

UPDATE ON THE WMO ROLLING REVIEW OF REQUIREMENTS

The WMO, through its CBS OPAG-IOE Expert Team on the Evolution of the GOS (ET-EGOS), Geneva, July 2007, and joint meeting of the Expert Team on Satellite Systems (ET-SAT) and the Expert Team on Satellite Utilization and Products (ET-SUP), Geneva, 3-7 September 2007, reviewed the status of the WMO/CEOS database of user requirements for observations. ET-EGOS then reviewed the status of Statements of Guidance in 12 application areas.

CGMS Members are invited to take note that ET-EGOS agreed to review all WMO observational data requirements for each application area and has designated focal points in charge of reviewing and updating the SOG. Furthermore, ET-SAT has designated experts to assist the ET-EGOS focal points in their review for satellite aspects. A course of actions was also agreed by ET-SAT to update the description of space-based observing capabilities that is contained in the database.

UPDATE ON THE ROLLING REVIEW OF REQUIREMENTS

1 BACKGROUND

1.1 The formulation of observational data requirements is a complicated process which consists of several stages. At various levels this process involves groups of end users, regional associations, WMO technical commissions and other bodies. In order to rationalize the formulation of the observational data requirements, the procedures have been agreed upon by WMO Members known as the Rolling Review of Requirements Process that is described in detail in the *Guide on the Global Observing System* (WMO-No. 488).

1.2 Users present to WMO Members their needs for observational data for various application areas. Meteorological data might be used in two ways: directly in the provision of meteorological services, and in the preparation of meteorological products (weather analysis and prognoses) by Global Data-processing System (GDPS) centres. In the latter case, GDPS centres are considered as users.

1.3 WMO technical commissions are responsible for the consolidation of data needs presented by Members and for the formulation, on their basis, of a statement on observational data requirements/goals (usually in the form of tables) in various WMO programmes. This should include explanatory notes and a rationale for the requirements/goals and, if possible, a statement on the incremental value of partially meeting these goals (in terms of accuracy, density, frequency, etc.). Often this will include a feedback process with users to ensure that enough information and understanding about users' needs are available. If a statement on requirements/goals is addressed to the World Weather Watch, and in particular to its Global Observing System, it should be presented to the Commission for Basic Systems (CBS) for consideration.

1.4 The WMO Commission for Basic Systems:

- (a) Evaluates the feasibility of stated requirements/goals. The evaluation of technical and instrumental feasibility should be conducted in collaboration with the Commission for Instruments and Methods of Observation (CIMO), the WMO body responsible for the Instruments and Methods of Observation Programme (IMOP). The evaluation process will result in the formulation (in the form of tables) of what portion of the statement of requirements/goals is feasible and can be achieved. As part of the Rolling Review of Requirements Process, a Statement of Guidance will be prepared to indicate the feasibility of achieving the stated requirements;
- (b) Formulates system requirements to provide observational data to meet the requirements/goals defined by the technical commissions;
- (c) Develops any amendments to the WMO regulatory and guidance publications on the basis of system requirements and submits them (in case of regulatory publications) to the Executive Council.

(The primary responsibility for the evaluation of the feasibility of meeting stated observational data requirements related to the Global Atmosphere Watch, and for the development of associated guidance material, rests with the Commission for Atmospheric Sciences.)

1.5 The WMO Executive Council approves the amendments and requests the Secretary-General to incorporate them in appropriate WMO Manuals.

1.6 The Members are advised on the performance of observing systems and programmes through updated WMO Manuals and Guides to meet users' needs for observational data.

2 RECENT ACTIVITIES

2.1 REVIEW AND UPDATE OF THE DATABASE OF USER REQUIREMENTS AND OBSERVING SYSTEM CAPABILITIES

2.1.1 To facilitate the Rolling Review Requirement (RRR) process, the World Weather Watch Department has been collecting the observation requirements to meet the needs of all WMO programmes and has been cataloguing the current and planned provision of observations, initially from environmental satellites and later extended to in situ observing systems. The resulting database is called the Database on User Requirements and Observing System Capabilities and is accessible via the WMO Space Programme web page: <http://www.wmo.int/pages/prog/sat/Databases.html>.

2.1.2 The third session of the CBS OPAG-IOS Expert Team on the Evolution of the Global Observing System (ET-EGOS-3), Geneva, 9-13 July 2007, reviewed the status of the WMO/CEOS database of observational user requirements and observing system capabilities including a description of breakthrough and proposed changes to the database. The meeting recalled that its second session had discussed the concept of "breakthrough". The "breakthrough" level is an intermediate value between "threshold" and "goal" that, if achieved, would result in a significant improvement for the targeted application. The breakthrough level is expected to be more appropriate than the "goal" from a cost-benefit point of view. This new concept in the database would require new input from experts in all application areas. Members of the ET-EGOS agreed to review all WMO observational data requirements for each application area.

2.1.3 The ET-EGOS also agreed to review the present list of user estimates of expected observing system performances. In particular, it agreed to update and/or validate all the expected performances for in situ.

2.1.4 With introduction of breakthrough values for user requirements, there is now the opportunity to review threshold requirements. It was agreed that, in some cases, they are currently too stringent. They would imply that some observations that are known to make a significant contribution to an application would still not be recognized as useful.

2.1.5 The ET-EGOS considered actions to support the quality and utility of the User Requirements and Observing System Capabilities information within the WMO-CEOS database and agreed on the following conclusions:

- (a) The most convenient and workable means of distributing copies of the database, or subsets as relevant, was in the form of Excel spreadsheets. These could be extracted from the database, but how to process the returned alterations would need to be considered further;
- (b) The list of new parameters included in the GCOS user requirements were noted, but on balance it was thought better not to “lead” other application areas by prompting them to consider their requirements for the same parameters;
- (c) Observing system capabilities had been partly updated (space-based components, ocean/marine components) but needed attention in other areas.
- (d) The four sequential steps of the RRR process do not seem to be rolling and a timetable for a regular (annual) cycle was agreed upon.
- (e) In the immediate future a round of reviews of user requirements is needed, particularly to insert required values in the new “breakthrough” columns in place of the current default values;
- (f) Updated material to be compiled and circulated possibly by the end of October in time for a range of upcoming meetings. However, updates provided after this date would continue to be useful.

2.1.6 The third joint session of the CBS OPAG-IOS Expert Team on Satellite Systems (ET-SAT) and the Expert Team on Satellite Utilization and Products (Geneva, 3-7 September 2007) reviewed the status of the space-based Global Observing system, the status of requirements from WMO programmes and the response to these requirements. The session was informed that the “user requirements” part of the database had been updated for most applications, taking into account the three-level characterization (threshold-breakthrough-goal) for each of the five qualifiers of each parameter.

2.1.7 Both expert teams, the ET-EGOS and the ET-SAT, agreed on the timetable for the update of the database with a goal to issue an updated version of the database by the end of 2007.

2.1.8 Attention was drawn by the ET-SAT to the list of instruments that had been recently added in the database, for which there were no associated expected performances yet. The ET-SAT members were invited to add appropriate expected performances for the relevant geophysical parameters from these instruments.

2.1.9 The ET-SAT confirmed that the availability of the database was an important asset provided that it was up-to-date. It also suggested that the updating cycle and process should be reviewed. As concerns the space-based Observing Capabilities part of the database, it was felt important to streamline the updating process to the

extent possible in order to ensure that maintaining the database remains a sustainable task both for the administrator and for the space agencies that provided the input.

2.1.10 The ET-SAT was informed that ESA was investigating new tools to collect and record information on satellite and instrument capabilities and was considering proposing an initiative within CEOS in this respect. The WMO Secretariat suggested cooperation among CEOS and WMO on this topic and ESA was encouraged to further investigate this matter and report back on the findings.

2.1.11 For the short term, the ET-SAT agreed that the database should be updated in its present form. The WMO Space Programme provided ET-SAT Members with a CD-ROM of the current version and indicated that the current version of the User Manual (Version 2.4) was available on line. It was clarified that, for historical purpose, past missions and instruments should not be removed from the database however the relevant capabilities should be assigned a Confidence Level “4” to earmark them as: Not Available. The definition of the Confidence levels is recalled below.

	Confidence Level	Definition
1	Potential realized	actual performance obtained in operational or routine practice approaches potential performance
2	Potential expected	actual performance is confidently expected to reach potential performance; performance evaluation based on strong heritage; production plans assured
3	Potential projected	potential performance estimated on the basis of instrument design; production not committed
4	<i>Experimental</i>	thought to be useful; performance values not provided; production not committed

2.1.12 ET-SAT pointed out that the definition of confidence level 4 was ambiguous with two different possible interpretations.

2.1.13 It was also clarified that the capabilities database should not be confused with a catalogue of the products that are actually available; the performance values (accuracy, resolution, timeliness, etc) of geophysical parameters associated with instruments should reflect the best possible characteristics of level 2 products that can be generated from the instrument data.

2.1.14 ET-SAT noted that some geophysical parameters were derived from suites of instruments and that in such cases a performance value associated with one instrument may not be relevant to the suite of parameters.

2.2 ROLLING REVIEW OF REQUIREMENTS AND STATEMENT OF GUIDANCE

2.2.1 The Statement of Guidance (SoG), describing how well surface-based and space-based observing systems meet WMO user requirements in several application areas, are available through a set of WMO web-based documentation: <http://www.wmo.int/pages/prog/sat/Refdocuments.html>. The status and updating of SoGs for 12 application areas were considered in detail by the ET-EGOS-3. During this process the meeting considered the draft SoGs submitted by the application Points of Contact (PoC) and any comments on these or previous drafts that had been received since ET-EGOS-2.

2.2.2 The ET-EGOS emphasized that SoGs were essentially “gap analyses”. All PoCs had been encouraged to develop the SoGs so that they provide clear messages concerning the key gaps between user requirements and planned observing system capabilities.

3 RESULTING ACTIONS

3.1 ET-EGOS-3 decided on the responsibilities and deadlines, for each application area, to confirm or nominate a PoC for the RRR process, to update the user requirements as appropriate, and to maintain the SoG for that respective application area.

3.2 ET-SAT-3 designated among its members some experts in charge of assisting the ET-EGOS focal points to review the updates of the SOG for satellite aspects.

3.3 Regarding the updating process of the database, ET-SAT further decided that:

- (a) The Secretariat will update the definition of confidence levels to reflect the case of data of instruments that are no longer active;
- (b) The WMO Space Programme will provide ET-SAT Members with the Instrument spreadsheet including all instruments included in the database, and with the Mission spreadsheet including the information on mission launch and termination, for review and update;
- (c) The WMO Space Programme will clarify how to enter performance values for instruments that have to be used simultaneously to derive some parameters;
- (d) The ET-SAT Members will provide updates regarding missions and instruments under the responsibility of their respective agencies; and
- (e) The WMO Space Programme will prepare an update of the data base User Manual.

4 CONCLUSIONS

CGMS Members are invited to take note.