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Report from CBS-MG Task Team on Upper Air BUFR (TT-UABUFR)

*Submitted by Secretariat*

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**Summary and Purpose of Document**

Briefing on recommendations by the CBS Management Group Task Team on Upper Air BUFR.

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1. In June 2015 CBS Management Group formed the Task Team on Upper Air BUFR to address problems experienced by NWP centres in processing upper air BUFR reports. There were two main types of problem.

* Some countries were replicating in BUFR the TAC practice of sending upper air reports in four parts, none of which represented the full ascent. NWP centres were unable to combine the BUFR reports to form consistent full-atmosphere ascents.
* Reports in BUFR frequently contained errors – in the representation itself, in the data values, and in the metadata when compared with Volume A.

2. By CBS-16, the task team had recommended that upper air reports in BUFR should comply to the regulations B/C 20 and B/C 25, and that Members who could not create such reports should continue to report only in TAC. This was recorded as Decision 5 (CBS-16).

3. In July 2017, the Task Team submitted to the Secretariat a draft report on how systematic errors in upper air BUFR reports could be addressed, asking for advice on how the proposal could be built into the WMO systems. That proposal was similar to the procedures envisaged by the WIGOS Data Quality Management System (WDQMS), but needed to be implemented more rapidly.

4. A telephone conference on 7 July 2017 between representatives of the Task Team, chairs of relevant Expert Teams and the Secretariat concluded that the proposal of the Task Team should be treated as a pilot project for the WDQMS. The WIGOS Regional Centres that will form part of the WDQMS have not yet been created, so the teleconference proposed that in the pilot, the GISCs play the role of WIGOS Regional Centres in working to improve the quality of reporting with the countries supplying erroneous reports.

5. The next step in implementing the pilot project is to obtain agreement from GISCs that they will perform the coordinating role until the WIGOS Regional Centres become operational.

6. An outline of the proposed procedure is in the Annex.

**Annex: Outline procedure for correcting errors in upper air BUFR reports**

**Types of error**

NWP centres have investigated errors in upper air reports issued in BUFR and have proposed a classification of the type of error as in Table 1.

Table 1. Classification of types of errors in upper air BUFR reports

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| **Category of issue** | **Monitoring tasks – aspects to be checked** |
| Missing | Comparison against bulletins received the previous month,  Comparison against TAC reports whilst they are still sent |
| Meta | Locations/elevations compared against local station lists and against OSCAR/Surface in future |
| Obs | Ongoing systematic errors in observations |
| Coding | Ongoing systematic errors in how the data are placed in BUFR; bulletins rejected by well validated BUFR decoders |
| Structure | Stations reporting reformatted BUFR, BUFR by parts, etc. |

**Procedure to identify and correct errors**

Step 1: Monitor reports and identify errors.

At least once a month, participating NWP centres will use their normal monitoring procedures to prepare a list of those stations whose reports have persistent errors – an issues list.

Each NWP centre will discuss its issues list with at least one other NWP centre and record issues that both centres agree merit further investigation on an “issues list” shared by all participating NWP centres.

Step 2: Identify issues that need to be resolved.

This step is performed by coordinating centres with responsibility for coordinating the response to data quality issues. For the pilot project, GISCs would assume this responsibility for those countries for which they are the Principal GISC.

Some of the issues identified may be the result of transmission or decoding problems at the NWP centres providing the reports. The coordinating centre checks whether it can reproduce the issue. It then provides feedback on the status of the issue to the NWP group. Those issues that are confirmed to be real are passed to the next step.

Step 3. Coordinate with data providers

The coordinating centre notifies data originators of reports associated with each issue and works with them to plan how the issue will be resolved. In some cases, it may be appropriate to work with an intermediate body (such as an RTH that is providing a transformation service between TDCF and TAC on behalf of countries).

The coordinating centre should update the issues list with the current status of the issue.