

# The effects at ECMWF of the changes of codes for surface observations on 1 January 1982

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## 1. INTRODUCTION

The new 'common code' FM12-VII SYNOP and FM13-VII SHIP replaced the former codes for reporting surface observations at 0000Z on 1 January 1982. The introduction of the new code also involved the rearrangement of bulletins so that all reports in one bulletin contained winds which were either all measured or all estimated and used the same units for wind speed. The division of the new code into sections for global, regional and national exchange also required changes to compiling and editing practices for compilation of the appropriate bulletins. These were all major changes.

Centres receiving and using the data also had to make the necessary changes to decode and use the reports received in the new codes.

Descriptions of the codes are given in Appendix 1.

## 2. DECODING PROBLEMS AT ECMWF

In anticipation of some countries continuing to use the old code, the decoding system of the Operational Suite was geared to handle reports in either old code or new code - the MiMiMjMj group deciding the appropriate decoding routine. The MiMiMjMj group consists of 4 letters identifying the type of reports in the bulletin. In the old code MMXX denotes land station reports and NNXX denotes sea station. In the new code, the letters are AAXX and BBXX respectively. In the event of the MiMiMjMj group being missing or corrupt, the reports were decoded twice, being interpreted first as old code and then as new code. The two versions of each report were then presented for Quality Control and the better report stored in the Reports Data Base.

The symbolic letters of the MiMiMjMj group proved to be absolutely useless as a means of identifying the code used in the reports. Many bulletins were received with the old MiMiMjMj (MMXX and NNXX) with reports in the new code and others with the new MiMiMjMj (AAXX and BBXX) and reports in the old code. A considerable number of SHIP bulletins contained a mixture of reports in both old and new code. Some SHIP bulletins had MiMiMjMj of WWXX - the indicator for satellite clear radiance data! To overcome this problem, the program was changed so that all bulletins and reports were decoded twice (MiMiMjMj indicator ignored) and the Quality Control retained the better reports.

The incoming data was closely monitored and when systematic errors were identified, the originating centres were notified where possible, and decoding routines modified to permit the use of the maximum amount of data.

The following are the major changes made to accommodate frequent and systematic errors identified in the bulletin and report formats:

- a. The parallel decoding of all reports by ignoring the MiMiMjMj group (as mentioned earlier) was modified when a clearer picture of what formats were actually being received emerged. Reports from land stations were decoded in the old format only when the MiMiMjMj group was not 'AAXX'. Reports known to be in the old format (e.g. from USA and Canada) were not decoded in the new format. Ship reports continued to undergo the double decoding.
- b. The inclusion of date/time groups in the SHIP reports BBXX line was a very common error and the programs were modified to handle it.
- c. The illegal coding of  $i_R i_X$  as // was catered for.  $i_R$  is the indicator for inclusion or omission of rainfall data and  $i_X$  the indicator for type of station operation. The use of / is invalid for both indicators.
- d. The section indicator 333 was commonly misused and extended to a 5 character group 333//, and allowance was made for this.
- e. American and Canadian land station reports frequently had spurious SM characters embedded in the reports. These were looked for and removed.
- f. A variety of symbols (\$, ], :) appeared as end-of-report signals instead of =, especially in reports from South America and Africa, and these were catered for.

Reports on the difficulties encountered were sent to WMO periodically for corrective action. These reports are attached in Appendix 2.

At the moment, (March 1982), there is still a large number of ship reports being received in the old code, but the collecting centres normally issue them in separate bulletins. Some land stations are still reporting in the old code, mainly stations in Blocks 78 and 94.

### 3. DATA PROBLEMS AT ECMWF

The volume of surface data received on 1 January was well below normal as was the quality of the data. No data at all was received from North America for 0000Z or 0600Z (it was received in the old code for 0300Z and 0900Z). No data was received from Central America and very little from Siberia. Data was also missing for different times from South America, Africa, USSR and Afghanistan.

The quality of the data was well below normal. A particular problem was created by the use of the MiMiMjMj groups, as previously mentioned. These wrongly coded reports were only rejected at the data base quality control or analysis level and it cannot be excluded completely that some corrupt data (particularly MSL pressure values) might have been used in the analysis for the forecast run of 1 January.

The quantity of data received gradually increased over a number of weeks. The problem areas were generally Alaska and Central America (from where virtually no data was received) with below normal coverage on occasions from South America, Africa, Australia and USSR. Reports from Alaska and Central America have only been received on a regular basis since 8 February.

- (i) The symbolic version of the new codes introduced in January is shown below.

**c. LIST OF CODE FORMS  
WITH NOTES AND REGULATIONS**

**FM 12-VII SYNOP — Report of surface observation from a land station**

**FM 13-VII SHIP — Report of surface observation from a sea station**

**CODE FORM:**

SECTION 0	M <sub>1</sub> M <sub>1</sub> M <sub>1</sub> M <sub>1</sub>	{ D....D A <sub>1</sub> b <sub>w</sub> n <sub>b</sub> n <sub>b</sub> n <sub>b</sub> }	**	YYGGIw	{ IIII* 99L <sub>a</sub> L <sub>a</sub> L <sub>a</sub> Q <sub>c</sub> L <sub>o</sub> L <sub>o</sub> L <sub>o</sub> L <sub>o</sub> }	**
SECTION 1	iR <sub>1</sub> hVV 4PPPP	Nddff 5appp	1s <sub>n</sub> TTT 6RRRtR	2s <sub>n</sub> T <sub>d</sub> T <sub>d</sub> T <sub>d</sub> 7wwW <sub>1</sub> W <sub>2</sub>	3P <sub>o</sub> P <sub>o</sub> P <sub>o</sub> P <sub>o</sub> 8N <sub>h</sub> CLCMCH	9hh//
SECTION 2	222D <sub>v</sub> s <sub>s</sub> (3d <sub>w1</sub> d <sub>w1</sub> d <sub>w2</sub> d <sub>w2</sub> )	(0s <sub>n</sub> T <sub>w</sub> T <sub>w</sub> T <sub>w</sub> ) (4P <sub>w1</sub> P <sub>w1</sub> H <sub>w1</sub> H <sub>w1</sub> )	(1P <sub>wa</sub> P <sub>wa</sub> H <sub>wa</sub> H <sub>wa</sub> ) (5P <sub>w2</sub> P <sub>w2</sub> H <sub>w2</sub> H <sub>w2</sub> )	(6I <sub>s</sub> E <sub>s</sub> E <sub>s</sub> R <sub>s</sub> ) (ICE + { plain language or c <sub>j</sub> S <sub>i</sub> b <sub>i</sub> D <sub>i</sub> z <sub>i</sub> })		
SECTION 3	333 (0....) (3Ejjj) (6RRRtR) (9SPSPSPSP)	(1s <sub>n</sub> T <sub>x</sub> T <sub>x</sub> T <sub>x</sub> ) (4E'sss) (7....)	(2s <sub>n</sub> T <sub>n</sub> T <sub>n</sub> T <sub>n</sub> ) (5j <sub>1</sub> j <sub>2</sub> j <sub>3</sub> j <sub>4</sub> ) (8N <sub>s</sub> Chshs) (1....) .....	(80000 (0....) (1....) .....		
SECTION 4	444	N'C'H'H'C <sub>t</sub>				
SECTION 5	555	Groups to be developed nationally				

**NOTES:**

- (1) The code form FM 12-VII SYNOP is used for reporting synoptic surface observations from a land station, manned or automatic. The code form FM 13-VII SHIP is used for the same kind of observations from a sea station, manned or automatic.
- (2) A SYNOP report from a land station is identified by the symbolic letters M<sub>1</sub>M<sub>1</sub>M<sub>1</sub>M<sub>1</sub> = AAXX.
- (3) A SHIP report from a sea station is identified by the symbolic letters M<sub>1</sub>M<sub>1</sub>M<sub>1</sub>M<sub>1</sub> = BBXX.

- \* Used in FM 12-VII.
- \*\* Used in FM 13-VII.

- (4) The code form is made up of figure groups arranged by sections in ascending order of their numerical indicators with the exception of the following:
  - (a) All the groups of Section 0 and for the first two groups of Section 1, which are always included in the report of any surface observing station;
  - (b) The first data group of Section 2 — 222D<sub>v</sub>s<sub>s</sub>, which is always included in the report of a sea station;
  - (c) The data group of Section 4, which is clearly identified by a three-figure indicator group.

As a result, the following features are achieved:

- (d) The loss of information due to the accidental loss of any one of these groups is strictly limited to the information content of that group;
- (e) The rules of inclusion or omission of sections or of groups between brackets can be laid down for each specific case of station type or of data requirements;
- (f) The length of the message can be kept to a strict minimum by dropping out some groups whenever their information content is considered insignificant or when that information content is not normally available.

It is to be noted that the code word ICE of Section 2 plays the role of a numerical indicator for the last data group of the section or for the equivalent plain language information.

- (5) The code form is divided into a number of sections as follows:

Section number	Symbolic figure groups	Contents
0	—	Data for reporting identification (type, ship's call sign/buoy identifier, date, time, location) and units of wind speed used
1	—	Data for international exchanges which are common to the SYNOP and to the SHIP code form
2	222	Maritime data pertaining to a sea or to a coastal station
3	333	Data for regional exchange
4	444	Data for clouds with base below station level, included by national decision
5	555	Data for national exchange

- (ii) The old codes replaced in January were FM 11-V SYNOP, FM 14-V SYNOP, FM 21-V SHIP, FM 22-V SHIP, FM 23-V SHRED, FM-24V SHIP and FM 26-IV SPESH. Of these, the principal code forms used were FM 11-V and FM 21-V and these are shown below in symbolic form.

### c. LIST OF CODE FORMS WITH NOTES AND REGULATIONS

#### FM 11-V SYNOP — Report of synoptic surface observation from a land station

**CODE FORM:**

$M_1M_2M_3M_4$      $YYGG$   
 $IIIII$      $Nddff$      $VVwwW$      $PPPTT$      $N_hC_lhC_mC_h$   
 $T_dT_dJ_aJ_pJ_p$      $(6P_oP_oP_oP_o)$      $(7RRJJ)$      $(8N_sCh_sH_s)$      $(9SP_sP_sP_sP_s)$   
 (MONT N'C'H'H'C)    (Additional groups)  
 (Supplementary information in plain language)

**NOTES:**

- (1) The code form FM 11-V SYNOP is used for reporting synoptic surface observations from a land station, whether manned or automatic. However, the code form FM 14-V SYNOP, rather than the code form FM 11-V SYNOP, should be used when the land station at which the observations are made is permanently automatic.
- (2) Land stations which are sometimes manned and sometimes operated automatically always draw up their reports in a single code, preferably FM 11-V.
- (3) The automatic land weather stations which use the code form FM 14-V SYNOP are listed in Volume A of WMO Publication No. 9.
- (4) A SYNOP report coded in FM 11-V, or a bulletin of these reports, is identified by the symbolic letters  $M_1M_2M_3M_4 = MMXX$ .
- (5) Groups in brackets are drop-out items and may or may not be included in the report, depending on specified conditions.
- (6) The groups with indicator figures 8 and 9 may be repeated as necessary.

## FM 21-V SHIP — Report of synoptic surface observation from a sea station

### CODE FORM:

$M_i M_i M_i M_j$   
 \* 99L<sub>a</sub>L<sub>a</sub>L<sub>a</sub> QcL<sub>o</sub>L<sub>o</sub>L<sub>o</sub>L<sub>o</sub> YYGGI<sub>w</sub> Nddff VVwwW  
 PPPTT N<sub>h</sub>CLhCMCH D<sub>a</sub>V<sub>s</sub>app (7RRj) (8N<sub>s</sub>Ch<sub>s</sub>h<sub>s</sub>)  
 (9SPSPSPSP) (0T<sub>s</sub>T<sub>s</sub>T<sub>d</sub>T<sub>d</sub>) (1T<sub>w</sub>T<sub>w</sub>T<sub>w</sub>T<sub>w</sub>) (2I<sub>s</sub>E<sub>s</sub>E<sub>s</sub>R<sub>s</sub>) (3P<sub>w</sub>P<sub>w</sub>H<sub>w</sub>H<sub>w</sub>)  
 (dwd<sub>w</sub>P<sub>w</sub>H<sub>w</sub>H<sub>w</sub>)  
 (ICE + { plain language  
 or  
 c<sub>i</sub>S<sub>i</sub>b<sub>i</sub>D<sub>i</sub>z<sub>i</sub> } ) (Supplementary information)

### NOTES:

- (1) The code form FM 21-V SHIP is used for reporting synoptic surface observations from a sea station, whether manned or automatic. However, the code form FM 24-V SHIP, rather than the code form FM 21-V SHIP, should be used when the sea station at which the observations are made is permanently automatic.
- (2) Sea stations which are sometimes manned and sometimes operated automatically always draw up their reports in a single code, preferably FM 21-V.
- (3) A SHIP report coded in FM 21-V, or a bulletin of these reports, is identified by the symbolic letters  $M_i M_i M_i M_j = NNXX$ .
- (4) Groups in brackets are drop-out items and may or may not be included in the report, depending on specified conditions.
- (5) The groups with indicator figures 8 and 9 may be repeated as necessary.
- (6) The code form FM 21-V is considered suitable not only for selected ships, but also for ocean weather stations.

\* Ship call-sign normally inserted here.

- (iii) The new codes removed some limitations and ambiguities present in the old e.g. including a sign digit for temperature and dewpoint presents a solution for temperatures less than  $-49^{\circ}\text{C}$ , and the inclusion of the hundreds value in reported pressure removes any doubt as to whether the pressure is greater or less than 1000 hectopascal.

The old codes included drop-out groups at the end of the reports, whereas in the new code any groups may be omitted except those in Section 0 and the first 2 groups of Section 1. In both cases drop-out groups are identified by the leading digit and their omission causes no problems. In the old code there were 5 groups containing parameter values which were position dependent, whereas the new code has only 2, and this feature enables more information to be extracted automatically from a report with a group incorrect or missing (it is a pity that all parameter groups are not identified by a unique indicator).

More information is given in the new code. Temperature values are given to 1 decimal place, a greater range of rainfall values can be reported (and the period to which the measurement refers is included) and different types of past weather can be reported.

Information on station operation (manned or automatic), wind measurement (instrument or estimate) and units of wind speed (knots or metres per second) is now included in each report.

Reports to WMO on problems encountered with the new code and formats.

(i) Message sent to WMO on 4.1.82

You might be interested in the following summary of what happened at ECMWF when the new code was introduced:

1. History of events on JAN 1st

Although the decoding program of the ECMWF operational suite was geared to accept both old and new codes on 1 Jan. in a way that the MiMiMjMj group would decide on the decoding routine, many problems were encountered.

All SYNOPSIS from KWBC were missing from 00Z and 06Z. Errors in the MiMiMjMj and/or the YGGI groups were found in a number of bulletins.

A particular problem was created by bulletins with the old MiMiMjMj of MMXX and NNXX containing reports in new code, which was decoded according to the old practice as indicated by the MiMiMjMj line. These bulletins originated mainly from Italy (Block 16), North America (Block 72), Pacific (Block 91) and Russia (Block 24 which was the only one received). In addition to these bulletins ship reports from North America and Russia were also affected. These wrongly coded reports were only rejected at the data base quality control or analysis level and it cannot be excluded completely that some corrupt data (particularly MSL pressure values) might have been used in the analysis. These problems were further aggravated by the fact that off-duty staff had to be called in on this public holiday and the subsequent weekend staff to help overcome the problems.

2. Later developments and present state of affairs

Parallel processing in both decoding systems helped to overcome the most serious problems and the incorrect heading of new code with old headers was stopped by reverting completely to the old system in the case of North America.

At present (82/01/04/03Z) incorrect bulletins are mainly received from:

SIBE MXKF (BERMUDA), with the MiMj line missing and unrecognizable character before the II III Group.

SICN1 CYCY (Canada), with MiMiMjMj line missing

SIII01 FJDG (Indian ocean) missing MiMj line

SICN20-25 KWBC

SIUS20-22 KWBC

SIGLAI BGSF:

Old code for Greenland, Canada, US.



SIRO25 YRBK

SITU20:

MMXX - Headers used in Romania, Turkey

(ii) Message sent to WMO on 11.1.82

Responding to your telex of 7 January, please find in the following a list of incorrect bulletins, as observed during the 24 hour period ending today at 0600Z.

(1) Missing MiMiMjMj Line

SIBE MXKF	(Bermuda)
SICN1 CWLA	(Canada)
SII01 FJDG	(Indian Ocean)
SIPO22 LPPT	(Portugal)
SIVF25 EGRR	(RA VI SHIPS)
SIKN20 HKNC	(Kenya)
SMTH1 VTBB	(Thailand)
SMAA NZCM	(Antarctic)
SMAA 1AMMC	"
SMKR1 DKPY	(Korea)
SMVX2 RPMM	(Ships)
SMVX1 LEMM	"
SMIS1 LLBD	(Israel)
SMVE1 AMMC	(RA V Ships)
SIMB20 FAME	(Marion Island)
SMWB1 RJTD	(RA II Ships)
SMAA1 STFK	(Antarctic)
SMVF1 EKMI	(RA VI Ships)
SMIE1 EIDB	(Ireland)
SNIE23 EIDB	"

(2) Invalid MiMiMjMj line (reports in new code)

SMAA NZCM	(Antarctic)
SMAA1 AMMC	"
SMVD10 RUMS	(RA IV SHIPS) (use WNXX)
SMVF 2 LFPW	(RA III Correction VI ships)
SMVF10 RUMS	(RA VI Ships)
SMVA 10 RUMS	(RA I Ships)
SMVC 13 RUMS	(RA III Ships)
SMVA 1 DIAP	(RA I Ships)
SMBZ 10 SBBR	Brazil
SMBW 1 VGDC	Bangladesh
SMVF 1 LFPW	(RA VI Ships)
SMLA 1 VLIV	(Laos)
SMRS 11 RUMS	(USSR)
SMNH 1 NHHH	(New Hebrides)
SMCH 1 SCSC	(Chile)
SMVA 13 RUMS	(RA I Ships)
SMNC 20 NWWB	(New Caledonia)
SMAA NZCM	(Antarctic)
SMLS 1 FXMU	(Lesotho)
SMAA1 AMMC	(Antarctic)
SMGL 1 BGSF	(Greenland)
SMFR 20 LFPW	(France)
SIVA 20 FMEE	(RA I Ships)
SIDD 20 ETPD	(German D Republic)

SIRO25 YRBK	(Romania)
SMVD10 RUHB	(RH IV Ships)
SMGL21 BGSF	(Greenland)
SMPK1 OPKC	(Pakistan)
SMSU2 HSSS	(Sudan)
SMNO23 ENMI	(Norway)

(3) Mixture of reports in old and new code (same bulletin)

SMVF3 LFPW	(RA VI Ships)
SMUD4 KWBC	(RA IV Ships)
SMVD5 KSFO	"

(4) Bulletins and reports in old code (withhold MiMiMjMj line) received from Canada, USA, Arctic (via EESA) and Bracknell (Ship reports only).

(5) Very little data has been received from Alaska, Caribbean and Northern USSR since 1.1.82.

(iii) Message sent to WMO on 19.1.82

Please find in the following a list of incorrect bulletins, as observed in the 24 hour period ending at 0600Z today.

(1) Missing MiMiMjMj line

SIBE	MXKF
SII01	FJDG
SICN1	CYCY
SIKN20	HKNC
SIRH20	FRSB
SIAR20	OEJD
SMCM20	FKKD
SIIE22	EIDB
SIMA20	FIMP
SMAA1	AMMC
SMAA	NZCM
SMKU1	NCRG
SMTG20	DXXX
SMVX1	VHHH
SMVE1	NFFN
SMTH1	VTBB

(2) Invalid MiMiMjMj line (reports in new code)

SMBW1	VGDC
SMSN41	ESW1
SMVA10	RUMS
SMVC13	RUMS
SMVB10	RUMS
SMVA13	RUMS
SMVD10	RUMA
SMVA1	DTTA
SMVF1	LLBD
SMCV1	GVAC
SMVF10	RUMS

SMNC1 NWWB  
 SMVC10 RUML  
 SMVF2 LFPW  
 SMVE1 AMMC  
 SMVB10 RUHB  
 SMCE1 FFFF  
 SMID1 WIII  
 SIVF20 EBBR  
 SIVA20 DTTA  
 SMVF1 EBBR  
 SMGH1 DGAA  
 SMVF1 EHDB  
 SMDD20 FTPD  
 SMEG1 HECA  
 SMFG1 MOCA  
 SMFH10 RUMS  
 SMVF1 LFPW

(3) Bulletins and reports in old code (old MiMiMjMj group) Received

SIAC21 EESA  
 SIVF21 EHDB  
 SIVF25 EHDB  
 SICN24 KWBC  
 SICN25 KWBC  
 SICN21 KWBC  
 SICN20 KWBC  
 SIUS21 KWBC  
 SIUS22 KWBC  
 SIUS20 KWBC  
 SICN22 KWBC  
 SICN23 KWBC  
 SMVE2 AMMC  
 SMVE1 AMMC

SIVF21 LFPW  
 SMVF4 EGRR  
 SMVX1 LEMM  
 SNVF21 EHDB  
 SIVF21 EHDB  
 SMVX1 LPPT  
 SMVX3 LPPT  
 SMVF5 EHDB  
 SMVF1 LFPW

A regrettably large portion of the errors are in ship bulletins, many from Russian ships. For US/Canada, main hours are received in new code. Intermediate hours (03,09,15,21) in old code (with correct headings).

(iv) Message sent to WMO on 26.1.82

The following is a list of incorrect bulletins received in the 24 hour period ending at 0600Z today (26 Jan 1982).

(1) Missing MiMiMjMj line

SIBE MXKF  
 SICN1 CYCY  
 SII01 FJDG  
 SMI01 FJDG

SICH20 SCSC  
 SMTG20 DXXX  
 SMVF2 EGRR  
 SMFR43 LFPW  
 SMVX1 LEMM  
 SMKX2 DKPY  
 SMVA1 HFFF  
 SMFJ2 NFFN  
 SMNZ1 NZKL  
 SMVF1 EBBR  
 SMVE1 AMMC  
 SMBM1 VBRR

(2) Invalid MiMiMjMj line (Reports in new code)

SMAA1 AMMC  
 SMAA NZCM  
 SMYG30 LYBM  
 SMVA10 RUMS  
 SMVC13 RUMS  
 SMVD10 RUMS  
 SMVA13 RUMS  
 SMVF10 RUMS  
 SMVD1 EGRR  
 SMGL1 BGSF  
 SMPK1 OPKC  
 SMPK20 OPKC  
 SMGN2 GUCY  
 SMGN20 GUCY  
 SMRA10 RUTK  
 SMRA11 RUTK  
 SMRO20 YRBK  
 SNDD40 ETPD  
 SNDD44 ETPD  
 SMNC20 NWWB  
 SIVF20 LPPW  
 SMVB10 RUHB  
 SMVE13 RUHB

(3) Bulletins in old code (old MiMiMjMj group)

SIAC21 EESA  
 SMAC21 EESA  
 SICN20 KWBC  
 SICN21 KWBC  
 SICN22 KWBC  
 SICN23 KWBC  
 SICN24 KWBC  
 SICN25 KWBC  
 SIUS20 KWBC  
 SIUS21 KWBC  
 SIUS22 KWBC  
 SMVF3 LFPW  
 SMVE1 AMMC  
 SMVE2 AMMC  
 SMVX3 LPPT

The errors in Soviet ship bulletins continue to give concern, as does the American practice of including ship reports in old code in ship bulletins with new MiMiMjMj line and new reports.

(v) Message sent to WMO on 17.2.82

The following is a list of incorrect bulletins received at ECMWF in the period 0600-1800 on 17 February 1982.

(1) Ship bulletins in old format, with reports in old code

SMVD6 KWBC  
SMVD6 KSFO

(2) Ship bulletins in new format, with reports in new code, with incorrect MiMiMjMj line.

SMVX2 DEMS YGGIWI included  
SMVA10 RUMS YGG,YGGIWI included  
SMVA13 RUMS YGG "  
SMVC13 RUMS YGG,YGGIWI "  
SMVF10 RUMS YGG,YGGIWI " .NNXX used.  
SMVA1 FMEE YGG,YGGIWI Included  
SMVB10 RUHB YGGIWI included  
SMVA1 DTTA NNXX used  
SMVF1 EBBR YGG included  
SMVA1 FIMP " "  
SMVA1 HKNC " "  
SMVB1 FIMP " "  
SNWD21 EGRR YGG included  
SIWD21 EGRR " "

(3) SYNOP bulletins with invalid MiMiMjMj line

SMBE MXKF YGGGG instead of YGGIWI  
SMPL30 SOWR YGG " " "  
SMIS22 LLBD " " " "  
SMNR1 DRRN " " " "  
SMFR20 LFPW YGGIWI corrupt  
SMFJ1 NFFN " "  
SMMA1 FIMP " "  
SMCM1 FKKD " "  
SMKN1 HKNC YGG instead of YGGIWI  
SMJD1 OJAM " " " "  
SMKN20 HKNC " " " "  
SMKB1 NGTA " " " "  
SMTN1 HTDA " " " "  
SMTN20 HTDA " " " "  
SMPH2 RPMM " " " "  
SIPL21 SOWR " " " "  
SICH20 SCSC " " " "  
SMIS1 LLBD " " " "  
SMGN1 GUCY " " " "  
SIFR40 LFPW " " " "  
SMFG1 MOCA YGGGG " " "  
SMNR1 DRRN AAWWXX " " " Mistake: Instead "AAXX  
SMNR1 DRRN YGGIWI Missing  
SIPL30 SOWR MMXX Instead of AAXX  
SMMG1 FNMI Report on AAXX line

(2) Bulletins with MiMiMjMj line missing

SIIO1 FJDG  
SMIO1 FJDG  
SIBE MXKF  
SMVF4 EGRR  
SMVK1 EDZW

The use of the date/time group in both SYNOP and SHIP bulletins is still incorrect on quite a large scale.