Climate Change Science Program report, "Global Climate Change Impacts in the United States". This is a joint effort between the IDEA Center, National Weather Service, NOAA Pacific Services Center, University of Hawaii Sea Grant College Program, University of Hawaii College of Education, East-West Center, and the United States Agency for International Development. In late 2011, the development of the Guide was aligned with the development of the Hawaii Climate Impacts Report, a project under University of Hawaii Sea Grant College Program administration. The Impact Resource Guide will continue to focus on adaptation measures while the Impacts Report will be more

technical and rigorous and focus on impacts and mitigation. The projects will be companion pieces with similar structure and a single introduction. The projects will also be aligned with the development of the Pacific Islands section of the National Climate Assessment.

C. The IDEA Center partnered with the State of Hawaii Coastal Zone Management Program, International Tsunami Information Centre, and NOAA Pacific Services Center to update and re-print the **Hawaii Natural Hazards Preparedness Wheel** which had been out of print for 5 years. The reprinting fills a void in providing the public with an easily usable and portable source that provides important public safety information on tsunamis, lava flows, floods, droughts and other natural hazards found in the Hawaiian Islands and what to do if a disaster is imminent. The final phase of the project was completed in July 2011 with 30,000 hazards wheels printed and distributed to project partners as well as to Hawaii state and county civil defense, emergency management and emergency services organizations and offices.

D. The IDEA Center is working with the **NOAA Ship Ka'imimoana** to produce an informational flyer for the ship. Home ported in Honolulu, Hawaii the Ka'imimoana (Hawaiian for "ocean seeker"), is dedicated solely to climate research through its support of NOAA's Tropical Atmosphere-Ocean Project.





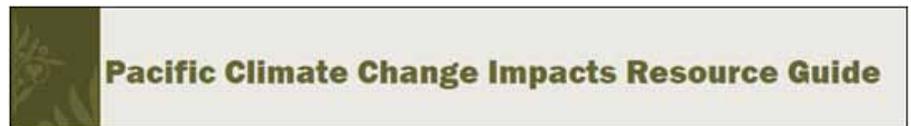
carried out through the NOAA Pacific Regional Outreach Group, who focuses on outreach, education, and public affairs as a means to improve products and services in the Pacific region. The printing of the brochure was completed by the Government Printing Office and delivered to Hawaii for distribution in October 2011.

IV. Establishing the critical national, regional and international partnerships necessary to support these objectives.

A. The IDEA Center is leading coordination and support of the **Pacific Climate Information System (PaCIS)**. PaCIS provides a programmatic framework to integrate ongoing and future climate observations, operational forecasting services and climate projections, research, assessment, data management, outreach, and education

E. Pacific Region Climate Vignettes are being developed on several topics including: how the application of a NOAA drought forecast helped mitigate impacts on Kapingamarangi Atoll in the Federated States of Micronesia; how a pilot project being led by the NOAA Pacific ENSO Applications Climate Center to compile rainfall and temperature data is aiding agricultural interests in the Kona district of Hawaii; and how the USDA Farm Service Agency for Hawaii and the Pacific Basin are providing Livestock Forage Program aid to areas affected by recent drought conditions in Hawaii.

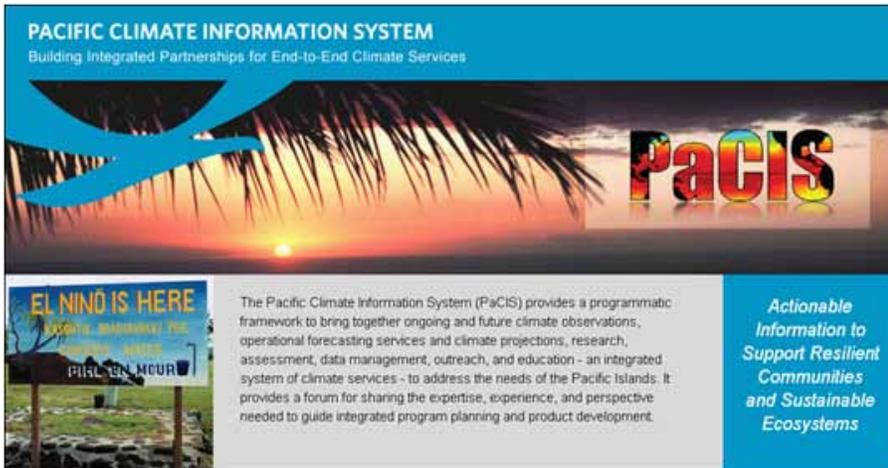
F. The IDEA Center assisted in designing a new **NOAA in the Pacific Region** informational brochure. This work was



to address the needs of American Flag and U.S.-Affiliated Pacific Islands (USAPI). In addition to meeting the specific needs of American Flag and USAPI as an integrated climate information system, PaCIS also provides a venue to discuss the role of U.S. contributions to other climate and climate-related activities in the Pacific including, for example, observing system programs such as the Pacific Islands Global Climate Observing System and the Pacific Islands Global Ocean Observing System. It is anticipated that PaCIS will also serve as the United State's contribution to the World Meteorological Organization's Regional Association V Regional Climate Centre. Thus, PaCIS represents the first step towards a regional climate service for the Pacific. For more information go to <http://www.pacificcis.org/>



A PaCIS Steering Committee Meeting was held in March 2011 in Honolulu, Hawaii. This meeting solicited input on the proposed foundational elements of the PaCIS Implementation Plan, a document intended to identify and prioritize actions that need to be taken by agencies, institutions, and organizations to support a collaborative, participatory process that will directly connect the best and most relevant climate science



through, for example, risk assessment scenarios for coastal land-use planning and resource management. Additionally, the results of this workshop will help inform the Pacific Islands Regional Climate Assessment, which is the regional contribution to the National Climate Assessment.

and services in the Pacific Region to user decisions. IDEA Center staff worked with the NCDC Graphics Team to publish the document: “Towards a Pacific Climate Information System (PaCIS) Plan for Regional Climate Services: A Synopsis Based on Outcomes of the March 22-24, 2011 PaCIS Steering Committee Meeting”.

B. The Pacific Islands Regional Climate Assessment (PIRCA), a collaborative effort aimed at assessing the state of climate knowledge, impacts, and adaptive capacity in Hawaii and the U.S.-Affiliated Pacific Islands was established in June 2011. PIRCA activities include an immediate focus on bringing together scientific experts and practitioners to generate an integrated report that will provide a regional contribution to the National Climate Assessment.

C. A Pacific Regional Meteorological Services Directors Training Workshop, was held on August 8-12, 2011 in Majuro, Republic of the Marshall Islands. The theme of this workshop was “Global Framework for Climate Services (GFCS): The Role of Pacific Islands National Meteorological Services and Partners in Implementing the GFCS to Support National Programs of Action for Climate Change Adaptation in the Pacific”.

D. A technical workshop, “Towards a Consensus Methodology for Projecting Sea Level Rise and Coastal Inundation in the Pacific Islands”, will be held on January 10-11, 2012 in Honolulu, Hawaii. The objective of the workshop is to solicit input from experts in the area of sea level rise and related processes to formulate regional best practices and a consistent methodology for projecting long-term changes in sea level and coastal inundation in the Pacific. This understanding will be used to implement adaptation

NOAA's Regional Climate Center

The National Oceanic and Atmospheric Administration's (NOAA) Regional Climate Centers (RCCs) are a federal–state cooperative effort. The RCC Program is managed by NOAA's National Climatic Data Center (NCDC). The RCC Program directly supports the following legislative mandates:

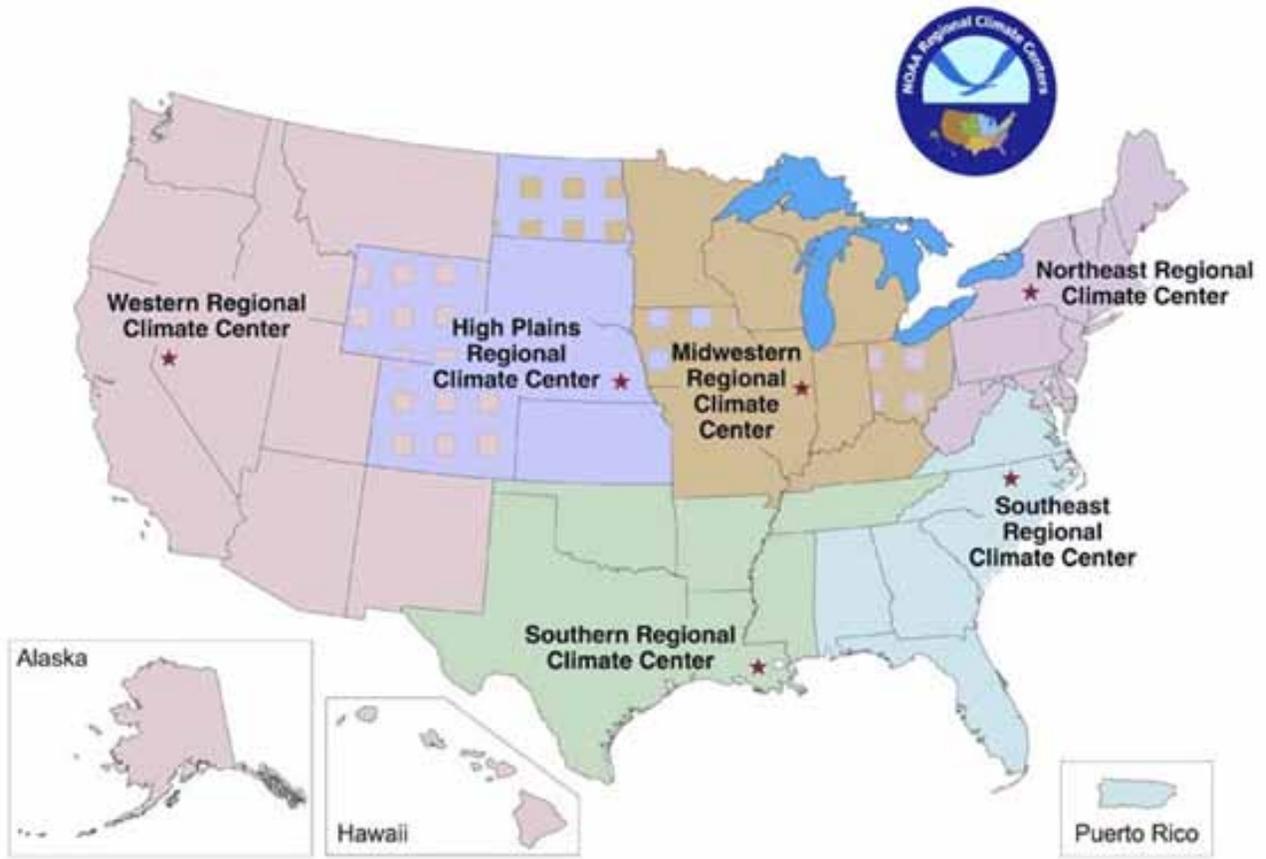
National Climate Program Act of 1978 (15 U.S.C. 2901, 2908 (PL 95-367))—mandate “...to improve the use and dissemination of climatic data and information for the economic benefit and well-being of the United States.”

U.S. Global Change Research Act of 1990 (PL 101-606)—calls for the Federal Government to “...combine and interpret data from various sources to produce information readily usable by policymakers attempting to formulate effective strategies for preventing, mitigating, and adapting to the effects of global change.”

The six centers that comprise the RCC Program are engaged in the timely production and delivery of useful climate data, information, and knowledge to decision makers and other users at the local, state, regional, and national levels. The RCCs support NOAA's efforts to provide operational climate services while leveraging improvements in technology and collaborations with partners to expand quality data dissemination capabilities. The RCCs respond annually to tens of thousands of requests for data and information from citizens, state and federal agencies, and weather-sensitive businesses (agriculture, transportation, risk management, etc.). More than 100 million information requests for information are annually requested through RCC online data systems. Information tailored to specific regional needs is generated at the RCCs and is shared with NCDC, National Weather Service (NWS) offices, and other agencies to ensure an integrated approach to climate analyses, planning, and dissemination for the benefit of all climate information users. RCC data delivery to the larger climate community relies on a nimble combination of near-real-time relational databases and Web-based information resources.

The current configuration of RCCs includes six centers located at Cornell University in Ithaca, New York; the University of North Carolina at Chapel Hill; Louisiana State University in Baton Rouge; The University of Nebraska in Lincoln; the Illinois State Water Survey in Champaign; and the Desert Research Institute in Reno, Nevada. The figure on the following page illustrates the location of the six RCCs, representing each geographic region of the United States.

ACIS (<http://rcc-acis.org/>) is the RCC backbone for disseminating NCDC climate information to partners and a host of regional and state climate data users. In recent years, requests for climate information from the RCCs have grown rapidly as products have been developed for many sectors, including risk management, energy production, agricultural planning, transportation services, and the general public.



Note: Checkered states participate in two regions

<http://www.ncdc.noaa.gov/oa/climate/regionalclimatecenters.html>

NOAA's Regional Climate Services Partnership

Changing climate conditions impact our lives in both subtle and measurable ways. Whether we are facing extreme precipitation events, earlier snowmelt, increased frequency and duration of drought, alterations to the growing season, or rising sea levels, the key to anticipating and responding to these changes is having the right kinds of climate information at a scale appropriate for community decision-making.

NOAA's Regional Climate Services Partnership makes climate information relevant and accessible to people from coast to coast. From engineers to insurers, gardeners to public health

officials, people who use climate data, forecasts, products, and services will find that NOAA's Regional Climate Services Partnership is the one stop shop for their information needs.

This Partnership reflects NOAA's commitment to healthy ecosystems, communities and economies that are resilient in the face of variable and changing climate conditions. It seeks to assess regional needs and vulnerabilities, and then develop and deliver timely climate services that aid mitigation and adaptation choices. The Partnership also works to build a climate-literate public that understands its vulnerabilities so that it can appropriately plan ahead.



Anchorage, AK / Honolulu, HI
Kansas City, MO / Fort Worth, TX
Bohemia, NY / Salt Lake City, UT

Learn more about the RCSDs at: <http://www.noaaideacenter.org/rcsd/>

CD-ROM/DVD Products

NCDC has produced a suite of CD-ROMs and DVDs with diverse environmental data ranging from global tropical cyclone tracks, to worldwide climatologies, to hourly surface data. Below is a listing with descriptions of some of the more popular discs we offer. A more extensive listing, further details concerning these discs, as well as an online ordering system (with discounted prices vs. those listed below), are all accessible via

<http://www.ncdc.noaa.gov/oa/climate/climateproducts.html>.

Integrated Surface Hourly Observations:

The global surface hourly observations contained on this CD-ROM/DVD set are integrated from all of the NCDC and Navy surface hourly data, NCDC hourly precipitation, and Air Force surface hourly data. Hourly and synoptic type data for approximately 12,000 global stations are available for 1995–2005. There are 24 volumes (1995–2002) separated by geographic region and time period. Global extraction software, including a map interface, is provided to aid in identifying and easily selecting the data in either full Integrated Surface Hourly format or delimited/abbreviated format. Various elements such as temperature, dew point, wind speed and direction, sea level pressure, visibility, cloud ceiling, present weather, precipitation, snowfall, snow depth, altimeter setting, station pressure, etc., are available. The disks also contain a data inventory file showing the number of observations for each month of the year for each station. Each volume contains all the software, support files, and documentation so each volume may be used alone or in combination with other volumes for each time period. An additional seven volumes (no extraction software included) on DVD cover 2003–2010 with each year available on a single DVD. \$35 per volume.

International Station Meteorological Climate Summary (ISMCS) Ver. 4.0:

Provides detailed climatological summaries for 2,600 locations worldwide. These locations include National Weather Service stations, domestic and overseas Navy and Air Force sites, and numerous foreign stations. Limited sum-

maries are also given for approximately 4,000 additional worldwide sites. This version also contains year/month and long-term mean precipitation data for 1,000 foreign locations. Tabular or statistical data can be exported to a printer or spreadsheet. This is a joint NCDC, USAF, and U.S. Navy product. Please note that the non-U.S. data cannot be redistributed by users of the CD for commercial purposes. \$35.

NCDC Cooperative Station Data:

These CD-ROMs contain ASCII data files and associated station history files for the Cooperative Summary of the Day dataset. This dataset is a compilation of daily observations from more than 20,000 cooperative weather stations in the United States, U.S. Caribbean Islands, U.S. Pacific Islands, and Puerto Rico. It includes air and soil temperatures, rainfall, snowfall, and evaporation elements. A map interface is available on the Eastern, Central, and Western Disks. The period of record on these disks varies among stations but falls within the period from the 1850s through 2001. The update disk contains compressed files for 2002–2006 and also includes data for the “first-order” National Weather Service sites, with some additional data elements that are not reported by cooperative stations. The files are in the raw, archive format without any software for conversion to a spreadsheet ready format. \$105 for full set/ \$35 per volume/update disk.

Engineering Weather Data:

This CD-ROM contains an update of a very popular publication that was first printed by the Air Force in 1967 and republished in 1978. As compared to the Engineering Weather Data publication, the new interactive CD-ROM database contains updated meteorological tables, new summarized parameters, and graphical displays. Approximately 800 worldwide stations have been summarized. For each station, the data and information on this CD-ROM include: summarized design criteria data for dry and wet bulb temperatures and humidity ratios, average annual climate summaries, psychrometric summaries, binned temperature data, annual temperature and humidity summaries, heating and cooling degree data summaries for

building envelop loads, ventilation and infiltration loads, solar radiation data, and seasonal wind direction and wind speed summaries. Please note that the non-U.S. data cannot be redistributed by users of the CD for commercial purposes. \$35.

U.S. Daily Climate Normals:

This CD provides the 1971–2000 daily normals of temperature, precipitation, and degree days for nearly 8,000 U.S. weather stations. It also contains the monthly, seasonal, and annual normals along with the precipitation probabilities and quintiles. The interface allows the user to select an easily readable web form or a text file that can be imported into a spreadsheet. Microsoft Internet Explorer is required to view and print the web form. Text files can be accessed directly without the use of a web browser. \$35.

U.S. Monthly Climate Normals: This CD-ROM contains 1971–2000 U.S. monthly station normals for nearly 8,000 stations in the United States, selected Pacific Islands, Virgin Islands, and Puerto Rico. The normals can be accessed in both the Adobe PDF and ASCII file formats from a simple HTML interface. This product includes normals of average monthly and annual maximum, minimum, and mean temperature (degrees F), monthly and annual total precipitation (inches), and heating and cooling degree days (base 65 degrees F). \$35.

Important Notes

Some NCDC CD-ROM products were produced for use in a 'DOS' or Windows PC environment and will not work in an Apple 'MAC' environment. In addition, some of the NCDC CD-ROMs were produced in a pre-Windows 95/98/XP environment and may not work without configuration. If you have technical questions, email ncdc.info@noaa.gov.

NCDC's Climate Services Branch is responsible for distribution of NCDC CD-ROM products. Domestic customers add a \$3.00 service charge per order; foreign users add \$22.00 per order. Address:

National Climatic Data Center
Attn: Climate Services Branch
151 Patton Avenue
Asheville, NC 28801-5001

Telephone: 828-271-4800; Fax: 828-271-4876
Internet: ncdc.orders@noaa.gov

Publications

A number of NCDC Climatic Summaries, Publications, and Documents are available online (see below):

Climatic Summaries, Publications & Documents

- Annual Climatological Summaries (Monthly/Annual Summaries for U.S. Locations)
- Climatological Data (Daily/Monthly Data for ~ 8,000 U.S. Locations)
- Climate Variations Bulletin (Monthly Reports of U.S. Climate)
- Climatic Data for Frost-Protected Shallow Foundations
- Climate Maps for the United States (Over 700 Maps of Climate Normals)
- Comparative Climatic Data (Climatological Averages for U.S. Cities)
- Climates of the World (PDF format, Regional Narratives and Climatic Tables by City)
- Climatography of the U.S. - Supp #3 (Maps of Temperature, Precip, Degree Days)
- Climatology for Southwest Asia (Many Data Sources and Summaries)
- COOP Data/Record Of Climatological Observations Form
- Dynamic Normals (19 products—e.g., daily cooling degree days)
- Freeze/Frost Data for the U.S. (PDF format)
- Frost Free Maps for the U.S. (Based on 28F and 32F Temperatures)
- Heating and Cooling Degree Days (Monthly State, Regional, and National Degree Days)
- Historical Climate Publications (Publications & CD-ROMs for sale at a very reduced price)
- Hourly Precipitation Data (Hourly Precip Data for over 2,500 U.S. Locations)
- Hourly Rainfall Event Statistics (Frequency Distributions for Hourly Rainfall)
- Integrated Surface Hourly (ISH) Summaries (Summaries of temperature, wind, ceiling/visibility, etc. Note: choose Advanced Options at Accessing data selection screen, then Data Summary as output on following screen.)
- Local Climatological Data (Hourly/Daily Data for nearly 300 U.S. Cities)
- Monthly Climatic Data for the World (Selected Worldwide Cities' Climate Summaries)
- Monthly Extremes (30 products—e.g., maximum precipitation by month)
- Monthly Weather Review (American Meteorological Society Summary)
- Rainfall Frequency Atlas of the U.S. (Frequency Distributions for Heavy Rainfall)
- Storm Data Publication (Monthly Reports of Damaging Weather)
- U.S. Climate Normals (The New U.S. Climatological Normals)

<http://www.ncdc.noaa.gov/oa/climate/climateproducts.html#PUBS>

Historical and offline publication requests should be directed to NCDC Customer Service at the following contact information:

Phone: 828-271-4800

Fax: 828-271-4876

E-Mail: NCDC.Orders@noaa.gov

Climate Monitoring

One of NCDC's roles is to monitor and assess the state of the Earth's climate in near real-time, providing decision-makers at all levels of the public and private sector with data and information on climate trends and variability including perspectives on how the climate of today compares to the past.

The Climate Monitoring Branch at NOAA's National Climatic Data Center (NCDC) routinely produces climate assessments on a monthly, seasonal, and annual basis. The purpose of these reports, which are available since 1998,

is to provide scientific insight into the Earth's climate and historical perspective on its variability and change.

The State of the Climate reports, which place conditions for the past month, season, and year-to-date period in historical perspective, are provided as data become available. Parts of the report are available online as early as the 5th of each month, and the full report is available no later than the 15th. Each report includes hundreds of graphics and text summaries of global and U.S. climate conditions with historical perspective provided by more than 100 years of

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

National Climatic Data Center
U.S. Department of Commerce

NOAA > NESDIS > NCDC

Search Field: Search NCDC

Climate Monitoring | Help

Climate Monitoring

National Oceanic and Atmospheric Administration
National Climatic Data Center

August Heat Wave
The mean temperature for August (75.7°F/24.3°C) was the second warmest on record. [National Overview](#) » [Climate Report](#) » [August Rank Maps](#) »

- [State of the Climate](#)
- [U.S. Products](#)
- [Global Products](#)
- [Drought Monitoring](#)
- [U.S. and Global Extremes](#)
- [Hurricanes/Tropical Storms](#)
- [Tornadoes](#)
- [Snow and Ice Data](#)
- [Climate Information Record Data](#)
- [Special Reports](#)
- [Other Products](#)
- [Climate and Network Monitoring](#)

<http://www.ncdc.noaa.gov/climate-monitoring/index.php>

instrumental observations and hundreds of years of paleoclimate data from sources such as tree rings, ice cores, and sedimentary records. The reports consist of several sections summarizing conditions on both a U.S. and global scale.

The section on global conditions includes data on surface and upper air temperatures, precipitation, ENSO conditions, sea ice, and snow cover. A U.S. National section provides statewide, regional, and national rankings for mean temperature and precipitation. User-friendly graphics and short explanatory discussions make determination of conditions quick and easy.

The U.S. Climate Extremes section contains a list of new all-time U.S. records of significance for temperature, rainfall, snowfall, wind, and pressure.

U.S. Climate at a Glance

The U.S. Climate at a Glance web site is a popular and easy-to-use source of climate information on national, regional, statewide, and city temperature and precipitation trends and rankings. The web site provides a number of different statistics in addition to a bar or line graph; temperature or precipitation values for any month or season from 1895 to present, the respective ranking for each year from warmest to coldest or driest to wettest, the climatological average for any selected base period, and the linear trend over the period selected. Mapping of statewide temperature and precipitation values for any month or season during the period of record is also possible.

U.S. Climate at a Glance

These data are primarily intended for the study of climate variability and change. Whenever possible, observations have been adjusted to account for the artificial effects introduced into the climate record by factors such as instrument changes, station relocations, observer practice changes and urbanization. As a result, some values available on this site differ from the official observations. For official station observations, please contact the NCDC Climate Services and Monitoring Division at ncdc.orders@noaa.gov.

September 2011 Temperature Departure from Normal

(Departure from the 1981 - 2010 Normal)

Departure from Normal

8°F
6°F
4°F
2°F
0°F
-2°F
-4°F
-6°F
-8°F

- National
- Regional
- Statewide
- Cities

Links to current and historical temperature and precipitation data

Select from these options and then click "submit" to view U.S. temperature and precipitation maps for any past month and year. (Please wait 20 - 30 seconds.)

Element:

Year:

Period:

Submit

Please see our [ftp site](#) for statewide temperature and precipitation data which are used in making these maps.

Information for users [experiencing problems](#) receiving requested output

<http://www.ncdc.noaa.gov/oa/climate/research/cag3/cag3.html>

State of the Climate Drought September 2011

National Oceanic and Atmospheric Administration
National Climatic Data Center

Use the form below to access monthly reports.

[← August 2011 Drought Report](#)

Report:

Year: Month:

Issued 13 October 2011

Contents Of This Report:

- [National Drought Overview](#)
- [Detailed Drought Discussion](#)
 - [Overview](#)
 - [Synoptic Discussion](#)
 - [Palmer Drought Index](#)
 - [Standardized Precipitation Index](#)
 - [Agricultural & Hydrological Indices and Impacts](#)
 - [Regional Discussion](#)
 - [Regional Climate Center Reports](#)
 - [Pacific Island Drought](#)
- [State/Regional/National Moisture Status](#)
- [Drought Indicators](#)
- [Contacts & Questions](#)

National Climatic Data Center, NOAA

extreme drought	severe drought	moderate drought	dry	moderately moist	very moist	extremely moist
-0.75 and below	-0.50 to -0.75	-0.25 to -0.50	0.00 to -0.25	+0.25 to +0.50	+0.50 to +0.75	+0.75 and above

The U.S. Drought section provides numerous drought indicators and summaries of national, regional, and local drought conditions during the past month with perspective on how the conditions compare with those during the preceding centuries.

<http://www.ncdc.noaa.gov/sotc/?report=drought>

The North America Drought Monitor (NA-DM) is a cooperative effort between drought experts in Canada, Mexico and the United States to monitor drought across the continent on an ongoing basis.

North American Drought Monitor

National Oceanic and Atmospheric Administration
National Climatic Data Center

- [NADM Overview](#)
- [NADM maps](#)
- [NADM maps \(limited access\)](#)
- [ArcGIS Archive \(limited access\)](#)
- [Drought Monitoring Indices and Data](#)
- Other Drought Monitoring Indices
 - [NESDIS Satellite VHI](#)
 - [CPC Modeled Soil Moisture](#)
 - [U.S. NWS Precipitation Analysis](#)
- [Geographical Reference Maps](#)
- [Climatology Maps](#)
- [Associated Links](#)

<http://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/>

The Northeast Snowfall Impact Scale (NESIS) characterizes and ranks high-impact Northeast snowstorms using five categories in a manner similar to the Fujita and Saffir-Simpson scales for tornadoes and hurricanes, respectively: Extreme, Crippling, Major, Significant, and Notable. Originally developed by Paul Kocin of The Weather Channel and Louis Uccellini of the National Weather Service, NCDC produced an operational version that has been in use since early 2006 to quickly assess the impact of snowstorms on the Northeast.

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Search Field: Search NCDC

Climate Monitoring | Snow and Ice | NESIS | Help

The Northeast Snowfall Impact Scale (NESIS)

National Oceanic and Atmospheric Administration
National Climatic Data Center

- Overview
- Storm Rankings
- References
- Regional Snowfall Impact Scale

October 29-30, 2011
PRELIMINARY
Total Storm Snowfall (inches)

1-4	4-10	10-20	20-30	30+
-----	------	-------	-------	-----

NESIS = 1.75
Category 1

29-30 October 2011

<http://www.ncdc.noaa.gov/snow-and-ice/nesis.php>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Search Field: Search NCDC

Climate Monitoring | Societal Impacts | Help

Societal Impacts

National Oceanic and Atmospheric Administration
National Climatic Data Center

- Overview
- Crop Moisture Stress Index (CMSI)
- Residential Energy Demand Temperature Index (REDTI)
- Air Stagnation Index
- Convective Sigmets (CSIG)
- Northeast Index to Potential Ozone Exposure (provided by the NERCC)
- West Nile Virus Mosquito Crossover Dates
- NOAA Economics

Through NCDC's National Climate Impact Indicators program, climate indices are being developed to provide public and private sector analysts with up-to-date quantitative information on the effect of weather and climate on vital sectors of the U.S. economy and society

<http://www.ncdc.noaa.gov/societal-impacts/>

Climate Extremes

The U.S. Record page provides an easy and quick way to search for temperature, precipitation and snowfall station records set on a given day or month.

U.S. Records

National Oceanic and Atmospheric Administration National Climatic Data Center

[Records Look-Up](#) | [Archived Monthly/All-Time Records](#)

Records Look-Up

Look up daily records set on a given day for a month, day, or all-time.

Time Scale: Daily Parameter: Highest Max Temperature

Month: November Day: 7 Year: 2011

Filter by State/Territory: All States/Territories
Alabama
Alaska
Arizona

Only return ASOS stations Return Trace values (Precip/Snow) Get Records

Recent Records Totals

Daily | [Monthly](#) | [All-Time](#)

Period		Hi Max	Hi Min	Lo Max	Lo Min	Precip*	Snow*
Yesterday	Nov 7, 2011	0	38	58	15	37	13
Last 7 Days	Nov 1 - 7, 2011	48	68	340	188	459	169
Last 30 Days	Oct 9 - Nov 7, 2011	1,058	675	934	579	2,057	521
Last 365 Days	Nov 8, 2010 - Nov 7, 2011	26,762	28,755	17,571	10,951	32,522	11,258
Month to Date	Nov 1 - 7, 2011	48	68	340	188	459	169
Year to Date	Jan 1 - Nov 7, 2011	24,651	26,588	14,638	8,763	27,752	8,055

**Precipitation and Snow totals DO NOT include trace values.*

<http://www.ncdc.noaa.gov/extremes/records/>

The Global Hazards/Climate Extremes page was first presented in 2003 as a framework to summarize weather-related hazards and disasters across the world. The page is updated on a weekly basis and is focused on the following events: drought, excessive heat, flooding, severe storms,

tropical cyclones, extratropical cyclones, and severe winter weather. The information provided is a compilation from media news with satellite images and/or graphs that are relevant to the story.

State of the Climate Global Hazards October 2011

National Oceanic and Atmospheric Administration National Climatic Data Center

Use the form below to access monthly reports.

[← September 2011 Hazards Report](#)

Report:

Year: **Month:**

Please note: Material provided in this report is chosen subjectively and included at the discretion of the National Climatic Data Center (NCDC). The ability to report on a given event is limited by the amount of information available to NCDC at the time of publication. Inclusion of a particular event does not constitute a greater importance in comparison with an event that has not been incorporated into the discussion. Data included in this report are preliminary unless otherwise stated. Links to supporting information is valid at the time of publication, but they are not maintained or changed after publication.

Updated 24 October 2011

October 1st Super Typhoon Nalgae strikes the Philippine island of Luzon [read more](#) 

<http://www.ncdc.noaa.gov/sotc/?report=hazards/>

The Extreme Weather and Climate Events web site provides a wealth of information, data, and graphics related to extreme events such as hurricanes, tornadoes, heavy precipitation, and extreme temperatures.

The screenshot shows the NOAA Satellite and Information Service website. At the top, there are logos for NOAA Satellite and Information Service (National Environmental Satellite, Data, and Information Service (NESDIS)) and the National Climatic Data Center (U.S. Department of Commerce). Below the logos is a navigation bar with the breadcrumb "DOC > NOAA > NESDIS > NCDC", a search field, and a "Search NCDC" button.

The main content area is a grid of navigation links. The central part of the grid is dominated by a large satellite image of a hurricane over the Caribbean Sea, with the text "EXTREME WEATHER AND CLIMATE EVENTS" overlaid in red. The grid contains the following links:

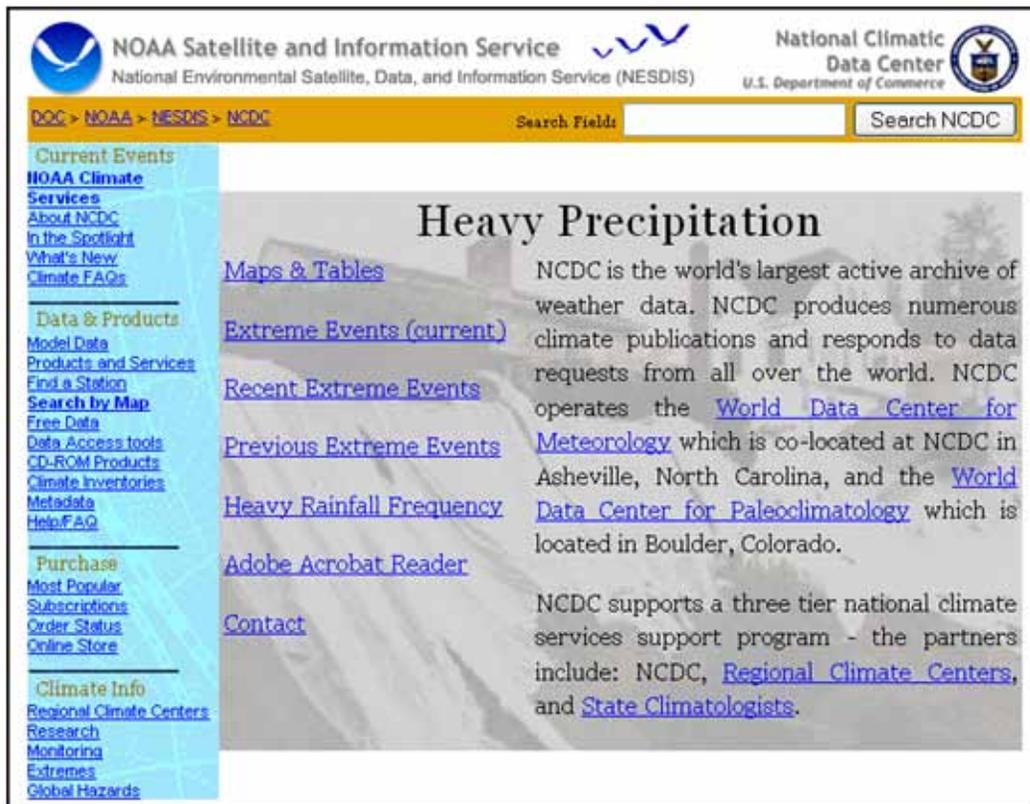
- U.S. Hurricanes
- North American Extremes
- Temperature Extremes & Drought
- Heavy Precipitation
- U.S. Tornadoes
- Billion \$\$ Weather Disasters
- Worldwide Weather & Climate Events
- Global Climate Change
- Historical Global Extremes
- El Nino/ La Nina
- Satellite Images & Posters
- Climate Monitoring
- U.S. Local Storm Events Data
- NCDC FAQs
- Climatic Data
- U.S. Radar Composites

<http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html>



The screenshot shows the NOAA Satellite and Information Service (NESDIS) website. The header includes the NOAA logo, the text "NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)", and the "National Climatic Data Center U.S. Department of Commerce" logo. A navigation bar shows "DQC > NOAA > NESDIS > NCDC" and a search field. A left sidebar contains links for "Current Events", "NOAA Climate Services", "Data & Products", "Purchase", and "Climate Info". The main content area is titled "Hurricanes" and features a background image of a hurricane. The text describes NCDC as the world's largest active archive of weather data, listing various data products and services available, such as "1950-2010 Map", "1899-2004 Maps", "Special Reports", "Hurricane Climatology", "Summaries by Basin", "IBTRACS", "NOAA/NHC", and "Tropical Cyclones".

<http://www.ncdc.noaa.gov/oa/climate/severeweather/hurricanes.html>



The screenshot shows the NOAA Satellite and Information Service (NESDIS) website. The header includes the NOAA logo, the text "NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)", and the "National Climatic Data Center U.S. Department of Commerce" logo. A navigation bar shows "DQC > NOAA > NESDIS > NCDC" and a search field. A left sidebar contains links for "Current Events", "NOAA Climate Services", "Data & Products", "Purchase", and "Climate Info". The main content area is titled "Heavy Precipitation" and features a background image of a rain cloud. The text describes NCDC as the world's largest active archive of weather data, listing various data products and services available, such as "Maps & Tables", "Extreme Events (current)", "Recent Extreme Events", "Previous Extreme Events", "Heavy Rainfall Frequency", "Adobe Acrobat Reader", and "Contact".

<http://www.ncdc.noaa.gov/oa/climate/severeweather/rainfall.html>

The screenshot shows the NOAA Satellite and Information Service (NESDIS) website. The header includes the NOAA logo, the text 'NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)', and the 'National Climatic Data Center U.S. Department of Commerce' logo. A navigation bar shows 'DOC > NOAA > NESDIS > NCDC' and a search field with 'Search NCDC' button. A left sidebar contains links for 'Current Events', 'NOAA Climate Services', 'Data & Products', 'Purchase', and 'Climate Info'. The main content area is titled 'Temperature Extremes and Drought' and includes links for 'Extremes Maps', 'U.S. Records Look-Up', '2011 Extremes & Events', 'Other Extremes & Events', and 'Contact'. A text block explains that NCDC is the world's largest active archive of weather data and produces numerous climate publications. Another text block mentions a three-tier national climate services support program with partners including NCDC, Regional Climate Centers, and State Climatologists.

<http://www.ncdc.noaa.gov/oa/climate/severeweather/temperatures.html>

The screenshot shows the NOAA Satellite and Information Service (NESDIS) website for 'U.S. Tornado Climatology'. The header is identical to the previous screenshot. A navigation bar shows 'DOC > NOAA > NESDIS > NCDC' and a search field with 'Search NCDC' button. Below the header is a navigation menu with links for 'NCDC', 'Climate Monitoring', 'Tornado Climatology', 'Tornado Safety', and 'Help'. The main content area is titled 'U.S. Tornado Climatology' and includes the text 'National Climatic Data Center Asheville, North Carolina Updated 23 February 2011'. Below this is a link for 'Recent tornado reports and information'. A section titled 'Long term/historical tornado reports and information:' contains two columns of links: Overview, Tornado Alley, Timing, Historical Records and Trends, State Maps, Deadliest U.S. Tornadoes, Tornadoes/ Long Term U.S. Tornado Climatology (PDF), Storm Events Database, Special Reports, and Links to Additional Information.

<http://www.ncdc.noaa.gov/oa/climate/severeweather/tornadoes.html>

The screenshot shows the NOAA National Climatic Data Center website. At the top, there are logos for NOAA Satellite and Information Service (NESDIS) and the National Climatic Data Center (U.S. Department of Commerce). A navigation breadcrumb trail reads 'DOC > NOAA > NESDIS > NCDC'. A search bar is located on the right side of the header.

The main content area is titled 'Worldwide Weather and Climate Events'. It features a map of Central America with labels for 'Yucatan', 'Belize', and 'Honduras'. Below the map, there is a list of links: '2011', 'Recent Weather Events', 'Previous Weather Events', 'Billion \$\$ Disasters', 'International', 'Historical Events', 'Storm Data', 'NOAA Economics & Benefits', and 'Additional Links'. To the right of these links, there is a text block explaining that NCDC is the world's largest active archive of weather data and produces numerous climate publications. It also mentions that NCDC operates the 'World Data Center for Meteorology' (located in Asheville, North Carolina) and the 'World Data Center for Paleoclimatology' (located in Boulder, Colorado). Below this text, it states that NCDC supports a three-tier national climate services support program with partners including NCDC, 'Regional Climate Centers', and 'State Climatologists'.

On the left side of the page, there is a navigation menu with several categories: 'Current Events', 'NOAA Climate Services' (with sub-links for 'About NCDC', 'In the Spotlight', 'What's New', and 'Climate FAQs'), 'Data & Products' (with sub-links for 'Model Data', 'Products and Services', 'Find a Station', 'Search by Map', 'Free Data', 'Data Access tools', 'CD-ROM Products', 'Climate Inventories', 'Metadata', and 'Help/FAQ'), 'Purchase' (with sub-links for 'Most Popular', 'Subscriptions', 'Order Status', and 'Online Store'), and 'Climate Info' (with sub-links for 'Regional Climate Centers', 'Research', 'Monitoring', 'Extremes', and 'Global Hazards').

<http://www.ncdc.noaa.gov/oa/reports/weather-events.html>



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



National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC
Search Field:
Search NCDC



NCDC
Welcome
What's New
Most Popular
Quick Search
Posters
Help / Links
Tropical Cyclone Movies

Historical Significant Events Imagery

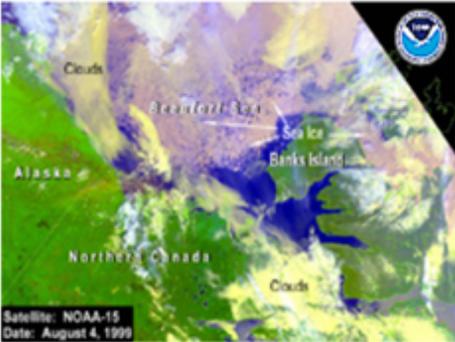
| HSEI

Welcome

Welcome to the [National Climatic Data Center's](#) (NCDC) Historical Significant Events Imagery database (HSEI)! In here you will find hundreds of selected satellite images capturing some of the more important weather and environmental events over the last 30 years.

To get started, click on the What's New, Quick Search or Most Popular buttons at the left. From **Quick Search**, you can search for images of a specific type of event for the date range you desire. You will then see a list of resulting images, from which you can view/download the image files to your computer for free, or you can order hardcopy matte or glossy finish prints.

Beaufort Sea showing very little ice during height of summer season - retreating sea ice possibly linked to global warming - Aug 4 (1999)



Satellite: NOAA-15
Date: August 4, 1999

Feel free to contact the Satellite Services Group for any special imaging requirements at ncdc.satorder@noaa.gov. Permission is granted to use, duplicate, modify, and redistribute any of our images. Please give credit to NOAA / National Climatic Data Center.

<http://hurricane.ncdc.noaa.gov/cgi-bin/hsei/hsei.pl?directive=welcome>



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



National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC
Search Field:
Search NCDC

NEXRAD National Mosaic Reflectivity Images



WSI NEXRAD MOSAIC 05 SEP 1996 230000

Hurricane Fran, 5 Sept. 1996; click to enlarge

Select Date

Please Select Day, Month, and Year for the desired image.

1
▼
January
▼
2011
▼

Currently Available
1 April 1995 to 18 April 1997, Daily
19 April 1997 to 31 October 2011, Hourly

Images provided by Weather Services International Corp. (WSI) and NASA through the Global Energy and Water Cycle Experiment Continental-Scale International Project (GCIP)

<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?WWNEXRAD~Images2>

The screenshot shows the NOAA Satellite and Information Service (NESDIS) website. The header includes the NOAA logo, the text "NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)", and the "National Climatic Data Center U.S. Department of Commerce" logo. A navigation bar shows "DOC > NOAA > NESDIS > NCDC" and a search field labeled "Search NCDC".

The main content area is titled "Online Climate Data Directory". On the left is a blue sidebar with navigation links under "Current Events", "NOAA Climate Services", "Data & Products", "Purchase", and "Climate Info". The main text area contains several links: "Search Methods/Metadata", "Surface Data", "Upper Air Data", "Marine Data", "Satellite Data", "Important Notes", "Climatology & Extremes", and "Related links". To the right of these links is a paragraph of text: "NCDC is the world's largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world. NCDC operates the World Data Center for Meteorology which is co-located at NCDC in Asheville, North Carolina, and the World Data Center for Paleoclimatology which is located in Boulder, Colorado. NCDC supports a three tier national climate services support program - the partners include: NCDC, Regional Climate Centers, and State Climatologists."

<http://www.ncdc.noaa.gov/oa/climate/climatedata.html>

The screenshot shows the "Storm Events" search page on the NOAA website. The header is identical to the previous screenshot. Below the navigation bar, the page title is "Storm Events". Underneath is a section titled "Select State" with a form that includes a dropdown menu labeled "State:" with "All" selected, and a "Continue" button.

Below the form, there is explanatory text: "Search the NCDC Storm Event database to find various types of storms recorded in your county or use other selection criteria as desired. The database currently contains:"

The text then lists the sources of data in the Storm Events Database:

- The Storm Events Database contains data from the following sources:
 - All Weather Events from 1993 - 1995, as entered into Storm Data. (Except 693 - 793, which is missing) (NO Latitude/Longitude)
 - All Weather Events from 1996 - Current, as entered into Storm Data. (Including Latitude/Longitude)
- Plus additional data from the Storm Prediction Center; Including
 - Tornadoes 1950-1992
 - Thunderstorm Winds 1955-1992
 - Hail 1955-1992

<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Search Field: Search NCDC

Climate Monitoring | Teleconnections | ENSO | Help

El Niño / Southern Oscillation (ENSO)

National Oceanic and Atmospheric Administration National Climatic Data Center

CPC:
NOAA/NESDIS SST Anomaly (degrees C), 11/7/2011

El Niño and the Southern Oscillation, also known as ENSO is a periodic fluctuation (i.e., every 2–7 years) in sea surface temperature (El Niño) and the air pressure of the overlying atmosphere (Southern Oscillation) across the equatorial Pacific Ocean. The presence of an El Niño, or its opposite – La Niña – sufficiently modifies the general flow of the atmosphere to affect normal weather conditions in many parts of the world. [Learn More...](#)

- [CPC's Latest ENSO Diagnostic Discussion](#)
- [ENSO-Related Definitions](#)
- [ENSO Technical Discussion](#)
- [ENSO Indicators](#)
- [Data and ENSO-Related Links](#)

<http://www.ncdc.noaa.gov/teleconnections/ens/index.php>

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

National Climatic Data Center
U.S. Department of Commerce

DOC > NOAA > NESDIS > NCDC

Search Fields: Search NCDC

NCDC Frequently Asked Questions

The NOAA National Climatic Data Center (NCDC) is one of the world's premier centers for archiving, processing, and researching climate data. As such, NCDC fields hundreds of questions regarding the data: how it is processed, how it can be accessed, and what it means. If you have a question about NCDC, climate data, or climatology, an answer may reside in our "Frequently Asked Questions" (FAQs) below. If not, please feel free to [contact us](#). We're adding questions to this site all the time.

[[Expand All](#) | [Collapse All](#)]

- ☐ [Global Climate Change Questions](#)
- ☐ [The Greenhouse Effect](#)
- ☐ [Climate Change Data](#)
- ☐ [Climate Definitions](#)
- ☐ [Briefings on Climate Change](#)

Answers to questions related to climate data access at NCDC may be found on [NCDC's data access and ordering FAQ page](#).

<http://www.ncdc.noaa.gov/cmb-faq/>

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

National Climatic Data Center
U.S. Department of Commerce

NOAA > NESIS > NDC

Search Fields: Search NDC

Current Events
[NOAA Climate Services](#)
[About NDC](#)
[In the Spotlight](#)
[What's New](#)
[Climate FAQs](#)

Data & Products
[Model Data](#)
[Products and Services](#)
[Find a Station](#)
[Search by Map](#)
[Free Data](#)
[Data Access tools](#)
[CD-ROM Products](#)
[Climate Inventories](#)
[Metadata](#)
[Help/FAQ](#)

Purchase
[Most Popular](#)
[Subscriptions](#)
[Order Status](#)
[Online Store](#)

Climate Info
[Regional Climate Centers](#)
[Research](#)
[Monitoring](#)
[Extremes](#)
[Global Hazards](#)

Billion Dollar U.S. Weather Disasters

[Narrative/Map](#)

[Chronological List](#)

[Global Historical Extremes](#)

[El Nino/La Nina](#)

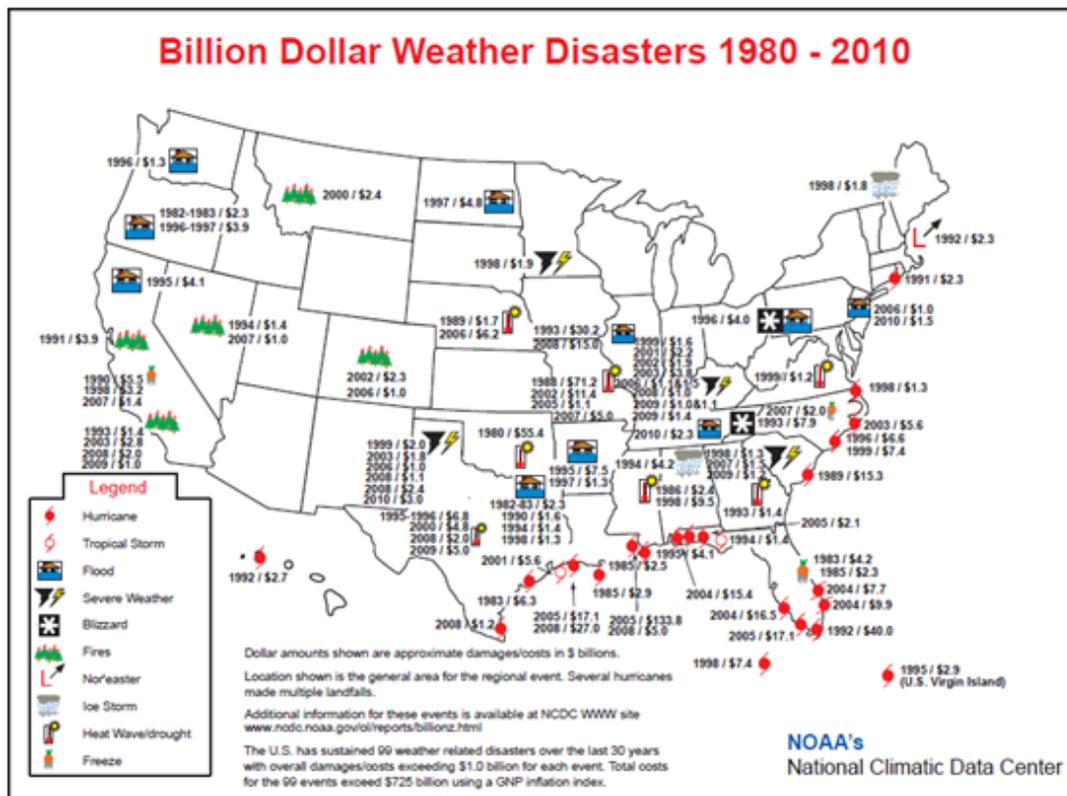
[2003 Tech Report \(PDF\)](#)

[2006 AMS Paper \(PDF\)](#)

NCDC is the world's largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world. NCDC operates the [World Data Center for Meteorology](#) which is co-located at NCDC in Asheville, North Carolina, and the [World Data Center for Paleoclimatology](#) which is located in Boulder, Colorado.

NCDC supports a three tier national climate services support program - the partners include: NCDC, [Regional Climate Centers](#), and [State Climatologists](#).

<http://www.ncdc.noaa.gov/oa/reports/billionz.html>



<http://www.ncdc.noaa.gov/oa/reports/billionz.html>

NCDC Sectoral Engagement



As part of the National Climatic Data Center’s (NCDC’s) desire to reach out to climate sensitive users, NCDC has expanded its services to include sectoral specific resources and workshops. This page provides information highlighting NCDC data and products that may be of interest to various sectors as well as information on user engagement workshops recently hosted or co-hosted by NCDC.

User Engagement Fact Sheets

The following fact sheets provide an overview of the sector, key stakeholders, examples of sector needs, and NCDC data and products of particular interest to the sector. For more information visit the [NCDC Sectoral Engagement Web site](#).

- [Agriculture](#)
- [Forests and Forest Ecosystems](#)
- [Civil Infrastructure](#)
- [Construction](#)
- [Coastal Hazards](#)
- [Energy](#)
- [Health](#)
- [Insurance](#)
- [Litigation](#)
- [Marine and Coastal Ecosystems](#)
- [National Security](#)
- [Tourism](#)
- [Transportation](#)
- [Water Resources](#)

NCDC Customer Service Contacts

NCDC provides a wide range of user services. These 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 a retirement move.

Services offered include data resource consultations, subscription items and publications, copies of original records, certifications, generation of specialized climate studies, and a host of other climate-related activities. Services are delivered on a variety of media including online access, CD-ROM's, DVDs, computer tabulations, maps, and publications.

For specific information regarding NCDC products and services, we recommend a consultation with one of our technicians or meteorologists.

You may call **(828) 271-4800** (selection 2 on the automated phone directory) between the hours of 8:00 AM and 6:00 PM EST. You may also email us at ncdc.info@noaa.gov.

There is a charge for most services and credit card pre-payment is required.

The e-mail address for payment information or questions in orders placed via the Online Store is nndc.weborder@noaa.gov.

Mailing address:

**Commerce/NOAA/NNDC
151 Patton Avenue, Asheville, NC 28801**

Tax ID #520821608

Please include the area for which you need data (city/state), the type of data you need (hourly, daily, monthly, etc./precipitation, wind, temperatures, etc.),

and the period of record you wish to cover (one day, entire month, etc).

Glossary of Acronyms

AFWA	Air Force Weather Agency
ASOS	Automated Surface Observing System
AFCCC	Air Force Combat Climatology Center
DSI	Data Set Identifier
ECMWF	European Centre for Medium-Range Weather Forecasts
ESRL.....	Earth System Research Laboratory
GTS	Global Telecommunications System
HAS	HDSS Archive System
HDSS	Hierarchical Data Storage System
IDEA	Integrated Data and Environmental Applications
MRF	Medium-Range Forecast model
NCAR.....	National Center for Atmospheric Research
NCDC	National Climatic Data Center
NCEP	National Centers for Environmental Prediction
NGM	Nested Grid Model
NOAA	National Oceanic and Atmospheric Administration
NREL	National Renewable Energy Laboratory
NVDS	NOAA Virtual Data System
NWS	National Weather Service
POR	Period of Record
PRICIP	Pacific Regional Integrated Climatology Information Products
QC	Quality Control
RCC	Regional Climate Center

