WORLD METEOROLOGICAL ORGANIZATION

COMMISSION FOR BASIC SYSTEMS

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

FINAL REPORT

GENEVA, 13 - 17 SEPTEMBER 1999

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1.   ORGANIZATION OF THE MEETING

1.1   Opening remarks

1.1.1   A meeting of the CBS expert team on quantity monitoring opened at 1000 on Monday, 13 September 1999 in the Headquarters of the WMO Secretariat in Geneva. Mr B. Sumner (Australia) chaired the meeting. Mr M. Jaraud, Deputy Secretary-General of WMO opened the meeting on behalf of the Secretary-General and welcomed the experts to Geneva. Mr Jaraud 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 CURRENT MONITORING PROCEDURES

2.1   The experts reviewed current procedures for monitoring the quantity of data and products carried on the GTS, including both real-time and non-real-time monitoring. The Annual Global Monitoring (AGM) and the Special MTN Monitoring (SMM) were discussed in detail. The experts noted that the AGM and SMM each have their own advantages and disadvantages.

2.2   The AGM is only performed once per year. Furthermore, global procedures for counting reports inside bulletins are not consistently implemented. For example, some centres count all reports while others count only reports that are successfully decoded. It is therefore very difficult to compare the results between centres.

2.3   The SMM was approved by CBS for experimental use beginning in 1995 and became operational in 1997. The SMM is limited to the four main synoptic hours, except for asynoptic data, which are counted continuously, and is carried out four times per year, in February, April, July and October (coinciding with the AGM). The SMM is more highly automated than the AGM, shares the workload between centres and eliminates differences in procedures by having only one centre do the preanalysis of each type of data.

2.4   The experts were impressed with the success of the SMM and agreed it produced a wealth of information that can be used to investigate problems. However, they felt that the information was so voluminous that a large amount of work was required to extract the details needed to investigate a particular problem. They noted that the information could be made more useful through further consolidation and tailoring of the results to highlight problems for the particular Member concerned.

2.5   The experts agreed that the most serious shortcoming of the SMM was that only a few centres participate with none from Regions III, IV or V. They noted that it would theoretically be best if all MTN centres participated. However, considering the balance between completeness and the volume of data to be analysed the experts re-emphasised that six centres with one from each region would be optimal. They were pleased that during the meeting the expert from Australia informed the group that WMC Melbourne had agreed to participate in the SMM.

2.6   Considering the relative advantages and disadvantages of the AGM and SMM the experts noted the following:

AGM deficiencies

a. Not timely enough to contribute to the resolution of short-term problems or outages
b. Not frequent enough to meet GOS requirements, quarterly monitoring is required
c. Only performed once per year
d. Lack of easy access to feedback of deficiencies to Members
e. Only RBSN stations are monitored
f. Data only monitored at main hours, i.e. 00, 06, 12 and 18 UTC
g. Mobile stations are not monitored at the report level, only at the bulletin level
h. Fixed stations are not monitored at the bulletin level, only at the report level
i. Information provided by countries during the AGM on the suspension of their observing programmes and on the suspension of transmission on circuits is insufficient to identify the reasons for non-availability of reports at the national level
j. Differences in implementation procedures of the AGM monitoring at different centres complicates direct comparison of results

AGM advantages

a. Conducted yearly so is not too onerous for Members.
b. Compares availability at the NMC and RTH levels
c. Many Members contribute to the global monitoring effort and thus feel a sense of ownership for the results
d. Contribution to the effort encourages Members to review their networks and systems at least once per year.

Deficiencies of the *current* SMM

a. MTN centres from all Regions do not participate and there is no NMC or RTH involvement
b. Effective feedback systems are not fully in place for rectification activity
c. Difficult for Members to extract information relevant to their own operations
d. Not timely enough to contribute to the resolution of short-term problems or outages
e. Does not monitor all data types required to evaluate the impact of Resolution 40 on data exchange.

Advantages of the *current* SMM

a. Does not impose costs on most Members
b. Collection of information is fully automated
c. Comprehensive statistics can be generated from the data obtained since the full raw data files are available
d. Since preanalysis is conducted at single designated centres differences in procedures do not contaminate the results

2.7   The experts agreed that if the AGM were to provide the information necessary to monitor the implementation of the WWW a number of changes would have to be implemented. Standard procedures would have to be further developed and accurately implemented by all centres to ensure reports are counted consistently

3.   MECHANISMS FOR MEASURING ANY IMPACT OF RESOLUTION 40 ON EXCHANGE OF DATA AND PRODUCTS

3.1   The experts considered a proposed methodology for assessing the availability of surface synoptic data since the adoption of Resolution 40. The proposal concluded that the most effective way to monitor any changes in the volume of data exchanged since the adoption of Resolution 40, would be an expanded SMM to record *all* SYNOP traffic - not just at the four main synoptic hours, but intermediate and hourly SYNOPs as well. It proposed that the results be categorised and counted as:

     a. "data for global and regional exchange"
     b. "other" data in total
     c. "additional" data as a separately identified subset of "other" data

3.2   The proposal recommended this grouping be established by identifying observations according to the Distribution Type/Level Designator ("ii") in their bulletin headers. "Data for global and regional exchange", comprising SYNOPs from RBSN stations at main reporting times, will have "ii" in the range 1 – 39, while bulletins of "other" observations will have "ii" of 40 or higher. The "additional" data subset should be identified by checking the "other" observations recorded, against bulletins of observations identified by Members in the Catalogue of Additional Data and Products corresponding to the time of the monitoring.

3.3   The experts agreed that there are inaccuracies and inconsistencies in the application of "ii" in the bulletin headers. If this proposal were to be implemented Members must be requested to ensure that their bulletin headers are correct before the enhanced SMM commences.

3.4   The experts considered this proposal in considerable detail during its deliberations on the design of new monitoring procedures covered under the next agenda item and incorporated the stated requirements into the proposed new procedures. However, the experts noted that the proposed procedure would not necessarily record all data exchanged through bilateral or multilateral arrangements since only one SMM centre in each Region would participate in the monitoring and might not relay those data. To record these data centres involved in bilateral or multilateral exchange should be invited to provide specific monitoring reports on this exchange to their Regional SMM centre.

4.   DESIGN OF INTEGRATED WWW MONITORING ACTIVITIES

4.1   The experts considered a variety of proposals for improved monitoring procedures. They agreed that the monitoring should be carried out at a number of levels and that an expanded SMM should form the heart of the top-most level. The proposed monitoring procedures are described in the annex to this paragraph.

4.2   The experts discussed possible means to satisfy all of the requirements of the current AGM through the automatic procedures defined in the enhanced SMM. After lengthy and detailed technical discussions they agreed that all of the information currently available from the AGM could be gleaned from the SMM statistics <u>except</u> for the percentage of reports received at the NMC within specific time windows. Furthermore as part of the AGM some Members provide information on reasons for suspension of their observing program or interruption of their telecommunication circuits, although this information is not widely reported. The experts felt that the relative benefit of the NMC-level timeliness and interruption information gathered by the AGM compared with the cost required to produce it must the subject of further consideration by CBS. If CBS agreed that this additional information is not cost-effective to collect Members participating in the new monitoring procedure would no longer need to participate in the AGM.

4.3   The experts recommended that the proposed plan for integrated WWW quantity monitoring be subject to review by a wide cross-section of the CBS. They therefore suggested that the Secretariat

make the plan available on its Internet server, notify all members of the CBS OPAG on ISS of its availability and solicit comments on the proposal.

5.   CLOSURE OF THE MEETING

5.1   The meeting closed on 17 September 1999.

Annex to Paragraph 4.1

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 by:

 a) checking the completeness and timeliness of data collection at NMCs, RTHs and WMCs;
 b) checking the adherence to WMO coding procedures and telecommunication formats;
 c) preparing statistics on the status of data collection and distributed on the GTS;

1.2   Unfortunately, it has been recognised for some time that this monitoring has not satisfied all of these requirements and that further measures are necessary. It is proposed that a new procedure be implemented to monitor the quantity and timeliness of data exchanged on the GTS. The procedure includes monitoring at two levels:

 a) Near-real-time operational monitoring of the data exchanged between NMCs and their responsible RTHs
 b) Quarterly monitoring of the data exchanged on the GTS based on an expansion of the current SMM complemented by monitoring reports to be compiled by all RTHs.

1.3   The proposed procedure will monitor transmission of <u>all</u> observational data on the GTS, i.e. SYNOP, TEMP, PILOT, SHIP, TEMP SHIP, PILOT SHIP, BUOY, AIREP, AMDAR, BATHY, TESAC, TRACKOB, CLIMAT and CLIMAT TEMP. As far as possible, monitoring of BUFR data distributed over the GTS should also be conducted. Monitoring of the reports at the main synoptic hours should be conducted on a continuous basis while monitoring reports at intermediate hours can be limited to special exercises carried out a few times per year.

1.4   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. Furthermore it will monitor all data types required and thus facilitate the evaluation of the impact of Resolution 40 on data exchange.

2.   Centres participating in monitoring

2.1   Near real-time operational monitoring should be carried out by all the WMO GTS telecommunication centres (NMCs and RTHs). Moreover, participation of the GDPS centres in monitoring is also desirable. For quarterly monitoring it is proposed that at least one Special MTN Monitoring Centre (SMMC) be established in each Region. These SMMCs would participate in enhanced Special MTN Monitoring (SMM) four times per year and would check on the adherence to telecommunication formats and procedures as well as the preparation of consolidated statistics.

3.   Rules for preparation of monitoring reports

3.1   To avoid the discrepancies between monitoring results caused by differences in implementation procedures, all of the GTS centres should produce their reports in accordance with the standard procedures given below:

- All bulletins and reports received or transmitted on the GTS should be counted.
- All SYNOP/TEMP/PILOT/CLIMAT/CLIMAT TEMP reports should be counted whether they are made at RBSN stations or not.

- All AIREP/AMDAR reports made at different positions during the flight should be counted as different reports.
- Duplicated reports and duplicated bulletins should be counted only once.
- Retard bulletins and retard reports should be counted.
- Corrected bulletins and corrected reports should not be counted as additional ones.
- Statistics for the different periods should be compiled separately.

4. Near-real-time continuous monitoring

4.1 Responsibilities of NMCs

4.1.1   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.

4.1.2   Each NMC should prepare a brief summary on the status of the reports it has inserted 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 10th 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.

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

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

4.1.5   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)

NMC	Bulletin Header	Number of reports defined in Volume C	Number of reports 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
NMC	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_1T_2	Reports are considered delayed if transmitted:
SYNOP	SM	more than 30 minutes after the main synoptic hour
TEMP, PILOT	US, UL, UP, UH	more than 90 minutes after the main synoptic hour
CLIMAT	CS	after the fifth day of the next month
CLIMAT TEMP	CU	

Table B - Definition of fields in the report

Field	Format	Example
Hour	4 digits	1200
Date	DD/MM/YYYY	15/06/2001
NMC	CCCC	AMMC
Data type	SM, US, UL, UP, UH, CS, CU	SM
Bulletin Header	TTAAii CCCC,	SMAU01 AMMC,
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,AMMC,SM
SMAU01 AMMC,10,9,1,1,0,0
SMAU02 AMMC,15,13,2,0,0,0
TOTAL,25,22,3,1,0,0
NIL,94915,94560,91234
DEL,95123
NOT,
NEW,

4.1.6 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

NMC	Bulletin Header	Number of reports transmitted
NMC	TOTAL	#

Table C – Reference data types and time periods

Type of data	Referenced main synoptic hours	Monitoring data set
SHIP	HH = 00, 06, 12, 18 UTC	Bulletins including reports prepared for HH
TEMP SHIP, PILOT SHIP	HH = 00, 12 UTC	Bulletins including reports prepared for HH
BUOY, AIREP, AMDAR, BATHY, TESAC, TRACKOB	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	AMMC
Data type	SM, US, UL, UP, UH, SS, UA, UD, SO	SM
Bulletin Header	TTAAii CCCC,	SMVE12 AMMC,
Count (#)	Field	10

Example:
1200,15/06/2001,AMMC,SM
SMVE12 AMMC,26
SMVE13 AMMC,23
TOTAL,49

4.1.7   Archive of monitoring data

4.1.7.1 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.

4.2   Responsibilities of RTHs

4.2.1 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.

4.2.2 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 section 4.1 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 4.1. 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

4.2.3   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 **. . .**

Example:
1200,15/06/2001,AMMC,SY
AMMC, SMAU01 AMMC,10,9,0,1,0,0
AMMC, SMAU02 AMMC,15,12,3,0,0,0
AMMC, TOTAL,25,21,3,1,0,0
NIL,94915,94560,91234
DEL,95123
NOT,
NEW,

NZKL, SMNZ01 NZKL,10,9,0,1,0,0
NZKL, SMNZ02 NZKL,15,12,3,0,0,0
NZKL, TOTAL,25,21,3,1,0,0
NIL,93915,93560,93234
DEL,93123
NOT,
NEW,

4.2.4   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.

Example:
1200,15/06/2001,AMMC,SH
AMMC, SMVE12 AMMC,26
AMMC, SMVE13 AMMC,23
AMMC, TOTAL,49

NZKL, SMVE01 NZKL,21
NZKL, SMVE02 NZKL,15
NZKL, TOTAL,36

4.2.5   Format for the RTH discrepancy report

Hour, Date, RTH, Data type

NMC	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 **. . .**

4.2.6   Archive of monitoring data

4.2.6.1 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.

4.2.7   Follow-up actions

4.2.7.1 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

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

5.   Expanded Special MTN Monitoring

5.1   RTH summary reports

5.1.1   Four times per year, coinciding with the SMM, each RTH should provide reports on the availability at its associated NMCs and at its own centre of SYNOP, TEMP and PILOT reports issued from its zone of responsibility during the SMM monitoring periods. The reports should be forwarded to the WMO Secretariat FTP server as soon as possible, preferably within three days.

5.1.2   The information related to the NMCs should be based on the information provided by the NMCs in the near-real-time monitoring (see section 4.1). The monitoring reports should include the number of:

(a) SYNOP reports transmitted within 30 minutes after the main synoptic hours (00, 06, 12 and 18 UTC) and after these 30 minutes,

(b) Parts A and C of TEMP and PILOT reports transmitted within 90 minutes after the main synoptic hours (00, 06, 12 and 18 UTC) and after these 90 minutes.

Example of reported information:

1-15 October 1999, zone of responsibility of RTH Melbourne, SYNOP reports

Station	00 UTC				06 UTC				12 UTC				18 UTC			
	Within 30 min		After 30 min		Within 30 min		After 30 min		Within 30 min		After 30 min		Within 30 min		After 30 min	
	NMC	RTH	NMC	RTH	NMC	RTH	NMC	RTH	NMC	RTH	NMC	RTH	NMC	RTH	NMC	RTH
10100	14	12	15	14	11	10	13	13	15	15	15	15	9	8	12	11
10101	15	15	15	15	13	12	14	14	14	14	15	15	11	11	12	11

Format definition

Field	Format	Example
Month	2 digits	09
Year	4 digits	1999
RTH	CCCC	AMMC
Data type	SM, US, UL, UP, UH	SM
Station index number Iiiii	5 digits	10100
Number of reports available	2 digits	15

Example of monitoring reports:

10,1999,AMMC, SM
10100,14,12,15,14,11,10,13,13,15,15,15,15,9,8,12,11
10101,15,15,15,15,13,12,14,14,14,14,15,15,11,11,12,11

5.2   Special MTN Monitoring Centres

5.2.1   At lease one Special MTN Monitoring Centre (SMMC) should be designated in each Region. Each SMMC should undertake the same responsibilities as the centres currently participating in the SMM but with additional data subject to collection and monitoring. The full requirement is given in Table E with items that have been added to the current SMM indicated in bold. The current status of the SMM is provided in Table F. SMMCs in each Region should agree on sharing the responsibilities for the required data types.

5.2.2   SMMCs should archive raw data during the first 15 days of February, April, July and October for each of the types of data monitored. The raw data should include the complete text of the bulletins, and complementary information on the time of reception of the bulletins and the GTS centres from which the bulletins were received.

Table E – Data subject to SMM monitoring

Type of data	T_1T_2	GGgg
All SYNOP	SM, **SI, SN**	**All hours (and all ii's)**
TEMP, PILOT	US, UP, **UL, UH**	0000, 0600, 1200, 1800
CLIMAT	CS	(report of the previous month)
CLIMAT TEMP	CU	(report of the previous month)
SHIP	SM	0000, 0600, 1200, 1800
TEMP SHIP, PILOT SHIP	US, UP, **UL, UH**	0000, 0600, 1200, 1800
BUOY	SS	All bulletins
BATHY, TESAC, TRACKOB	SO	All bulletins
AIREP	UA	All bulletins
AMDAR	UD	All bulletins
BUFR	**Any TT beginning with I**	**All bulletins**

Table F – Responsibilities of centres for the Special MTN Monitoring (SMM)
(as of 17 September 1999)

Set of data	SMMCs monitoring set of messages	SMMCs in charge of analysing set of messages
SYNOP reports (TT=SY)	- Algiers - Melbourne - Offenbach - Tokyo	Tokyo
Parts A of TEMP (TT) and PILOT (PP) reports	- Melbourne - Nairobi - Toulouse - Tokyo	Tokyo
CLIMAT (CL) and CLIMAT TEMP (CT) reports	- Cairo - Melbourne - New Delhi - Toulouse	Cairo
SHIP (SH), TEMP SHIP (TS), PILOT SHIP (PS), BOUY (BU), BATHY/TESAC/TRACKOB (BT) reports	- Cairo - Melbourne - Offenbach - Toulouse	Offenbach
AIREP (AI) and AMDAR (AM) reports	- Melbourne - Nairobi - Toulouse - Tokyo	Toulouse

Note: WMC Melbourne should confirm its participation for all types of data in the SMM monitoring exercises starting with the October 1999 exercise

5.2.3   The experts proposed that each SMMC should take responsibility for pre-analysing one set of data. The sets of data requiring pre-analysis are:

1) SYNOP
2) TEMP and PILOT
3) CLIMAT and CLIMAT TEMP
4) SHIP, TEMP SHIP, PILOT SHIP, BATHY/TESAC/TRACKOB
5) AIREP and AMDAR
6) BUFR

5.2.4   The pre-analysis files, written in a database structure, contain the information extracted from all the raw data and required for a further analysis of the monitoring results by any other centres and the Secretariat. These pre-analysis files produced should be forwarded to the Secretariat FTP server as soon as possible, preferably within 3 days.

5.2.5   In order to meet all of the monitoring requirements all SYNOP data (SM, SI, SN) that are exchanged on the GTS need to be monitored, including bulletins with ii greater than 19. Although this will increase the volume of raw data that must be collected and analysed the experts agreed that a subset could not provide all of the information necessary to assess the impact of Resolution 40 on data exchange.

5.2.6   It is recommended that the formats of the analyses already defined for the SMM continue. The pre-analysis centre for BUFR should produce pre-analysis files in formats relevant to the type of data contained within the BUFR message. For example, the pre-analysis file for BUFR messages of ACARS data would be in the AIREP/AMDAR format. Likewise, the TEMP/PILOT format would be used for profiler data encoded in BUFR. Use of common formats will greatly simplify generation of statistical summaries of these data.

5.3   Analysis and presentation of results

5.3.1   The WMO Secretariat and SMMCs should process the pre-analysis files at the report level and at the bulletin level. The Secretariat should coordinate these activities and post these results on the WMO FTP server. Furthermore, the Secretariat should collect the RTH summary reports and merge them with the results from the SMM to produce a comprehensive set of monitoring information.

5.3.2   In order utilised the resultant summaries to the fullest extent possible the information must be tailored/subdivided for each RTH so that each centre can more easily identify deficiencies within their own areas of responsibility and thus implement appropriate remedial action. For example, customised reports could be generated via database routines available on the Internet to assess the WMO final statistics database. A large variety of reports could be so generated, such as a report on an individual station to show how it performed during the survey period, a report on network implementation of a particular country could be generated and lists of deficiencies could be produced. A few examples are provided in the annex to this paragraph but significant further work is required to exploit the full potential of this information.

6.   Responsibilities of GDPS centres

6.1   The GDPS centres should produce monthly formalised statistical messages on the volume of data received and decoded at the centre. Each should compare its statistics with the statistics compiled by its GTS centre. If differences are detected then the reasons should be identified and corrective action taken. GDPS centres should record the bulletins or reports which could not be decoded in order to improve their software and monitor the adherence to the WMO standard codes and telecommunication procedures. Any consistent or frequent deficiencies should be reported to the Secretariat and to the RCSM and Members concerned.

Annex to paragraph 5.3.2

Analysis of the AGM and SMM monitoring results

1.   Results of the analysis of the AGM and SMM by the WMO Secretariat

1.1   The results of the analysis by the Secretariat of the Annual Global Monitoring (AGM) and the Special MTN Monitoring (SMM) exercises are available in the WMO FTP server under the sub-directories:

    GTS_monitoring\AGM\From_WMO\YY\ANALYSIS\MTN
    GTS_monitoring\SMM\From_WMO\smYYM01.015\ANALYSIS
    (where YY is the year and M the month of the monitoring exercise)

The files included in these sub-directories are described in "readme.txt" files included in the same sub-directories.

The files include the following information:

(a) For each RBSN station, the number of reports received by each centre and in total (see examples in Table 1 for the AGM and in Table 2 for the SMM), and the list of TTAAii CCCC under which the reports from the station were received (see example in Table 3 for the SMM);

(b) The list of all individual reports from mobile station received, with an indication for each report as regards the availability of the report at each centre; examples are given in

(c) The list of all individual bulletins (see example in Table 4 for the SMM).

1.2   As an example of further analysis of the SMM results, it can be noted from Tables 2, 3, and 4 that:

(a) SYNOP reports from the station 89662 were available at Toulouse, but not at Melbourne and Tokyo (see Table2);

(b) Toulouse received the reports in the bulletins SMAA01 LIIB (see Table 3); Tokyo and Melbourne did not receive any bulletin SMAA01 LIIB;

(c) Toulouse received bulletins SMAA01 LIIB, all with a mention RRX and most of them received more than 24 hours after the group date/time of the abbreviated heading (see Table 4). Copies of bulletins are shown in Table 5.

1.3   The Secretariat carries out a further analysis of SMM monitoring results as follows:

(a) Identifying for each monitoring centre the list of fixed stations for which no reports were received, while report(s) were received by the other monitoring centres,

(b) Identifying for each monitoring centre the bulletins received by the other monitoring centre(s) and into which reports from the fixed stations mentioned in (a) were compiled,

(c) Counting the number of bulletins and reports received within the bulletins for each monitoring centre and in total, and identifying the list of bulletins not received by each centre,

(d) Identifying bulletins received with same abbreviated headings but with different contents,

(e) Comparing the bulletins received with the bulletins included in the catalogue of meteorological bulletins.

The result of that analysis is available in a paper format and should become available in an electronic version in the WMO FTP server before the end of 1999.

2.   Results of the analysis of the SMM by RTH Toulouse

The results of the analysis by RTH Toulouse of the Special MTN Monitoring (SMM) exercises are available in the WMO FTP server under the subdirectories:

> GTS_monitoring\SMM\To_WMO\PFLFP<u>YY</u>M
> (where <u>YY</u> is the year and <u>M</u> the month of the monitoring exercise)

The files included in those sub-directories are described in a "readme.txt" file included in the same sub-directories.

>   Those files provide in particular information on:

>   (a) Each bulletin received: number of reports received within the bulletins, best group date/time YYGGgg of reception, difference between the times of reception of the bulletin at the centres; the presentation of the information is similar to the Table 3;

>   (b) The bulletins having the same abbreviated heading TTAAii CCCC (see Table 6);

>   (c) The regularity of the availability of the bulletins on the MTN (see Table 7).

3.   Examples of identification of deficiencies and their causes

3.1   The following two paragraphs include examples of deficiencies in the exchange of data identified by the analysis of the monitoring results. The method used to identify the deficiencies is the comparison of the availability of data between MTN centres for the first example and the comparison of the availability of data between different days for the second example. The Secretariat used the available GTS management tools to identify the deficiencies and their causes: results of the AGM and SMM, routing catalogues of RTHs and catalogue of meteorological bulletins.

SYNOP reports from Iran

3.2   No SYNOP reports from 50 stations located in Iran were received by the SMM monitoring centres during SMM exercises, while the analysis of the 1998 AGM available in the WMO FTP server shows that RTH New Delhi reported the reception of SYNOP reports from these stations. In accordance with the Volume C1 of WMO Publication No. 9, these stations are compiled into the bulletins SMIR03 OIII and SMIR04 OIII. The comparison of the routing catalogues of the MTN centres showed that the bulletins SMIR03 OIII and SMIR04 OIII were not routed on the MTN. The Secretariat invited the focal point of RTH New Delhi, which is responsible for inserting the reports from Iran into the MTN, to examine the question. The focal points of RTHs Offenbach and Tokyo participating in the SMM for SYNOP reports were informed of the deficiency. RTH Tokyo informed the Secretariat that the bulletins SMIR03 OIII and SMIR04 OIII have been received from mid-May.

BUOY reports inserted into the GTS by USA

3.3   The analysis of the results of the 1999 April SMM shows that Offenbach and Toulouse received twice less BUOY reports than normally (about 3500 reports instead of 7000), during several days of the monitoring period. The missing reports are those normally inserted by USA under the abbreviated heading SSVXii KARS. The Secretariat invited the focal points of RTHs Toulouse and Washington, and the Technical co-ordinator of the WMO-IOC Data Buoy Co-operation Panel (DBCP) to comment on the deficiency. The Secretariat was informed that there was a transmission problem on the circuit between Service Argos Inc. in Landover, Maryland, and the NOAA/NWS Gateway in Washington during the period. Normally, in such situation the Toulouse Argos centre is switched to backup mode and does process the data which would normally be processed at the USA centre. Service Argos Inc was not aware that the link to the NWS Gateway did not work properly and therefore did not switch the Toulouse centre to backup mode.

Table 1

Results of the October 1997 annual global monitoring

Extracts for the file mtnsy97a related to the availability of SYNOP reports

Region/country/station	All	AMMC	BABJ	EDZW	EGRR	HECA	HKNC	LPPW	LZSO	OKPR	RJTD	RUMS	SABM	SBBR
1 DZA 60355	57	57	57	54	54	53	42	54	51	57	57	55	0	0
1 DZA 60360	59	59	59	54	55	47	45	55	51	55	59	58	0	0
1 DZA 60390	58	58	58	53	54	46	44	54	50	54	55	58	0	0
1 DZA 60402	59	59	59	54	55	48	43	55	51	56	56	58	0	0
1 DZA 60419	58	58	58	53	55	46	43	54	51	54	56	57	0	0
1 DZA 60445	59	59	59	56	56	56	44	56	53	57	51	58	0	0
1 DZA 60475	59	58	58	53	55	47	44	54	51	54	55	58	0	0
1 DZA 60490	58	58	58	53	54	46	44	54	50	54	56	57	0	0
1 DZA 60506	59	59	59	57	57	54	44	57	54	57	50	56	0	0
1 DZA 60511	59	59	59	57	57	57	44	57	54	57	50	59	0	0
1 DZA 60525	59	59	59	54	55	47	45	55	51	55	56	59	0	0
1 DZA 60531	56	56	56	52	53	44	42	53	49	54	53	55	0	0
1 DZA 60535	40	36	36	37	38	0	0	38	0	0	21	34	0	0
1 DZA 60549	56	56	56	53	53	51	41	53	50	57	49	54	0	0
1 DZA 60550	60	60	60	57	57	56	45	57	54	58	50	58	0	0
1 DZA 60555	57	57	57	55	55	54	42	55	52	57	48	56	0	0
1 DZA 60560	42	38	38	39	40	0	0	40	0	0	23	34	0	0
1 DZA 60566	57	57	57	51	52	47	43	52	49	54	56	57	0	0
1 DZA 60571	58	58	58	52	53	46	44	53	49	54	55	58	0	0
1 DZA 60580	6	6	6	0	0	6	4	0	0	0	3	6	0	0
1 DZA 60590	57	57	57	51	52	45	42	52	49	54	55	55	0	0
1 DZA 60602	44	44	44	42	42	42	29	42	41	42	41	43	0	0
1 DZA 60607	41	41	41	38	38	39	27	38	38	42	37	39	0	0
1 DZA 60611	56	55	55	52	53	46	43	53	49	55	53	54	0	0
1 DZA 60620	59	59	59	56	56	57	44	56	54	57	54	58	0	0
1 DZA 60630	57	57	57	56	55	45	43	55	52	56	56	56	0	0
1 DZA 60640	58	58	58	57	57	56	43	57	54	58	49	57	0	0
1 DZA 60656	9	8	8	0	0	8	4	0	0	0	2	9	0	0
1 DZA 60670	54	54	54	49	47	42	40	48	45	54	52	51	0	0
1 DZA 60680	55	54	54	49	49	44	39	47	47	54	52	55	0	0
1 DZA 60686	2	2	2	0	0	2	1	0	0	0	2	2	0	0
1 DZA 60690	12	12	12	12	12	12	10	12	11	41	12	12	0	0
1 AGO 66104	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66130	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66142	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66152	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66160	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66187	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66215	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66226	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66240	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66270	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66285	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66296	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66310	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66325	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66390	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66410	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66422	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 AGO 66447	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2

Extracts from the file rsy97af.zip

Each record includes seven fields for each RBSN station: Regional Association, country code, RBSN station index number, number of reports received by AMMC, number of reports received by LFFW, number of reports received by RJTD and number of reports received by the three RTHs as a whole.

Region/Country/ Station			Number of reports received by			
			AMMC	LFPW	RJTD	All
6	ITA	16020	0	45	42	45
6	ITA	16045	28	29	29	29
6	ITA	16059	49	48	50	50
6	ITA	16080	53	47	54	54
6	ITA	16120	0	39	48	50
6	ITA	16140	0	35	0	35
6	ITA	16158	49	51	52	52
6	ITA	16181	0	47	48	50
6	ITA	16191	50	52	52	52
6	ITA	16206	0	47	48	51
6	ITA	16230	0	49	48	51
6	ITA	16242	51	50	53	53
6	ITA	16261	52	53	54	54
6	ITA	16270	0	51	50	53
6	ITA	16280	0	52	52	55
6	ITA	16289	0	46	46	49
6	ITA	16310	51	49	52	52
6	ITA	16320	52	53	54	54
6	ITA	16350	33	33	34	34
6	ITA	16360	0	52	51	54
6	ITA	16400	0	37	35	37
6	ITA	16420	48	50	50	50
6	ITA	16429	50	52	52	52
6	ITA	16453	0	38	34	38
6	ITA	16470	34	36	36	36
6	ITA	16480	0	38	36	38
6	ITA	16490	0	0	0	0
6	ITA	16506	0	1	0	1
6	ITA	16520	0	44	43	47
6	ITA	16550	0	37	44	47
6	ITA	16560	45	45	48	48
7	**ITA**	**89662**	**0**	**15**	**0**	**15**

Table 3

Extracts from the file rbsy97af.zip

Each record contains five fields for each abbreviated heading: index number of the RBSN station (a report of which was received under the heading), abbreviated heading, a blank field if a report from the relevant RBSN station was received by AMMC (value "1" otherwise), a blank field if a report from the relevant RBSN station received by LFPW (value "1" otherwise), a blank field if a report from the relevant RBSN station received by RJTD (value "1" otherwise).

Station	TTAAII CCCC	Abbreviated heading not received by		
		AMMC	LFPW	RJTD
89662	**SMAA01 LIIB**	**1**		**1**
89664	SMAA01 NZCM	1		1
89667	SMAA14 LFPW			
89667	SMAA14 KARS			
89734	SMAA14 LFPW			
89734	SMAA14 KARS			
89744	SMAA14 KARS			
89744	SMAA14 LFPW			
89757	SMAA17 LFPW			
89758	SMAA17 LFPW			
89762	SMAA17 LFPW			
89774	SMAA17 LFPW			
89799	SMAA14 LFPW			
89799	SMAA14 KARS			
89803	SMAA17 LFPW			
89807	SMAA17 LFPW			
89810	SMAA17 LFPW			

Table 4

Extracts from the file bsy97af.zip

Each record contains nine fields for each individual bulletin received: TTAAII, CCCC, YYGGgg, BBB, number of reports received within the bulletin, best group date/time YYGGgg of reception, difference in minutes between the time of reception at AMMC and the best time of reception, difference in minutes between the time of reception at LFPW and the best time of reception, difference in minutes between the time of reception at RJTD and the best time of reception. Any of the last three fields is blank if the bulletin was not received by the corresponding RTH.

TTAAII	CCCC	YYGGGG	BBB	Reports	Best time of rec.	AMMC	LFPW	RJTD
SMAA01	LIIB	110600	RRA	1	141257		0	
SMAA01	LIIB	110600	RRB	1	141258		0	
SMAA01	LIIB	120000	RRA	1	141259		0	
SMAA01	LIIB	120600	RRA	1	141259		0	
SMAA01	LIIB	120600	RRB	1	141259		0	
SMAA01	LIIB	121200	RRA	1	141259		0	
SMAA01	LIIB	121800	RRA	1	141401		0	
SMAA01	LIIB	130000	RRA	1	141402		0	
SMAA01	LIIB	130600	RRA	1	141403		0	
SMAA01	LIIB	130600	RRB	1	141404		0	
SMAA01	LIIB	131200	RRA	1	141404		0	
SMAA01	LIIB	131800	RRA	1	141406		0	
SMAA01	LIIB	131800	RRB	1	141406		0	
SMAA01	LIIB	140000	RRA	1	141407		0	
SMAA01	LIIB	140000	RRB	1	141407		0	
SMAA01	LIIB	140600	RRA	1	141408		0	
SMAA01	LIIB	140600	RRB	1	141408		0	
SMAA01	LIIB	141200	RRA	1	141509		0	
SMAA01	LIIB	141800	RRA	1	141910		0	
SMAA01	LIIB	150000	RRA	1	160514		0	
SMAA01	LIIB	150600	RRA	1	160514		0	
SMAA01	LIIB	151200	RRA	1	160514		0	
SMAA01	LIIB	151800	RRA	1	160514		0	.
SMIY01	LIIB	010000		9	010011		0	0
SMIY01	LIIB	010000	RRA	1	010032	2	0	5
SMIY01	LIIB	010000	RRB	2	010034	2	0	5
SMIY01	LIIB	010000	RRC	2	010044	0		1

Table 5

Extracts from the file sm97a01.015/lfpwsy00 – SYNOP raw data archived by Toulouse

9710141509LIIB
270
SMAA01 LIIB 141200 RRA
AAXX 14124
89662 46//// 2008 11091 29047 39784 4//// 52015 =

9710141910LIIB
429
SMAA01 UIB 141800 RRA
AAXX 14184
89666 46/// /1920 11129 29040 39726 4//// 52018
333 11119 =
9710142010LIIB
465
SMAA01 LIIB 141800 RRA
AAXX 14184
89662 46/// /0208 11105 29040 39815 4//// 52026
333 11077 =

9710141257LIIB
166
SMAA01 LIIB 110600 RRA
AAXX 11064
89662 46/// /2725 11090 29046 39706 4//// 52008
333 21140=

9710141258LIIB
167
SMAA01 LIIB 110600 RRB
AAXX 11064
89666 46/// /1818 11110 29046 39630 4//// 52007
333 21125=

9710141 259LIIB
171
SMAA01 LIIB 120000 RRA
AAXX 12004
89662 46/// /2927 11082 29053 39756 4//// 57006 =

9710141259LIIB
172
SMAA01 LIIB 120000 RRA
AAXX 1 2004
89666 46/// /1306 11099 29059 39685 4//// 52008 =

Table 6

Extracts from a file DUPTTYYM

These files provide the following information for each TTAAii CCCC switched by the centres:
Dbl: Number of bulletins received with the same TTAAii CCCC YYGGgg BBB
Ext: Number of different bulletins extracted from Dbl (after deletion of duplicates or truncated bulletins included in other bulletins)
Rok: Number of bulletins received with a unique TTAAii CCCC YYGGgg BBB
Tot: Total Number of different bulletins
Nil: Number of "NIL" bulletins
Res: Total number of bulletins not "NIL"

```
| SMAA01AMMC ammc |Dbl:   4|Ext:   4|Rok:  83|Tot:  87|Nil:   2| Res:  85 |
| SMAA01AMMC damm |Dbl:   2|Ext:   1|Rok:  70|Tot:  71|Nil:   0| Res:  71 |
| SMAA01AMMC edzw |Dbl:   4|Ext:   4|Rok:  84|Tot:  88|Nil:   2| Res:  86 |
| SMAA01AMMC lfpw |Dbl:   4|Ext:   4|Rok:  84|Tot:  88|Nil:   2| Res:  86 |
| SMAA01AMMC rjtd |Dbl:   4|Ext:   4|Rok:  84|Tot:  88|Nil:   2| Res:  86 |
|-----------------|--------|--------|--------|--------|--------|-----------|
| SMAA01EUMS ammc |Dbl: 158|Ext: 158|Rok:  14|Tot: 172|Nil:   0| Res: 172 |
| SMAA01EUMS edzw |Dbl: 210|Ext: 157|Rok:   8|Tot: 165|Nil:   0| Res: 165 |
| SMAA01EUMS lfpw |Dbl: 155|Ext: 155|Rok:  10|Tot: 165|Nil:   0| Res: 165 |
| SMAA01EUMS rjtd |Dbl: 158|Ext: 158|Rok:  15|Tot: 173|Nil:   0| Res: 173 |
| SMAA01EUMS **** |........|........|........|........|........|..********|
|-----------------|--------|--------|--------|--------|--------|-----------|
| SMAA01KWBC ammc |Dbl:   4|Ext:   4|Rok:  50|Tot:  54|Nil:   0| Res:  54 |
| SMAA01KWBC edzw |Dbl:   0|Ext:   0|Rok:  53|Tot:  53|Nil:   0| Res:  53 |
| SMAA01KWBC lfpw |Dbl:   0|Ext:   0|Rok:  53|Tot:  53|Nil:   0| Res:  53 |
| SMAA01KWBC rjtd |Dbl:   4|Ext:   4|Rok:  51|Tot:  55|Nil:   0| Res:  55 |
| SMAA01KWBC **** |........|........|........|........|........|..********|
|-----------------|--------|--------|--------|--------|--------|-----------|
| SMAA01LFPW ammc |Dbl:   0|Ext:   0|Rok:  58|Tot:  58|Nil:   0| Res:  58 |
| SMAA01LFPW edzw |Dbl:   0|Ext:   0|Rok:  58|Tot:  58|Nil:   0| Res:  58 |
| SMAA01LFPW lfpw |Dbl:   0|Ext:   0|Rok:  58|Tot:  58|Nil:   0| Res:  58 |
| SMAA01LFPW rjtd |Dbl:   0|Ext:   0|Rok:  58|Tot:  58|Nil:   0| Res:  58 |
| SMAA01LFPW **** |........|........|........|........|........|..********|
|-----------------|--------|--------|--------|--------|--------|-----------|
```

Table 7

Extracts from a file TOTTTYMM

Regularity of the availability of information on the MTN

The file includes the following information for each bulletin TAAiiCCCC received by the centres, for each day (01 to 15) of the monitoring period and for each main synoptic hour time (00,06,12,18 UTC):

"X" is entered in the appropriate column if that bulletin was received, otherwise "." is entered.

```
Days          01   02   03   04   05   06   07   08   09   10   11   12   13   14   15

TTAAII CCCC

USVA01EGRR XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
USVA10RUMS .... .... .... .... .... .... .... .... .... .... X... X... X... X... X...
USVB01EGRR X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X. X.X.
USVC01EGRR XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
USVD01EGRR XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
USVD01KWBC ..X. X.X. X.X. .... ..X. X... ..X. X.X. X.X. X... X.X. X.X. .... X.X. ..X.
USVE01AMMC .... .... .... .... .... .... .... .... .... .... .... .... .... .... .X..
USVE01KWBC .... .... ..X. X... ..X. X... ..X. .X.. X... .... ..X. ..X. .... X.X. XX..
USVF01EGRR XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
USVF01EKMI X.X. X... ..X. X... X.X. .... .... .... .... ..X. X.X. ..X. X.X. X.X. ..X.
USVF01KWBC ..X. X.X. X.X. X... .... X... .... X.X. X.X. X... .... .... X... X.X. ..X.
USVF02EKMI .... ..X. X... .... .... .... X.X. .... .... .... ..X. X.X. X.X. ..X. ....
USVF05EKMI .... .... .... X.X. ..X. X.X. .... .... .... .... .... .... .... .... ....
USVJ01EGRR XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
USVJ10RUML X... X... X... X... X... .... X... X... .... X... .... .... .... .... ....
USVX01EUMS X.X. X.X. X.X. X.X. X.X. X.XX X.X. X.X. X.X. X.X. X... X.X. XXX. X.X. X.X.
USVX01RJTD XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX .... XXX. X.X. XXX. X.X.
USWF01ENMI XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXX. XXXX X..X .XXX X..X
```

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