

**WORLD METEOROLOGICAL ORGANIZATION  
COMMISSION FOR BASIC SYSTEMS**

**MEETING OF THE EXPERT TEAM ON QUANTITY MONITORING  
OF THE WORLD WEATHER WATCH**

**FINAL REPORT**



**GENEVA, 7 – 9 AUGUST 2000**

## **DISCLAIMER**

### **Regulation 42**

Recommendations of working groups shall have no status within the Organization until they have been approved by the responsible constituent body. In the case of joint working groups the recommendations must be concurred with by the presidents of the constituent bodies concerned before being submitted to the designated constituent body.

### **Regulation 43**

In the case of a recommendation made by a working group between sessions of the responsible constituent body, either in a session of a working group or by correspondence, the president of the body may, as an exceptional measure, approve the recommendation on behalf of the constituent body when the matter is, in his opinion, urgent, and does not appear to imply new obligations for Members. He may then submit this recommendation for adoption by the Executive Council or to the President of the Organization for action in accordance with Regulation 9(5).

## CONTENTS

	<u>Pages</u>
Agenda	ii
Executive summary	iii
General summary of the work of the session	1
List of participants	3
Annex – Plan for Integrated WWW Monitoring	4

## **AGENDA**

1. ORGANIZATION OF THE MEETING
  - 1.1 Opening remarks
  - 1.2 Adoption of the agenda
  - 1.3 Working arrangements
2. REVIEW OF THE NEW PROPOSAL FOR MONITORING PROCEDURES
3. FURTHER CONSIDERATION OF UNRESOLVED ISSUES
4. DEVELOPMENT OF A FINAL PROPOSAL FOR SUBMISSION TO CBS
5. CLOSURE OF THE MEETING

## **Executive Summary**

A procedure is proposed to monitor the quantity and timeliness of data exchanged on the GTS by distributing the work to a number of levels to minimise the impact on any one centre. NMCs, RTHs, RTHs on the MTN, GDPS centres and the WMO Secretariat would each have a specified role and thus share the load in accordance with their responsibilities.

It is recommended that NMCs, based on real-time or Annual Global Monitoring, prepare quarterly summary reports of the monitoring of their national data and forward them to their responsible RTH. Each RTH in the course of its operations should also conduct monitoring on a continuous basis. It is recommended that four times per year each RTH prepare a report compiled from its own statistics of data it has inserted onto the GTS compared with the consolidated reports of the NMCs in its area of responsibility. The Special MTN Monitoring (SMM) was approved by CBS for experimental use beginning in 1995 and became operational in 1997. It is a highly automated monitoring procedure that is carried out four times per year, in February, April, July and October. It is recommended that RTHs on the MTN that do not participate in the SMM produce a report on all of the data received at their centre and pass these reports to the WMO Secretariat for comparison with other MTN centres. Participating GDPS centres should prepare a list of stations whose data could not be decoded and send a copy of this report to the responsible NMC for remedial action. It is also recommended that GDPS centres prepare quarterly reports describing the volume of data received at the centre.

It is expected that as a result of implementation of this monitoring it will be possible to increase the performance of the GTS and the operation of the WWW as a whole. The new procedure will ensure that effective feedback systems are in place and timely enough to contribute to the resolution of short-term problems or outages while also comprehensive enough to allow identification of more subtle problems. It will monitor all observational data types (except radar and satellite) and thus facilitate the evaluation of the impact of Resolution 40 on data exchange. Since this monitoring will provide all information necessary, centres that participate in this Integrated WWW Monitoring will no longer need to conduct Annual Global Monitoring (AGM).

## **1. ORGANIZATION OF THE MEETING**

### **1.1 Opening remarks**

1.1.1 The second meeting of the CBS expert team on quantity monitoring opened at 0900 on Monday, 7 August 2000 in the WMO Secretariat in Geneva. Mr B. Sumner (Australia) chaired the meeting. Mr M. Jarraud, Deputy Secretary-General of WMO opened the meeting on behalf of the Secretary-General and welcomed the experts to Geneva. Mr Jarraud outlined the objectives of the meeting. He noted the primary purpose was to develop a proposal for CBS-XII for improved procedures to monitor the quantity of data exchanged on the GTS.

### **1.2 Adoption of the agenda**

1.2.1 The experts adopted the agenda as reproduced at the beginning of this report.

## **2. REVIEW OF THE NEW PROPOSAL FOR MONITORING PROCEDURES**

2.1 At its last meeting, held 13-17 September 1999 in Geneva, the CBS expert team on quantity monitoring developed a proposal for improved procedures to monitor the quantity of data exchanged on the GTS. The experts agreed that the monitoring should be carried out at a number of levels and that an expanded Special MTN Monitoring (SMM) should form a major component. The first draft of the new monitoring procedures are described in detail in the final report of the meeting.

2.2 The draft procedures were widely disseminated and comments were received from Members. The chairman of the team, working with the Secretariat and consulting with team members through correspondence, refined the proposal and developed a second draft. At the meeting the team considered this draft in the light of comments received to date.

## **3. FURTHER CONSIDERATION OF UNRESOLVED ISSUES**

3.1 The experts considered additional issues concerning the monitoring procedures that should be included in the proposal and included all relevant points in the development of its proposal.

## **4. DEVELOPMENT OF A FINAL PROPOSAL FOR SUBMISSION TO CBS**

4.1 The experts, considering the comments received from experts and members of CBS, further refined the proposal prepared a document for consideration at the next session of CBS in November 2000. The document is provided as an appendix to this report.

## **5. CLOSURE OF THE MEETING**

5.1 The meeting closed on 9 August 2000.

**LIST OF PARTICIPANTS**

<p>AUSTRALIA</p>	<p>Mr Bruce Sumner          Bureau of Meteorology          GPO Box 1289K          MELBOURNE VIC 3001          Australia          Tel: (+613) 9669 4349          Fax: (+613) 9662 1223          Email: b.sumner@bom.gov.au</p>
<p>FRANCE</p>	<p>Christian Testa          Météo-France          42 Avenue Coriolis          31057 TOULOUSE CEDEX          France          Tel: (+33) 5 61 07 81 39          Fax: (+33) 5 61 07 81 09          Email: Christian.Testa@meteo.fr</p>
<p>GERMANY</p>	<p>Karl-Heinz Pollowy          Deutscher Wetterdienst          Zentralamt. Frankfurter Str. 135          D-63067 OFFENBACH          Germany          Tel: (+49 69) 8062 2559          Fax: (+49 69) 8062 3557          Email: karl-heinz.pollowy@dwd.de</p>
<p>INDIA</p>	<p>P. Rajesh Rao          India Meteorological Department          Mausam Bhavan Lodi Road          NEW DELHI 110 003          India          Tel: (+91 11) 462 4486          Fax: (+91 11) 469 9216; 462 3220          Email: raopr@imd.ernet.in</p>
<p>RUSSIAN FEDERATION</p>	<p>Leonid Bezrouk          P.O. Box 51          MOSCOW 123242          Russian Federation          Tel: (+7 095) 255 1477          Fax: (+7 095) 252 5504          Email: bez@mskw.mecom.ru</p>

WMO SECRETARIAT	Mr Pierre Kerherve World Meteorological Organization 7 bis Avenue de la Paix Case postale No. 2300 CH-1211 GENEVA 2 Switzerland Tel: (+41 22) 730-8218 Fax: (+41 22) 730 8021 Email: kerherve@wmo.ch
	Mr David McGuirk World Meteorological Organization 7 bis Avenue de la Paix Case postale No. 2300 CH-1211 GENEVA 2 Switzerland Tel: (+41 22) 730 8241 Fax: (+41 22) 730 8021 Email: mcguirk_d@gateway.wmo.ch



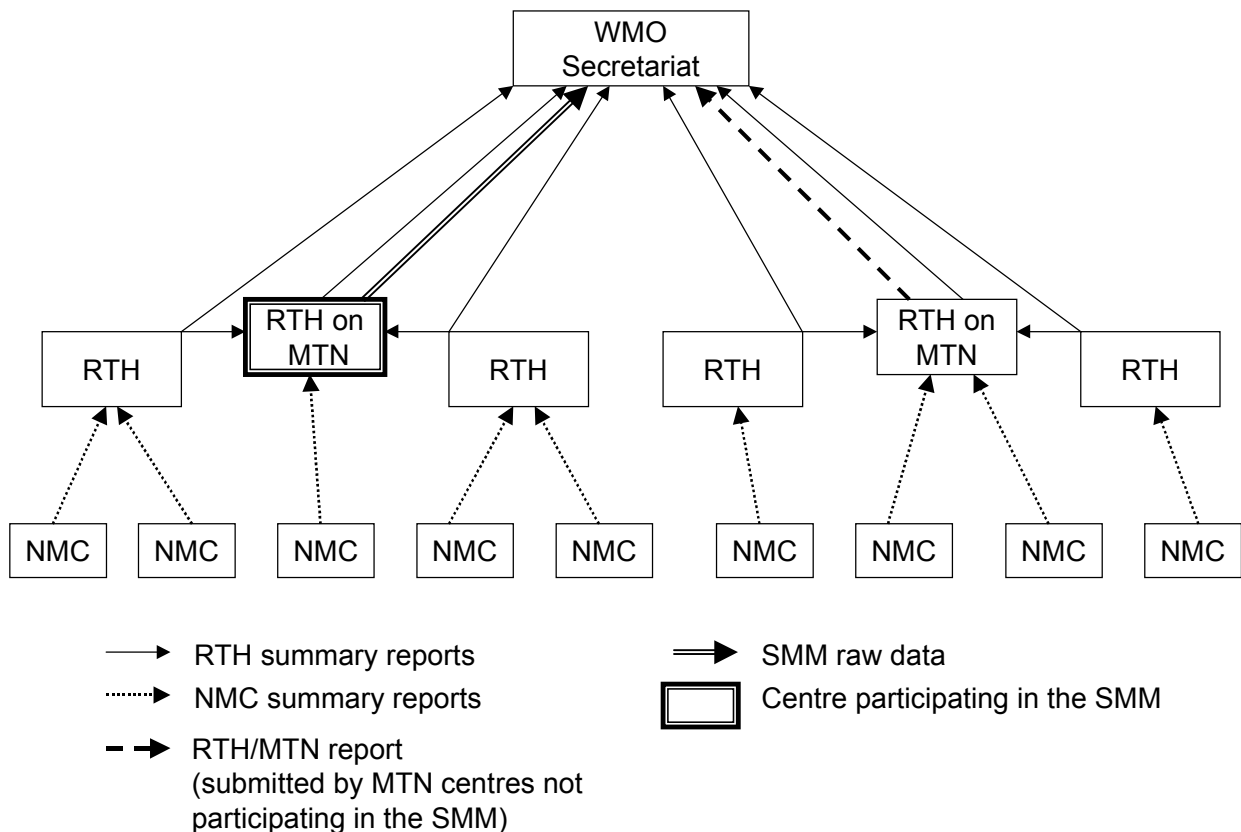
## Integrated WWW Quantity Monitoring

### 1. Introduction

1.1 WWW monitoring has been implemented from the earliest days of the World Weather Watch. The purpose of this monitoring is to detect and facilitate resolution of problems in the operation of the WWW. It should consist of the following actions:

- checking the completeness and timeliness of data collection at NMCs, RTHs and WMCs;
- checking the adherence to WMO coding procedures and telecommunication formats;
- preparing statistics on the status of data collection and distributed on the GTS;
- preparing and distributing reports on data deficiency;
- monitoring the impact of Resolution 40 on the availability of surface synoptic data.

1.2 It has been recognised for some time that this monitoring has not satisfied all of these requirements and that further measures are necessary. One of the main reasons for this is that the resources available at centres for monitoring activities are limited. A procedure is proposed to monitor the quantity and timeliness of data exchanged on the GTS by distributing the work to a number of levels to minimise the impact on any one centre. NMCs, RTHs, RTHs on the MTN, GDPS centres and the WMO Secretariat would each have a specified role and thus share the load in accordance with their responsibilities. An overview of the proposed flow of monitoring information is shown in the figure below.



1.3 In accordance with existing WMO guidelines, real-time operational monitoring of the data exchanged between NMCs and their responsible RTHs should be conducted. To take advantage of the information gleaned from this important activity it is recommended that NMCs, based on real-time or Annual Global Monitoring, prepare quarterly summary reports of the monitoring of their national data and forward them to their responsible RTH.

1.4 Each RTH in the course of its operations should also conduct monitoring on a continuous basis. It is recommended that four times per year each RTH prepare a report compiled from its own statistics of data it has inserted onto the GTS compared with the consolidated reports of the NMCs in its area of responsibility. RTHs should send the reports to the WMO Secretariat and to

their responsible RTH on the MTN. The Secretariat would prepare summaries and statistics based upon the results from all RTHs.

1.5 The Special MTN Monitoring (SMM) was approved by CBS for experimental use beginning in 1995 and became operational in 1997. It is a highly automated monitoring procedure that is carried out four times per year, in February, April, July and October. It involves the collection of raw data files by several RTHs on the MTN and shares the workload between centres and eliminates differences in procedures by having only one centre do a pre-analysis of each type of data. It is recommended that an expanded SMM form one of the major components of the proposed monitoring.

1.6 To ensure the maximum amount of monitoring information is collected, it is recommended that RTHs on the MTN that do not participate in the SMM produce a report on all of the data received at their centre and pass these reports to the WMO Secretariat for comparison with other MTN centres.

1.7 In accordance with their operational responsibilities, GDPS centres routinely monitor the receipt of observational data. It is recommended that participating GDPS centres prepare a list of stations whose data could not be decoded and send a copy of this report to the responsible NMC for remedial action. It is also recommended that GDPS centres prepare quarterly reports, on the same schedule as the NMC/RTH monitoring, describing the volume of data received at the centre. A comparison with the NMC/RTH reports could assist in identifying data or telecommunications problems.

1.8 It is expected that as a result of implementation of this monitoring it will be possible to increase the performance of the GTS and the operation of the WWW as a whole. The new procedure will ensure that effective feedback systems are in place and timely enough to contribute to the resolution of short-term problems or outages while also comprehensive enough to allow identification of more subtle problems. It will monitor all observational data types (except radar and satellite) and thus facilitate the evaluation of the impact of Resolution 40 on data exchange. Since this monitoring will provide all information necessary, centres that participate in this Integrated WWW Monitoring will no longer need to conduct Annual Global Monitoring (AGM).

## **2. Continuous real-time quantity monitoring**

2.1 In order to ensure that all operational data are collected and transmitted over the GTS, many Members conduct real-time monitoring in accordance with the current plan for monitoring the operation of the WWW. However, some Members are not currently conducting monitoring at this level. Furthermore, standard procedures and formats of reports of real-time operational monitoring have not been defined. To assist Members that are not yet conducting this monitoring, recommended procedures for conducting real-time operational monitoring have been developed and are given in the annex to this paragraph.

## **3. Quarterly WWW Monitoring**

### ***Monitoring periods***

3.1 Monitoring should be conducted four times per year for the following periods:

- 1-15 February
- 1-15 April
- 1-15 July
- 1-15 October

February has been selected rather than January to conform to the current requirements for Antarctic Monitoring. The possibility of moving the February monitoring to January should be investigated.

### ***Types of data to be monitored***

3.2 Table A lists all the observational data types that should be monitored, together with the associated  $T_1T_2$  of the Abbreviated Header Line (AHL) and the Data Type Indicator to be used in

the construction of names of report files. Note that observational data in BUFR format also needs to be monitored, since data in this format is now being transmitted.

**Table A – Data subject to monitoring and corresponding report file data type indicators**

Type of data	T <sub>1</sub> T <sub>2</sub>	Data type indicator
SYNOP	SM, SI, SN	SY
TEMP part A	US	TT
PILOT part A	UP	PP
CLIMAT	CS	CL
CLIMAT TEMP	CU	CT
SHIP	SM, SI	SH
SHIP TEMP	US	TS
SHIP PILOT	UP	PS
BUOY	SS	BU
BATHY, TESAC, TRACKOB, WAVEOB	SO	BT
AIREP (CODAR)	UA	AI
AMDAR	UD	AM
BUFR aircraft reports	IUA	BA
BUFR wind profiler	IUP	BP
Other BUFR data	All observational data transmitted in BUFR (except radar and satellite)	To be allocated as required

Notes:

- a. Land-based and ocean-based data need to be separated by use of the geographic designator A<sub>1</sub>A<sub>2</sub> of the AHL.
- b. At first, monitoring will be limited to Part A of TEMP and PILOT reports. However, it is recommended that this be expanded to include Parts B, C and D as resources permit.

### **Monitoring Reports**

3.3 To participate in the Integrated WWW Monitoring, each NMC and every RTH should compile reports four times per year, once for each monitoring period. The reports should be transmitted to the receiving centre as text format data files grouped by data type. For the NMC and RTH Quarterly Monitoring, described later in this section, the names of the files should consist of Month(2 digits), Year(2 digits), NMC or RTH(CCCC), Data Type indicator (2 characters, see Table A) with an extension of TXT. The details of the file names and formats for the Special MTN Monitoring are described in section 3.8.

3.4 The contents of the quarterly monitoring reports must necessarily depend upon the data type as follows:

- a. SYNOP - number of reports available within 60 minutes after the observation time and the total number available
- b. Part A of TEMP and PILOT - number of reports available within 120 minutes after the main synoptic hours (00, 06, 12 and 18 UTC) and the total available
- c. BUOY, BATHY, TESAC, TRACKOB, WAVEOB, AIREP and AMDAR - number of bulletins and reports compiled from 2100 to 0259 UTC, 0300 to 0859 UTC, 0900 to 1459 UTC and 1500 to 2059 UTC
- d. SHIP, TEMP SHIP, PILOT SHIP - number of bulletins and reports available for each observation time
- e. CLIMAT and CLIMAT TEMP – station identifiers for all relevant stations and an indication of whether or not they were available during the monitoring period
- f. BUFR – report content should be based upon the type of data contained in the message.

### 3.5 NMC Quarterly Monitoring

3.5.1 Real-time operational monitoring of the data exchanged between NMCs and their responsible RTHs should be conducted. At the end of each of the four periods of the Integrated WWW Monitoring periods, each NMC should provide reports on the observational data available at the centre during the monitoring period (first 15 days of the month). If an NMC prefers it can send reports based on the summaries it had prepared for the AGM (but run 4 times per year). The reports, in digital format, should be forwarded to the centre's responsible RTH as soon as possible, preferably within 10 days.

3.5.2 The report should be based on the information collected in the real-time quantity monitoring (see paragraph 2.1).

3.5.3 Each report shall consist of a number of data lines organised into files defined by data type and formatted as given below. All fields would be surrounded by double-quotation marks (") and separated by commas.

#### a. SYNOP

Station Index Number	Hour UTC	Number of reports available	
		Within 60 minutes	In total
5 digits	2 digits	digits	digits

Example contents of file "1001EBBRSY.TXT" (October 2001 SYNOP for EBBR)

"06400","00","12","15"  
 "06400","12","15","15"  
 "06401","00","14","15"  
 "06401","06","12","15"  
 "06401","12","15","15"  
 "06401","18","10","13"

#### b. TEMP and PILOT

Station Index Number	Hour UTC	Number of reports available	
		Within 120 minutes	In total
5 digits	2 digits	digits	digits

Example contents of file "1001EBBRTT.TXT"

"06400","00","15","15"  
 "06400","12","15","15"  
 "06401","00","14","15"  
 "06401","06","15","15"  
 "06401","12","15","15"  
 "06401","18","14","14"

#### c. BUOY, BATHY, TESAC, TRACKOB, WAVEOB, AIREP and AMDAR

Monitoring reports should list the number of bulletins and reports compiled from 2100 to 0259 UTC, 0300 to 0859 UTC, 0900 to 1459 UTC and 1500 to 2059 UTC with one data line per time period.

Each data line will contain the ending time of the compiled period **rounded up** to the nearest hour. For example, data compiled from 2100 to 0259 would be indicated as hour 03.

AHL	Ending hour UTC of time period	Number of bulletins available	Number of reports available
TTAAii CCCC	2 digits	Digits	digits

Example contents of file "1001LFPWBT.TXT"

"SSVX01 LFPW","03","24","163"  
 "SSVX01 LFPW""09","25","115"  
 "SSVX01 LFPW""15","88","211"  
 "SSVX01 LFPW""21","22","134"  
 "SSVX13 LFPW""03","45","173"  
 "SSVX13 LFPW""09","34","414"  
 "SSVX13 LFPW""15","10","192"  
 "SSVX13 LFPW""21","33","135"

d. SHIP, TEMP SHIP, PILOT SHIP

AHL	Hour UTC	Number of bulletins available	Number of reports available
TTAAii CCCC	2 digits	Digits	digits

Example contents of file "1001LEMMTS.TXT"

"USVA01 LEMM","00","22","134"  
 "USVA01 LEMM","06","24","163"  
 "USVA01 LEMM","12","25","115"  
 "USVA01 LEMM","18","88","211"  
 "USVA13 LEMM","00","33","135"  
 "USVA13 LEMM","06","45","173"  
 "USVA13 LEMM","12","34","414"  
 "USVA13 LEMM","18","10","192"

e. CLIMAT, CLIMAT TEMP

Station Index Number	Available at the NMC
5 digits	1 = yes, 0 = no

Example contents of file "1001EBBRCL.TXT"

"06400","1"  
 "06401","1"

f. BUFR

Format appropriate to the type of data in the report (e.g. reports of BUFR aircraft observations will be in the format as described in c above).

### 3.6 RTH quarterly monitoring

3.6.1 Four times per year every RTH, including RTHs on the MTN, should provide monitoring reports on the availability of observations within its area of responsibility. The reports should list the number of observations reported as available by the associated NMCs in their quarterly reports (defined in section 3.5) compared with the number of observations received at the RTH during the monitoring period. The reports should be sent to the Secretariat **and** to the RTH's associated RTH on the MTN as quickly as possible, preferably within 10 days.

3.6.2 Each report shall consist of a number of data lines organised into files defined by data type and formatted as given below. All fields would be surrounded by double-quotation marks (") and separated by commas.

a. SYNOP

Station Index Number	Hour UTC	Number of reports reported as available by the NMC versus the number received by the RTH			
		NMC		RTH	
		Within 60 minutes	In total	Within 60 minutes	In total
5 digits	2 digits	digits	digits	digits	digits

Example contents of file "1001LFPWSY.TXT"

"07141","00","12","15","12","15"  
 "07141","06","15","15","15","15"  
 "07141","12","14","15","14","15"  
 "07141","18","8","14","8","13"  
 "07145","00","14","15","14","15"  
 "07145","06","15","15","15","15"  
 "07145","12","12","15","12","15"  
 "07145","18","14","14","14","14"

b. TEMP and PILOT

Station Index Number	Hour UTC	Number of reports reported as available by the NMC versus the number received by the RTH			
		NMC		RTH	
		Within 120 minutes	In total	Within 120 minutes	In total
5 digits	2 digits	digits	digits	digits	digits

Example contents of file "1001LFPWTT.TXT"

"07110","00","15","15","15","15"  
 "07110","12","15","15","15","15"  
 "07145","00","14","15","14","15"  
 "07145","12","12","15","12","15"

c. BUOY, BATHY, TESAC, TRACKOB, WAVEOB, AIREP and AMDAR

Reports contain the number of bulletins and reports compiled from 2100 to 0259 UTC, 0300 to 0859 UTC, 0900 to 1459 UTC and 1500 to 2059 UTC with one data line per time period. Each data line will contain the ending time of the compiled period **rounded up** to the nearest hour. For example, data compiled from 2100 to 0259 would be indicated as hour 03.

AHL	Ending hour UTC of time period	Number of reports reported as available at the NMC versus the number received by the RTH			
		NMC		RTH	
		Number of bulletins	Number of reports	Number of bulletins	Number of reports
TTAAii CCCC	2 digits	digits	digits	digits	digits

Example contents of file "1001LFPWBT.TXT"

"SSVX01 LFPW","03","24","163","24","163"  
 "SSVX01 LFPW ","09","25","115","24","115"  
 "SSVX01 LFPW ","15","88","211","88","211"  
 "SSVX01 LFPW ","21","22","134","22","134"  
 "SSVX13 LFPW ","03","45","173","45","171"  
 "SSVX13 LFPW ","09","34","414","34","414"  
 "SSVX13 LFPW ","15","10","192","10","192"  
 "SSVX13 LFPW ","21","33","135","33","135"

d. SHIP, TEMP SHIP, PILOT SHIP

AHL	Hour UTC	Number of reports reported as available at the NMC versus the number received by the RTH			
		NMC		RTH	
		Number of bulletins	Number of reports	Number of bulletins	Number of reports
TTAAii CCCC	2 digits	digits	digits	digits	digits

Example contents of file "1001LFPWTS.TXT"

"USVF01 LFPW ","00","22","134","21","134"  
 "USVF01 LFPW ","06","24","163","24","163"  
 "USVF01 LFPW ","12","25","115""25","113"  
 "USVF01 LFPW ","18","88","211","88","211"  
 "USVF13 LFPW ","00","33","135","33","135"  
 "USVF13 LFPW ","06","45","173","44","173"  
 "USVF13 LFPW ","12","34","414","34","414"  
 "USVF13 LFPW ","18","10","192","10","191"

e. CLIMAT, CLIMAT TEMP

Station Index Number	Reported by the NMC	Received by the RTH
5 digits	1 = yes, 0 = no	1 = yes, 0 = no

Example contents of file "1001LFPWCL.TXT"

"07110","1","1"  
 "07145","1","0"

f. BUFR

Format appropriate to the type of data in the report

**3.7 RTH/MTN quarterly monitoring**

3.7.1 In addition to the RTH quarterly monitoring reports produced by every RTH, it is recommended that RTHs on the MTN that do not participate in the SMM (described below) also produce a report on all of the data received at their centre and pass these reports to the WMO Secretariat for comparison with other MTN centres. The report should monitor all data of all of the types listed in Table A that are received at the RTH. The formats and file names of the reports should conform to those defined for the NMC quarterly reports in section 3.5.

**3.8 Special MTN monitoring (SMM)**

3.8.1 The SMM involves the collection of raw data files by several RTHs on the MTN. It is recommended that there be at least one MTN centre from each Region participating. It is hoped that the centres currently involved in the SMM would continue to participate and that additional MTN centres in Regions III and IV agree to participate. Furthermore, additional MTN centres that are prepared to collect data on a global basis are encouraged to participate in the SMM.

3.8.2 All bulletins, with indicators ii = 01-39, matching the data types given in Table A, should be monitored by each centre. This is a modification to the current SMM, where only certain centres monitor certain data types. It is proposed that all centres monitor all of the data types specified in Table A. All bulletins containing observations designated as "additional" as defined in Resolution 40 (Cg-XII) should be included in the monitored data set regardless of their ii.

**Format of presentation of the set of collected messages ("raw data")**

3.8.3 The format of the messages should be in international alphabet No. 5. The complete message, including the starting line, the abbreviated header, the text and the end-of-message signal should be included.

3.8.4 The time of reception of each bulletin and the location indicator CCCC of the centre from which the bulletin was received or which inserts the bulletin onto the GTS, should be given before the starting line of each bulletin in the format YYMMDDHHmmCCCC, where:

YY = last two digits of year  
MM = month  
DD = day  
HH = hour  
mm = minute  
CCCC = location indicator of the monitoring centre as given in WMO  
Publication No. 9 - Volume C1.

3.8.5 The raw data files should be grouped by data type. Some data types will result in very large data sets, for example 15 days of synoptic data will be in excess of 50Mb. Such data types should be sub-divided into daily sets of data.

3.8.6 The names of the raw data files should conform to the format CCCCTTYY.EXT, e.g. RJTDSY02.ASC for SYNOP messages for day 2 collected by RTH Tokyo, where:

CCCC = Location indicator of the monitoring centre  
TT = Data type indicator as defined in Table A  
YY = Day number if files need to be split into daily files  
EXT = File extension (ASC = ASCII, ZIP = compression code)

#### ***Destination of the raw data files***

3.8.7 The raw data files should be sent to the WMO FTP server under the sub-directory GTS\_monitoring\SMM\To\_WMO\smYYM01.015, where YY=year e.g. 97 and M=month (i.e. 2 for February, 7 for July or A for October). In addition the raw data should be stored on the monitoring centre's FTP server.

3.8.8 MTN centres should provide the raw data in the format described in paragraphs 3.8.3 – 3.8.6 above. However some MTN centres may not be able to comply with this requirement but may still wish to be involved in the monitoring. One method to facilitate participation of such centres would be for the MTN centre to provide access by WMO to the centres raw data on an FTP server. The format and method of transfer of the data would need to be arranged bilaterally between the MTN centre and the WMO Monitoring Unit. It must be emphasised that all bulletins need to be available for access, including bulletins designated as "additional" as defined in Resolution 40.

#### ***Pre-analysis files***

3.8.9 One of the key features of the SMM is that the sets of raw bulletins provided by the participating MTN monitoring centres (MMCs) are analysed in a standard and consistent manner. In the current SMM several MTN centres have offered assistance by preparing the report files from the individual raw data files collected by the various MTN Monitoring Centres. This feature has helped to eliminate discrepancies in the availability of the data reported in previous monitoring efforts, such as the AGM, that were due to differences in the monitoring procedures implemented in different centres.

3.8.10 Extraction of the reports from the raw data bulletins requires considerable software. This software is based on decoder software similar to that used by many Members in their message switching systems (MSS). It is not possible for the WMO Monitoring Unit to develop this software itself, and it will therefore be necessary for the WMO Secretariat to solicit assistance from MTN centres to prepare the pre-analysis report files from the sets of raw data provided by the MTN monitoring centres (MMCs). This is the current situation with the SMM. The centres currently involved in preparing these pre-analysis report files are shown in Table B. It will be necessary to solicit assistance from other MTN centres in the preparation of pre-analysis of data types currently not being processed. In particular, it will be necessary to extract the observational data from the raw BUFR files. It is hoped an MTN centre will be able to assist with this task.



3.8.11 The resultant report files, one for each of the 14 data types, will constitute a unique reference set for each type of data, and will be able to be used for analysis at the report and bulletin level by the Secretariat, and also at the bulletin level by centres who would like to be involved and who wish to assist WMO in this activity

3.8.12 The report files will have file names as follows: CmCmCmCmTT.EXT, where:

C<sub>m</sub>C<sub>m</sub>C<sub>m</sub>C<sub>m</sub> = the location indicator of the monitoring centre which provided the raw messages  
TT = data type indicator as defined in Table A  
EXT = file extension (ASC = ASCII)

3.8.13 The report files should be stored on the WMO FTP server under the sub-directory GTS\_monitoring\SMM\To\_WMO\C<sub>a</sub>C<sub>a</sub>C<sub>a</sub>C<sub>a</sub>YYM\ where:

C<sub>a</sub>C<sub>a</sub>C<sub>a</sub>C<sub>a</sub> = the location of the pre-analysis centre  
YY = the starting year of the monitoring (e.g. YY=01 for 2001)  
M = the starting month of the monitoring (1 to 9 = January to September and A to C = October to December)

In addition the pre-analysis report files should be stored on the FTP server of the MTN centre that prepared the files.

3.8.14 For each bulletin identified in the raw data set, three cases of pre-analysis should be considered:

- Case A: At least one report (including NIL report(s)) is identified in the bulletin
- Case B: No report can be identified in the bulletin, but the word NIL can be identified in the text of the bulletin, hence it is considered a NIL bulletin,
- Case C: No report can be identified in the bulletin and no mention of NIL can be identified in the text of the bulletin.

For case A, for each individual report (including NIL and duplicated report) a report should be created. For cases B and C for each bulletin identified one record should be created.

The formats used for the various report files should be the same formats that have been developed for the SMM, with an additional file format needing to be defined for BUFR data.

#### **4. Analyses and reports of the Integrated WWW Monitoring**

##### ***Report on data availability attributable to Resolution 40***

4.1 A report showing the availability of the "additional" bulletins including SYNOP reports as currently defined in Resolution 40 should be prepared at least annually by the Secretariat.

4.2 The Secretariat should prepare the lists of those "additional" bulletins and the lists of the stations included in those bulletins. Those lists will be used as the reference lists for the analysis of the monitoring results.

4.3 The report prepared by the Secretariat should include the following information:

- Information on the reception of the bulletins by the SMM centres (see report 1 in the annex to this paragraph).
- Information on the reception of the reports by the MTN centres as extracted from the quarterly reports prepared by the MTN centres or from the SMM reports (see reports 2 and 3 in the annex to this paragraph). Any centre wishing to be included in these reports should inform the Secretariat and provide the monitoring information to the Secretariat in the formats of the quarterly reports or the SMM reports.

4.4 Reports should be made available on a monitoring page of the WMO server and the WMO Secretariat should inform the monitoring centres concerned of the availability of the reports when they are placed on the server.

### ***Detailed monitoring report for each NMC***

4.5 At least once per year, in October if only annual reports are produced, the WMO Secretariat should provide a detailed monitoring report to each WMO Member. The report should list information about stations, reports and bulletins that only apply to that Member, thus facilitating any corrective actions by that Member. The report should be forwarded to the Permanent Representative of the Member to WMO. A suggested format of such a report is given in the annex to this paragraph.

### ***Monitoring of the exchange of data between NMCs, RTHs and RTHs on the MTN***

4.6 The WMO Secretariat should prepare files at the report level showing the availability of the reports at the NMCs, RTHs and RTHs on the MTN. In this respect the Secretariat should process the quarterly monitoring reports and the SMM reports. The Secretariat should produce maps showing the discrepancies of the data between the MTN centres (see the annex to this paragraph).

4.7 The WMO Secretariat should process the SMM pre-analysis files at the report level and RTH Toulouse should process these files at the bulletin level. Priority should be given to determining silent stations and of the bulletins not received by every SMM monitoring centre. Examples of reports including those lists are given in the annex to this paragraph.

4.8 The WMO Secretariat and RTH Toulouse should produce an analysis of the monitoring results showing the main anomalies and distribute it to all RTH focal points concerned. The RTH focal points should provide comments on the analysis to the WMO Secretariat and inform the Secretariat of the actions that have been undertaken to eliminate deficiencies. The Secretariat will coordinate further action to eliminate any remaining deficiencies.

### ***Interactive access to the GTS management information on the WMO server through Internet***

4.9 A meeting of the Implementation Co-ordination Team on Information Exchange Management (Geneva, May 2000) developed a proposal for a pilot project for interactive access to the GTS management information on the WMO server through the Internet. The meeting stressed that the implementation of such a project would significantly reduce the workload for managing the operation of the GTS, in particular for identifying and correcting the deficiencies, and would help in making the best use of the limited resources available for monitoring applications.

4.10 The project should allow interactive requests for information through menus as follows:

- For a station preparing SYNOP reports, the user could access the co-ordinates of the station, the country operating the station, the RTH responsible for its insertion into the RMTN, the number of reports received during the last monitoring exercises, the abbreviated headings of the bulletins into which the reports are expected to be compiled (Volume C1) and the abbreviated headings of the bulletins which contained the reports and were received during the last monitoring exercises.
- For a country, the user could access the results of the last SMM exercise, the list of bulletins prepared by the country, the bulletins received during the last monitoring and the possible deficiencies revealed by the last SMM exercise;
- For a bulletin, the user could access the content of the bulletins as given in Volume C1 and as received during the last SMM exercise (e.g. lists of index number of stations compiled into the bulletin), the bulletins received during the last monitoring exercises (text of any bulletin, number of bulletins etc.), the routing of the bulletin on the GTS as extracted from the routing directories of the RTHs.

## **5. GDPS Quantity Monitoring**

5.1 One of the purposes of monitoring is to ensure that observational data injected into the GTS by NMCs adheres to WMO coding procedures. This is being done operationally at the NMC-RTH level by some centres. However, detection of coding errors introduced by the NMC or by transmission errors is best performed by a GDPS centre.

5.2 Some GDPS centres routinely produce monthly reports on the volume of data received and decoded at their centre. However, it is difficult to compare these reports because of the differences in their operational procedures and capabilities. Decoding and assimilation algorithms vary from centre to centre. Therefore, the monthly statistics from these centres are currently not optimal for detecting the reason for data losses.

5.3 It is recommended that participating GDPS centres record reports which can not be decoded or in which coding errors are detected. While a failure to decode a large number of reports could be due to problems in decoder software, detection of a few faulty reports is likely due to coding errors by the observing stations or transmission problems. The centre should prepare a list of stations whose data could not be decoded and should send a copy of this report to the responsible NMC for remedial action. It would be advantageous if the GDPS centre could identify in detail the type of error and include this in the report. The report should conform to the format defined below:

```
GDPS centre (CCCC)
YYGGgg
Iiiii (type of error)
" "
etc.
```

5.4 For detecting the loss of data in transit it is suggested that, co-incident with the quarterly NMC and RTH monitoring described in section 3, GDPS centres monitor the volume of data received at their centre during the monitoring period and send these results to their associated RTH. In order to minimise differences due to decoding and assimilation algorithms, the GDPS centre should monitor the data as early in their processing cycle as possible.

5.5 It is recommended that some GDPS centres also produce quarterly reports on the data received at their centre. The reports should monitor all data of all of the types listed in Table A that are received at the GDPS centre and should be produced for the same monitoring periods as defined for the other components of the Integrated WWW Monitoring. The formats and file names of the reports should conform to those defined for the NMC quarterly reports in section 3.5. These GDPS quantity monitoring reports should be sent to the WMO Secretariat for comparison with reports from MTN centres to identify data or telecommunications problems. It is recommended that the responsibility for this monitoring activity be assigned to centres in accordance with the roles of the Lead Centres for Quality Monitoring.

## **6. Transition from the current monitoring to the integrated monitoring**

### ***Test of the integrated monitoring***

6.1 It is proposed that a test of the formats and procedures of the integrated WWW monitoring be conducted well before CBS-Ext.2002, for example as from October 2001. The test, coordinated by the Secretariat, should include at least one MTN centre, one associated RTH and two associated NMCs. The results of the test, and the final procedures and formats of the integrated monitoring could be considered by CBS at its next session.

### ***Implementation of the integrated monitoring***

6.2 The integrated monitoring should be implemented during a transition period agreed by the Commission. NMCs, RTHs, RTHs on the MTN, and GDPS centres should implement the quarterly monitoring as soon as possible during the transition period. Once a centre has fully implemented the quarterly monitoring, the centre would no longer need to send AGM results to the WMO secretariat. About 100 centres presently participate in the AGM. Since the Integrated WWW Monitoring can be highly automated and thus require little manual effort, all WWW centres should strive to participate in the integrated monitoring.

6.3 The responsibilities taken by seven MTN centres (Algiers, Cairo, Melbourne, Nairobi, New Delhi, Offenbach, Tokyo and Toulouse) in the current implementation of the SMM are given in Table B. The present participation in the SMM should be extended (see paragraph 3.8.1). It is also

recommended that centres contribute to the monitoring of the BUFR data according to the type of data for which they already contribute. For example, the responsibilities of the SMM centres for the monitoring of the BUFR wind profiler data and aircraft reports should be extended as given in Table B.

**Table B - Responsibilities of SMM centres** (as of August 2000)

<b>Set of data</b>	<b>Centres providing raw data</b>	<b>Centres preparing pre-analysis of the raw data</b>
Surface data from fixed stations: SYNOP reports (TT=SY)	Algiers Melbourne Offenbach Toulouse Tokyo	Tokyo
Upper-air data from fixed stations: Parts A of TEMP (TT), PILOT (PP) reports, <i>Proposed extension: BUFR wind profiler (BP)</i>	Melbourne Nairobi Toulouse Tokyo	Tokyo
Climate data: CLIMAT (CL) and CLIMAT TEMP (CT) reports	Cairo Melbourne New Delhi Toulouse	Cairo
Data from marine stations: SHIP (SH), TEMP SHIP (TS), PILOT SHIP (PS), BUOY (BU), BATHY/TESAC/TRACKOB (BT) reports	Cairo Melbourne Offenbach Toulouse	Offenbach
Data from aircraft: AIREP (AI) and AMDAR (AM) reports, <i>Proposed extension: BUFR aircraft reports (BA)</i>	Melbourne Nairobi Toulouse Tokyo	Toulouse

### **Assistance in the implementation of the integrated monitoring**

6.4 It is recommended that the Secretariat coordinate the development of application(s), e.g. using Microsoft Access software, for the preparation of the quarterly reports from the raw data or from the AGM results.

**Annex to Paragraph 2.1  
Continuous Real-Time Quantity Monitoring**

**1. Responsibilities of NMCs**

1.1 Each NMC or centre should monitor the timeliness and completeness of observational data collected over the whole of its area of responsibility and adherence to telecommunication formats and procedures. This will allow deficiencies to be detected and remedial actions undertaken as quickly as possible.

1.2 Each NMC should prepare a brief summary on the number of reports it has transmitted to its responsible RTH for insertion into the GTS. These summaries should be prepared according to the standard formats defined below and should be prepared on a regular, continuous basis. The summaries would be issued for surface data (SYNOP, SHIP, BUOY) every six hours and for upper air data (TEMP, PILOT, TEMP SHIP) every 12 hours, and CLIMAT and CLIMAT TEMP reports once per month. Centres that transmit AIREP, AMDAR, BATHY, TESAC or TRACKOB reports would prepare summaries of these data every six hours. The summaries of climate reports should be issued on the 10<sup>th</sup> of each month. For all other data types the summaries should be generated if possible by automatic procedures within a time after WMO standard observation time agreed between the NMC and its associated RTH. In any case this should be within 3 hours for surface and aircraft data and within 6 hours for upper air data.

1.3 The summaries should consider all of the reports transmitted in the original bulletin plus any reports transmitted within following bulletins with BBB.

1.4 After compilation the summaries should be sent to the NMC's responsible RTH as an addressed message over the GTS. If the NMC is linked to more than one RTH it should send its reports to all of these RTHs.

**1.5 Summary report for SYNOP, TEMP (Part A), PILOT (Part A), CLIMAT and CLIMAT TEMP messages**

**Report Format**

Hour, Date, NMC, Data type (as defined for SMM - see Table A)

Bulletin Header	Number of reports defined in Volume C	Number of reports with data transmitted	Number of NILS transmitted	Number of delayed reports transmitted	Number of planned reports not transmitted	Number of new stations (not in Vol. C) transmitted
TOTAL	#	#	#	#	#	#

NIL transmitted, station1, station2 . . .

DELAyed, station1, station2 . . .

NOT transmitted, station1, station2 . . .

NEW, station1, station2 . . .

**Table A - Reference data types and delay times**

Type of data	T <sub>1</sub> T <sub>2</sub>	Reports are considered delayed if transmitted:
SYNOP	SM	More than 60 minutes after the main synoptic hour
TEMP, PILOT	US, UP	More than 120 minutes after the main synoptic hour
CLIMAT	CS	After the fifth day of the next month
CLIMAT TEMP	CU	

It is recommended that the cut-off times of 60 minutes for SYNOP data and 120 minutes for TEMP and PILOT data will be replaced with 30 and 90 minutes, respectively in the future.

**Table B - Definition of fields in the report**

Field	Format	Example
Hour	4 digits	1200
Date	DD/MM/YYYY	15/06/2001
NMC	CCCC	NFFN
Data type	SM, US, UP, CS, CU	SM
Bulletin Header	TAAii CCCC,	SMFJ01 NFFN,
All counts (#s)	Comma delimited fields	10,9,1,1,0,0
All station lists	Keyword and comma delimited station-IDs ended by CR/LF	NIL,94915 DEL,95123

**Example:**

1200,15/06/2001,NFFN,SM  
 SMFJ01 NFFN,10,9,1,1,0,0  
 SMFJ02 NFFN,15,13,2,0,0,0  
 TOTAL,25,22,3,1,0,0  
 NIL,94915,94560,91234  
 DEL,95123  
 NOT,  
 NEW,

**1.6 Format for the summary report for SHIP, TEMP SHIP, PILOT SHIP, BUOY, AIREP, AMDAR, BATHY, TESAC and TRACKOB messages**

The summaries of these data types consist of a list of bulletins and a count of the reports as defined below.

**Report format**

Hour, Date, NMC, Data type

Bulletin Header	Number of reports transmitted
TOTAL	#

**Table C – Reference data types and time periods**

Type of data	T <sub>1</sub> T <sub>2</sub>	Referenced main synoptic hours	Monitoring data set
SHIP	SM	HH = 00, 06, 12, 18 UTC	Bulletins including reports prepared for HH
TEMP SHIP, PILOT SHIP	US, UP	HH = 00, 12 UTC	Bulletins including reports prepared for HH
BUOY, AIREP, AMDAR, BATHY, TESAC, TRACKOB	SS, SO, UA, UD	HH = 00, 06, 12, 18 UTC	Bulletins compiled between HH-3 and HH+3 (Ref. Group date-time YYGGgg of the abbreviated heading)

**Table D – Definition of fields in the report**

Field	Format	Example
Hour	4 digits	1200
Date	DD/MM/YYYY	15/06/2001
NMC	CCCC	NZKL
Data type	SM, US, UP, SS, UA, UD, SO	SM
Bulletin Header	TAAii CCCC,	SMVE12 NZKL,
Count (#)	2 digits	26

**Example:**

1200,15/06/2001,NZKL,SM  
 SMVE12 NZKL,26  
 SMVE13 NZKL,23  
 TOTAL,49

**1.7 Archive of monitoring data**

1.7.1 To make it possible to identify the reasons of discrepancies as a result of NMC and RTH monitoring, each NMC should store all the data subjected to monitoring in a file in the SMM raw data format for at least 7 days and forward them to the RTH if requested via Internet or on floppy disks.

**2. Responsibilities of RTHs**

2.1 Each RTH should monitor the timeliness and completeness of collection of observational data within its zone of responsibility and the adherence to telecommunication formats and procedures.

2.2 Each RTH should prepare a summary on the status of the reports it has inserted into the GTS. These summaries should be prepared according to the same standard formats defined in sections 1.5 and 1.6 with the addition of a line of 10 dashes (-----) to separate the information for each NMC. The reports should be prepared on the same schedule as defined in section 1.2. The summaries should be generated if possible by automatic procedures. A report of discrepancies between the NMC and RTH summaries should then be prepared. The RTH discrepancy reports would then be sent to the NMCs that the RTH is responsible for as an addressed message over the GTS. Any NMC that wished to receive the full RTH summary could arrange for this on an ad hoc or operational basis in consultation with the RTH. Furthermore, if an RTH experiences operational problems with an NMC it could transmit the full RTH summary with a view to resolving these problems

**Format for the summary report for SYNOP, TEMP (Part A), PILOT (Part A), CLIMAT and CLIMAT TEMP messages**

Hour, Date, RTH, Data type Report line 1 from NMC 1 Report line 2 from NMC 1 etc. NIL, station1, station2 . . . DEL, station1, station2 . . . NOT, station1, station2 . . . NEW, station1, station2 . . . ----- Report line 1 from NMC 2 Report line 2 from NMC 2 etc. NIL, station1, station2 . . . DEL, station1, station2 . . . NOT, station1, station2 . . . NEW, station1, station2 . . . ----- Report line 1 from NMC 3 Report line 2 from NMC 3 etc. NIL, station1, station2 . . . DEL, station1, station2 . . . NOT, station1, station2 . . . NEW, station1, station2 . . .	<b>Example:</b> 1200,15/06/2001,AMMC,SM SMFJ01 NFFN,10,9,1,1,0,0 SMFJ02 NFFN,15,13,2,1,0,0 TOTAL,25,22,3,2,0,0 NIL,94915,94560,91234 DEL,95123, 95124 NOT, NEW, ----- SMNZ01 NZKL,10,9,0,1,1,0 SMNZ02 NZKL,15,12,3,0,0,0 TOTAL,25,21,3,1,1,0 NIL,93916,93560,93235 DEL,93120 NOT, 94920 NEW,
--	--

**Format for the summary report for SHIP, TEMP SHIP, PILOT SHIP, BUOY, AIREP, AMDAR, BATHY, TESAC and TRACKOB messages**

Hour, Date, RTH, Data type Report line 1 from NMC 1 Report line 2 from NMC 1 etc. ----- Report line 1 from NMC 2 Report line 2 from NMC 2 etc.	<b>Example:</b> 1200,15/06/2001,AMMC,SM SMVE12 NZKL,26 SMVE13 NZKL,20 TOTAL,46 ----- SMVE01 NFFN,21 SMVE02 NFFN,15 TOTAL,36
---	---

**Format for the RTH discrepancy report for SYNOP, TEMP, PILOT, CLIMAT, CLIMAT TEMP**

Hour, Date, RTH, Data type

Bulletin Headers	Difference in number of reports defined in Volume C	Difference in number of reports transmitted	Difference in number of NILS transmitted	Difference in number of delayed reports transmitted	Difference in number of planned reports not transmitted	Difference in number of new stations (not in Vol. C) transmitted
------------------	---	---	--	---	---	--

NIL, station1, station2 . . .

DEL, station1, station2 . . .

NOT, station1, station2 . . .

NEW, station1, station2 . . .

**Definition of fields in the discrepancy report**

Field	Format	Example
Hour	4 digits	1200
Date	DD/MM/YYYY	15/06/2001
RTH	CCCC	AMMC
Data type	SM, US, UP, CS, CU	SM
Bulletin Header	TTAAii CCCC	SMFJ02NFFN
All differences in counts	Comma delimited fields	0,0,0,1,0,0
All station lists	Keyword and comma delimited station-Ids ended with a CR LF	DEL,95124

**Example:**

1200,15/06/2001,AMMC,SM

SMVE02NZKL,0,0,0,1,0,0

DEL,95124

**Format for the RTH discrepancy report for SHIP, TEMP SHIP, PILOT SHIP, BUOY, AIREP, AMDAR, BATHY, TESAC AND TRACKOB**

Hour, Date, RTH, Data type

Bulletin Headers	Difference in number of reports transmitted
------------------	---

**Definition of fields in the discrepancy report**

Field	Format	Example
Hour	4 digits	1200
Date	DD/MM/YYYY	15/06/2001
RTH	CCCC	AMMC
Data type	SM, US, UP, SS, UA, UD, SO	SM
Bulletin Header	TTAAii CCCC	SMVE13NZKL
Differences in counts	2 digits	03



**Example:**

1200,15/06/2001,AMMC,SM  
SMVE13NZKL,03

**2.3 Archive of monitoring data**

2.3.1 To provide the possibility of identification of the reasons of discrepancies as a result of NMC and RTH monitoring, each RTH should store all the data subjected to monitoring (so called raw data) in a circular buffer for one month.

**2.4 Follow-up actions**

2.4.1 Each RTH should continuously analyse the results of monitoring and take follow-up action to resolve any operational problems. The following issues should be addressed:

- a. problems in operation of hardware and software of the RTH;
- b. problems in operation of the GTS circuits connected to the RTH;
- c. problems in collection of observational data over the zone of responsibility;
- d. problems in reception of observational data from the MTN;
- e. remarks on the adherence to formats and procedures;
- f. problems in reception/transmission of processed information;
- g. reply to the remarks of the MTN centre;
- h. other problems

2.4.2 The RTH should identify any inconsistencies between its assessment and the assessment of the NMCs that it is responsible for. If inconsistencies are identified the RTH can request from the NMC a set of raw data to assist in identifying the reasons for the inconsistencies.

**Annex to paragraph 4.3**

**Report on data availability attributable to Resolution 40**

**Report 1 - "additional" synoptic bulletins received during 1 - 15 October 2001**

	Tokyo	Toulouse	Melbourne	Washington	Cairo
<b>Region 1</b>					
SICR20 GCLP		1	1		
SMCR60 GCLP	1			1	
SICR60 GCLP					
SIKN20 HKNC	1	1	1		1
SIKN40 HKNC	1			1	
SMKN40 HKNC	1			1	
<b>Region 2</b>					
SMUZ34 UTTW	1	1	1		1
SIUZ34 UTTW	1	1	1		1
SMUZ35 UTTW	1	1	1		1
SIUZ35 UTTW	1	1	1		1
SMUZ60 UTTW	1				
<b>Region 3</b>					
SIFG20 SOCA	1			1	
SMVN21 SVBS	1			1	

Note: 1 = received, otherwise not received

**Report 2 - Average daily number of SYNOP reports received during 1 - 15 October 2001 – Total by Regions**

Region	Tokyo	Toulouse	Melbourne	Washington	Cairo
1	11	11	12	11	11
2	0	0	0	0	0
3	32	32	32	38	32
4	21	23	24	35	21
5	9	10	12	10	10
6	12	15	6	6	6
Total					

Note - This report could be also presented in bar chart format.

**Report 3 - Average daily number of synoptic reports received during 1 - 15 October 2001 from each station**

Stations index numbers	Tokyo	Toulouse	Melbourne	Washington	Cairo
10001	1	2	1	1	1
10010	0	1	0	0	0
Etc.					

**Annex to Paragraph 4.5**

**Monitoring Report for NMC ..... for 1 - 15 October 2001**

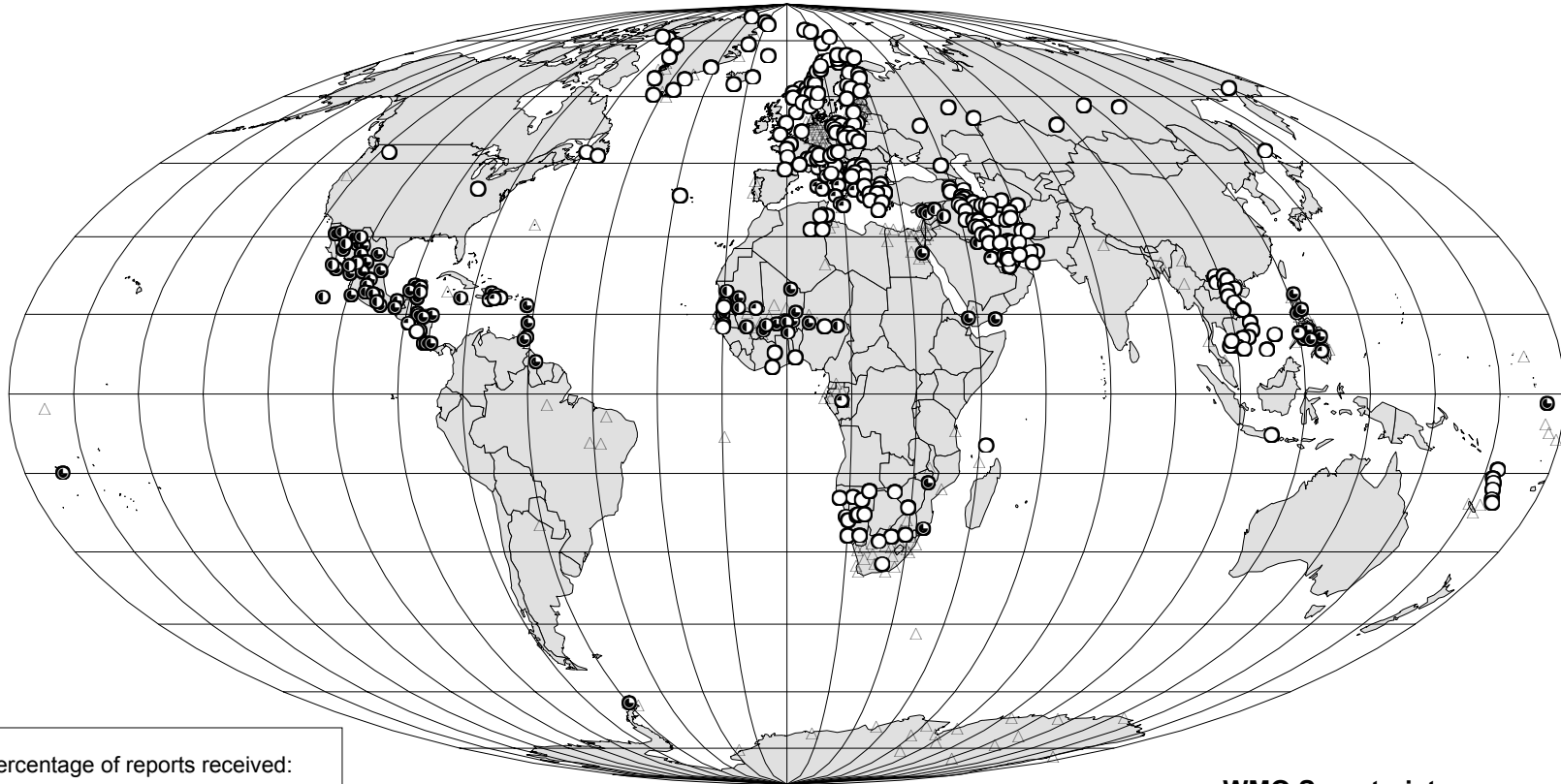
1. Bulletins listed in Catalogue of Meteorological Bulletins (Volume C1) but not received  
.....  
.....
2. Bulletins received but not listed in Catalogue of Meteorological Bulletins (Volume C1)  
.....  
.....
3. Extra stations received but not listed in Catalogue of Meteorological Stations (Vol A)  
.....  
.....
4. Stations listed as part of the Regional Basic Synoptic Network for which reports were received only with the mention NIL
  - a) SYNOP.....
  - b) TEMP.....
  - c) CLIMAT.....
  - d) CLIMAT TEMP.....
5. Stations listed as part of the Regional Basic Synoptic Network for which no reports were received
  - a) SYNOP.....
  - b) TEMP.....
  - c) CLIMAT.....
  - d) CLIMAT TEMP.....
6. RBSN stations compiled into bulletins with ii > 19 (RBSN stations should be in bulletins ii < 19 for 00, 06, 12 and 18 UTC  
.....  
.....
7. Non-RBSN stations compiled into bulletins with ii < 20 (should be in bulletins with ii > 19)  
.....  
.....
8. Timeliness of data reception at the associated RTH  
(The Secretariat should prepare tables showing the timeliness of the reception of the reports for each station and for each time of observations. A first table should include the stations belonging to the RBSN and a second table should include the others.)

Annex to paragraph 4.6

SMM 1-15/2/2000

RBSN SYNOP reports

Comparison between the reports received by Melbourne and the reports available at the other centres



Percentage of reports received:

- Silent stations (224)
- ◐ Less than 50 per cent (35)
- ◑ 50 to 80 per cent (27)
- ◒ 80 to 95 per cent (60)
- △ 95 to 99 per cent (197)

Note:

The percentages are calculated with reference to the number of reports available at the MTN centres as a whole. The stations for which less than three reports were available at MTN centres are ignored

**WMO Secretariat**

The designation employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the WMO Secretariat concerning the legal status of any country, territory, city or area

## Annex to paragraph 4.7

**Table 1 - List of silent stations for WMC Melbourne and bulletins which contained reports from those stations available at the other centres - February 2000 SMM - Extract from an anomaly report prepared by the Secretariat**

Station	Country	Abbreviated heading	Availability of the bulletins (see Note 1)			Number of reports available at			
			AMMC	LFPW	RJTD	AMMC	LFPW	RJTD	All
16710	GRC	SMGR20 LGAT	0			0	43	58	58
16710	GRC	SMGR21 LGAT	0			0	43	58	58
16732	GRC	SMGR20 LGAT	0			0	42	56	56
16732	GRC	SMGR21 LGAT	0			0	42	56	56
16738	GRC	SMGR20 LGAT	0			0	39	56	56
16738	GRC	SMGR21 LGAT	0			0	39	56	56
16746	GRC	SMGR20 LGAT	0			0	43	59	59
16746	GRC	SMGR21 LGAT	0			0	43	59	59
25744	RUS	SMRA21 RUHB	0			0	18	18	18
26416	LVA	SMLV41 UMR	0		0	0	58	0	58
27857	RUS	SMRS20 RUMS	0			0	59	60	60
28321	RUS	SMRA20 RUNW	0			0	60	60	60
28642	RUS	SMRA20 RUNW	0			0	59	59	59
29846	RUS	SMRA10 RUHB	0			0	59	59	59
29846	RUS	SMRA20 RUNW	0			0	59	59	59
30117	RUS	SMRA21 RUNW	0			0	30	30	30
30253	RUS	SMRA21 RUNW	0			0	60	60	60
32121	RUS	SMRA21 RUHB	0			0	60	60	60
37061	RUS	SMRS20 RUMS	0			0	59	60	60
37789	ARM	SMAY01 UGEE	0		0	0	45	0	45
40700	IRN	SMIR04 OIII	0		0	0	15	0	15
40701	IRN	SMIR03 OIII	0		0	0	19	0	19
40704	IRN	SMIR03 OIII	0		0	0	16	0	16
40708	IRN	SMIR03 OIII	0		0	0	15	0	15
40710	IRN	SMIR03 OIII	0		0	0	17	0	17
40713	IRN	SMIR03 OIII	0		0	0	16	0	16
40719	IRN	SMIR03 OIII	0		0	0	13	0	13
40723	IRN	SMIR04 OIII	0		0	0	19	0	19
40726	IRN	SMIR04 OIII	0		0	0	18	0	18
40727	IRN	SMIR04 OIII	0		0	0	14	0	14
40731	IRN	SMIR03 OIII	0		0	0	15	0	15
40734	IRN	SMIR04 OIII	0		0	0	20	0	20
40737	IRN	SMIR04 OIII	0		0	0	19	0	19
40738	IRN	SMIR03 OIII	0		0	0	19	0	19

**Note 1: The centres, for which no bulletin with the corresponding abbreviated heading was available, are marked with "0"**

**Table 2 - List of abbreviated headings (ii<20) for which no SYNOP bulletins were available at one of the monitoring centre - February 2000 SMM - Anomaly report prepared by RTH Toulouse**

<i>Abbreviated heading</i>	<i>Number of bulletins available at</i>			
	<i>Melbourne</i>	<i>Offenbach</i>	<i>Toulouse</i>	<i>Tokyo</i>
SMAA03 AMMC	488	0	0	0
SMAW01 EDZW	0	61	0	0
SMAY01 UGEE	0	59	58	0
SMBN10 OBBI	2	0	0	2
SMCA03 KWBC	0	4	4	0
SMCY01 EGRR	56	0	0	56
SMEU01 EGRR	242	0	247	242
SMEU01 EUMS	0	60	60	0
SMEU02 EGRR	0	0	85	0
SMEU03 EGRR	0	0	280	0
SMEU10 EGRR	0	0	70	0
SMFR02 LFPW	0	66	66	0
SMIR03 OIII	0	37	37	0
SMIR04 OIII	0	32	32	0
SMLS01 FXMM	22	0	0	22
SMMH01 PKWA	56	0	0	56
SMNM01 FYWW	0	52	52	0
SMNM02 FYWW	0	2	2	0
SMNO01 ENMI	0	282	282	0
SMNV01 NVVV	0	94	94	97
SMPH00 RPLL	0	0	28	0
SMPH01 RPLL	29	47	22	0
SMPH02 RPLL	11	11	11	0
SMQB10 QBSM	0	39	39	0
SMRE10 FMEE	247	0	0	247
SMRE12 FMEE	19	0	0	19
SMRE15 FMEE	6	0	0	6
SMRE18 FMEE	3	0	0	3
SMSC01 FSIA	29	0	29	29
SMSV01 FDMS	5	0	0	5
SMVG01 TVSV	0	1	1	0
SMYG14 ETGT	0	57	56	0
SMZM01 NSAP	62	0	0	62