CGMS

NEW ON-LINE DATABASE OF OBSERVING REQUIREMENTS

The Space Programme Office has recently completed the new Observing Requirements Database, which is available under: www.wmo-sat.info/db. It provides a publicly accessible repository for requirements of WMO and co-sponsored Programmes

This new database features:
- Revised list of variables with agreed definitions and units following a consultation of the various application communities.
- Enforcement of consistent variable naming and units
- Improved consultation/navigation functionalities
- Online editing capability (for authorized editors)

In parallel, a call has been made to designated points of contact of all application areas to review and update the requirements pertaining to their respective areas.

CGMS is invited to note the progress made in providing an improved user - friendly interface for consulting and updating requirements for observation, as well as in updating the content, which should make this database a useful tool for the planning and assessment of observing systems.

Recommendation proposed:

CGMS Members are invited to take advantage of the new WMO Database of Observing Requirements as a repository for international requirements from WMO-related programmes.

NEW ON-LINE DATABASE OF OBSERVING REQUIREMENTS

1   Background

The WMO Space Programme has been maintaining user requirements for observations in support of the Rolling Requirements Review (RRR) process, initially in the context of the so-called CEOS-WMO Database of User Requirements and Observation Capabilities. This CEOS/WMO database had become obsolete with time, and, over the past four years, requirements have been recorded on an interim basis in a set of Excel Spreadsheets available for download from the Space Programme homepage.

The Commission for basic Systems (CBS) decided on a strategy for an overall RRR database, which led to the development of a new Database of Observational Requirements in support of the WMO Integrated Global Observing System (WIGOS). Although its scope is to collect requirements for observation in general, either in situ or space-based, this database was developed and is maintained by the Space Programme Office. The database and its content have been endorsed by the Expert-Team on Evolution of the Global Observing systems (ET-EGOS) in June 2011 and it is accessible under www.wmo-sat.info/db

2   Objectives of the database

The database aims to provide a publicly accessible, convenient and user friendly repository for validated and up-to-date requirements of user communities coordinated by WMO and other co-sponsored Programmes (e.g. GCOS) for the measurement of environmental variables.

Second, it should serve as a collaboration tool that helps to manage the evolution of these requirements, by giving limited editorial rights to expert groups that own and maintain these requirements, while retaining a central authority.

It is furthermore meant as a component of a future interconnected database structure, which will extend to the description of surface-and space-based observing capabilities. This future structure will enable comparing the capabilities with the requirements for assessment and gap analysis.

3   Functionalities of the Database

The database offers different functionalities according to three user groups: the general public, registered focal points and administrators (see Illustration 1).

For the general public, the database offers multiple ways of querying information, facilitated by dynamic search and filtering options. Data can also be exported to spreadsheets. For designated focal points, the database also allows updating of data through a convenient web-interface. Changes made by focal points have to be approved by Administrators before they are visible to the public.
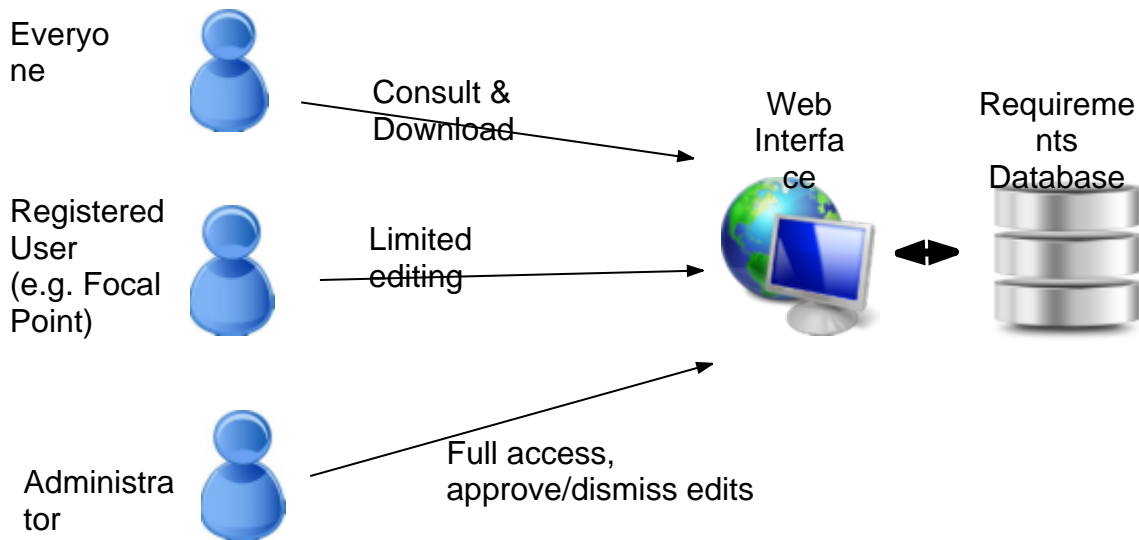
Illustration 1: Access and functionalities offered to different user groups

4   Structure of the content

Each requirement relates to a given variable, a given layer (spatial domain), for a given application.

The variables must belong to the list of agreed variables, each variable being documented by an associated definition, unit, and theme, as explained above;

The applications must belong to a determined list of applications, where each application is linked to an organization, which is the representative source of requirements for this application;
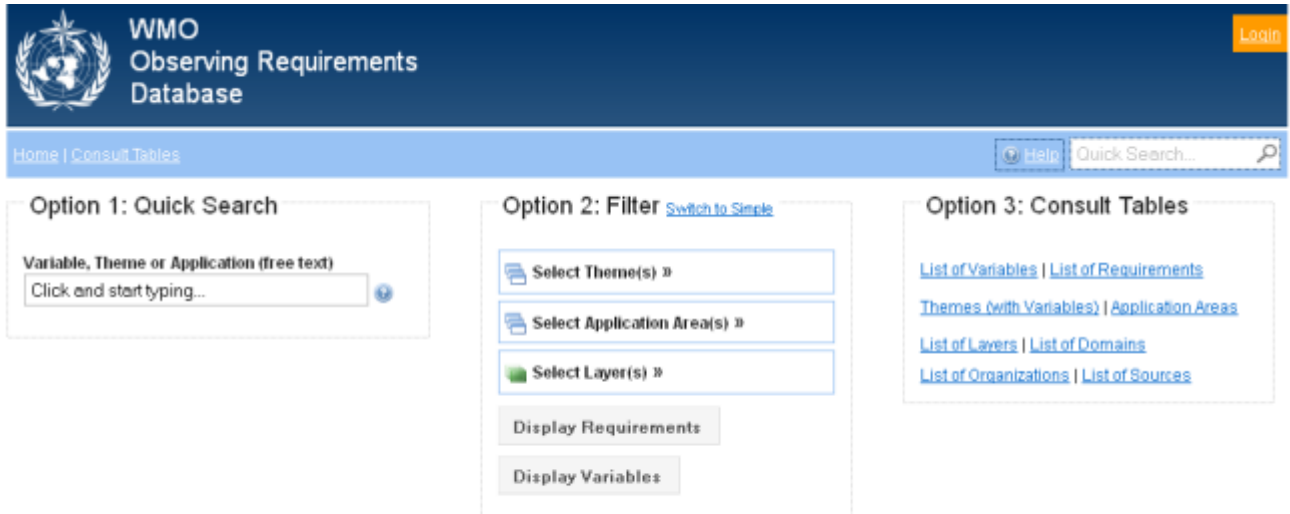
The "layers" belong to a list of defined layers of either the atmospheric, oceanic, terrestrial or space environment domain (layer should be understood in a general meaning as a "portion of the domain", rather than as a horizontal layer); for each variable, there is a defined subset of relevant layers;

Each requirement is characterized by three values (threshold, breakthrough, goal) for each of five criteria (uncertainty, horizontal resolution, vertical resolution, temporal resolution (or observing cycle), and timeliness (or delay of availability) and is accompanied by a "confidence level", optional comments, and an approval time stamp.

5   Conclusions

In allowing easy consultation and in guiding the update process, the new functionalities of the database are expected to allow more frequent actualization, increase the value of this information and facilitate the involvement of more application areas in the RRR process.

Appendix: Screenshots of the Application

WMO
Observing Requirements
Database

Login

Home | Consult Tables

Help | Quick Search...

Option 1: Quick Search

Variable, Theme or Application (free text)

Click and start typing...

Option 2: Filter Switch to Simple

Select Theme(s) »

Select Application Area(s) »
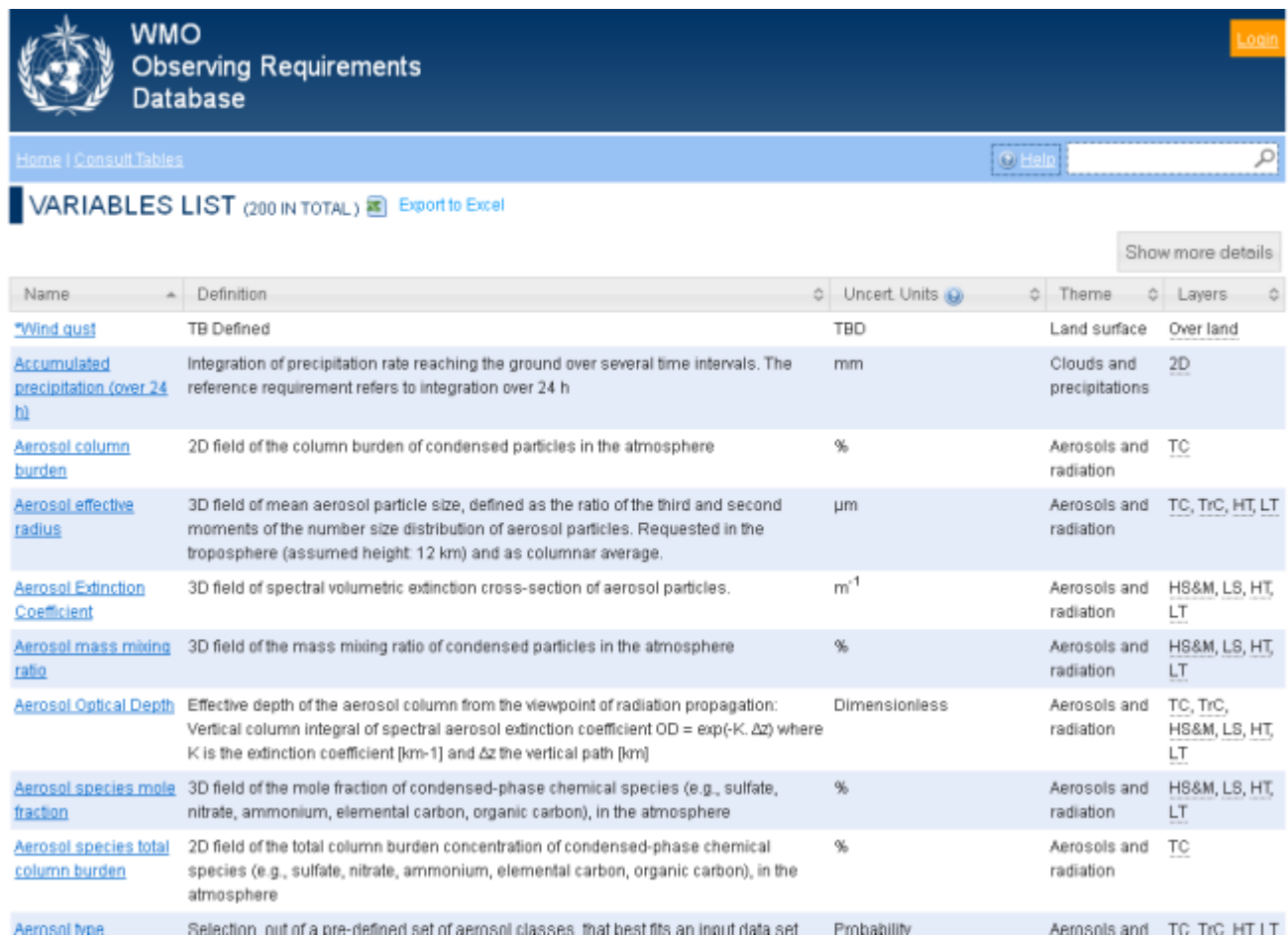
Select Layer(s) »

Display Requirements

Display Variables

Option 3: Consult Tables

List of Variables | List of Requirements

Themes (with Variables) | Application Areas

List of Layers | List of Domains

List of Organizations | List of Sources

WMO
Observing Requirements
Database

Login

Home | Consult Tables

Help

VARIABLES LIST (200 IN TOTAL) Export to Excel

Show more details

Name	Definition	Uncert. Units	Theme	Layers
*Wind gust	TB Defined	TBD	Land surface	Over land
Accumulated precipitation (over 24 h)	Integration of precipitation rate reaching the ground over several time intervals. The reference requirement refers to integration over 24 h	mm	Clouds and precipitations	2D
Aerosol column burden	2D field of the column burden of condensed particles in the atmosphere	%	Aerosols and radiation	TC
Aerosol effective radius	3D field of mean aerosol particle size, defined as the ratio of the third and second moments of the number size distribution of aerosol particles. Requested in the troposphere (assumed height 12 km) and as columnar average.	μm	Aerosols and radiation	TC, TrC, HT, LT
Aerosol Extinction Coefficient	3D field of spectral volumetric extinction cross-section of aerosol particles.	m^{-1}	Aerosols and radiation	HS&M, LS, HT, LT
Aerosol mass mixing ratio	3D field of the mass mixing ratio of condensed particles in the atmosphere	%	Aerosols and radiation	HS&M, LS, HT, LT
Aerosol Optical Depth	Effective depth of the aerosol column from the viewpoint of radiation propagation: Vertical column integral of spectral aerosol extinction coefficient OD = exp(-K. Δz) where K is the extinction coefficient [km-1] and Δz the vertical path [km]	Dimensionless	Aerosols and radiation	TC, TrC, HS&M, LS, HT, LT
Aerosol species mole fraction	3D field of the mole fraction of condensed-phase chemical species (e.g., sulfate, nitrate, ammonium, elemental carbon, organic carbon), in the atmosphere	%	Aerosols and radiation	HS&M, LS, HT, LT
Aerosol species total column burden	2D field of the total column burden concentration of condensed-phase chemical species (e.g., sulfate, nitrate, ammonium, elemental carbon, organic carbon), in the atmosphere	%	Aerosols and radiation	TC
Aerosol type	Selection, out of a pre-defined set of aerosol classes, that best fits an input data set	Probability	Aerosols and	TC, TrC, HT, LT