

ATTACHMENT I-5

PLAN FOR MONITORING THE OPERATION OF THE WORLD WEATHER WATCH

1. OBJECTIVES

1.1 The objectives of the monitoring effort are to improve the performance of the World Weather Watch (WWW), in particular the efficiency and effectiveness of the operation of the WWW Global Observing System (GOS), the Global Data-processing and Forecasting System (GDPFS) and the Global Telecommunication System (GTS) on a national, a regional and a global level. As the operation of these three elements of the WWW (GOS, GDPFS and GTS) is so interrelated, each element cannot be monitored independently; therefore, for efficient monitoring of the operation of the WWW as an integrated system, close coordination between all the centres concerned, as well as with the WMO Secretariat, is essential in order to identify the deficiencies and initiate corrective action as quickly as possible.

1.2 The implementation of the monitoring plan involves all three sub-systems of the WWW. Thus, in the context of monitoring, the GOS is responsible for ensuring that the observations are made according to the prescribed standards, are encoded correctly and are presented for transmission at the times laid down; in addition, the GOS responds in timely fashion to requests for checks, corrections, etc. The GTS is responsible for ensuring the regular flow of meteorological information, both raw and processed. This involves keeping a close watch on the receipt and transmission of information, generating requests for missing bulletins and other products when necessary, checking telecommunication formats, arranging for the re-routing of traffic in case of outages and other difficulties, and so on. The GDPFS provides processed information for timely distribution and also has an important role in the quality control of data.

1.3 An important objective of any monitoring activity must include provision for the identification of deficiencies and also for corrective action to improve the efficiency and effectiveness of the WWW. Success is measured in terms of how many deficiencies are corrected.

1.4 In accordance with the decision of Seventh Congress, the following items should be included in the monitoring programme:

- (a) Regularity of observations;
- (b) Quality of observational data and correct coding;
- (c) Completeness and timeliness of collection of observational data at the NMC concerned;
- (d) Adherence to WMO standard codes and telecommunication procedures;
- (e) Collection of observational data at RTHs and WMCs;
- (f) Exchange of data and processed information on the regional meteorological telecommunication networks and the Main Telecommunication Network;
- (g) Evaluation of the observations and processed information received at NMCs, RSMCs and WMCs in respect of their data needs.

2. BASIC COMPONENTS

2.1 Real-time monitoring

2.1.1 Real-time monitoring is the term used to describe monitoring which is carried out quickly enough to allow remedial action to be taken in time to be of value in day-to-day meteorological work. Ideally, it should

be carried out within the times specified in the appropriate manuals and guides as the maximum acceptable time delays for the receipt of meteorological information, but in practice it is still valuable if it can be carried out before similar subsequent information is received.

2.1.2 In view of the short time available, corrective action on real-time monitoring should be restricted to departures from the normal, e.g. bulletins or observations which are not received in time, obvious or suspected errors, and so on. Thus real-time monitoring requires the provision of information concerning:

- Bulletins not received by the specified time;
- Observations not received by the specified time, or which are incorrect or suspect, or cannot be interpreted with confidence;
- Inadequacies in receipt of processed information.

2.2 Non-real-time monitoring

Non-real-time monitoring is the term used to describe monitoring which is carried out over a specific time period. The purpose of non-real-time monitoring is to keep under review the general performance of the WWW and to identify shortcomings which may persist after real-time monitoring has been carried out. Non-real-time monitoring requires the preparation of summaries and various statistics which become available after a certain time, which may vary from a few hours to several months.

2.3 Follow-up action for coordination and assistance

In the real-time mode, the initial corrective action will be immediate and will be taken at the centres concerned or at the point of observation. In the non-real-time mode, follow-up action will be taken by the Members concerned to remedy any deficiencies with respect to the WWW plan. In some cases, this might involve obtaining advice on the procedures for obtaining external assistance and information on the maintenance and operation of their WWW facilities. In addition, the Secretary-General will take action, as indicated in paragraph 5.6 below.

3. DEFINITIONS AND STANDARDS

In the monitoring context, the terms used and the minimum standards to be attained should be as defined in the Manual on the Global Observing System, the Manual on the Global Telecommunication System, the Manual on Codes, the Manual on the Global Data-processing System and relevant parts of the Technical Regulations.

4. PRIORITIES

4.1 The monitoring scheme should concentrate, in the order of priority given below, on the establishment of checks on the following information:

- (a) TEMP, TEMP SHIP and TEMP MOBIL, Parts A and B;
- (b) PILOT, PILOT SHIP and PILOT MOBIL, Parts A and B;
- (c) SYNOP (global exchange);
- (d) SHIP and AIREP/AMDAR (global exchange);
- (e) CLIMAT and CLIMAT TEMP;
- (f) All other observational data and processed information, regularly exchanged.

4.2 Monitoring of satellite data presents a special case. There are only a few operators and their standards for monitoring, including quality control of satellite data, are already high. Monitoring of satellite data bulletins and GRID-code bulletins shall be a special event for a limited time as designated by the WMO Secretariat.

4.3 In implementing this monitoring plan, it is important to establish the capability for quick responses at the observing points and at all centres to requests for checks and repetition in real time. It will also be found useful to give particular attention to ensuring the following elements of the monitoring plan:

- (a) The correct telecommunication formats of messages in the GTS;
- (b) The correct coding of messages and reports;
- (c) The timely availability of data;
- (d) The quality of the meteorological content of messages.

5. RESPONSIBILITIES

5.1 The basic responsibilities for monitoring the operation of the WWW rest with the Members.

5.2 The responsibilities for carrying out the real-time and non-real-time monitoring activities are given in Tables A and B. An essential part of the monitoring plan is that information should be exchanged between adjacent centres on the GTS in order that telecommunication problems in particular may be readily identified. A special aspect of the exchange of information is that procedures should be developed to ensure that no doubts exist that a bulletin contains all the observations available for inclusion in it. In the case of standard bulletins containing routine observations, the contents of the bulletins should always conform to the list included in the appropriate WMO publication, as amended. When the observations from some stations included in the publication are not available for any reason, the reports should be properly encoded as NIL reports. As a further check on completeness, NMCs should send messages to the associated RTH, preferably in advance, when it is known that observations from listed stations are not (or will not be) available. It is important that all WWW centres (NMCs, RSMCs, RTHs and WMCs) make a contribution to the overall monitoring effort. Obviously, centres having a multiple role will make more than one contribution. In the contributions, the following points should be taken into account:

For the monitoring at bulletin level, additional or subsequent (RRx) and corrected (CCx) bulletins should be included;

- (a) For the monitoring at bulletin level, additional or subsequent (RRx) and corrected (CCx) bulletins should be included;
- (b) For the monitoring at report level, corrected reports should not be counted as additional reports, but retard reports should be counted;
- (c) Duplicated reports and duplicated bulletins should be counted only once;
- (d) The contributions should clearly indicate the data base used for monitoring (telecommunications or data-processing);
- (e) The contributions should also report any outages of centres and/or circuits occurring during the monitoring period;
- (f) In the contributions every possible effort should be made to adhere to the times included in the headings of the tables.

5.3 The frequency with which monitoring reports should be prepared and/or exchanged is illustrated in the following table:

Every day	—	Every centre carries out continuous real-time monitoring;
At intervals of not more than one month	—	NMCs should prepare a summary of relevant information on monitoring for use on a national and international level as appropriate;
At least once every three months	—	RTHs/RSMCs send a summary of monitoring information to their associated NMCs;
At least once every three months	—	RTHs/RSMCs send a summary of monitoring information to adjacent RTHs which supply them with data;
Once every six months	—	WMCs send a summary of monitoring information to adjacent RTHs/RSMCs.

Reports called for at intervals of three months or more should always be forwarded to the Secretary-General in an agreed format for further action. As regards content, reports should include as many items for Table B as are practical and useful.

5.4 Members should implement the plan for monitoring the operation of the WWW at the earliest possible date, in particular the real-time monitoring.

5.5 In order to keep under review the efficient operation of the WWW, internationally co-ordinated monitoring on a non-real-time basis should be carried out periodically, once a year in October, on the full range of global observational data and with the participation of a limited number of major WWW centres. During other periods, particular problem areas should be monitored, in respect of either selected information only or limited parts of the world. The Secretary-General will arrange, in consultation with the appropriate centres, details of the special monitoring exercises and the periods during which they should be carried out, and will provide adequate notice well in advance.

5.6 The Secretariat will carry out the necessary analyses of the non-real-time monitoring reports from WWW centres and will make the results of the analyses available to the centres concerned. The Secretary-General will coordinate and advise on assistance necessary to rectify the deficiencies revealed from the results of the monitoring. The Secretary-General will also arrange (as required) for the specific monitoring exercises mentioned in paragraph 5.5 above to be carried out.

6. PROCEDURES

6.1 As far as real-time monitoring is concerned, each centre should develop the necessary detailed procedures for this purpose. These procedures will vary from centre to centre, but should be designed to facilitate the real-time checking of the receipt of bulletins and observations as appropriate. At fully automated centres, these procedures may include the use of telecommunication system records, visual display units, special programmes in telecommunication and data-processing computers, and so on. At manual centres, check lists or sheets may be developed for the same purposes using ticks, crosses or the entry of times to indicate when selected bulletins and/or reports have been received. To avoid excessive use of paper forms, it may be convenient to place transparent sheets of plastic over the check sheets and make entries using soft wax pencils. The entries can be removed very easily when a suitable period has elapsed and the sheets made ready for the checks to be repeated for a later period. Some further guidance on the operation of real-time monitoring, together with examples of the kind of forms which might be developed, are given in Table C.

6.2 As far as non-real-time monitoring is concerned, when special exercises are requested by the Secretariat, an indication of the form in which contributions should be made will be provided at the time the request is made. It is important that, as far as possible, centres should follow closely the procedures indicated in order that results from various centres be directly comparable with each other. It is particularly important that this should be the case when the annual global monitoring exercise is carried out. The procedures, together with the standard forms to be used for the provision of results, are given in Table D.

6.3 It is emphasized that nothing in the formal monitoring procedures prescribed in the attachment is intended to replace the normal day-to-day exchange of information and advice between adjacent centres. As far as possible, all problems should be resolved in this way and, after a time, only serious difficulties will be reflected in the formal monitoring reports.

Table A - Real-time monitoring

<i>Items</i>	<i>National Units</i>	<i>NMC</i>	<i>RTH/RSMC</i>	<i>RTH/WMC</i>
1. <i>Bulletins not received in</i>	←	← →	← →	← →
2. <i>Observations not received in</i>	←			
3. <i>Processed information not received in</i>		→	→	→
4. <i>Errors in</i>	←	(←)		
5. <i>Special bilateral checks</i>	← →	← →	← →	← →

(Items are indicative rather than mandatory)

NOTES:

1. *Bulletins not received* in time are bulletins which appear on the transmission schedule and have not been received by a time agreed bilaterally between two adjacent centres.
2. *Observations not received* in time are observations which appear in the published contents of the bulletins listed for transmission but which have not been received by the time agreed.
3. *Processed information not received* in time refers to data not received by the time agreed but known to be in the transmission schedule.
4. *Errors in observations* are errors detected or suspected in the coding and/or meteorological content of messages.
5. *Special bilateral checks* are checks on any of the previous elements 1–4 or other elements which may have been arranged temporarily or on a more continuous basis by the centres concerned.

The phrase *national units* is understood in this context to mean national observing, collecting and dissemination systems.

The arrows indicate the direction in which messages concerning monitoring will normally be sent. Thus, for example, messages concerning suspected errors in observations will normally be sent only by NMCs to the observing network—unless a special bilateral agreement has been made between an NMC and an appropriate RSMC to carry out real-time quality control on its behalf. To cover this possibility, an entry in parentheses has been made under RSMC.

Table B - Non-real-time monitoring

Items	NMC	RTH/RSMC	WMC
1. Bulletins not received	x	x	x
2. Bulletins received late	x	x	x
3. Observations not received	x	x	x
4. Observations received late	x	x	x
5. Processed information not received	x	x	
6. Processed information received late	x	x	
7. Non-adherence to telecommunication format	x	x	x
8. Completeness of observational data	x	x	x
9. Quality of observational data	x	x	x
10. Deficiencies in processed information	x	x	x
11. Statistical verification of numerical weather prediction	x	x	x
12. Special bilateral or multilateral checks	x	x	x
13 Notes on recurrent problems	x	x	x
14. Monitoring reports	x	x	x

(Items are indicative rather than mandatory)

Notes:

1. Bulletins not received are bulletins scheduled for transmission but not received.
2. Bulletins received late are bulletins received later than the time periods specified by WMO or agreed bilaterally.
3. Observations not received are observations scheduled for transmission but not received.
4. Observations received late are defined in a similar way as “bulletins received late” in Note 2 above.
5. Processed information not received is products in alphanumeric or pictorial form scheduled for transmission but not received.
6. Processed information received late is defined in a similar way as “bulletins received late” in Note 2 above.
7. Non-adherence to telecommunication format refers to errors made consistently or frequently by transmitting stations which interfere with the regular transmission of messages.
8. Completeness of observational data.
9. Quality of observational data.
10. Deficiencies in processed information are shortcomings (e.g. data missing, messages garbled, facsimile products unreadable) which seriously interfere with the operational value of the products.
11. Statistical verification of numerical weather prediction would be supplied only by centres having a special interest in, and capability for, this type of information.
12. Special bilateral or multilateral checks means supplementary checks arranged between two or more centres by mutual agreement, on either a temporary or a continuous basis, to deal with special problems.
13. Notes on recurrent problems indicate areas of difficulty not covered by Notes 1–12 inclusive.
14. Monitoring reports are reports in the format to be developed by the Secretary-General, in consultation with the president of the CBS and the chairmen of the appropriate working groups.

The crosses in the various columns indicate the centres at which these functions would normally be carried out.

Table C - Guidance for real-time monitoring**1. CHECK ON THE RECEPTION OF OBSERVATIONAL REPORTS FROM LAND STATIONS**

In order to implement real-time monitoring, suitable forms should be used for checking the reception of observational reports from land stations. Separate tables may be prepared for SYNOPs for global exchange, for TEMP/PILOTs for global exchange, for SYNOPs for regional exchange, and so on in order to check the availability of various types of observational data. If an observation from a particular station has not been received within the appropriate time, a request should be made to the station. Detailed procedures must be developed to meet the needs of centres of various kinds.

2. CHECK ON THE RECEPTION OF AIRCRAFT AND SHIPS' WEATHER REPORTS FROM COASTAL RADIO STATIONS OR AERONAUTICAL RADIO STATIONS

Each centre should ensure that all bulletins have been received, and procedures to ensure that this is the case (for example by introducing the use of channel sequence numbers and similar ideas) should be developed to meet local needs.

3. CHECK ON CODING OF OBSERVATIONAL REPORTS

Observational reports should be checked before transmission of bulletins, in order to eliminate coding errors. This check should be made by the observer when the observation is first made and by suitably qualified staff when the bulletins are prepared. Such checking procedures, however, must not result in appreciable delays in the transmission of bulletins.

4. CHECK ON THE STANDARD FORMAT OF METEOROLOGICAL MESSAGES

Meteorological messages shall be checked to ensure that the standard format has been used and corrections shall be made as required. In particular, the following points shall be checked:

- (a) The starting line, the abbreviated heading and the end-of-message signal of messages shall be completely free of error;
- (b) Reports included in a bulletin shall be separated by the report separation signal.

It is emphasized that messages which can be handled without difficulty at manual centres may still give serious problems at automated centres, unless the procedures are scrupulously observed. Even a single incorrect character can lead to difficulties in some cases.

5. CHECK ON THE RECEPTION OF SCHEDULED BULLETINS WITHIN SPECIFIED TIMES

Each RTH should check the reception of bulletins from the NMCs in the zone of responsibility. For this purpose, forms such as Examples 1 and 2 below may be useful. If channel sequence numbers (nnn) have not been received in sequential order, queries should be made to the centre concerned immediately. Where no channel sequence number procedures are in operation, other measures must be taken to ensure that no transmissions have been missed, and no individual observations missed because of garbling, radio fading, or other causes.

Example 1 - Real-time monitoring*(Check for individual meteorological bulletins, not received, incorrect format or mutilated)*

CENTRE:	DATE:	CIRCUIT:			Page:
Abbreviated heading	Description of fault	Time of receipt	Time of request	Time of receipt of repeat	Remarks (eg. Circuit outage times)

Example 2 - Monitoring of the reception of SHIP/AIREP bulletins and number of reports

SHIP			AIREP		
Abbreviated heading	Time of Receipt	Number of reports	Abbreviated heading	Time of Receipt	Number of reports

Table D - Procedures for internationally coordinated non-real-time monitoring**1. MONITORING PERIODS**

The internationally coordinated monitoring of data for global exchange will be carried out once a year in October with a view to check periodically the efficiency of the operation of the WWW. Statistics should be compiled by manually operated and automated centres for the periods 1–5 October and 1–15 October, respectively. In order to facilitate the comparison of results between manually operated and automated centres, automated centres should also provide results for the two periods of 1–5 October and 1–15 October.

NOTE: As regards CLIMAT/CLIMAT TEMP, the monitoring period should be extended to 15 days, even if (for other observations) a return for a period of only five days is made.

2. TYPES OF DATA TO BE MONITORED

The types of data listed in the following table should be monitored:

Types of data	Abbreviated Headings of bulletins T ₁ T ₂ A ₁ A ₂	Reference format for presentation of results
SYNOP reports	SMA ₁ A ₂	A
Parts A and B of TEMP reports	USA ₁ A ₂ /UKA ₁ A ₂	B ₁ /B ₂
Parts A and B of PILOT reports	UPA ₁ A ₂ /UGA ₁ A ₂	B ₁ /B ₂
SHIP reports	SMA ₁ A ₂	C ₁ /C ₂
Parts A and B of TEMP SHIP reports	USA ₁ A ₂ /UKA ₁ A ₂	D ₁ /D ₂ /D ₃ /D ₄
Parts A and B of PILOT SHIP reports	UPA ₁ A ₂ /UGA ₁ A ₂	D ₅ /D ₆ /D ₇ /D ₈
BUOY reports	SSA ₁ A ₂	E
AIREP reports	UAA ₁ A ₂	F
AMDAR reports	UDA ₁ A ₂	G
BATHY/TESAC/TRACKOB reports	SOA ₁ A ₂	H
CLIMAT reports	CSA ₁ A ₂	I ₁
CLIMAT TEMP reports	CUA ₁ A ₂	I ₂

(a) Monitoring of SYNOP reports

For each monitored station identified by the station index number (IIiii), the number of SYNOP reports made at the main standard synoptic hours (00, 06, 12 and 18 UTC) and available during the monitoring period within one hour, 2 hours and 6 hours of the standard bulletins times should be inserted in the appropriate columns of Format A;

(b) Monitoring of Parts A and B of TEMP and PILOT reports

For each monitored station identified by the station index number (IIiii), the number of parts A and B of TEMP and PILOT reports (made by tracking a free balloon by electronic or optical means at the main standard synoptic hours (00, 06, 12 and 18 UTC) and available during the monitoring period within 2 hours and 12 hours of the standard bulletin times) should be inserted in the appropriate columns of the forms, formats B₁ and B₂;

(c) Monitoring of SHIP reports

The number of bulletins identified by their abbreviated headings (T₁T₂A₁A₂ii CCCC) including SHIP reports made at the main synoptic hours (00, 06, 12 and 18 UTC) and available during the monitoring period within 2 hours and 12 hours of the standard bulletin times with the number of reports included in these bulletins should be inserted in the appropriate columns of the forms, formats C₁ and C₂;

(d) Monitoring of parts A and B of TEMP SHIP and PILOT SHIP reports

The number of bulletins identified by their abbreviated headings (T₁T₂A₁A₂ii CCCC) including parts A and B of TEMP SHIP and PILOT SHIP reports made at the main synoptic hours (00, 06, 12 and 18 UTC) and available during the monitoring period within 12 hours and 24 hours of the standard bulletin times with the number of reports included in these bulletins, should be inserted in the appropriate columns of the forms, formats D₁ to D₈;

(e) Monitoring of BUOY, AIREP and AMDAR reports

The number of bulletins identified by their abbreviated headings (T₁T₂A₁A₂ii CCCC) including BUOY, AIREP and AMDAR reports compiled between 2100 to 0259 UTC, 0300 to 0859 UTC, 0900 to 1459 UTC and 1500 to 2059 UTC and available during the monitoring period before 05, 11, 17 and 23 UTC, respectively, as well as the number of reports included in these bulletins, should be inserted in the appropriate columns of the forms, formats E, F and G;

(f) Monitoring of BATHY/TESAC/TRACKOB

The time of receipt of bulletins identified by their complete abbreviated headings (T₁T₂A₁A₂ii CCCC YYGGgg (BBB)) containing BATHY/TESAC/TRACKOB reports as well as the number of reports included in these bulletins should be inserted in the appropriate columns of format H;

(g) Monitoring of CLIMAT and CLIMAT TEMP reports

For each station monitored and identified by the station index number (Iiii), "1" should be inserted in the appropriate column of the form, format I1, if the September CLIMAT report is received between 1 and 5 October or 6 and 15 October, otherwise "0" should be inserted in these columns. The same procedure should be applied to the September CLIMAT TEMP report in the forms, format I2.

3. GLOBAL DATA SET TO BE MONITORED

3.1 The global data set to be monitored is determined by:

- (a) The list of surface stations comprising the Regional Basic Synoptic Networks (RBSNs) for SYNOP and CLIMAT reports; the list of radiowind/radiosonde stations comprising the RBSNs for Parts A and B of TEMP reports and CLIMAT TEMP reports; the lists of radiowind stations comprising the RBSNs for Parts A and B of PILOT reports;
- (b) The lists of abbreviated headings of bulletins containing SHIP, TEMP SHIP, PILOT SHIP, BUOY, AIREP/AMDAR and BATHY/TESAC/TRACKOB reports which have to be globally exchanged according to the Catalogue of Meteorological Bulletins. For ease of reference, the Secretariat will compile these lists of abbreviated headings which will be attached to the relevant format for each monitoring.

3.2 The references of the lists mentioned (including the references to the relevant amendment to the Manual on the GTS and of the edition of the Catalogue of Meteorological Bulletins) are given in the formats prepared by the Secretariat for each monitoring.

4. GEOGRAPHICAL AREA IN WHICH DATA SHOULD BE MONITORED

GTS centres should monitor the global data set or part of it as follows:

- (a) NMCs or centres with similar functions should monitor at least the availability of the data from the zone for which they are responsible for the data collection and their insertion into the GTS;
- (b) RTHs not located on the MTN should monitor at least the availability of the observational data from their zone of responsibility for the collection of observational data as prescribed in Volume II of the Manual on the GTS. RTHs should also monitor the availability of observational data from the Region in which they are located and from any other Region to which they are linked by an interregional circuit;
- (c) WMCs and RTHs located on the MTN should monitor the availability of the complete set of data for global exchange.

5. IMPLEMENTATION OF MONITORING PROCEDURES AND QUESTIONNAIRES

5.1 Questionnaires related to the procedures implemented at the centres, suspension of observing programmes at observing stations and suspension of transmission on circuits are given in formats J, K and L, respectively.

5.2 Monitoring procedures should be implemented at centres in such a way that all replies to the questions included in format J should be positive (reply: Yes). Questions 7, 8 and 10 are only applicable to SYNOP, TEMP, PILOT, CLIMAT and CLIMAT TEMP reports.

6. STANDARD FORMAT FOR STATISTICS

6.1 With a view to enabling the easy comparison of results of internationally-coordinated monitoring carried out by the different centres, the standard formats attached should be used. All centres carrying out monitoring should state clearly the period covered. In each format, centres should present the results region by region as well as for the Antarctic and give totals of the number of bulletins or reports received within the specified time region by region and for the Antarctic.

6.2 If the report or bulletin indicated in the first column is not scheduled to be received, "N" should be inserted in the second column of the format concerned, otherwise "S" should be inserted.

6.3 The statistics should be sent to the adjacent centres concerned and to the WMO Secretariat at the earliest possible date after the end of the monitoring period but not later than 15 November.

7. ROLE OF THE WMO SECRETARIAT

The Secretariat will ensure that the Members are aware of their respective responsibilities and will collect the statistical results of internationally-coordinated monitoring from the Members concerned. The Secretariat will make a summary of the statistics and will evaluate the deficiencies and effectiveness of the operation of the WWW as a whole and in part. In this connection, the Secretariat will check the observing programme of individual observing stations. The results of the monitoring will

be made available to the Executive Council and the CBS by correspondence or at sessions as appropriate. The Secretariat will take up the possibility or remedial action with Members concerned in order to eliminate shortcomings in the operation of the GOS and the GTS as quickly as possible.

8. SPECIAL TYPES OF NON-REAL-TIME MONITORING OF THE WWW

If necessary, monitoring of the WWW may be undertaken in different regions and for various types of observational data. The purpose of such monitoring is to identify, in greater detail, deficiencies in the collection and exchange of data in different parts of the GTS and the reason for such deficiencies. Special types of monitoring should be initiated by the Secretary-General or by some of the Members concerned. The dates and duration of such monitoring would have to be agreed upon by those Members.

FORMAT B₂ - STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: TEMP and PILOT (PART B)

Monitoring centre: _____

Monitoring period: . _____

Station Index Number. Iiiii	S/N**	Number of TEMP reports (Part B) received between HH (standard bulletin time) and										Number of PILOT reports (Part B) received between HH (standard bulletin time) and									
		HH (UTC)+2 hours					HH (UTC)+12 hours					HH (UTC)+2 hours					HH (UTC)+12 hours				
		00	06	12	18	TOTAL	00	06	12	18	TOTAL	00	06	12	18	TOTAL	00	06	12	18	TOTAL

* Reference for the global exchange list: *Manual on the GTS* — Amendment
 ** S=if data are scheduled to be received
 N = if data are not scheduled to be received.

FORMAT C₂. STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: SHIP

Monitoring centre: _____

Monitoring period: . _____

Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC	S/N**	Number of SHIP bulletins and reports received within 12 hours of the standard bulletin time									
		00 UTC		06 UTC		12 UTC		18 UTC		TOTAL	
		Bulletins	Reports	Bulletins	Reports	Bulletins	Reports	Bulletins	Reports	Bulletins	Reports

* See attached list of abbreviated headings of SHIP bulletins for global exchange as prepared by the WMO Secretariat for each monitoring Reference *Catalogue of Meteorological Bulletins — Edition*

** S=if data are scheduled to be received
N = if data are not scheduled to be received.

FORMAT D₆. STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: PILOT SHIP (PART A)

Monitoring centre: _____

Monitoring period: . _____

Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC	S/N**	Number of PILOT SHIP bulletins and reports (Part A) received within 24 hours of the standard bulletin time									
		00 UTC		06 UTC		12 UTC		18 UTC		TOTAL	
		Bulletins	Reports	Bulletins	Reports	Bulletins	Reports	Bulletins	Reports	Bulletins	Reports

* See attached list of abbreviated headings of PILOT SHIP (Part A) bulletins for global exchange as prepared by the WMO Secretariat for each monitoring
Reference *Catalogue of Meteorological Bulletins — Edition*

** S=if data are scheduled to be received
N = if data are not scheduled to be received.

FORMAT E - STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: BUOY

Monitoring centre: _____

Monitoring period: . _____

Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC	S/N**	Bulletins compiled from 2100* to 0259* UTC and received before 05 UTC		Bulletins compiled from 0300* to 0859* UTC and received before 11 UTC		Bulletins compiled from 0900* to 1459* UTC and received before 17 UTC		Bulletins compiled from 1500* to 2059* UTC and received before 17 UTC		TOTAL	
		Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports

* Hour of compilation = GGgg included i the abbreviated heading.

** See attached list of abbreviated heading of BUOY bulletins for global exchange as prepared by the WMO Secretariat for each monitoring (Reference : Catalogue of Meteorological Bulletins – Edition...)

*** S=if data are scheduled to be received

N = if data are not scheduled to be received

FORMAT F - STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: AIREP

Monitoring centre: _____

Monitoring period: . _____

Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC	S/N**	Bulletins compiled from 2100* to 0259* UTC and received before 05 UTC		Bulletins compiled from 0300* to 0859* UTC and received before 11 UTC		Bulletins compiled from 0900* to 1459* UTC and received before 17 UTC		Bulletins compiled from 1500* to 2059* UTC and received before 17 UTC		TOTAL	
		Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports	Number of bulletins	Number of reports

* Hour of compilation = GGgg included i the abbreviated heading.
 ** See attached list of abbreviated heading of AIREP bulletins for global exchange as prepared by the WMO Secretariat for each monitoring (Reference: *Catalogue of Meteorological Bulletins – Edition...*)
 *** S=if data are scheduled to be received
 N = if data are not scheduled to be received

FORMAT H - STATISTICS ON GLOBAL EXCHANGE DATA RECEIVED: BATHY/TESAC/TRACKOB

Monitoring centre: _____

Monitoring period: . _____

Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC YYGGgg (BBB)	S/N**	Date/Time of receipt	Number of Reports	Abbreviated heading* T ₁ T ₂ A ₁ A ₂ iiCCCC YYGGgg (BBB)	S/N**	Date/Time of receipt	Number of Reports

* Hour of compilation = GGgg included i the abbreviated heading.

** See attached list of abbreviated heading of BATHY/TESAC/TRACKOB bulletins for global exchange as prepared by the WMO Secretariat for each monitoring (Reference: *Catalogue of Meteorological Bulletins – Edition...*)

*** S=if data are scheduled to be received

N = if data are not scheduled to be received

FORMAT J - QUESTIONNAIRE RELATED TO THE IMPLEMENTATION OF PROCEDURES AT THE MONITORING CENTRES

Monitoring centre: _____

Monitoring period: . _____

Question	1	2	3	4	5	6	7	8	9	10	11
	Is the monitoring automated	Is the counting of bulletins and reports performed before quality control?	Are bulletins and reports counted only if received or transmitted on the GTS channels?	Are duplicated bulletins disregarded?	Are bulletins including only NIL reports counted?	Are bulletins including COR or CCx counted in addition to bulletins to be corrected?	Are duplicated reports included in the bulletins having the same abbreviated heading disregarded?	Are duplicated reports included in bulletins having a different abbreviated heading disregarded?	Are NIL reports disregarded?	Are reports included in bulletins including the indicator COR or CCx disregarded in addition to reports to be corrected?	Are all AIREP/AMDAR reports made at different positions during the flights counted as different reports?
Reply (yes or no)											

NOTE: Monitoring procedures should be implemented at centres in such a way that all replies to the questions included in Format J are positive (reply: yes)

Comments:

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NOTE: Questions 7, 8, 10 are only applicable to SYNOP, TEMP, PILOT, CLIMAT and CLIMAT TEMP reports.

FORMAT K - SUSPENSION OF OBSERVING PROGRAMMES AT OBSERVING STATIONS**Monitoring centre:** _____**Monitoring period:** . _____

Station Index No. IiIII*	Details of suspension and reasons	Number of reports (SYNOP, TEMP or PILOT) not made for each observation time				
		Type of report	00 UTC	06 UTC	12 UTC	18 UTC

Example of entry:

Station Index No. IiIII*	Details of suspension and reasons	Number of reports (SYNOP, TEMP or PILOT) not made for each observation time				
		Type of report	00 UTC	06 UTC	12 UTC	18 UTC
Iiiii	Delayed delivery of balloons	TEMP	2		1	4
Iiiii	Delayed delivery of caustic sod	PILOT	5	5	5	4
Iiiii	Lack of manpower	SYNOP	7	7	7	7

NOTE:

See the Catalogue of Meteorological Bulletins, WMO-No. 9, edition ... for lists of the abbreviated headings of global exchange bulletins for SHIP; TEMP SHIP, Part A and Part B; PILOT SHIP, Part A and Part B; DRIFTER; AIREP; AMDAR; and BATHY/TESAC reports. Those lists will be included by the WMO Secretariat in the letter of invitation to participate in the monitoring exercise.