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

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Japan Meteorological Agency
19 March 2018

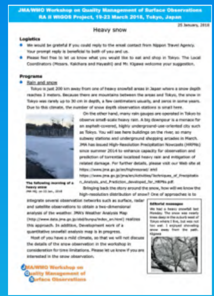
Thank you

for joining this workshop

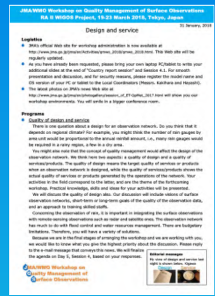
Communication with you in the last two months

#1
19 Jan

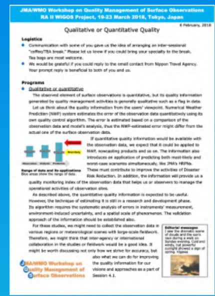
#2
25 Jan



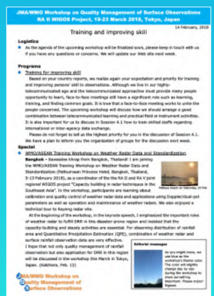
#3
31 Jan



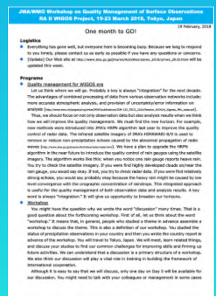
#4
6 Feb



#5
14 Feb



#6
19 Feb



#7
27 Feb

#8
6 Mar

And many e-mail messages

Draft report

Questionnaire on Quality Management for Surface Meteorological Observations in Regional Association II (Asia)

RA II WIGOS Project to Enhance the Availability and Quality of Management Support for NMHSs in Surface, Climate and Upper-air Observations

March 2018

SUMMARY

This is the report on the results of Questionnaire on Quality Management for Surface Meteorological Observations in Regional Association II (Asia).

The questionnaire survey was conducted as one of the activities of the Regional WIGOS project in RA II, "Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations", and 20 NMHSs in RA II Members responded to the questionnaire.

The following are highlighted as the important topics of the analysis:

- Automatic precipitation/hydrological stations are operated by only one thirds of NMHSs which responded to the questionnaire.
- In two thirds of NMHSs, the number of manned precipitation/hydrological stations exceeds that of automatic ones.
- Precipitation/hydrological stations are mainly operated as manned ones and those observation data are not reported automatically to NMHSs' headquarters.
- In addition, precipitation/hydrological stations are operated with difficulties in a quality check of the observation data and an environmental check of the stations.
- A percentage of NMHSs which utilize observation data of the precipitation/hydrological stations for application effective in Disaster Risk Reduction, such as advisories/warnings and nowcasting, is generally lower than that of NMHSs utilizing observation data of weather stations.

1

- NMHSs recognized "lack of skilled staff" rather than "lack of knowledge."
- Many NMHSs carry out "data correction" as a follow-up action of erroneous data, while "user notification" is hardly adopted.

It was recognized that many observation stations faced difficulties in both quality check of observation data and environmental check of stations, although a precipitation observation is one of key components for DRR.

Giving that DRR is one of the highest priority, multi-scale challenges should be discussed by Member countries how to solve the issues above. Based on the other aspects of the survey, it is also expected to discuss on follow-up actions of erroneous data and a capacity building by the best combination between telecommunicated and face-to-face learnings.

As a conclusion of this report, it was proposed that the member countries would plan a workshop to know practical issues and discuss how to improve in it.

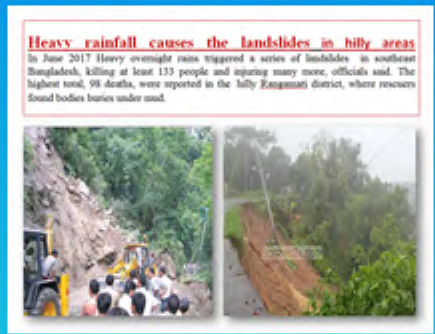
2

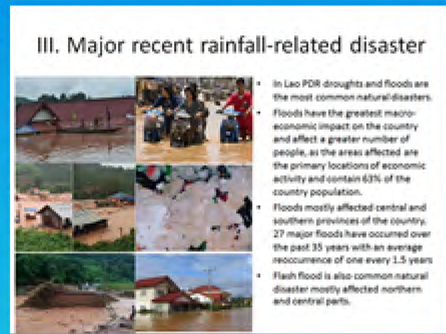
2 tables and 32 graphs

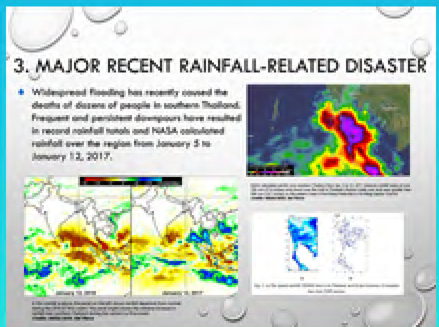
Why?

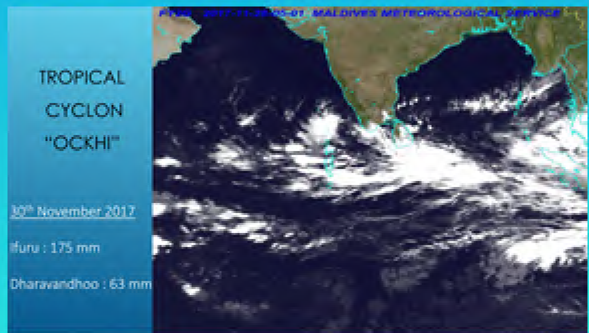
Why do we assemble here?

Recent disasters



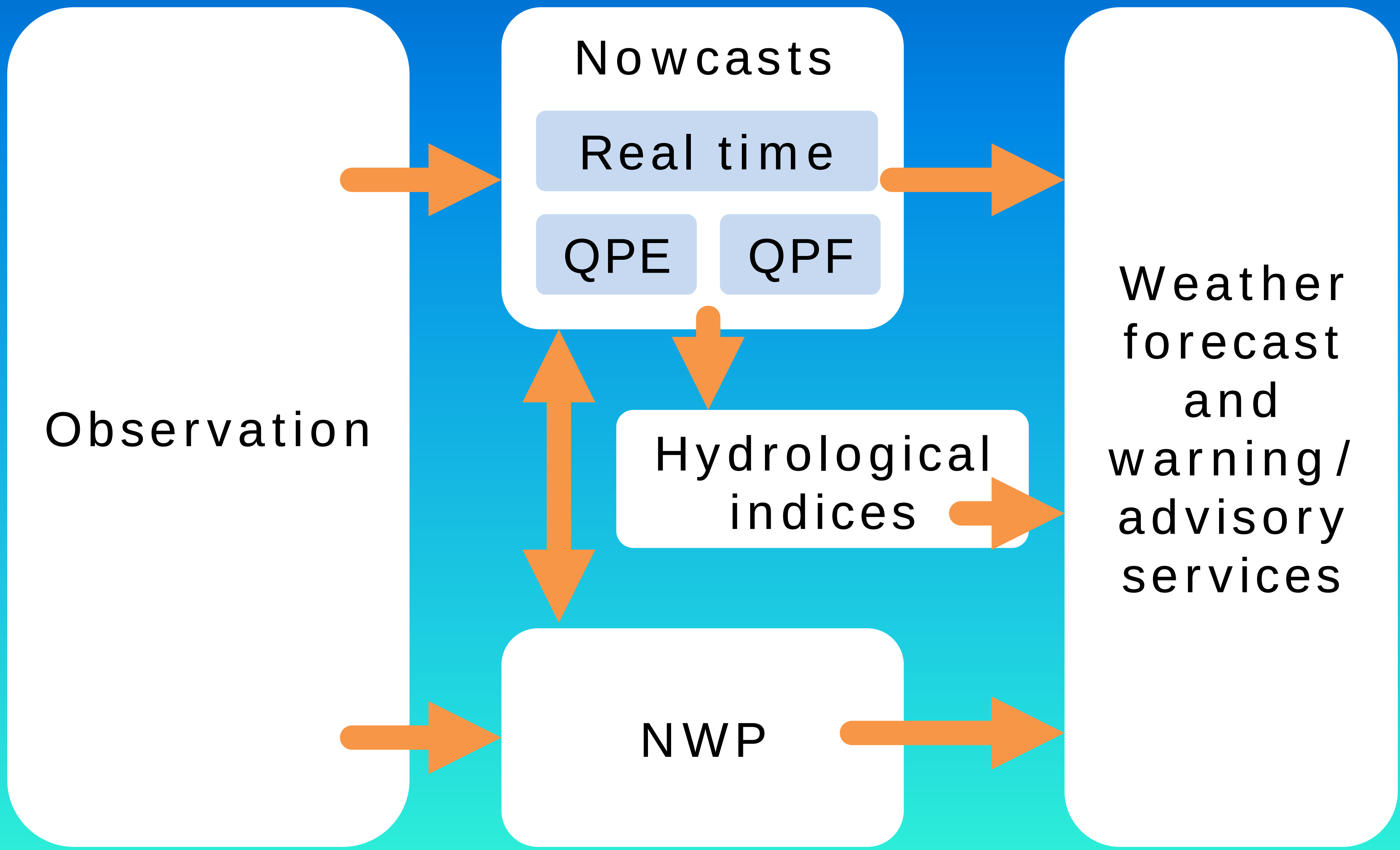




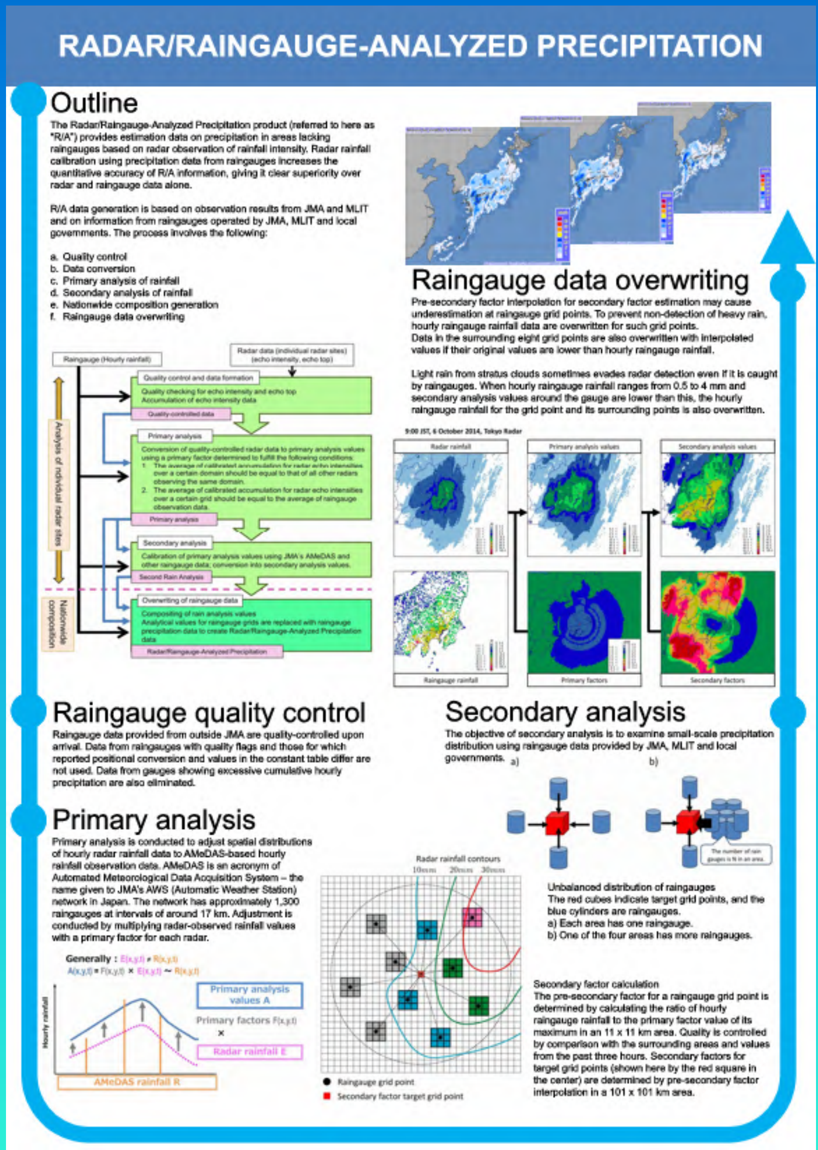


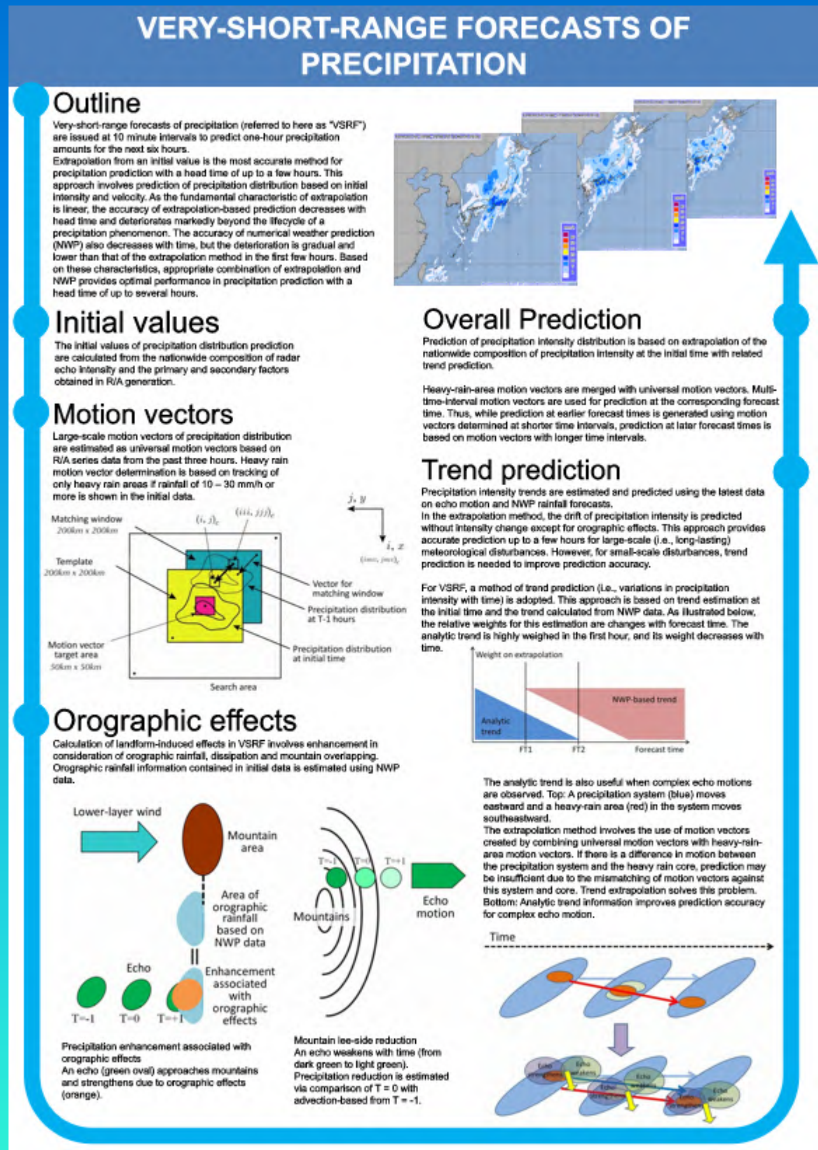
Country report previews

JMA's approach

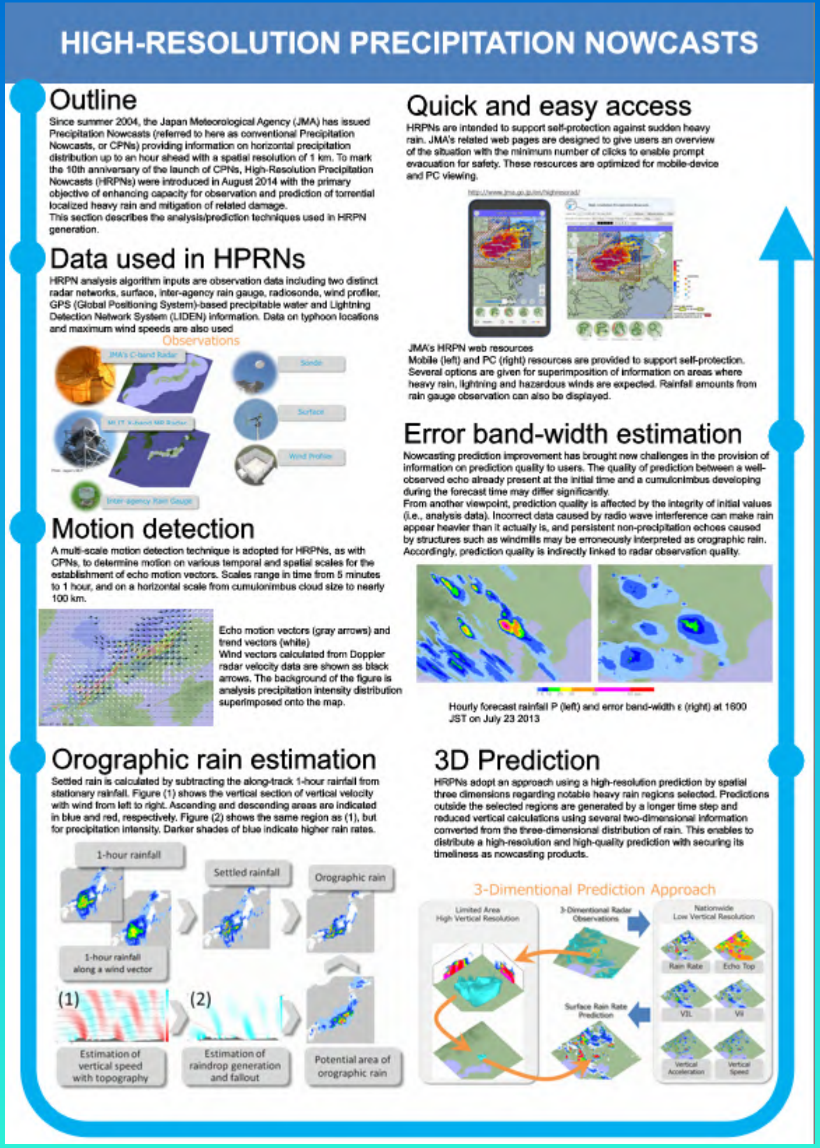


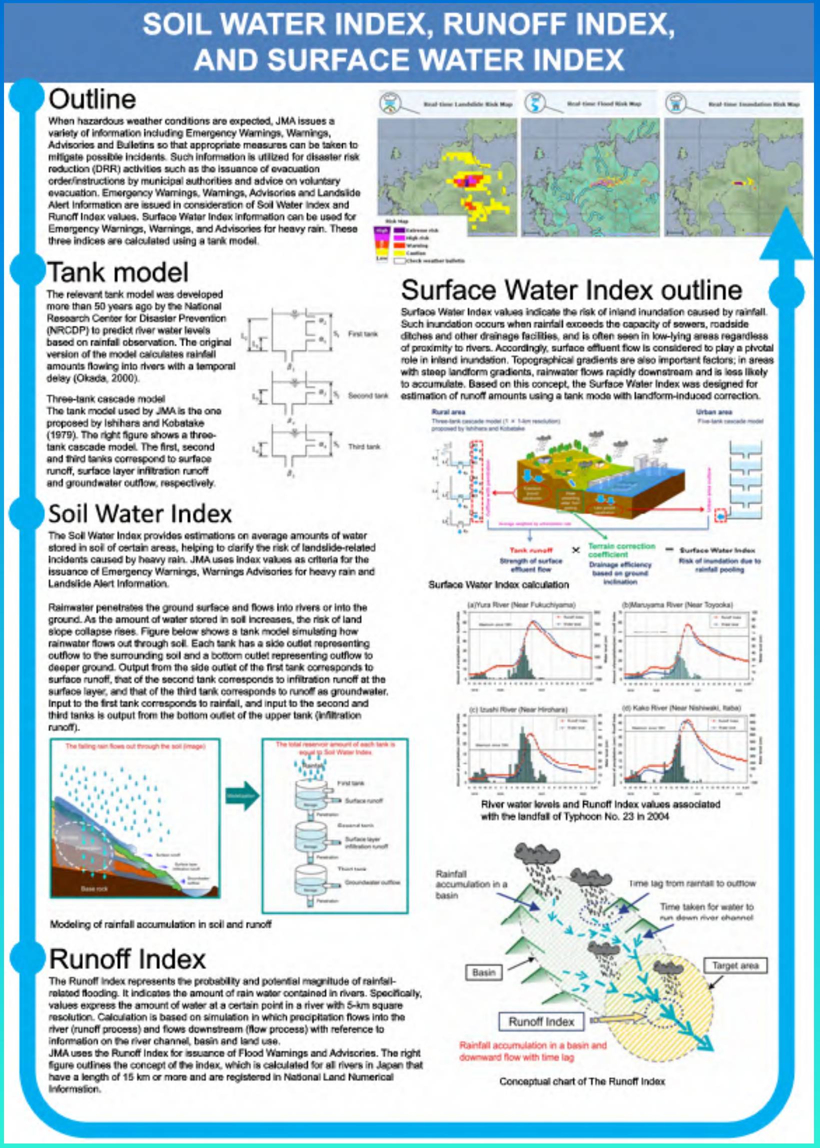
JMA's posters on Day 4





JMA's posters on Day 4





Questionnaire survey

The questionnaire survey on Quality Management for Surface Meteorological Observations in RA II was conducted in 2016.

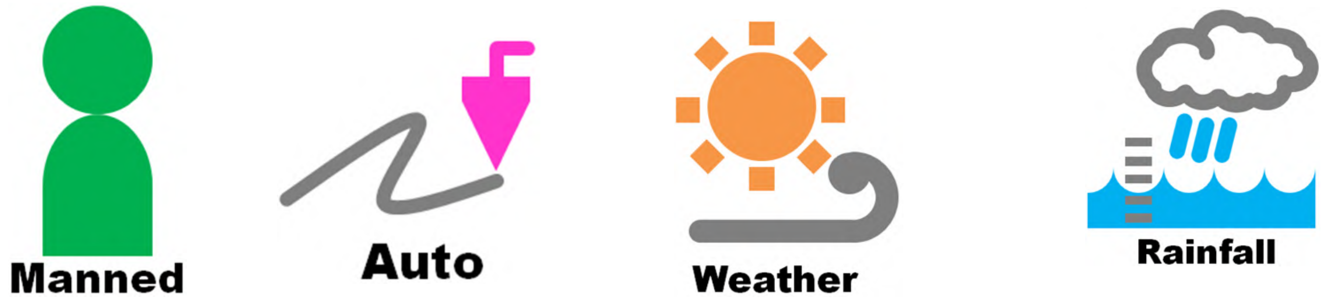
Twenty NMHSs in RA II Members responded to the questionnaire.

JMA analyzed the responses and prepared the draft report of the survey results.

Survey analysis

Four groups: manned weather stations, manned precipitation/hydrological stations, automatic weather stations and automatic precipitation/hydrological stations are used

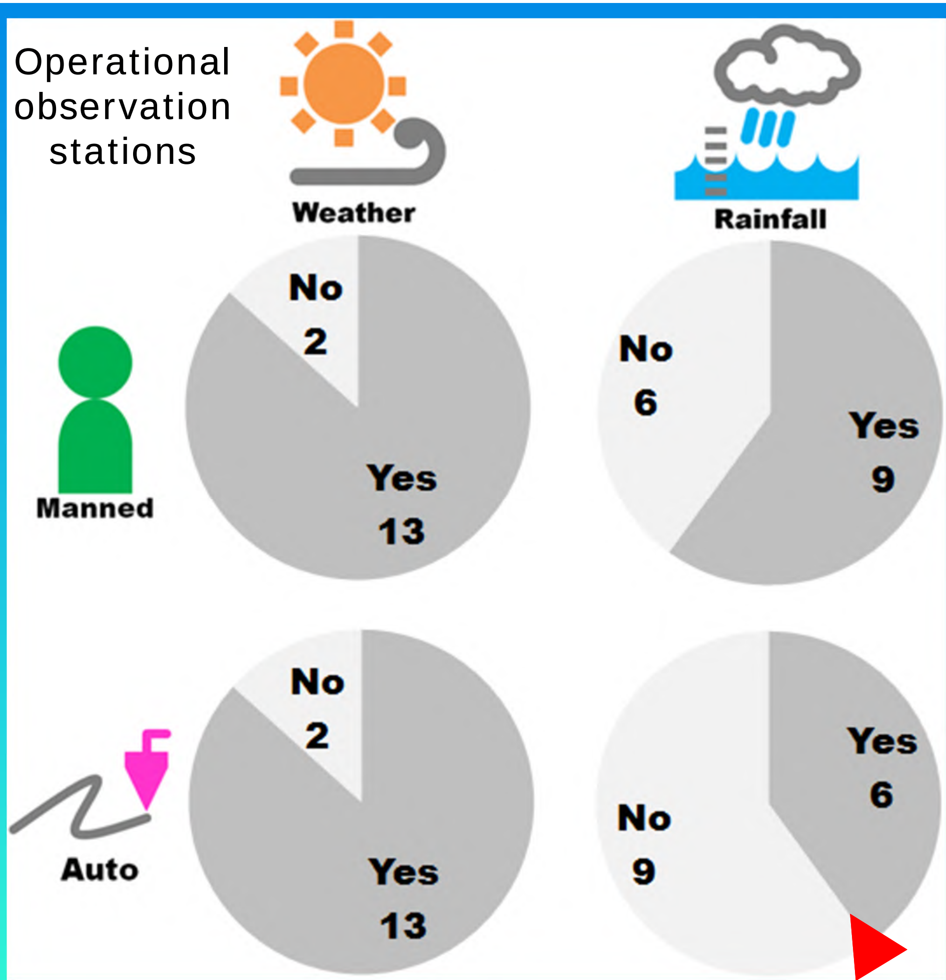
Four icons are used



Manned Automatic Weather precipitation/ hydrological

Major findings (1/4)

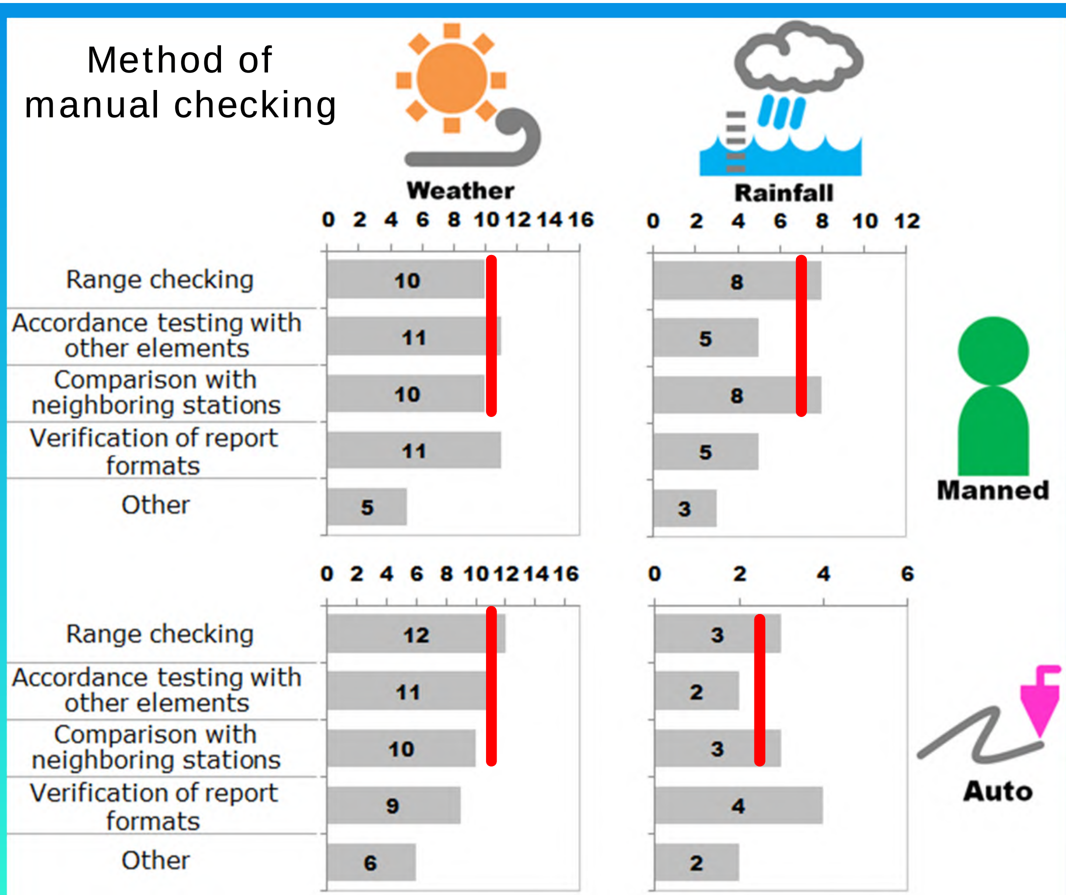
Automatic precipitation/hydrological stations are operated by only one third of NMHSs.



Major findings (2/4)

Precipitation/hydrological stations are operated with difficulties in a quality check of the observation data and an environmental check of the stations.

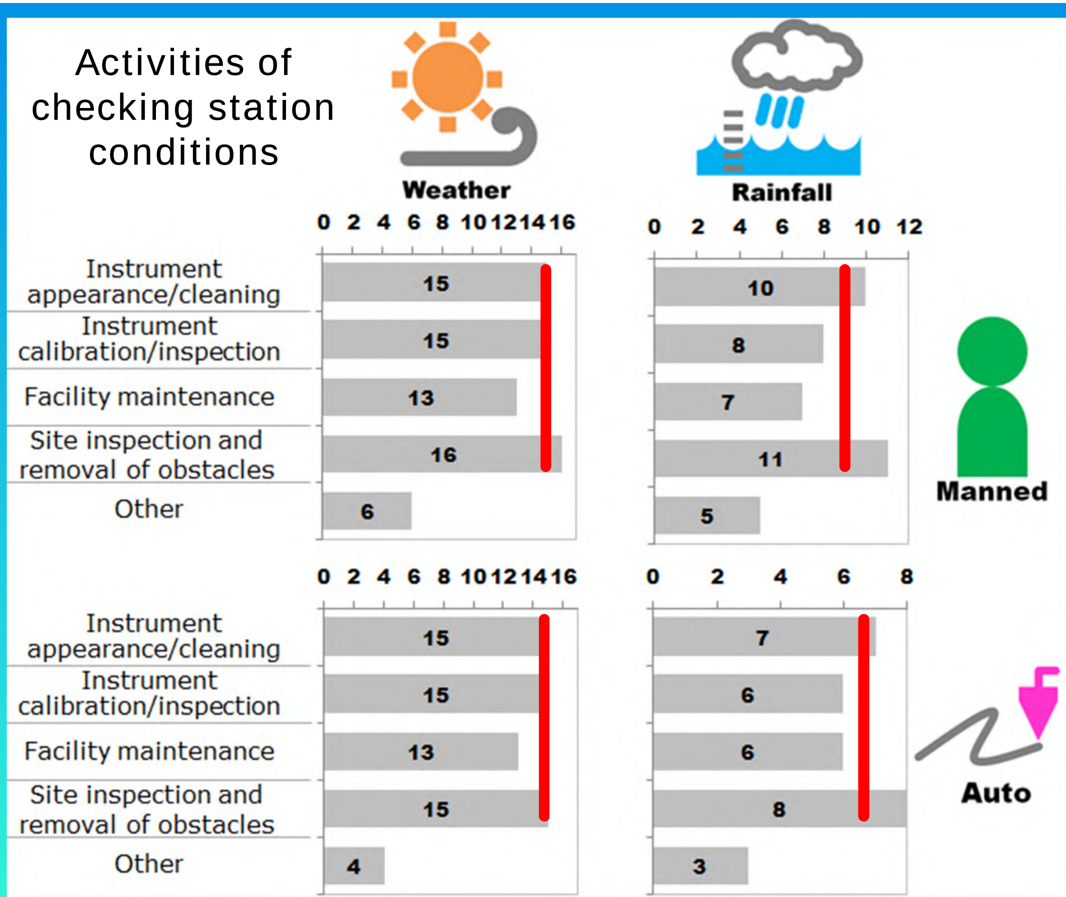
Only one half of NMHSs manually check observation data.



Major findings (2/4 cont.)

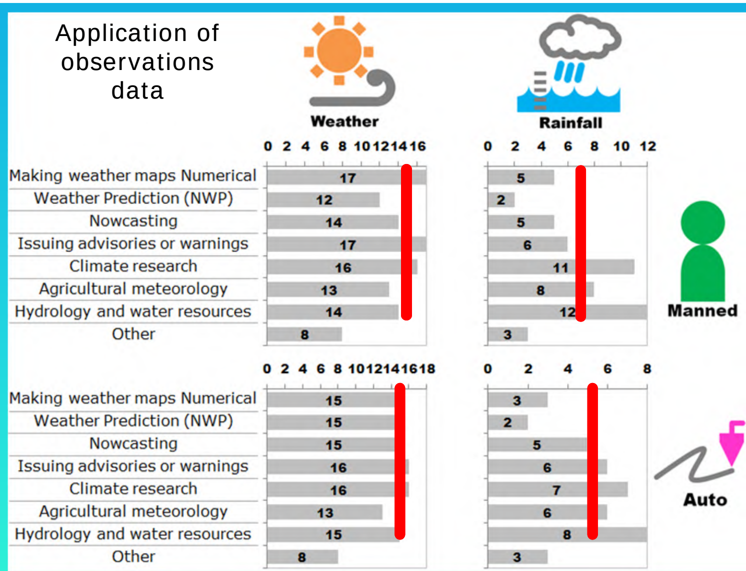
Precipitation/hydrological stations are operated with difficulties in a quality check of the observation data and an environmental check of the stations.

Lower activities are conducted for checking station conditions.



Major findings (3/4)

A percentage of NMHSs which utilize observation data of the precipitation/hydrological stations for application effective in Disaster Risk Reduction, such as advisories/warnings and nowcasting, is generally lower than that of NMHSs utilizing observation data of weather stations.



Major findings (3/4)

A percentage of NMHSs which utilize observation data
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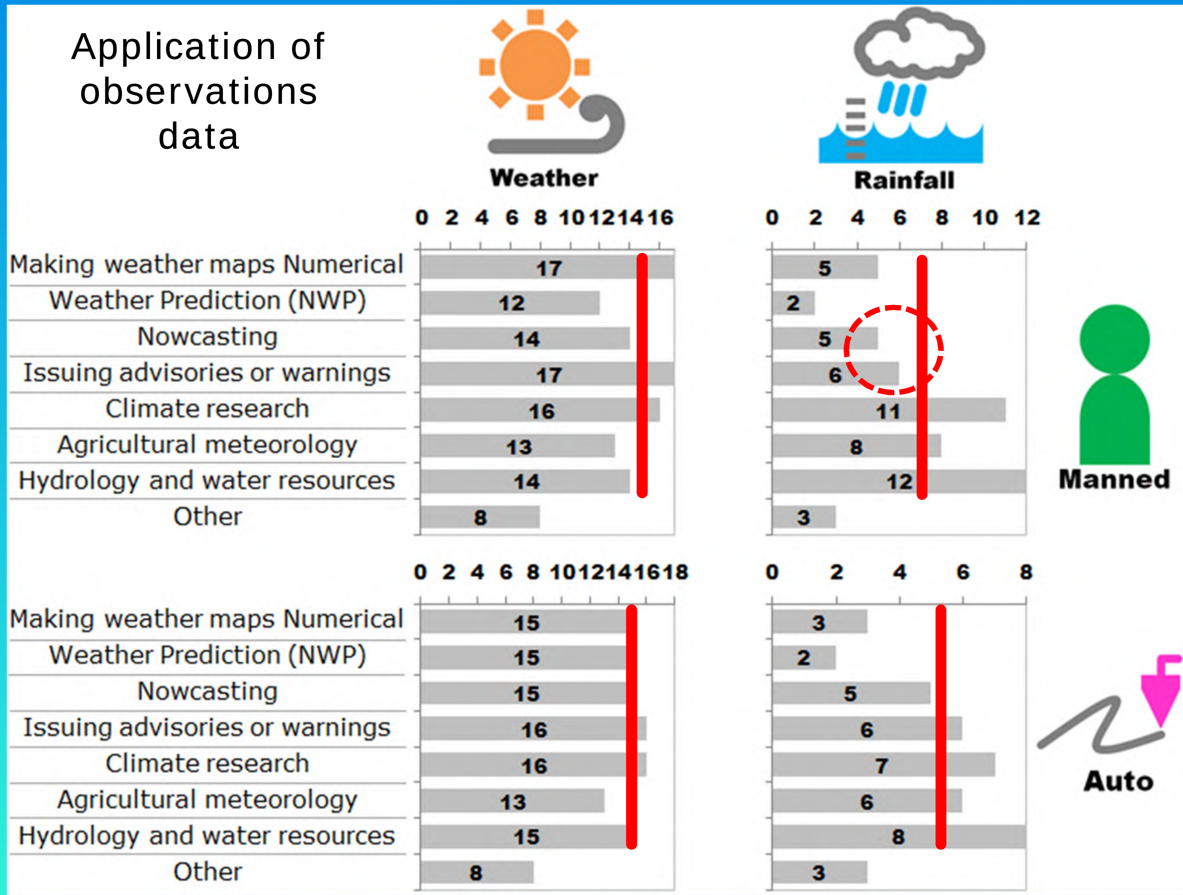
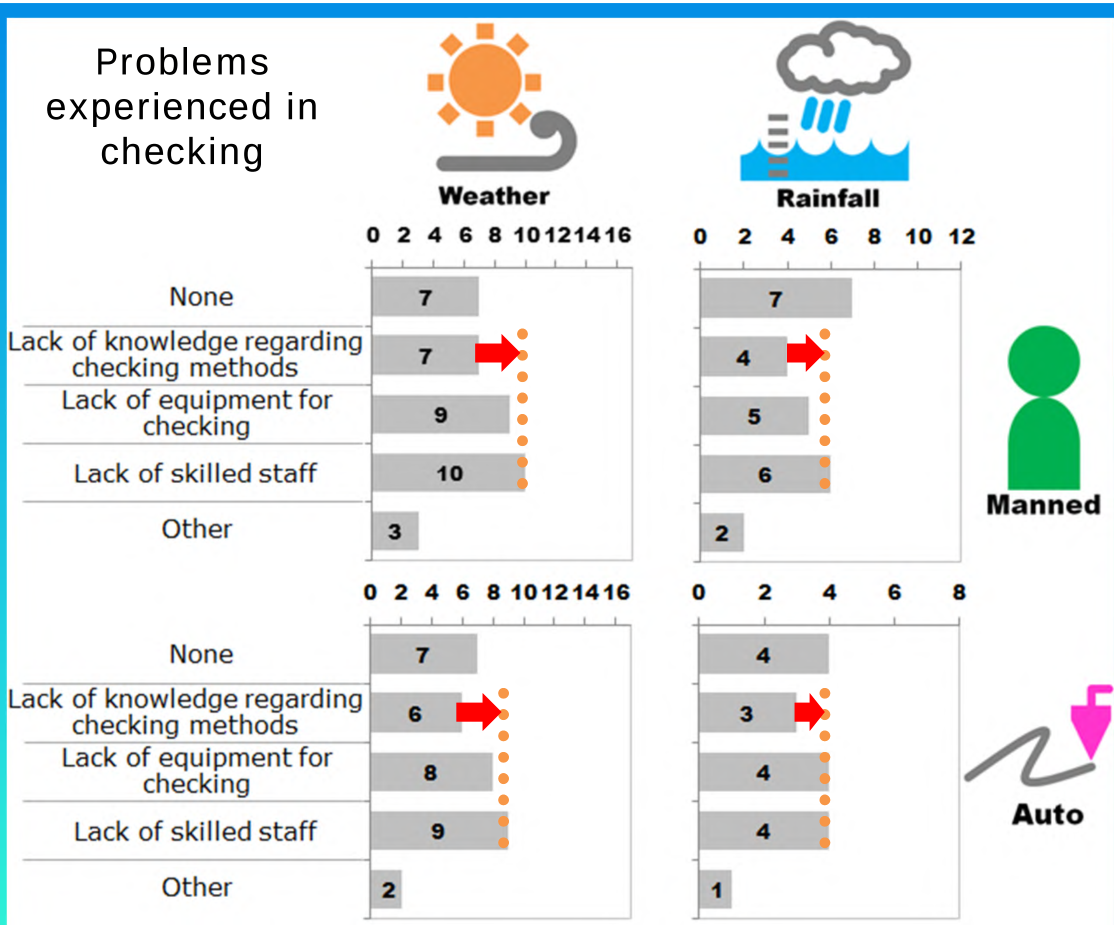
for application effective in Disaster Risk Reduction,
such as advisories/warnings and nowcasting,
is generally lower than that of NMHSs
utilizing observation data of weather stations.



Major findings (4/4)

NMHSs recognized "lack of skilled staff" rather than "lack of knowledge."



Survey results

Many NMHSs which responded to the questionnaire operate services in rainy regions.

Although a precipitation observation is one of key components for DRR, it was recognized that many observation stations faced difficulties in both the quality check of observation data and the environment check of the stations.

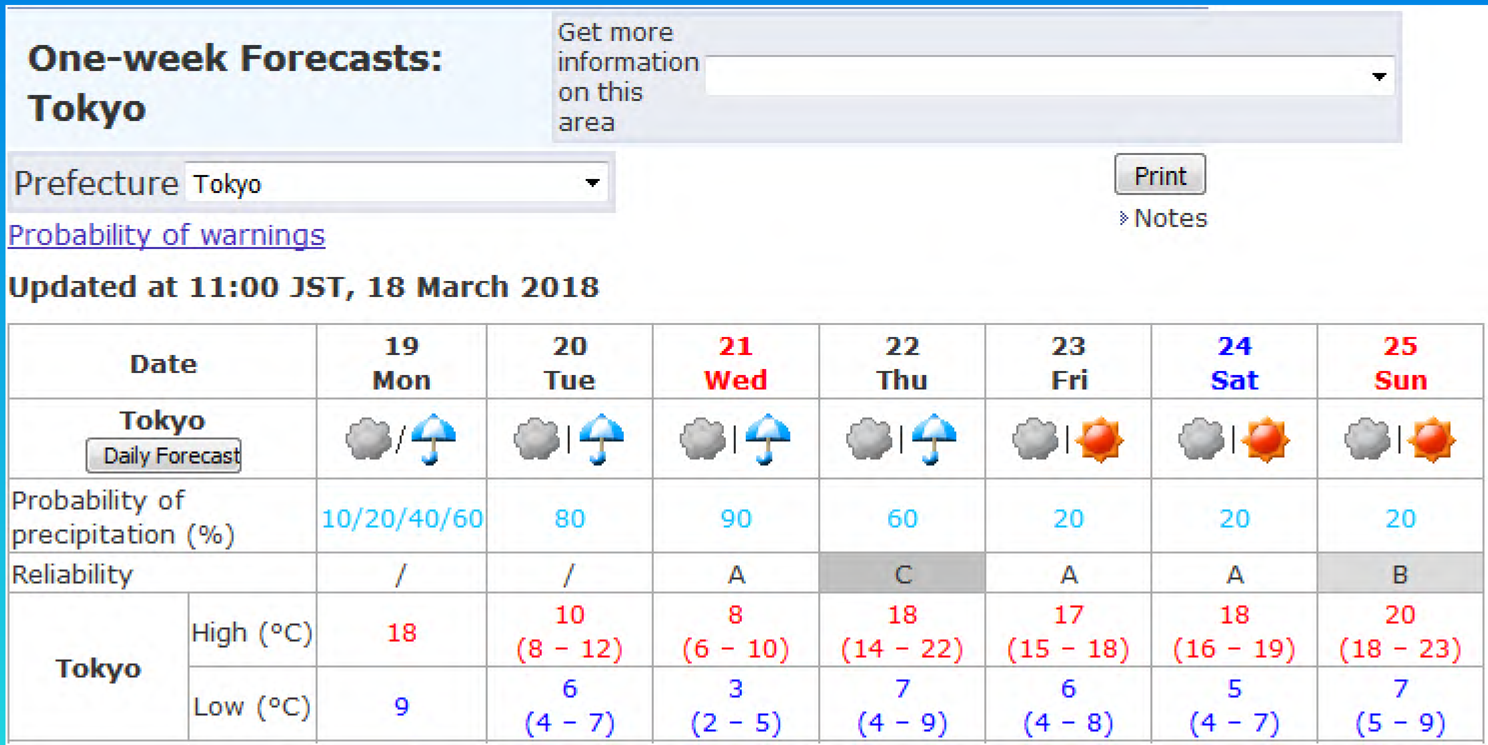
It was also found that there was room for improvement in applications of observation data such as nowcasting or issuing advisories/warnings.

Discussions

Given that DRR is one of the highest priorities, multi-scale challenges should be discussed by Member countries to solve issues.

We are focusing on the precipitation observation in this workshop.

Although we focus on rain...



One-week Forecasts: Tokyo

Get more information on this area

Prefecture Tokyo

Print

Notes

Probability of warnings

Updated at 11:00 JST, 18 March 2018

Date		19 Mon	20 Tue	21 Wed	22 Thu	23 Fri	24 Sat	25 Sun
Tokyo Daily Forecast		/	|	|	|	|	|	|
Probability of precipitation (%)		10/20/40/60	80	90	60	20	20	20
Reliability		/	/	A	C	A	A	B
Tokyo	High (°C)	18	10 (8 – 12)	8 (6 – 10)	18 (14 – 22)	17 (15 – 18)	18 (16 – 19)	20 (18 – 23)
	Low (°C)	9	6 (4 – 7)	3 (2 – 5)	7 (4 – 9)	6 (4 – 8)	5 (4 – 7)	7 (5 – 9)

What?

What do we learn and discuss?

Rain

雨


Heavy
Rain
Big
大雨
≠ Big raindrop

Science!

We need science

Workshop outline

Session 1
- WIGOS
- Survey
- Country report

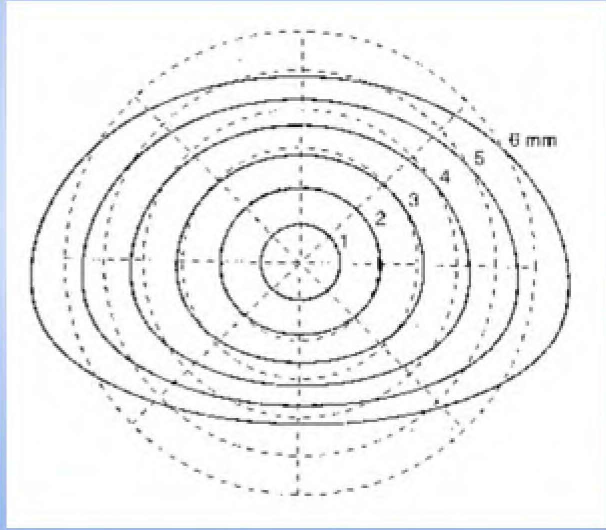
Session 2
- Calibration / traceability

Session 3
- Operational QM
- *Science*

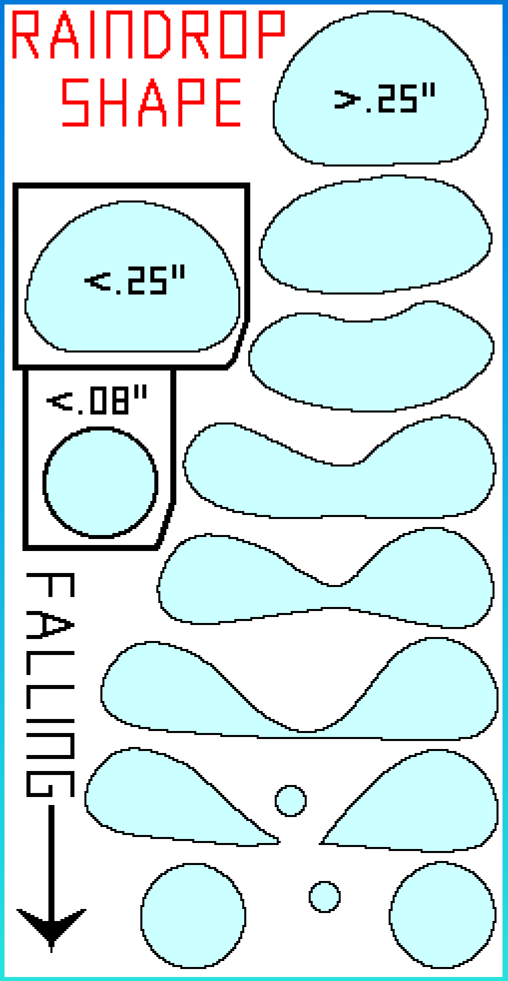
Session 4
- Discussions
- Workshop outcome

Huge raindrop

Raindrop shape and size



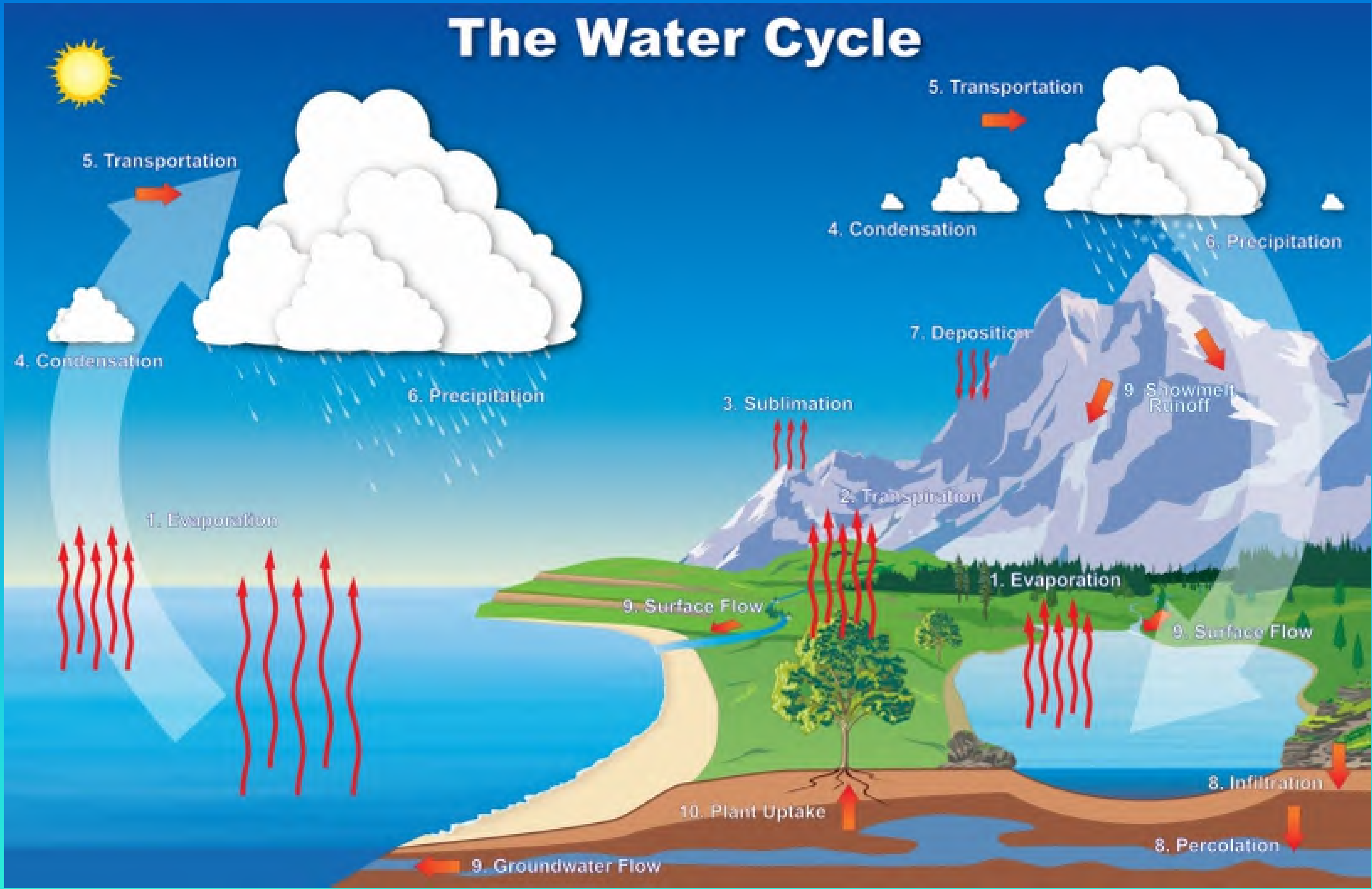
Equilibrium drop shapes for drop diameters of 1-6mm.



https://pmm.nasa.gov/education/articles/shape-of-a-raindrop

Motivation and inspiration

Motivation and inspiration



http://www.noaa.gov/resource-collections/water-cycle

Findings and discussions

Automatic precipitation/hydrological stations are operated by only one third of NMHSs.

Precipitation/hydrological stations are operated with difficulties in a quality check of the observation data and an environmental check of the stations.

A percentage of utilization of precipitation/hydrological observation data for Disaster Risk Reduction applications is generally.

NMHSs recognized "lack of skilled staff" rather than "lack of knowledge."

(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

(D) Approach to training skilled staffs

How?

How do we discuss?

Organization

(A) Visions of surface observation networks	Ms. Al Hameli, Ms. Al Mandoos Ms. Do, Mr. Faisal, Mr. Le Xuan	Supported by speakers
(B) Short-term or long-term goals of the quality of observation data	Dr. Cui, Mr. Douangmala Mr. Phapany, Mr. Promsut Mr. Sungkhawanna Mr. Thala Bandaralage Mr. Wimalasuriya	
(C) Improvement of on-site quality management	Mr. Abdul Karrem, Dr. Ahmad Mr. Hak, Mr. Lwin, Ms. Nan Mr. Toe Aung	
(D) Approach to training skilled staffs	Ms. Baten, Mr. Chowdhury Mr. Gayyoom, Mr. Lyhon	

Key words

(A) Visions of surface observation networks	design, DRR, integrated, international/inter-agency, observation/analysis, regional climate
(B) Short-term or long-term goals of the quality of observation data	DRR, field work, international collaboration, quality information, services/products, study
(C) Improvement of on-site quality management	calibration, environment, instrument, integration, spatiotemporal scale, system
(D) Approach to training skilled staffs	cooperation, face-to-face, post-workshop newsletters, practical demonstration, telecommunicated, training materials

Related stories

(A) Visions of surface observation networks	Rain and snow (25 Jan) Quality of design and service (31 Jan)
(B) Short-term or long-term goals of the quality of observation data	Quality of design and service (31 Jan) Qualitative or quantitative (6 Jan)
(C) Improvement of on-site quality management	Qualitative or quantitative (6 Jan) Quality management for WIGOS era (19 Feb)
(D) Approach to training skilled staffs	Training for improving skill (14 Feb) Workshop (19 Feb)

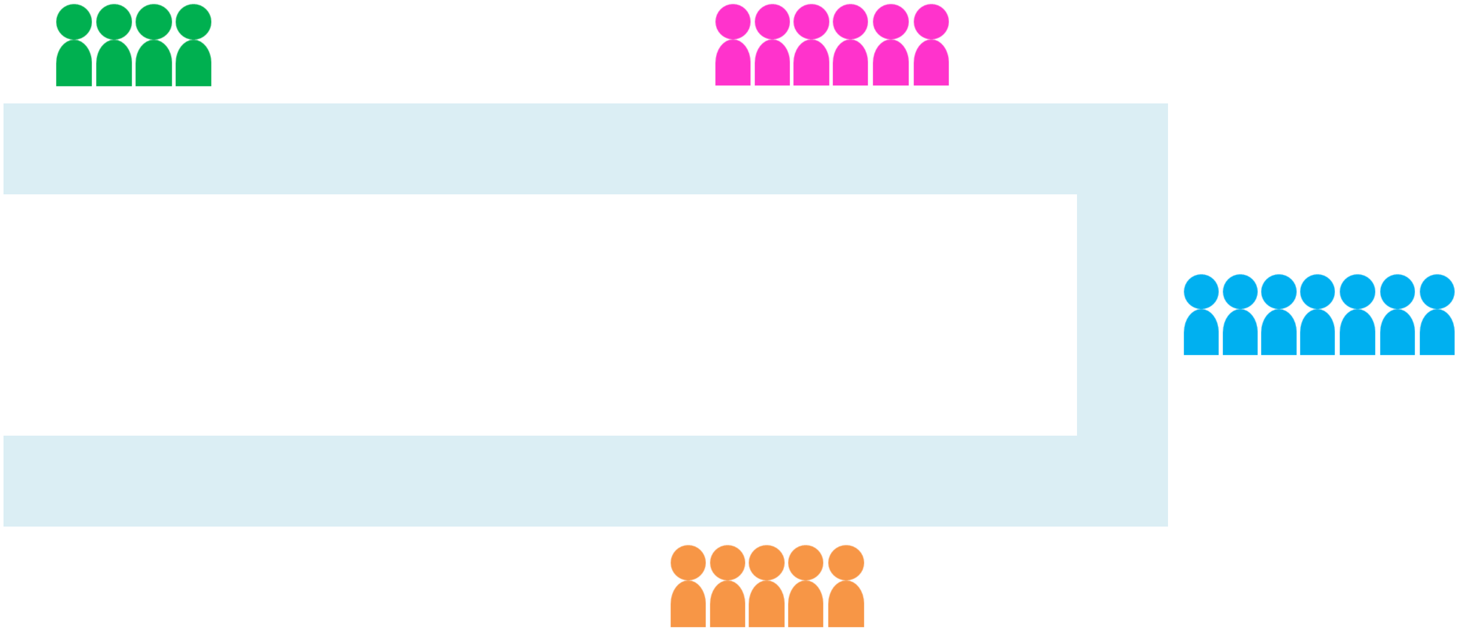
Schedule

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

0900-0910	Discussion guidance
0910-1030	Group discussions • Discuss a group's topic with referring other sessions' lectures, key words and related stories (newsletter dated 19 Feb.). • Write presentation slides on a summary of group discussions using a template below.
1030-1100	Break
1100-1130	Presentations on group discussion results
1130-1230	General discussion on proposal for action plan

Configuration

Session 4.1
Discussion on future activities/actions for improvement of quality management of observation data in RA II
0910-1030 Group discussions



Links

(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

(D) Approach to training skilled staffs

Because ultimately only skilled staffs would realize (A), (B) and (C).
Therefore, discussions on (A), (B) and (C) should be linked to (D).

(D) Approach to training skilled staffs

It is noted that many NMHSs recognized
"lack of skilled staff" rather than
"lack of knowledge" according to the survey.

Sharing knowledge and information is becoming easy through technological innovations of telecommunication.

We live in our highly-telecommunicated age and the telecommunicated approaches must provide many people opportunity to learn.

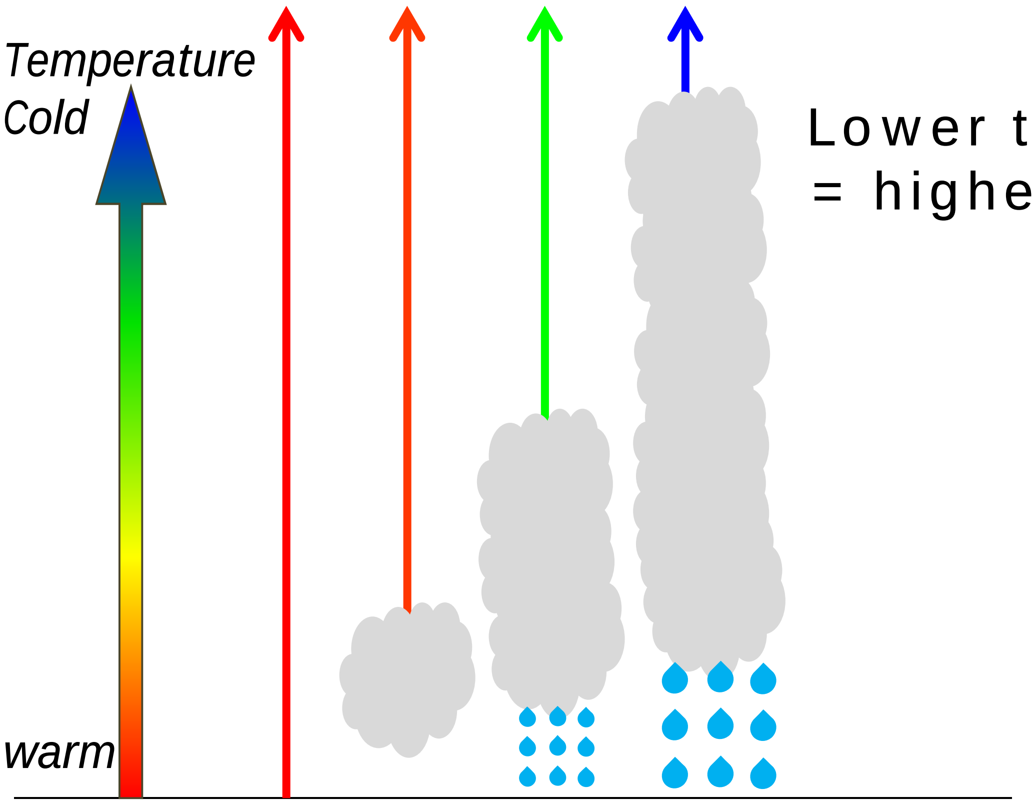
Face-to-face meetings still have a significant role such as learning, training, and finding common goals.

A face-to-face meeting works to unite the people concerned.

Visions – integration (1/3)

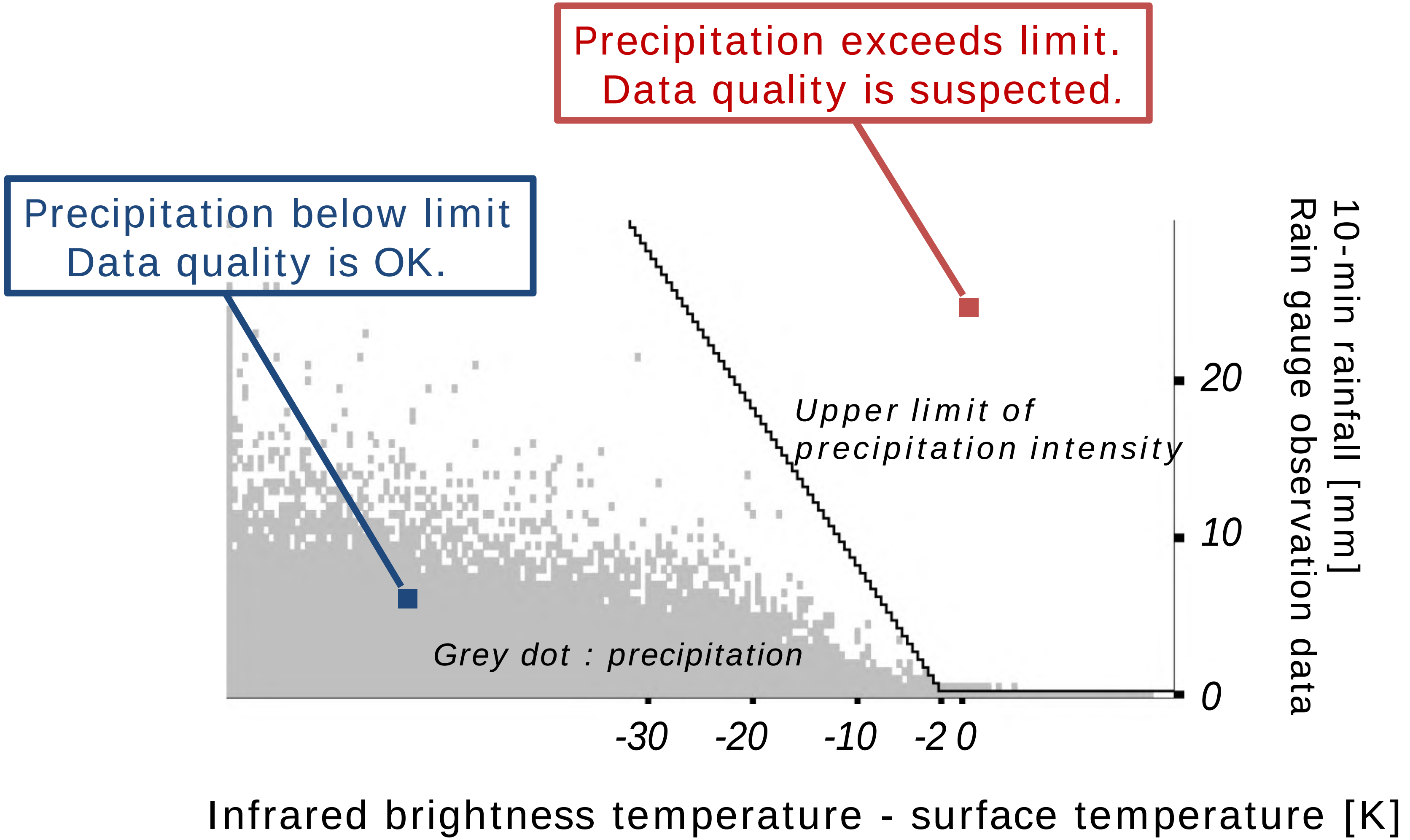
Satellite Infrared imagery

In the troposphere, temperature decreases with height.
You can estimate cloud top height using infrared brightness temperature.

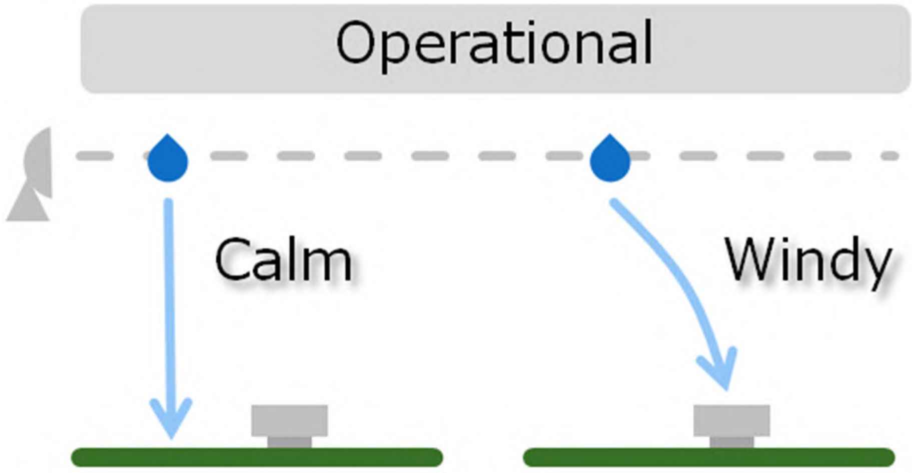


Lower temperature
= higher cloud top

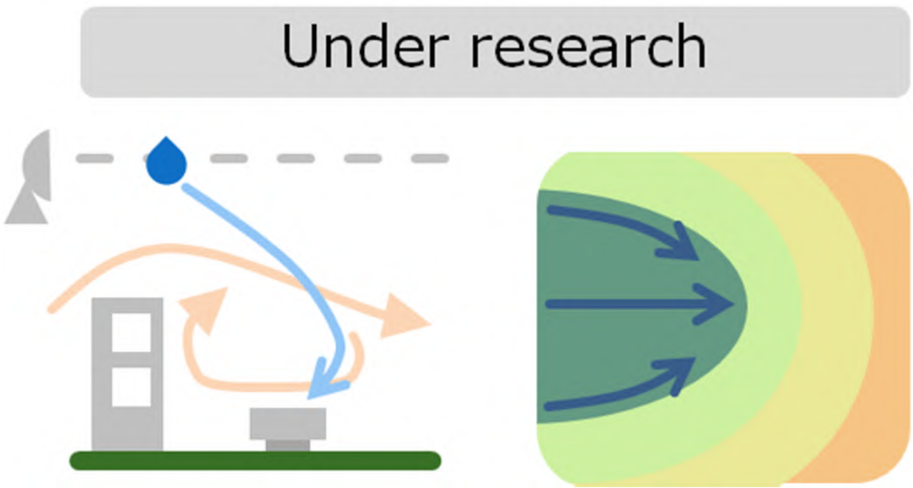
Visions – integration (2/3)



Visions – integration (3/3)



The current HRPN operational algorithm is designed to correct wind-induced horizontal drift that occurs when raindrops fall based on the wind speed of several layers.



The nature of complex raindrop tracks associated with air flow (left) and the orographic concentration of raindrops are currently being researched.

Summary

The questionnaire survey on Quality Management for Surface Meteorological Observations in RA II was conducted in 2016.

Twenty NMHSs in RA II Members responded to the questionnaire.

JMA analyzed the responses and prepared the draft report of the survey results.

It was recognized that many observation stations faced difficulties in both the quality check of observation data and the environment check of the stations.

Improvement in DRR applications of observation data is needed

WE WILL DISCUSS

Discussions

(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

(D) Approach to training skilled staffs

Between atmosphere and people

Thank you