

## Activities of CBS Lead Centre for GCOS for the WMO RA VI in the year 2018

Deutscher Wetterdienst (DWD)  
Hamburg, Germany, 12.12.2019

### 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 in TAC (TAC=Traditional Alphanumeric Code) FM71 and BUFR format to all CLIMAT stations included in the Regional Basic Climatological Network (RBCN) and the Antarctic Observing Network (AntON). 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 to the GTS.
- 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 including information about missing GSN stations and format problems of the CLIMAT reports received by the 20<sup>th</sup> of a month to the CBS Lead Centres and the GCOS Network Manager

DWD informed directly by addressing a national focal point or approached the relevant CBS Lead Centre with the request to contact the NMHS concerned in their area of responsibility. Getting directly in touch with the national focal points became very difficult, because the list of the 'National focal points for GCOS and related climatological data' is no longer available on the WMO website. Several efforts to get it restored failed.

Most relevant are errors concerning the month-year indicator in TAC messages. Countries indicated an incorrect month or did not write it correctly. But it also happened that the month-year indicator was correct and of the expected month, but the included data was from a different month. For example, Togo and 12 stations of Mongolia disseminated data from April 2018 in the bulletin for May 2018, 84008 Galapagos data from April 2016 in the bulletin for September 2018. For October, the Democratic Republic of the Congo and some stations from Chad transferred data for September 2018. A strong impact on the availability of the CLIMAT reports for deriving monitoring products had the Government Shutdown in the USA, which started by the end of December 2018 and ended on 25 January 2019. It prohibited the dissemination of the CLIMAT reports in time.

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

The GSN stations list of 2017 included 138 stations in RA VI. The number of received stations decreased slightly from 89 % to 86 % in December 2018.

Silent GSN stations in RA VI are:

Albania:	13615 Tirana since September 2010
Cyprus:	17600 Paphos since January 2010
Portugal:	08506 Horta since at least January 2009
Spain:	08181 Barcelona since October 2015
Syrian:	40001 Kamishli since July 2012
	40022 Latakia since November 2013
	40061 Palmyra since March 2013
Greece:	16734 Methoni, which reported in 2017 after being not operational from 12/2012 to 12/2016, was silent again in 2018
Iceland:	04048 Vestmannaeyjar reported up to September 2018. With respect to OSCAR, its current status is closed.
Macedonia:	13577 Lazaropole since March 2012

Unfortunately the introduction of a new index for stations reporting CLIMATs in TAC and BUFR format in the monitoring routine of the GCOS Surface Monitoring Centre (GSNMC) led to an error, which resulted in incorrect results of the performance indicator. Therefore, the results for the performance indicator for the year 2018 published on the GSNMC website (<http://www.gsnmc.dwd.de>) are not valid.

## **1.2 Availability of CLIMAT stations in BUFR**

There are still countries such as the Russian Federation, 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 CLIMATs and re-ingested into the GTS by an unknown data centre. These erroneous TACs are detected by the quality control. Here, the code word CLIMAT is repeated in front of every station identifier within a bulletin. However, the BUFR CLIMATs received from Norway and Sweden are correct.

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

Following the action item from the 5<sup>th</sup> GCOS Lead Centres Coordination Meeting (in September 2016) JMA, NCEI and DWD continued evaluating the receipt status of GSN stations on the basis of JMA's monthly GSNdiffer lists including 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 or other format errors prohibiting a correct automatic storage of the CLIMAT report.

## **1.4 Comparison of CLIMATs in TAC and BUFR**

DWD started to compare the content of CLIMAT reports from countries sending reports in both formats on a monthly basis. Systematic differences were detected, which seem to be caused by errors in the software for generating CLIMATs in BUFR format. In 2019, DWD began to inform the concerned countries.

## **1.5 Evaluation of air pressure at station level and at sea level**

DWD started to evaluate the air pressure measured at station height and the air pressure reduced to sea level on a monthly basis. Some stations showed systematic discrepancies between the transmitted sea level pressure and that generated by SYNOP data for the barometer height published in OSCAR. From the differences the barometer height used by the respective countries was calculated. The result from this evaluation is that the barometer heights in OSCAR need to be verified by the countries.

## **2.1 Availability of GUAN Stations**

The number of GUAN stations in RA VI remained at 24. All stations worked, but 37789 Yerevan, Armenia had only a very small number of soundings in the second part of the year. The monitoring results of the radio soundings for 2014 showed that 19 stations performed soundings at 00 UTC (comprises soundings at 23, 00 or 01 UTC) and 12 UTC (soundings at 11, 12 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. 37789 Yerevan, Armenia had only soundings at 00 UTC. 40265 Mafraq, Jordan, turned from soundings mostly beside 00 and 12 UTC to soundings at 00 UTC. From those, 17607 Athalassa and 40265 Mafraq performed a second sounding at another hour of the day. The reached height increased. In the second part of the year nearly all soundings reached 10 hPa and above.

## **3. Collection of World Weather Records**

Following EC-64, Res. 14, DWD's CBS Lead Centre for GCOS supported the WMO Secretariat in collecting the World Weather Records (WWR) for RA VI. In the run of 2018, WWR for 2017 were received from 26 countries, which is an amount of 60 % for RA VI. The content of the supplies was checked. The WWR were forwarded to NCEI.

## **4. Collection of Climatological Standard Normals 1981-2010**

With a letter dated 1 August 2018 (reference No. 20077 /2018/CLW/DMA/CLIN08110) WMO requested the submission of WMO Climatological Standard Normals (CLINOS) for 1981-2010 by 28 February 2019 to the responsible CBS Lead Centres for GCOS. The submissions started tardy. Several countries had to adapt or generate database queries to generate the CLINOS. Often the format seemed to be a challenge. The submissions were checked and in case of format errors the concerned NMHS were asked for a correction. Correct contributions were forwarded to NCEI.

## **5. Update of the GSN Monitoring Products**

In 2015, DWD started to update the products of the GSN monitoring, being installed in 1999 and presented on the website ([www.gsnmc.dwd.de](http://www.gsnmc.dwd.de)). Decisions of the Atmospheric Observation Panel for Climate, the provision of CLIMATs in BUFR, further requirements as further cut-off dates for the monitoring, knowledge about the most severe errors, an incorrect month-year indicator as well as new formats for maps are to consider. In the course of the year a part of the monitoring products was realised by the software company in charge. The project is executed by DWD providing financial means and human resources and will be completed in 2019.

## **6. Participation at the 6<sup>th</sup> CBS-Lead Centres for GCOS Coordination Meeting in Asheville/NC**

C. Lefebvre joined the CBS Lead Centre for GCOS Coordination Meeting in Asheville/NC from 11<sup>th</sup> to 13<sup>th</sup> September 2018, where she presented the GSN monitoring results for RA VI and gave an overview of the activities of the CBS LC at DWD and problems in the proceeding of the submission of the WWR. The final report of the 6<sup>th</sup> CBS-Lead Centres for GCOS Coordination Meeting published in GCOS-225, WMO 2019 ([https://library.wmo.int/index.php?lvl=notice\\_display&id=20775#.XeEzxtVCc2w](https://library.wmo.int/index.php?lvl=notice_display&id=20775#.XeEzxtVCc2w)) informs about the results of this meeting.

C. Lefebvre, N. Frank, K. Hansen, O. Steinke, E. Roskamp, A. Andersson  
Deutscher Wetterdienst  
Business Unit: Climate and Environment (KU)  
Bernhard Nocht-Str. 76  
20359 Hamburg  
GERMANY  
E-mail: [cbs-lc-gcos.ravi@dwd.de](mailto:cbs-lc-gcos.ravi@dwd.de)