**WIGOS DATA QUALITY MONITORING SYSTEM (WDQMS)**

Demonstration Project in RA I

**Project Report**

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1. **INTRODUCTION**

The WIGOS Data Quality Monitoring System (WDQMS) is one of the five priorities for WIGOS in the financial period 2016-2019. The 2nd WIGOS Workshop on Quality Monitoring and Incident Management, Geneva, Switzerland, 15-17 December 2015, further developed the concept of the WDQMS and proposed to launch a demonstration project in WMO Regional Association I.

The 5th Session of the Inter-Commission Coordination Group on WIGOS (ICG-WIGOS-5) endorsed the idea of a demonstration project in RA I and suggested that the test of the WDQMS functions could be led by the Kenya Meteorological Department (KMD). ICG-WIGOS-5 decided to establish a WDQMS Task Team (TT-WDQMS), which will be responsible for the demonstration project.

WMO secretariat then requested KMD for its concurrence in hosting the demonstration project to which KMD agreed. Following this concurrence, the plan for the implementation of the project was finalized and the project started in July 2016 and was finalized towards the end of November 2016. The WMO members who participated was Kenya and Tanzania

1. **RESOURCES INVOLVED**

During the duration of the project KMD provided the necessary resources to support the project which included Human resources, Technical resources and infrastructure.

**2.1 Human resources**

KMD provided four Officers to participate in the project at different levels

* One officer familiar with surface observing system and instruments and who has good knowledge of data quality procedures. He was involved from the start of the project to the end and worked part time for the Project, during normal office hours. He was responsible for the overall operations of the project : creation of tickets both for Kenya and Tanzania and updating of ticket status.
* An officer who is familiar with GTS operations. He worked part time on the project and assisted in checking the stations which were required to contribute to the GOS and GCOS. He also assisted in updating of the tickets.’
* An officer who is the focal point of OSCAR/ surface. He was partly involved in the training sessions
* An officer who serve as the country focal point and is responsible for the observation network. This officer was supposed to act on the incidences raised through the ticket, confirming the issues on the ground and acting to restore the raised situation as possible. He is supposed to update the ticket as necessary

**2.2 Technical resources**

A PC with up to date operating system (Windows 10) and the necessary additional software was provided for the project to facilitate accessing the web-based monitoring tools, managing the incident procedures as well as exchange of emails. All other officers who were appointed to participate in this project have computers in their offices with similar capabilities.

**2.3 Infrastructural resources**

The officer in charge of the project was provided with an office where the dedicated PC was installed. The office was connected to a direct telephone line which has a capability of making direct telephone calls. The PC was also connected to internet with a dedicated bandwidth of 2 Mbps. An internet connection of 1 MBPS was also available to all other officers appointed to participate in this project.

1. **RESPONSIBILITIES**

While hosting the demonstration project, KMD took the following responsibilities:

* Provided temporary human and technical resources for the operations of the demonstration project.
* Took part in the training in each of the four phases of the project
* Using the on-line web portal and other tools made available by the TT-WDQMS and the WMO secretariat, identified issue(s) in the four phases of the demonstration project and opened an incident management ticket for each issue identified.’
* Took up issues raised by other participating members.
* Evaluate whether the issues raised required an incident process and Initiated the process by providing the ticket number and priority (based on data availability and accuracy) and notifying the contact person in the respectful member country.
* Followed up the incident with the contact person in Kenya and Tanzania and updated the status of the incident.
* Closing of resolved incidents and updating the summary status
* Updated the OSCAR/surface metadata database as necessary. For example, for stations which were reported as silent yet they were not part of the GTS or stations with wrong metadata and therefore reflecting inaccurate pressure biases.

**4. SUMMARY OF ACTIONS PERFORMED**

There were a total of 25 tickets raised for Kenya and a total of 23 for Tanzania during the four phases of the demonstration project. The following table provides a summary of the actions taken by the staff involved, grouped by type of station type and by issues category, for each of the four phases:

Kenya:

|  |  |  |  |
| --- | --- | --- | --- |
| **Issues/incidents** | Created/raised | Received | Comments |
| Land Surface Stations | Phase 1 (Silent) | 13 tickets were created | All tickets have a received confirmationPart F-1Part E-7Part C- 5 | One of the stations was finalized successfully. Most of the other stations has been waiting for confirmation about their RSBN status. |
| Phase 2-Availability | Six tickets were opened | All tickets have a received confirmation.Part F-1Part E-5 | Two stations had data communications problems. One station was successfully resolved while the other is still being monitored. Five of the stations do not have operational barometers and  |
| Phase 3-Pressure Accuracy | Six Tickets were raised. | Part B-6The tickets shows no confirmation but the stations were confirmed as having incorrect pressure levels. | One of the station has a significant difference between the station elevation on OSCAR metadata and the actual height (OSCAR- 560.83m, Actual - 1895m . waiting for OSCAR/surface focal point to edit and rectify. |
| Radiosonde Stations | Silent | No Ticket has been raised on upper air stations | Nil |  |
| Availability |  |  |  |
| Accuracy |  |  |  |

Tanzania:

|  |  |  |  |
| --- | --- | --- | --- |
| **Issues/incidents** | Created/raised | Received | Comments |
| Land Surface Stations | Phase 1 (Silent) | 8 tickets were created | Five Confirmed by national contact and three were not confirmed.Part E-4Part C- 1Part B-3  | Five stations were confirmed as not been on GTS. The decision on whether they shall be on GTS has not been reached. The Tickets have been therefore left open.  |
| Phase 2-Availability | 2 tickets were opened | Part E-2 | One of the stations has a faulty barometer and the other one was moved from its location to another location.  |
| Phase 3-Pressure Accuracy | 13 Tickets were raised. | Part B-13 | All the stations recorded wrong pressure readings but were not confirmed by national contact. |
| Radiosonde Stations | Silent | No Ticket has been raised on upper air stations | Nil | No upper air available  |
| Availability |  |  |  |
| Accuracy |  |  |  |

**5. DIFFICULTIES FACED**

Short description of the difficulties encountered by the staff during the operations period of the demonstration project. All types of problems should be reported using the table blow.

Each difficulty should be described in terms of level: how serious it was (1=least, 3=most).

|  |  |  |  |
| --- | --- | --- | --- |
| **Difficulty** | Technical difficulty level (1 to 3) | Lack of training level (1 to 3) | Comments |
| OSCAR/Surface | Initially lacked credentials to access the data base | Lack of training for most participants except the focal point. | The focal point can now edit the database and make changes. Sometimes this is quite involving and takes much time. If there could be a way that one can use a worksheet for a particular station and import to the data base once completed it could possibly be easier. |
| Monitoring Web-tool | No Technical difficulties encountered | NA | The monitoring tools were satisfactory. |
| ECMWF Wiki page | No Technical difficulties encountered | NA | The ECMWF Wiki page was user friendly  |
| EUCOS Quality Portal | No Technical difficulties encountered | NA |  |
| Incident Management toll (Google-site) | No Technical difficulties encountered | NA | The Incident management tool was good and user friendly |
| Others | NA |  |  |

**6. SELF-ASSESSMENT**

Short description of Member’s own assessment of the demonstration project, i.e. what went well, what went not well and what could have been done to make things go better, regarding the Member participation.

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| --- | --- | --- | --- |
| **What** | WELL | NOT WELL | Comments |
| Training | OK |  | The availability of the recorded training sessions complemented the difficulties that were sometimes experienced during the training sessions.The training by the WMO secretariat and members of the TT-WDQMS was well coordinated. However, it was felt that not all training sessions should have been online. The last training session should have been offline to include assessment of the earlier parts of the demonstration project |
| Communication  | OK |  | Communication during the project was okay. The response to issues arising from training sessions were usually timely and satisfactory. |
| Roles and responsibilities |  | Not very clear | It was not very clear to some participants how the roles were defined between KMD and the national focal points. |
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**7. CONCLUSIONS AND SUGGESTIONS**

* 1. **Conclusions**

The overall objective of the project was to detect and identify gaps and inaccuracies in surface and upper air observation networks in the participating member countries and following up on any issues and incidences to a successful conclusion. The following can be considered as the achievements of the project:

* + 1. **Identification of the stations which were not contributing to the GOS/GCOS**.

 Though many stations were declared by the participating members as not officially intended to be in the GTS it was not clear whether they were initially intended to be and later withdrawn. The project can serve to single out the stations and request the member countries to consider re-introducing the stations’ contribution to GOS/GCOS.

* + 1. **Identification of Gaps in the stations contributing to GOS/GCOS.**

Most of the stations which had inconsistencies were found to have intermittent data communication problem, lack of barometers or barometers not working in some cases. The Project assisted very much in identifying the problems and in cases where the participating country acknowledged and acted on the incidents the situation was rectified.

* 1. **Suggestions**
* Although the demonstration project has come to an end, participating countries should be encouraged officially to conclude all incidents which were identified. Particularly, the national focal should follow up on identified cases.
* A method of importing a worksheet into the OSCAR/surface data base should be explored so that the focal point could easily edit/introduce whole data on one station and import into the database.
* The project should be extended to include many more countries.

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