

# **WORLD METEOROLOGICAL ORGANIZATION**

**WMO ET- WISC DEVELOPERS SUBGROUP**

**AD HOC MEETING**

**Reading (ECMWF), United Kingdom**

**27-28 February 2007**



**FINAL REPORT**

## **DISCLAIMER**

### **Regulation 42**

**Recommendations of working groups shall have no status within the Organization until they have been approved by the responsible constituent body. In the case of joint working groups the recommendations must be concurred with by the presidents of the constituent bodies concerned before being submitted to the designated constituent body.**

### **Regulation 43**

**In the case of a recommendation made by a working group between sessions of the responsible constituent body, either in a session of a working group or by correspondence, the president of the body may, as an exceptional measure, approve the recommendation on behalf of the constituent body when the matter is, in his opinion, urgent, and does not appear to imply new obligations for Members. He may then submit this recommendation for adoption by the Executive Council or to the President of the Organization for action in accordance with Regulation 9(5).**

# AGENDA

## **1. ORGANIZATION OF THE MEETING**

- 1.1 Opening of the meeting
- 1.2 Working arrangements
- 1.3 Adoption of the agenda

## **2. WIS DEVELOPMENT: STATUS AND PLANS**

## **3. PILOT PROJECTS**

- 3.1 Report on the SIMDAT Workshop
- 3.2 Other Pilot projects

## **4. SYNCHRONISATION OF GISCS**

- 4.1 Policies (Users, data Access, Resources)
- 4.2 Metadata Exchange (Access, Dissemination, Users, ...)
- 4.3 Data Exchange (GTS Data, non GTS Data)

## **5. OTHER GISCS ISSUES**

- 5.1 Control/Monitoring Interfaces
- 5.2 Backup for GISCS Functions
- 5.3 GISCS-DCPC Interfaces

## **6. SOFTWARE PROVISION**

- 6.1 Development
- 6.2 Distribution
- 6.3 Licensing
- 6.4 Version management

## **7. REVIEW OF IDENTIFIED WORK PACKAGES**

## **8. CLOSURE OF THE MEETING**

## **EXECUTIVE SUMMARY**

The Ad hoc meeting of the Developers Subgroup of the CBS ET-WISC was held at ECMWF in Reading, UK, from 27-28 February 2007, to review the development and the implementation of the WMO Information System (WIS).

The meeting reviewed the current status and plans, and discussed issues related to the technical specifications of the WIS main elements.

## **DISCUSSION**

### **1. OPENING OF THE MEETING**

At the kind invitation of ECMWF, the Ad hoc meeting of the WMO ET-WISC Developers Subgroup was held in Reading, UK, from 27-28 February 2007 under the chairmanship of Mr Heinrich Knottenberg. On behalf of the Director of ECMWF Mr Horst Boettger welcomed the participants and wished a productive meeting. Mr Boettger recalled the last CBS session (Seoul, 2006), stressing the great interest and expectation with the development and implementation of the WMO Information System (WIS).

The Agenda of the meeting, included in the beginning of this report, was approved together with the working arrangements.

### **2. WIS DEVELOPMENT: STATUS AND PLANS**

Prof. Hoffmann, vice president of CBS, made a comprehensive presentation on the current status and plans concerning WIS development. He introduced new and more realistic WIS milestones, targeting the first operational GISC by mid 2008.

Prof. Hoffmann stressed the progress made by the SIMDAT Project and emphasised the urgent needs for formal GISC interface specifications. He called the attention that some WMO Members already had indicated their preferences for developing their own systems, normally with participation of their respective industries.

The meeting was informed of the new strategic approach taken by the WMO Secretariat to facilitate the participation of developing countries in the development of WIS, beginning with the organization of a small technical conference on WIS during AR I in Burkina Faso in February 2007, which identified several options for regional pilot projects.

The meeting was also informed that the WIS Project Manager was appointed and was starting his activities at the WMO Secretariat for a period of one year.

More details on WIS development are available at the WMO WIS website through the following link: <http://www.wmo.int/web/www/WISweb/home.html>.

The meeting noted that the Secretariat was planning a session of ICG-WIS to be held in September 2007 and stressed the importance of having a session of the ET-WISC to prepare the necessary input to that meeting.

### **3. PILOT PROJECTS**

Concerning the VGISC/SIMDAT pilot project, a SIMDAT Workshop with collaborators was held from 26-27 February 2007 at ECMWF. The aim of this workshop was to give the opportunity to all the collaborators to exchange their experience and present their plans. Twenty participants from Australia (BOM), China (CMA), Finland (FMI), France (Meteo France), Germany (DWD), Italy, Japan (JMA), Korea (KMA), Norway, UK (UKMO), US (NCAR) and ECMWF attended the Workshop.

An in-depth overview of the SIMDAT software was presented by ECMWF. Several presentations from collaborators were made by KMA, NMI, FMI, CMA, BOM, JMA, DWD, UK Met

Office and NCAR, as well as a presentation about the new RMDCN and the transition from Frame Relay to MPLS. All presentations can be accessed through the following link: <http://www.ecmwf.int/services/grid/simdat/wiki/do/get/simdat/170>

The Workshop discussed the push/pull requirements for the WIS actors, as summarised in the following table (italics represent optional requirements):

<i>To:</i>	GISC	DCPC	NC	User
<i>From:</i>				
GISC	Exchange global data	Fulfil subscription	Fulfil subscription	-
DCPC	Push for data for global exchange	-	Fulfil subscription	<i>Fulfil subscription</i>
NC	Push for data for global exchange	Push for data for regional exchange	-	Fulfil subscription
User	Pull global data	Pull <i>subscribe</i>	subscribe	-

The ingestion and dissemination of GTS data was discussed. A proposal for the interaction of SIMDAT components with present MSS was made. The minutes of the workshop were made available to all participants.

Mr Nishio from Japan made a brief presentation to the Ad hoc meeting on the RA II and RA V VPN Pilot Project, indicating that now there are 16 centres participating in the Project.

The meeting recognised the progress achieved by the SIMDAT Project and stressed its importance as a reference GISC implementation.

#### 4. SYNCHRONISATION OF GISCS

The chairman distributed several tables (see Annex) containing actions between WIS actors and GISCS, including synchronisation aspects. This list of interfaces was derived from the SIMDAT Consolidated Meteorology Requirements (see, for instance [http://www.wmo.int/web/www/TEM/ET-WISC-I/D18.1.1\\_ConsolidatedMeteoRequirements.doc](http://www.wmo.int/web/www/TEM/ET-WISC-I/D18.1.1_ConsolidatedMeteoRequirements.doc)).

The meeting noted that except the synchronization of catalogues, other related issues have not been accomplished yet.

##### Access Policy

The meeting stressed the importance of a well defined access policy for WIS. It noted that the current policy adopted by SIMDAT was based on the definition of trusted domains. This issue is not fully resolved, still needing a clear description on how the community plans to implement support for data policies. As an example, a technical solution is needed to facilitate the application of WMO Resolutions 40 (Cg-XII) and 25 (CG-XIII).

### Metadata Exchange

It was noted that there are still many issues associated with Metadata to be resolved, including metadata exchange procedures.

### Data Exchange

The meeting discussed data exchange issues including current GTS data and non-GTS Data. It agreed that while the current MSSs are part of the WIS centres the exchange characteristics are different and such differences will persist for a significant period of time. As an example, WIS centres will handle GTS traffic internally as files, differently from the current GTS bulletin world.

Several GTS integration scenarios are under consideration for such coexistence and progressive migration. The approach being developed by Meteo France (see annex) is likely to be the one of choice. Two consecutive GISCs will be connected through their MSS handling the GTS flow and a replication channel with higher bandwidth capacity. Besides the standard GISC elements (Data repository, Catalog, ), each GISC will have some traditional GTS elements including a GTS data acquisition and a subscription modules to facilitate the insertion and retrieval of GTS data

The issue of Replication, while very important, had not been defined. Some studies have been made at Meteo France.

## **5. OTHER GISC ISSUES**

The meeting stressed the importance of control/monitoring, but recognised that much need still to be done in these areas. The same applies to backup functions.

The meeting stressed the importance of having well-defined GISC-DCPC interfaces. They will be essential not only for the implementation of those centres but also to clarify the role of each centre and facilitate the formal designation of GISCs and DCPCs. Centres, specially the DCPCs will have a number of interfaces that they will select to support.

## **6. SOFTWARE PROVISION**

The meeting noted that most developments are taking place in the framework of the SIMDAT Project and that a licensing mechanism is under consideration for distribution of that software. One possibility is the WMO CBS Software Registry that would be adapted to meet WIS requirements. It is also under consideration making some elements of the software to be licensed as Open Source, a type of "WMO Open Source" licensing. It will be freely available to the WMO community. A coordination mechanism would be required.

There are other also important issue to be considered such as the incorporation of software developed by partners. For this, an appropriate scheme must be developed, including versioning aspects.

## **7. REVIEW OF IDENTIFIED WORK PACKAGES**

The meeting reviewed the future work program and identified the following working packages:

- List of GISC Interfaces to completed by consultant
- ET-WISC to produce GISC interface specifications
- Define the exchange of Service Metadata
- Redefine functions of IPET-MI and ET-WISC concerning Service Metadata
- Definition of WMO Open Source
- Virtual Organization
- Networking Issues (for instance see the paper the ET CTS:  
[http://www.wmo.int/web/www/TEM/ICT-ISS2006/Doc4\(1\)WIS-GTS-ComStructure.doc](http://www.wmo.int/web/www/TEM/ICT-ISS2006/Doc4(1)WIS-GTS-ComStructure.doc))
- WMO Questionnaire on GISC – to provide more info on GISC requirements and get a clearer view on real intentions to become a GISC and the preferred path (SIMDAT or other solution)

## **8. CLOSURE OF THE MEETING**

In his closing remarks the Chairman thanked all participants and stressed the importance of their contributions and expressed the wishes that more volunteers could join the WIS development efforts. The meeting closed at 14:50 on 28/02/2007.



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## Actions between WIS-Actors and GISC

Table 1: GISC as Receiver (passive)

Operation	Sender	Comment
Send realtime data	GISC, NC, int. DCPC, User	Limited number of senders, large amount of data, permanent connections Type: Data connection (e.g. FTP)
Send metadata	GISC, NC, int. DCPC, ext. DCPC, User	Limited number of senders, limited amount of data, rare action Type: Web Service & Web Interface
Synchronize catalogue	GISC	Limited number of senders, limited amount of data, rare, scheduled action Type: Web Service
Forward request	GISC	Limited number of senders, on demand, limited amount of data Type: Web Service
Send request	User	High number of senders, on demand, limited amount of data Type: Web Interface
Send data	GISC	Limited number of senders, on demand, medium amount of data Type: Data connection or Web Service
Return credential & data reference	Int. DCPC	Limited number of senders, on demand, limited amount of data Type: Web Service
Browse catalogue	User	Medium number of senders, on demand limited amount of data Type: Web Interface
Subscribe to a dataset	User	Limited number of senders, on demand, limited amount of data Type: Web Interface

Operation	Sender	Comment
Send credential	Int. DCPC	Limited number of senders, on demand, limited amount of data Type: Web Service
Manage Data Communication Interface	User	Limited number of senders, on demand, limited amount of data Type: Web Interface
Monitor & control Data Communication Infrastruc- ture	User	Limited number of senders, on demand, limited amount of data Type: Web Interface
Manage users & policy	User	Limited number of senders, on demand, limited amount of data Type: Web Interface

Table 2: *GISC as an actor (active)*

Operation	Receiver	Comment
Send metadata	GISC	Limited number of receivers, limited amount of data, rare action
Send data	GISC	Limited number of receivers, large amount of data, permanent connections, Data Synchronisation between GISCs (e.g. GTS-Support)
Send data	User	Large number of receivers, large amount of data, frequent, on demand
Forward request	GISC, int. DCPC	Limited number of receivers, limited amount of data, on demand
Return credential & data reference	User	Limited number of receivers, limited amount of data, on demand
Return data location	User	Limited number of receivers, limited amount of data, on demand
Subscription done	User	Limited number of receivers, limited amount of data, on demand
Get data	GISC	Limited number of receivers, medium amount of data, scheduled
Forward subscription	Int. DCPC	Limited number of receivers, limited amount of data, on demand
Send credential	User	Limited number of receivers, limited amount of data, on demand

Table 3: *Internal Operations in a GISC*

Operation	Comment
Authenticate & authorize	Very frequent Operation
Update metadata & data	Frequent Operation
Delete metadata & data	Frequent Operation
Log actions	Very frequent Operation
Retrieve data locally	Frequent Operation

Operation	Comment
Cache data	Frequent Operation
Locate data in an external DCPC	Frequent Operation
Schedule sending data	Frequent, scheduled Operation