

AN HISTORICAL LOOK AT CLIMATOLOGY IN THE UNITED STATES
With a North Dakota Flavor
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April 10, 2007

Acknowledgement: When I became the North Dakota State Climatologist in 1978 I began searching for historical information on the National State Climatologist Program because of the turmoil its 1973 termination had caused. I am indebted to Paul J. Waite, former Iowa State Climatologist, and one of the organizers of the American Association of State Climatologists (AASC), for sending me a copy of his manuscript, 'The Rises and Falls of Climatology'. It provided me with insight and information from 1940 to 1975. Other members of the AASC organizing committee were Arlo Richardson, Robert Muller, and Fred Nurnberger.

Climatology Begins in the United States: A National Weather Program was started within the U.S. Signal Corps in 1870. In 1890 it was transferred to the US Department of Agriculture (USDA) and renamed the USDA Weather Bureau. One of its charges was to measure and report on the climate of our nation. To fulfill this mission the Cooperative Weather Network (Co-op) was started in 1893. The Co-op Network consisted of volunteer observers across the nation who would read and record the maximum, minimum, and current temperature, precipitation amount, and comments at the same time every day. The Weather Bureau provided the instrumentation and installed it near the volunteers' homes. In 1895 the Co-op Network was combined with existing state weather networks for standardization.

Climatology Emphasis Waning: Aviation's popularity increased rapidly throughout the 1920s and 1930s causing increased demand for aviation weather forecasting. As a result new weather observation stations were established at airports to support aviation, including one at Fargo's Hector Airport in 1934. The Weather Bureau's transition to aviation emphasis was evident when the agency was transferred from the USDA to the U.S. Department of Commerce (USDC) in 1941. As a result interest in climatology and climate monitoring steadily waned.

World War II exacerbated this trend because of aviation's tremendous importance to the war effort. Weather research and training weather forecasters were high priorities resulting in major discoveries and advances in weather forecasting. Following the war a copious supply of trained meteorologists were available to meet the demand for forecasters at major airports. Moving the Moorhead MN Weather Bureau Office to Fargo's Hector Airport on February 1, 1942 was an early part of this trend. Weather Bureau interest and emphasis on climatology steadily declined throughout the 1940s and early 1950s as aviation interest increased.

Climatology Renewed: A 1953 Advisory Committee on Weather Services' report to the Secretary of Commerce described the nation's declining climate program. They reported that the once proud, internationally-acclaimed U.S. Climate Program had few resources, poor leadership, and was dying a slow, almost lingering death. They noted that during the last 10 years it had deteriorated into nothing more than a data collection, tabulation, and archival business. Their recommendation was that climatological analysis efforts and the application of climatic data for the nation's businesses and commerce should be on par with day-to-day forecasting efforts.

After this long period of neglect, the era of modern applied climatology began in 1954 when Dr. Helmut E. Landsberg, an internationally renowned climatologist, was named Director of the Weather Bureau's Climatological Services Division. He moved quickly and decisively. In

August, 1954 he started the National State Climatologist Program within the Weather Bureau. This program placed a trained, qualified State Climatologist (SC) in the lead Weather Bureau Forecasting Office of every state to oversee the local collection of high quality climatic data from the Co-op Network, and provide local climatic services. The Weather Records Processing Center which had moved to Asheville NC in 1952 was renamed the National Data Center (NDC) and served as the new central depository and processing facility for the nation's climatic data.

Exciting Forecasting Programs Compete With Climatology: Around this same time many other programs such as severe storms forecasting and a hurricane forecasting center were vying for attention. The demand for more weather radars and trained operators, and the beginnings of a weather satellite program following the successful launch of Sputnik in 1957 stressed Weather Bureau funding and personnel. These new programs caused a reorganization of the USDC in 1965 that resulted in the creation of the Environmental Science Services Administration (ESSA) to oversee weather and climate operations. In January, 1966 ESSA changed the Weather Bureau's name to the National Weather Service (NWS), and the National Data Center was renamed the Environmental Data Service (EDS).

After Dr. Landsberg left the NWS in 1966 these new challenging and exciting programs competed for ESSA funding with the more mundane climatology programs. Subsequent leaders of the Climatological Services Division were not able to maintain their funding which led to budget constraints and eventually caused the NWS to stop filling SC positions. Local MIC's were forced to designate in-house staff to fill the SC role and maintain the Co-op Network, but data quality suffered. In 1970 ESSA was reorganized and became the National Oceanic and Atmospheric Administration (NOAA).

State Climatologists Terminated: Due to increasing budget pressures Dr. Robert M. White, NWS Administrator, announced in March, 1973 that the National SC Program would be terminated effective April 13, 1973. In a letter, Dr. White urged all State Governors to continue the SC program with state funding. However, such action required legislative approval, a slow process in most states. A few states developed SC programs, but in most cases personnel from the states' Land Grant Universities volunteered to take over some of the former SC's responsibilities.

Data Disaster Averted: This could have been a major disaster for the Co-op Network, but the NOAA Environmental Data Service (EDS) moved quickly to establish contacts with the SC volunteers and NWS Offices in order to keep the Co-op data flowing. In 1975 and 1976, the new state funded and volunteer SC's were invited to EDS (renamed National Climatic Center (NCC), Jan, 1976) in Asheville NC for orientation and informational meetings. However, at the 1976 meeting, SC's learned that the NWS also planned to drop financial support for the Co-op Network which would have crippled the nation's ability to adequately monitor the climate.

State Climatologists Organized: Following this meeting the new and volunteer SC's organized to form the American Association of State Climatologists (AASC). As their first priority the AASC prepared and sent a document describing the importance of the Co-op Program and the consequences of abandoning it to the Secretary of Commerce. Although the network was saved, funding and support have continued to wane. Paul Waite stated, "This was probably the first time that climatologists, instead of meteorologists, were actively representing the interests of climatologists and applied climatology in the United States." Eventually more states approved SC positions within state agencies or universities, while in other states a university often assigned a faculty member part-time SC responsibilities.

National Climate Program Act: California U.S. Representative George Brown led a 1977 attempt to renew state climatology services in the United States. The AASC helped write the bill that he introduced in the House of Representatives. Although it passed the House, strong NOAA opposition probably caused its defeat in the Senate despite the AASC lobbying efforts. In 1978 a similar bill called the National Climate Program Act was passed by the U.S. Congress. It established a National Climate Program Office (NCPO), but no other funding was included. Despite several subsequent efforts by a few politicians and the AASC it was never fully funded.

Regional Climate Centers Slowly Evolved: In 1981 the North Central (NC) Regional Research Committee on Agricultural Meteorology-Climatology (NC-94) obtained a grant from the NCPO to establish a Regional Climate Center as a 5-year demonstration project. It was established by bid at the Illinois State Water Survey (ISWS) inampaign IL under the supervision of the NC-94 Committee. Coincidentally the University of Nebraska established a regional agricultural computer network (AgNet) that scientists in the high plains states could use to run various research and extension models. Since weather data were often used as input, after a few years AgNet appeared to be operating nearly like a regional climate center for the high plains states.

The RCC demonstration project ended successfully in 1986 thanks to the people at ISWS. The NCPO was pleased with the results and worked to establish similar centers across the country. During the next few years the RCC idea gained traction, found funding, and eventually resulted in the formation of six RCC's. Today they are supported and administered by the National Climatic Data Center (NCDC) which prior to 1982 was called the NCC. The RCC's provide computer expertise and processing facilities, climatic data, and other support for State Climatologists, and the general public.

Co-op Network Still Inadequate: Despite many adversities, the Co-op network still exists today, but it is woefully inadequate for current and future needs. During the past 20 years support for the network has waxed and waned. The NWS has made numerous promises to modernize it, but in every case, budget or other considerations have delayed or derailed the plans. The most recent loss of support occurred in June, 2006 just before the AASC annual meeting. As a result the AASC has drafted another document describing the necessity of developing a new automated and updated National Weather Observing Network, and has sent it to appropriate federal administrators.