GISC MONITORING AND REPORTING REQUIREMENTS

### 1. REAL-TIME Operations Monitoring

In order to ensure the smooth functioning of the WIS, each GISC operator shall continuously monitor in real-time the following items covering the GISC's area of responsibility:

| **ITEM** | **DESCRIPTION** | **DASHBOARD** | **EXPECTED VALUE** |
| --- | --- | --- | --- |
| 1. Overall Centre Availability | A "roll-up" indicator derived from the status of coupled indicators covering the availability of the System Infrastructure, Applications, Network and Services.  A separate Indicator shall be provided for the Back-up Centre | ✓ | >99.9% (monthly Centre Availability)  > 99.99% (monthly Link Availability) |
| 2. Network Usage | Network usage (displayed graphically) | ✓ | Loading < 80% capacity on average |
| 3. Application Flows | Item to be further defined - could include GISC-to-GISC capacity across Core Network |  |  |
| 4. Network Application Availability | (ftp, http, etc) | ✓ | > 99.99% (monthly) |
| 5. Server Performance (CPU, Storage, Network) | % Utilisation measured over 5 minute periods |  | CPU < 50%, Network and Storage < 80% of capacity |
| 6. Discovery Metadata Exchange | a) No. of failed and successful connection attempts reported by each GISC and Centre  b) No. of new, modified or deleted records  c) No of records held at 00:00UTC  d) No. of data records received with no metadata between 00:00UTC and 23:59 UTC | ✓ |  |
| 7. Data and Products | a) No. of data and products not made available by expected time  b) No. of data records designated for global exchange but not available in Cache |  |  |
| 8. 24-Hour Cache | a) Cache updates in the last 24 Hrs  b) 24 Hr input volume and number of items | ✓ |  |
| 9. Specific Message Transmission Monitoring (approach currently under consolidation) | a) Rolling count of No. of All Hazard Network Messages in the last 24 Hrs | ✓ |  |

This real-time monitoring information shall include the information relayed from Centres within the GISC's area of responsibility.

The monitoring information identified for display on a dashboard shall be exchanged in real-time with all GISCs. This real-time dashboard GISC display shall comprise a combination of:

- status information (possibly displayed in traffic-light format);

- graphical information (e.g. loading, performance, ...);

- schematic information (e.g. network topology overlaid with status information).

Furthermore, such displays shall support a "dril down" capability that provides visibility on the status of lower level elements.

Information shall also be made available to support the generation of a single, centralised, WIS dashboard addressing Network Connection Status and Centre DAR/product interface presence.

### 2. QUARTERLY REPORTING

Each GISC operator shall provide a consolidated quarterly report covering the centres and networks in its own area of responsibility, for which it is the principal GISC. This report shall be provided to the WMO Secretariat within 6 weeks from the end of the reporting period.

The quarterly report shall consist of the following main sections:

a) Service Performance;

b) Operational Infrastructure Performance;

c) Operational Anomalies and Incidents;

d) Evolutions/Upgrades Carried Out During the Reporting Period;

e) Planned Evolutions/Upgrades;

f) User Service Statistics.

The purpose and required content of each of these sections is now described.

### a) Service Performance

The purpose of this section is to characterise the service provision performance during the reporting period. The statistics shall, where appropriate, be directly traceable to the service specification provisions defined within sections 1.7.1, 1.7.2 and 4 of the Manual on WIS and shall be organised according to service type, i.e.:

- Time- and Operation-Critical Data and Products Real-time Service;

- Timely Delivery Service for Data and Products (Delayed Mode);

- Discovery, Access and Retrieval (DAR) Service;

- All Hazards Warning Service.

For each of these WIS service types, service performance statistics shall be derived from the real-time operations monitoring information, and shall separately describe:

| **ITEM** | **DESCRIPTION** | **EXPECTED VALUE** |
| --- | --- | --- |
| 1. Service Availability | Summary statistics of the service availability | >99.5% (monthly) |
| 2. Timeliness | Summary statistics describing "the total No. of data and products made available by expected time" expressed as a fraction of "the total No. of data and products that should have been available within the expected time" | >99.5% (monthly) |
| 3. Completeness of Data Exchange | Summary statistics illustrating No. of data records described in Vol C1 but not available in Cache |  |

### b) Operational Infrastructure Performance

The purpose of this section is to describe the health and performance of the operations infrastructure (including, where applicable, all centres and networks) used for the provision of the WIS services. In common with the section on service performance, the statistics for operational infrastructure performance section shall be derived from the real-time operations monitoring information.

In particular, the following aspects shall be described:

|  |  |  |
| --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **EXPECTED VALUE** |
| 1. Availability of Operational Infrastructure | Summary statistics showing the availability of:  a) Computing Infrastructure  b) Networks (Inc Applications)  c) GISC Back-up | a) >99.9% (monthly)  b) >99.99% (monthly)  c) >99.9% (monthly) |
| 2. Loading of Operational Infrastructure | Summary statistics (expressed as a % of capacity) for:  a) Processing  b) Networks  c) Storage | Monthly averages:  a) < 50%  b) and c) < 80% |
| 3. Data Management - Discovery Metadata Exchange | Summary statistics for:  a) No. of failed and successful connection attempts reported by each GISC and Centre  b) No. of data records received with no metadata  c) % of data links which return an HTTP 200 result code during a data crawl  d) Results of metadata compliance checks using the NOAA Spiral Tool  e) User perception measures on the usefulness of the metadata records. |  |
| 4. Data Management - Data and Products | a) No. of requests for each format type  b) No. of failed versus successful requests |  |
| 5. Data Management - 24 Hour Cache | Summary statistics for:  a) Cache update frequency  b) Inter-GISC consistency check results  c) Delay between reception/nominal time and availability in Cache  d) Data integrity check results  e) Amount of data served from the Cache |  |
| 6. Data Management - Special Message Transition Management | Approach currently under consolidation |  |

These statistics shall be directly traceable to any mandatory WIS performance requirements (e.g. availability requirements) defined within the Manual on WIS.

**c) Operational Anomalies and Incidents**

The purpose of this section is to summarise any operational anomalies or incidents that had a significant[[1]](#footnote-1) detrimental impact on either the provision of the WIS services (e.g. failure to fulfil the service requirements) or the availability of the operational infrastructure.

Where available, reference should be made to the relevant Incident Report, which should be attached as an Annex to, or referenced in, the report.

**d) Evolutions/Upgrades Carried Out During the Reporting Period**

The purpose of this section is to summarise the main evolutions/upgrades to the operational infrastructure during the reporting period, the associated implementation date and, if relevant, any resultant changes to the services provided.

**e) Planned Evolutions/Upgrades**

The purpose of this section is to summarise any planned major evolutions/upgrades to the operational infrastructure spanning the next two reporting periods (i.e. looking six months ahead). The planned implementation dates shall also be identified.

**f) User Service Statistics**

The purpose of this section is twofold:

a) To summarise the main features of the user community that is served by the GISC and its area of responsibility;

b) To summarise the performance of the helpdesk function (provided by the GISC).

In particular, statistics on the following aspects shall be provided:

|  |  |  |
| --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **EXPECTED VALUE** |
| 1. Number of Registrations | Number of registered users |  |
| 2. Type of User | Categorised according to: "Public", "Commercial", "R&D", "Official Duties", "other WMO Members".... |  |
| 3. Number of "Dormant" Users | No. of user accounts not accessed for 12 months or more (TBC) |  |
| 3. Location (countries) of Users | Countries |  |
| 4. Type of data accessed | Categorised according to: "Observation", "Forecast", "Aviation", "Agriculture", ..... |  |
| 5. Amount of NRT and off-line data requests | Categorised according to: "No. of requests", "No. of items requested", "No. of push subscriptions", .... |  |
| 6. Number of User Queries | Total number of user queries |  |
| 7. Type of User Queries | Classified according to: "User Information Request", "System Functionality and Performance", "Request for Additional Features", .... |  |
| 8. Mean Time to Closure of User Queries | Measured in "Days" from lodging of query | 3-5 Working Days |
| 9. User Satisfaction Measures | This could include:  a) Results of User Satisfaction Survey  b) On-line user feedback statistics |  |

**3. INCIDENT REPORTING**

For operational anomalies or incidents that have a significant detrimental impact on either the provision of the WIS services (e.g. failure to fulfil the service requirements) or the availability of the operational infrastructure, an Incident Report should be prepared, and made available to the Secretariat.

This Incident Report should contain:

- the circumstances of the incident (nature, timeline, impact on services and operational infrastructure, recovery measures, impact on other centres.....);

- the root cause analysis;

- the measures adopted to avoid a repeat of Incident (e.g. change to operational procedures, change to system configuration, training, etc).

1. Significant in this context means a service outage of longer than 3 (TBC) hours to the real-time service or a longer-term [1 week (TBC) or more] loss of resilience of a key component of the WIS system (e.g. link or centre)] [↑](#footnote-ref-1)