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## Production Plan

### GHCN-Monthly Version 4 Mean Temperature



## **1. Introduction**

The GHCN-M version 4 dataset will be updated each month with data collected during the first two weeks of the month for observations made in the previous month. In most cases the data collected is considered preliminary until additional steps are taken in the ensuing weeks to finalize the source data. This two-week period also will be used to replace preliminary observations acquired over the previous three to four months with final data.

## **2. Sources of Preliminary Data**

There are six sources providing monthly updates to GHCN-M. Five of these provide overlapping sources of CLIMAT data to ensure the most complete record possible. The other source is GHCN-Daily. A description of each source is provided in section 3.2.3 of the GHCN-M v4 ATBD. Data from these sources are appended to the period of record data in the Databank each month. The data are then added to GHCN-Monthly as shown in the Level 1 flow diagram.

## **3. Data Acquisition Monitoring**

Updates to GHCN-M occur each day from the 2<sup>nd</sup> to the 15<sup>th</sup> of each month. Progress in data acquisition for the most recent month is monitored to confirm that near real-time data are being acquired as expected. This quality assurance activity is supported with the production of global maps and statistics as shown in Figure 1. Maps such as these help members of the GHCN-M team and Monitoring Branch determine if there has been sufficient data receipt. Data from countries with data sharing agreements are typically received no later than the 6<sup>th</sup> to 8<sup>th</sup> of each month. The absence of data results in e-mail communication between Dataset Section members and the point of contact for the country. Points of contact are available in the GCOS National Focal Points list (<http://www.wmo.int/pages/prog/www/ois/rbsn-rbcn/FocalPointsGCOS.doc>) and in a list of additional points of contact maintained within the Dataset section (Table 1).

Country-wide quality control issues are identified as data are collected. Problems most often encountered are related to data for an earlier month being retransmitted as data for the most recent data month. Quality control algorithms including the month-over-month duplicate check are used to provide early indications of these problems. In such cases the point of contact for the country is notified and asked to retransmit the correct observations for the month. Maps such as the example provided in Figure 2 also help team members determine if there are obvious quality problems missed during automated processing.

#### **4. Data Access and Archive**

Acquisition of more than 95% of data for the most recent month is typically required before the data are used for climate monitoring purposes. Once determined by Monitoring Branch to have sufficient data, the GHCN-M data are “frozen” and combined with sea surface temperature data from the ERSST data set in creation of a global gridded field. The GHCN-M data are made available on the GHCN-M website via ftp and archived as documented in the NCEI Submission Agreement.

## 5. Tables

Table 1. List of national focal points maintained by the Dataset section.

| Country           | Name   | E-mail Address                    | Alternate Contacts to cc on inquiries                         |
|-------------------|--|-----------------------------------|---|
| Africa            | Santjie DuToit   | Santjie.DuToit@weathersa.co.za    | Sydney Marais <Sydney.Marais@weathersa.co.za>                 |
| Antarctica        | Steve Colwell  | <src@bas.ac.uk>                   |   |
| Bahamas           | Mary Butler and Godfrey Burnside                                 | Mary Butler <mary.butl@gmail.com> | glb.met@batele.net.bs   |
| Barbados          | Hampden Lovell   | hampden.lovell@barbados.gov.bb    | <antonin.nurse@gmail.com>, Sonia Nurse                        |
| Canada            | Kim Gravelle   | Kim.Gravelle@ec.gc.ca             | Alex Zucconi ( Alexander.Zucconi@ec.gc.ca )                   |
| Cayman Islands    | Winston Gall   | Winston.Gall@gov.ky               | Avalon Porter <Avalon.Porter@gov.ky>                          |
| Colombia          | Luis Alfonso Lopez Alvarez                                       | <a.lopez.wrl@gmail.com>           |   |
| Costa Rica        | Jose Joaquin Aguero Porras                                       | jjaguero@imn.ac.cr                | Werner Stolz <wstolz@imn.ac.cr>                               |
| Cuba              | Yunisledi Rodriguez  | yunisledi.rodriguez@insmet.cu     | Ramon Perez <ramon.perez@insmet.cu>,                          |
| Ecuador           | Ing. Rodolfo Molina  | <rmolina@inamhi.gob.ec>           | Homero E. Jacome <hjacome@inamhi.gob.ec>                      |
| El Salvador       | Ricardo Zimmermann   | rzimmermann@marn.gob.sv           |   |
| France            | Marie-Helene Theron  | <marie-helene.theron@meteo.fr>    | <christophe.barbe@meteo.fr>,                                  |
| Galapagos Islands | Ing. Rodolfo Molina  | <rmolina@inamhi.gob.ec>           | Homero E. Jacome <hjacome@inamhi.gob.ec>                      |
| Greenland         | Claus Kern-Hansen  | ckh@dmi.dk                        | klimatologvagt <klimatologvagt@dmi.dk>                        |
| Guadeloupe        | Marie-Helene Theron  | <marie-helene.theron@meteo.fr>    | <christophe.barbe@meteo.fr>,                                  |
| Italy             | Tiziano Colombo  | t.colombo@meteacm.it              |   |
| Jamaica           | Joaquin Robinson   | j.robinson@metservice.gov.jm      | D.Grant@metservice.gov.jm ), Charles Reid                     |
| Kenya             | Samuel Machua  | machua@meteo.go.ke                |   |
| Latvia            | Ljuba Pirozenoka   | <ljuba.pirozenoka@lvgrmc.lv>      |   |
| Mexico            | Norma Tepoz Ortega   | norma.tepoz@conagua.gob.mx        | Bustamante Romero Jorge <jorge.bustamante@conagua.gob.mx>,    |
| Namibia           | Sepiso Mwangala  | smwangala@yahoo.co.uk             |   |
| Nicaragua         | Dr. Alejandro Rodriguez Alvarado                                 | inetards@ibw.com.ni               | Ing. Isaias Montoya Blanco <isaias.montoya@rh.ineter.gob.ni>  |
| Norway            | Gabriel Kielland   | gabriel.kielland@met.no           |   |
| Papua New Guinea  | Jimmy Gomoga   | <jgomoga@gmail.com>               | Tau Gabi <gabi@pngmet.gov.pg>, and Robert Thompsons <rthomas@ |
| Peru              | Jorge Chira La Rosa  | jchira@senamhi.gob.pe             | "Ceilis Malca, Baldomero" <bceilis@corpac.gob.pe>,            |
| South Africa      | Santjie DuToit   | Santjie.DuToit@weathersa.co.za    | Sydney Marais <Sydney.Marais@weathersa.co.za>                 |
| Spain             | Guillermo G. Yáñez   | <ggarciaiy@emet.es>               | PARLANGE Joël <joel.par lange@meteo.fr>,                      |
| Sudan             | Mrs.Hanan Magzoub Hag Ahmed Rabbah (referred to as Hanan Rabbah) | <hanan_rabbah@hotmail.com>        | ersad@sudanmail.net,  |
| Sweden            | No name provided   | mss@smhi.se                       | Isaksson Ludvig <Ludvig.Isaksson@smhi.se>,                    |
| Tanzania          | Emmanuel Empeta  | empeta@meteo.go.tz                |   |
| Thailand          | Samraeng Pisphan   | <samraeng.p@tmd.go.th>            | <tmd_inter@tmd.go.th>   |
| Turkey            | Ercan Karakoc  | ekarakoc@mqm.gov.tr               | Selami Yildirim ( syildirim@mqm.gov.tr )                      |
| United Kingdom    | Steve Palmer (UK Met Office)                                     | < steve.palmer@metoffice.gov.uk > | technical fault report form on our website                    |
| Uzbekistan        | No name provided   | uzhymet@meteo.uz                  |   |
| Zimbabwe          | Wilfred Chawaguta  | <wilfred.chawaguta@gmail.com>     |   |

## 6. Figures

### Monthly Anomalies, Month=06, Year=2016 [95.8%]

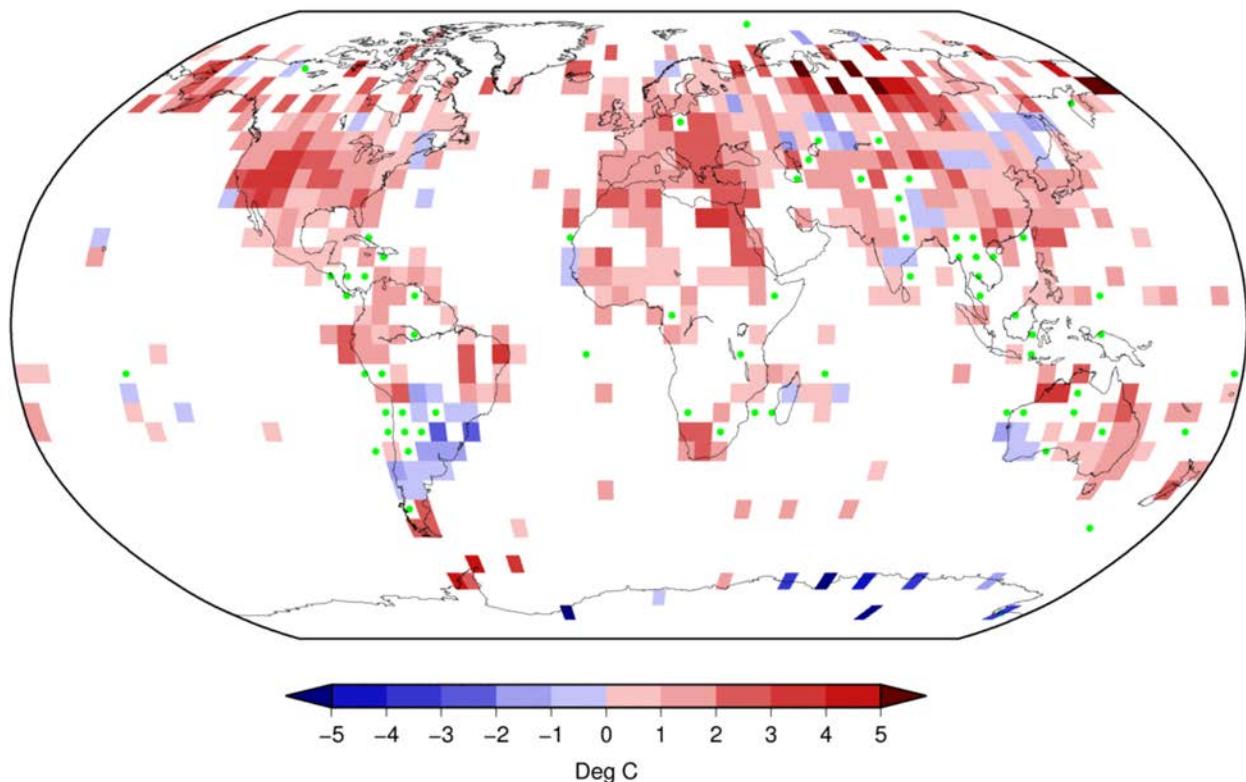


Figure 1. June 2016 data received by 10 July 2016. Map of 5X5 degree gridded anomalies (red/blue boxes) and grid boxes for which additional station data are typically transmitted each month (green dots). The percent of grid boxes with data received is 95.8%.

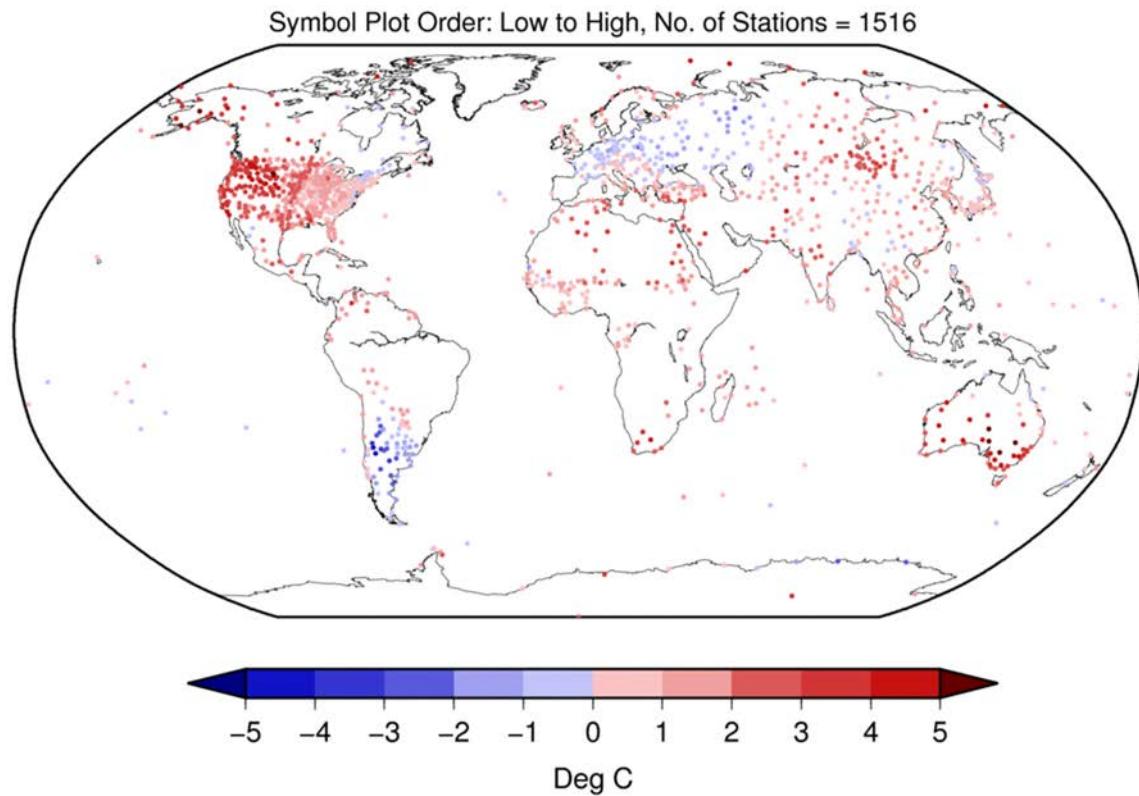


Figure 2. An example of station-level diagnostic map produced daily. Used to visually identify clear outliers that may have been missed during the automated quality control process.