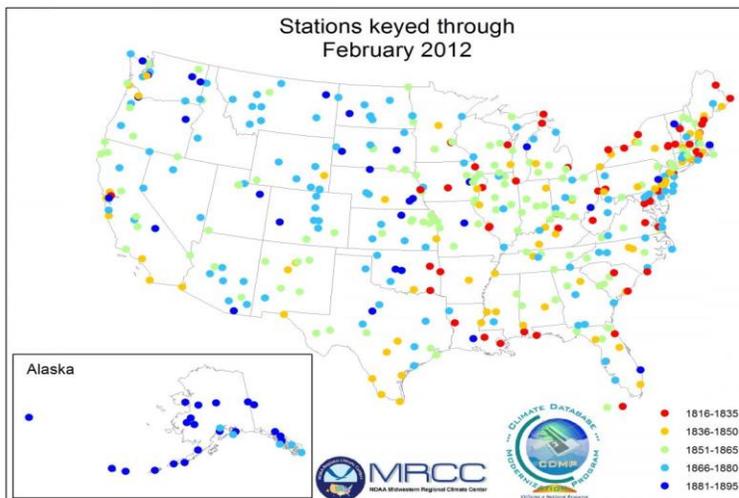
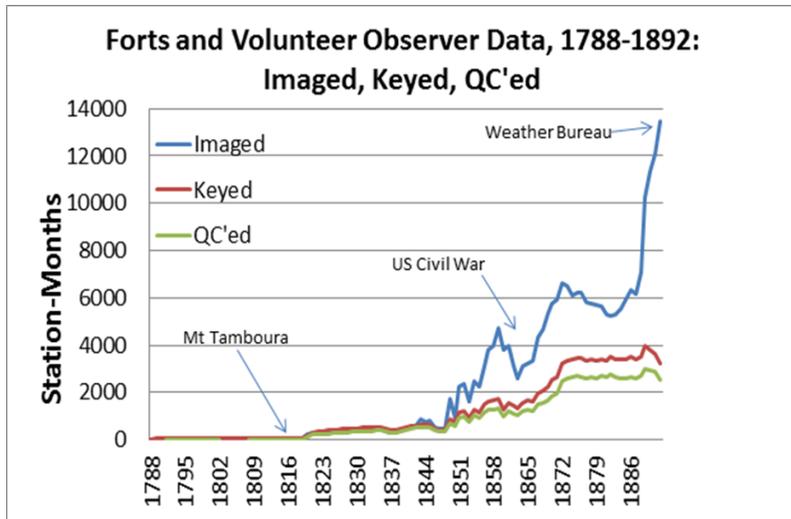


National Oceanic and Atmospheric Administration (NOAA)'s Climate Data Modernization Program (CDMP)

The Climate Database Modernization Program (CDMP) was a 12-year program (2000 to 2011) to image and key paper and microfilm records and to make them available on the web to members of the climate and environmental research community. The program produced almost 56 million digital images from all types of physical media and enabled data keying projects to integrate new data into digital datasets. Access to historical climatological observations scanned under CDMP is available to the public through the NCDC Images and Publications System (IPS): at <http://www.ncdc.noaa.gov/IPS/>

Major Campaigns

Two of CDMP's largest projects involved integrating additional U.S. data into the sources of data already available to researchers and scientists. The goal of the “**CDMP-Forts**” Project (<http://mrcc.isws.illinois.edu/research/cdmp/cdmp.html>) was to image and key daily surface observations from the 19th century, primarily 1820–1892, extending climate records for stations across the country back scores of years. Data from 450 stations were keyed and of these 350 stations were quality controlled (Data. These data were largely collected by army surgeons at US Army Forts, by volunteers for the *Smithsonian Institution*, and later by the *US Army Signal Corps* prior to evolving into the *Cooperative Observer Program* in 1893 which is still active today. Microfilmed and paper images of monthly reports of daily data were imaged for more than 4800 stations (see inventory, <http://mrcc.sws.uiuc.edu/FORTS/inventory1.jsp>), and data for 39 variables were keyed for 450 stations in the continental US and Alaska. The Midwestern Regional Climate Center (MRCC) developed software to quality control these data (described in <http://www.isws.illinois.edu/pubdoc/CR/iswscr2011-02.pdf>), and performed quality control tests on 350 stations (see station status and map, <http://mrcc.sws.uiuc.edu/FORTS/qc3.jsp>). Images of the original handwritten monthly forms can be obtained from NOAA EV2 system (<https://www.ncdc.noaa.gov/EdadsV2/>). The digital data can be obtained by contacting the MRCC. The pressure data have been incorporated into the International Pressure Databank (<https://reanalyses.org/observations/international-surface-pressure-databank>) and maximum and minimum temperature and precipitation have been provided to the Global Historical Climate Network (<http://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-...>). Set Identifier, DSI: 3297)



The second major data integration project was the “**CDMP-SAO**” (**Surface Airways Observations**) **Project**. This task captured and keyed Weather Bureau and National Weather Service (NWS) data from major city offices and airports since 1893. Hourly data (4 to 8 times per day) for 464 stations from 1928-1948; for 58 stations from 1949-1964; and for 341 stations from 1965-1981 were keyed. These keyed data are available via FTP by contacting NCEI Customer Services (ncdc.orders@noaa.gov) and asking for: DSI: 3280).

A third collection developed by CDMP and incorporated into the NOAA archive system (imaged or keyed) are **Cooperative Observations Project**: Monthly logs from 1860-

1990 from the U.S. Cooperative Observer Program (COOP) Network stations scattered across the continental United States and a few Caribbean and Pacific Island stations. These monthly logs include a daily account of temperature extremes and precipitation, and snow data at some locations. Data were transferred from paper and microfiche to digital images, and some summaries were keyed. Images are available at: (<http://www.ncdc.noaa.gov/IPS/coop/coop.html>).

International Partnerships

CDMP also coordinated several international projects. Data from Uruguay, Mexico, and the Dominican Republic were imaged and keyed. Upper air data rescue projects were conducted in six African nations: Kenya, Malawi, Mozambique, Niger, Senegal, and Zambia. These countries were provided with technology to image their data locally and sent these images to CDMP for keying and uploading to EV2.

CDMP worked in conjunction with UK collaborators in an effort to locate resources to image the marine logbooks in the British Archives. These images were eventually transferred to CDMP for keying. CDMP also worked with the Meteorological Service of Canada to key some of the previously un-keyed logbooks from their Voluntary Observing Ships (VOS) program.

Current Status

Data modernization and rescue continues on a limited scale at NCDC. The current focus is to continue to scan paper records from the NCDC physical archives, in addition to identifying foreign data holdings and notifying the originating countries of their existence. NCDC actively seeks partnerships to continue rescuing at-risk weather and climate records currently available only on physical media.