J3.19   **Progress in NOAA Data and Observation Services**

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1. INTRODUCTION

The quality and availability of surface weather and climate observations are of primary interest to NOAA and its many data customers. Ensuring a high level of both requires ongoing attention as observing systems, data collection, quality control, and information systems continue to mature.

With a focus on improved climate data services and protecting the integrity of the nation's climate record, NOAA has developed several new data collection, quality control, and dissemination tools. Some of the tools support internal end-to end inter-agency activities while others allow partners to provide feedback on data problems for evaluation, tracking, and resolution. Formal agency policy is needed to ensure adequate institutional implementation of these improvements and changes in operations. Coordination and integration of data quality control practices among NOAA's different surface data offices and its partners is also being strengthened.

The new tools and procedures are described and their impact on data quality and availability are discussed.

2. NEW TOOLS

2.1. Internal

This section discusses data tools that are available to NOAA and its climate services partners.

2.1.1. Datzilla

Datzilla is a web-based system used to report errors and track resolutions in NOAA data sets and data products. It was developed by the Southern Regional Climate Center (RCC) to satisfy a need to track submission of errors in NOAA data sets by authorized personnel (*e.g.*, NWS Weather Forecast Office [WFO] Climate Focal Points, and Observations Program Leaders or Data Acquisition Program Managers; climate community partners; *etc.*) Datzilla is interactive, allowing error reporters and data managers to communicate with each other and to monitor the error reporting process on an end-to-end basis.

2.1.2. Web Search Store Retrieve Display (WSSRD)

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WSSRD is software developed by IMC (Information Manufacturing Corporation) for displaying document images over the internet. WSSRD contains almost 40 million images of original weather records and documents. Document images are organized in "cabinets" within distinct categories and are used to verify and/or correct the data in the climate record.

2.1.3 Health of the Networks (HoN)

HoN provides a set of performance measures used for monitoring the various NOAA observing networks including the Cooperative Observer Program (COOP). Performance measures for COOP include data completeness, quality, and validity as well as period of record, missing stations, and receipt timeliness on a monthly basis. HoN resides in NCDC's Data Operations Division.

2.1.4. Applied Climate Information System (xmACIS)

xmACIS is a custom-designed interface which provides NOAA personnel with access to historical and near real-time climate data products through a suite of standard climate analyses tools. xmACIS is based upon ACIS, the backbone of the six NOAA RCC data archives and delivery systems which is synchronized with the NOAA National Climate Data Center (NCDC) database.

2.2. Public

This section discusses data tools that are available publicly.

2.2.1. NOAA Online Weather Data (NOWData)

NOWdata is a self service climate data tool, based on a portion of ACIS data base. Free public access is available from the NOWData tab on every WFO climate page found through http://www.weather.gov/climate. Users can access a wide range of climate products for nearly 3,900 locations. Daily past weather is available for the last two years with climate averages for the standard 30-year period of 1971-2000 and extremes for as long as a station has been taking observations.

2.2.2. THREADEX

ThreadEx is a project designed to address the fragmentation of station information over time at large metropolitan areas due to station relocations for the express purpose of calculating daily extremes of temperature and precipitation.

There are often changes in the siting of instrumentation for any given National Weather Service/Weather Bureau location over the observational history in a given city/region. As a result, obtaining a long time series (i.e., one hundred years or more) for computation of extremes is difficult, unless records from the various locations are "threaded" or put together. Threaded records provide a consistent basis for reporting extremes through NOAA, the media and other outlets for about 260 locations nationwide. Threadex is updated on an annual basis to incorporate the previous year's extremes and extensions and/or modifications to station threads and is available at http://threadex.rcc-acis.org/.

3. NEW PROCEDURES

This section discusses ongoing and planned future activities directed at continuing the improvement of NOAA data and observations services.

3.1. Coordination and Integration of Data Quality Control Best Practices

Activities designed to integrate agency wide "best practices" data quality control that are ongoing include:

- Integrating common data quality control procedures at NCDC and the RCCs.

- Improving end-to-end agency coordination of daily quality control results to NWS WFOs so that more timely remedial action may be taken.

- Sharing daily electronic access to COOP data with the RCCs.

3.2. Paperless Data Collection

Plans are now being taken to move from paper, pen, and mail data delivery to an era of paperless data collection. COOP Observers will be encouraged to enter data electronically via internet (WxCoder III) or telephone (IV-ROCS) reporting systems. Both systems contain numerous automatic data quality control checks. This relatively low cost effort will provide the following data services improvements when completed in a year or so:

- Increased daily availability of several thousand climate quality COOP stations for daily maximum and minimum temperatures, liquid equivalent of precipitation, snowfall and snow depth for NOAA and its customers.

- Improved integrity of the nation's climate record by the elimination of most recording, transcription, transmission, and inconsistent errors that occur in a manual, paper environment.

- Near real-time data access.

- WxCoder III and IV-ROCS collection systems will synchronize databases. This allows application of identical quality control procedures to all incoming data in near real-time, provides redundant database backup, and allows observers to enter data transparently through either system.

- Improved efficiencies at WFOs, NCDC, and the RCCs.

4. CONCLUSION

NOAA is the nation's environmental stewardship agency. As such, it is committed to improving the quality and availability of surface weather and climate observations. Through new tools and procedures, including improvements in data collection and quality control processes, NOAA is able to provide improved climate data services more efficiently for its partners and customers while at the same time, improving the integrity of the climate record.