## WIS system and performance monitoring

## Introduction

Taking into account the WMO requirements for the WIS-GTS status monitoring set up in the Manuals on GTS and WIS as well as in the Guide on WIS and the lack of clear instructions how to conduct WIS monitoring you are tasked to consider some issues of WIS monitoring.

### Monitor and support WIS systems, services and their users, responding to issues affecting the smooth and continuous operation of WIS

## GISC Performance Monitoring

The responsibility of each GISC is the conduction of monitoring and reporting of their performance to other GISCs (but not only) and the WMO Secretariat. What kind of reporting and what intervals between the reports are we speaking of. Obviously these are to be the reports on the GISC functional status and the results of data collection and dissemination.

Below is a provisional list of the WIS performance monitoring data:

* Performance of a GISC (service capability, capacity, a number of active users, scope of data used, etc.)
* Connectivity problems (data channels capacity, peak traffic, etc.);
* State of global data exchange between GISCs;
* State of synchronization of GISC metadata catalogues (on quantity, on contents);
* Check of dissemination of the specific types of information in accordance with the WMO Manual;
* Measurement of time of dissemination of time-sensitive data over WIS (e. g. Tsunami)

The reports should be of a real-time nature as well as of a non-real-time nature. According to the results of the reports of a real-time nature the centres and users should make decisions on the possibility of getting the services or the necessity of moving to the interaction with a back-up centre. It is desirable to automate at most the preparation of reports and making decisions, therefore it is necessary to set up the formats, procedures and intermittence of reports. The WIS performance monitoring can be implemented centrally or decentrally. It is quite desirable that one or two centres response an operational status of all GISCs so that all the WIS users have a possibility to get their bearings in the problems arising in respect to the reception of WIS services (information). Moreover, those centres could inform the WIS centres of emergency state in WIS (warning issue), identify critical (problem) points of WIS and make recommendations on warning the emergence of alarm situations in WIS. The statistics on the GISC performance can be compiled on the basis of real-time reports.

## Core Network and GTS Status Monitoring

The basic part of WIS is the network supporting operational GISCs as well as GISCs that are being put into operation. The core network is built on the RMDCN-NG which is provided by an operator. The information of the Core Network and GTS status in the real-time mode for 24 hours or one week put at present at the RMDCN site reflects practically all the aspects required for the control of the status of the WIS data transmission major environment: capacity of access lines to the network, traffic volumes, routing status, time of passing the pings in the network up to the boundary routers of a remote centre, traffic distribution according to service classes. A new RMDCN-NG provider will also make available the comprehensive information on the network status.

The core network operational status and statistics on each point of connection is easy of access for each network participant who in case of any problem may make decisions and get support in the real-time mode as well as for a scheduling period. Thanks to the efforts of the ECMWF the WMO community gets quite satisfactory statistics of the RMDCN operation and it is quite desirable that this operation go on.

Moreover, the conduction of a similar independent monitoring at each GISC using the commercial and freely distributed network monitoring tools became a good practice. These tools not only complement the communication state monitoring in the RMDCN but also allow monitoring the communication state through Internet which is also used in WIS.

## WIS Service Monitoring

Passing through the WMO audit and putting into operation of the GISC assumes its ability to provide all the required services in accordance with the Manual on WIS. During operational performance, when any problems with providing a service preset arise, GISC should inform their users and other GISCs about the problem with the aim of informing the rest GISCs and taking actions to minimize the damage.

## Metadata and Cache Monitoring

The quality of GISC performance depends very heavily on the completeness and actuality of metadata and related data cache. The metadata base and data cache status control may be implemented by the centres on the basis of internal resources (information, statistical, software) as well as by means of comparison with the contents of metadata base and cache of other centres.

## Dynamic Response to WIS Problems

There may be negative moments affecting the failure-free and problem-free operation of WIS in the network. For dynamic reflects to various situations it is required to have a team of dynamic response that might act in different time zones having their representatives from each Region. The tool for the team activity could be reports of each GISC as well as the log records of data reception/transmission provided by each centre with certain intervals in an agreed format.

## References

* [Manual on WIS](ftp://ftp.wmo.int/Documents/MediaPublic/Publications/Manual_on_WMO_Information_System_WMO_No_1060/)(WMO No. 1060)
* [Guide to WIS](http://www.wmo.int/pages/prog/www/WIS/documents/Guide-to-WIS-en.pdf) (WMO No.1061)
* [Manual on GTS](ftp://ftp.wmo.int/Documents/MediaPublic/Publications/WMO386_GTSmanual/) (WMO No. 386)
* [FINAL REPORT of 2012 Meeting in Melbourne](http://www.wmo.int/pages/prog/www/ISS/Meetings/ET-WISC_Melbourne2012/FReport-ET-WISC2012.doc)

## Recommended Text

The meeting reviewed the proposals on arranging the core network monitoring and the GISCs connected to it and suggests that TT-OM should define specific parameters subject to be monitored at this level, a format of presentation of reports and a periodicity of their presentation.

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