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CBS LEAD CENTRES FOR GCOS COORDINATION MEETING

ITEM: 8

GENEVA, SWITZERLAND
10-12 NOVEMBER 2009

Original: ENGLISH

REPORTS FROM GCOS MONITORING CENTRES

Deutscher Wetterdienst (DWD) and Japan Meteorological Agency (JMA)

(Submitted by Christiana Lefebvre, Deutscher Wetterdienst)

Summary and Purpose of Document

This document provides an extract of the 2008 Monitoring Report of the GCOS Surface Network published in co-operation by the GCOS Monitoring Centres, Deutscher Wetterdienst (DWD) and Japan Meteorological Agency (JMA)

ACTION PROPOSED

The meeting is invited to take into account the information provided in the document when discussing 'Reports from GCOS Monitoring Centres' under agenda item 8

GLOBAL CLIMATE OBSERVING SYSTEM
SURFACE NETWORK
MONITORING REPORT

No. 13, March 2009

Monitoring Period: *January to December 2008*

Published in co-operation of
Deutscher Wetterdienst (DWD) and Japan Meteorological Agency (JMA)

Internet access to the GSNMCs under: http://www.gsnmc.dwd.de

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Acknowledgement

A great “thank you” to the staff of DWD and JMA not mentioned here who helped to make this report possible.

Contents

Summary

The GSNMC is providing standardized monitoring products on a routine basis via the Internet (http://www.gsnmc.dwd.de/ ***Please click there on the Union Jack flag for the English version!***).
Products for the evaluation month become available on about the 23rd of the subsequent month. Since the monitoring results are available via Internet the GSNMC Monitoring Reports are being published on an annual basis. This Monitoring Report is covering the period January to December 2008.

The overall availability of CLIMAT reports from the GSN stations (**chapter 3.1**) – after increasing in 2007 to about 80% - shows a further slight increase to somewhat more than 80% in 2008.

There are still large differences in the receipt of CLIMAT reports in 2008 in the different WMO regions (RA's). The percentage of CLIMAT reports received in RA VI (Europe) has increased further to ca. 95%, now reaching the same high level as in RA IV (North and Central America). In RA II (Asia) the percentage of CLIMAT reports received has reached ca. 90%. Data receipt in RA V (South West Pacific) has stayed in 2008 at the 80-85% range, with the exception of a drop to 67% in March 2008. In South America (RA III) the CLIMAT receipt has remained in the range of 60-80%, but with significant month-to-month variations. Large month-to-month variations are also found in Antarctica; while the percentage of CLIMAT reports received is generally in the range 65-70%, it drops sharply in May and Oct. 2008 to only 50% (as in Dec. 2007). Although RA I (Africa) is still the region with the lowest percentage of CLIMAT reports received there has been a further slight improvement in the receipt of CLIMAT reports from 35-50% in 2007 to ca. 40-60% in 2008.

The spatial distribution of the percentage of CLIMAT reports received in 2008 is also shown in **chapter 3.1**. Although CLIMAT reports for the GSN stations should be distributed globally via GTS, reports of some stations are received only at one centre or the other, resulting in differences in the reception rate at JMA and DWD.

The data receipt at both centres is complete for many stations in Western Europe, North America, Japan, Australia, parts of Russia and South America and in China and some other areas. In Mongolia and the adjacent part of Russia to the north the receipt of CLIMAT reports has increased compared to 2007 now reaching 100%. Areas without any CLIMAT reports received at JMA are lying in parts of South America (i.e. Ecuador, Bolivia) and mainly in southern and eastern Africa. DWD received no reports over most parts of Southern Africa (with the exception of South Africa where CLIMAT receipt was complete!).

As a consequence of earlier efforts of DWD, JMA and the GCOS Secretariat to harmonize the receipt of CLIMAT reports at both GSNMCs and several liaisons between CBS Lead Centres for GCOS data and GTS centres the relay of CLIMAT reports via the GTS-RTHs was improved and the differences in receipt at both GSNMCs could be significantly reduced, but some differences in receipt of CLIMAT reports at both GSN Monitoring Centres are still remaining.

According to WMO regulations CLIMAT messages should be disseminated until the 5th day and not later than the 8th of the month following the evaluation month.

With regard to timeliness the proportion of CLIMAT reports received at JMA until the 5th has significantly improved from 35-70% in 2007 to 62-75% in 2008, with the exception of Sept. when only 35% have been received. At DWD the proportion of CLIMAT reports received until the 5th has slightly improved, too, and varies between ca. 62-74%, with the exception of Sept. when only 53% have been received. Still a significant percentage of CLIMAT reports is received between days 6 and 8 and even thereafter (until the cut-off date 20th for GSNMC monitoring).

The differences in timeliness of GSN-CLIMATs in the different regions have also been assessed. While in RA II (Asia) almost all CLIMAT reports are received until the 5th day the proportion of CLIMAT reports received after the 5th day and 8th day is relatively high in RA IV.

The quality of the CLIMAT reports of the GSN stations has been assessed by DWD/GPCC and JMA according to their quality-control (QC) procedures (for details see Annex A IV) and results are given in **chapter 3.2**. The percentage of CLIMAT reports indicated as "good" (flag 2 or 3) or "erroneous" (flag 4 or 5) according to the definition of the quality-flags[1] is given for the years 2003 to 2008. The percentage rate is calculated in relation to the number of stations that have submitted a CLIMAT report (excluding "silent stations").

For monthly mean temperature data, the overall percentage of "good" reports (flag 2 or 3) has remained in 2008 at the 99% level, i.e. only 1% of the data is erroneous (flag 4 or 5). The error rate is highest with ca. 3% for RA I, while it is the lowest with 0.4% for RA IV. In RA's V and VI the error rate is very small, too, with about 0.5%. The portion of erroneous reports that are not correctable (flag 5) is 0.6% overall.
For monthly mean daily maximum and minimum temperature data, the error rates on global average are 1.9% and 2.4% respectively in 2008. They are more than 3% for RA I, while less than 1% for RA VI. They have been improved in RA III and over Antarctica in comparison to 2007.

For the precipitation data the overall percentage of "good" reports is roughly 96%, with the error rate still being highest in RA I with 7.9%. In 2008 the error rate has slightly increased over some regions compared to the previous year; the data quality has improved somewhat in RA V and significantly over Antarctica. The error rate is lowest with less than 1% in RA V. The error rates are also low with about 2.6% in RA IV and RA VI and only 1.4% in Antarctica. However 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 the coding error (coding monthly precipitation totals below 1mm as 9990-9999), which in almost all cases could be corrected to 1 mm. Thus there are almost no "trash" precipitation messages (flag 5) for the GSN stations (only 0.25%).

[1] Quality-flags: 0 – value was not available,
1 – value was not quality-controlled,
2 – value was accepted after automatic QC,
3 – value was flagged after automatic QC, but passed manual check,
4 – value was flagged after automatic QC and manually corrected,
5 – value was flagged after automatic QC and deleted after manual revision (value is trash).

1. Background and Introduction

Background information on the GSNMC has been provided in the earlier monitoring reports, and is also available via the GSNMC web site: http://www.gsnmc.dwd.de (***Please click there on the Union Jack flag for the English version!***)

2. Monitoring Methods

The monitoring methods have been described in earlier monitoring reports and also on the GSNMC web site: http://www.gsnmc.dwd.de (***see above***).

3. Monitoring Results

3.1 Availability and timeliness of CLIMAT reports

After reaching the 80% level in the 2nd half of 2007 the overall availability of CLIMAT reports for the GSN stations has increased somewhat further in 2008 now slightly exceeding the 80% level (Fig. 3.1.1).

There are still large differences in the receipt of CLIMAT reports in 2008 in the different WMO regions (RA's). The percentage of CLIMAT reports received in RA VI (Europe) has increased further to ca. 95%, now reaching the same high level as in RA IV (North and Central America). In RA II (Asia) the percentage of CLIMAT reports received has reached ca. 90%. Data receipt in RA V (South West Pacific) has stayed in 2008 at the 80-85% range, with the exception of a drop to 67% in March 2008. In South America (RA III) the CLIMAT receipt is still showing larger month-to-month variations and has remained in 2008 in the range of 60-80%. Large month-to-month variations are also found in Antarctica in 2008; while the percentage of CLIMAT reports received is generally in the range 65-70%, it drops sharply in May and Oct. 2008 to only 50% (as in Dec. 2007). Although RA I (Africa) is still the region with the lowest percentage of CLIMAT reports received there has been a further slight improvement in the receipt of CLIMAT reports from 35-50% in 2007 to ca. 40-60% in 2008.

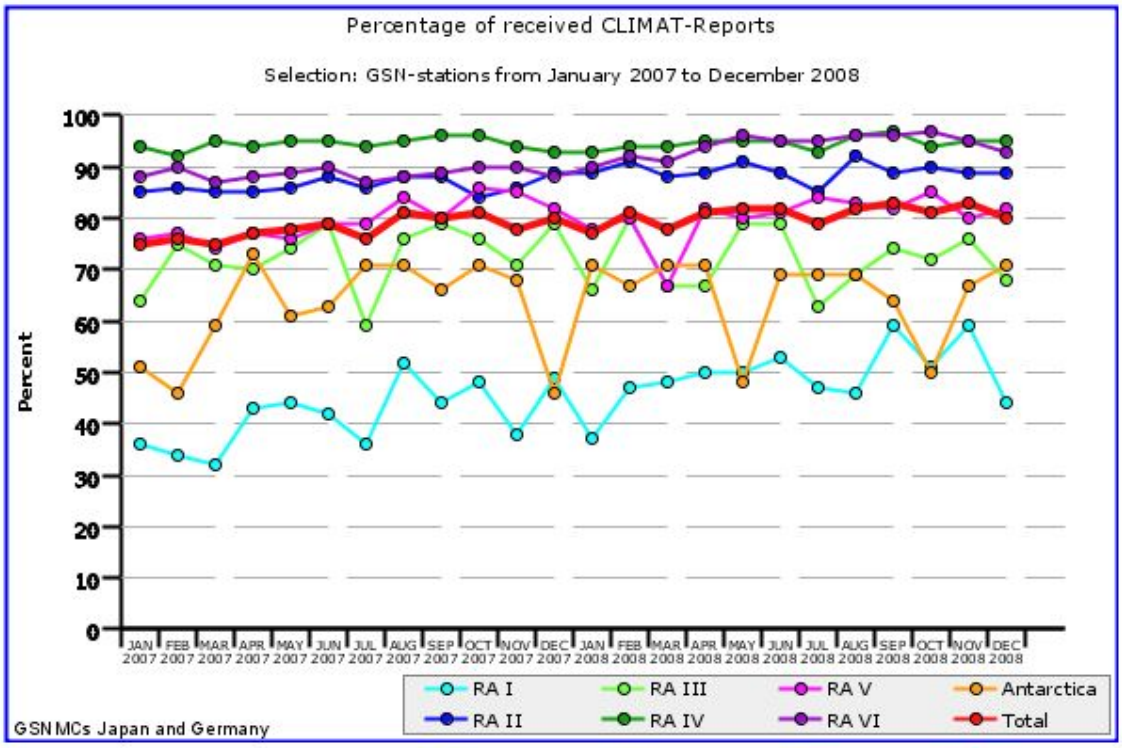
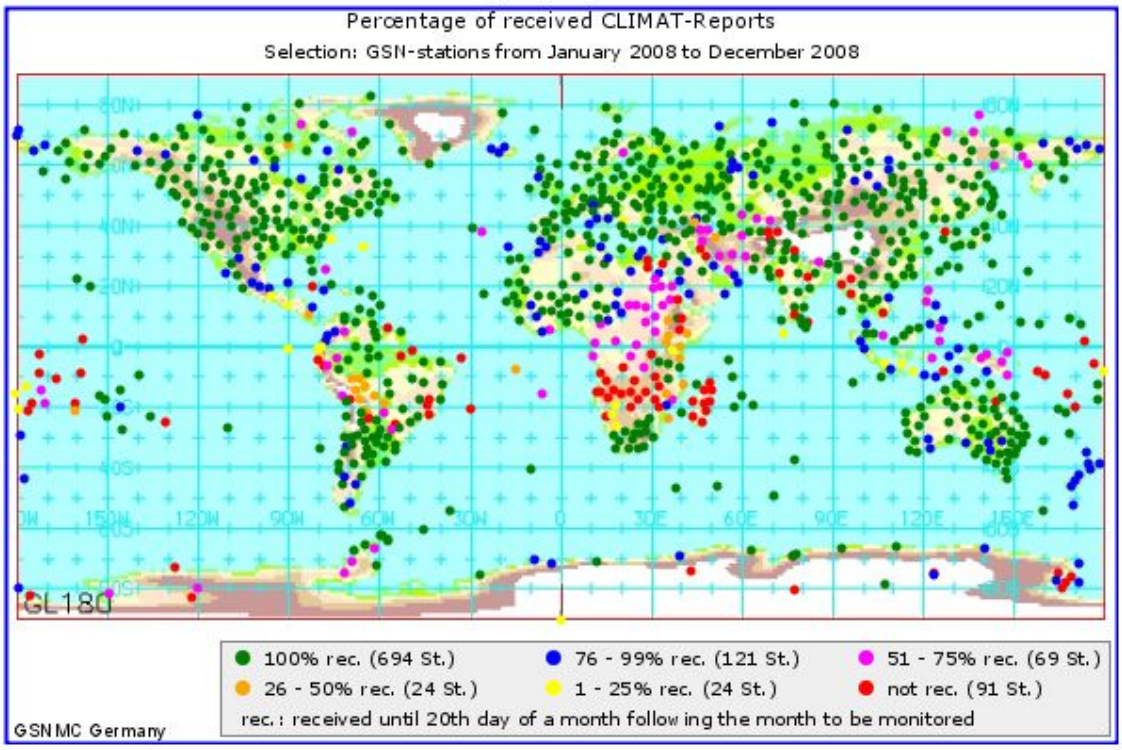


Fig. 3.1.1: *Time-series of the percentage of CLIMAT reports received at DWD and JMA for the GSN-stations over the period January 2007 to December 2008 for the individual WMO RA's and overall.*

Fig. 3.1.2 shows the spatial distribution of the percentage of CLIMAT reports received in 2008 at DWD (top) and JMA (bottom). The data receipt at both centres is complete (100%) for many stations in Western Europe, North America, Japan, Australia, parts of Russia and South America and in China and some other areas. In Mongolia and the adjacent part of Russia to the north the receipt of CLIMAT reports has increased compared to 2007 now reaching 100%.

Areas without any CLIMAT reports received at JMA are lying in parts of South America (i.e. Ecuador, Bolivia) and mainly in southern and eastern Africa. DWD received no reports over most parts of Southern Africa (with the exception of South Africa where CLIMAT receipt was complete!).

While DWD's receipt of CLIMAT reports has slightly improved in Ecuador (a few CLIMAT reports have been received from there), it has decreased somewhat in Bolivia. Mainly over central, eastern and southern Africa (i.e. Gabon, Sudan, Kenia, Mozambique), as well as over parts of South America (i.e. Ecuador, Bolivia) DWD has received more CLIMAT reports than JMA, whereas JMA has received more CLIMAT reports over parts of southern Australia, Indonesia (Java) and the far eastern part of Russia.



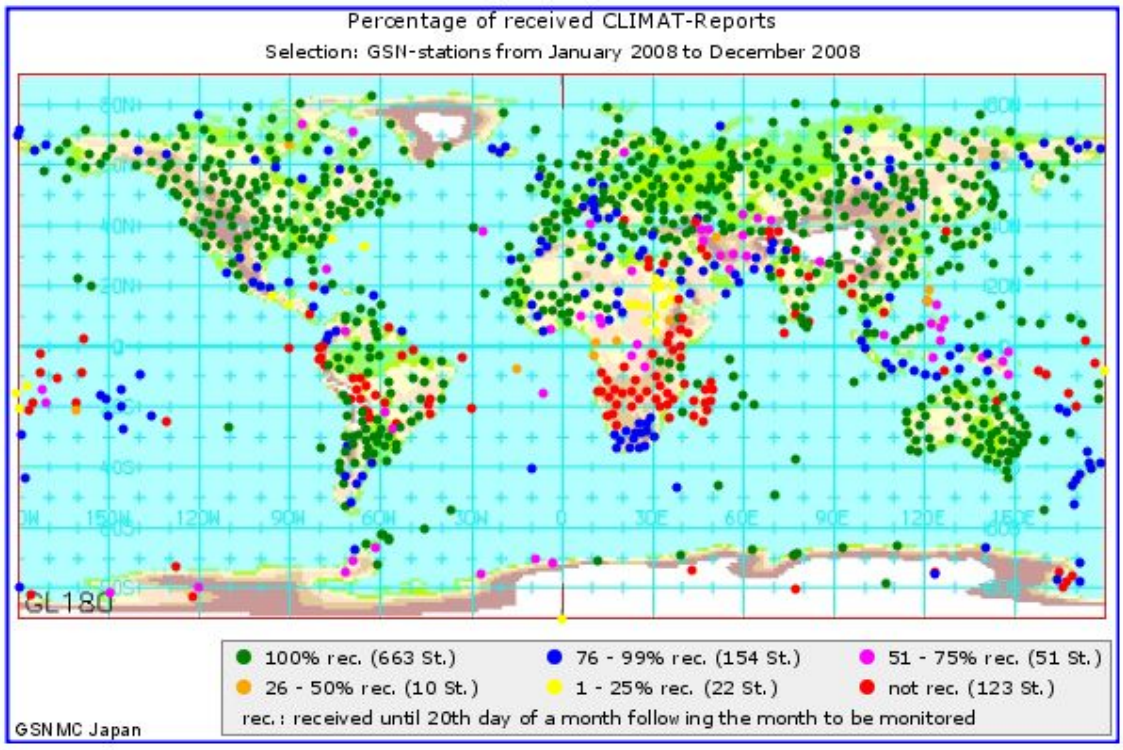


Fig. 3.1.2: *Spatial distribution of the percentage of CLIMAT reports received at DWD (top) and JMA (bottom) for the GSN-stations (1023 stations) over the period January to December 2008.*

After the combined efforts of DWD, JMA and the GCOS Secretariat in 2006/2007 to harmonize the receipt of CLIMAT reports at both GSN Monitoring Centres and several liaisons between CBS Lead Centres for GCOS data and GTS centres the exchange of CLIMAT reports via the GTS-RTHs was improved and the differences in receipt at both centres could be significantly reduced.

However, in 2008 there were still some differences remaining in receipt of CLIMAT reports at both GSN Monitoring Centres as can be obtained from Fig. 3.1.3 showing the receipt of CLIMAT reports for the GSN stations at DWD and JMA separately and overall. This is also reflected in the maps of the spatial distribution of the percentage of CLIMAT receipt for both centres (Fig. 3.1.2) and the above description of the regional differences in the receipt of CLIMAT reports for the GSN stations. For all months in 2008, with the exception of January with JMA receiving some more CLIMAT reports than DWD, DWD received somewhat more CLIMAT reports than JMA.

Due to the regional differences in receipt of the CLIMAT reports the combination of both data sets leads to an improvement compared to the CLIMAT receipt at each one of the GSNMC centres.

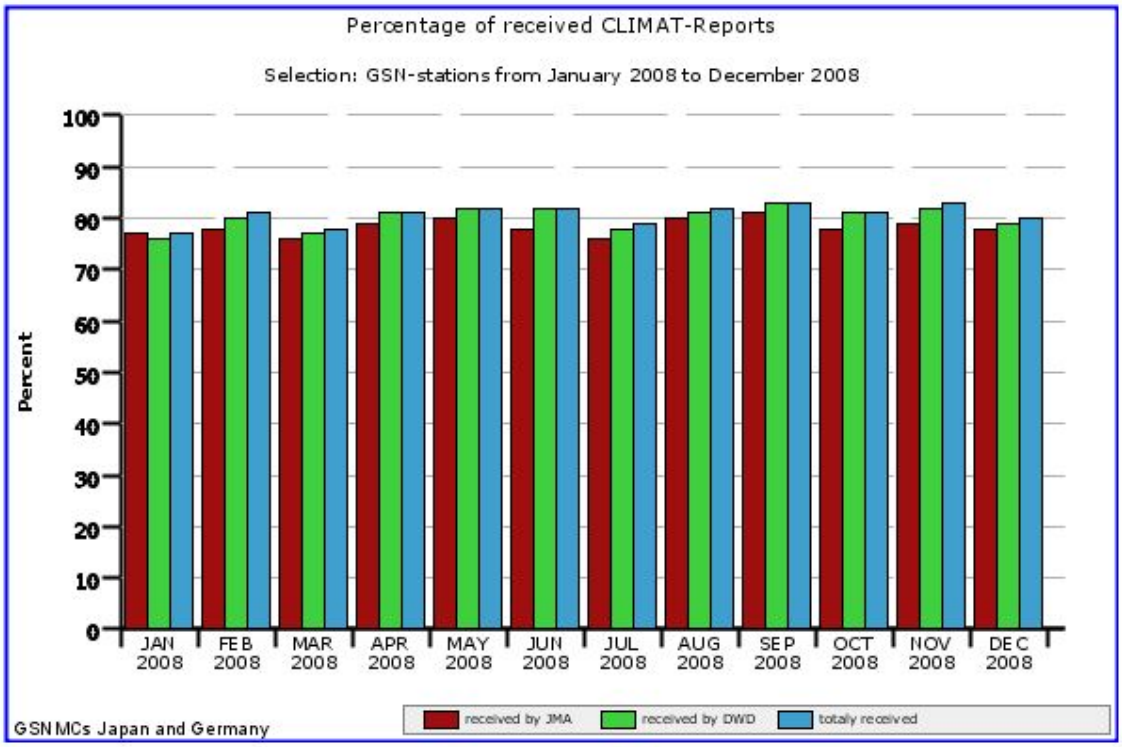
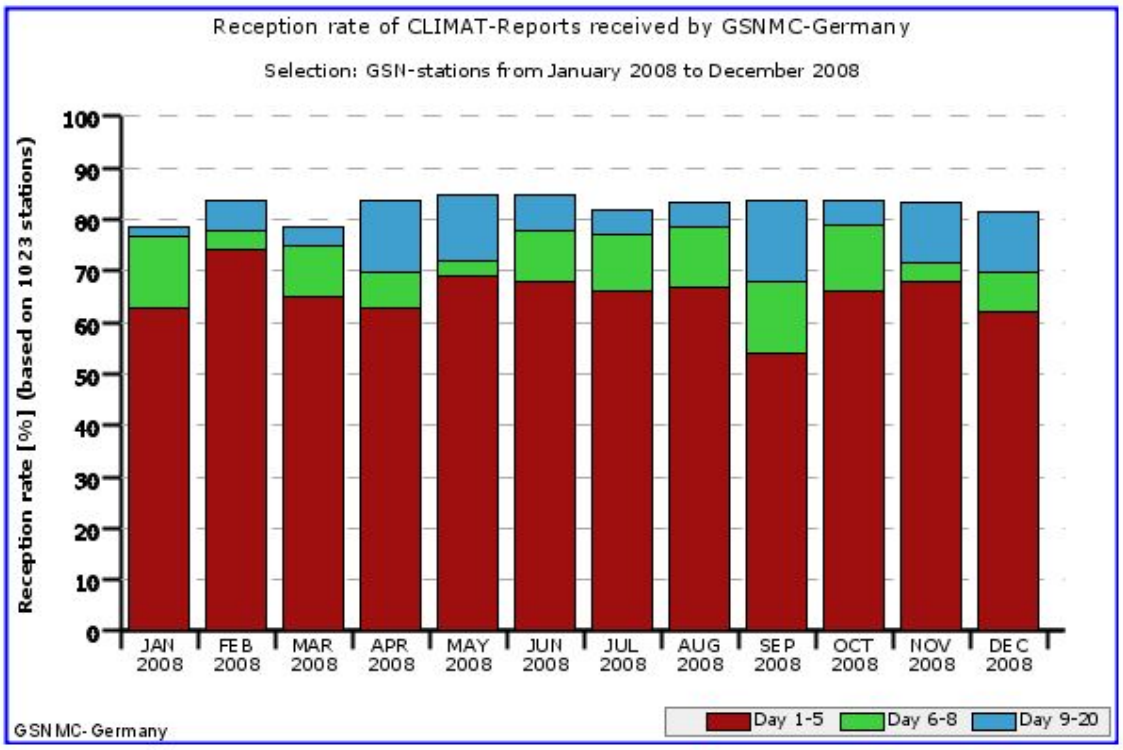


Fig. 3.1.3: *Percentage of CLIMAT reports for the GSN stations received at DWD, JMA and in total over the period January to December 2008.*

According to WMO regulations CLIMAT messages should be disseminated until the 5th day and not later than the 8th of the month following the evaluation month.

Fig. 3.1.4 is showing the timeliness of the received CLIMAT reports. The proportion of CLIMAT reports received at JMA until the 5th has significantly improved from 35-70% in 2007 to 62-75% in 2008, with the exception of Sept. when only 35% have been received (until 5th of October). At DWD the proportion of CLIMAT reports received until the 5th has slightly improved compared to 2007 and varies between ca. 62-74%, with the exception of Sept. when only 53% have been received. Still a significant percentage of CLIMAT reports is received between days 6 and 8 and even thereafter (until the cut-off date 20th for GSNMC monitoring).



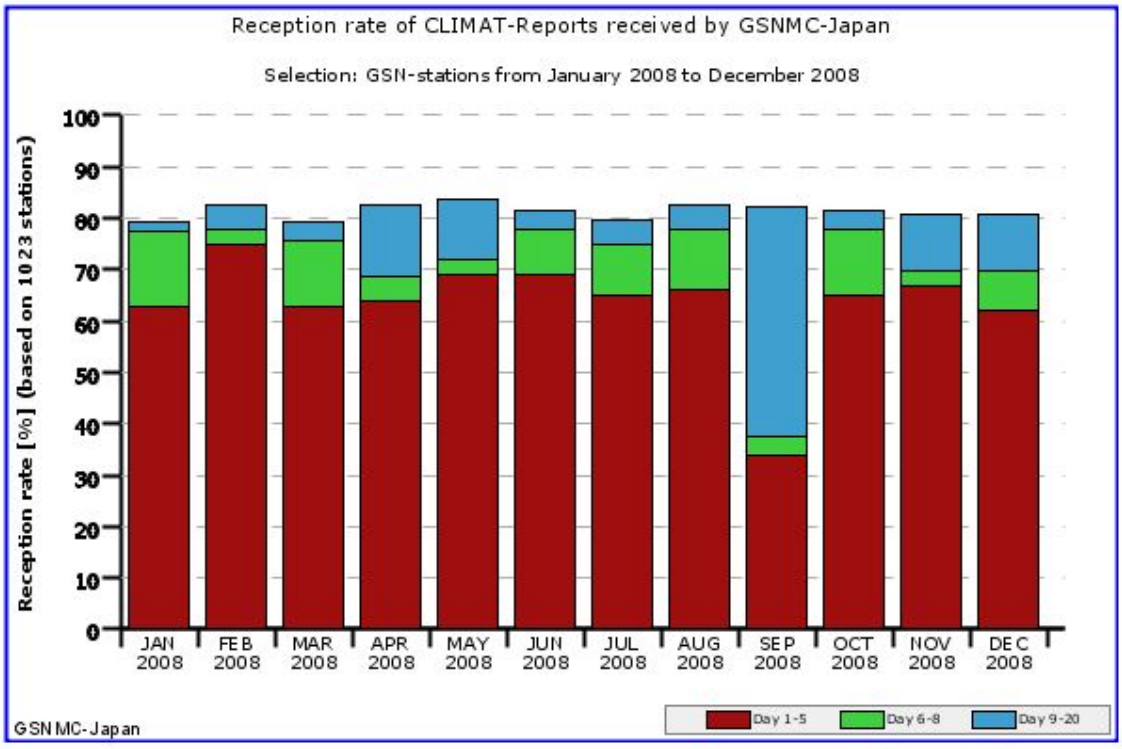


Fig. 3.1.4: *Timeliness of the CLIMAT reports for the GSN stations received at DWD (top) and JMA (bottom) over the period January to December 2008.*

The differences in timeliness of GSN-CLIMATs in the different regions and overall are shown in Fig. 3.1.5 based on harmonized incoming CLIMATs at both GSNMCs. While in RA II (Asia) almost all CLIMAT reports are received until the 5th day (blue bar) the proportion of CLIMAT reports received after 5th day (green-colored bar) and 8th day (orange-colored bar) is relatively high in RA IV.

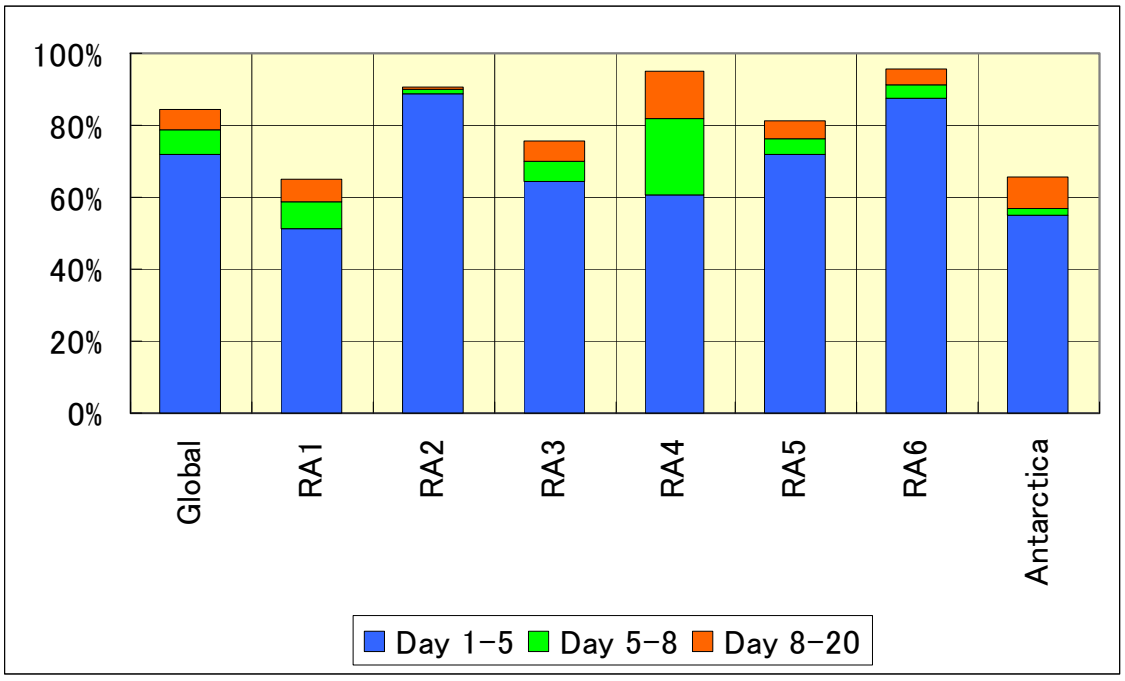


Fig. 3.1.5: *Timeliness of the CLIMAT reports for the GSN stations for the different regions and overall based on harmonized incoming CLIMATs at both GSNMCs over the period January to December 2008.*

3.2 Data Quality

The quality of the CLIMAT reports of the GSN stations has been assessed by DWD/GPCC and JMA according to their quality-control (QC) procedures (the QC procedures have been described in previous monitoring reports and a description is also available on the GSNMC web site at:
http://www.gsnmc.dwd.de ***Please click there on the Union Jack flag for the English version, then click on "more" under "Monitoring methods"!***).

The percentage of CLIMAT reports indicated as "good" (flag 2 or 3) or "erroneous" (flag 4 or 5) according to the definition of the quality-flags is given for the years 2003 to 2008 in Fig. 3.2.1 for mean temperature data and in Fig. 3.2.2 for precipitation data, respectively (a brief description of the quality-flags is given in the footnote on page 2 and in Annex IV). The percentage rate is calculated in relation to the number of stations that have submitted a CLIMAT report (excluding "silent stations").

For monthly mean temperature data, the overall percentage of "good" reports (flag 2 or 3) has remained in 2008 at the 99% level (see Table 1), i.e. only 1% of the data is erroneous (flag 4 or 5). The error rate is highest with ca. 3% for RA I, while it is the lowest with 0.4% for RA IV. This can be also seen from Fig. 3.2.1 showing the development of the percentage of errors in mean temperature data in the CLIMAT reports over the years 2003 to 2008. In RA's V and VI the error rate is very small, too, with roughly 0.5%. The portion of erroneous reports that are not correctable (flag 5) is 0.6% overall.
For monthly mean daily maximum and minimum temperature data, the error rates on global average are 1.9% and 2.4% respectively in 2008. They are more than 3% for RA I, while less than 1% for RA VI. They have been improved in RA III and over Antarctica in comparison to 2007. Two GSN stations in RA VI and one station in RA II reported erroneous monthly mean daily maximum and/or minimum temperature consecutively in 2008; the extreme values of daily maximum (minimum) temperature were reported in spite of monthly mean value in group 4 in section 1 of CLIMAT message.

For the precipitation data the overall percentage of "good" reports is roughly 96%, with the error rate still being highest in RA I with 7.9%. In 2008 the error rate has slightly increased over some regions compared to the previous year; the data quality has improved somewhat in RA V and significantly over Antarctica. The error rate is lowest with less than 1% in RA V. The error rates are also low with about 2.6% in RA IV and RA VI and only 1.4% in Antarctica. However 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 the coding error (coding monthly precipitation totals below 1mm as 9990-9999), which in almost all cases could be corrected to 1 mm. Thus there are almost no "trash" precipitation messages (flag 5) for the GSN stations (only 0.25%).

Table 1: *Rate of erroneous data for temperature-elements reported in CLIMAT reports in 2008 for the different regions and overall*

WMO region	mean Temperature	maximum Temperature	minimum Temperature
RA I	3.1%	3.8%	5.5%
RA II	1.1%	1.9%	1.9%
RA III	1.4%	2.9%	3.2%
RA IV	0.4%	0.3%	0.9%
RA V	0.6%	1.9%	2.9%
RA VI	0.5%	2.7%	2.6%
Antarctica	0.9%	2.3%	1.6%
Global	**1.0%**	**1.9%**	**2.4%**

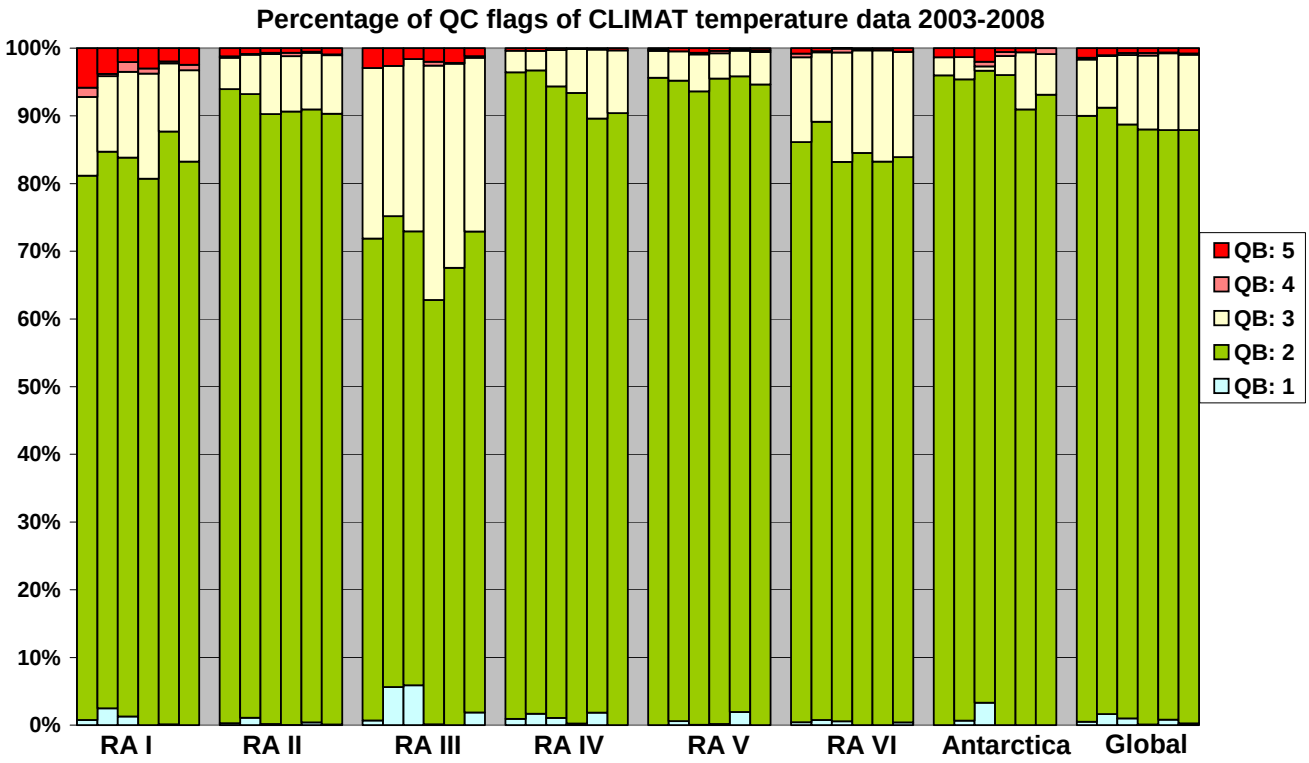


Fig. 3.2.1: *Percentage of mean temperature data in CLIMAT reports for the GSN stations according to the assigned quality-flags for the different WMO RA's and overall separately for the years 2003 to 2008 (left bar to right bar).*

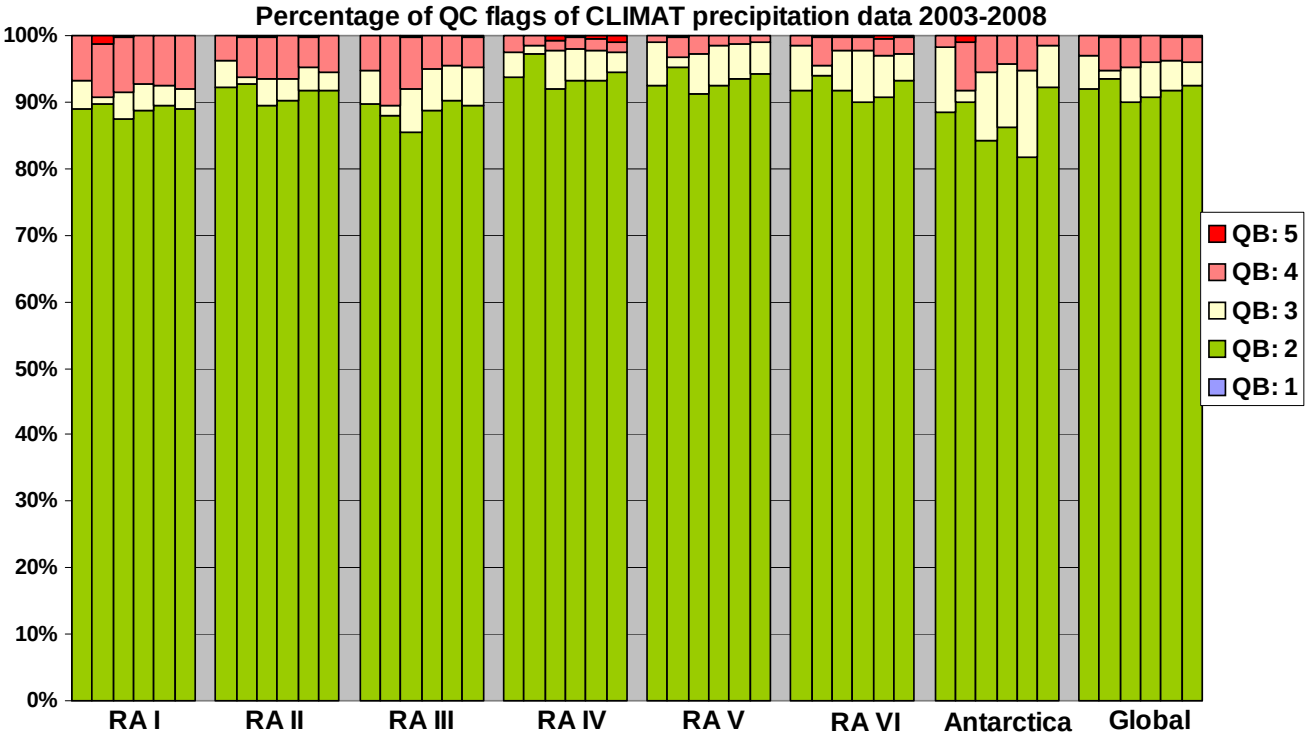


Fig. 3.2.2: *Percentage of precipitation data in CLIMAT reports for the GSN stations according to the assigned quality-flags for the different WMO RA's and overall separately for the years 2003 to 2008 (left bar to right bar)*

4. References

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5. List of Acronyms and Abbreviations

AOPC	-	GCOS/WCRP Atmospheric Observation Panel for Climate
CBS	-	WMO Commission for Basic Systems
CCl	-	WMO Commission for Climatology
DWD	-	Deutscher Wetterdienst
FM	-	Form
GCOS	-	Global Climate Observing System
GIS	-	Geographical Information System
GPCC	-	Global Precipitation Climatology Centre
GSN	-	GCOS Surface Network
GSNMC	-	GCOS Surface Network Monitoring Centre
GTS	-	Global Telecommunication System
ICSU	-	International Council for Science
IOC	-	Intergovernmental Oceanographic Commission of UNESCO
JDIMP	-	GCOS/GOOS/GTOS Joint Data and Information Management Panel
JMA	-	Japan Meteorological Agency
MCSS	-	Marine Climatology Summary Scheme
NAPS	-	Numerical Analysis and Prediction System (JMA)
NMHS	-	National Meteorological and Hydrological Service
QC	-	Quality Control
RA	-	WMO Regional Association
RBSN	-	Regional Basic Synoptic Network
RDBMS	-	Relational Database Management System
SBSTA	-	Subsidiary Body for Scientific and Technological Advice (SBSTA) to the United Nations Framework Convention on Climate Change
UNEP	-	United Nations Environment Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UNFCCC	-	United Nations Framework Convention on Climate Change
WCRP	-	World Climate Research Programme (WMO, ICSU, IOC of UNESCO)
WDC	-	ICSU World Data Centre
WMO	-	World Meteorological Organization
WWW	-	WMO World Weather Watch

Annexes

Annex I Terms and Definitions

A I.1 The CLIMAT Bulletin

A CLIMAT bulletin always starts with an *abbreviated heading* (TTAAii CCCC YYGGgg), with the header identification for CLIMAT 'CS' as 'TT', 'AA' is the country code, 'ii' is the number of the country's CLIMAT bulletin, 'CCCC' is the name of the distributing centre, 'YY' is the day of the month, and 'GG' and 'gg' are the hour and minutes when the bulletin was distributed. 'TTAAii CCCC' is named *bulletin header*. Each bulletin may consist of one or more CLIMAT messages. The variable 'ii' defines the distribution of the bulletin (WMO, 1992):

- ii = 01-19 – global exchange,
- ii = 20-39 – regional and international exchange,
- ii = 40-89 – national and bilateral exchange,
- ii = 90-99 – reserved

A I.2 The CLIMAT Message

CLIMAT messages are used to disseminate climatological data from WMO stations from NHMSs. CLIMAT messages are exchanged in bulletins with the header 'CS' via the GTS or by air mail, and should be transmitted by the 5th day of the following month, but not later than the 8th day (WMO, 1997a).

Although a new CLIMAT code FM71 (WMO, 1993) was introduced by December 1st, 1994, some countries still use the old one for their messages. Compared to the old code (FM71-VI) the new code (FM71-XI) includes considerable extensions. It now consists of four sections, each divided into several groups. The content of the old CLIMAT code (WMO, 1988) is now found in section 1 of the new code and is obligatory published. Up to section 2, groups or even sections shall be omitted, if no data were included.

A I.3 CLIMAT Stations

The list of all CLIMAT stations was derived from WMO Vol. A, regularly updated on the Internet[2]. All stations marked in this list as CLIMAT(C) or CLIMAT(CT) are defined to be CLIMAT stations.

A I.4 GSN Stations

Following the selection process, the GSN stations were grouped into 5 lists (GCOS-34, 1997)

- List A: The final selection, stations that are selected and confirmed by the WMO member country concerned;
- List B: Stand-by list of stations that are selected, but not (yet) confirmed;
- List C: Stand-by list of stations that are, in principle, selected, but the monitoring record is still too short;

[2] ftp://www.wmo.ch/wmo-ddbs/

- List D: Stations that fit in geographically, and could be part of a future extension;
- List E: Stations of high quality, not fitting however geographically (too close to selected stations).

The official GSN station list, which is the base of the monitoring, consists of stations listed in lists A+B. The most recent GSN station list and a map of the GSN stations can be reached via the GSNMC website:
http://www.gsnmc.dwd.de

A I.5 Availability

A CLIMAT message is considered to be available, when in a message (WMO code FM 71, new or old) any month-year indicator and the station-id are identified and the following data is decodable (or 'NIL').

A I.6 Timeliness

According to WMO/CCl recommendations (WMO, 1997a) CLIMAT messages for the preceding month should have been disseminated before the 8th day of each month. The GSNMC has set a cut-off date (the 21st day, at 00:00 UTC) up to which all incoming CLIMAT messages are collected.

A I.7 Completeness

Completeness is checked based on the definition of the CLIMAT (FM71-XI) code, as well as on the number of GSN stations that should have reported. Completeness in the latter sense for all CLIMAT stations is checked, based on stations marked as CLIMAT(C) or CLIMAT(CT) in WMO Vol. A.

A I.8 The GSN Data Set

To provide real-time GSN monitoring and quality control of the data to the user community, the GSNMCs merge monitoring results as well as received CLIMAT messages into one file, the GSN data set. The GSN data set includes information on availability and quality based on the lists produced by the software FORMCHECK and the quality check results at each MC. Results are available from World Data Center A for Meteorology, Asheville, NC. or from the GSNMC Website (http://www.gsnmc.dwd.de)

Annex II Decoding and Error Detection

The change to the new CLIMAT code (WMO, 1993) on December 1st ,1994 caused a considerable increase of random and systematic errors. The Deutscher Wetterdienst (DWD) has a long tradition to generally monitor CLIMAT messages used for the publication “Global Climate Review” within the Marine Climatology Summary Scheme (MCSS). Within this project DWD developed the software ‘FORMCHECK’ for monitoring the CLIMAT messages received via GTS. This software was redesigned, modified, and extended to be used for GSNMC purposes. Both GSNMCs use the same software to make sure that they build on as far as possible identical information bases. This software checks the format of all incoming messages and is able to distinguish between messages in the new and old CLIMAT code, even if both are used within the same bulletin. It is also able to recognise different errors and even to rectify some of them. Results are automatically protocolled. In several steps the software was further improved.

At present ‘FORMCHECK’ is able to recognise the following errors:

- if there are other codes like SYNOP, CLIMAT TEMP or AGRO;
- if the code name CLIMAT is not written in the correct manner like KLIMAT;
- if the code name CLIMAT appears between different station messages;
- if the month and year indicator is not of the actual month, missing or written in the wrong format;
- if the month and year indicator appears between station messages;
- if there is added 50 to the month;
- if the sequence of the month and year indicator and the station number is changed;
- if there is written the month-year indicator of the previous or following month at the position of the station number;
- if the station number or the section number 111 is followed by up to 3 words (NIL, PANNE);
- if the station number is reported twice;
- if a section identifyer is incorrect or given twice;
- if the section identifyer 111 is missing, mutilated or at wrong position;
- if the section identifyer and the prefix of a group are not seperated by a blank;
- if a group in section 1 is missing;
- if there is missing a blank between two groups;
- if there are two groups with the same group indicator standing together, followed by a correct next group;
- if there is a blank within one group;
- if ‘=‘ (end of messages mark) is missing;
- if ‘=‘ (end of messages mark) is written behind every section of a message;
- if ‘NNNN’ (mark of end of the bulletin) is missing if there are errors, which are typical for some countries for example:
  - section identifyer is followed by // or XX
  - parentheses around the sections 2 to 4;
- if there are written typical letter groups instead of figures (which may happen by using mechanic telex machines)

All received CLIMAT messages are written into different lists due to distinctive features like old/new code, right/erroneous or missing month-year indicator. Besides, protocol lists are produced, which contain flags with different meaning for each group

of message and flags indicating that special errors were detected. The automatic control stops within a message if:

- the length of the beginning groups does not fit neither the new nor the old code;
- there are three or more too short groups;
- one or more groups are for more than 1 character too long.

In this case the message is written to an error list and to a protocol list. The whole bulletin including this message is saved into a 'trash' file. These bulletins need to be manually controlled.

In case of groups which are too short, the missing records are filled with blanks at the end up to the expected length.

The following files are produced for every monitored month by 'FORMCHECK':

File No.	Description of Contents
21	decoded CLIMATs of new CLIMAT code and actual month with correct or too short groups
22	decoded CLIMATs of new CLIMAT code with incorrect or missing month and year indicator
23	decoded CLIMATs of old CLIMAT code and actual month with correct or too short groups
24	decoded CLIMATs of old CLIMAT code with incorrect or missing month and year indicator
25	decoded CLIMATs of new CLIMAT code and actual month with groups, which are too long for one character
30	all CLIMAT messages from all received stations regarding • the date of the entry into the Meteorological Data Bank at DWD or JMA • the bulletin header in which the station was reported • different flags which are set for: • the kind of data transmission • the kind of CLIMAT code • the month and year indicator (actual date / missing or erroneous date) • every group of section 1 to 4 • different, frequent errors (mentioned above)
31	all erroneous stations
40	header of all received bulletins. Different flags are set for: • code name CLIMAT missing or spelled incorrectly • CLIMAT TEMP reported or CLIMAT TEMP additional to CLIMAT • month and year indicator missing or incorrect • month + 50 reported • words like PART, PART!, PART1 or 2, PART III detected • additional group between code name CLIMAT and month and year indicator • WMO block code number does not suit the bulletin header id of the sending country
41	bulletins with erroneous header only

Table A II.1: *Monitoring lists produced by 'FORMCHECK' as base for GSNMC products.*

Annex III Availability Monitoring and Performance Indicator

A III.1 Availability Monitoring

To monitor the availability and correctness of format of the incoming CLIMAT messages a cut-off date is set for the 21st day, at 00 UTC of the following month. After that fixed time the programme FORMCHECK sorts the CLIMAT messages received and produces the monitoring lists in **Table AII.1**. Once these protocol lists are generated, another list named LASTCLIMAT is generated from list No. 30. "LASTCLIMAT" contains information about the latest received CLIMAT message of each station, because many stations report several times until the cut-off date. The latest message 'available' is selected assuming that this is the one with the highest quality or least errors. At JMA, the LASTCLIMAT files of DWD and JMA are compared with each other which leads to the generation of the ALLDIFFERENCE and GSNDIFFERENCE files. These lists give information on the status of each station at the two monitoring centres with regard to all CLIMAT stations and GSN stations. In this way, differences in the latest received CLIMAT messages as well as missing stations can be identified, exchanged and monitored every month.

Results are presented in **Chapter 3** of this Monitoring Report.

A III.2 Performance Indicators

At AOPC VI (GCOS/WCRP Atmospheric Observation Panel for Climate) in Geneva, on 10th to 13th April 2000, performance indicators have been proposed as follows:

IIiii CA CC CT CR

IIiii	5 chars	WMO station ID; if not available the first 5 characters of the station name
CA	2 chars	number of months for which a CLIMAT report was received in the last 12 months (until cut-off date 20th)
CC	2 chars	number of months for which a correct CLIMAT report was received in the last 12 months (until cut-off date 20th)
CT	2 chars	number of valid (non-suspect) monthly mean temperature values available in the last 12 months
CR	2 chars	number of valid (non-suspect) monthly precipitation amount values available in the last 12 months

The GSNMCs derived the following definitions for the performance indicators:

Only CLIMAT stations are considered which were sent into bulletins with exchange modes ii<90 in the bulletin's header 'TTAAii CCCC'. The following definitions and rules have been applied for counting "availability" as defined above (**A III.1**):

CA:	CLIMAT messages in new or old code
CC:	CLIMAT messages in new code (FM-71 XI), actual date, no incorrect groups in anyone of the four sections, and without any special errors
CT / CR:	monthly mean temperature / monthly precipitation amount accepted after automatic quality-control or passed manual check

Obviously, there are some countries, which reported GSN stations rather seldom. Other countries still report in old code, so that the parameter CC remains '0', although messages have been sent every month.

Since QC procedures start with a certain delay after collection has finished, some manually rescued data could have been added, so that CT and/or CR could become greater than CC.

The performance indicators for all GSN stations are listed in **ANNEX V.**

Annex IV Quality-Monitoring and Quality-Control

GSNMCs at DWD and JMA started their quality monitoring and quality control in January 2000. To monitor the quality of the CLIMAT messages from GSN stations, each GSNMC is responsible for different parameters. The DWD monitors precipitation-related parameters and JMA monitors temperature-related parameters. Quality control (QC) flags to be applied to suspicious and erroneous parameters of CLIMAT messages from GSN stations are defined and exchanged between both GSNMCs.

QC-Flag	Definition
0	value was not available (no report or unreadable value reported)
1	value was not quality-controlled (either initial value or value could not be checked)
2	value was accepted after automatic quality-control
3	value was flagged after automatic quality-control, but passed manual check
4	value was flagged after automatic quality-control and manually corrected
5	value was flagged after automatic quality-control and deleted after manual revision (value is trash and could not be corrected)

Table A IV.1: *Definition of QC flags*

A more detailed description of the monitoring methods used at both centers is given in the previous Monitoring Reports and on the GSNMC webpage:

http://www.gsnmc.dwd.de (***Please click there on the Union Jack flag for the English version, then click on "more" under "Monitoring methods"!***).

Annex V Performance Indicator

Period: January 2008 to December 2008
Kind of station: GSN Stations (dated: 01 February 2008)
WMO-Region: ----
WMO-Blocknumber: ----
WMO-Stationnumber: ----
Country selection: ----

- CA: number of months for which a CLIMAT report was received in the last 12 months (until cut-off date 20th)
- CC: number of months for which a correct CLIMAT report was received in the last 12 months (until cut-off date 20th)
- CT: number of valid (non-suspect) monthly mean temperature values were available in the last 12 months
- CR: number of valid (non-suspect) monthly precipitation amount values were available in the last 12 months

Stat.	CA	CC	CT	CR
01001	12	11	10	12
01008	12	11	11	12
01026	12	12	12	12
01028	12	12	12	12
01098	12	12	12	12
01152	12	12	12	12
01212	12	12	12	12
01238	12	12	12	12
01403	12	12	12	12
01465	12	12	12	11
02120	12	12	12	12
02196	12	12	12	12
02226	12	12	12	10
02287	7	7	7	7
02410	12	12	12	12
02589	12	12	11	11
02836	12	9	12	12
02935	12	9	12	12
02963	12	9	12	12
03005	12	12	12	12
03026	12	12	12	12
03162	12	12	12	12
03302	12	12	12	12
03377	12	12	12	11
03808	12	12	12	11
03953	12	11	12	12
03980	11	11	12	12
04013	10	10	10	10
04048	10	10	10	10
04063	11	11	12	12
04211	12	12	11	0
04250	12	6	6	4
04320	12	12	12	12
04360	12	11	11	8
04390	12	10	10	8
06011	12	12	12	10
06186	12	12	12	12
06260	12	12	12	12
06680	12	12	11	12
06717	12	12	12	12
07130	12	12	12	12
07190	12	12	12	12
07255	12	12	12	12
07560	12	12	12	12
07630	12	12	12	12
07650	12	12	12	12
08027	12	12	12	12
08181	12	12	12	12
08202	12	12	12	11
08215	12	12	12	12
08280	12	12	12	12
08410	12	12	12	11
08506	12	1	1	1
08512	7	5	7	7
08522	12	12	12	11
08535	12	11	12	9
08583	12	0	0	0
10147	12	12	12	12
10393	12	12	11	12
10962	12	12	12	12
11012	12	12	12	12
11035	12	12	12	12
11146	12	12	12	12
11464	12	12	12	12
11934	12	12	12	12
12120	12	11	12	12
12385	12	12	12	12
12942	12	12	12	12
13577	2	1	1	3
14652	12	7	12	12
15085	12	12	11	12
15280	12	8	12	12
15360	12	11	12	12
16022	11	11	11	8
16134	12	10	12	12
16224	11	0	11	11
16258	11	10	11	11
16550	10	10	10	8
16597	12	12	12	11
16641	12	11	12	11
16723	12	10	12	12
16734	12	10	12	12
16746	12	11	12	11
17040	12	12	12	12
17062	12	12	11	11
17074	12	12	12	12
17090	12	12	12	11
17170	12	12	12	12
17240	12	12	12	12
17375	12	12	12	12
17609	12	12	12	11
20069	12	12	12	12
20087	12	12	12	12
20292	12	12	12	11
20667	12	12	12	12
20674	12	12	12	12
20744	12	12	12	12
20891	12	12	12	12
20982	11	10	11	11
21432	12	11	12	12
21802	12	11	11	11
21921	12	12	11	12
21931	12	11	12	12
21946	12	11	12	12
21982	11	11	11	11
22113	12	9	12	12
22217	12	9	12	12
22471	12	11	12	12
22520	12	12	12	12
22550	12	12	12	12
22602	1	1	1	1
22802	12	12	12	12
22837	12	12	12	12
23074	12	11	12	12
23205	12	12	12	12
23330	12	12	12	12
23383	12	11	12	12
23405	12	12	12	12
23472	12	11	12	12
23552	12	12	12	12

Stat.	CA	CC	CT	CR
23631	12	12	12	12
23678	12	10	11	12
23711	12	12	12	12
23724	12	11	11	11
23884	12	11	12	12
23891	12	11	12	12
23914	12	10	12	12
23933	12	12	12	12
23955	12	10	12	12
24125	12	11	12	12
24143	12	11	12	12
24266	12	11	12	12
24329	12	11	12	12
24343	12	11	12	12
24382	12	11	12	12
24507	12	11	12	12
24641	12	11	12	12
24671	12	11	12	12
24688	12	11	12	12
24738	12	11	12	12
24817	11	11	11	11
24908	12	11	12	12
24959	12	11	12	12
24966	12	11	12	12
25173	11	11	11	11
25248	11	11	11	9
25325	10	10	11	10
25356	11	11	11	10
25399	11	10	11	11
25400	12	11	12	12
25538	12	7	7	6
25551	11	11	11	11
25563	11	11	11	11
25594	10	10	8	10
25705	10	9	10	10
25744	12	10	11	11
25927	10	9	10	10
25954	12	11	12	12
26063	12	12	12	12
26242	12	12	12	10
26359	12	12	12	12
26406	12	0	12	12
26730	12	12	11	11
26781	12	10	12	12
26997	12	11	12	12
27037	12	12	12	12
27051	12	12	12	12
27595	12	12	12	12
27612	12	12	12	12
27648	12	12	12	12
27995	12	11	12	12
28009	12	10	12	12
28064	12	12	12	12
28138	12	10	12	12
28224	12	10	12	12
28275	12	11	12	12
28418	12	10	12	12
28493	12	12	12	12
28552	12	9	12	12
28698	12	12	12	12
28722	12	9	12	12
28952	12	0	12	12
29231	12	11	12	12
29263	12	11	12	12
29282	12	10	11	12
29570	12	11	12	12
29612	12	11	12	12
29789	11	11	11	11
29807	12	0	12	11
29866	12	11	9	12
29939	12	10	12	12
30054	12	11	12	12
30230	11	11	11	11
30309	11	11	10	11
30372	12	12	12	10
30433	12	12	11	12
30554	12	12	12	10
30636	12	12	12	12
30673	12	11	11	10
30710	11	11	10	11
30758	12	12	12	9
30879	12	12	12	11
30925	12	12	12	12
30949	12	12	12	8
30965	12	11	12	11
31004	12	11	11	12
31088	10	9	10	10
31168	12	11	12	11
31253	12	10	12	12
31329	12	11	12	12
31369	12	11	12	12
31416	12	11	12	12
31707	12	10	12	12
31829	12	10	12	12
31873	12	11	12	11
31960	12	11	12	11
32061	12	12	12	12
32098	12	12	12	12
32150	12	12	12	12
32252	12	7	7	7
32389	12	9	11	12
32618	12	11	12	12
33038	12	11	12	12
33317	12	12	12	12
33377	12	12	12	12
33587	12	11	12	12
33815	12	9	10	11
33915	12	12	12	12
33998	12	12	12	12
34123	12	12	12	12
34163	12	12	12	12
34186	12	12	12	12
34866	12	11	12	12
34880	12	11	12	12
34927	12	11	12	12
35011	12	12	12	12
35078	12	7	12	12
35108	12	6	12	12
35394	12	7	12	12
35416	12	6	12	11
35796	12	7	12	10
35849	12	5	12	8
35925	12	0	12	12
36177	12	6	12	12
36259	12	10	11	12
36535	12	6	12	12
36859	12	0	12	12
36870	12	7	12	12
36974	12	11	12	12
37470	12	11	12	12
37545	11	0	11	10
37781	5	5	5	4
37989	7	0	8	8
38001	12	0	12	11
38262	9	9	9	7
38353	12	11	12	12
38413	9	8	9	10
38457	9	9	9	9
38507	12	12	11	12
38750	12	12	12	11
38763	12	12	12	11
38895	12	11	12	12
38915	12	10	12	12
38933	0	0	0	0
38954	0	0	0	0
40001	12	0	10	3
40022	12	0	11	5
40061	12	0	10	10
40199	12	12	12	10
40361	12	11	12	12
40394	11	11	10	9
40430	12	6	9	8
40438	12	4	8	10
40582	0	0	0	0
40665	0	0	0	0
40706	8	3	8	7
40745	9	3	8	6
40754	4	3	4	3
40766	9	3	8	9
40841	8	3	8	7
40848	9	3	9	8
40856	9	3	7	5
40930	0	0	0	0
41024	11	0	8	9
41140	11	0	10	10
41150	11	4	10	10
41196	7	0	5	1
41254	11	11	12	11
41288	11	11	12	12
41316	11	11	11	12
41560	12	11	9	11
41620	12	12	12	12
41640	12	12	12	12
41712	12	12	12	12
41759	12	12	12	12
41764	12	11	12	12
42027	12	10	10	10
42083	0	0	0	0
42165	12	11	11	11
42182	12	11	11	11
42295	12	0	0	0
42410	12	12	12	12
42515	12	12	12	10

Stat.	CA	CC	CT	CR
42539	0	0	0	0
42587	12	0	0	0
42671	12	12	12	11
42731	12	11	11	11
42779	0	0	0	0
43041	12	11	12	12
43063	12	10	10	10
43128	12	12	12	12
43279	12	11	12	11
43295	12	12	12	11
43333	12	11	12	12
43339	0	0	0	0
43363	12	12	12	12
43369	12	12	12	12
43436	0	0	0	0
43466	12	5	12	12
43473	12	4	12	12
43497	12	6	11	12
43555	1	1	1	4
44212	12	11	12	9
44218	12	10	12	7
44231	12	10	11	5
44239	12	11	12	8
44259	12	8	12	7
44272	12	11	11	10
44288	12	11	12	10
44317	12	10	12	11
44341	12	10	12	8
44373	12	11	12	8
44454	9	5	9	8
47014	12	10	12	11
47112	0	0	0	0
47115	12	2	12	12
47165	12	2	12	12
47401	12	12	12	12
47420	12	12	12	12
47582	12	12	12	12
47600	12	12	12	12
47648	12	12	12	12
47778	12	12	12	12
47815	12	12	12	12
47817	12	12	12	12
47927	12	12	12	12
47936	12	12	12	12
47945	12	12	12	12
47971	12	12	12	12
47991	12	12	12	12
48042	0	0	0	0
48062	0	0	0	0
48097	0	0	0	0
48303	12	0	12	12
48400	12	0	12	12
48407	12	1	12	11
48462	12	0	12	12
48500	12	0	12	12
48568	11	0	11	11
48620	12	12	12	11
48657	12	12	12	11
48855	11	6	11	10
48900	0	0	0	0
50527	12	12	12	12
50745	12	12	12	10
51076	12	12	12	11
51463	12	12	12	12
51709	12	12	12	7
51777	12	12	12	9
51828	12	12	12	4
52203	12	12	12	8
52533	12	12	12	9
52836	12	12	12	11
53068	12	12	12	9
53614	12	12	12	8
53772	12	12	12	10
54342	12	12	12	12
54511	12	12	12	8
54857	12	12	12	12
55591	12	9	11	9
56137	12	10	11	9
56187	12	12	11	10
56571	12	12	11	12
56739	12	12	12	11
56985	12	12	12	12
57083	12	12	12	12
57131	12	12	12	11
57461	12	11	11	11
57745	12	12	12	12
57993	12	12	12	12
58362	12	12	12	12
58606	12	12	12	12
59287	12	12	12	12
59316	12	12	12	12
59431	12	12	12	12
59758	12	12	12	12
60010	12	12	11	11
60040	12	12	12	10
60120	11	9	9	9
60195	11	7	8	8
60265	11	10	11	11
60338	12	12	12	12
60390	12	2	12	12
60590	12	8	12	11
60611	12	12	12	11
60680	12	9	12	9
60725	12	12	11	12
60765	12	10	12	12
61017	12	3	10	6
61024	11	4	7	7
61043	12	5	10	11
61096	12	1	4	6
61202	12	0	3	2
61223	12	0	10	7
61250	12	2	3	3
61270	10	2	3	3
61297	12	0	0	0
61401	12	4	6	3
61415	12	4	9	9
61421	12	0	1	5
61450	12	2	6	5
61497	12	2	6	6
61612	12	5	11	11
61641	12	3	11	10
61687	12	0	12	9
61856	12	0	0	0
61901	9	9	10	12
61902	6	0	7	4
61972	12	12	12	12
61974	12	11	12	12
61986	12	11	12	12
61988	12	11	12	12
61990	12	11	12	12
61996	12	12	12	12
61997	12	12	12	12
61998	12	12	12	12
62010	11	9	12	11
62053	12	12	12	11
62124	12	11	12	12
62131	11	10	11	11
62271	10	10	10	10
62306	11	10	11	11
62414	11	8	11	9
62417	11	7	11	10
62420	0	0	0	0
62432	0	0	0	0
62463	0	0	0	0
62600	8	3	5	9
62640	8	4	5	7
62641	7	4	5	7
62650	7	4	5	8
62730	7	2	5	9
62760	7	4	5	9
62762	7	3	5	9
62770	7	0	3	8
62781	7	0	5	9
62840	7	4	3	8
62880	7	2	4	9
62941	7	4	4	9
63021	0	0	0	0
63403	5	2	7	9
63450	12	3	12	8
63453	0	0	0	0
63533	0	0	0	0
63612	4	1	4	4
63624	6	5	5	6
63661	5	3	5	8
63723	4	2	4	5
63740	2	0	1	4
63820	4	4	3	5
63832	12	4	11	12
63862	12	4	12	11
63894	12	6	12	12
63962	12	6	12	12
63980	12	6	11	12
64040	7	0	0	0
64146	7	0	0	0
64282	7	0	0	0
64397	0	0	0	0
64459	8	1	1	1
64503	7	0	0	0
64552	7	0	0	0
64700	12	1	10	10
64706	11	0	0	0
64751	11	0	0	0
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64754	11	0	0	0
64870	7	0	0	0
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65167	12	1	4	4
65306	12	10	11	12
65335	12	8	8	11
65352	12	0	1	1
65501	12	7	12	11
65516	12	8	11	12
65528	11	0	0	0
65585	7	0	1	1
65599	11	0	1	1
66152	0	0	0	0
66160	0	0	0	0
66270	0	0	0	0
66390	0	0	0	0
66410	0	0	0	0
66422	0	0	0	0
66447	0	0	0	0
66460	0	0	0	0
67005	12	12	12	11
67009	0	0	0	1
67019	0	0	0	0
67025	0	0	0	1
67073	0	0	0	1
67083	0	0	0	1
67095	0	0	0	1
67143	0	0	0	0
67161	0	0	0	0
67197	0	0	0	1
67215	6	0	5	2
67283	8	2	7	3
67297	11	1	11	7
67323	6	1	6	1
67441	0	0	0	0
67475	0	0	0	0
67581	0	0	0	0
67633	0	0	0	0
67666	0	0	0	0
67693	5	0	0	0
67743	0	0	0	0
67775	0	0	0	0
67983	0	0	0	0
68014	1	0	0	0
68032	0	0	0	0
68106	0	0	0	0
68110	1	0	0	2
68174	12	10	12	12
68242	12	6	7	7
68262	12	10	10	9
68312	1	0	0	2
68424	12	9	11	10
68438	12	10	11	11
68442	12	11	11	11
68461	12	10	10	10
68512	12	11	11	11
68538	12	9	11	11
68588	12	9	10	10
68618	12	10	11	11
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70341	12	12	12	12
70361	12	12	12	12
70398	12	12	12	12
71017	12	12	8	12
71018	12	12	12	5
71026	12	12	12	12
71029	12	12	12	9
71049	4	4	4	4
71066	12	12	12	12
71069	12	12	12	12
71074	12	12	12	12
71079	12	12	12	12
71101	12	12	12	0
71103	12	12	12	12
71109	12	12	12	12
71120	12	12	12	12
71122	12	12	12	12
71158	12	12	12	6
71160	12	12	12	12
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71199	12	12	12	12
71222	12	12	12	11
71279	12	12	12	12
71288	12	12	12	12
71299	12	12	12	11
71309	12	12	12	12
71320	12	12	12	12
71321	12	12	12	12
71322	12	12	12	12
71332	12	12	12	12
71350	12	12	12	12
71355	12	12	12	12
71356	12	12	12	3
71357	12	12	10	12
71358	9	9	9	0
71361	12	12	12	12
71362	12	12	12	12
71363	12	12	12	12
71364	12	12	12	12
71365	12	12	12	12
71407	12	12	12	12
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71467	12	12	12	12
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71490	12	12	12	11
71550	12	12	12	5
71575	11	11	11	11
71576	12	12	12	12
71585	12	12	12	5
71586	12	12	12	12
71592	7	7	7	7
71600	12	12	12	12
71603	12	12	12	12
71665	12	12	12	1
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71842	12	12	12	12
71844	12	12	12	12
71862	12	12	12	12
71869	12	12	12	12
71894	12	12	1	12
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71907	12	12	12	12
71915	12	12	12	12
71917	12	12	12	12
71923	11	11	5	10
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71950	12	12	12	12
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71984	12	12	12	12
71989	10	10	10	10
71990	11	11	11	5
72201	12	12	12	12
72208	12	12	12	12
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72231	12	12	12	12
72234	12	12	12	12
72248	12	12	12	12
72253	12	12	12	10
72266	12	12	12	10
72270	12	12	12	10
72278	12	12	12	8
72290	12	12	12	10
72304	3	3	2	2
72306	12	12	12	12
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72344	12	12	12	12
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72365	12	12	12	11
72386	12	12	12	8
72389	12	12	12	10
72405	12	12	12	12
72422	12	12	12	12
72432	12	12	12	12
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72556	12	12	12	12
72562	12	12	12	11
72576	12	12	12	12
72578	12	12	12	12
72583	12	12	12	11
72594	12	12	11	11
72613	12	12	12	12
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72654	12	12	12	12
72658	12	12	12	12
72666	12	12	12	12
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74492	12	12	12	12
76225	10	9	10	10
76311	12	12	12	12
76393	10	9	9	9
76405	11	9	11	11
76458	12	12	12	12
76577	11	11	11	11
76644	10	9	10	10
76654	12	12	11	12
76680	11	11	11	11
76692	10	10	10	9
76833	2	1	2	2
78016	1	0	2	2
78073	8	3	8	7
78367	12	12	11	10
78384	0	0	0	0
78388	11	0	10	10
78526	12	12	12	12
78650	5	0	3	3
78767	5	4	4	11
78897	12	12	12	12
78954	12	10	12	0
80001	10	9	10	10
80222	10	8	11	11
80241	8	0	0	0
80259	10	9	11	10
80342	10	9	11	11
80405	12	0	0	0
80423	12	7	10	11
80425	12	8	11	12
80438	12	5	11	11
80450	12	7	10	8
80453	12	4	11	10
80462	12	4	11	12
81202	0	0	0	0
81405	12	12	12	12
82024	12	0	12	11
82106	12	0	12	12
82113	12	0	12	10
82193	0	0	0	0
82331	12	0	12	12
82353	0	0	0	0
82400	0	0	0	0
82410	12	0	12	12
82425	12	0	11	11
82571	12	0	9	10
82586	12	0	12	12
82704	12	0	11	12
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83064	12	0	5	11
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83236	12	0	12	10
83264	12	0	11	11
83361	12	0	3	3
83481	12	0	11	11
83488	0	0	0	0
83498	12	0	12	10
83566	0	0	0	0
83618	12	0	7	12
83650	0	0	0	0
83746	0	0	0	0
83781	12	0	12	12
83827	0	0	0	0
83842	12	0	12	12
83881	12	0	11	12
84008	2	2	2	3
84088	2	2	2	3
84140	2	2	2	4
84270	2	2	2	4
84279	0	0	0	0
84377	12	7	12	12
84444	0	0	0	0
84455	12	8	12	12
84752	12	8	12	11
85041	4	2	4	10
85043	4	2	4	11
85114	4	2	4	11
85141	4	2	4	11
85207	4	2	4	11
85223	4	2	4	11
85230	0	0	0	0
85289	4	2	4	11
85364	4	2	4	10
85365	4	2	4	11
85406	12	8	12	12
85442	12	7	12	9
85469	12	8	12	12
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85577	11	6	11	10
85585	12	8	12	12
85629	12	3	0	10
85743	12	8	11	12
85799	12	10	12	11
85874	12	11	12	11
85934	12	8	12	12
86086	8	4	7	8
86297	8	5	8	8
86330	12	6	11	11
86440	12	6	10	12
86490	12	0	0	0
86565	12	4	12	10
87007	12	11	11	12
87047	12	11	11	9
87065	0	0	0	0
87078	12	9	9	10
87129	12	11	11	12
87155	12	9	10	11
87217	12	9	11	11
87257	12	10	11	10
87270	12	10	11	12
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87803	11	9	10	12
87828	12	7	12	12
87860	11	8	12	12
87925	11	8	12	12
88903	12	12	11	0
88963	12	8	11	12
88968	12	11	11	12
89002	12	12	12	0
89004	11	9	11	0
89009	3	3	4	0
89022	12	12	12	0
89050	12	0	12	12
89055	12	9	11	12
89056	12	7	11	12
89062	12	12	12	0
89063	12	3	12	12
89065	8	8	10	0
89262	9	9	11	0
89266	12	12	12	0
89272	9	7	8	0
89324	7	6	6	0
89327	0	0	0	0
89329	0	0	0	0
89345	9	9	4	0
89376	10	10	10	0
89377	0	0	0	0
89512	12	0	12	11

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89532	12	12	12	0
89564	12	12	12	0
89571	12	12	12	12
89573	0	0	0	0
89574	12	0	10	10
89577	0	0	0	0
89592	12	0	10	11
89606	12	0	11	11
89611	12	12	11	12
89625	0	0	0	0
89642	11	10	11	0
89662	0	0	0	0
89664	0	0	0	0
89744	0	0	0	0
89828	10	10	10	0
89865	0	0	0	0
89866	10	10	10	0
89869	0	0	0	0
89872	10	10	10	0
89879	10	10	9	0
91165	12	12	12	12
91212	12	12	12	12
91285	12	12	12	12
91334	12	12	12	12
91348	12	12	12	11
91366	12	9	12	11
91376	12	12	12	12
91408	12	12	12	12
91413	12	12	12	12
91490	0	0	0	0
91503	0	0	0	0
91517	0	0	0	0
91554	0	0	0	0
91568	0	0	0	0
91577	12	12	12	12
91592	12	12	12	12
91610	0	0	0	0
91631	0	0	0	8
91643	3	0	1	7
91650	12	11	12	12
91652	3	2	2	3
91680	12	10	12	12
91699	1	1	1	1
91701	0	0	0	0
91724	0	0	0	0
91753	3	2	3	3
91765	8	8	8	8
91780	0	0	0	0
91789	0	0	0	0
91802	0	0	0	0
91812	0	0	0	0
91824	9	8	6	0
91831	0	0	0	0
91843	6	5	0	0
91925	12	12	12	12
91929	12	12	12	12
91938	12	12	12	12
91943	12	12	12	12
91945	11	5	7	0
91948	12	12	12	12
91954	12	12	12	12
91958	12	12	12	12
91964	0	0	0	0
92014	8	1	0	4
92035	8	2	0	5
92044	9	2	0	5
93012	11	11	11	11
93292	11	11	11	11
93309	11	11	11	12
93417	11	8	11	11
93615	11	11	11	8
93747	11	11	10	11
93844	11	7	11	11
93947	11	11	11	10
93987	11	11	11	10
93994	11	11	11	10
94100	12	11	11	12
94120	12	12	11	12
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94203	12	12	12	12
94212	12	12	12	12
94238	12	12	12	12
94259	12	5	0	12
94275	0	0	0	0
94287	12	12	12	12
94299	12	12	12	12
94300	12	12	12	12
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94312	12	12	12	12
94317	12	12	12	12
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94367	12	12	12	12
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94403	12	12	12	12
94430	12	12	12	12
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94476	12	12	12	12
94480	12	7	0	12
94485	12	8	0	12
94510	12	12	11	12
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94637	12	12	12	11
94638	12	12	12	12
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94693	12	12	12	12
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94910	12	12	12	12
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95541	12	12	0	12
95625	12	12	11	11
95646	12	10	12	12
95670	12	12	12	12
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95753	12	12	12	12
95784	12	12	12	12
95805	12	11	11	10
95869	12	12	12	12
95916	12	12	12	11
95964	12	12	12	12
96073	10	0	8	10
96145	9	2	8	9
96163	10	1	10	10
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96441	12	12	12	12
96465	12	12	12	12
96491	12	12	12	12
96745	11	6	11	11
96805	10	0	10	10
96925	10	4	9	9
96995	12	12	12	12
96996	12	12	12	11
97014	7	3	7	7
97146	7	0	7	6
97240	10	0	11	8
97340	11	6	11	11
97372	11	1	12	12
97395	0	0	0	0
97502	10	0	11	11
97560	12	0	11	12
97686	9	0	10	10
97690	10	0	11	11
97724	10	2	10	9
97900	10	5	10	9
97980	11	10	11	10
98232	8	1	7	8
98429	1	0	0	0
98430	7	3	5	7
98444	11	6	11	12
98755	11	2	11	11
98836	10	3	9	10
98851	8	3	8	9