

Activities of CBS Lead Centre for GCOS for the WMO RA VI in the year 2017

Deutscher Wetterdienst (DWD)
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1. Availability, completeness and correctness of CLIMAT reports in ASCII Format FM71

On a routine basis DWD applies a near real-time quality control regarding availability and correctness of CLIMAT data in ASCII Format FM71 to all CLIMAT stations included in the Regional Basic Climatological Network (RBCN). In the course of the year, the CLIMAT reports from National Meteorological and Hydrological Services (NMHS) which had already switched to the BUFR format were also included in the data base for monitoring purposes.

DWD helps 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 the 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 20th of a month to the CBS Lead Centres and the GCOS Network Manager

DWD informed directly by addressing the focal point for GCOS and related climatological data or approached the relevant CBS Lead Centres and requested that they contact one of the NMHSs of their area of responsibility. Thus NMHS could correct their reports and stop providing erroneous messages.

1.1 Availability and correctness of GSN Stations in the RA VI

The GSN stations list of 2017 included 141 stations in RA VI and not only 138 as indicated. On average 89 percent of the stations were received (Performance Indicator CA) and 71 percent were without format errors (CC). Albania, Macedonia and Syrian did not report. The amount of valid (non-suspect) monthly mean temperatures (CT) was 85 percent and of valid (non-suspect) monthly precipitation totals (CR) was 83 percent. This information is based on the performance indicator published on the GSNMC website (<http://www.gsnmc.dwd.de>). The performance indicators CA, CC, CT and CR for the different countries in RA VI are shown in Table 1.

Silent GSN stations in RA VI are:

Albania:	13615 Tirana since September 2010
Cyprus:	17600 Paphos since January 2010
Macedonia:	13577 Lazaropole since March 2012
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's GSN station 16723 Samos, which did not report since September 2013 re-started providing CLIMATs in May 2016 and 16734 Methoni, which did not report since November 2012 resumed operations with the beginning of 2017. Thus, all Greek GSN stations work.

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Country	Number of Stations	CA	CC	CT	CR	Ind
Norway	10	1,0	0,8	1,0	0,9	0,93
Sweden	4	0,9	0,3	0,9	0,8	0,73
Finland	3	1,0	1,0	1,0	1,0	1,00
United Kindom	6	1,0	1,0	1,0	1,0	1,00
Ireland	2	1,0	0,7	1,0	1,0	0,93
Iceland	4	1,0	1,0	1,0	1,0	1,00
Greenland	5	1,0	0,9	0,8	0,5	0,80
Denmark	2	1,0	1,0	1,0	1,0	1,00
Netherlands	1	1,0	1,0	1,0	1,0	1,00
Belgium	1	0,6	0,4	0,8	0,8	0,65
Luxembourg	1	1,0	0,8	1,0	1,0	0,95
Switzerland	2	1,0	1,0	1,0	0,9	0,98
France	6	1,0	1,0	1,0	1,0	1,00
Spain	6	0,8	0,8	0,8	0,8	0,80
Portugal	4	0,8	0,5	0,7	0,5	0,63
Madeira	1	1,0	0,3	1,0	1,0	0,83
Cape Verde	1	1,0	0,0	0,1	0,2	0,33
Germany	4	1,0	1,0	1,0	1,0	1,00
Austria	3	1,0	0,8	1,0	1,0	0,95
Czech Republic	1	1,0	1,0	1,0	1,0	1,00
Slovakia	1	0,8	0,8	0,8	0,8	0,80
Poland	2	1,0	0,1	1,0	1,0	0,78
Hungary	1	1,0	1,0	1,0	1,0	1,00
Macedonia	1	0,0	0,0	0,0	0,0	0,00
Albania	1	0,0	0,0	0,0	0,0	0,00
Croatia	1	1,0	1,0	1,0	1,0	1,00
Bosnia / Herzegovina	1	1,0	1,0	1,0	1,0	1,00
Romania	3	1,0	1,0	1,0	1,0	1,00
Italy	5	0,8	0,6	0,8	0,8	0,75
Malta	1	0,9	0,7	0,9	0,8	0,83
Greece	4	1,0	0,6	0,6	0,6	0,70
Turkey	7	1,0	1,0	1,0	0,9	0,98
Cyprus	2	0,5	0,5	0,5	0,4	0,48
Russian Federation	25	1,0	1,0	1,0	1,0	1,00
Estonia	1	1,0	0,9	0,9	1,0	0,95
Latvia	1	1,0	0,5	0,9	0,9	0,83
Lithuania	1	1,0	1,0	1,0	1,0	1,00
Belarus	1	1,0	1,0	1,0	1,0	1,00
Ukraine	5	1,0	0,9	1,0	1,0	0,98
Republic of Moldava	1	1,0	1,0	1,0	1,0	1,00
Georgia	1	1,0	0,0	0,8	1,0	0,70
Armenia	1	1,0	0,9	1,0	1,0	0,98
Azerbaijan	1	1,0	0,0	1,0	0,9	0,73
Syrian	3	0,0	0,0	0,0	0,0	0,00
Israel	1	1,0	1,0	1,0	0,9	0,98
Jordan	2	1,0	0,7	1,0	0,8	0,88

Tab. 1: Performance indicators for the different countries in RA VI

1.2 Availability of CLIMAT stations in BUFR

By the end of the year, all countries generating CLIMAT reports and disseminating these via the GTS, had switched to CLIMAT in BUFR format. Some countries such as Spain, Sweden and Chile terminated providing TAC CLIMATs (TAC=Traditional Alphanumeric Code). But nevertheless TAC CLIMATs from these countries are disseminated. Obviously BUFR reports are transformed to TAC CLIMAT by some centres. This happens not always without errors. In TAC CLIMATs from Sweden and Iceland the code word CLIMAT is repeated in front of every station identifier within a bulletin, which is incorrect.

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

To fulfill an action item from the 5th GCOS Lead Centres Coordination Meeting (in September 2016) the receipt status of GSN stations at NCEI was evaluated with that of the GSN Monitoring Centre (GSNMC) operated by DWD and JMA. JMA's monthly GSNdiffer lists serve as basis for the comparison 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. The monthly comparison showed that NCEI receives less GTS stations than JMA or DWD. But there are some stations especially from the Caribbean which were received by NCEI and not by JMA or DWD. NCEI receives some stations via e-mail and now shares it with JMA and DWD, where they are ingested into the GTS.

2.1 Availability of GUAN Stations

The number of GUAN stations in RA VI remained at 24 and all stations worked. The monitoring results of the radio soundings for 2014 showed that 19 stations performed soundings at 00 and 12 UTC. The stations 08508 Lajes, Azores, 15614 Sofia, Bulgaria and 17607 Athalassa, Cyprus continued to not start soundings at 00 UTC while 37789 Yerevan, Armenia and 40265 Mafraq, Jordan, had no soundings at 12 UTC. From those, 17607 Athalassa and 40265 Mafraq performed a second sounding a day to another hour.

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. WWR for 2016 were received from 17 countries. Eight countries provided also the WWR for the previous years. The content of the supplies was checked. In most cases the format of the provided WWR was correct. In the case of missing station notes these were requested or it was asked, if previously received notes were still valid. The WWR were forwarded to NCEI.

4. Update of the GSN Monitoring

In 2015, DWD started to update the GSN monitoring, being installed in 1999 and presented on the website (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 error, an incorrect month-year indicator as well as new formats for maps are to consider. A rough concept was generated. A detailed concept was not developed before 2017 and two prototypes were designed by a software company. The project is executed by DWD providing financial means and human resources.

5. Support of the Expert Team on Climate Data Management Systems (ET-CDMS)

On a request of Denis Stuber (Co-Chair of ET-CDMS) DWD generated statistics about the receipt of correct CLIMAT messages from all RBCN stations of the world in each year from 2006 to 2016.

The result of the study was presented by D. Stuber and B. Bannerman at the CCI-17- TECO in April 2018 and is included in the presentation 'Climate Data Management Systems (CDMS) - Status and Strategy'

(http://meetings.wmo.int/CCI-17/_layouts/15/WopiFrame.aspx?sourcedoc=/CCI-17/Presentations/TECO-2018_Session1_DenisStuber.pdf&action=default).

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