

Activities of CBS Lead Centre for GCOS for the WMO RA VI in the year 2019

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1. Evaluation of availability, completeness and correctness of CLIMAT reports

On a routine basis, DWD applies a near real-time quality control regarding availability and correctness of CLIMAT reports. This refers to all CLIMAT stations included in the Regional Basic Climatological Network (RBCN) and the Antarctic Observing Network (AntON). TAC format is checked as well as BUFR format, if TAC is not available. The results of the quality control are the basis for various monitoring products.

DWD continued to increase the availability of CLIMAT data:

- by ingesting CLIMAT reports into the GTS received via e-mail from NMHS that are not or not well connected,
- by pointing NMHS to missing CLIMAT reports in the course of a month,
- by informing in case of receiving an incorrect month,
- by informing about severe errors in the reports,
- by distributing the monthly monitoring results to the CBS Lead Centres and the GCOS Network Manager. They contain information about missing GSN stations and format problems of CLIMAT reports received by the 20th of a month.

DWD informed directly by addressing a national focal point of the NMHS concerned. Alternatively the respective CBS Lead Centre is approached with the request to contact the NMHS in charge.

Most errors belonged to the following categories:

- no or incorrect month-year-group,
- other errors in section 0 of TAC messages (incorrect spelling of code name CLIMAT, other invalid characters),
- invalid text/characters within the other sections,
- format errors (e.g. too short/too long groups, usage of “-“ for negative temperature values),
- content errors (e.g. extreme temperature values instead of mean values, tenths instead of whole numbers),
- correct month-year-indicator, but data from a different month. For example, Egypt disseminated data from April 2019 in the bulletin for May 2019. The reports for September 2019 from Paraguay contained the sunshine values from September 2016).

From February to June 2019 no CLIMAT messages were received from West Africa. The loss was caused by the relocation of the RTH Dakar to the new Blaise Diagne airport. Following a notification from the German CBS Lead Centre for GCOS, the connection to Toulouse for CLIMAT dissemination was restored.

1.1. Availability and correctness of GSN Stations in the RA VI

The GSN stations list of 2019 included 138 stations in RA VI. The annual average of received stations was 87 %.

Silent GSN stations in RA VI are:

Iceland: 04048 Vestmannaeyjar reported up to April 2013. Its current status in OSCAR/Surface is closed.

Portugal: 08506 Horta since February 2008

Spain: 08181 Barcelona since October 2015

Macedonia: 13577 Lazaropole since January 2014

Albania: 13615 Tirana since September 2010

Cyprus: 17600 Paphos

Greece: 16734 Methoni since November 2012

Russian Fed. 26359 Puskinskiy Gory since August 2018

34927 Krasnodar-Kruglik since July 2017

Syria: 40001 Kamishli since October 2012

40022 Latakia since November 2013

40061 Palmyra since November 2013

Unfortunately, some issues regarding the monitoring of BUFR CLIMATs still persisted in 2019. Until May some reports were flagged as TAC though a BUFR message was received. As from August a problem occurred in the GSN datasets published on the GSNMC website (<http://www.gsnmc.dwd.de>). The assignment of CLIMAT reports to the respective WMO station number was not always correct. All bugs have been fixed in the meanwhile.

1.2. Availability of CLIMAT stations in BUFR

There are still countries, e.g. the Russian Federation, Greece, Finland, which do not yet provide CLIMAT reports in BUFR format. Most of the countries provide CLIMATs in BUFR as well as in TAC. The BUFR CLIMATs of Norway and Sweden are transformed to TAC and re-ingested into the GTS by an unknown centre. These erroneous TACs are detected by the quality control every month, attempts to locate the source failed. However, the original BUFR CLIMATs received from Norway and Sweden are correct.

1.3. Comparison of the receipt of GSN stations at JMA /DWD and NCEI

JMA, NCEI and DWD continued evaluating the receipt status of GSN stations. This fulfillment of an action item from the 2016 GCOS Lead Centres Meeting bases on JMA's monthly GSNdiffer lists. They include GSN stations, which were only received by DWD or JMA and those, which were missing by both.

The category of not received stations comprises also GSN stations reporting with an incorrect or missing month-year indicator. Other format errors prohibiting a correct automatic storage of the CLIMAT report are included as well.

1.4. Comparison of CLIMATs in TAC and BUFR

DWD continued to compare the contents of CLIMAT messages from countries sending reports in both formats on a monthly basis. The LC contacted 19 NMHS world-wide due to recurrent, partly large differences between TAC and BUFR reports. NMHS were supported in generating correct BUFR reports by checking trial messages and answering questions concerning code details, if necessary. Since then, correct BUFR reports have been submitted by 11 NMHS. 8 countries weren't able to fix the problems or didn't answer by the end of 2019.

1.5. Evaluation of air pressure at station level and at sea level

DWD continued to evaluate the air pressure measured at station height and reduced to sea level on a monthly basis. Some stations showed systematic errors in the sea level pressure data due to an incorrect barometer height published in OSCAR. This is often caused by the fact that the metadata is not updated in OSCAR after relocation of stations. The result from this evaluation is that the barometer heights in OSCAR need to be verified by the countries.

2. Availability of GUAN Stations

The basis for the following information are the GUAN summaries from NCEI (<https://www1.ncdc.noaa.gov/pub/data/gcos/>).

The number of GUAN stations in RA VI remained at 24. In the first half-year all stations worked, but 37789 Yerevan, Armenia had only a very small number of soundings. In the second half-year 17607 Athalassa didn't operate and 17130 Ankara had a very small number of soundings. In October 2019 station 11035 Wien/Hohe Warte, Austria stopped the transmission of TAC GUAN messages and started sending BUFR. NCEI does not receive notification when a site changes from TAC to BUFR for GUAN until they notice non-receipt of data. Thus, station 11035 had an unusual small number of soundings listed in the NCEI GUAN summary for the second half-year.

The monitoring results showed that 20 (1st half-year), resp. 19 (2nd half-year) stations performed soundings at 00 and 12 UTC. The times comprise also soundings at 23 or 01 UTC resp. 11 or 13 UTC. The stations 08508 Lajes, Azores, 15614 Sofia, Bulgaria and 17607 Athalassa, Cyprus continued not to start soundings at 00 UTC. From those, 17607 Athalassa performed a second sounding a day at another hour (1st half-year). 37789 Yerevan, Armenia (2nd half-year) and 40265 Mafrag, Jordan had only soundings at 00 UTC. Nearly all soundings reached 10 hPa and above.

3. Collection of World Weather Records

The collection of World Weather Records (WWR) 2018 was postponed to 2020 by the WMO Secretariat. Nevertheless some countries submitted their WWR to the CBS Lead Centre for GCOS. They were not forwarded to NCEI but archived for the following year.



4. Update of the GSN Monitoring Products

In 2015, DWD started to update the products of the GSN monitoring presented on the website www.gsnmc.dwd.de. Demands have changed since the original implementation of the GSNMC in 1999. Decisions of the AOPC and requirements of the WIGOS Data Quality Monitoring System (WDQMS) were to consider as well. In the course of 2019 most of the redesign tasks were realised. However, the publication of the new GSNMC website had to be postponed to 2020.

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