4.10 NATIONAL WEATHER SERVICE CLIMATE RECORD ACTIVITIES

Robert J. Leffler*, Myron I. Berger, Michael J. Brewer, Judith A. Koepsell, Robert E. Livezey
National Weather Service, Office of Climate, Water and Weather Services, Silver Spring, MD

1. INTRODUCTION

The National Weather Service Headquarters (NWSH) Climate Services Division (CSD) was formed in October 2000 as part of NWSH reorganization. The formation of the division signals a renewed agency commitment to raising the priority of climate services.

In addition to overseeing the NWS climate prediction program, CSD also sets requirements for climate observations and develops policy to ensure the integrity of the National Oceanic and Atmospheric Administration's (NOAA) climate record.

Responsibilities include evaluating and validating data and observation deficiencies that impact the quality or continuity of the climate record, recommending solutions to problems, and identifying resources needed to implement solutions.

Progress in solving climate record related issues is occurring. However many climate data issues cross-cut NOAA organizations and solutions can require customer input. Corrective action requires broad coordination with both partners, customers, and numerous NOAA offices such as the National Climatic Data Center (NCDC).

In response to the large volume of field and customer inquiries concerning NWS climate observations and the integrity of the Nation's climate record, CSD formed a Climate Record Team in November 2003. The Team's purpose is to ensure more timely identification of climate record related issues and the implementation of corrective action.

2. PROGRESS

During 2002, CSD participated in several activities that had major positive impacts on the Nation's climate record. Data continuity principles were adopted by NWS management. This change will ensure that NWS's weather observing systems are managed in a manner that supports NOAA's climate mission. For example, NWS observing systems will now be managed using the "ten principles of climate monitoring (Karl et. al., 1995)."

During fall 2002, thousands of snow measurement boards were procured and disseminated to observers. Nationwide snow measurements are now taken on a standard surface that will result in more consistent, comparable, and accurate snowfall data for the climate record.

During 2003, CSD led the effort to develop government and private partnerships to support Cooperative Observer Program (COOP) modernization. This activity resulted in $1.9M in Congressional-earmarked funds to deploy prototype modernization systems in a New England demonstration project. The President's FY04 budget requests Congressional approval of $4.2M to support COOP modernization.

In an effort to improve the quality and availability of climate services to the nation, CSD championed the development of stronger partnerships with NCDC, the Regional Climate Centers, and the American Association of State Climatologists. This effort focuses on improving collaboration between these climate service organizations. More robust end-to-end climate services will result, including improvements in data collection, management, quality control, and delivery.

In FY04, CSD's efforts to improve NWS's stewardship of climate record observations continue. $320K was reallocated to procure All-Weather Precipitation Accumulation Gauges at 20 Federal Aviation Administration (FAA) sponsored Local Climatological Data (LCD) sites that were not originally planned to receive the improved gauge. These 20 FAA sites are NOAA published LCD stations. This action ensures that the the same quality precipitation instrumentation will be used at all NWS Automated Surface Observing System (ASOS) and NOAA published LCD sites.

Additionally, a procedure has been implemented that allows NWS field personnel to work with NCDC and other climate services partners to identify COOP sites that receive incorrect data edits. Data from these sites will be handled differently in the quality control process, reducing the risk of invalid data edits.

3. FUTURE PRIORITIES

Despite the successes achieved to date, there remains much to do to ensure the integrity of the

* *Corresponding author address (team lead)*: Robert J. Leffler, NOAA/NWS, 1325 East-West Highway, W/OS4, Silver Spring, MD 20910; e-mail: Robert.Leffler@noaa.gov.

climate record. Additional areas that will receive attention in FY 04 include:

- The development and implementation of an LCD missing data policy and procedures for NWS field offices.
- Ensuring data continuity tests are planned and conducted for all ASOS, COOP, and radiosonde instrumentation changes and the data are provided to NCDC for evaluation.
- Ensuring COOP modernization is conducted with climate needs at the forefront (NRC, 1998).
- Ensuring that NWS actions needed to support more timely availability of final LCD data by NCDC are developed.
- Developing a web site that gives customers a "heads up" for planned LCD station changes that can impact temperature and precipitation data continuity (e.g., changes in measurement instrumentation, site relocations, environmental changes).
- snowfall related issues.

REFERENCES

Karl, T.R., V.E. Derr, D.R. Easterling, C.K., Folland, D.J., S. Levitus, N. Nicholls, D. El Parker, and G.W. Withee, 1995. "Critical Issues for Long-term Cimate Monitoring". *Climate Change*, **31**, 185-221.

National Research Council, 1998. "*Future of the National Weather Service Cooperative Observer Network*", pp. 58.