Session 5.2

Outcomes of the workshop

Contents

- Purposes and organization of the workshop
- Outcomes

Purposes and organization of the workshop

Purposes of the workshop

I. To foster shared understanding on WIGOS key issues including OSCAR/Surface and the WIGOS Data Quality Monitoring System (WDQMS)
II. To make practical discussion on collaboration between the RWCs and Members to improve availability and quality of observation
III. To share RWCs' services with Members based in line with user requirement

Organization of the workshop

Session 1:

Introduction

Session 2:

Open seminar - Integration, quality management and application

Session 3:

Operation of RWC mandatory functions

Session 4:

Technical support as RWC optional functions

Session 5:

Wrap up of the workshop

Session 1
Introduction

[1.1] Introduction of WIGOS - Integration -

[1.2] CIMO-17 outcomes and CIMO activities - Quality management -

[1.3] Development framework - Application -

Session 2
Open seminar - Integration, quality management and application

[2.1] CIMO TECO-2018 highlights - Towards fit-for-purpose environmental measurement -

[2.2] GSMaP - Integrated application with developer and user collaboration -

[2.3] Proposed framework for Integrated regional radar network

[2.4] Innovative remote sensing measurements as new data sources

[2.5] Observation for 2030 Vision

Session 2
Open seminar - Integration, quality management and application

[2.6] Measurement quality classifications for surface observing stations on land

[2.7] Survey results

[2.8] Discussion on measurement quality classification

Session 3
Operation of RWC mandatory functions

[3.1] Update on WIGOS and RWCs

[3.2] Introduction of RWC mandatory functions

[3.3] Country report

[3.4] Country report summary

[3.5] Technical tour

[3.6] Survey results

[3.7] Discussion on RWC mandatory function

Session 4
Technical support as RWC optional functions

[4.1] Review of Day 1 recommendations about measurement quality classification

[4.2] Introduction of RIC-RWC collaboration

[4.3] RIC Beijing report

[4.4] RIC Manila report

[4.5] RIC Tsukuba report

[4.6] Discussion: How do we encourage skilled staff?

Session 4
Technical support as RWC optional functions

[4.7] Discussion: How do we develop an expert community based on inter-regional collaboration?

[4.8] Discussion: How do we improve observing system? - Review of Tokyo Action Plan 2018 status -

[4.9] Discussion: How do we develop products and train experts? - JMA's 10-year plan and collaborative approaches -

[4.10] Discussion: What can RWCs do for developing human resource in the region?

[4.11] Discussion summary - Development framework as RWCs optional functions -

Session 5
Wrap up of the workshop

[5.1] Future operation and activities of RWCs

[5.2] Outcomes of the workshop

Outcomes

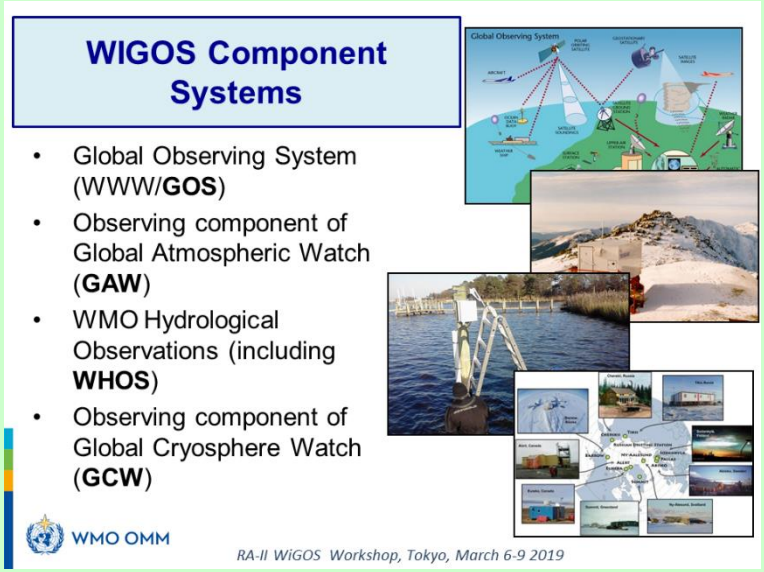
Session 1
Introduction

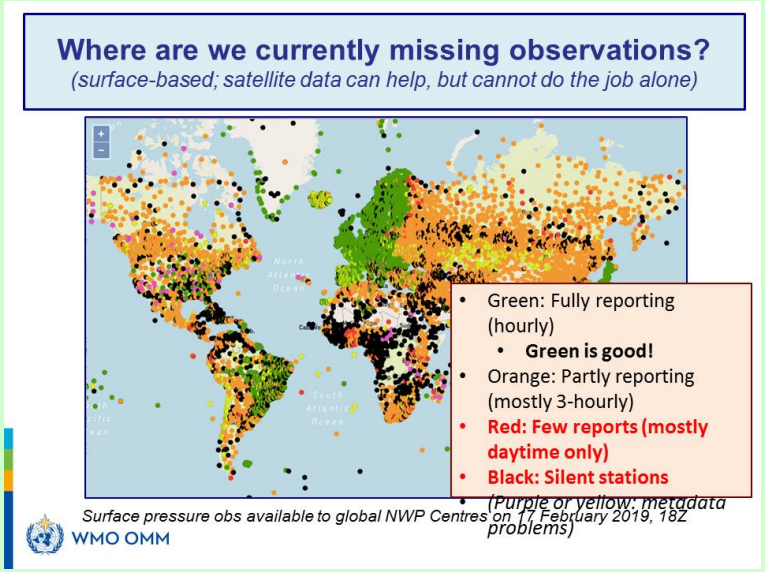
[1.1] Introduction of WIGOS - Integration -

[1.2] CIMO-17 outcomes and CIMO activities - Quality management -

[1.3] Development framework - Application -

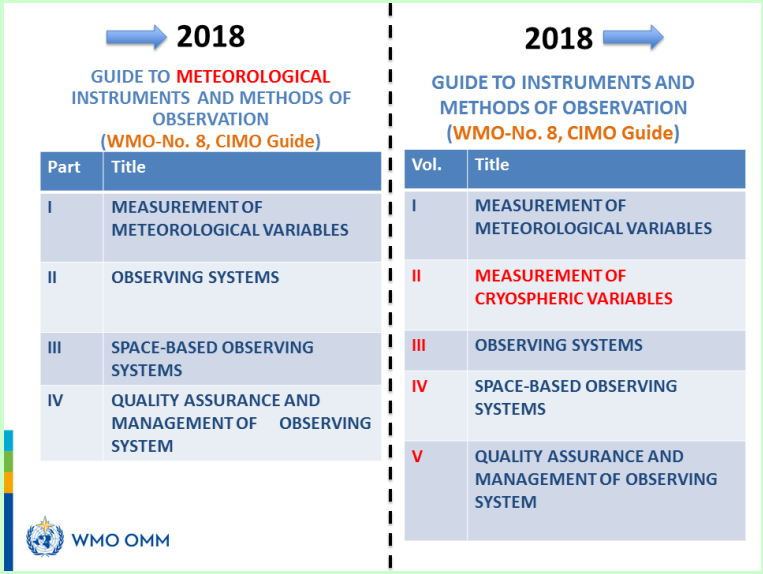
[1.1] Introduction of WIGOS - Integration -





- Activities of the Pre-operational Phase
- Outline of RRR, OSCAR, WDQMS and GBON

[1.2] CIMO-17 outcomes and CIMO activities - Quality management -



2018

GUIDE TO METEOROLOGICAL INSTRUMENTS AND METHODS OF OBSERVATION (WMO-No. 8, CIMO Guide)

Part	Title
I	MEASUREMENT OF METEOROLOGICAL VARIABLES
II	OBSERVING SYSTEMS
III	SPACE-BASED OBSERVING SYSTEMS
IV	QUALITY ASSURANCE AND MANAGEMENT OF OBSERVING SYSTEM

2018

GUIDE TO INSTRUMENTS AND METHODS OF OBSERVATION (WMO-No. 8, CIMO Guide)

Vol.	Title
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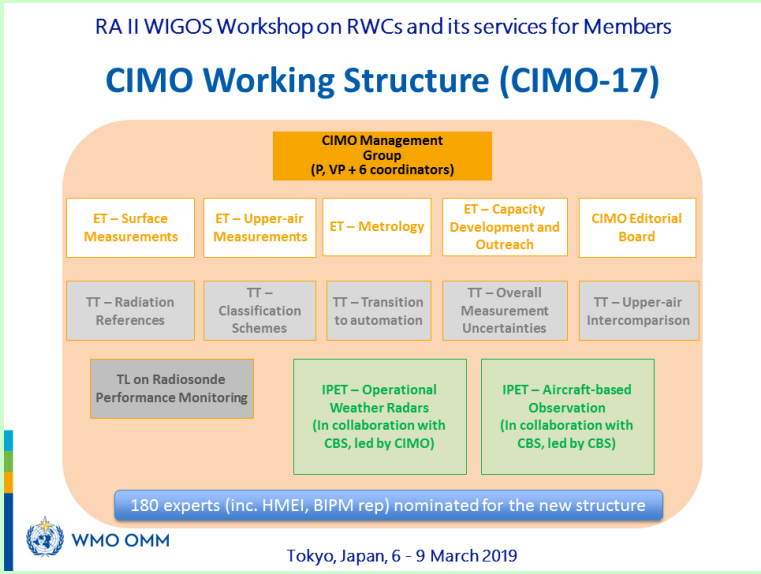
V	QUALITY ASSURANCE AND MANAGEMENT OF OBSERVING SYSTEM

WMO OMM

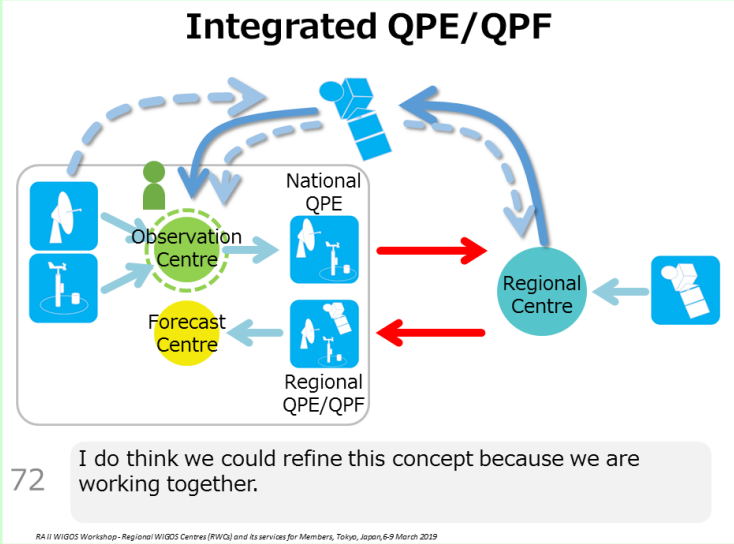


- CIMO activities, e.g. CIMO Guide
- CIMO-17 outcomes, e.g. Vision for the future environmental measurements, working structure

[1.3] Development framework - Application -

FY		2018	2019	2020	2021	2022	2023-2027
		Phase I		Phase II			Phase III
Provision of materials and training for users		• Draw up product specifications for Phases II and III • Provide user manual		• Standardize product specifications • Provide training			• Provide mobile training centers
		• Engage in activities for technical/		development transfer			
Satellite	Identification of Rapidly Developing Cumulous Areas (RDCA)	• Conduct evaluation to determine detection uncertainty • Improve detection accuracy		• Develop regional lightning nowcasting in Asia			• Develop severe storm alert content for Asia
Satellite	Himawari products (HCAI & HRPA)	• Launch Phase I website in December 2018		• Develop regional integrated QPE/QPF in Asia			
Satellite	JAXA/GSMaP	• Conduct evaluation to determine uncertainty in rainfall analysis and prediction					
Radar	Southeast Asian Radar Network -Regional WIGOS Project	• Improve quality checking techniques • Expand and enhance international exchange of observation data					
Surface	Tokyo Action Plan	• Devise and implement training on quality improvement		• Improve quality management			• Enhance observation networks

27 As a result, JMA's 10-year plan was framed including technical support and training.



72 I do think we could refine this concept because we are working together.

- JMA's 10-year plan
- Proposed concept of integrated QPE/QPF

Session 2
Open seminar - Integration, quality management and application

[2.1] CIMO TECO-2018 highlights - Towards fit-for-purpose environmental measurement -

[2.2] GSMaP - Integrated application with developer and user collaboration -

[2.3] Proposed framework for Integrated regional radar network

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[2.6] Measurement quality classifications for surface observing stations on land

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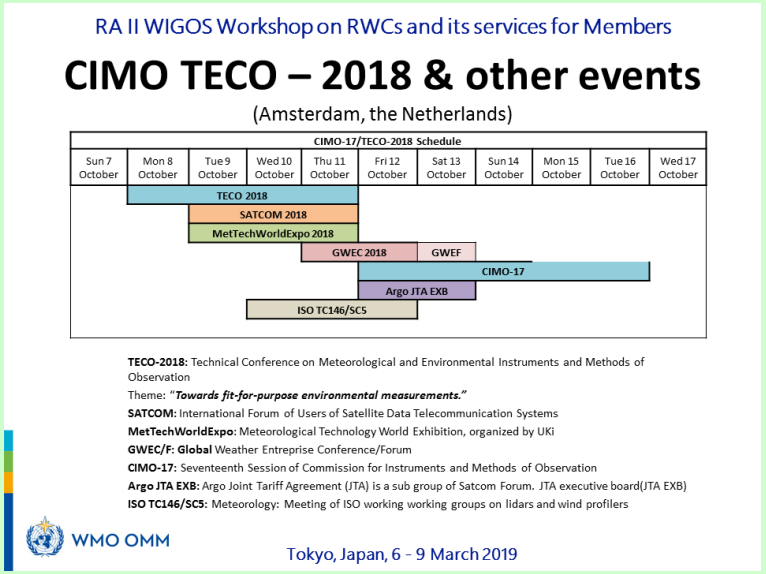
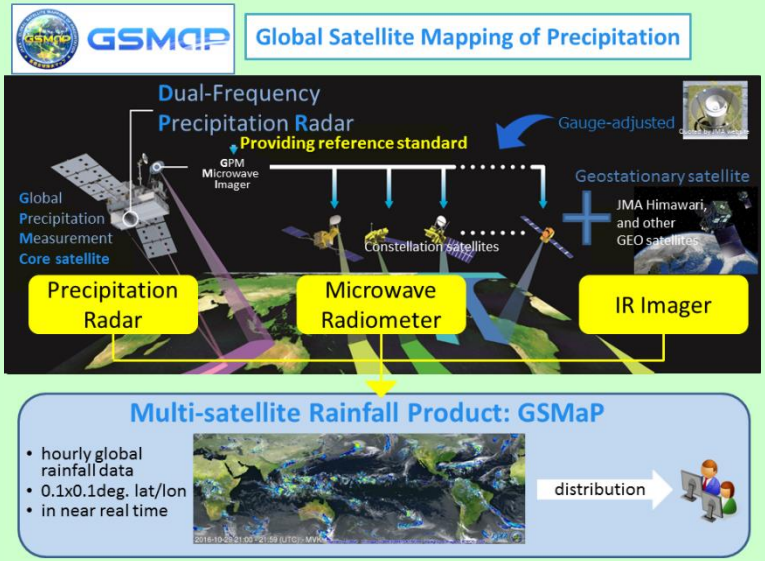
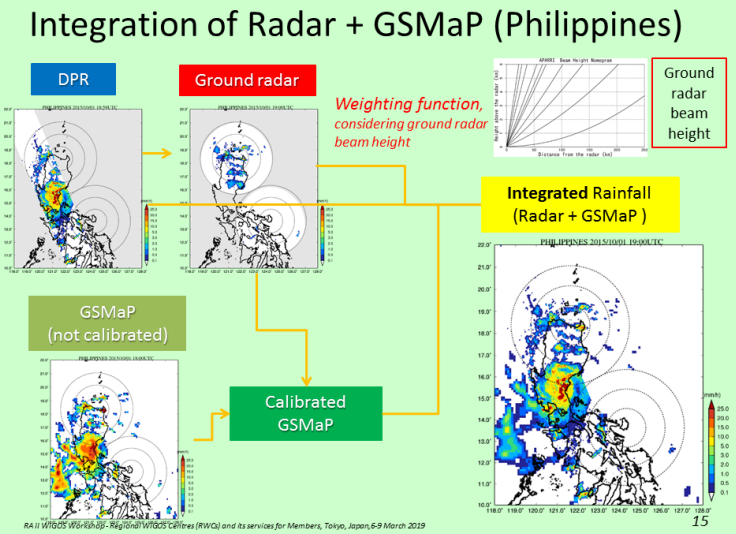


- Discussions on New data sources and AWS tender specifications
- Feedback survey

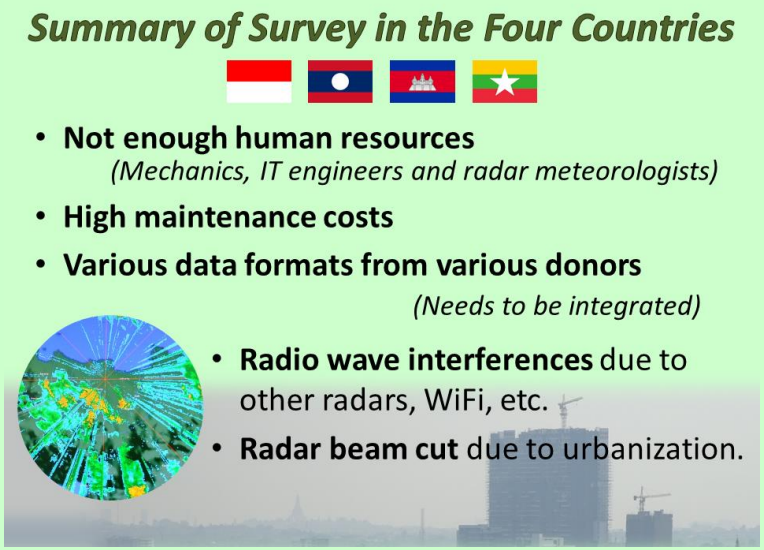
[2.2] GSMaP - Integrated application with developer and user collaboration -

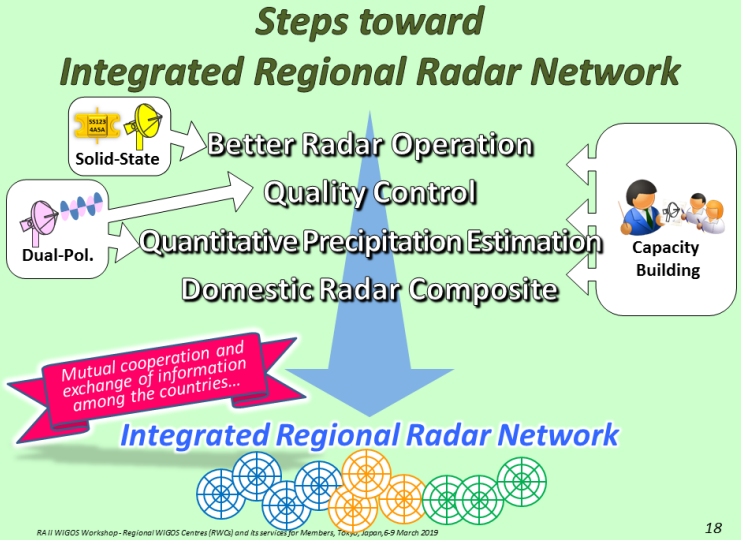




- Multi-satellite Rainfall Product: GSMaP
- Integration of GSMaP and radar

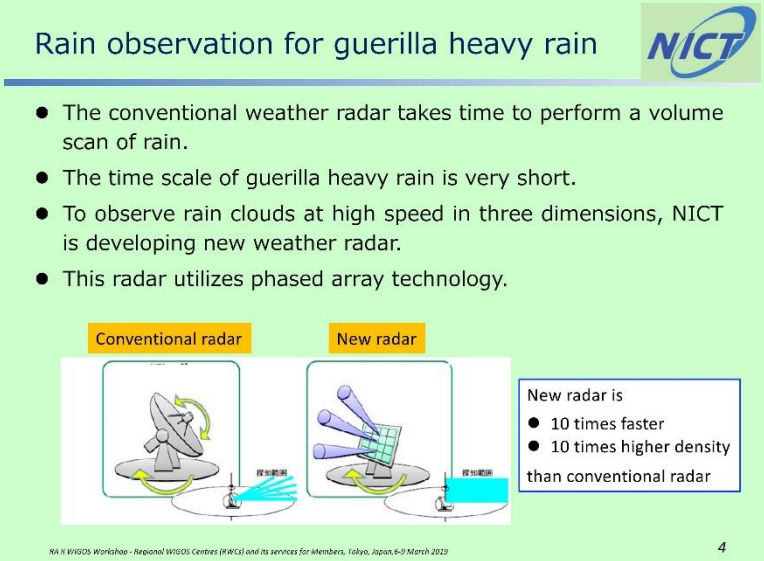
[2.3] Proposed framework for Integrated regional radar network

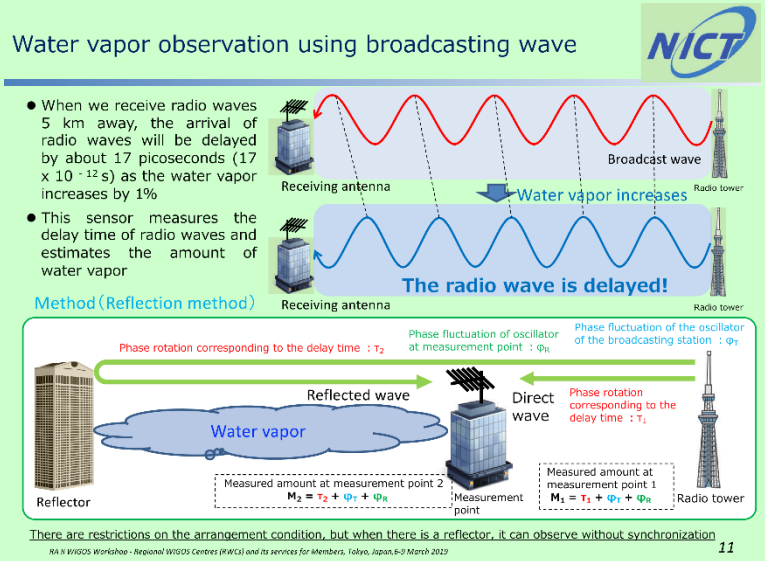




- Survey in 14 countries (incl. 4 countries visit)
- Proposed step toward integrated radar network

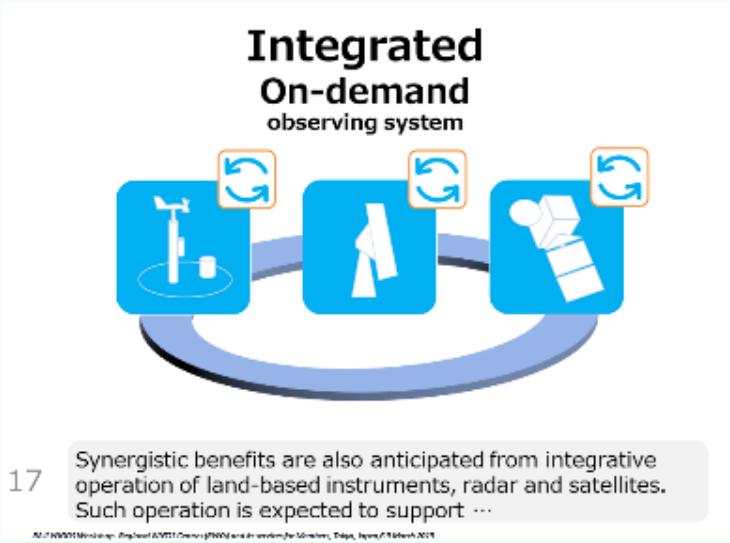
[2.4] Innovative remote sensing measurements as new data sources

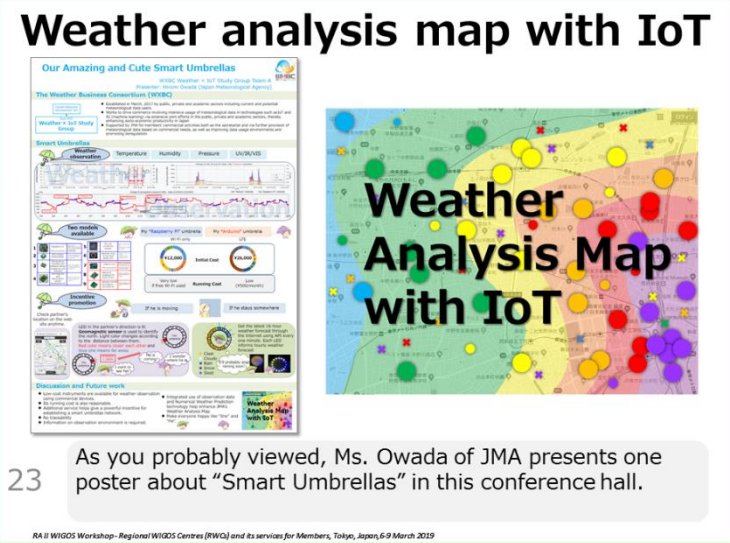




- New radar utilizing phased-array technology
- Water vapor obs. using broadcasting wave

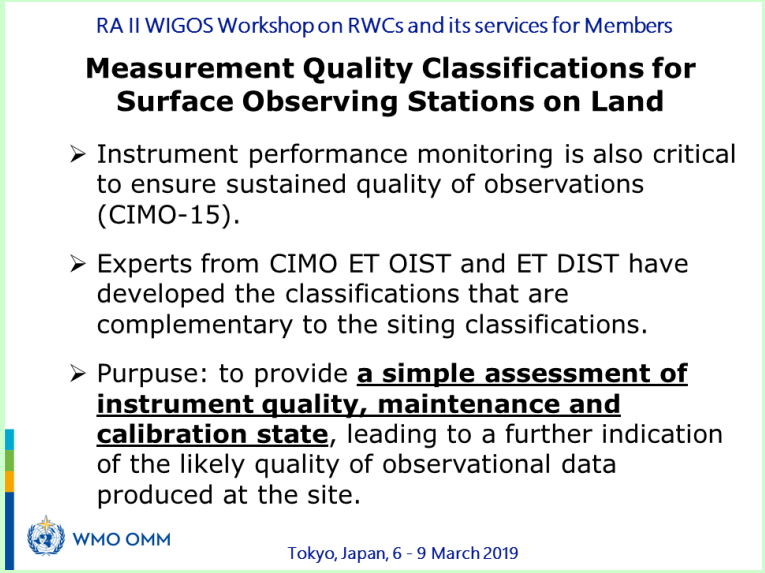
[2.5] Observation for 2030 Vision

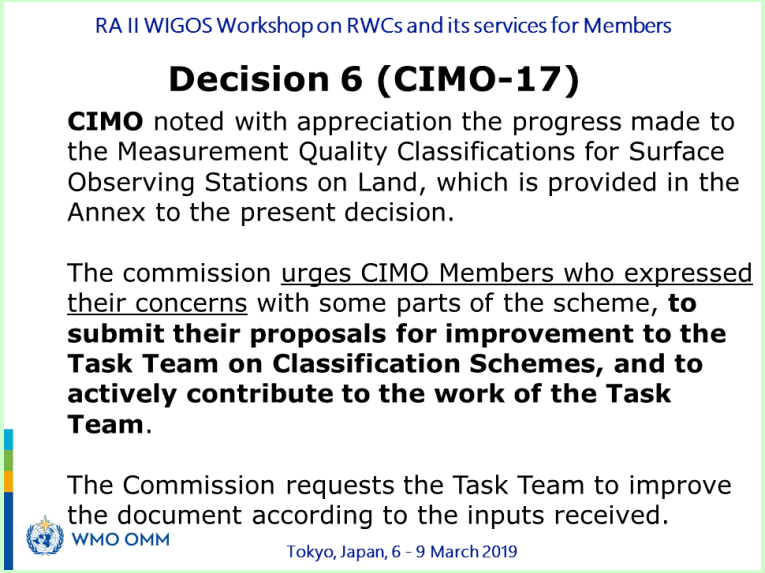




- Integrated on-demand observation system
- Weather analysis map with IoT

[2.6] Measurement quality classifications for surface observing stations on land





- Outline the classifications
- Decision 6 (CIMO-17) and TT on Classification Schemes

[2.7] Survey results

[2.1] TECO-2018 highlights - New data sources and fit-for-purpose measurement -

[2.2] GSMaP - Integrated application with developer and user collaboration -

[2.3] Proposed framework for Integrated regional radar network

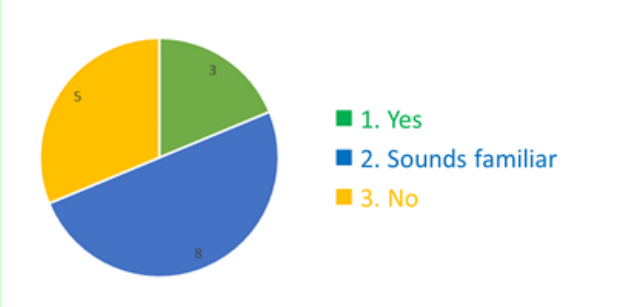
[2.4] Innovative remote sensing measurements as new data sources

[2.5] Traceability for low-cost instruments - How should we do for quality management?

[2.6-2.8] Measurement quality classification?

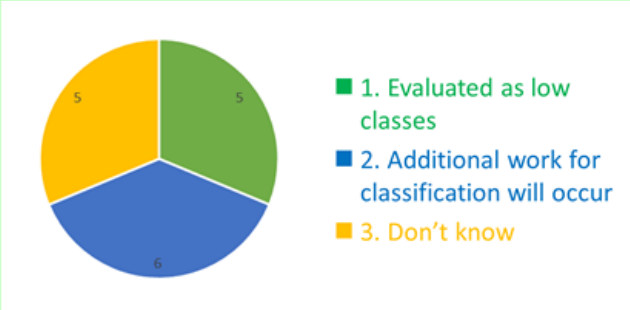
[2.8] Discussion on measurement quality classification

Q2.6-1 Do you know measurement quality classification?



Q2.6-2 What is the benefit of introducing measurement quality classification?

Q2.6-3 What is the concern caused by the introduction of measurement quality classification?



Session 3
Operation of RWC mandatory functions

[3.1] Update on WIGOS and RWCs

[3.2] Introduction of RWC mandatory functions

[3.3] Country report

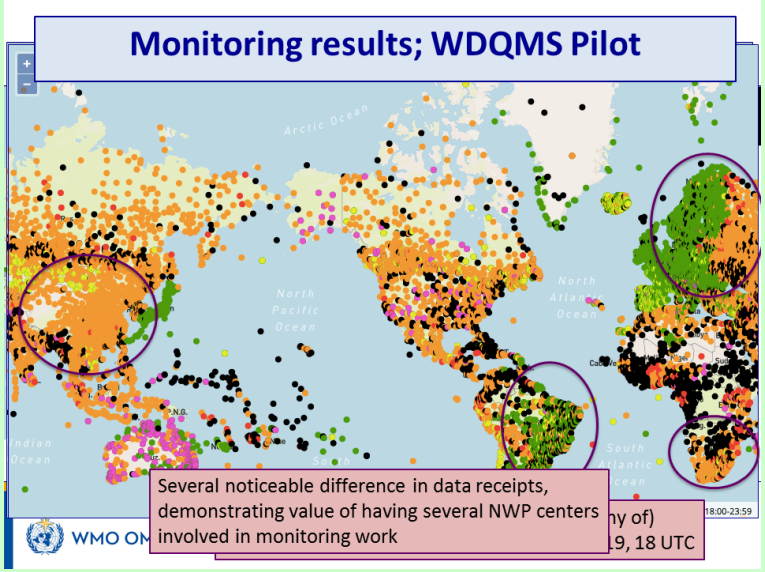
[3.4] Country report summary

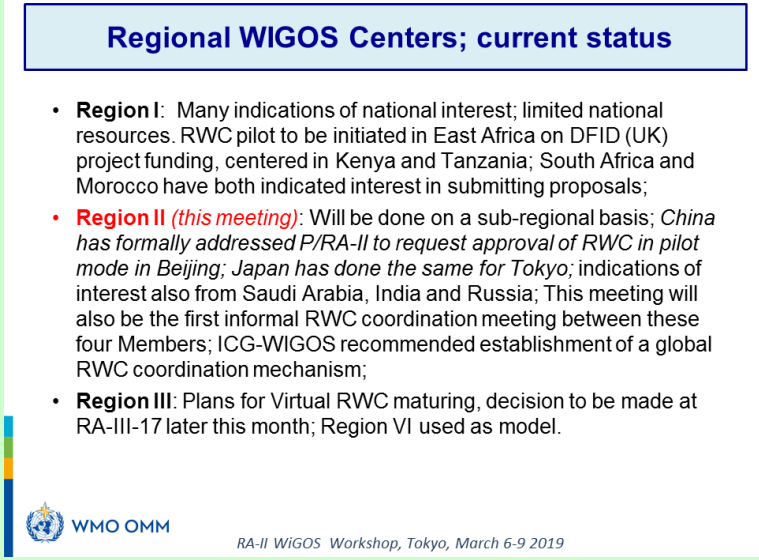
[3.5] Technical tour

[3.6] Survey results

[3.7] Discussion on RWC mandatory function

[3.1] Update on WIGOS and RWCs

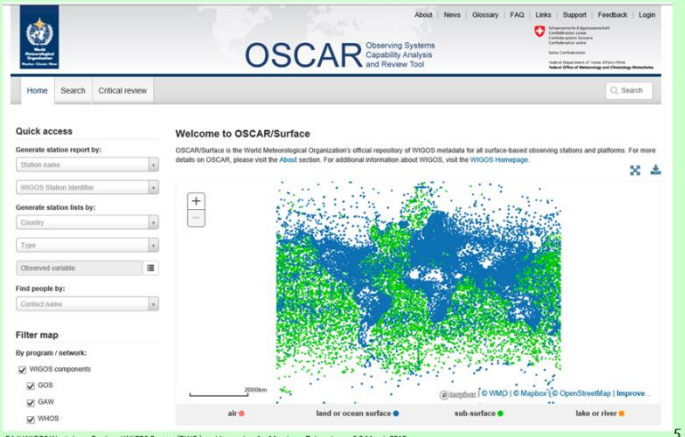




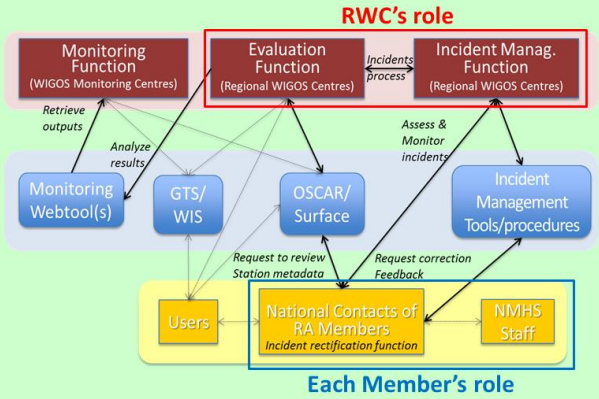
- Outline of OSCAR/Surface and WDQMS
- Outline of RWC and current status

[3.2] Introduction of RWC mandatory functions

Why OSCAR/Surface?



The process of the WDQMS



- How to use OSCAR/Surface
- WDQMS components and process

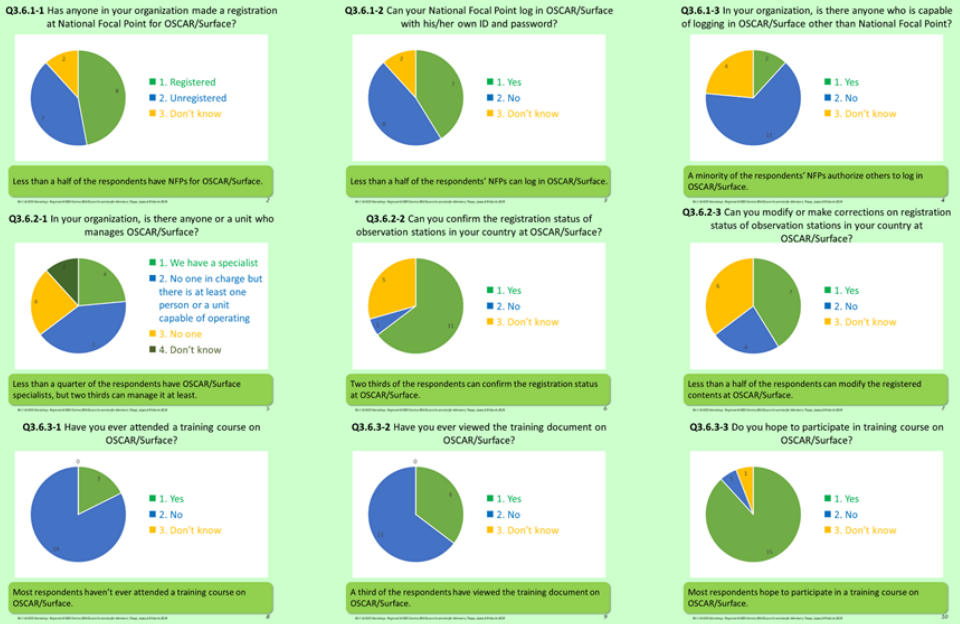
[3.3] Country report
[3.4] Country report summary

- To facilitate close discussion, Country report was conducted as a Poster Session format.
- Each country shared their discussion points.

[3.5] Technical tour

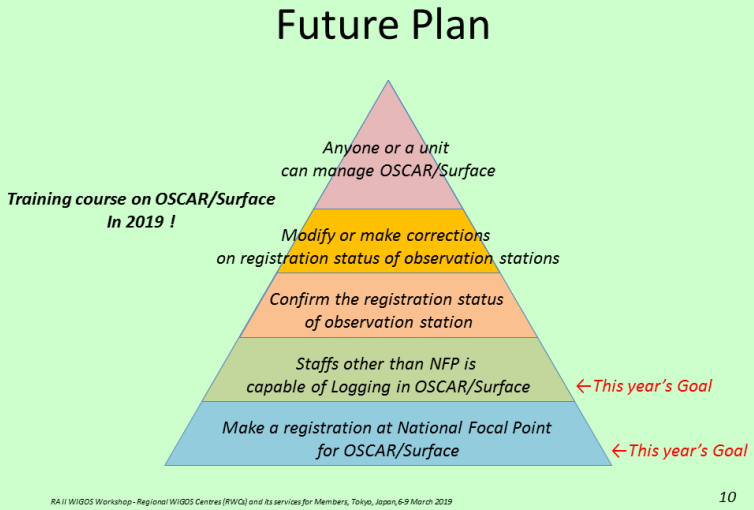
- Participants visited Observation operation room and Forecast operation room of JMA HQ.

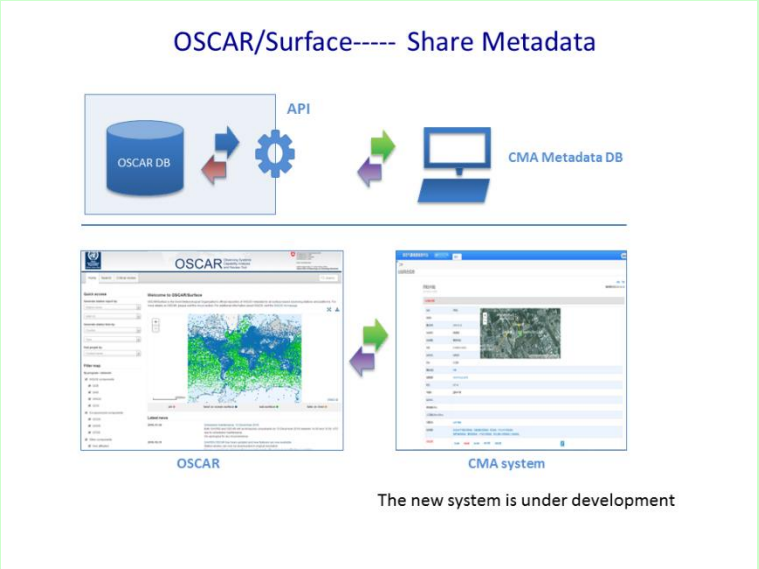
[3.6] Survey results



- Pre-workshop survey results on OSCAR/surface

[3.7] Discussion on RWC mandatory function





- High prioritized area in OSCAR/Surface and WDQMS were discussed.
- China and Japan introduced their RWC statuses and plans.

Session 4
Technical support as RWC optional functions

[4.1] Review of Day 1 recommendations about measurement quality classification
[4.2] Introduction of RIC-RWC collaboration
[4.3] RIC Beijing report
[4.4] RIC Manila report
[4.5] RIC Tsukuba report
[4.6] Discussion: How do we encourage skilled staff?
[4.7] Discussion: How do we develop an expert community based on inter-regional collaboration?
[4.8] Discussion: How do we improve observing system? - Review of Tokyo Action Plan 2018 status -
[4.9] Discussion: How do we develop products and train experts? - JMA's 10-year plan and collaborative approaches -
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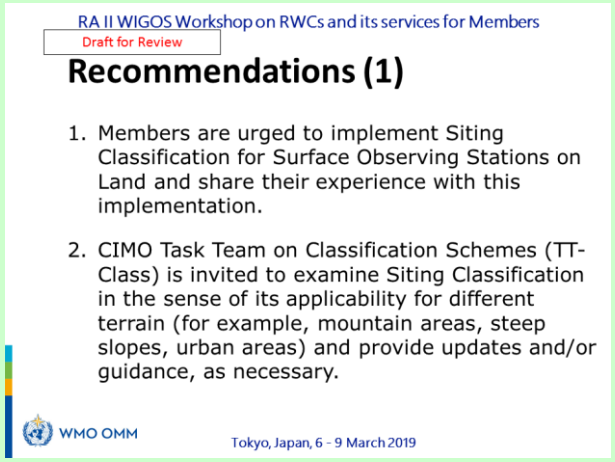
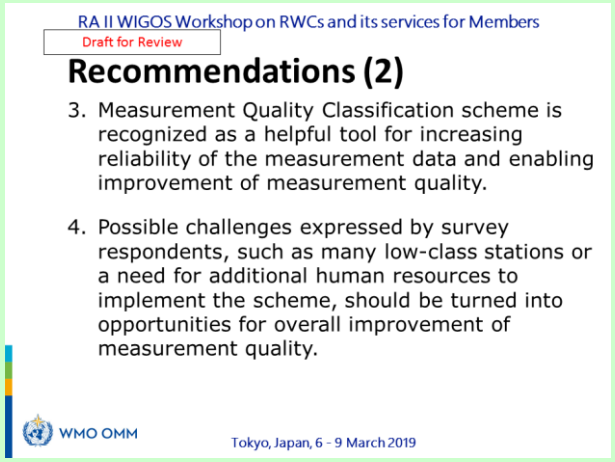
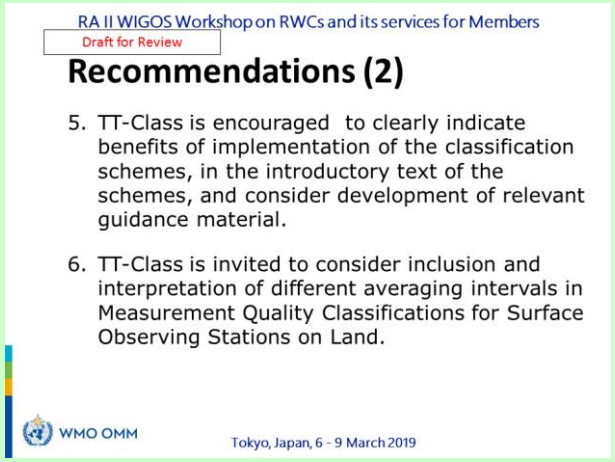
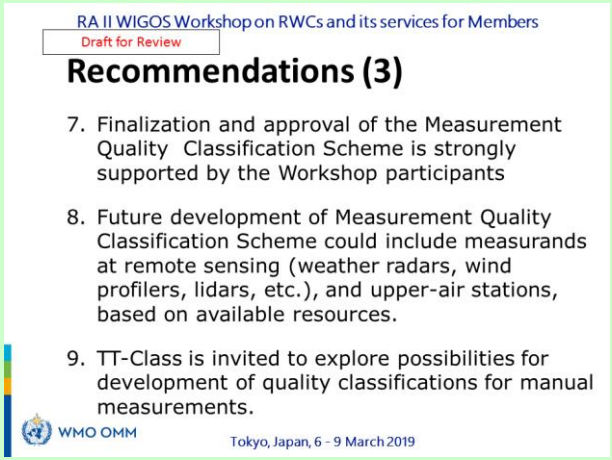
[4.11] Discussion summary - Development framework as RWCs optional functions -

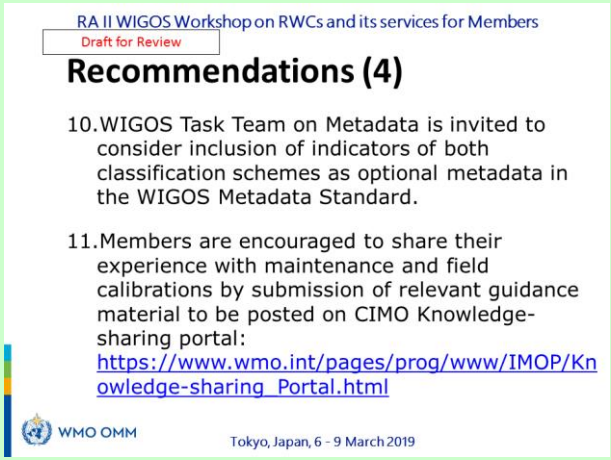
[4.1] Review of Day 1 recommendations about measurement quality classification



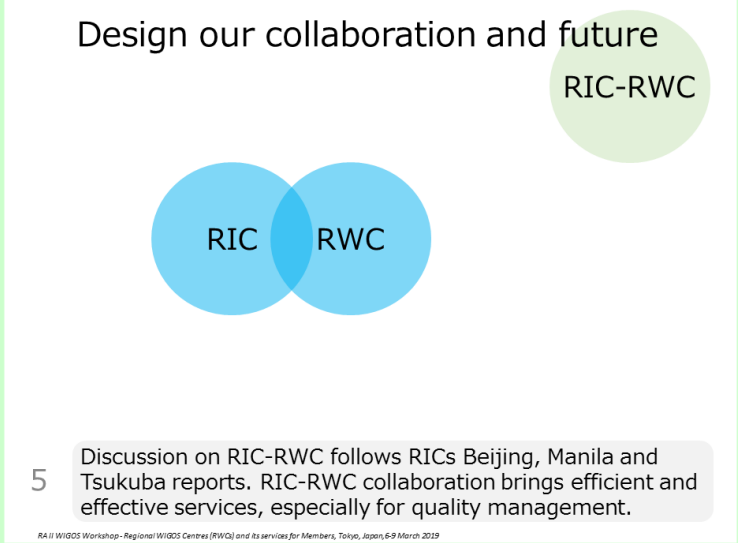






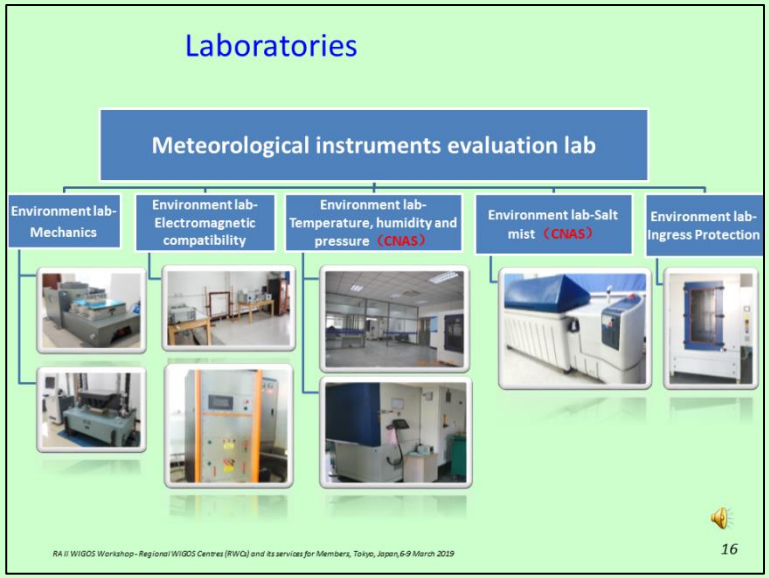


[4.2] Introduction of RIC-RWC collaboration



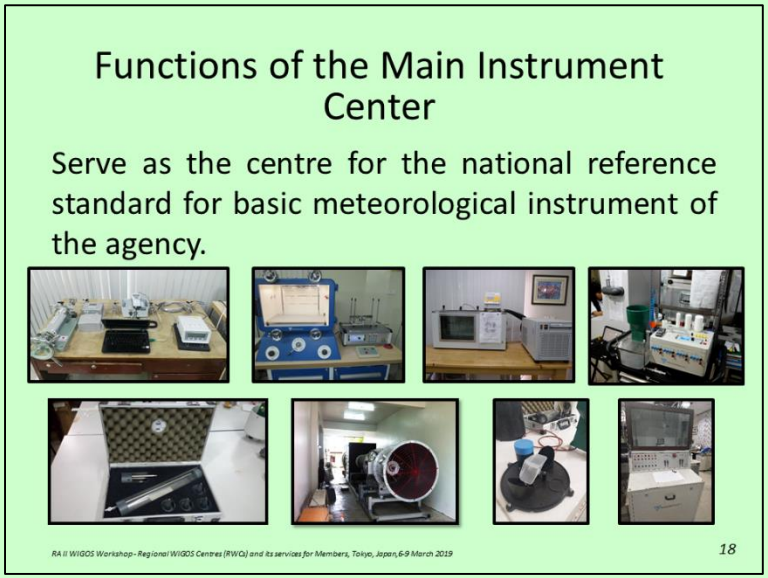
- RIC-RWC collaboration brings efficient and effective services, especially for quality management.

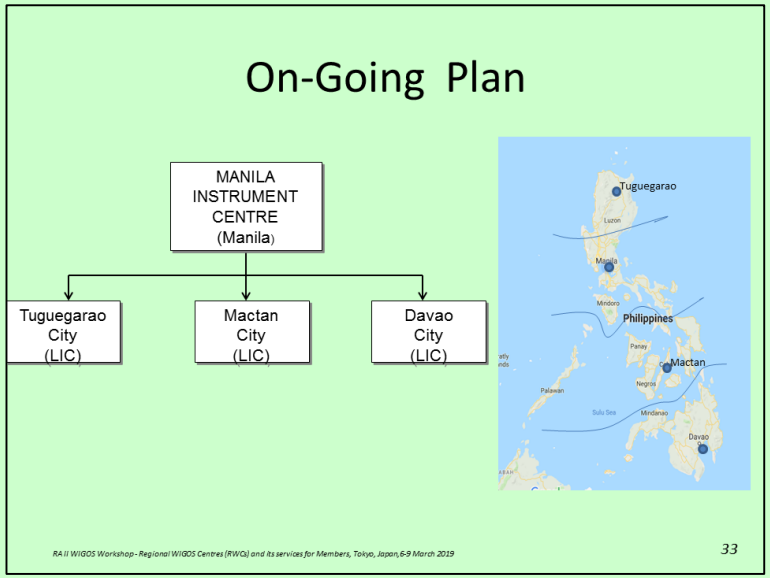
[4.3] RIC Beijing report



- RIC Beijing activities
- International Collaboration

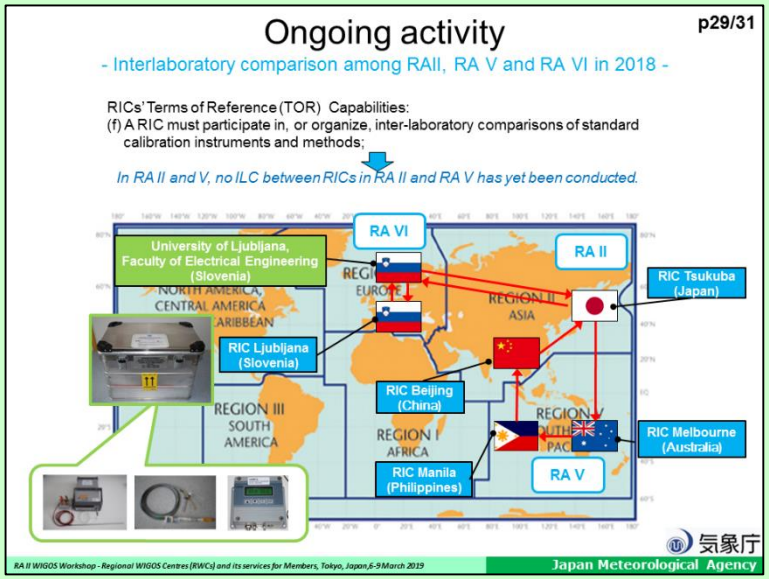
[4.4] RIC Manila report





- PAGASA and RIC Manila activities
- Plans and Goals

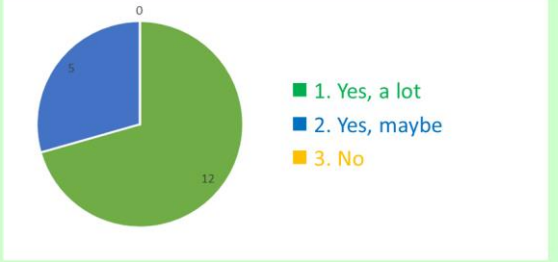
[4.5] RIC Tsukuba report



- MIC/JMA activities
- RIC Tsukuba activities

[4.6] Discussion: How do we encourage skilled staff?

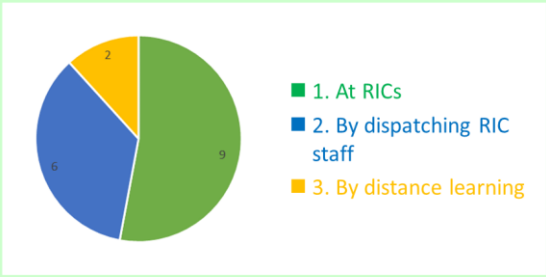
Q4.6-1 Is translating documents into national languages useful for human resource development?



More than two thirds of NMHSs indicated that the documents written in national languages help develop human resources.
What do you think about this result from the RICs' viewpoint?

3

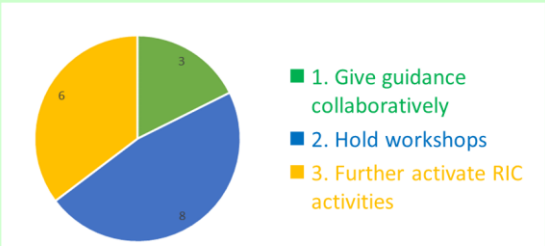
Q4.6-2 How should on-the-job trainings be provided?



More than half of NMHSs said that OJT should be arranged at RICs.
What do you think about this result from the RICs' viewpoint?
Is that real on-the-job training?

4

Q4.6-3 What do you think RICs should do to develop human resources?

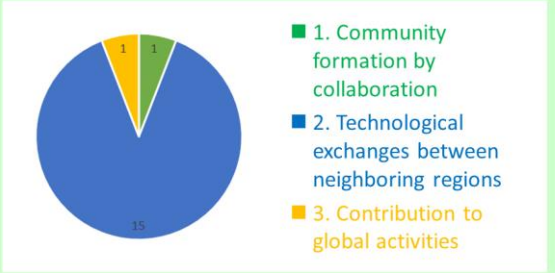


Almost half of NMHSs suggested to hold workshops.
What do you think about this result from the RICs' viewpoint?
Do you think RIC-RWC collaboration helps develop human resources?

5

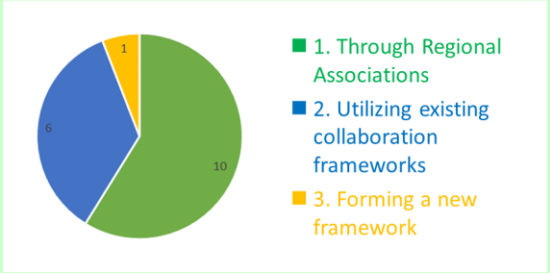
[4.7] Discussion: How do we develop an expert community based on inter-regional collaboration?

Q4.7-1 What is the biggest merit of inter-regional collaboration?



Most NMHSs indicated technological exchange was the biggest merit. Few NMHSs said an advantage was contribution to global activities.

Q4.7-2 How should an expert community be formed?

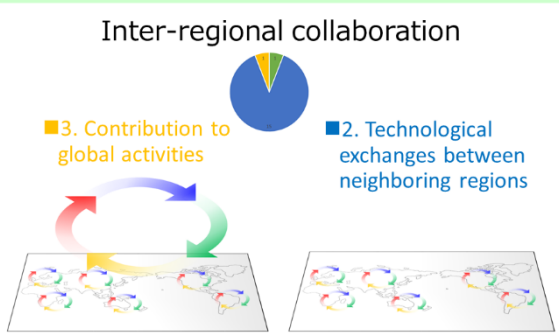


More than half NMHSs said an expert community should be formed through Regional Associations. Few NMHSs said it should be formed by a new framework.

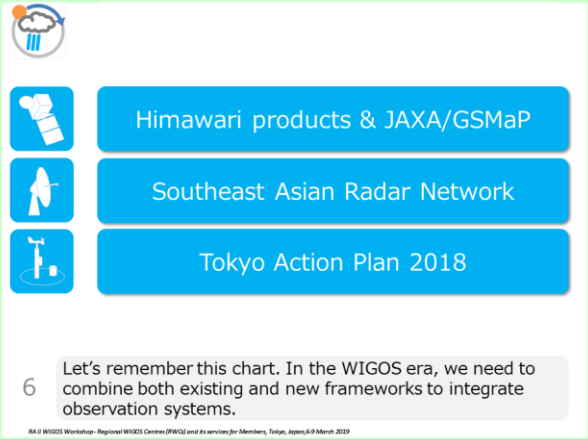
Q4.7-3 How should we develop future experts in an expert community?

Few NMHSs indicated that future experts should be developed by making opportunities for distance learning.

Inter-regional collaboration



4 Inter-regional collaboration to help enhance worldwide activity. Do you think that we should discuss the collaboration from a wider point of view?



6 Let's remember this chart. In the WIGOS era, we need to combine both existing and new frameworks to integrate observation systems.

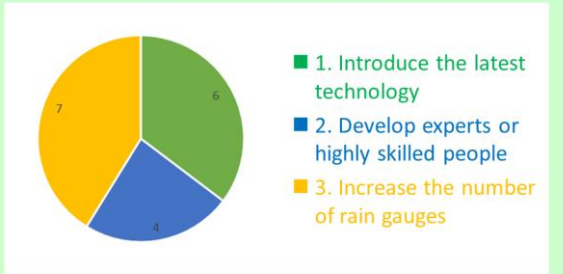
[4.8] Discussion: How do we improve observing system? - Review of Tokyo Action Plan 2018 status -

Q4.8-1 What is necessary to accelerate the plan?

Three quarters of NMHSs suggested to promote the plan by each member's collaboration.

14

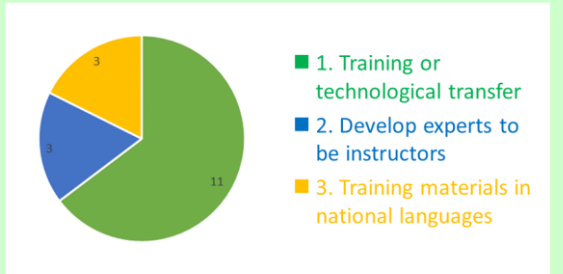
Q4.8-2 What is necessary for qualitative improvement of rainfall observation network?



Your opinions were divided on this question.

15

Q4.8-3 What is necessary to improve skills of observers?



Two thirds of NMHSs indicated that training or technological transfer is necessary.

16

Dr. Muhammad Fahim Ahmad
Pakistan Meteorological Department

18

Mr. Md. Mizanur Rahman Khan Chowdhury
Bangladesh Meteorological Department

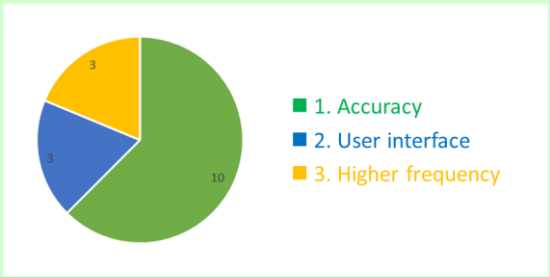
19

Mr. Abdul Gayyoom
Maldives Meteorological Service

20

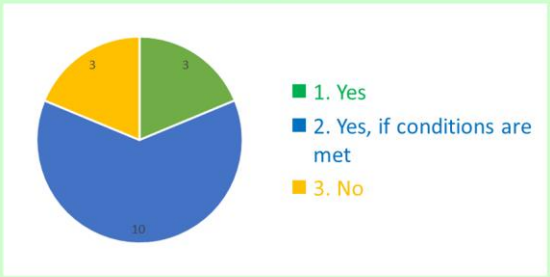
[4.9] Discussion: How do we develop products and train experts? - JMA's 10-year plan and collaborative approaches -

Q4.9-1 What are the points to be improved for HRP and HCAI provided by RSMC Tokyo for nowcasting?



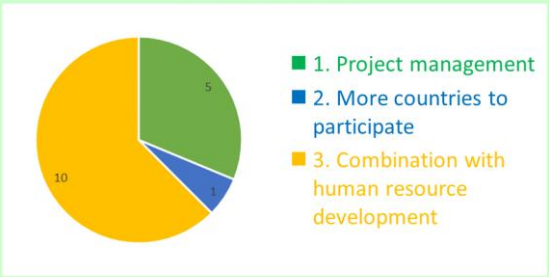
Two thirds of NMHSs indicated that "accuracy" should be well-considered.

Q4.9-2 Are you willing to participate in the product development?



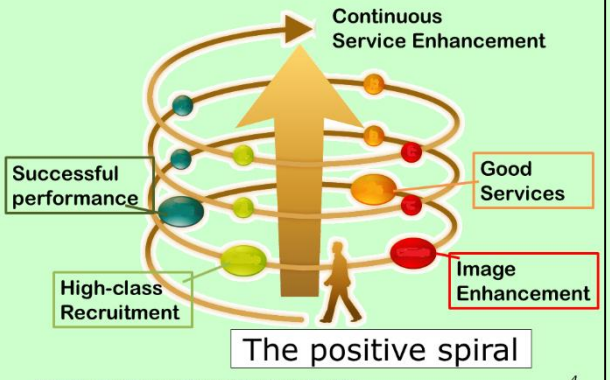
Two thirds of NMHSs said "Yes, if conditions are met" to participate in the product development. A clear understanding of conditions is needed.

Q4.9-3 What are the important points for Phase II development work?



Two thirds of NMHSs indicated that combination with human resources development is important for Phase II work.

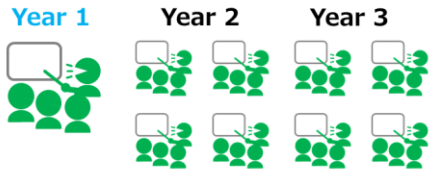
If well-skilled staff works...



Tips for successful trainings

- To make a leader in the local office
- All documents and experience should be shared within their organization
- Establishment of human network among trainees
- Importance of continuous program review

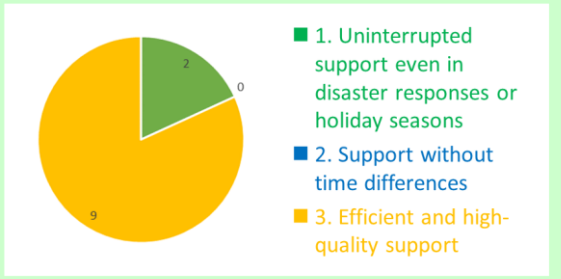
If instructors would be trained in Year 1



[Discussion] 27 trainees can finish the training in 3 years.

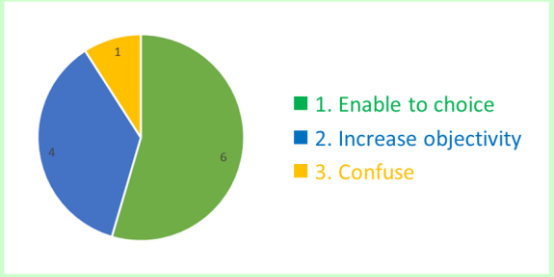
[4.10] Discussion: What can RWCs do for developing human resource in the region?

Q4.10-1 What do you expect from RWC's cooperation?



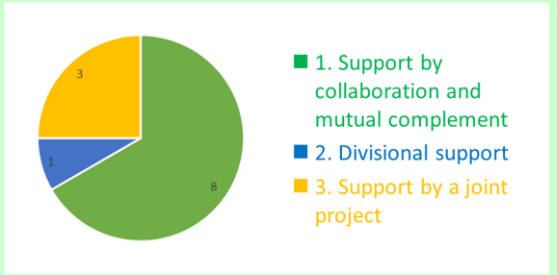
More than three quarters of NMHSs expected efficient and high-quality support from RWCs.

Q4.10-2 How about receiving information or support from multiple RWCs?



Most of NMHSs indicated positive opinions about receiving information or support from multiple RWCs.

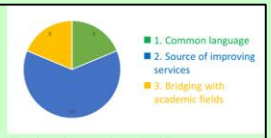
Q4.10-3 What RWC should do to develop human resources?



Two thirds of NMHSs expected support by collaboration and mutual complement from multiple RWCs.

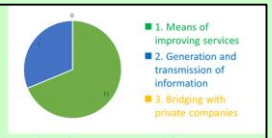
[4.11] Discussion summary - Development framework as RWCs optional functions -

Q4.11-1 What is the role of science in our collaboration?



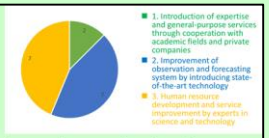
- The role of science in our collaboration is the role of science in our collaboration. *Dr. Duong van Khanh (VietNam)*
- The role of science would be as common platform for collaboration and also to improve services. *Mr. Phuntsho Namgyal (Bhutan)*
- Service for users can be improved under science researches. *Dr. Amgalan Ganbat (Mongolia)*

Q4.11-2 What is the role of technology in our collaboration?

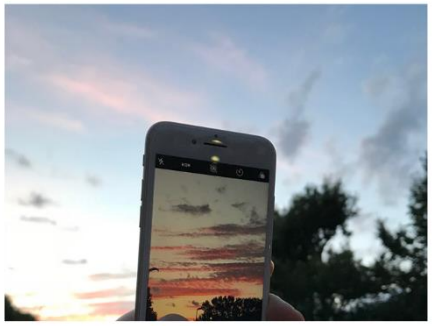


- The role of technology in our collaboration is means of improving services. *Dr. Duong van Khanh (VietNam)*
- The technology would facilitate generation of reliable and timely transmission of information. it can also definitely help in improving services by improving quality of information combined with reliable transmission/dissemination. *Mr. Phuntsho Namgyal (Bhutan)*
- Renovation of technology can contribute to improving service and Generation and transmission of information as well for sharing information. *Dr. Amgalan Ganbat (Mongolia)*

Q4.11-3 How should we use science and technology for improving professional skills and improving operations?

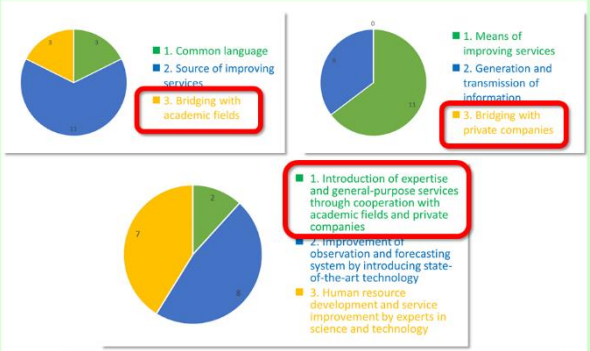


- We use science and technology for improving professional skills and improving operations for Human resource development and service improvement by experts in science and technology. *Dr. Duong van Khanh (VietNam)*
- We could use science and technology to improve models and processes for forecasting and observation. Besides, we can use science and technology for capacity building. *Mr. Phuntsho Namgyal (Bhutan)*
- In our case we prefer choosing (3), i.e. capacity building on professional skills. *Dr. Amgalan Ganbat (Mongolia)*



13 We need to gain an insight into the low-cost instruments and social media that are really growing fast.
Such a new power(s) might innovate observation …

14 dramatically and rapidly. We are facing great waves of new data. We should recognize such great waves and prepare for them.



15 This is the reason why the options contained the words "academic" and "private companies".

Session 5
Wrap up of the workshop

[5.1] Future operation and activities of RWCs

[5.2] Outcomes of the workshop

[5.1] Future operation and activities of RWCs

Future operation and activities of RWCs

- Supporting Members to register/correct in OSCAR/surface database through sharing expertise or experience
- Establishing Evaluation and Incident Management functions and providing incident information through WDQMS with close communication, especially on silent stations
- Sharing experience and seeking collaboration through coordination mechanism among RWCs in pilot mode
- Collaborating with relevant bodies such as RIC or RTC in technical support for Members
- Holding workshops or training events, or participating in such events as lecturers, with utilizing webinar or video conference as needed
- Promoting human resource development by "teaching how to teach" approach