Outcomes of the workshop

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Koichiro Kakihara

Administration Division, Observation Department

Japan Meteorological Agency

JMA/WMO Workshop on Quality Management of Surface Observations

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- Organization of the workshop
- Outcomes
- Proposal for WIGOS implementation activities

ORGANIZATION OF THE WORKSHOP

Guide map of the workshop

Session 1: WIGOS

- WIGOS overview (as basis of near future meteorological observation)
- WDQMS (as one of the foundational functions of WIGOS)
- Regional WIGOS project (to support WIGOS implementation in each NMHS)

Session 2: RIC

- Importance of traceability and standard meteorological instruments
- Utilization of RIC
- Practical use of standard meteorological instruments in maintenance of meteorological observation networks

Session 3: QM

- Understanding characteristic of meteorological instruments for precipitation observation
- Importance and practical methods of Quality management of precipitation observation
- Practical case of WIGOS implementation and application for DRR in Japan

Session 4: Discussions and conclusion

- Visions of surface observation networks
- Short-term or long-term goals of the quality of observation data
- Improvement of on-site quality management, control or check activities including instrument calibration or maintenance
- Approach to training skilled staffs

Organization of the workshop

Session 1:

WMO Integrated Observing System (WIGOS)

Session 2:

Regional Instrument Centre (RIC)

Session 3:

Quality management of surface observations

Session 4:

Conclusion of the workshop

Session 1

WMO Integrated Observing System (WIGOS)

1.1) Overview and prospective of WIGOS

1.2) Quality monitoring of observation data in NWPC and overview of the WDQMS

1.3) Regional WIGOS Project in RA II

1.4) Review of the results of the questionnaire on Quality Management of Surface Meteorological Observations in RA II

1.5) Country report (poster session)

Session 2

Regional Instrument Centre (RIC)

2.1) Introduction of RICs
(RICs Beijing, Manila and Tsukuba)

2.2) Practical use of standard meteorological instruments in domestic meteorological observation networks

2.3) Site visit to RIC Tsukuba

Session 3

Quality management of surface observations

3.1) Quality management in rainfall observation

3.2) Lecture on precipitation measuring instruments

Session 4

Conclusion of the workshop

4.1) Discussion on future activities/actions for improvement of quality management of observation data in RA II

4.2) Outcomes of the workshop

4.3) Adoption of the draft summary

OUTCOMES

Session 1

WMO Integrated Observing System (WIGOS)

1.1) Overview and prospective of WIGOS

1.2) Quality monitoring of observation data in NWPC and overview of the WDQMS

1.3) Regional WIGOS Project in RA II

1.4) Review of the results of the questionnaire on Quality Management of Surface Meteorological Observations in RA II

1.5) Country report (poster session)

1.1) Overview and prospective of WIGOS

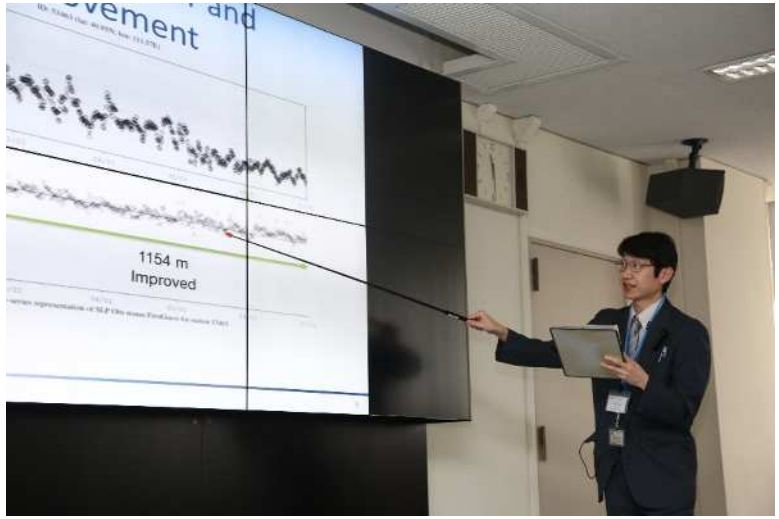
1.1) current status and planned regional activities on WIGOS

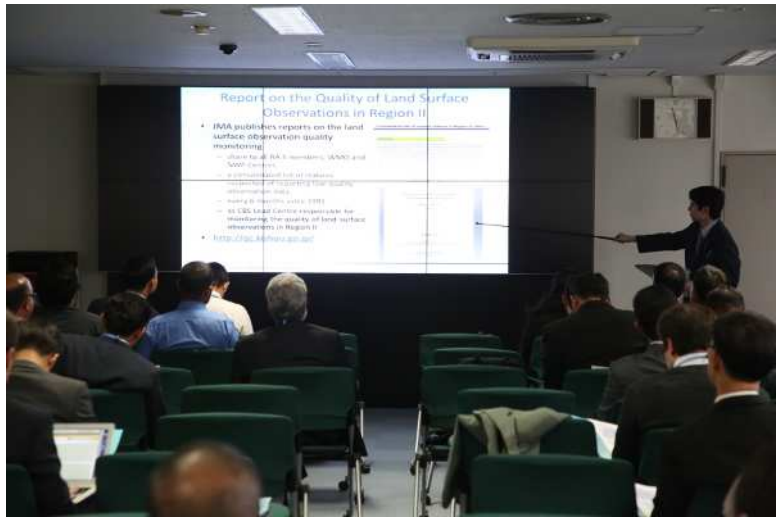
- What is WIGOS?
- Rolling Review of Requirements (RRR)
- OSCAR and WEQMS
- Gap analysis between requirement and practical situation
- Regional WIGOS Centers (RWCs)
- RA-II WIGOS Projects

1.1) CIMO in support of fit-for-purpose measurement

- What is Fit-for-purpose measurements?
- Factors for measurement quality
- Traceability Strategy and Regional Instrument Centres (RICs)
- Siting classification
- Sustained performance classification
- Competency frameworks for instrumentation and observing programme/network management

1.2) Quality monitoring of observation data in NWPC and overview of the WDQMS





1.2) Quality monitoring of observation data in NWPC and overview of the WDQMS

- A consolidated list of stations suspected of reporting low-quality observation data of station level pressure, mean sea level pressure and geopotential height, reported by CBS Lead Centre for monitoring the quality of land surface observations in Region II (http://qc.kishou.go.jp/)
- NWP Quality Monitoring Pilot Project on WDQMS

1.3) Regional WIGOS Project in RA II

- History, achievements and plans of the WMO RA II WIGOS Implementation Project “Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations”
- Purpose of this workshop

1.4) Review of the results of the questionnaire survey in 2016

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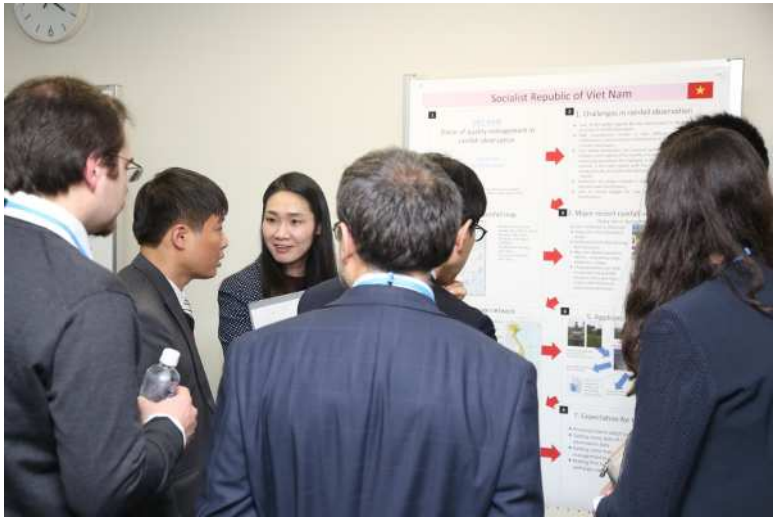
- According to the results of the questionnaire survey in 2016:
  - Many NMHSs faced difficulty in both the quality check of the observation data and the environment check regarding precipitation observation
  - NMHSs needed to urge the application of the precipitation observation data to Disaster Risk Reduction (DRR) onward

1.5) Country report (poster session)



1.5) Country report (poster session)

- Active and lively discussions were performed in front of each country's report.
- Each country made summary paper describing the important discussion points.
- Main discussion points written in summary papers are,
  - Caribration of instrument and site inspection;
  - Data communication matter;
  - Training for the staffs; and,
  - Data quality control.

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Basic foundation

Application

Session 2

Regional Instrument Centre (RIC)

2.1) Introduction of RICs
(RICs Beijing, Manila and Tsukuba)

2.2) Practical use of standard meteorological instruments in domestic meteorological observation networks

2.3) Site visit to RIC Tsukuba

2.1) Introduction of RICs

- RIC Beijing

2.1) Introduction of RICs

- RIC Manila

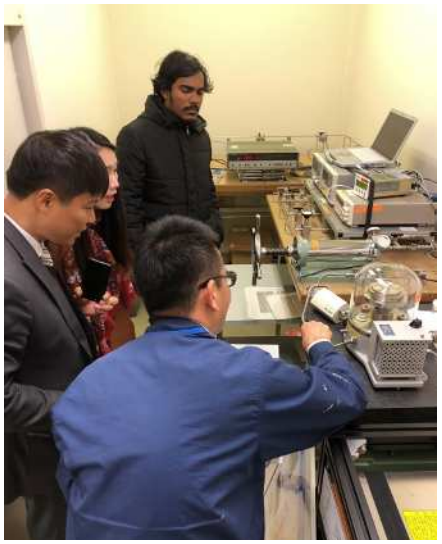
2.1) Introduction of RICs

- RIC Tsukuba

2.2) Practical use of standard meteorological instruments in domestic observation networks

- JMA's observation network "AMeDAS"
- Traceability of meteorological instruments
- Maintenance of field instruments

2.3) Site visit to MIC (RIC Tsukuba)



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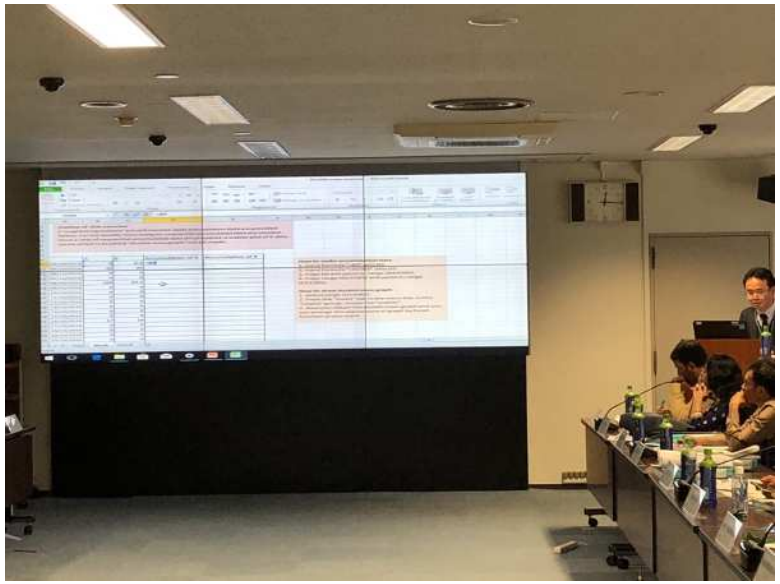
Session 3

Quality management of surface observations

3.1) Quality management in rainfall observation

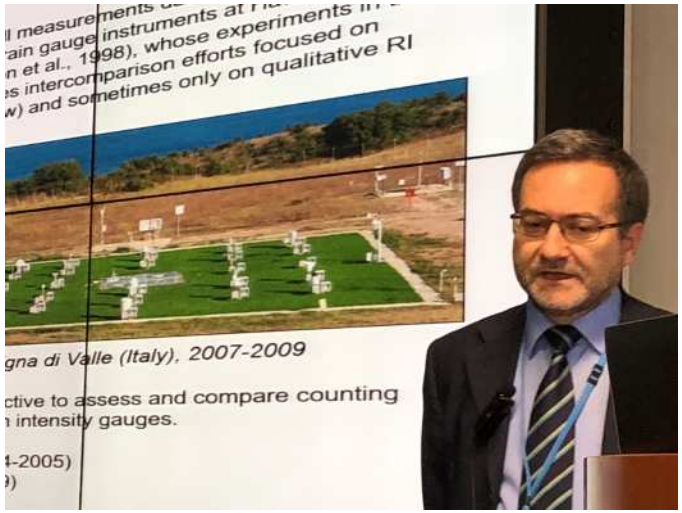
3.2) Accuracy of precipitation measurements, instrument calibration and techniques for data correction and interpretation

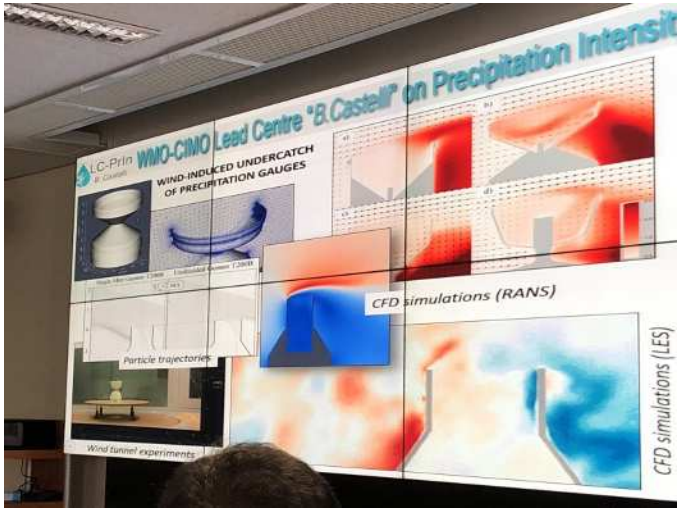
3.1) Quality management in rainfall observation



- Three types of QCs (Site AQC, Center AQC, HQC)
- Double mass analysis, as one of the example of useful HQC tool

3.2) Accuracy of precipitation measurements, instrument calibration and techniques for data correction and interpretation





3.2) Lecture on precipitation measuring instruments

- Laboratory inter-comparison
- Field inter-comparison
- Standards of rain gauges
- Calibration techniques
- Wind effect
- Wrap-up
  - A) Bias assessment and correction/adjustment
  - B) Uncertainty assessment

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4.2) Outcomes of the workshop

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4.1) Discussion on future activities/actions

4.1) Discussion on future activities/actions

a. Visions of surface observation networks
b. Short-term or long-term goals of the quality of observation data
c. Improvement of on-site quality management, control or check activities including instrument calibration or maintenance
d. Approach to training skilled staffs

Topics of discussion	Discussion results	Tokyo Action Plan 2018 *Proposal*		
		Short-term -2020	Middle-term -2023	Long-term -2028
Visions of surface observation networks Short-term or long-term goals of the quality of observation data Improvement of on-site quality management activities Approach to training skilled staffs	• Urge to apply precipitation observation station to DRR. • Need of integration of surface & remote sensing to maximize observation data applications. • Urge to deploy AWS into thinly located regions. • Urge to deploy calibration activities for AWS to provide qualified data to users. • Urge to enhance the Integrated Quality Management to support users' assessment of observation data. • Urge to develop training methods to obtain skilled observer and technician.	• Increase the number of reporting stations as well as increase in resolution of observation (3-hourly or hourly). • Study to find the best configuration of observation networks. • Implement Standard Operating Procedure(SOP) to maintain AWSs including the method of post-extreme -event inspection of instruments. • Continue post-workshop activities including newsletters, e-mail-based support. • Encourage to train all countries to use OSCAR surface.	• Special environment/ appropriate exposure around the observing station. • Develop guidance of integrated observing system of surface observation with remote sensing. • More future training in maintenance & calibration of instruments.	• Improve the resolution of observations. • Increase the station observation network (more dense network). • Develop computerized QC methods to correct historical data • Establish cooperation among international agencies/academia /engineers for improvements of observation capabilities

Workshop #1

Workshop #2

PROPOSAL FOR WIGOS IMPLEMENTATION ACTIVITIES

Tokyo Action Plan 2018 proposal

■ Enhancement of surface observation networks

- To enhance national meteorological/hydrological observation networks effective to DRR, including deployment of AWS or automatic rainfall stations.
- To make use of meteorological observation data not only from NMHS but also from other organizations into DRR related services/activities.

Tokyo Action Plan 2018 proposal

■ Improvement of quality of observation data

- To facilitate development of human resources for quality control of meteorological observation and to provide quantitative quality information to other NMHSs and organizations concerned.
- To utilize remote sensing meteorological observation data, such as observation data from weather radars and meteorological satellites, into DRR related services/activities, supplement to surface observation data.

Tokyo Action Plan 2018 proposal

■ Improvement of on-site maintenance

- To deploy standard instruments for meteorological observations and to facilitate inter comparison of standard instruments with Regional Instrument Centres (RICs).
- To make use of traveling standard instruments for maintenance of meteorological observation networks.

Tokyo Action Plan 2018 proposal

■ Capacity building in QC techniques and maintenance

- To prepare technical documents on QC techniques in mother tongue.
- To develop an environment for capacity buildings on quality management of surface observations, in addition to the RIC's Tsukuba website providing training materials on traceability and meteorological instrument calibration.
- To develop environments to support communications among persons in charge of meteorological observation and/or instrument in this Region.

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Walk Window