

**First report on comparisons
between bulletins transmitted
on the GTS and those
received at ECMWF
(period 1 to 5 October 1984)**

M.J. Boyd, M.R. Dutton
and J.K. Gibson

Research Department

February 1986

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European Centre for Medium-Range Weather Forecasts
Europäisches Zentrum für mittelfristige Wettervorhersage
Centre européen pour les prévisions météorologiques à moyen

Comparison between Bulletins Transmitted on the GTS by RTH Tokyo
and those Received at ECMWF
(Period 1 to 5 October 1984)

1. INTRODUCTION

In order to assess the quality of observation coverage in the ECMWF/WMO Observations Data Set, and as input in the construction of the ECMWF/WMO Analysis Data Set, information was gathered relating to the transmission of bulletins on the GTS at several locations during the period 1 to 5 October 1984. These data have now been reduced to a common form; RTH Tokyo's data has been used to determine what information can usefully be extracted. This report presents and discusses the comparison between Tokyo and ECMWF. A final report will follow, giving similar comparisons based on data received from the following centres:

Bangkok, Thailand
Beijing, People's Republic of China
Brasilia, Brazil
Casablanca, Morocco
Nandi, Fiji
Hong Kong
Jakarta, Indonesia
Jeddah, Saudi Arabia
Lusaka, Zambia
Melbourne, Australia
Nairobi, Kenya
Norrköping, Sweden
Singapore
Wellington, New Zealand.

2. DATA SOURCES

The centres concerned supplied data, either on magnetic tape, or on forms supplied by ECMWF. Some centres were not able to supply magnetic tape, but did send computer print-outs from which the data could be extracted. It was found

that the most immediately useful data were the headings of the bulletins that had been transmitted by each centre. These, once extracted, could be compared with equivalent data extracted from bulletins received at ECMWF via RTH Offenbach and RTH Bracknell.

3. COMPARISON BETWEEN TOKYO AND ECMWF

A first inspection of the comparison details showed that there had been a major outage of data for 0000 UT on 2 October 1984. Many bulletins transmitted by Tokyo for this hour uniquely were not received. It was thus decided not to include such cases in the detailed presentation because they are not typical.

3.1 Global Bulletins

Table 1 illustrates the pattern of global bulletins transmitted by Tokyo but not received at ECMWF. A plus sign in the table corresponds to data received. A zero indicates that data was not received because it was not transmitted. A minus sign indicates that a bulletin was transmitted by Tokyo but not received at ECMWF.

Entries can be found corresponding to the following conditions:

- bulletins that are always transmitted and which are only occasionally not received;
- bulletins that are almost always transmitted but only rarely received;
- bulletins that are transmitted at 00 and 12 only and which are rarely received;
- there is no evidence of bulletins which are regularly transmitted being received other than either rarely or frequently.

This would suggest that the circulation within the GTS of bulletins frequently transmitted but rarely received required further investigation. In general, the rate of receipt of global bulletins transmitted by Tokyo was 94%.

TABLE 1 GLOBAL BULLETINS (NO. 1 - 19) FROM TOKYO

NOTE 1 : + - DATA TRANSMITTED BY CENTRE AND RECEIVED AT ECMWF
 - - DATA TRANSMITTED BY CENTRE BUT NOT RECEIVED AT ECMWF
 0 - DATA NOT TRANSMITTED BY CENTRE
 NOTE 2 : ONLY ORIGINAL BULLETINS USED. RTD AND COR BULLETINS ARE NOT INCLUDED.
 NOTE 3 : BULLETINS FOR 020000 NOT INCLUDED.

! DATE = 01 ! DATE = 02 ! DATE = 03 ! DATE = 04 ! DATE = 05 !

HEADING	!00!06!12!18!00!06!12!18!00!06!12!18!00!06!12!18!00!06!12!18!
ASOC1	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
ASXS1	AMMC !-! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
AUOC1	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
AUOC2	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
CSKW1	OKBK ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CSMU1	VHHH ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CSNC1	NWBB ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CSOC1	RUML ! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CSPS1	NFFN ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CUFJ1	NFFN ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CUKW1	OKBK ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CUMO10	MNUB ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
CUNV1	NVVV ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
FSOC1	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
FUOC1	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
FUOC2	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
FUOC3	AMMC !-! 0! -! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
SEAU1	AMMC ! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMAA1	AMMC ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMAA1	NZCM ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMAA10	RUML ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMER1	OMAA !-! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMFJ1	NFFN ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMFW1	NWBB ! +! +! -! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMKB1	NGTA ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMK01	RKSL ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMK01	OKBK ! 0! -! 0! -! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +!
SMK01	OKBK ! 0! -! 0! -! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +!
SMMO1	MNUB !-! -! 0! 0! 0! 0! -! -! -! -! -! -! -! -! -! -! -! -! -!
SMMO2	MNUB !-! -! 0! 0! 0! 0! -! -! -! -! -! -! -! -! -! -! -! -!
SMPA1	RJTD ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMSD2	OEJD ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMTK1	NSAP !-! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMVB0	RIHB ! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMVB1	RAHB ! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMVB1	RUGB ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMVB10	RUHB !-! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMVB11	BABJ !-! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!
SMVD10	RUHB !-! -! -! -! 0! 0! -! -! 0! -! 0! 0! -! -! 0! -! -! -! -! -!
SMVE1	NFFN ! +! 0! 0! 0! 0! 0! -! -! +! 0! 0! 0! +! +! +! +! +! +! +! +!
SMVX1	DEMS ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMVX1	VHHH ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
SMVX11	KWBC ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX11	RJTD ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX12	RJTD ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX13	RJTD ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX13	RUMS ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX14	RJTD ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
SMVX15	RJTD !-! -! -! -! 0! -! 0! 0! -! -! -! -! -! -! -! -! -! -! -!
SMVX16	RJTD !-! -! 0! 0! 0! -! -! -! -! -! -! -! -! -! -! -! -! -!
SMZM1	NSTU !-! -! -! -! +! -! -! -! -! -! -! -! -! -! -! -! -!
TSXS10	RJTD ! +! 0! -! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
TSXS11	RJTD ! +! 0! -! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
TSXS12	RJTD ! +! 0! -! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
TUXX1	DEMS ! 0! -! 0! 0! 0! -! 0! 0! 0! -! 0! 0! 0! -! 0! 0! 0! -! 0! 0! 0!
UAAU1	AMMC ! +! -! +! +! 0! +! +! +! +! -! +! +! +! +! +! +! +! +! +!
UAXX1	VHHH ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
UEKR1	DKPY ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
UEKW1	OKBK !-! 0! -! 0! +! 0! +! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0!
UELA1	VLIV ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0!
UEMS1	WMKK ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0!
UEOM1	OOMS !-! 0! -! 0! +! 0! +! 0! +! 0! +! 0! -! 0! -! 0! -! 0! -! 0!
UEPH1	RPMM ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! -! 0! -! 0! -! 0! -!
UEPH2	RPMM ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! -! 0! -! 0! -! 0! -!
UESD2	OEJD ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +!
UESD3	OEJD ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +!
UGAA1	NZCM !-! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! +!
UGAU1	AMMC ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
UGID1	WIIX !-! 0! -! -! +! -! -! -! -! -! -! -! -! -! -! -! -!
UGNG1	AMMC ! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +! +!
UGNV2	NVVV !-! 0! -! 0! 0! 0! 0! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -!
UHN2	DEMS ! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -! 0! -!
UHN2	NZKL !-! 0! -! 0! +! 0! -! 0! -! 0! 0! 0! -! 0! -! 0! -! 0! -!
UHPH2	RPMM !-! +! +! +! +! -! +! +! +! +! +! +! +! +! +! +! +! +!
UHSR1	WSSS ! +! 0! +! 0! +! 0! +! 0! +! 0! +! 0! -! 0! -! 0! -! 0! -!
UKLA1	VLIV ! 0! 0! -! 0! 0! 0! 0! 0! 0! 0! 0! 0! -! 0! 0! 0! 0! 0! 0! 0!
UKNZ1	NVVV ! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0! 0!

TABLE 1 GLOBAL BULLETINS (NOS. 1 - 19) FROM TOKYO

		! DATE = 01 !				! DATE = 02 !				! DATE = 03 !				! DATE = 04 !				! DATE = 05 !			
HEADING		!00!	!06!	!12!	!18!	!00!	!06!	!12!	!18!	!00!	!06!	!12!	!18!	!00!	!06!	!12!	!18!	!00!	!06!	!12!	!18!
ULKR1	DKPY	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
ULKW1	OKBK	!	-	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
ULOM1	OOMS	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
ULSD1	OEJD	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
ULSD3	OEJD	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPAA1	AMMC	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPAU1	AMMC	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPKP1	VDPP	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPKU1	NZKL	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPKW1	OKBK	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPMV1	VCCC	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPPH1	RPMH	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPPK1	OPKC	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPSB1	VCCC	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UPTH1	VTBB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UQID1	WIIX	!	-	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UQNC1	NWBB	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
UQNV2	NVVV	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USBM1	VBRR	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USFJ1	NZKL	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USJP1	RJTD	!	-	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USMO1	MNUB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USOM1	COMS	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA10	RUHB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA10	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA10	RUTK	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA11	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA12	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA12	RUTK	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA13	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA14	RUHB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA14	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA15	RUHB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA15	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA16	RUNW	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!
USRA17	RUHB	!	+	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!	!	0!

TABLE 2 REGIONAL BULLETINS (NOS. 20 - 39) FROM TOKYO

NOTE 1 : + - DATA TRANSMITTED BY CENTRE AND RECEIVED AT ECMWF
 - - DATA TRANSMITTED BY CENTRE BUT NOT RECEIVED AT ECMWF
 0 - DATA NOT TRANSMITTED BY CENTRE
 NOTE 2 : ONLY ORIGINAL BULLETINS USED. RTD AND COR BULLETINS ARE NOT INCLUDED.
 NOTE 3 : BULLETINS FOR 020000 NOT INCLUDED.

TIME TO THE HOUR (EG 020345 TAKEN AS DAY 02 AT 0300 HOURS)

HEADING / DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ASAS20 RJTD	1	-	0	1	0	1	0	1	0	1	0	1	0	0
	2	+	0	1	0	1	0	1	0	1	0	1	0	0
	3	-	0	1	0	1	0	1	0	1	0	1	0	0
	4	-	0	1	0	1	0	1	0	1	0	1	0	0
	5	-	0	1	0	1	0	1	0	1	0	1	0	0
ASPS20 NFFN	1	-	0	1	0	1	0	1	0	1	0	1	0	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	-	0	1	0	1	0	1	0	1	0	1	0	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	-	0	1	0	1	0	1	0	1	0	1	0	0
FTCI31 ZBBB	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
FTJP30 RJTD	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SEJP20 RJTD	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	+	0	1	0	1	0	1	0	1	0	1	0	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	-	0	1	0	1	0	1	0	1	0	1	0	0
SIAA20 NZCM	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SIAA20 OZCM	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SICI21 BABJ	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SICI22 BABJ	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SICI31 BABJ	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SICI32 BABJ	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SIFJ20 NFFN	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SIFJ21 NFFN	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SIIN20 DEMS	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0
SIIN21 DEMS	1	0	1	0	1	0	1	0	1	0	1	0	1	0
	2	0	1	0	1	0	1	0	1	0	1	0	1	0
	3	0	1	0	1	0	1	0	1	0	1	0	1	0
	4	0	1	0	1	0	1	0	1	0	1	0	1	0
	5	0	1	0	1	0	1	0	1	0	1	0	1	0

TABLE 2 REGIONAL BULLETINS (NOS. 20 - 39) FROM TOKYO

TIME TO THE HOUR (EG 020345 TAKEN AS DAY 02 AT 0300 HOURS)

HEADING /	DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
SMKR21 DKPY	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SMRA20 RUHB	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SMRA21 RUHB	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SMRA22 RUHB	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SMRA30 RUHB	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SMRA31 RUHB	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
SNVX21 RJTD	1	!	0	!	-	0	!	0	!	-	0	!	0	!	-	0	
	2	!	0	!	-	0	!	0	!	-	0	!	0	!	-	0	
	3	!	0	!	0	!	-	0	!	0	!	-	0	!	0	!	0
	4	!	0	!	0	!	-	0	!	0	!	-	0	!	0	!	0
	5	!	0	!	0	!	-	0	!	0	!	-	0	!	0	!	0
UAPH21 RPM	1	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	2	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	3	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	4	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	5	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
UEID20 WIIX	1	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
UEPH30 RPM	1	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	2	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	3	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	4	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	5	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
UGBM20 VBRR	1	!	-	0	!	0	!	0	!	-	0	!	0	!	-	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
UGFJ20 NZKL	1	!	-	0	!	0	!	0	!	-	0	!	0	!	-	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
UGHK20 VHHH	1	!	-	0	!	0	!	0	!	-	0	!	0	!	-	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
UGID20 WIIX	1	!	-	0	!	0	!	0	!	-	0	!	0	!	-	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
UGIN21 DEMS	1	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	2	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	3	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	4	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
	5	!	0	!	0	!	0	!	0	!	0	!	0	!	0	!	0
UGJP20 RJTD	1	!	-	0	!	0	!	0	!	-	0	!	0	!	-	0	
	2	!	+	0	!	0	!	0	!	0	!	0	!	0	!	0	
	3	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	4	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	
	5	!	-	0	!	0	!	0	!	0	!	0	!	0	!	0	

TABLE 2 REGIONAL BULLETINS (NOS. 20 - 39) FROM TOKYO

TIME TO THE HOUR (EG 020345 TAKEN AS DAY 02 AT 0300 HOURS)

HEADING / DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23
UGKB20 NZKL	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGKP20 VDPP	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGKU20 NZKL	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGMS20 WMKK	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGNC20 NWBB	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGPF20 NTAA	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGPF21 NTAA	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0
UGPS20 NZKL	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGSR20 WSSS	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGTH20 VTBB	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGTV20 NZKL	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UGVS20 VNNN	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UHPH21 RPMM	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0
UKID20 WIIX	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
ULID20 WIIX	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0
UPID20 WIIX	1	-	0	0	0	0	0	0	0	0	0	0	0	0
	2	+	0	0	0	0	0	0	0	0	0	0	0	0
	3	-	0	0	0	0	0	0	0	0	0	0	0	0
	4	-	0	0	0	0	0	0	0	0	0	0	0	0
	5	-	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 2 REGIONAL BULLETINS (NOS. 20 - 39) FROM TOKYO

TIME TO THE HOUR (EG 020345 TAKEN AS DAY 02 AT 0300 HOURS)

HEADING /	DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23
UQFJ20 NZKL	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	+	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	-	!	!	!	!	!	!	!	!	!	!	!	!
UQHK20 VHHH	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	+	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	-	!	!	!	!	!	!	!	!	!	!	!	!
UQIN20 DEMS	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	+	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	-	!	!	!	!	!	!	!	!	!	!	!	!
UQIN21 DEMS	1	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	!	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	!	!	!	!	!	!	!	!	!	!	!	!	!
UQKU20 NZKL	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	+	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	-	!	!	!	!	!	!	!	!	!	!	!	!
UQMS20 WMKK	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	2	!	+	!	!	!	!	!	!	!	!	!	!	!	!
	3	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	4	!	-	!	!	!	!	!	!	!	!	!	!	!	!
	5	!	+	!	!	!	!	!	!	!	!	!	!	!	!
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UQNZ21 NZKL	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
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UQPF20 NTAA	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
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UQPF21 NTAA	1	!	!	!	!	!	!	!	!	!	!	!	!	!	!
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UQPH20 RPMM	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
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UQPH21 RPMM	1	!	-	!	!	!	!	!	!	!	!	!	!	!	!
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	5	!	-	!	!	!	!	!	!	!	!	!	!	!	!

TABLE 3 NATIONAL BULLETINS (NOS. 40 - 89) FROM TOKYO

NOTE 1 : + - DATA TRANSMITTED BY CENTRE AND RECEIVED AT ECMWF
 - - DATA TRANSMITTED BY CENTRE BUT NOT RECEIVED AT ECMWF
 0 - DATA NOT TRANSMITTED BY CENTRE
 NOTE 2 : ONLY ORIGINAL BULLETINS USED. RTD AND COR BULLETINS ARE NOT INCLUDED.
 NOTE 3 : BULLETINS FOR 020000 NOT INCLUDED.

TIME TO THE HOUR (EG 020345 TAKEN AS DAY 02 AT 0300 HOURS)

HEADING / DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23
AAUS48 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
BBUS51 DEMS	1	0	!	0	!	0	!	0	!	0	!	0	!	0
FCAU40 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
FTJP69 PHWR	1	!	-	!	-	!	-	!	-	!	-	!	-	!
FTK069 PHWR	1	0	!	0	!	0	!	0	!	0	!	0	!	0
GHA150 RJTD	1	0	!	0	!	0	!	0	!	0	!	0	!	0
RRUS49 RJTD	1	0	!	0	!	0	!	0	!	0	!	0	!	0
SAAU40 AMMC	1	!	-	!	-	!	-	!	-	!	-	!	-	!
SIAU44 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
SNAU40 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
SNAU41 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
SNAU42 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
SNAU43 AMMC	1	0	!	0	!	0	!	0	!	0	!	0	!	0
WEPA40 RUHB	1	0	!	0	!	0	!	0	!	0	!	0	!	0

3.2 Regional Bulletins

Table 2 illustrates the pattern of regional bulletins transmitted by Tokyo but not received at ECMWF. The same notation is used as for table 1, but individual hours are illustrated.

It is not possible to identify specific, well organised patterns corresponding to the conditions listed in 3.1 above. In general, only 16% of the regional bulletins transmitted by Tokyo were received at ECMWF.

3.3 National Bulletins

Table 3 illustrates the national bulletins transmitted by Tokyo and not received at ECMWF. During the period no national bulletins transmitted by Tokyo were received.

4. COMPARISON BY BULLETIN TYPE

The ECMWF/WMO Observations data set contains selected surface observations and observations from Ocean Weather Ships. For use in association with the ECMWF Data Assimilation scheme and hence for the production of the ECMWF/WMO Analysis data set observations are divided into 7 major categories. The comparison of bulletins transmitted by Tokyo against those received at ECMWF, structured according to those 7 categories, is depicted in table 4.

Reception of global AIREP (type 2) and DRIBU/BATHY/TESAC (type 4) was excellent. Reception of other global bulletins represented an outage of some 6 to 7%. A shortfall of 5% in TEMP data and 11% in PILOT data is disconcerting.

Reception of regional data is disappointing. Although regional data is not specifically destined for global exchange it is currently believed in many WMO circles that much regional data is exchanged. The findings of this comparison would contradict such notions. The regional data transmitted consisted mainly of surface observations (including ships), TEMP and PILOT data. It is believed that much of these data would be useful in the context of global analysis schemes.

The national data transmitted contained surface reports of national interest only.

Table 4: Bulletins transmitted from Tokyo (1 - 5 October 1984)

ECMWF Storage Files Type	B U L L E T I N S (Distribution Type)											
	Global 1 - 19			Regional 20 - 39			National 40 - 89			Total 1 - 89		
	a	b	c	a	b	c	a	b	c	a	b	c
1. SURFACE	1761	122	7%	969	824	85%	72	72	100%	2802	1018	36%
2. AIREP	744	6	0.8%	1	1	100%	0	0	-	745	7	0.9%
3. SATOB	61	3	5%	11	0	0%	0	0	-	72	3	4%
4. DRIBU, BATHY, TESAC	28	0	0%	0	0	-	0	0	-	28	0	0%
5. TEMP	1507	68	5%	13	13	100%	0	0	-	1520	81	5%
6. PILOT	848	95	11%	451	372	82%	0	0	-	1299	467	36%
7. SATEM, TOVS, PAOB	52	5	10%	0	0	-	0	0	-	52	5	10%
T O T A L	5001	299	6%	1445	1210	84%	72	72	100%	6518	1581	24%

NOTE 1: a-figure: number of bulletins transmitted

b-figure: number of bulletins not received at ECMWF

c-figure: b-figure as a percentage of a-figure.

NOTE 2: These figures refer to original bulletins only. RTD and COR bulletins are not included.

NOTE 3: Bulletins for 020000 have been excluded because there appeared to be a major outage at this time.