

"NOAA'S CLIMATE DATABASE MODERNIZATION PROGRAM (CDMP) A DECADE OF DATA RESCUE AND MODERNIZATION ACTIVITIES."

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1. Project Goals and Background

Having just completed its tenth year, CDMP continues to support every NOAA line office by preserving and enhancing the availability of valuable climate and environmental data. These data are used by researchers and others dealing with climate and environmental issues crucial to our planet and our global society.

2. CDMP: A Decade of Achievement

How time flies! The National Oceanic and Atmospheric Administration's Climate Database Modernization Program (NOAA's CDMP) has just completed its tenth year. Ten years ago in 2000, the demand for rapid and complete access to the Nation's and world's climate data by researchers and global change scientists was a key motivation in the establishment of CDMP, which is managed through NOAA's National Climatic Data Center (NCDC) located in Asheville, NC. This program was initiated by Congress to assist NOAA in modernizing and improving access to the Nation's climate data and information.

A decade later, that demand for climate data access has, if anything, increased. In addition, CDMP has expanded its support across all of NOAA, preserving and making available environmental data ranging from the ocean floor to the top of the ionosphere. Partnering with four private sector contractors, CDMP has placed online over 54 million weather and environmental images, available to researchers around the world via the Internet. The amount of data online has grown from 1.75 terabytes in 2001 to 12 terabytes in 2009. Major progress continues in making these data available through a number of NOAA web sites. In addition, hourly weather records keyed through CDMP continue to be integrated into NCDC's digital database holdings, extending the period of record for many stations back into the 1800's. The increase in the quality and quantity of historical data is helping researchers worldwide to improve real-time monitoring and forecasting of environmental, solar and geophysical events.

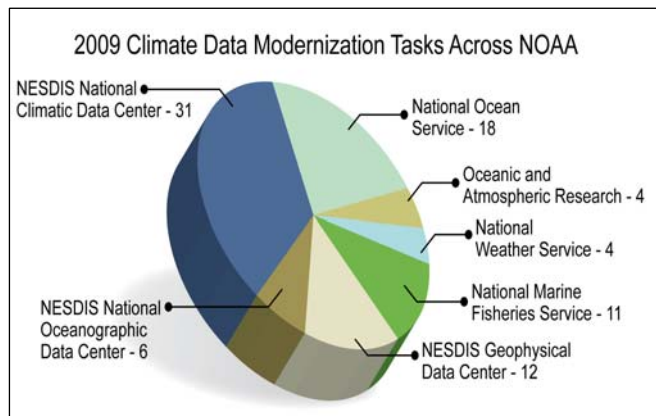


Figure 1. NOAA CDMP Projects reached an all-time high of 86 in 2009.

3. Supporting NOAA's Stewardship Commitment

The Climate Database Modernization Program supports NOAA's mission to collect, integrate, assimilate and effectively manage Earth observations on a global scale, ranging from atmospheric, weather, and climate observations to oceanic, coastal, and marine life observations. Many of these holdings, which are part of the U.S. National Archives, were originally recorded on paper, film, and other fragile media, and stored at various NOAA Centers (see Figure 1). Without proper preservation of the media, the information they contained was in danger of being lost forever.

As CDMP celebrates its 10th anniversary, the program has greatly improved the preservation and access to NOAA's holdings by migrating many of these resources to new digital media. Digital images of many of the holdings are now available online, and millions of historic data records have been keyed and integrated into digital databases. CDMP projects span the full spectrum of NOAA, supporting all five line offices. CDMP also works with U.S. regional climate centers, state climatologists, the U.S. Air Force, the World Meteorological Organization, and foreign meteorological services in Europe, Africa, Asia, and the Americas. These NOAA efforts benefit researchers and data users throughout the Nation and worldwide. The increase in data accessibility and the inclusion of these historical data sets into the integrated global databases needed by today's climate and environmental data users support the CDMP mission: to make major climate and environmental databases

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available via the World Wide Web.

4. NOAA's CDMP Project Partners



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Figure 2. CDMP support contractors

The CDMP could not exist without the extraordinary efforts of people within NOAA and those in the private sector who do the keying, imaging, and database development. CDMP projects have created hundreds of new private sector data entry and information management jobs in several economically challenged areas in West Virginia, Kentucky, and Maryland. The project tasks supported by CDMP are well suited for the private sector. Many of these tasks have been shifted from government employees to CDMP contractors in the above mentioned states. Tasks performed by these contractors include the printing and distributing of the NCDC serial climate publications, managing accounts receivable, imaging and keying incoming records, hosting and maintaining online images, and providing expert personnel in support of various projects.

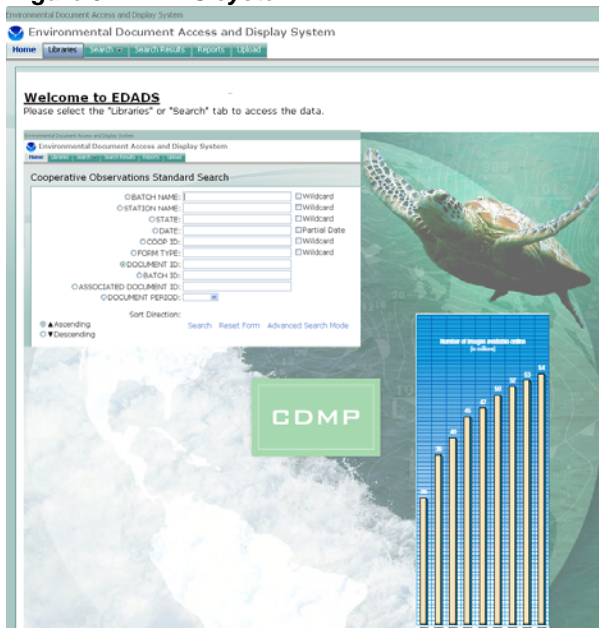
The three prime contractors (see Figure 2) for CDMP are: National Interest Security Company LLC, Rocket Center, West Virginia; SourceCorp, Mount Vernon, Kentucky; and HOV Services, Beltsville, Maryland. Excellent support is also provided by the NCDC on-site contractor, STG Corporation, whose staff prepares many of the data for shipment and performs extensive quality control on the returning data products. The CDMP program employs nearly 300 highly skilled government and contractor personnel dealing with climate and environmental data rescue tasks. With over 85 projects ongoing, the contractors must remain focused and flexible to meet each project's requirements.

5. Looking to the Future

The Climate Database Modernization Program – or more precisely, the outstanding group of people that make it work – has clearly accomplished a great deal in the last decade. But the mission of CDMP is far from accomplished. In many ways, the work has just begun.

In 2009, the number of NOAA projects supported through CDMP reached an all-time high of 86 tasks (see Figure 1). Most of these are multi-year projects, and many are, for all intents and purposes, barely underway. Without continued support through CDMP, these projects would be incomplete, and valuable climate and environmental data would be left undiscovered and unavailable to the scientific community.

Figure 3. EDADS system



The task of modernizing NCDC's vast archive of weather and climate data continues. While millions of records have been imaged, about a third of the paper documents held by NCDC, and much of its microfilm and microfiche archive, remains unscanned. Accompanying this imaging task, keying of many of the scanned images is ongoing, further supplementing NCDC's digital data resources. At the current pace, there are still years of work ahead to image and key the remaining archived NCDC data. Currently, more than 54 million images are available to researchers and educators thru the Environmental Document Access and Display System (EDADS). (See Figure 3.)

Ongoing CDMP projects involving other agencies within NOAA are also expected to extend well into the program's second decade. Work continues with NOAA's National Hurricane Center and Atlantic Oceanographic and Meteorological Laboratory to digitize historical hurricane reconnaissance data and "storm wallet" collections; the first of these datasets are already being utilized by hurricane specialists and storm researchers. Several projects with the National Ocean Service and National Marine Fisheries Service are making available rare historical nautical charts, plankton databases, shoreline data, fish surveys in Alaska, and

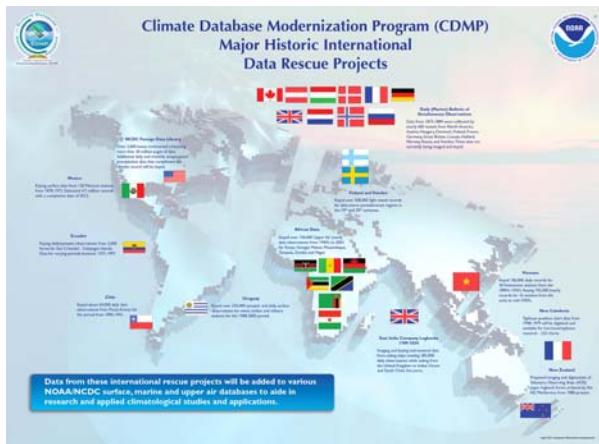
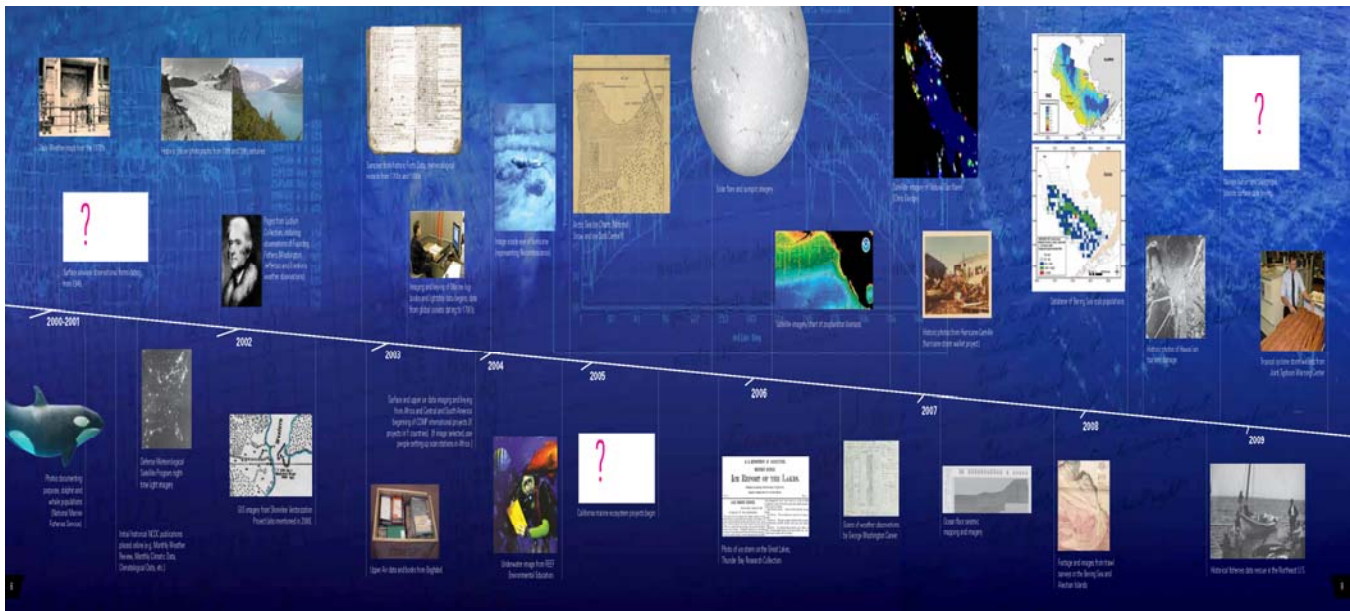


Figure 4. International Projects

much more. CDMP-produced images of historical glacier photographs via the National Geophysical Data Center have already made global headlines, with more photos still to be digitized. International cooperation through the National Weather Service International Activities (IA) is bringing valuable African, Asian, and South American climate data into global databases, and CDMP is actively involved with the World Meteorological Organization's (WMO) Commission for Climatology. And that short list barely scrapes the surface of CDMP's ongoing service. Data from more than two dozen international data rescue projects will be added to NOAA's baseline (surface, marine, upper air, biological and ecological) databases to aid in research and applied climate and environmental studies and applications (see Figure 4).

Of course, that's just the current CDMP agenda. To further extend the program's mission, additional proposals are solicited and, funding permitted, accepted each year. Just this year, nine new tasks were added to the docket, with still more proposals recently submitted for 2010 consideration at CDMP's annual proposal workshop. Just because these projects are new doesn't make them any less valuable. One project started in 2009 is expanding the digital database of northwest Atlantic fisheries, extending hydrographic and plankton databases for this area back in time, and providing invaluable data on how environmental change and extensive fishing have impacted fish stocks in the Atlantic. Two additional tasks will digitize rare surface weather observations from data-sparse areas in the southwestern U.S. in Navajo Nation and from San Cristobal in the Galapagos Islands (see Figure 5), providing more data to help initialize and verify vital climate change models. Still another new project will digitize rare aerial photography of our Nation's coastlines from as far back as the 1920's, helping coastal scientists better understand how erosion and other factors have impacted our beaches and shorelines.

Figure 5. San Cristobal Weather Data Form - Galapagos Islands.



Selected CDMP Climate and Environmental Data Rescue Projects 2000-2009. The number of NOAA data rescue projects has steadily grown over the last decade (see Figure 6).

6. Conclusion

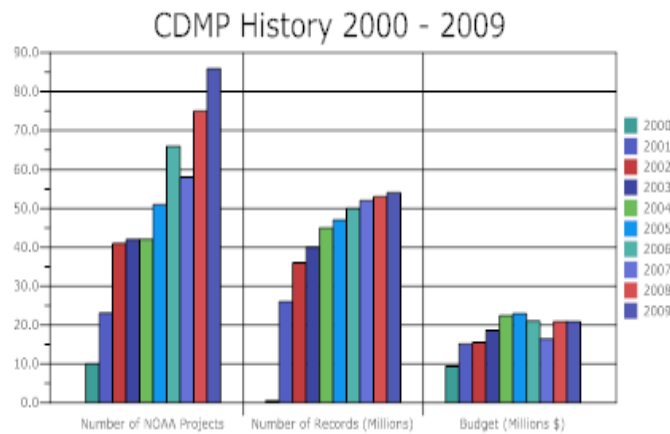


Figure 6. CDMP Ten Year History

In short, the people associated with CDMP are proud of the program's accomplishments over the last ten years. But they also know that it's only just the start. There's a new decade beginning, and the CDMP mission to make climate and environmental data more accessible is still as relevant and vital now as it was a decade ago.

For more information about CDMP see:
www.ncdc.noaa.gov/cdmp.html.