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No. W/OIS

Geneva, 15 April 1982

Annexes: 4

Subject: Monthly letter on the operation of the World Weather Watch (April 1982)

Action required: To be noted and brought to the attention of appropriate operational units

Dear Sir/Madam,

As indicated in my letter PR-3398 of 26 March 1982, all the information on changes to the operation of the World Weather Watch is now to be assembled and distributed by the Secretariat on a monthly basis to facilitate updating and follow-up action.

Attached, you will find annexes providing the latest WWV operational information. Those items and sub-items for which information is provided are listed below:

Annex 1 - Global Observing System

B. Changes in global or regional components of WWV plan

1. Regional basic synoptic networks
  - 1.1 New stations
  - 1.3 Changes to existing stations

C. Information on operational status of elements of the surface-based sub-system

1. Publication No. 9, Volume A - Stations
  - 1.1 New stations
  - 1.2 Deleted stations
  - 1.3 Changes to existing stations

To: Permanent Representatives (or Directors of Meteorological or Hydro-meteorological Services) of Members of WMO (PR-3408)  
Directors of Meteorological Services of non-Member countries (MC-2207)  
President and Vice-President of CBS  
Chairmen of CBS Working Groups  
Secretary-General of ICAO  
Director-General of ASECNA  
Director of ECHWF

Annex II - Global Data-processing System

- P. Information on operational status of CDPs including changes to WFC Publication No. 9 - Volume B
- 3. Output products of centres other than WFCs and RMCs
  - 3.3 Changes to products

Annex III - Global Telecommunication System

- B. Updating of Manual on GTS in respect of exchange lists
  - 1. Global exchange lists (Manual on the GTS, Volume 1, Part 1, Attachment 1-4)
    - 1.1 New stations
    - 1.2 Deleted stations
- C. Information on the operation of GTS
  - 1. Catalogue of Meteorological Bulletins (Publication No. 9, Volume C, Chapter I)
    - 1.1 New bulletins
    - 1.3 Changes to bulletins
  - 2. Transmission schedules (Publication No. 9, Volume C, Chapter II)
    - 2.3 Changes in schedules/technical specifications

Annex IV - Codes

- B. Manual on Codes
  - 3. National Practices
    - 3.4 Units used for reporting of horizontal speed (wind speed, speed of system etc.) in reports, analyses and forecasts

Your co-operation in ensuring that the above information reaches the appropriate operational units of your service is greatly appreciated.

Yours faithfully,



for the Secretary-General  
(G.K. Weiss)  
Director  
World Weather Watch Department



16624 CHRISOU'POLI 4(55N 2437E - - . x x x x x x . . . . . /  
 11E55 NITRA 4817N 1808E 135 135 . . x x x x x . H05-20 . . . . . /  
 06023 GORM 5535N 0446E - 10 x x x x x x x x . . . . . (AUT/MANUAL) /

1.2. Deleted stations

60456 MOSTAGANEM / 60465 BOGHARI / 60505 MASCARA / 60530 TLEM'EN /  
 43308 MAHABALIPURAM /  
 E1205 CORONIE / P1208 ALBINA / B1254 PALCEMEU / B1276 CELEMARIE /  
 87574 MORG'N AERO /  
 93406 FOXTON BEACH / 94323 TEMPE DOWNS / 94328 RINGWOOD /  
 943E5 HERON ISLAND / 94591 COCLANGATTA / 94846 GELLIBRAND /  
 94848 BODRI / 94880 NCCJEE / 95805 ALTHORPE ISLAND / 95986 TASMAN ISLAND AWS /  
 01012 ESPENES / 01061 BRENNELV / 01145 KVALNES I LOFOTEN / 01169 OVRE SALTDAL /  
 01176 KONGSVIK / 01232 VINJEOPA / 01280 NAMDALSEID BOGSET / 01298 NORDLI BRATTVOLL /  
 01440 HYLESTAD - BROKKE / 06021 HANSTHOLM / 06033 HIRISHALS / 06651 SCHENKON /  
 02949 PUNKAHARJU / 06678 GOSSAU / 11750 PREROV / 16719 ZAKYNTHOS (AIRPORT) /  
 16112 MONTE FRAITEVE / 1611F NOVI LIGURE / 16129 PALMARIA / 16136 PASSO DELLA PORETTA /  
 16070 GRIGNA SETTENTRIONALE / 16096 MONTE VENDA /

1.3. Changes to existing stations

61641 DAKAR/YOFF RW P RW P / 67774 SALISBURY (BELVEDERE) RW . RW . /  
 60468 BATNA X X X X X X X X . . . . . / 67237 NAMPULA RW . RW . /  
 67297 BEIRA RW . RW . / 67341 MAPUTO/MAVALANE RW . RW . /  
 60402 BEJAJA X X X X X X X X P P P P /  
 60425 AL ASNAM X X X X X X X X . . . . . / 60430 MILIANA P P P P /  
 60475 TEBESSA . . X X X X X . . . . . / 60518 BENI SAF . . . . . /  
 60522 MACHINIA . . . . . / 60525 BISKRA X X X X X X X X . . . . . /  
 60545 LAGHOUT X X X X X X X X / 60549 MECHERIA X X X X X X X X /  
 60550 EL BAYADH P P RW P / 60580 DUARCLA X X X X X X X X /  
 60602 BENI ABBES . P P P / 60630 IN SALAH P P W P /  
 60670 DJANET . P P P / 67693 CHILEKA X X X X X X X X /  
 63612 LODWAR X X X X X X X X / 63619 MOYALE . X X X X X X X X /  
 63624 MANDERA X X X X X X X X / 63641 MARSABIT X X X X X X X X /  
 63671 WAJIR X X X X X X X X / 63695 MERU X X X X X X X X /  
 63714 NAKURU X X X X X X X X / 63720 EMBU X X X X X X X X /  
 63723 GABISSA X X X X X X X X / 63766 MAKINDU X X X X X X X X /  
 63793 VVI X X X X X X X X / 64387 KIGALI X X X X X X X X /  
 62750 ED DUEIM X X X X X X X X / 62756 SODARI . . . . . /  
 60355 SKIKDA . . . . . /  
 67441 MWINILUNGA . X X X X X X . / 67475 KASAMA . W W . /  
 67531 ZAMBEZI . X X X X X . . / 67633 MONGU . W W . / 67663 KABWE . W RW . /  
 40703 KHOY X X X X X X X X / 40723 BOJOURD X X X X X X X X /  
 40747 SANANAJ X X X X X X X X / 40831 ABADAN . X X X X X X . /  
 40841 KERMAN X X X X X X X X / 40898 CHAHBAHAR X X X X X X X X /  
 51828 HOTAN RW . RW . / 58966 TAIBEI RW . RW . /  
 70026 BARROW/W. POST W. ROGERS X . . . X . X . H00-24 /  
 70174 BETTLES . . . . . H00-24 / 70207 UNALAKLEET X . . . . . X . H00-24 /  
 70264 SUMMIT . . . . . H00-24 / 72242 GALVESTON X . X . X . X . /  
 72261 DEL RIO/INT X . . . X . X . H00-24 / 72262 GUADELUPE PASS X . X . X . X . /  
 72264 MARFA/MUN. X . X . X . X . / 72334 MEMPHIS/INTNL. P P P P /  
 72341 PAGE X . X . X . X . / 72374 WINSLOW/MUN. X . . . X . . . H00-24 /  
 72394 SANTA MARIA/PUBLIC . . . . . X . . . . . X . H15-01, 08-09 /  
 72401 RICHMOND/BYRD . . . . . / 72450 WICHITA/MID-CONTINENT . . . . . /  
 72464 PUEBLO/MEMORIAL . . . . . X . H13-05, 12,06 /  
 72492 STOCKTON/METROPOLITAN X . . . . . X . H13-04 /  
 72564 CHEYENNE . . . . . / 725E1 WENDOVER/AF. AUX. FIELD . . . . . H00-24 /  
 72591 RED ELUFF/MUN. . . . . X . H00-24 /  
 72638 HOUGHTON LAKE/ROSCOMMON COUNTY X . . . X . X . H00-24 /  
 72659 ABERDEEN/REG. . . . . H12-03 / 72683 BURNS X . . . X . X . H12-03 /  
 72765 ROSEGLN X . X . X . X . / 72767 WILLISTON/SLOULIN FIELD INT. . . . . /  
 72789 OMAK X . X . X . X . H03,06,12,15,18,21,24 /  
 74740 JUNCTION/KIMBLE COUNTY A. X . X . X . X . /  
 91366 KWAJALEIN/BUCHOLZ AAF MARSHALL IS. X . X . X . X . H18-12 /  
 91765 PAGE PAGE, AMERICAN SAMOA RW . RW . /

91720 ATUFU X X X X X . X X / 91724 MUKUNCNO X X X X X . X X /  
17609 LARNACA AIRPORT P P P P / 94317 MUNDIWINDI . . . . . /  
94372 PINE ISLET X X X X X . X X / 94388 LADY ELLIOT ISLAND X X X X X . X X /  
94689 BROKEN HILL X . X . . . . / 94986 MAWSCN W . RW . / 91530 NAIRU X X X . . . X X /  
96996 COCOS ISLAND AIRPORT X X X X X X X X RW P W P /  
01477 KONGSBERG IV X . X X X X X X / 06024 THISTED FLYVEPLADS . . X X X X X . /  
10384 BERLIN/TEMPELHOF . W RW . / 17240 ISPARTA RW . RW . /  
40102 RAYACK . . X X X X . . / 40103 TRIPOLI . . X X X X . . /

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Topic

B. Information on operational status of GDPS including changes to WMO Publication No. 9 - Volume B

3. Output products of centres other than WMCs and RMCs

3.3 Changes to products

Changes as from 27 April 1982 in the coding of products disseminated by ECMWF

1. Introduction

The European Centre for Medium Range Weather Forecasts (ECMWF) has been distributing a selection of its output products via the Global Telecommunication System since 1 August 1981 in a version of the WMO GRID code similar in format to that used for direct transmission from ECMWF to its participating Member States. With effect from 27 April 1982, an important change will be made to the version of the WMO GRID code used by ECMWF to disseminate its products via the GTS. The effect of the change will be to make the WMO GRID code format used by ECMWF virtually identical to the formats used by WMC Washington for disseminating analysis and forecast products via the GTS. .

Section 2 below describes the format in detail, and section 3 below includes examples of analysis and forecast products. Section 4 shows the geographical areas and ordering of the grids which are currently used, which will continue to be used; these areas are identical in layout and presentation to the correspondingly numbered areas used in WMC Washington GRID code products and are described in detail in Volume B of WMO Publication No. 9.

2. Format of the WMO GRID code to be used by ECMWF from 27 April 1982

```

GRID F1F2NNN 10101
111 1a1a100 (2p1p199) (3H1H1H1H1) 6JJMM 7YYGCGC
      (8lttt) 0mmgrgr
333 1nanalis 2n1020 (3usnrr rrrrr)
k1k1ngng iaiaiajaja (Sx)II...I(Sx)II...I.....
.....
k1k1ngng iaiaiajaja (Sx)II...I(Sx)II...I.....
555 F1F2NNN 10101
    
```

Notes

- (a) For ECMWF products, F<sub>1</sub>F<sub>2</sub>=98 in sections 0 and 5 of the code.
- (b) In Section 1, the optional group 3H<sub>1</sub>H<sub>1</sub>H<sub>1</sub>H<sub>1</sub> is only used for mean sea level pressure products when it takes the form 30000. (The optional 5 group which previously appeared as 56000 for mean sea level pressure will not be used).

(c) In Section 1, the  $Cmmg_r g_r$  group is used as follows:

- (i) before 1 July 1982, for initialised analyses this group will be coded C1099.
- (ii) after 1 July 1982, for uninitialised analyses this group will be coded G1199.
- (iii) for forecasts this group will be coded 09999 for compatibility with WMC Washington.

(d) In Section 3, the scaling and reference groups  $Jus_n rrr rrrrr$  will be used as follows:

- (i) for 500 mb geopotential and for 850 mb and 200 mb wind fields the groups will not be present.
- (ii) for mean sea level pressure fields, the groups will be codes as:

30000 00900

(e) In the data section of the code, the following practices will be used:

- (i) because of the choice of reference and scaling values, the sign indicator ( $S_x$ ) for each grid point value will not be present.
- (ii) there will be no spaces between grid point values; but there will be a space between the  $k_k n_n$  and  $i i j j j$  groups and also before the first grid point value in the data line.
- (iii) because of the ordering of the data lines in areas 001 to 004 and areas 009 to G12, the pole value will be in the last data line and will be codes as one grid point value only, as follows:

North pole data line: 9901 000140 III  
 South pole data line: 9801 000140 III

- (iv) 500 mb geopotential and mean sea level pressure fields will result in 3-digit grid point values and one data line will fit in one text line (19 groups).
- (v) 200 mb and 850 mb wind fields will result in 5-digit grid point values corresponding to  $a_1 a_1 = 22$  in table 0291 of WMO Publication No. 306 - Manual on Codes. One data line will require two text lines; the first text line containing the  $k_k n_n i i j j j$  and eleven grid point values, and the second line containing the remaining eight grid point values.

3. Examples of WMO GRID code formats to be used by ECMWF from 27 April 1982

(a) A 500 mb geopotential forecast for area 001 will be coded:

```

zczc 001 8812P
ghae50 ecmf 271200
grid 98001 10101
111 10200 25099 60204 72712 81024 09999
333 11512 23020
0119 000000 592592 .... 575 (19 grid points)
0219 000010 591592 .... 568
-----
1419 000130 538538 .... 518
9901 000140 512
555 98001 10101
777
    
```

(b) A mean sea level pressure analysis for area 009 will be coded:

```

zczc 002 8814F
gpie98 ecmf 271200
grid 98009 10101
111 10100 30000 56000 68204 72712 01099 (01199 after 1 July 1982)

```

```

333 11512 23020 30000 00900
0119 000000 117116 .... 116 (19 grid points)
0219 000010 119117 .... 117

```

```

-----
1419 000130 100100 .... 102
9801 000140 104
555 98009 10101
777

```

(c) A 850 mb wind analysis for area 005 will be coded:

```

zczc 003 89800
gwea85 ecmf 271200
grid 98005 10101
111 12200 28599 68204 72712 01099 (01199 after 1 July 1982)

```

```

333 11512 25020
0119 000000 2151720510.... 22015 (11 grid points)
2151320511 .... 02007 (8 grid points)
0219 000010 2051118005 .... 20508
1900714505 .... 04013

```

```

-----
1519 000140 2500215006 .... 34509
3451033509 .... 23513
555 98005 10101
777

```

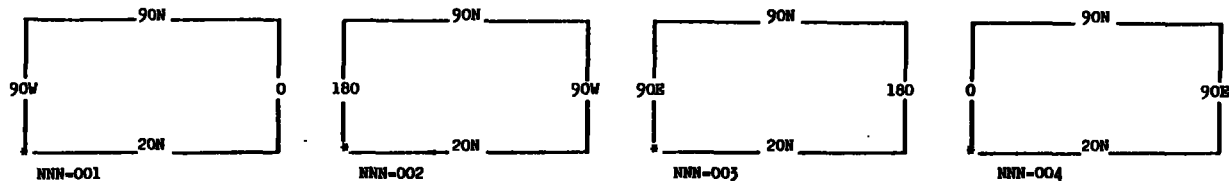
4. Areas and catalogue numbers currently used by ECMWF for grid code transmissions of its products in grid-point form via the GTS

(see overleaf)

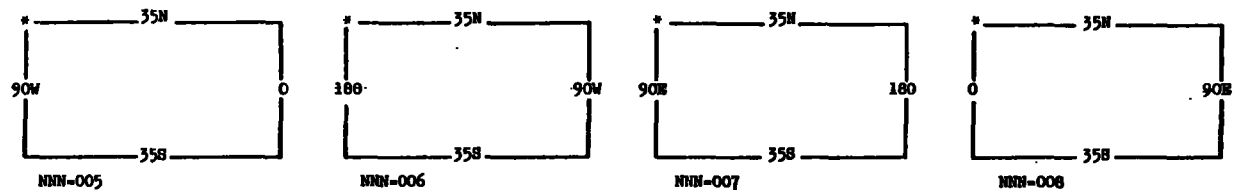


4. Areas and catalogue numbers currently used by ECMWF for grid code transmissions of its products in grid-point form via the GTS

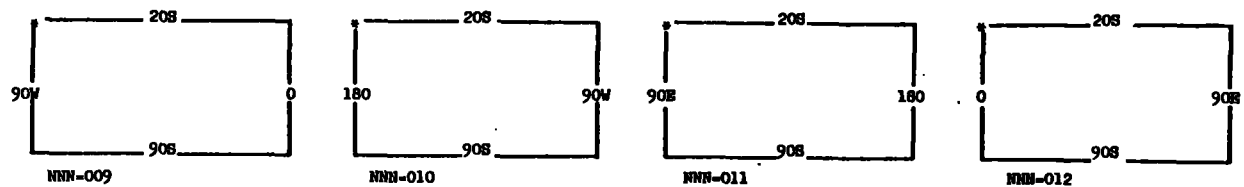
NORTHERN HEMISPHERE



TROPICAL



SOUTHERN HEMISPHERE



\* - Reference point  
 Grid points at 5° latitude/longitude intersections

Annex III - Global Telecommunication System

Date: 15 April 1982

Topic

B. Updating of Manual on GTS in respect of exchange lists

1. Global exchange lists (Manual on the GTS, Volume I, Part I, Attachment I-4)

1.1. New stations

SYNOPSIS: 60425 at 00 GMT  
60525 at 00 GMT  
60580 at 00, 06, 12, 18 GMT  
64367 at 00 GMT  
40703 at 00, 18 GMT  
40747 at 00, 18 GMT  
40841 at 00 GMT  
40898 at 00, 18 GMT  
91530 at 18 GMT  
96996 at 12, 18 GMT

TEMP: 61641 at 00 GMT  
67237 at 00, 12 GMT  
67341 at 00 GMT  
67774 at 00 GMT  
96996 at 00 GMT  
17240 at 00 GMT  
17607 at 00 GMT  
94986 at 12 GMT

PILOT: 60402 at 00 GMT  
60430 at 00 GMT  
60630 at 00, 12 GMT  
96996 at 06, 12, 18 GMT  
17609 at 00 GMT

1.2. Deleted stations

SYNOPSIS: 40831 at 00 GMT  
70026 at 06 GMT  
70174 at 00, 06, 12, 18 GMT  
70207 at 06, 12 GMT  
72261 at 06 GMT  
72374 at 06, 18 GMT  
72394 at 00 GMT  
72591 at 00, 12 GMT  
94317 at 00, 06 GMT  
94689 at 18 GMT  
40102 at 18 GMT  
40103 at 18 GMT

TEMP: 60630 at 00, 12 GMT

PILOT: 60355 at 06, 12, 18 GMT  
60525 at 06, 12, 18 GMT  
72450 at 06 GMT  
72564 at 06 GMT  
72767 at 06 GMT  
91765 at 06, 18 GMT  
10384 at 00, 18 GMT

These changes represent those notified since the issue of Amend. No. 24 (XII 1981) up to 26/3/82.

C. Information on the operations of GTS

1. Catalogue of Meteorological Bulletins (Publication No. 9, Volume C, Chapter I)

1.1. New bulletins

SMHE1	FHSB	11008	FM.12-VII	00,06,12,18	61901 /
USHE1	FHSB	31008	FM.35-V	12	61901 /
UKHE1	FHSB	31018	FM.35-V	12	61901 /
ULHE1	FHSB	31028	FM.35-V	12	61901 /
UEHE1	FHSB	31038	FM.35-V	12	61901 /
UPHE1	FHSB	31058	FM.32-V	00	61901 /
UHHE1	FHSB	31078	FM.32-V	00	61901 /
SIHE20	FHSB	21018	FM.12-VII	03,09,15,21	61901 /
UGHE21	FHSB	31068	FM.32-V	00	61901 /
URHE21	FHSB	31079	FM.32-V	00	61901 /
SMVX10	RUML	10003	FM.13-VII	00,06,12,18	SHIP

1.3. Changes to bulletins

- (i) Replace as indicated below the ii of the abbreviated headings of the following USSR bulletins, as from 20.4.1982:

## WMC MOSCOW

SIBY2 RUMS	27000	SMBY20 RUMS	27000
SMUR2 RUMS	27100	SMUR20 RUMS	27100
SMRS2 RUMS	27200	SMRS20 RUMS	27200
SMBY3 RUMS	27001	SMBY30 RUMS	27001
SMUR3 RUMS	27101	SMUR30 RUMS	27101
SMRS3 RUMS	27201	SMRS30 RUMS	27201
SIBY10 RUMS	27010	SIBY20 RUMS	27010
SIUR10 RUMS	27110	SIUR20 RUMS	27110
SIRS10 RUMS	27210	SIRS20 RUMS	27210
SIRS11 RUMS	27211	SIRS21 RUMS	27211
SIRS12 RUMS	27310	SIRS22 RUMS	27310
SIRS13 RUMS	27410	SIRS23 RUMS	27410
SIRS14 RUMS	27411	SIRS24 RUMS	27411
SIRS15 RUMS	27910	SIRS25 RUMS	27910
SIRS16 RUMS	27915	SIRS26 RUMS	27915

## RTH KHABAROVSK

SMRA2 RUHB	23300	SMRA20 RUHB	23300
SMRA3 RUHB	23301	SMRA30 RUHB	23301
SIRA13 RUHB	23415	SIRA23 RUHB	23415
SIRA10 RUHB	23310	SIRA20 RUHB	23310
SIRA20 RUHB	23311	SIRA27 RUHB	23311
SIRA11 RUHB	23315	SIRA21 RUHB	23315
SIRA12 RUHB	23410	SIRA22 RUHB	23410
SIRA14 RUHB	23510	SIRA24 RUHB	23510

## RTH NOVOSIBIRSK

SIRA10 RUNW	23710	SIRA20 RUNW	23710
SIRA12 RUNW	23610	SIRA22 RUNW	23610
SIRA13 RUNW	23615	SIRA23 RUNW	23615
SIRA11 RUNW	23715	SIRA21 RUNW	23715
SIRA14 RUNW	23810	SIRA24 RUNW	23810
SIRA15 RUNW	23815	SIRA25 RUNW	23815

## RTH TASHKENT

SMRA2 RUTK	23900	SMRA20 RUTK	23900
SMRA3 RUTK	23901	SMRA30 RUTK	23901
SIRA10 RUTK	23910	SIRA20 RUTK	23910
SIRA20 RUTK	23911	SIRA30 RUTK	23911
SIRA11 RUTK	23915	SIRA21 RUTK	23915
SIRA21 RUTK	23916	SIRA31 RUTK	23916

- (ii) As from March 1982, station 26781/SMOLENSK is:

- (a) included in the following USSR bulletins:

SMRS11 RUMS	17300
SIRS22 RUMS	27310
USRS12 RUMS	37300 at 00 and 12 GMT
UKRS12 RUMS	37310 at 00 and 12 GMT
ULRS12 RUMS	37320 at 00 and 12 GMT
UERS12 RUMS	37330 at 00 and 12 GMT
UPRS19 RUMS	37350 at 06 and 18 GMT
UGRS19 RUMS	37360 at 06 and 18 GMT
UHR19 RUMS	37370 at 06 and 18 GMT
UQRS19 RUMS	37371 at 06 and 18 GMT

(b) deleted from the following USSR bulletins:

SMRS1 RUMS 17200  
 SIRS20 RUMS 27210  
 USRS10 RUMS 37200  
 UKRS10 RUMS 37210  
 ULRS10 RUMS 37220  
 UERS10 RUMS 37230  
 UPRS10 RUMS 37250  
 UGRS10 RUMS 37260  
 UHRS10 RUMS 37270  
 UQRS10 RUMS 37271

2. Transmission schedules (Publication No. 9, Volume G, Chapter II)

2.3. Changes in schedules/technical specifications

(i) Changes in schedules:

II-ii BEIJING, HANKOU and CHENDOU broadcasts effective 1.3.82 /  
 II-iii BEIJING, radio-facsimile broadcast effective 15.4.82 /  
 IV-iii ESQUIMALT and FROBISHER radio-facsimile broadcasts effective 1.3.82 /  
 V-iii MELBOURNE radio-facsimile broadcast effective 6.3.82 /  
 VI-iii BEOGRAD radio-facsimile broadcast effective 1.3.82 /  
 VI-iii OFFENBACH/MAIN-MAINFLINGEN (DCF54 and DCF37) radio-facsimile  
 broadcasts effective 15.3.82 /  
 VI-iii BRACKNELL (GFE) radio-facsimile broadcast effective 6.4.82:

- (a) the 0830 general notices will be issued at 1413 GMT
- (b) the 0853 ASXN EGRR (circumpolar surface analysis chart) will be broadcast at 1001 GMT
- (c) the 1413 SXNT EGRR (sea ice observations) will be broadcast at 1600 GMT
- (d) the following products will be issued on a trial basis:

Broadcast times (GMT)	Products
0230 0830 1430 2030	FUEU85 EDZW 850MB EUR FUEU70 EDZW 700MB EUR
0250 0850 1450 2050	FUEU50 EDZW 500MB EUR FUEU30 EDZW 300MB EUR
0310 0910 1510 2110	FXEU EDZW TROP MAX WIND FUXX20 EDZW 200MB EUR

(ii) Changes in technical specifications:

II-ii KARACHI RTT broadcast effective 4.3.82 read 9 110 kHz, 19 683 kHz /  
 IV-iii FROBISHER radio-facsimile broadcast effective 1.3.82 read 3 253 kHz,  
 7 710 kHz /

Date: 15 April 1982

TopicB. Manual on Codes3. National practices3.4. Units used for reporting of horizontal speed (wind speed, speed of system etc.) in reports, analyses and forecasts

Afghanistan	knots used in FM 15-V METAR, FM 16-V SPECI m/s used in other code forms
Albania	no information received recently
Algeria	knots used in all codes
Angola	no information received recently
Argentina	knots used in all codes
Australia	knots used in all codes
Austria	knots used in all codes
Bahamas	knots used in all codes
Bahrain	knots used in all codes
Bangladesh	no information received recently
Barbados	knots used in all codes
Belgium	knots used in all codes
Benin	no information received recently
Bolivia	knots used in all codes
Botswana	knots used in all codes
Brazil	knots used in all codes
British Caribbean Territories	knots used in all codes
Bulgaria	m/s used in all codes
Burma	m/s used in all codes
Burundi	no information received recently
Canada	knots used in all codes
Cape Verde	knots used in all codes
Central African Republic	no information received recently

Chad	no information received recently
Chile	knots used in all codes
China	knots used in FM 20-V RADOB km/h used in FM 47-V GRID, FM 54-V ROFOR m/s used in other code forms
Colombie	knots used in FM 15-V METAR, FM 16-V SPECI, FM 48-V ARMET, FM 51-V TAF m/s used in FM 12-VII SYNOP, FM 35-V TEMP, FM 75-VI CLIMAT TEMP
Comoros	knots used in all codes
Congo	knots used in all codes
Costa Rica	knots used in all codes
Cuba	m/s used in FM 12-VII SYNOP, FM 13-VII SHIP km/h used in FM 20-V RADOB knots used in other code forms
Cyprus	knots used in all codes
Czechoslovakia	m/s used in all codes
Democratic Kampuchea	no information received recently
Democratic People's Republic of Korea	no information received recently
Democratic Yemen	knots used in all codes
Denmark	knots and m/s used in FM 75-VI CLIMAT TEMP knots in other code forms
Djibouti	no information received recently
Dominica	m/s used in all codes
Dominican Republic	m/s used in FM 12-VII SYNOP knots used in other code forms
Ecuador	no information received recently
Egypt	no information received recently
El Salvador	knots used in all codes
Ethiopia	knots used in FM 15-V METAR, FM 16-V SPECI, FM 41-IV CODAR, FM 48-V ARMET, FM 49-VII GRAF, FM 51-V TAF, FM 53-V ARFOR, FM 54-V ROFOR m/s used in other code forms
Fiji	knots used in all codes
Finland	m/s used in FM 13-VII SHIP, FM 47-V GRID knots used in other code forms
France	knots used in all codes

French Polynesia	knots used in all codes
Gabon	knots used in all codes
Gambia	knots used in all codes
German Democratic Republic	km/h used in FM 20-V RADOB m/s used in other code forms
Germany, Federal Republic of	knots used in all codes
Ghana	no information received recently
Greece	knots used in all codes
Guatemala	knots used in all codes
Guinea	no information received recently
Guinea-Bissau	knots used in all codes
Guyana	m/s used in all codes
Haiti	no information received recently
Honduras	no information received recently
Hong Kong	knots used in all codes
Hungary	m/s used in all codes
Iceland	knots used in all codes
India	knots used in all codes
Indonesia	knots used in all codes
Iran	m/s used in all codes
Iraq	m/s used in all codes
Ireland	knots used in all codes
Israel	knots used in all codes
Italy	knots used in all codes
Ivory Coast	knots used in all codes
Jamaica	knots used in all codes
Japon	knots used in all codes
Jordan	knots used in all codes
Kenya	knots used in all codes
Kuwait	knots used in all codes
Lao People's Democratic Republic	m/s used in all codes
Lebanon	knots used in all codes
Lesotho	knots used in all codes
Liberia	no information received recently
Libyan Arab Jamahiriya	knots used in all codes
Luxembourg	knots used in all codes

Madagascar	knots used in all codes
Malawi	m/s used in all codes
Malaysia	knots used in all codes
Maldives	knots used in FM 15-V METAR, FM 16-V SPECI m/s used in other code forms
Mali	knots used in all codes
Malta	knots used in all codes
Mauritania	knots used in all codes
Mauritius	knots used in all codes
Mexico	m/s used in all codes
Mongolia	m/s used in all codes
Morocco	knots used in all codes
Mozambique	m/s used in FM 12-VII SYNOP, FM 32-V PILOT, FM 35-V TEMP, FM 75-VI CLIMAT TEMP km/h used in FM 20-V RADOB knots used in other code forms
Nepal	knots used in all codes
Netherlands	knots used in all codes
Netherlands Antilles	knots used in all codes
New Caledonia	knots used in all codes
New Zealand	knots used in all codes
Nicaragua	no information received recently
Niger	knots used in all codes
Nigeria	knots used in all codes
Norway	knots used in all codes
Oman	knots used in all codes
Pakistan	knots used in all codes
Panama	no information received recently
Papua New Guinea	knots used in all codes
Paraguay	no information received recently
Peru	no information received recently
Philippines	m/s used in all codes
Poland	knots used in FM 13-VII SHIP, FM 63-V BATHY, FM 64-V TESAC m/s used in other code forms
Portugal	knots used in all codes
Qatar	knots used in all codes



Republic of Korea	knots used in all codes
Romania	m/s used in all codes
Rwanda	m/s used in all codes
Saint Lucia	knots used in all codes
Sao Tome and Principe	no information received recently
Saudi Arabia	knots used in all codes
Senegal	knots used in all codes
Seychelles	knots used in all codes
Sierra Leone	knots used in all codes
Singapore	knots used in all codes
Somalia	knots used in all codes
South Africa*	
Spain	knots used in all codes
Sri Lanka	no information received recently
Sudan	knots used in all codes
Suriname	knots used in all codes
Sweden	m/s used in FM 47-V GRID, FM 48-VII GRAF knots used in other code forms
Switzerland	knots used in all codes
Syrian Arab Republic	no information received recently
Thailand	knots used in all codes
Togo	knots used in all codes
Trinidad and Tobago	km/h used in FM 20-V RAOB knots used in other code forms
Tunisia	knots used in all codes
Turkey	knots used in all codes
Uganda	knots used in all codes
Union of Soviet Socialist Republics	m/s used in all codes
United Kingdom of Great Britain and Northern Ireland	knots used in all codes
United Republic of Cameroon	knots used in all codes
United Republic of Tanzania	knots used in all codes

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\* The Government of the Republic of South Africa has been suspended by Resolution 38 (Cq-VII) from exercising its rights and enjoying its privileges as a Member of WMO.

United States of America	m/s used in FM 13-VII (in data buoy reports only), FM 47-V GRID knots and m/s used in FM 39-VI RQCOB, FM 63-V BATHY, FM 64-V TESAC knots used in FM 13-VII (in reports other than data buoy reports) and other code forms
Upper Volta	knots used in all codes
Uruguay	knots used in all codes
Venezuela	m/s used in FM 12-VII SYNOP, FM 13-VII SHIP knots used in other code forms
Viet Nam	m/s used in all codes
Yemen	knots used in all codes
Yugoslavia	knots used in FM 13-VII SHIP, FM 15-V METAR, FM 16-V SPECI, FM 51-V TAF m/s used in other code forms
Zaire	no information received recently
Zambia	knots used in all codes
Zimbabwe	knots used in all codes
Non Member	
Swaziland	knots used in all codes

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