Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Results from the GSN Monitoring Centre at DWD for 2012 and 2013

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Outline

- **GSNMC data base**
- **Monitoring results in 2012 and 2013**
  - **Reception**
  - **Timeliness**
- **QC and data quality of CLIMAT reports in 2012**
  - Temperature elements
  - Precipitation total
- **Conclusion and Outlook**

GSN Data Base

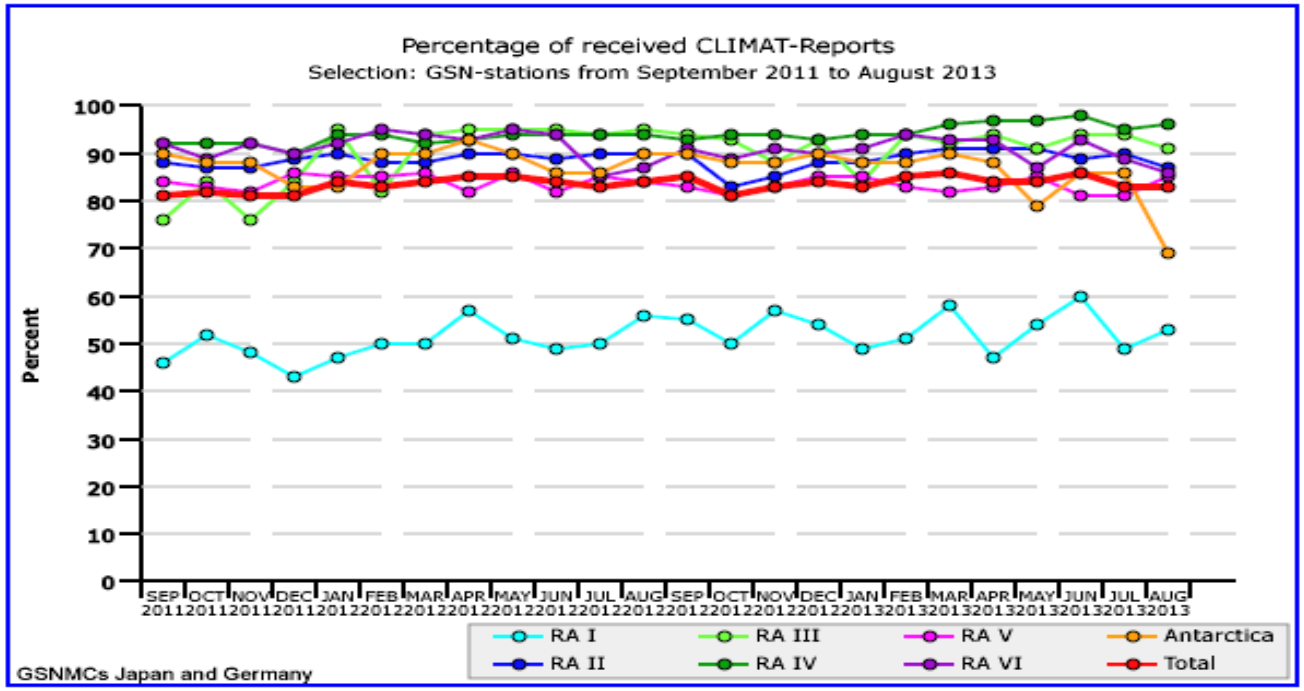
- **CLIMAT reports for GSN stations in ASCII format FM71**

- **Number of GSN stations: 1040 in 2011**

  1023 in 2012

  1018 in 2013

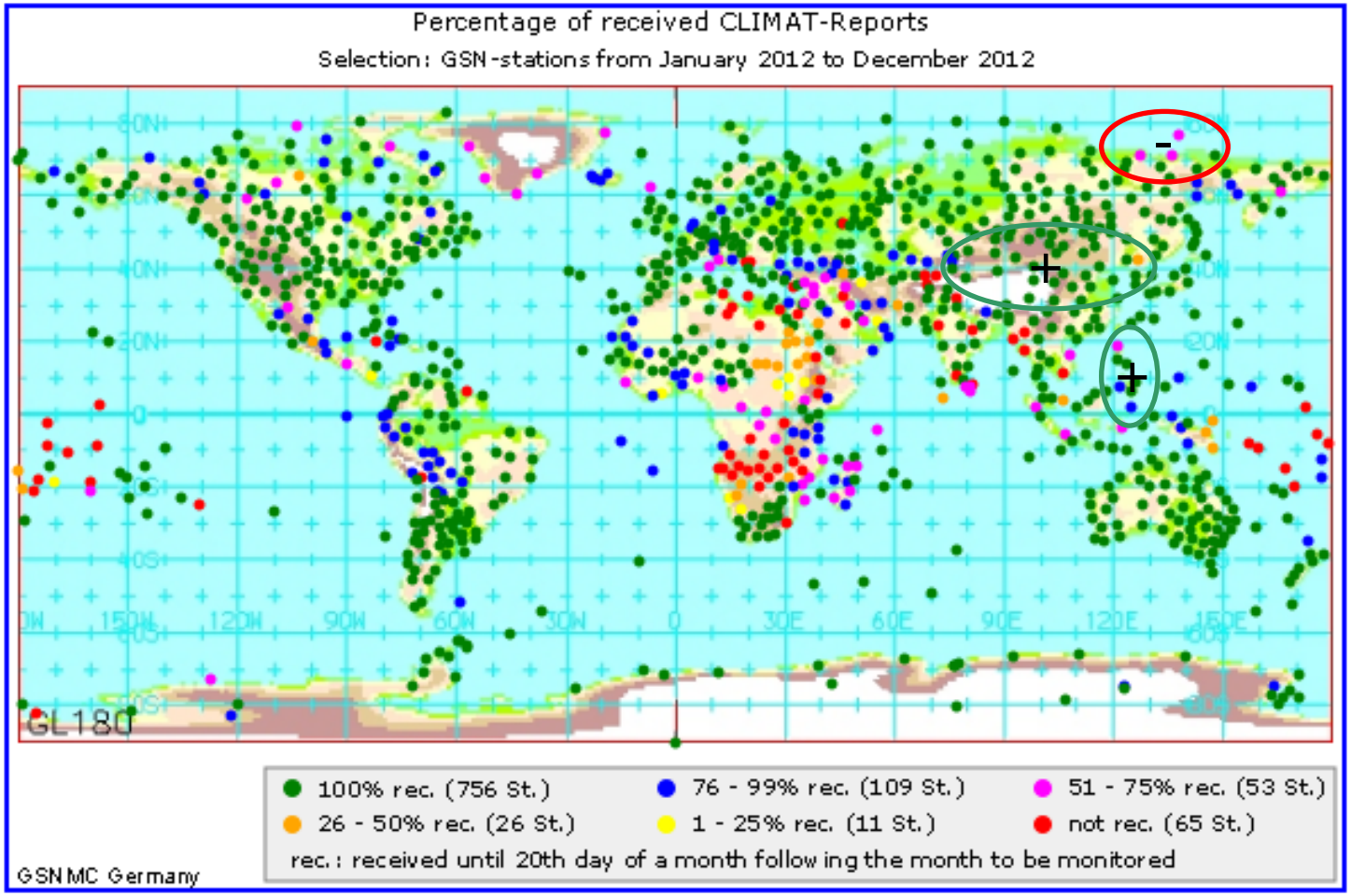
GSNMC Monitoring Results 2011-2013



RA IV reported in May 2013 all GSN stations and without errors!

- **RA VI Europe (decrease to 85-90 %)**
- **+- RA II Asia (stable at about90 %)**
- **+ RA IV North/Central Amer. (increase to. 95-100 %)**
- **+- RA V SW Pacific (stable at 80-85%)**
- **++ RA III South America (increase to 90-95 %)**
- **+- Antarctica (around 90 %)**
- **+ RA I Africa (slight incr. to 50-60 %)**

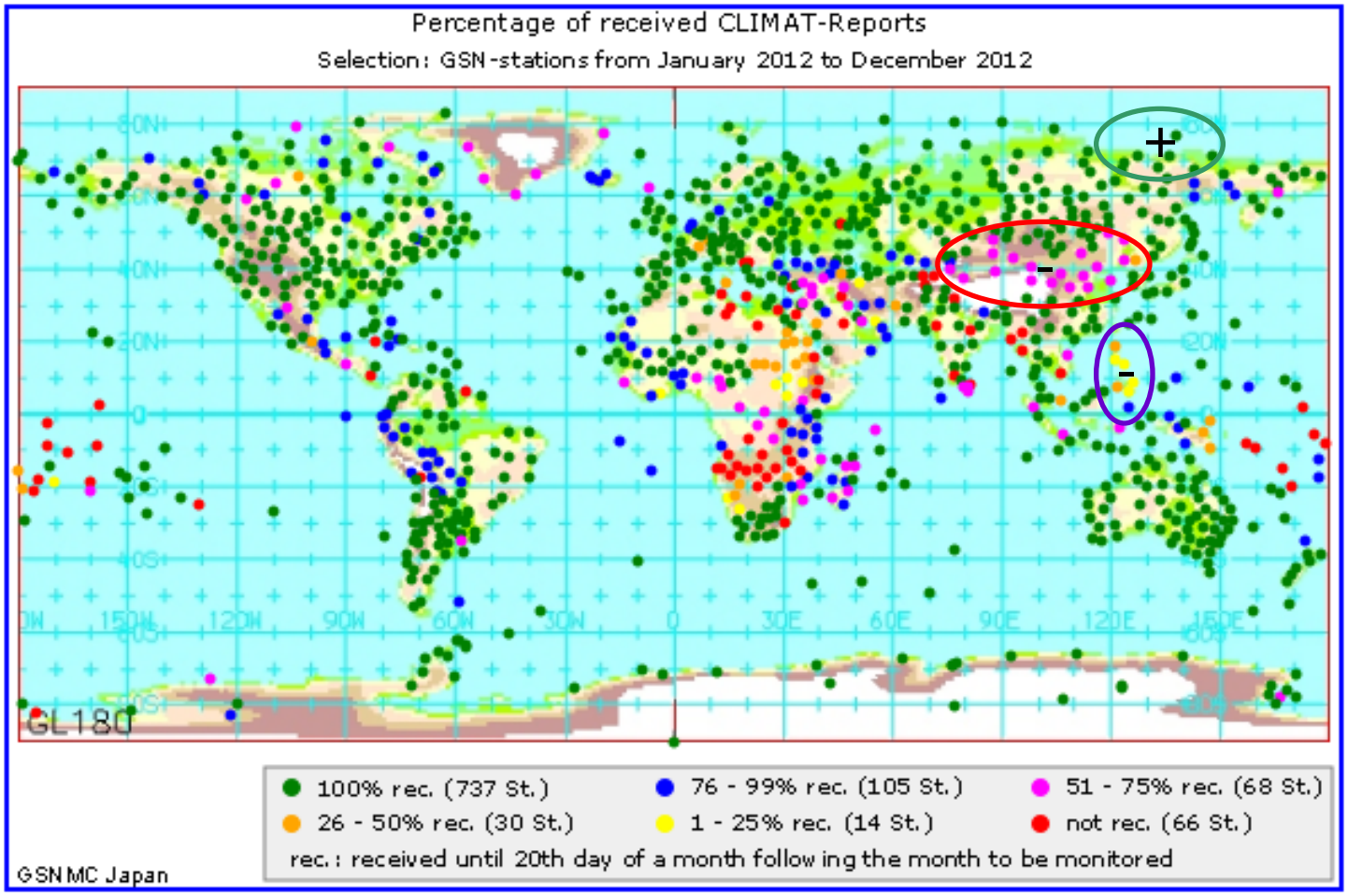
Reception rate at DWD 2012



DWD has more CLIMATs than JMA over northern China and the Philippines, less around Ostrov Kotelny

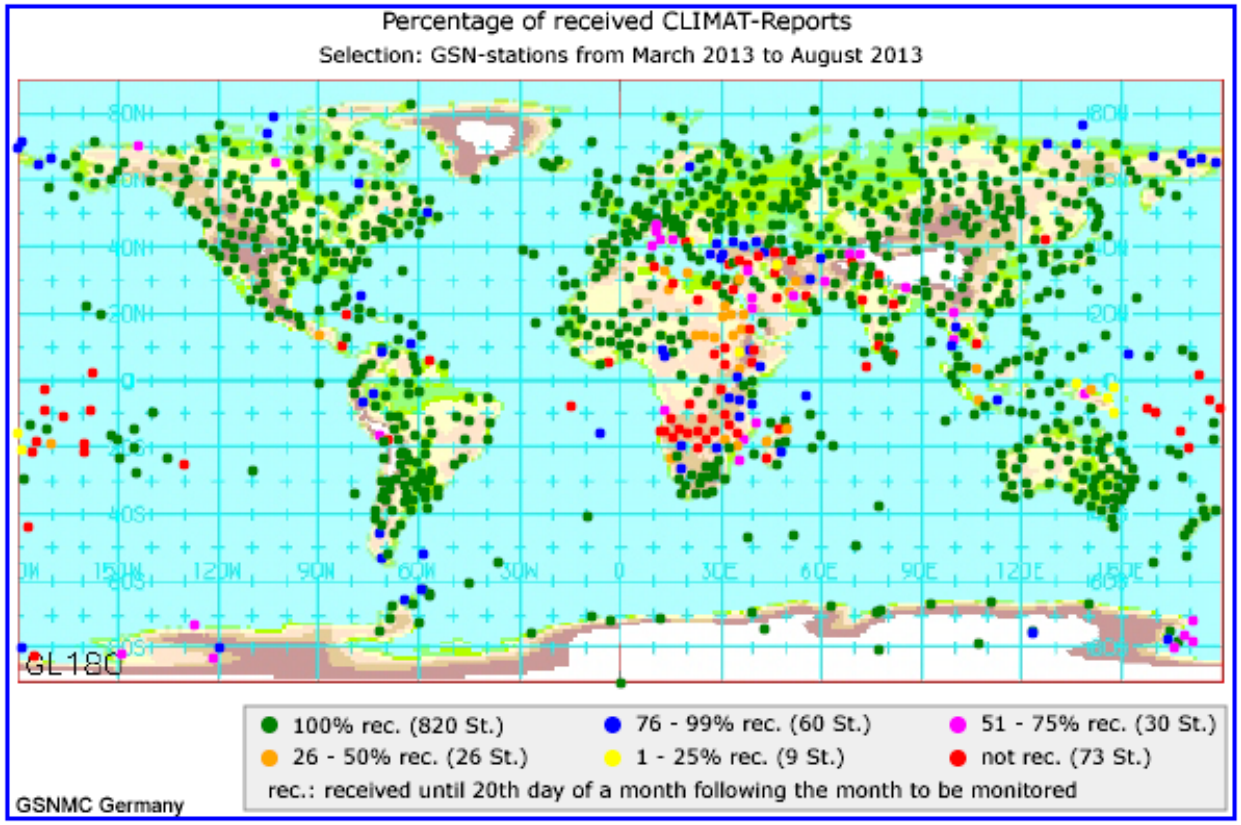
Total number of GSN stations in 2012: 1023 (1040 in 2011)

Reception rate at JMA 2012



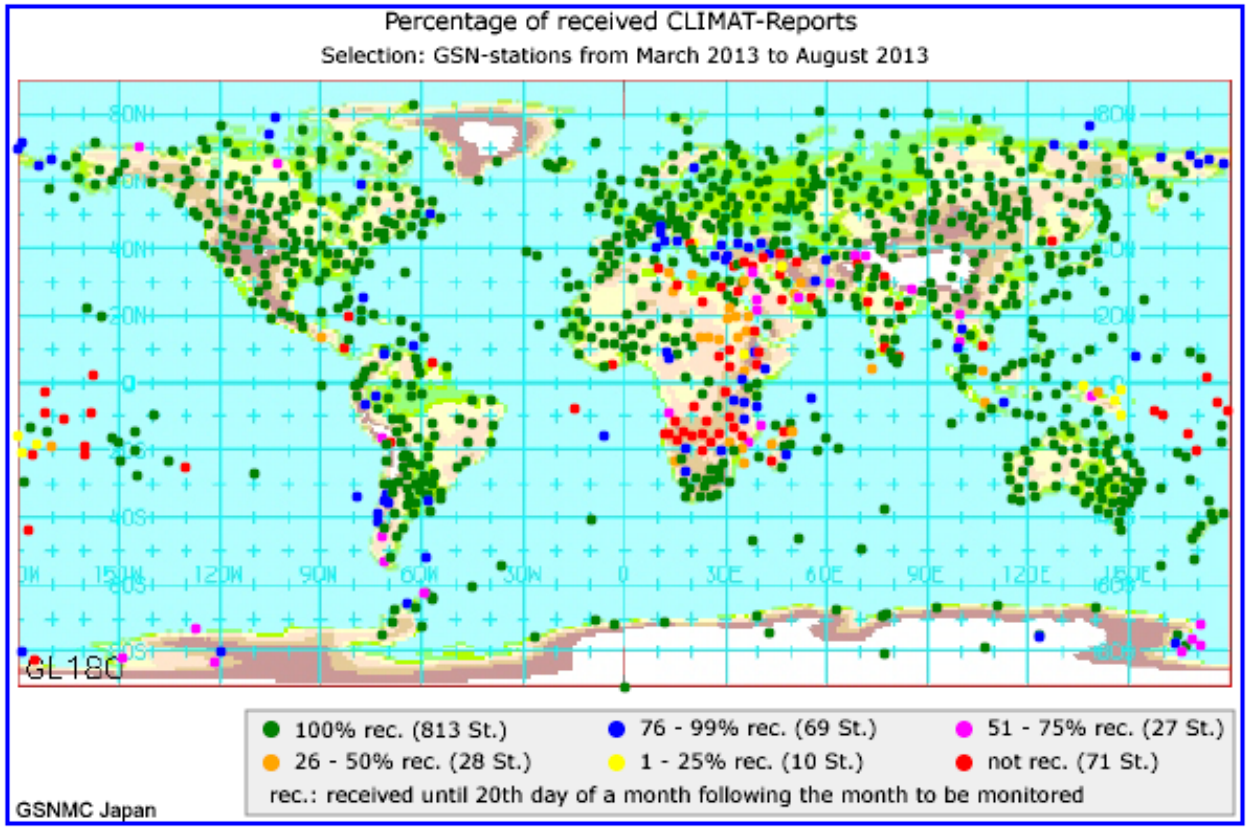
Total number of GSN stations in 2012: 1023 (1040 in 2011)

Reception rate at DWD 2013



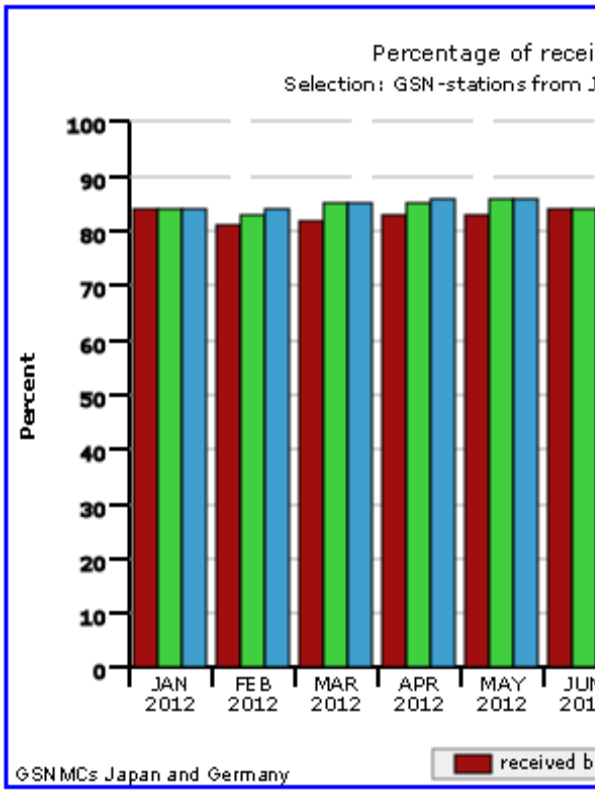
Total number of GSN stations in 2013: 1018 (1023 in 2012)

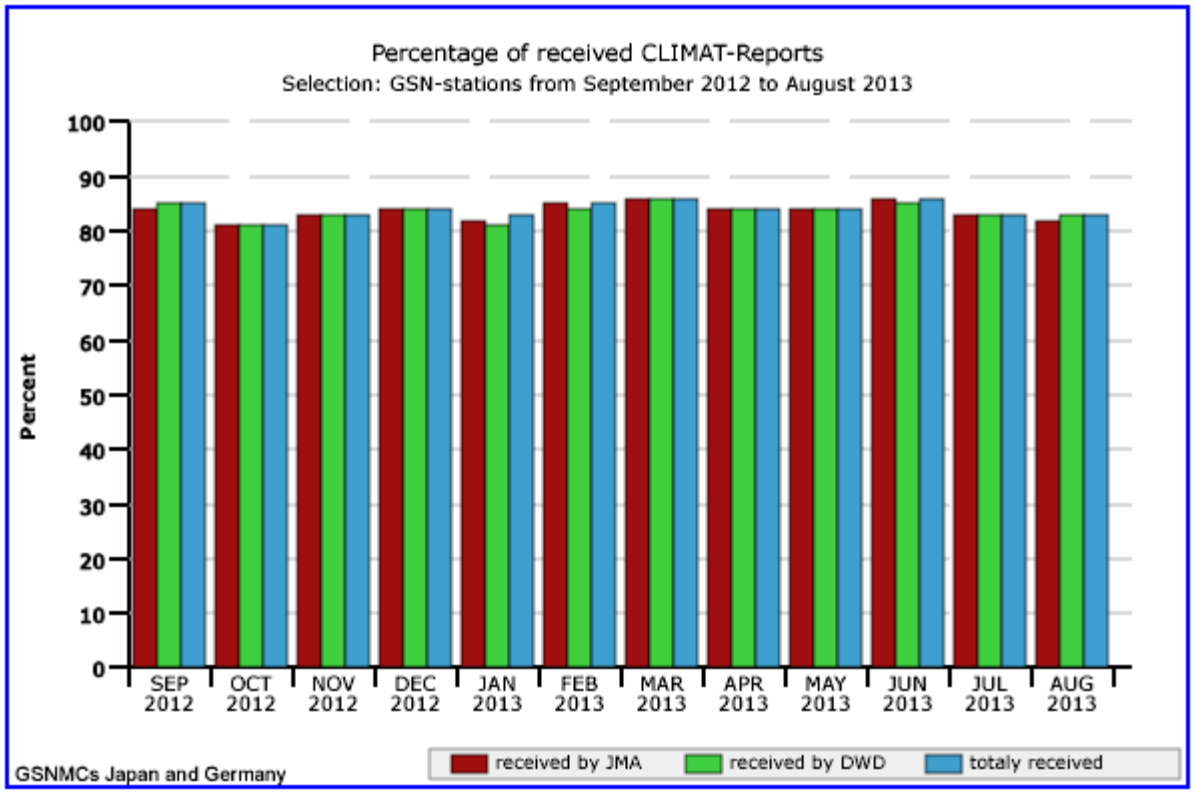
Reception rate at JMA 2013



Total number of GSN stations in 2013: 1018 (1023 in 2012)

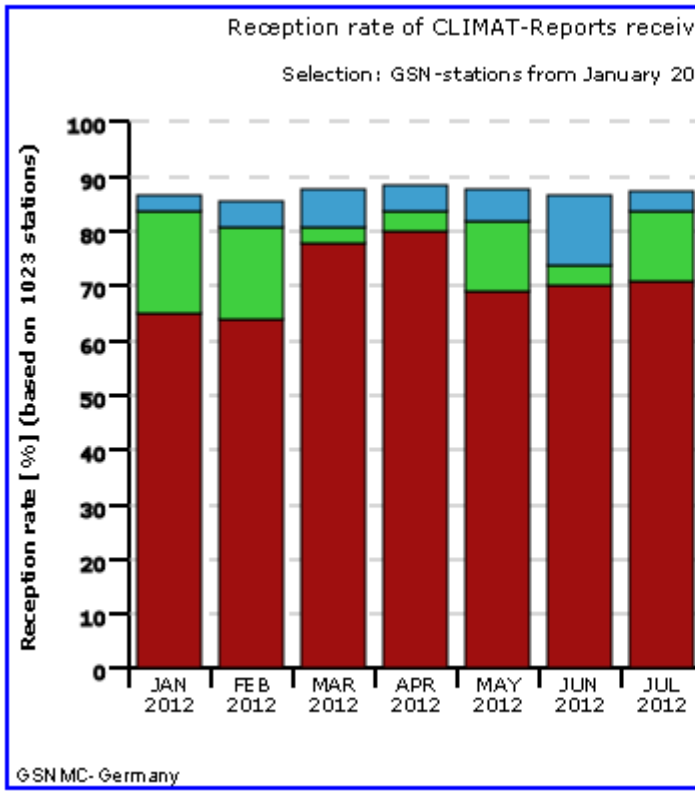
GSNMC Monitoring Results 2012 and 2013

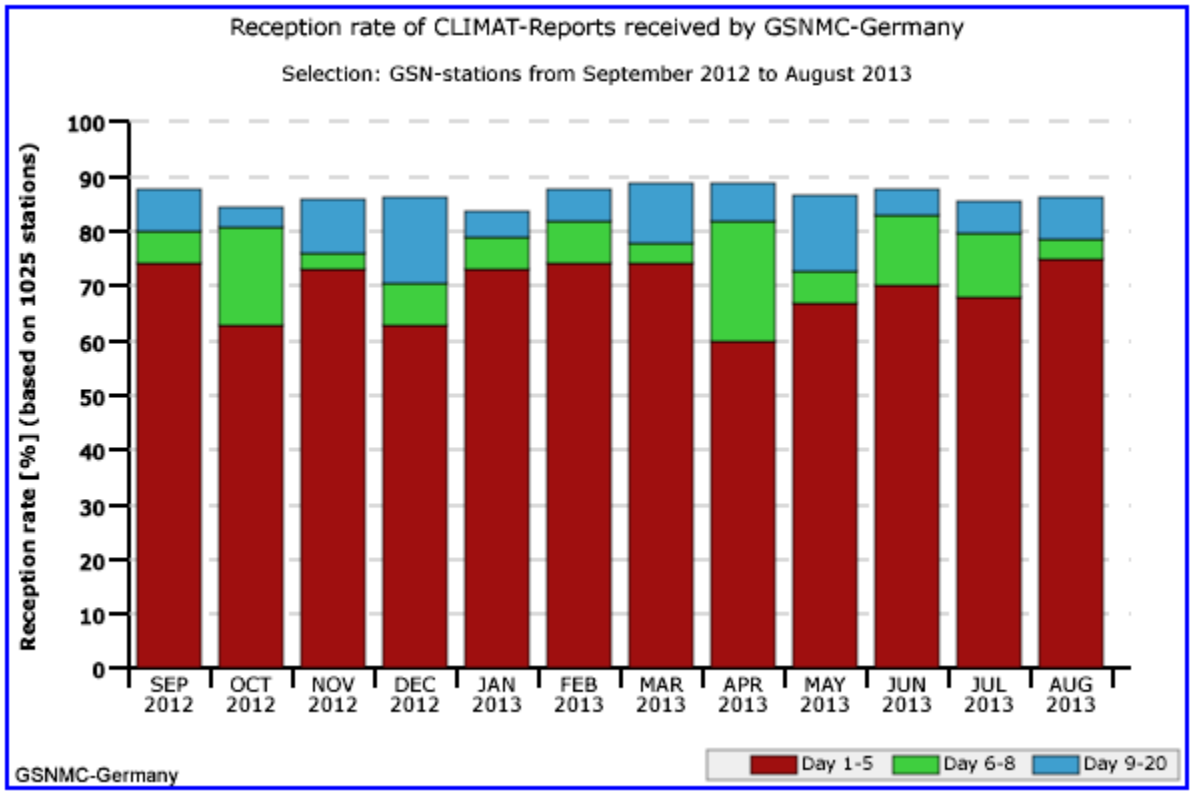




Arrival rate for 2012 and 2013 at JMA, at DWD, and in total

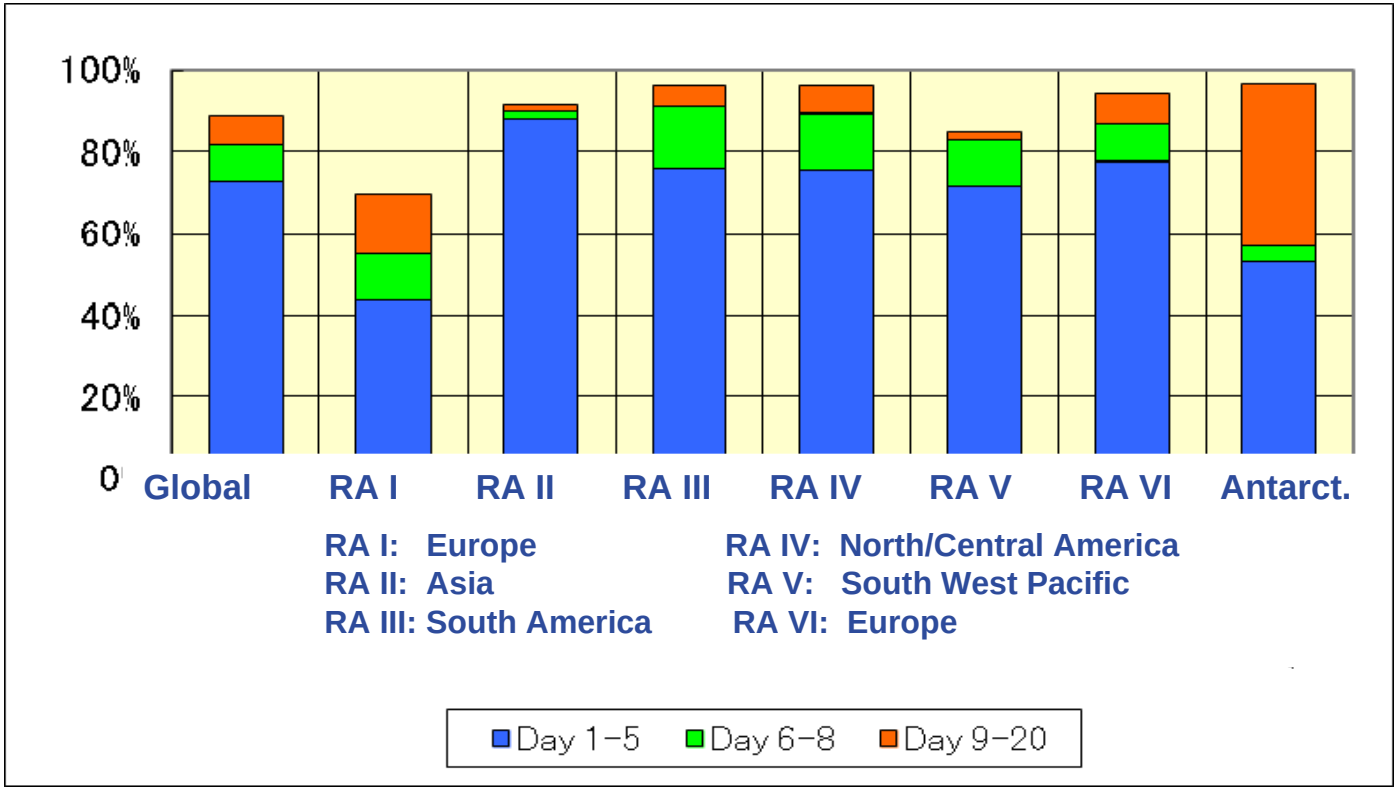
GSNMC Monitoring Results DWD 2012 and 2013





Timeliness: Arrival rate day 1-5, day 6-8, day 9-20

GSNMC Monitoring Results 2012



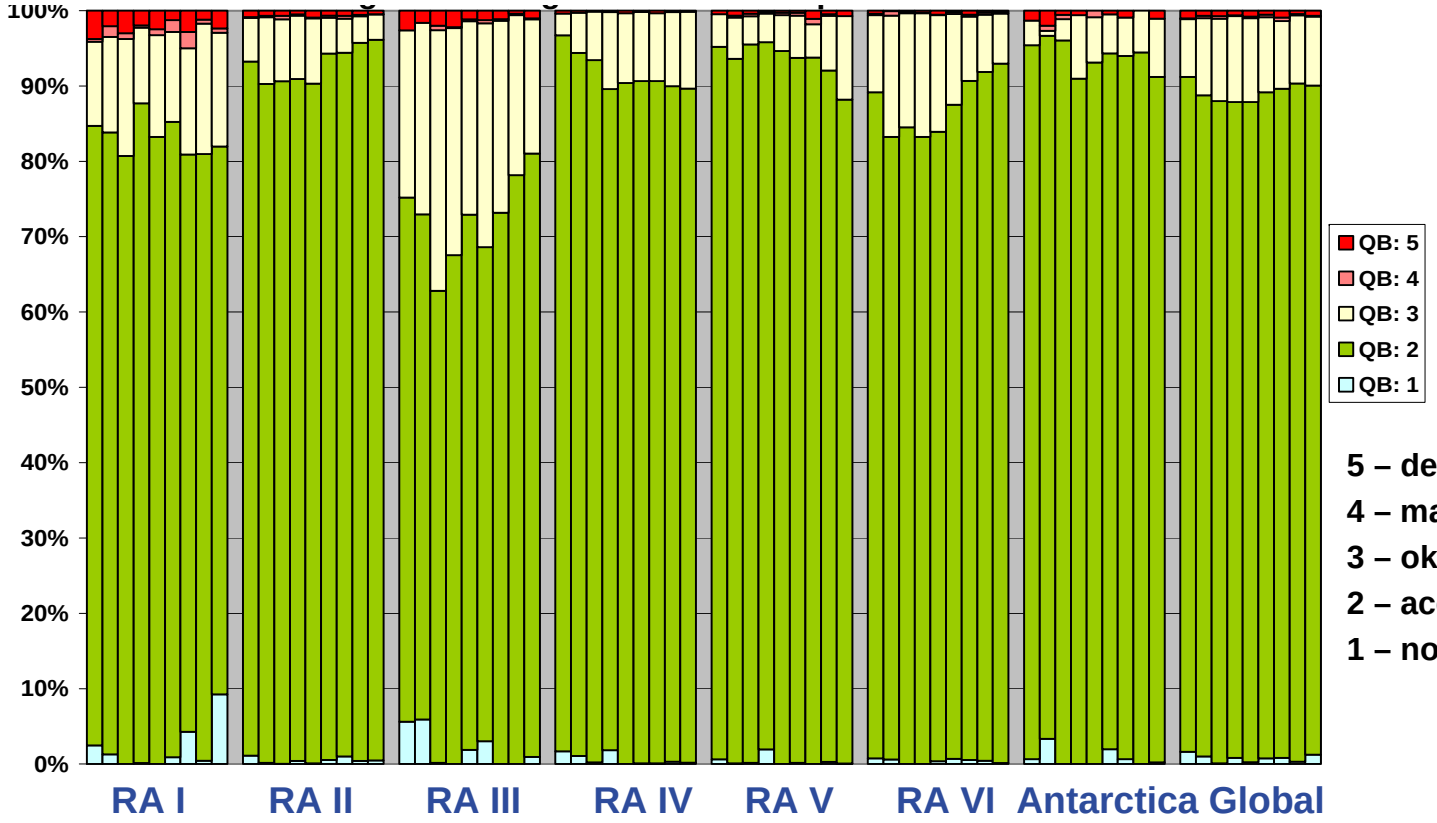
Timeliness of the CLIMAT reports for the GSN stations overall and by region based on harmonized incoming CLIMATs at both GSNMCs over the period January to December 2012

Data Quality in 2012

WMO region	mean Temperature	maximum Temperature	minimum Temperature	Precipitation
RA I	2.8%	3.3%	4.2%	7.5%
RA II	0.5%	1.9%	1.7%	5.2%
RA III	1.5%	2.0%	2.4%	3.6%
RA IV	0.1%	0.3%	0.3%	3.7%
RA V	0.7%	2.5%	2.3%	5.1%
RA VI	0.4%	3.8%	3.0%	2.6%
Antarctica	0.9%	2.2%	2.5%	0.8%
Global	**0.8%**	**2.1%**	**2.1%**	**4.5%**

Rate of erroneous data for temperature elements and precipitation total reported in CLIMAT reports in 2012 for the different regions and overall

QC results for mean air temperature 2004-2012

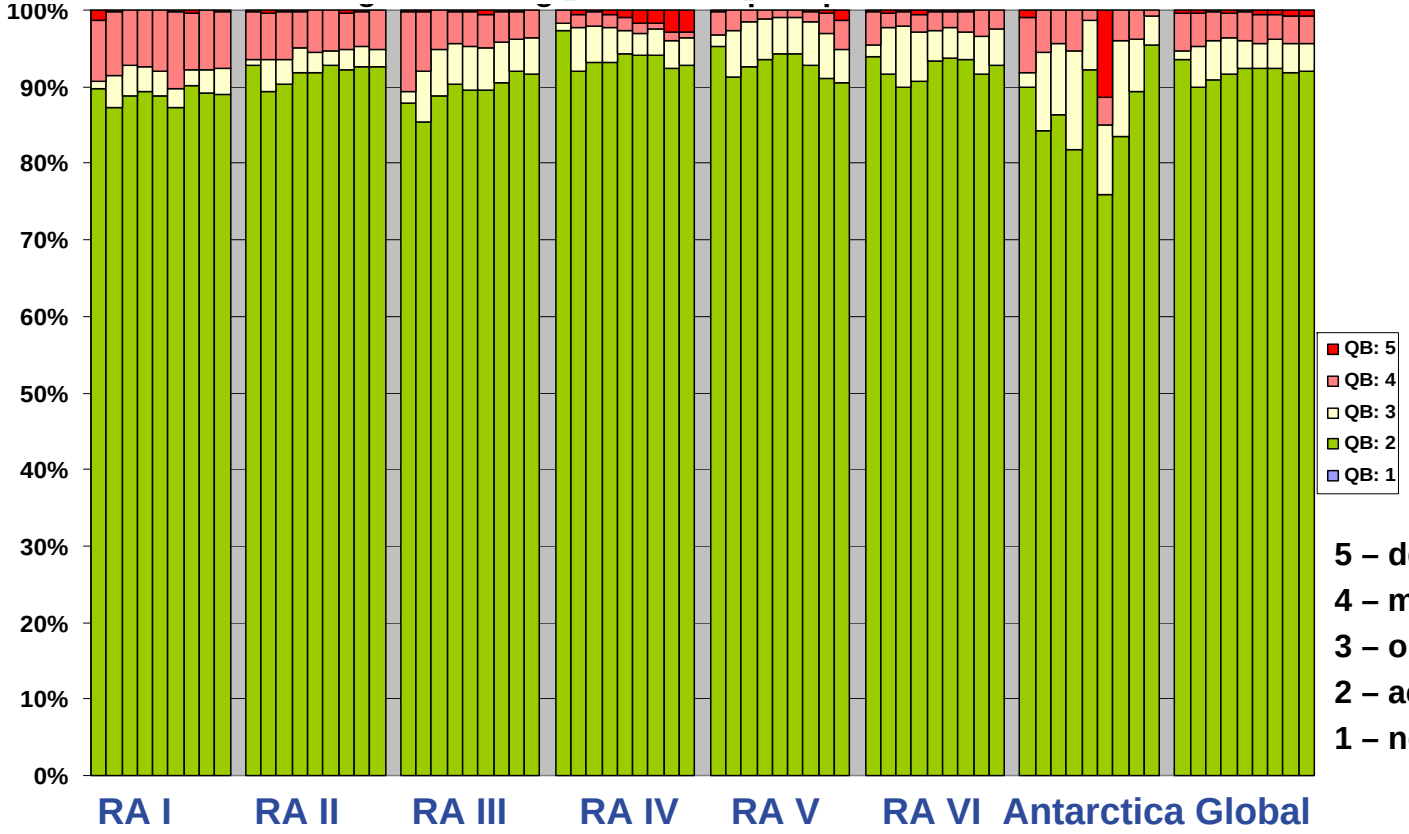


QC-flags:

5 – deleted after manual QC
4 – manually corrected
3 – ok in manual QC
2 – accepted by auto QC
1 – not controlled

QC-flags of mean air temperature (%) in CLIMAT reports for the GSN stations for the different WMO RA's and overall for the years 2004 to 2012 (left to right bar) --> 0.7 % of the mean air temperature data were not correctable (flag 5, "trash")

QC results for precipitation 2004-2012



QC-flags:

5 – deleted after manual QC
4 – manually corrected
3 – ok in manual QC
2 – accepted by auto QC
1 – not controlled

QC-flags of precipitation data (%) in CLIMAT reports for the GSN stations for the different WMO RA's and overall for the years 2004 to 2012 (left to right bar)
--> 0.8% of precipitation data were not correctable (flag 5, "trash"), highest rate in RA IV (2.9%)

Remarks on QC and Data Quality

- The error rate (flags 4 + 5) is much higher for precipitation data (4.5%) than for mean air temperature (0.8%)
- On the other hand most of these errors in the monthly precipitation data can be attributed to the known “factor 10” problem (precipitation amounts reported in 1/10 mm instead of mm) or a coding error (coding monthly precipitation totals <1 mm as 9990-9999), which in almost all cases can be corrected to 1 mm
- The rate of erroneous reports that can not be corrected (flag 5, “trash”) is comparable in mean temperature data (0.7%) and precipitation data (0.8%)

Conclusion and Outlook

- **There is an increasing number of countries reporting CLIMAT in BUFR code besides ASCII format**

- **There are several decisions and recommendations taken by different WMO bodies that need to be considered by the GSNMC in future.**

- **A redesign of the GSNMC homepage is desired but the GSNMC at DWD cannot perform this task.**


Vielen Dank!