|  |  |  |
| --- | --- | --- |
| WORLD METEOROLOGICAL ORGANIZATION  COMMISSION FOR BASIC SYSTEMS  -----------------------------  FIRST MEETING OF  INTER-PROGRAMME EXPERT TEAM ON CODES MAINTENANCE  GENEVA, SWITZERLAND, 24-28JULY 2017 |  | IPET-CM-I / Doc. 2.4(3) rev 2  (24.7.2017)  -------------------------  ITEM 2.4  ENGLISH ONLY |

Additions to BUFR/CREX tables

**New BUFR entries for FY-3 VASS Products**

*Submitted by* *Songlin JIA, Lei XUE, Gang MA and Fang ZHAO (China)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Summary and Purpose of Document**

This document proposes several BUFR Table D sequences, Table B entries and relevant code entries for data category 3 in Common Code Table C-13 for FY-3 VASS products.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ACTION PROPOSED**

The meeting is invited to review the document and accept it for validation.

**REFERENCES:**

https://nwpsaf.eu/site/software/aapp/documentation/userguide/

**DISCUSSIONS**

The VASS (Vertical Atmospheric Sounder System) is a sounding instrument package loaded on FY-3 (A, B, C) satellite series. It is composed of the MicroWave Temperature Sounder (MWTS), the MicroWave Humidity Sounder (MWHS) and the InfraRed Atmospheric Sounder (IRAS). The VASS products mainly contain channel brightness temperature, ocean wind, emissivity, cloud liquid water, surface type and temperature, etc., which can be applied in the NWP model and satellite data assimilation, the climate model study and the atmospheric vertical sounding research.

CMA is preparing to disseminate VASS products of FY-3 in BUFR on GTS. Several new sequences in Table D, a new descriptor in Table B and corresponding code table entries are needed. A new entry in Common Code Table C-13 for data category 3 is also needed to identify FY-3 VASS products.

In addition, the element name of several existing BUFR/CREX Table B descriptors are proposed to be changed to generic name to apply to vertical sounding products.

**PROPOSAL**

**(1) Add new entry in Common code table C-13**

COMMON CODE TABLE C–13: Data sub-categories of categories defined by entries in BUFR Table A

DATA CATEGORIES INTERNATIONAL DATA SUB-CATEGORIES

BUFR Edition 4, Octet 11 in Section 1 BUFR Edition 4, Octet 12 (if = 255, it means

other sub-category or undefined)

CREX Edition 2, nnn in Group CREX Edition 2, mmm in Group Annnmmm  
Annnmmm of Section 1 of Section 1

Code figure Name Code figure Name (corresponding traditional alphanumeric  
 codes are in brackets)

3 Vertical soundings 8 VASS

(satellite)

**(2) Amend the element name of several existing BUFR/CREX Table B descriptors**

|  |  |
| --- | --- |
| TABLE  REFERENCE | ELEMENT NAME |
| F X Y |
| 0 08 070 | Vertical sounding product qualifier |
| 0 25 077 | Bandwidth correction coefficient 1 |
| 0 25 078 | Bandwidth correction coefficient 2 |

**(3) Add new sequences to Table D**

|  |  |  |
| --- | --- | --- |
| TABLE  REFERENCE | TABLE  REFERENCES | ELEMENT NAME |
| F X Y |
|  | | **(VASS MWTS report of FY-3)** |
| **3 10 070** | 3 10 068 | VASS field of view variables |
| 1 01 013 | Replicate 1 descriptor 13 times |
| 3 10 069 | VASS channel variables |
|  | | **(VASS MWHS report of FY-3)** |
| **3 10 071** | 3 10 068 | VASS field of view variables |
| 1 01 015 | Replicate 1 descriptor 15 times |
| 3 10 069 | VASS channel variables |
|  | | **(VASS IRAS report of FY-3)** |
| **3 10 072** | 3 10 068 | VASS field of view variables |
| 1 01 026 | Replicate 1 descriptor 26 times |
| 3 10 069 | VASS channel variables |

|  |  |  |
| --- | --- | --- |
| TABLE  REFERENCE | TABLE  REFERENCES | ELEMENT NAME |
| F X Y |
|  | | **VASS field of view variables** |
| **3 10 068** | 0 08 070 | Vertical sounding product qualifier |
|  | 0 01 033 | Identification of originating/generating centre |
|  | 0 01 034 | Identification of originating/generating sub-centre |
|  | 0 01 007 | Satellite identifier |
|  | 0 02 019 | Satellite instruments |
|  | 0 12 064 | Instrument temperature |
|  | 0 05 040 | Orbit number |
|  | 2 01 136 | Increase bit width |
|  | 0 05 041 | Scan line number |
|  | 2 01 000 | Cancel increase bit width |
|  | 0 05 043 | Field of view number |
|  | 3 01 011 | Year, Month, Day |
|  | 3 01 012 | Hour, Minute |
|  | 2 01 138 | Increase bit width |
|  | 2 02 131 | Change scale |
|  | 0 04 006 | Second |
|  | 2 02 000 | Cancel change scale |
|  | 2 01 000 | Cancel increase bit width |
|  | 0 05 001 | Latitude (high accuracy) |
|  | 0 06 001 | Longitude (high accuracy) |
|  | 2 02 126 | Change scale |
|  | 0 07 001 | Height of station |
|  | 2 02 000 | Cancel change scale |
|  | 0 10 007 | Height |
|  | 0 07 024 | Satellite zenith angle |
|  | 0 05 021 | Bearing or azimuth |
|  | 0 07 025 | Solar zenith angle |
|  | 0 05 022 | Solar azimuth |
|  | 0 13 040 | Surface flag |
|  | 0 12 101 | Temperature/air temperature(land or ocean surface temperature) |
|  | 2 01 131 | Increase bit width |
|  | 2 02 129 | Change scale |
|  | 0 11 011 | Wind direction at 10 m (ocean surface wind) |
|  | 2 02 000 | Cancel change scale |
|  | 2 01 000 | Cancel increase bit width |
|  | 2 01 130 | Increase bit width |
|  | 2 02 129 | Change scale |
|  | 0 11 012 | Wind speed at 10 m (ocean surface wind) |
|  | 2 02 000 | Cancel change scale |
|  | 2 01 000 | Cancel increase bit width |
|  | 0 20 029 | Rain flag |
|  | 0 20 010 | Cloud cover (total) |
|  | 0 20 014 | Height of top of cloud |
|  | 0 13 162\* | Cloud liquid water |
|  | 0 14 050 | Emissivity |

|  |  |  |
| --- | --- | --- |
| TABLE  REFERENCE | TABLE  REFERENCES | ELEMENT NAME |
| F X Y |
|  | | **VASS channel variables** |
| **3 10 069** | 0 05 042 | Channel number |
|  | 2 01 139 | Increase bit width |
|  | 0 02 155 | Satellite channel wavelength |
|  | 2 01 000 | Cancel increase bit width |
|  | 0 25 077 | Bandwidth correction coefficient 1 |
|  | 0 25 078 | Bandwidth correction coefficient 2 |
|  | 0 33 007 | Per cent confidence |
|  | 2 01 132 | Increase bit width |
|  | 2 02 129 | Change scale |
|  | 0 12 063 | Brightness temperature |
|  | 2 02 000 | Cancel change scale |
|  | 2 01 000 | Cancel increase bit width |

**(4) Add a new descriptor to Table B**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE  REFERENCE  F X Y | ELEMENT NAME | BUFR | | | | CREX | | |
| UNIT | SCALE | REFERENCE  VALUE | DATA  WIDTH  (Bits) | UNIT | SCALE | DATA  WIDTH  (Characters) |
| 0 13 162 | Cloud liquid water | kg m–2 | 2 | 0 | 8 | kg m–2 | 2 | 3 |



**(5) Add new entries in code table 0 13 040**

**0 13 040**

**Surface flag**

|  |  |
| --- | --- |
| Code Figure |  |
| 7 | Inland water\* |
| 8 | Snow cover |
| 9 | Sea ice |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Inland water includes river, lake, wetland and swamp.