# End User Requirements on WIS monitoring and reporting

## Introduction

The Manual on WIS contains requirements on WIS related monitoring for NCs, DCPCs and also GISCs. As introduction the relevant sections are recaptured below.

### Monitoring requirements extract for NC

3.4 Procedure for a National Centre (NC)

3.4.1 As required per WMO No. 49, Vol. I, A.3, each NC shall use WIS to provide data and products, in accord with its programme responsibilities. These shall be provided with associated metadata, in accordance with WIS practices, procedures and specifications. Each NC shall participate as appropriate in the relevant monitoring of the performance of WIS.

4.7.5Performance Monitoring of an NC

4.7.5.1 As required per WMO No. 49, Vol. I, A.3, each NC shall participate in monitoring the performance of WIS.

4.7.5.2 See also sections 5.16, WIS-TechSpec-15 (Reporting of Quality of Service).

### Monitoring requirements extract for DCPC

4.6 Functional Requirements of a DCPC

4.6.1 GENERAL

Note: The term information is used in a general sense and includes data and products.

The specific performance and functional requirements of a particular DCPC shall be determined by the programme it supports. DCPCs that support programmes with mission-critical responsibilities, and especially programmes with safety-of-life missions, shall maintain a high level of operational reliability, including required telecommunications. Each DCPC shall provide metadata describing the information it makes available through the WIS comprehensive catalogue, shall provide access to that information, and shall participate in monitoring the overall performance of WIS.

4.6.10 Performance Monitoring of a DCPC

4.6.10.1 Each DCPC shall participate in monitoring the performance of WIS.

4.6.10.2 See also sections 5.16, WIS-TechSpec-15 (Reporting of Quality of Service).

### Monitoring requirements extract for GISCs

4.5.10 Performance Monitoring of a GISC

4.5.10.1 Each GISC shall participate in monitoring the performance of WIS, including monitoring the collection and distribution of data and products intended for global exchanges. Each GISC shall report routinely to other GISCs and to WMO Secretariat information concerning the status and performance of connectivity to WIS Centres in its area, including capacity as well as technology used (for example, Internet, satellite-based data distribution, dedicated data network). CBS shall review and report on the status and performance of GISCs with the assistance of the WMO Secretariat.

4.5.10.2 Monitoring of the collection and dissemination of WIS information (data and products) should include, as appropriate, Integrated World Weather Watch Monitoring and other programme-related monitoring.

4.5.10.3 See also sections 5.16, WIS-TechSpec-15 (Reporting of Quality of Service).

### Limitations of the current requirements

The main issue with those high level requirements is that in contrast to other areas where the WIS requirements are very detailed and precise that in the area of monitoring they are held on conceptual level and are therefore difficult to implement and left to interpretation.

In order for WIS to progress further into the operational world the requirements for monitoring should be defined sufficiently detailed such that they can be implemented. Furthermore the requirements should contain an end-user relevant element.

This paper aims to provide support by taking such an end-user view point and by such aims to contribute enhancing the usefulness of WIS and WIS monitoring in particular also to the end-user.

## Monitoring and reporting levels

Obviously monitoring and reporting is a topic that can be looked at by taking different viewing angles and levels such as:

* Process level
* System level
* Functional level
* Service level
* Global level

Likewise the audience for each level might be different such as group of technical engineers, functional responsible, service responsible, international expert teams up to international management boards that are interested on service provision on a global level.

Having this in mind the elements and parameters that should be monitored and that should be reported upon will vary and have to be defined appropriately. Whilst those definitions in respect to global levels will have to be coordinated and agreed upon internationally and commonly applicable for all centers there is clearly room and scope for areas and monitoring levels that are to be defined individually by each centre to their own needs and requirements.

## What information is useful for end-users

This paper takes the stance of a WIS end-user and looks at what is most important for an end-user in order to get useful information from WIS. Information that is considered useful very often finds the right balance out of simple messages and detailed background information. Providing monitoring and reporting information to end-users implies managing their expectations therefore it is important to consider a clear definition of what can be expected.

The following list represents very commonly asked questions by end-users when they are asked about a service:

* What services can I use? 🡪 Clear service description
* Are the services available? 🡪Clear status indicator on the availability level of the service
* Is the information provided correct? 🡪 Contents verification
* What can I expect from a service? 🡪 A service level description
* What is the status of my orders? 🡪 User addressed status reporting
* Are there problems and if yes when will they be resolved? 🡪 User Message services upon all offered services
* What is the monitoring-reporting interval, when do I get new information? 🡪Regular updates on changing status

If this is translated into WIS terminology then one could say:

* All WIS centers need to provide a clear description of what services they offer;
* All WIS centers need to provide real time status indicators on the availability of the announced services e.g. a “traffic light system”;
* GISCs should provide in addition a more WIS-wide monitoring information on the availability of WIS common services e.g. cache synchronization status between partner GISCs, Meta data synchronization status, overall system load, number of current subscriptions etc.;
* GISCs could add a health check on the Meta data as a monitoring service. This check would review the Meta data on its consistency with regards to the WMO Core Profile. Over time compliance metrics could be reported upon valid and non-valid records and then appropriate action could be taken;
* The Services that a WIS centre offers need to contain a described service level such that the user knows what to expect;
* All WIS centers should provide monitoring information on individual level with respect to the end-user e.g. how much data has been transferred to the user, how many subscriptions, what’s the status of each subscription etc. just to name a few;
* All WIS centers need to provide real-time information on the availability of the services and in case of fault a description on the impact on the service level and at what time it is expected that the service level will be resumed;
* All WIS centers need to provide information on the monitoring and reporting refresh intervals.

## Information useful for WIS quality assessment

This comprises online and offline monitoring and reporting. Each element that is monitored should also be recorded such that automatically generated statistics can be generated. Like for real time monitoring the statistics that can be reported upon should address the various levels of interests such as end-users, managers, committees etc.

The generated offline reports will also provide information necessary for capacity planning of necessary resources on all levels.

## Technical approach to implementation

If WIS monitoring and reporting to the end-user shall be operational useful then it needs to be simple but sufficient. The technical implementation can be based on software and processes that are already available or to be procured or developed at each WIS centre as long as the major key points are commonly addressed. The same principles apply as outlined in the paper on interoperability.

## Proposal

* Definition of a set of information per WIS centre type that should be commonly monitored and reported upon to the end-user;
* Definition on where this end-user monitoring information should be placed, e.g. On the WIS function front page of each WIS Centre;
* Definition of information that should be monitored but require interaction between WIS centers;
* Definition of the relevant technical interfaces such that each WIS centre can interface by re-using existing, develop new or procure compliant solutions;
* Update of the Manual on WIS in the area of monitoring and reporting requirements such that centers have a basis to implement and evaluate their compliance;
* Inclusion of monitoring and reporting implementation into the WIS Centre compliance assessment process.

## References

* Manual on WIS

## Recommended Text

ET-WISC agreed to the

* Definition of a set of information per WIS Centre type that should be commonly monitored and reported upon to the end-user;
* Definition on where this end-user monitoring information should be placed, eg. On the WIS function front page of each WIS Centre;
* Definition of information that should be monitored but require interaction between WIS centers;
* Definition of the relevant technical interfaces such that each WIS Centre can interface by re-using existing, develop new or procure compliant solutions;
* Update of the Manual on WIS and Guidelines in the area of monitoring and reporting requirements such that centers have a basis to implement and evaluate their compliance;
* Inclusion of monitoring and reporting implementation into the WIS Centre compliance assessment process.

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