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Weather • Climate • Water
Temps • Climat • Eau

Our ref.: OBS/WIS/DRMM/DRC GENEVA, 25 February 2013

Annexes: 2 (available in English, French, Russian and Spanish only)

Subject: Amendments to the *Manual on Codes*

Action required: To consider the amendments to the *Manual on Codes* (WMO-No. 306) and inform the Secretariat of your concurrence on the amendments by **22 April 2013**

Dear Sir/Madam,

In accordance with the procedure for the adoption of amendments to the *Manual on Codes* between CBS sessions, and as requested by the president of CBS, I am pleased to attach herewith in Annex I draft amendments to the *Manual on Codes,* Volumes I.1 and I.2.

The procedure for adoption of amendments between CBS sessions is extracted in Annex II, which was approved by the sixty-first session of the Executive Council (Geneva, June 2009) in view of the rapid development of new requirements and revised by the Sixteenth Congress (Geneva, May-June 2011).

I would be grateful if you could consider these draft amendments for implementation on 14 November 2013, and if you could inform me of your concurrence on these amendments, as soon as possible but within the two months following the date of dispatch of this letter, so that the amendments will be incorporated in the next edition of the *Manual on Codes* in an appropriate manner.

If you have comments or disagreements on all or some of these draft amendments, I would be grateful if you could designate a focal point responsible to discuss these comments/ disagreements with the CBS Inter-Programme Expert Team on Data Representation, Maintenance and Monitoring (IPET-DRMM). Please note that those WMO Members having not replied within the two months following the dispatch of this letter are implicitly considered as having agreed with the draft amendments.

To: Permanent Representatives (or Directors of Meteorological or Hydrometeorological Services) of Members of WMO (PR-6688)

cc: President and vice-president of CBS)
Chair of OPAG-ISS) (for information)

The list of amendments approved by the WMO Members will be included in an issue of the Operational Newsletter on the World Weather Watch and Marine Meteorological Services available on the WMO server (http://www.wmo.int/pages/prog/www/ois/Operational_Information/Newsletters/current_news_en.html) after the two months following the dispatch of this letter. The date of issue of this Operational Newsletter will be considered as the date of notification of the approved amendments. With a view to limiting the mailing costs, the Secretariat will not issue any other correspondences to inform the WMO Members of this list of approved amendments. However, if you experience difficulties in accessing the Operational Newsletter on the WMO server, do not hesitate to inform us and the Secretariat will send you the list by mail.

Yours faithfully,

(J. Lengoasa)
for the Secretary-General

CONTENTS

I DATE OF IMPLEMENTATION

14 November 2013

II LIST OF AMENDMENTS

Editorial note: Strike-through in blue is for deletion and characters in red are for additions.

[Manual on Codes, Volume I.1]

1. Amendments to the aeronautical codes (METAR/SPECI and TAF)

Editorial note: *These amendments are consequential to the Amendments 76 to the ICAO Annex 3 with some exceptions, such as the amendments to B_RB_R, which are consequential to the Amendments 37 to ICAO Annex 15, and amendments to Rgulation 51.5.1, which are for consistency with the current Annex 3.*

Section A – CODE FORMS

Amend code form of METAR and SPECI:

METAR / or / SPECI **COR** CCCC YYGGgg**Z** **NIL** **AUTO** ddd**G**f_mf_m { KT / or / MPS } $d_nd_nd_n$**V**$d_xd_xd_x$

{ VVVV / or / **CAVOK** } $V_NV_NV_NV_ND_v$ $RD_RD_R/V_RV_RV_RV_Ri$ ~~or~~ ~~$RD_RD_R/V_RV_RV_RV_R$**V**$V_RV_RV_RV_Ri$~~ w´w´ { $N_sN_sN_sh_sh_sh_s$ / or / $VVh_sh_sh_s$ / or / **NSC** / or / **NCD** }

T´T´/T´$_d$T´$_d$ **Q**$P_HP_HP_HP_H$ **RE**w´w´ { WS RD_RD_R / or / **WS ALL RWY** } { (WT_sT_s/SS´) / or / (**W**T_sT_s/**H**$H_sH_sH_s$) } (**R**D_RD_R/$E_RC_Re_Re_Re_RB_RB_R$)

{ (TTTTT / or / NOSIG) } TTGGgg ddd**G**f_mf_m { **KT** / or / **MPS** } { VVVV / or / **CAVOK** } { w´w´ / or / **NSW** } { $N_sN_sN_sh_sh_sh_s$ / or / **VV**$h_sh_sh_s$ / or / NSC }

(**RMK** . . . . .)

Amend Regulation 15.7 of METAR and SPECI:

15.7 **Group~~s~~** { $RD_RD_R/V_RV_RV_RV_Ri$ / ~~or~~ / ~~$RD_RD_R/V_RV_RV_RV_R$**V**$V_RV_RV_RV_Ri$~~ }

Note: The coding of runway visual range is based on the use of the metre in accordance with the unit specified in ICAO Annex 5.

Amend Regulation 15.7.4.2 of METAR and SPECI:

15.7.4.2 The mean value of the runway visual range over the 10-minute period immediately preceding the observation shall be reported for $V_RV_RV_RV_R$. However, when the 10-minute period includes a marked discontinuity in the RVR (for example, sudden advection of fog, rapid onset or cessation of an obscuring snow shower), only data after the discontinuity shall be used for obtaining mean RVR values ~~and variations thereof~~, hence the time interval in these circumstances shall be correspondingly reduced.

Notes:

~~(1) See Regulation 15.7.5.~~

(1~~2~~) Any observed value which does not fit the reporting scale in use should be rounded down to the nearest lower step in the scale.

(2~~3~~) A marked discontinuity occurs when there is an abrupt and sustained change in runway visual range, lasting at least two minutes, consistent with the issuance of aerodrome special meteorological reports (SPECI) given in Technical Regulation [C.3.1.] 4.3.3.

Remove Regulation 15.7.5 of METAR and SPECI and renumber existing 15.7.6:

Amend Regulation 15.8.10 of METAR and SPECI:

15.8.10 The qualifier VC shall be used to indicate the following significant weather phenomena observed in the vicinity of the aerodrome: TS, DS, SS, FG, FC, SH, PO, BLDU, BLSA, BLSN and VA. Regulations referring to the combination of VC and FG are given in Regulation 15.8.16~~17~~.

Notes:

(1) Such weather phenomena should be reported with the qualifier VC only when observed between approximately 8 km and 16 km from the aerodrome reference point. The actual range for which the qualifier VC is to be applied will be determined locally, in consultation with aeronautical authorities.

(2) See Regulation 15.8.7.

Remove Regulation 15.8.12 of METAR and SPECI and renumber existing 15.8.13-15.8.19:

Add new Regulation 15.8.19 to METAR and SPECI:

15.8.19 When an automatic observing system is used and the present weather cannot be observed the present weather group shall be replaced by //.

Amend Regulations 15.9.1.5 and 15.9.1.6 of METAR and SPECI:

15.9.1.5 The height of cloud base shall be reported in steps of 30 m (100 ft) up to 3 000 m (10 000 ft). Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

Note: See Note (1~~2~~) to Regulation 15.7.4.2.

15.9.1.6 When cumulonimbus clouds or towering cumulus clouds are detected by the automatic observing system and the cloud amount and/or the height of cloud base cannot be observed, the cloud amount and/or the height of cloud base elements should be replaced by ///~~//~~.

Amend Regulation 15.9.2 of METAR and SPECI:

15.9.2 Vertical visibility $VVh_sh_sh_s$

When the sky is obscured and information on vertical visibility is available, the group **VV**$h_sh_sh_s$ shall be reported, where $h_sh_sh_s$ is the vertical visibility in units of 30 metres (hundreds of feet). When information on vertical visibility is not available due to a temporary failure of a sensor or system, the group shall read VV///.

Notes:
(1) The vertical visibility is defined as the vertical visual range into an obscuring medium.
(2) See Note (2) to Regulation 15.7.4.2.

Amend Regulations 15.13 and 15.13.1 of METAR and SPECI:

15.13 **Supplementary information – groups**

$$REw'w'\left\{\begin{array}{l}\text{WS } RD_RD_R\\ \text{or}\\ \textbf{WS ALL RWY}\end{array}\right.\left\{\begin{array}{l}(WT_sT_s/SS')\\ \text{or}\\ (\mathbf{W}T_sT_s/\mathbf{H}H_sH_sH_s)\end{array}\right\}(\mathbf{R}D_RD_R/E_RC_Re_Re_RB_RB_R)$$

15.13.1 For international dissemination, the section on supplementary information shall be used only to report recent weather phenomena of operational significance, available information on wind shear in the lower layers and, subject to regional air navigation agreement, sea-surface temperature and state of the sea or significant wave height, and also subject to regional air navigation agreement, the state of the runway.

Add Note to Regulation 15.13.2.1 of METAR and SPECI:

Note: The meteorological authority in consultation with users may agree not to provide recent weather information where SPECI are issued.

Amend Regulation 15.13.5 and 15.13.5.1 of METAR and SPECI:

15.13.5 Sea-surface temperature and the state of the sea (WT_sT_s/SS') or sea-surface temperature and the significant wave height (**W**T_sT_s/**H**$H_sH_sH_s$).

15.13.5.1 The sea-surface temperature shall, by regional agreement, be reported according to the regional ICAO Regulation 15.11. The state of the sea shall be reported in accordance with Code table 3700. The significant wave height shall be reported in decimetres.

Amend Regulation 15.13.6.1 of METAR and SPECI:

15.13.6.1 Subject to regional air navigation agreement, information on the state of the runway provided by the appropriate airport authority shall be included. The runway deposits E_R, the extent of runway contamination C_R, the depth of deposit e_Re_R and the estimated surface friction ~~coefficient/braking action~~ B_RB_R shall be indicated in accordance with code tables 0919, 0519, 1079 and 0366, respectively. The state of the runway group shall be replaced by the abbreviation SNOCLO when the aerodrome is closed due to extreme deposit of snow. If contaminations on a single runway or on all runways at an

aerodrome have ceased to exist, this should be reported by replacing the last six digits of the group by CLRD//.

Note: Concerning runway designator D_RD_R, Regulation 15.7.3 applies. Additional code figures 88 and 99 are reported in accordance with the European Air Navigation Plan, FASID, Part III-AOP, Attachment A~~.~~: The code figure 88 indicates "all runways"; the code figure 99 shall be used if a new runway state report is not available in the time for dissemination of the appropriate METAR message, in which case the previous runway state report will be repeated.

Amend Regulation 15.14.12 of METAR and SPECI:

15.14.12 Inclusion of significant forecast weather w'w', using the appropriate abbreviations in accordance with Regulation 15.8, shall be restricted to indicate:

(1) The onset, cessation or change in intensity of the following weather phenomena:
- Freezing precipitation;
- Moderate or heavy precipitation (including showers);
- Duststorm;
- Sandstorm;
- Thunderstorm (with precipitation)
- Other weather phenomena – given in Code table 4678 as agreed by the meteorological authority and air traffic services authority and operators concerned.

(2) the onset or cessation of the following weather phenomena:
- Freezing fog;
- ~~Ice crystals;~~
- Low drifting dust, sand or snow;
- Blowing dust, sand or snow;
- Thunderstorm (without precipitation);
- Squall;
- Funnel cloud (tornado or waterspout).

Amend Regulation 51.5.1 of TAF:

51.5.1 Inclusion of significant forecast weather w'w', using the appropriate abbreviations in accordance with Regulation 15.8, shall be restricted to indicate the occurrence and, where appropriate, the intensity:

~~(1) The occurrence, cessation or change in intensity of the following weather phenomena:~~
- Freezing precipitation;
- Moderate or heavy precipitation (including showers);
- Duststorm;
- Sandstorm;
- Thunderstorm ~~(with precipitation)~~;

~~(2) The occurrence or cessation of the following weather phenomena:~~
- ~~Ice crystals;~~
- Freezing fog;
- Low drifting dust, sand or snow;
- Blowing dust, sand or snow;
- ~~Thunderstorm (without precipitation);~~
- Squall;
- Funnel cloud (tornado or waterspout).
- Other weather phenomena – given in code table 4678 shall be included as agreed by the meteorological authority with the air traffic services authority and operators concerned.

Section B – SPECIFICATIONS OF SYMBOLIC LETTERS

Amend symbolic letters B_RB_R:

B_RB_R ~~Friction coefficient/braking action~~Estimated surface friction (Code table 0366) (FM 15, FM 16)

Add new symbolic letters $H_sH_sH_s$:

$H_sH_sH_s$ Significant wave height in decimetres (FM 15, FM 16)

Section C – SPECIFICATIONS OF CODE FIGURES

Remove significant present and forecast weather IC in Code table 4678:

"IC Ice crystals (diamond dust)" in the PRECIPITATION column

Amend name of Code table 0366:

B_RB_R ~~Friction coefficient/braking action~~Estimated surface friction

[Manual on Codes, Volume I.1]

2. Clarification of Highest daily amount of precipitation

Section B – SPECIFICATIONS OF SYMBOLIC LETTERS

Amend symbolic lettters $R_xR_xR_xR_x$ and $R_{24}R_{24}R_{24}R_{24}$:

$R_xR_xR_xR_x$ Highest daily amount of precipitation during the month, in tenths of millimetres (coded 9998 for 999.8 mm or more, and coded 9999 for trace) (FM 71)

$R_{24}R_{24}R_{24}R_{24}$ Total amount of precipitation during the 24-hour period ending at the time of observation, in tenths of millimetres (coded 9998 for 999.8 mm or more, and coded 9999 for trace) (FM 12, FM 14)

[Manual on Codes, Volume I.2] GRIB edition 2

3. Amendments for Identification template in Section 1

Amend Regulation 92.3.3:

92.3.3 Octets beyond 21 are for an Identification template. If no Identification template, optional section must ~~reserved for future use and need~~ not be present.

Add new Regulation 92.3.4:

92.3.4 Calendar is assumed to be Gregorian unless otherwise stated in an Identification template.

Amend octes 22-nn of Section 1 in SPECIFICATIONS OF OCTET CONTENTS:

22–23	Identification template number (optional, see Code table 1.5)
24–nn	Identification template (optional, see Template 1.X, where X is the Identification template number given in octets 22–23)

Add new Code tables 1.5 and 1.6:

Code table 1.5 - Identification template number

Code figure	Meaning
0	Calendar definition
1	Paleontological offset
2	Calendar definition and paleontological offset
3-32767	Reserved
32768-65534	Reserved for local use
65535	Missing

Code table 1.6 - Type of calendar

Code figure	Meaning	Comments
0	Gregorian	
1	360-day	
2	365-day	Essentially a non-leap year
3	Proleptic Gregorian	Extends the Gregorian calendar indefinitely in the past
4-191	Reserved	
192-254	Reserved for local use	
255	Missing	

Add new Identification definition templates in new TEMPLATE DEFINITIONS USED IN SECTION 1:

Identification template 1.0 - Calendar definition

Octet No.	Contents
24	Type of calendar (see Code table 1.6)

Identification template 1.1 - Paleontological offset

Octet No.	Contents
24-25	Number of tens of thousands of years of offset

Notes:
(1) The year can be recovered with the formula
Year (real/decoded) = Year + 10 000 x Offset
(2) Years before year 1 shall be coded as defined in ISO 8601 (year 1 is followed by year 0). If applicable, year -1 or before shall be indicated by setting the most significant bit of octet No. 13-14 and 24-25 to "1" in accordance with the regulation 92.1.5.

Identification template 1.2 - Calendar definition and paleontological offset

Octet No.	Contents
24	Type of calendar (see Code table 1.6)

25-26 Number of tens of thousands of years of offset

Notes:

(1) The year can be recovered with the formula
Year (real/decoded) = Year + 10 000 x Offset

(2) Years before year 1 shall be coded as defined in ISO 8601 (year 1 is followed by year 0). If applicable, year -1 or before shall be indicated by setting the most significant bit of octet No. 13-14 and 24-25 to "1" in accordance with the regulation 92.1.5.

4. Amendments for Generalized vertical height coordinate

Amend Octets 6–7 and [xx+1]–nn of Section 4:

6–7 Number of coordinate values after template or number of information according to 3D vertical coordinate GRIB2 message (see Notes 1 and 5)

[xx+1]–nn Optional list of coordinate values or vertical grid information (see Notes 2, 3, 4 and 5)

Add Notes 4 and 5 to Section 4:

Notes:

(4) Two distinct pressure-based hybrid coordinate formulations can be expressed in GRIB Edition 2. If the hybrid coordinate being used is based on pressure, then level type 105 (Code table 4.5) shall be used to specify the vertical level type. If the formulation is based on the natural logarithm of pressure then level type 113 (Code table 4.5) shall be used. In both cases Notes 1 to 3 (above) apply fully.

(5) In case of generalized vertical height coordinate (fixed surface type 150), no pairs of coordinate values follow after template, but 6 additional information (each 4 octets long and encoded in IEEE 32-bit floating point format), starting with the number of vertical levels and the identification number of the used vertical system in the additional GRIB2 message with the 3D vertical system. This identification number together with an UUID (Universally Unique IDentifier) in 4 parts allows a unique identification of the grid.

[xx+1] - [xx+4]	Number of vertical levels
[xx+5] - [xx+8]	Identification number of 3D vertical grid GRIB2 message (defined by originating centre)
[xx+9] - [xx+12]	UUID part 1 of 4
[xx+13] - [xx+16]	UUID part 2 of 4
[xx+17] - [xx+20]	UUID part 3 of 4
[xx+21] - [xx+24]	UUID part 4 of 4

[Manual on Codes, Volume I.2] BUFR and CREX

5. Clarification of descriptor 0 20 054

Amend element name of 0 20 054 in BUFR/CREX Table B:

True direction from which a phenomenon or clouds are moving or in which they are observed

Add Note to Class 20 in BUFR/CREX Table B:

0 20 054 (True direction of a phenomenon or clouds) shall be used to indicate true direction from which a phenomenon or clouds are moving or in which they are observed. 0 20 054 value 0 shall indicate "stationary or no clouds" or "observed at the station" whereas value 500 shall indicate "observed in all directions" and value 501 shall indicate "unknown or clouds invisible".

WORLD METEOROLOGICAL ORGANIZATION

OBS/WIS/DRMM/DRC, ANNEX II

INTRODUCTION

Volume I of the *Manual on Codes* contains WMO international codes for meteorological data and other geophysical data relating to meteorology; it constitutes Annex II of the WMO *Technical Regulations* and has therefore the status of a Technical Regulation. It is issued in two volumes: Volume containing PART A, and Volume I.2, containing PART B and PART C.

VOLUME 1.1:

Part A - Alphanumeric Codes consists of five sections.

VOLUME I.2:

Part B - Binary Codes consists of the list of binary codes with their specifications and associated code tables. The standard coding procedures are distinguished by the use of the term "shall" in the English text, and by suitable equivalent terms in the French, Russian and Spanish texts. Where national practices do not conform with these regulations, Members concerned shall formally notify the Secretary-General of WMO for the benefit of other Members. Explanatory notes are sometimes added to regulations.

Part C - Common Features to Binary and Alphanumeric Codes consists of the list of table-driven alphanumeric codes with their specifications and associated code tables, and of common code tables to binary and alphanumeric codes.

The attachments (yellow background) to Volume I.2 do not have the status of WMO *Technical Regulations* and are given for information only.

PROCEDURES FOR AMENDING THE *MANUAL ON CODES*

(as from 1 July 2011 - Resolution 4 (Cg-XVI))

1. General validation and implementation procedures

1.1 Proposal of amendments

Amendments to the *Manual on Codes* must be proposed in writing to the WMO Secretariat. The proposal shall specify the needs, purposes and requirements and include information on a contact point for technical matters.

1.2 Drafting recommendation

The Inter-Programme Expert Team on Data Representation and Codes (IPET-DRC),[1] supported by the Secretariat, shall validate the stated requirements (unless it is consequential to an amendment to the WMO Technical Regulations) and develop a draft recommendation to respond to the requirements, as appropriate.

1.3 Date of implementation

The IPET-DRC should define a date of implementation in order to give sufficient time to the WMO Members to implement the amendments after the date of notification; the IPET-DRC should document the reasons to propose a time span of less than six months except for the fast-track procedure.

1.4 Procedures for approval

After a draft recommendation of the IPET-DRC is validated in accordance with the procedure given in section 6 below, depending on the type of amendments, the IPET-DRC may select one of the following procedures for the approval of the amendments:

- Fast-track procedure (see section 2 below);

- Procedure for the adoption of amendments between CBS sessions (see section 3 below);
- Procedure for the adoption of amendments during CBS sessions (see section 4 below).

1.5 Urgent introduction

Regardless of above procedures, as an exceptional measure, the following procedure accommodates urgent user needs to introduce new entries in BUFR/CREX tables A, B and D, code and flag tables of BUFR, CREX and GRIB edition 2 and Common Code tables.

(a) A draft recommendation developed by IPET-DRC shall be validated according to 6.1, 6.2 and 6.3 below.

(b) The draft recommendation for pre-operational use, which can be used in operational data and products, shall be approved by the chairpersons of IPET-DRC and OPAG-ISS, and the president of CBS. The list of pre-operational entries is kept on-line on the WMO web server;

(c) Pre-operational entries need to be approved by one of the procedures in 1.4 for operational use.

1.6 Version number

The version number of the master table will be incremented.

1.7 Issuing updated version

Once amendments to the *Manual on Codes* are adopted, an updated version of the relevant part of the Manual shall be issued in the four languages: English, French, Russian and Spanish. The Secretariat will inform all WMO Members of the availability of a new updated version of that part at the date of notification mentioned in 1.3.

2. Fast-track procedure

2.1 Scope

The fast-track procedure can be used for additions to BUFR or CREX Tables A, B, and D with associated code tables or flag tables, to code or flag tables or templates in GRIB and to common tables C.

2.2 Endorsement

Draft recommendations developed by the IPET-DRC, including a date of implementation of the amendments, must be endorsed by the chairperson of OPAG-ISS.

2.3 Approval

2.3.1 Minor adjustments

The filling of reserved and unused entries in the existing code and flag tables, and Common Code tables is considered as minor adjustments, and will be done by the Secretary-General in consultation with the president of CBS.

2.3.2 Other types of amendments

For other types of amendments, the English version of the draft recommendation, including a date of implementation, should be distributed to the focal points for codes and data representation matters for comments, with a deadline of two months for the reply. It should then be submitted to the president of CBS for adoption on behalf of the Executive Council (EC).

2.4 Frequency

The implementation of amendments approved through the fast-track procedure can be twice a year in May and November.

1 The IPET-DRC, the ICT-ISS and the OPAG-ISS are the current bodies dealing with data representation and codes within CBS. If they were replaced by other bodies performing the same function, the same rules would apply, by replacing the names of the entities appropriately.

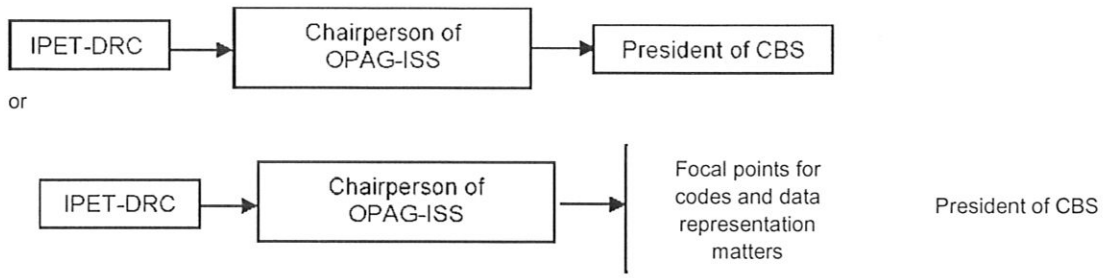

Figure 1 - Adoption of amendments by fast-track procedure

3. Procedure for the adoption of amendments between CBS sessions

3.1 Approval of draft recommendation

For the direct adoption of amendments between CBS sessions, the draft recommendation developed by the IPET-DRC, including a date of implementation of the amendments, shall be submitted to the chairperson of OPAG-ISS and president and vice-president of CBS for approval.

3.2 Circulation to Members

Upon approval of the president of CBS, the Secretariat sends the recommendation in the four languages (English, French, Russian and Spanish), including a date of implementation of the amendments, to all WMO Members for comments to be submitted within two months following the dispatch of the amendments.

3.3 Agreement

Those WMO Members not having replied within the two months following the dispatch of the amendments are implicitly considered as having agreed with the amendments.

3.4 Coordination

WMO Members are invited to designate a focal point responsible to discuss any comments/disagreements with the IPET-DRC. If the discussion between the IPET-DRC and the focal point cannot result in an agreement on a specific amendment by a WMO Member, this amendment will be reconsidered by the IPET-DRC.

3.5 Notification

Once amendments are agreed by WMO Members, and after consultation with the chairperson of the OPAG-ISS and the president and vice-president of CBS, the Secretariat notifies at the same time the WMO Members and the members of the Executive Council of the approved amendments and of the date of their implementation.

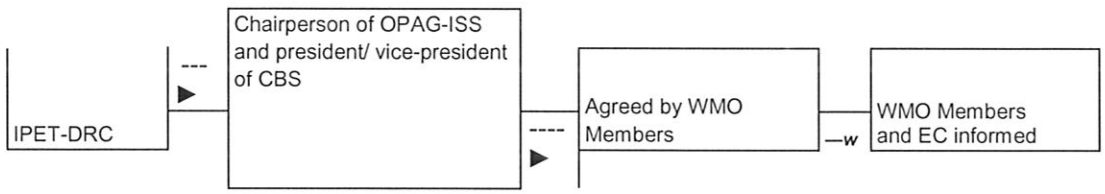

Figure 2. Adoption of amendments between CBS sessions

4. Procedure for the adoption of amendments during CBS sessions

For the adoption of amendments during CBS sessions, the IPET-DRC submits its recommendation, including a date of implementation of the amendments, to the Implementation/Coordination Team on Information Systems and Services (ICT-ISS) of the Open Programme Area Group on Information Systems and Services (OPAG-ISS). The recommendation is then submitted to a CBS session and then to an EC session.

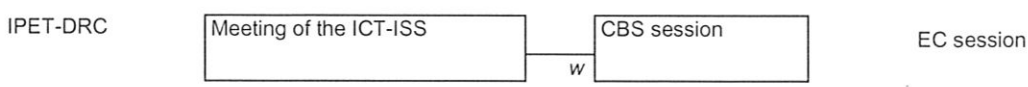

Figure 3. Adoption of the amendments during a CBS session

5. Procedure for the correction of existing entries in the BUFR and CREX tables

5.1 Introducing a new descriptor

If an erroneous specification of an entry is found in an operational BUFR or CREX element descriptor or sequence descriptor, a new descriptor should preferably be added to the appropriate table through the fast-track procedure or the procedure for adoption of amendments between CBS sessions. The new descriptor should be used instead of the old one for encoding (especially if it concerns data width). An appropriate explanation shall be added to the notes of the table to clarify the practice along with the date of the change. This situation is considered a minor adjustment according to 2.3.1 above.

5.2 Correcting erroneous specification

As an exceptional measure for erroneous entries in Table B, if it is found absolutely necessary to correct an erroneous specification of an existing entry by changing its specification, the following rules shall

apply:

5.2.1 The name and unit of an element descriptor shall remain unchanged except for minor clarifications.

5.2.2 Scale, reference value and bit width may be corrected to required values.

5.2.3 Such a change will be submitted through the fast-track procedure.

6. Validation procedure

6.1 Documentation of need and purpose

The need for, and the purpose of, the proposal for changes should be documented.

6.2 Documentation of result

This documentation must include the results of validation testing of the proposal as described below.

6.3 Testing with encoder/decoder

For new or modified WMO code and data representation forms, proposed changes should be tested by the use of at least two independently developed encoders and two independently developed decoders which incorporated the proposed change. Where the data originated from a necessarily unique source (for example, the data stream from an experimental satellite), the successful testing of a single encoder with at least two independent decoders would be considered adequate. Results should be made available to the IPET-DRC with a view to verifying the technical specifications.