NCDC Lead Centre Report
March 2010

This document provides an update and summarizes the activities conducted in support of GCOS by the NOAA National Climatic Data Center Lead, Analysis and Archive Center.

1. The number of CLIMAT reports received by the Lead/Archive Center for GSN stations in 2009 is shown in Fig. 1. Differences between the rate of CLIMAT messages received by the Lead/Archive Centre at NCDC and other Lead and Monitoring Centers continued during 2009. However, a number of discrepancies in message receipt between NCDC and other centers appeared to point issues associated with the Washington GTS hub. In early 2010 Kevin Wong from the Bureau of Meteorology helped to identify a problem in the Routing Catalog used by the NOAA/National Weather Service Telecommunication Operations Center in Washington. An updated catalog is now being used, which should improve the GTS CLIMAT message receipt rate at NCDC.

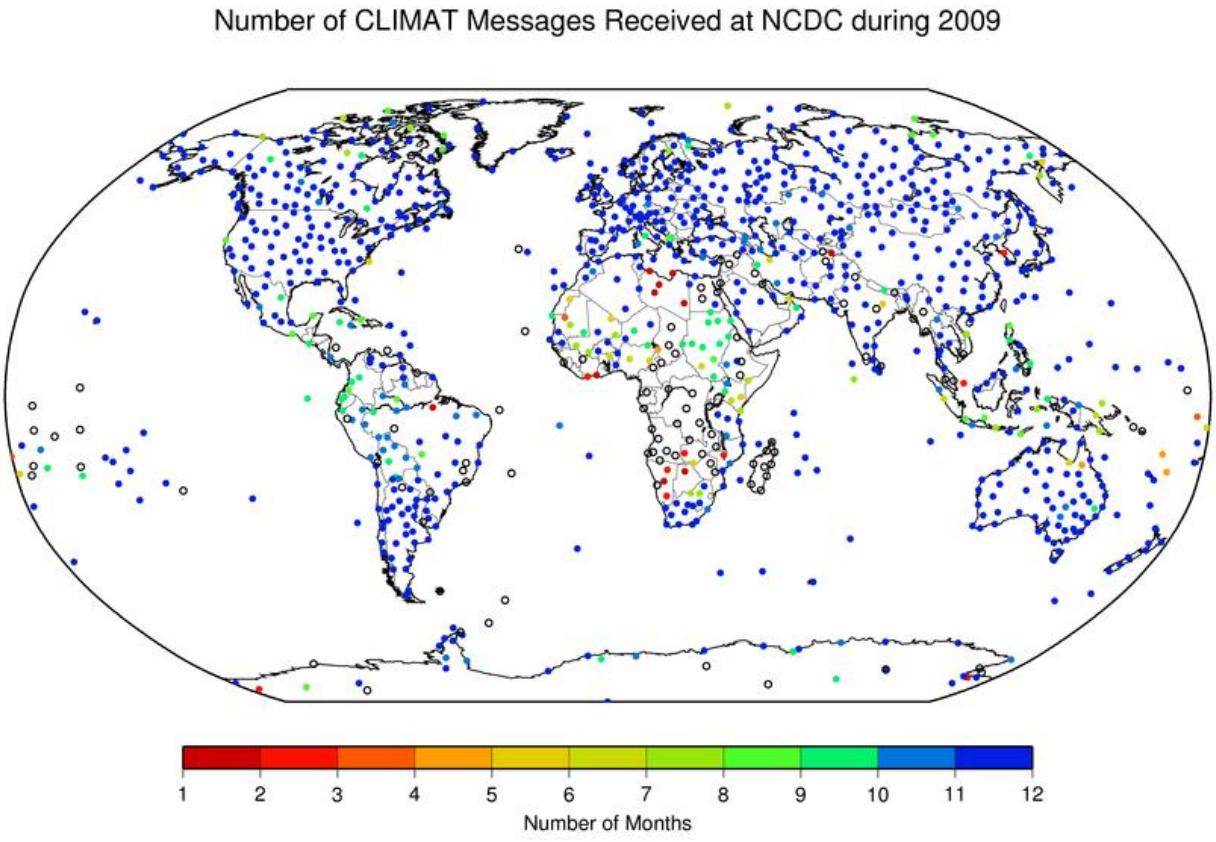

Figure 1. Number of CLIMAT messages received via GTS at the GCOS Archive Centre.

2. In spite of the discrepancies in GTS message receipt worldwide, the number of CLIMAT messages received at the Archive Centre from GSN sites continues to increase as shown in Fig. 2. Currently, the Met Office/Hadley Centre in the United Kingdom (UKMO) routinely provides NCDC with a complete set CLIMAT messages received by their centre each month, some of which supplement those received by NCDC. Roughly 100 to 200 of the reports received by the UKMO are not received by NCDC.

   NCDC also continues to receive well over 100 e-mail reports of CLIMAT summaries and corrections each month as well as a number of paper copies sent by parcel post, which combined provide 60 to 80 reports not available via the GTS. It takes several months before NCDC's monitoring reports reflect the mailed messages.

   Fig. 3 provides a data flow diagram for CLIMAT and SYNOP reports at NCDC. The combined reports are published by NCDC in the periodical *Monthly Climatic Data for the World* (MCDW) and as NCDC's Data Set Index 3500 (DSI-3500). Real-time CLIMAT message and the more comprehensive DSI-3500 are used to update NCDC's Global Historical Climatology Network (GHCN) Monthly dataset (DSI-9100), which is used for global climate monitoring (A version 3 of this is planned for beta release around the end of April 2010).

   The various types of transmitted hourly reports as well as daily summaries provided as the optional "climatological data" code group of SYNOP messages are archived in Data Set Index 3505 (DSI-3505) and the daily summaries are archived in NCDC's *Global Summary of the Day* dataset. The *Global Summary of the Day* is integrated into NCDC's GHCN-Daily dataset (DSI-9101), which also serves as the GSN daily database.

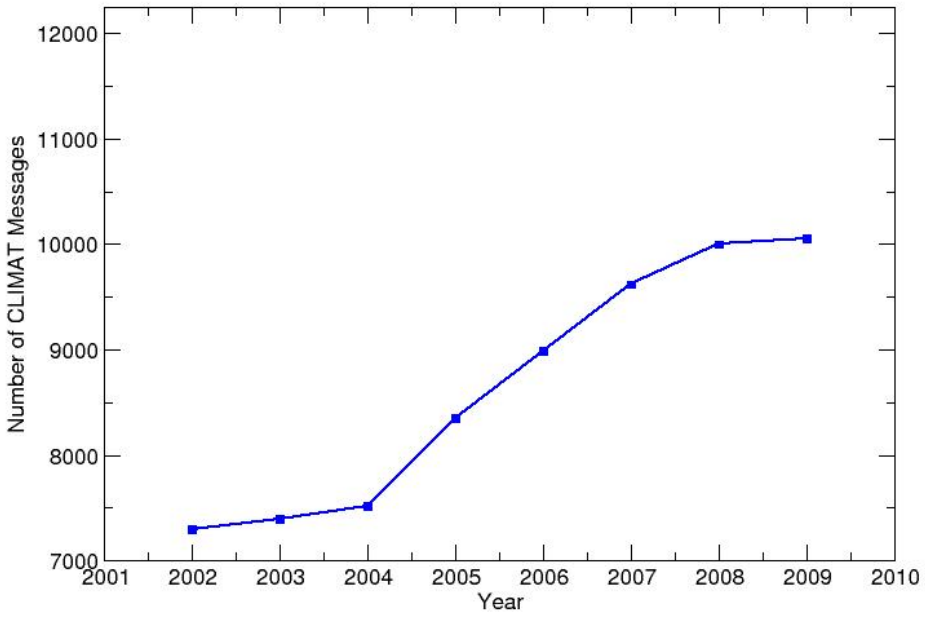

Figure 2. Number of CLIMAT messages received by the Lead/Archive Center at NOAA/NCDC (Perfect reception = 12 250).

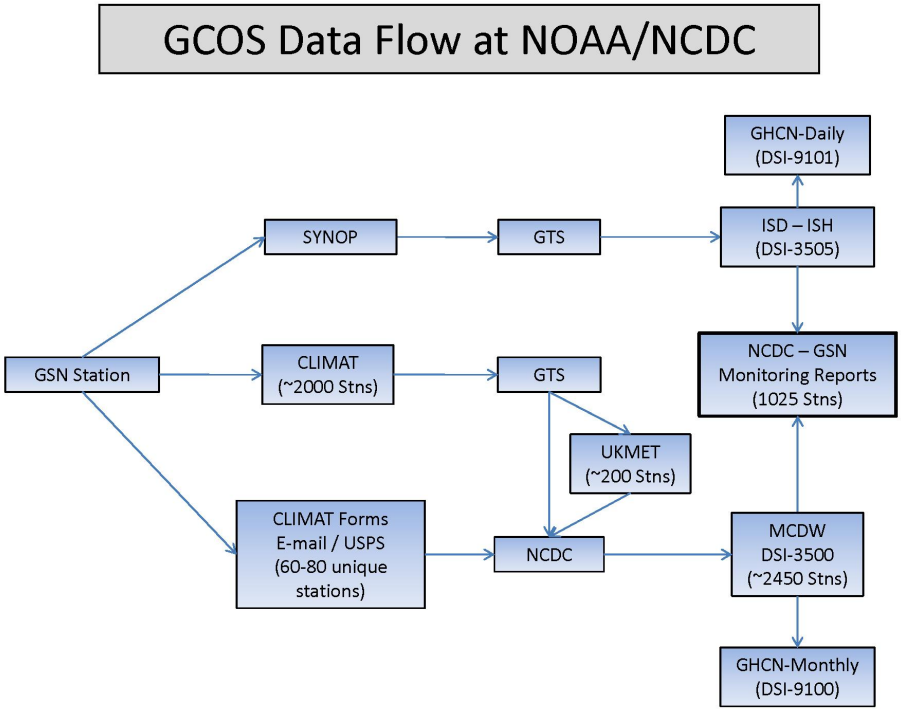

Figure 3. Data flow of GCOS Surface Network data at NCDC.

3. As anticipated, the Lead Centre at NOAA/NCDC assumed responsibility for producing CLIMAT messages for the USA in October 2009. After assuming this responsibility from the NOAA/Climate Prediction Center,NCDC has expanded number CLIMAT messages sent across the GTS to include all stations in the USA that have a WMO station identification number, including those not in the RBCN.

4. As shown in Fig. 4, the number of GUAN stations meeting the minimum performance requirements has been steady in spite of some silent stations.

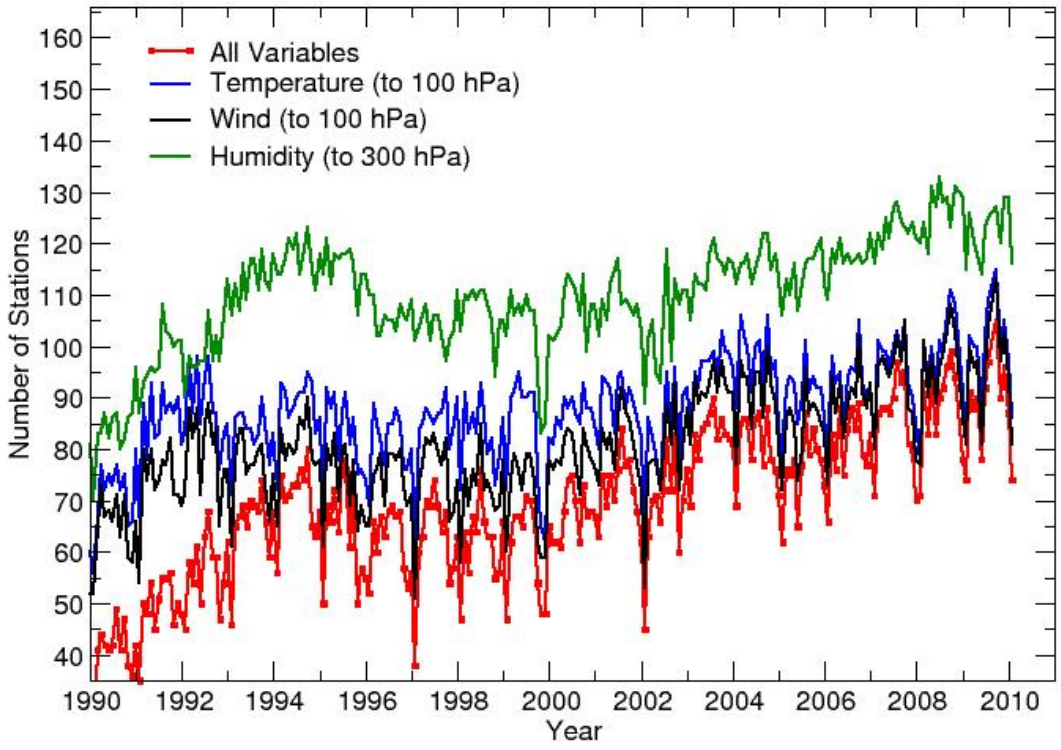

Figure 4. Time series of the number of GUAN stations meeting the minimum performance requirements.

GCOS Archive Centre Report

1. As of March 2010, 875 out of the 1025 GSN sites (GSN version 2009) have been identified as having daily data of some kind in the Global Historical Climatology Network (GHCN)-Daily/GSN archive. Data have officially been provided for 556 of these sites as part of the GCOS or other bilateral data exchange agreements. As shown in Table 1, the data from these official exchanges comprise about 61% of the GSN database. A roughly 2.3% increase in the total GSN daily data holdings occurred between April 2009 and March 2010.

Table 1. Summary of the GHCN-Daily/GSN* archive for daily maximum and minimum temperature and total precipitation (TMAX, TMIN and PRCP).

YEAR	Total number of GSN stations identified in GHCN-Daily	Total number of all daily GSN values obtained through official GCOS exchanges (TMAX, TMIN, PRCP)	Total number of all GSN daily values (TMAX, TMIN, PRCP)	Percent of GSN database originating via official GCOS or bilateral exchanges
2008	850	26 571 728	42 635 427	62 %
2009	872	28 278 921	45 476 237	62%
2010	875	28 448 645	46 527 819	61%

*GSN data are available at http://www.ncdc.noaa.gov/oa/climate/ghcn-daily.

2. During the past year, previously "quarantined" data from 129 stations in 13 different Member countries in RA I were added to GHCN-Daily. These historical daily data had previously been obtained by the Archive Center through informal contacts, but were not permitted to be included in public datasets until formal permission was obtained through the efforts of Dick Thigpen. Twenty five of the 129 stations with formally quarantined data are in the GSN.

3. As shown in Fig. 5, ongoing updates of daily data are regularly provided by Iran, Estonia, Uzbekistan, Estonia, Cyprus, USA, and Canada. The Archive Centre also has obtained a copy of the complete Australian daily climate database and a procedure for obtaining updates to all Australia sites has also been developed. Comprehensive data for Australia are expected to be added to the GHCN Daily database by July 2010.

4. Fig. 6 indicates the status of the daily records in the GHCN-Daily database at the end of 2008 (as provided for the update to the GCOS Implementation Plan). An time series of the actual versus estimated potential size of the GSN daily database is provided as Fig. 7.

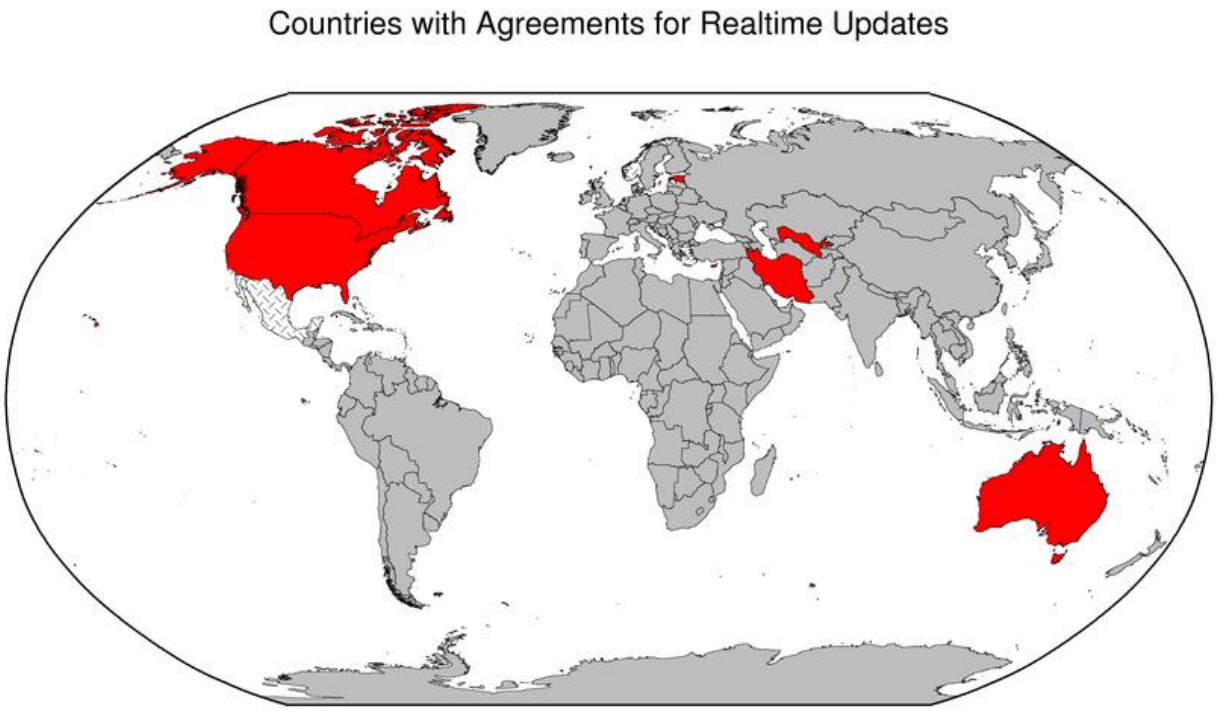

Figure 5. Countries that have an arrangment with the Archive Centre at NOAA/NCDC to provide real or near real-time updates to the GSN database. Countries in hachure have been identified as potential future real or near-real time data contributors. In addition to real-time updates, Canada, USA, and Australia have also provided complete copies of their daily climate databases for inclusion in GHCN Daily.

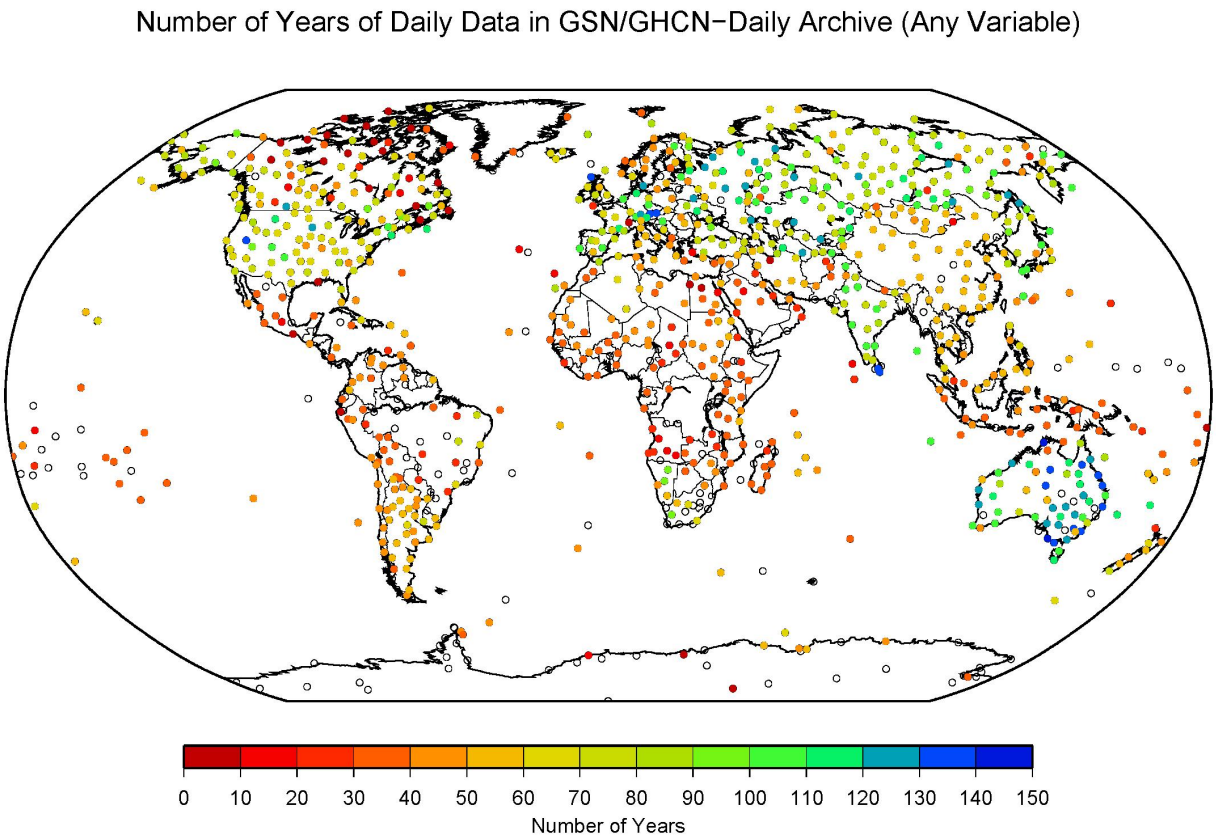

Figure 5. Number of years of data by station in the GHCN-Daily/GSN database at the end of 2008.

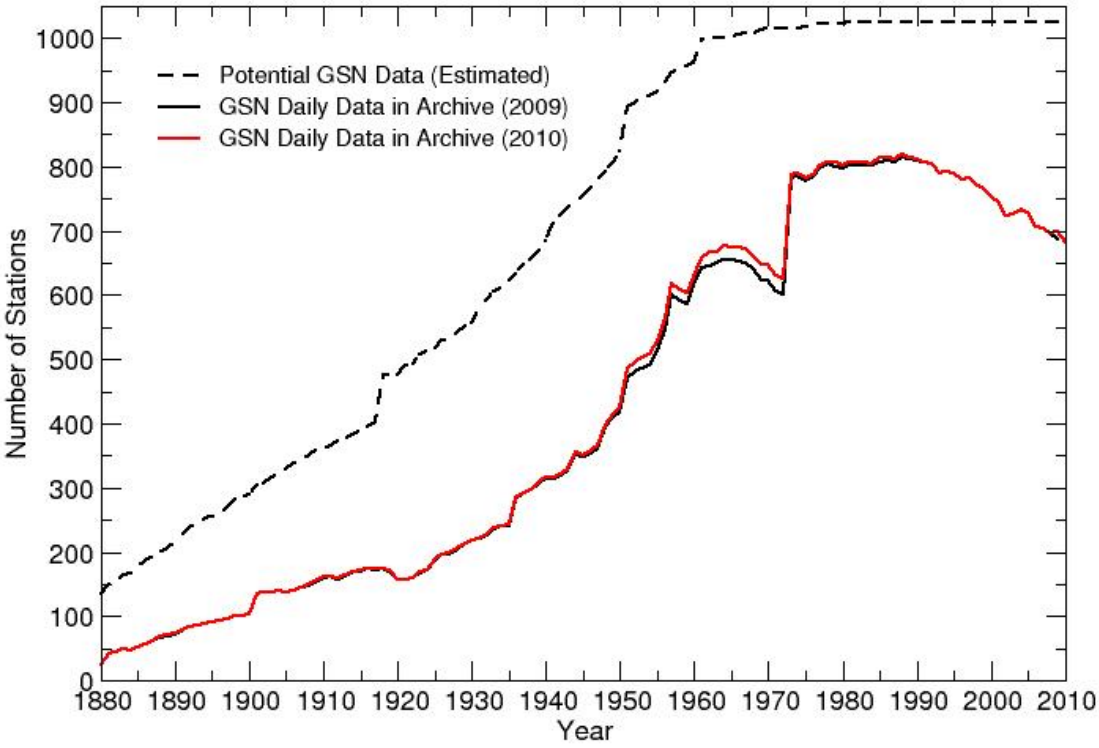

Figure 7. Estimated versus potential content of the GSN database (provided as a subset of GHCN Daily).