Activities of RWC Tokyo

MINEMATSU Hiroaki
Japan Meteorological Agency

05 July 2021, Tokyo, Japan
Online Workshop on RWC Functions and Tools for RA II

RWC Tokyo's development

June 2018 :	Designated as a RWC in pilot mode
2019 :	Develop RWC pilot activities
March 2019 :	Hold RA II WIGOS Workshop in Tokyo
November 2019 :	Host OSCAR/Surface Training Course in Tokyo
Second half of 2019 - 2020:	Develop WDQMS in pilot mode
July 2021 :	Begin joint operation of RWC

Outline

I. Mandatory Functions
   1. Regional WIGOS metadata management
   2. WDQMS (monitoring, evaluation, incident management)

II. Optional Functions

III. Joint operation of RWCs

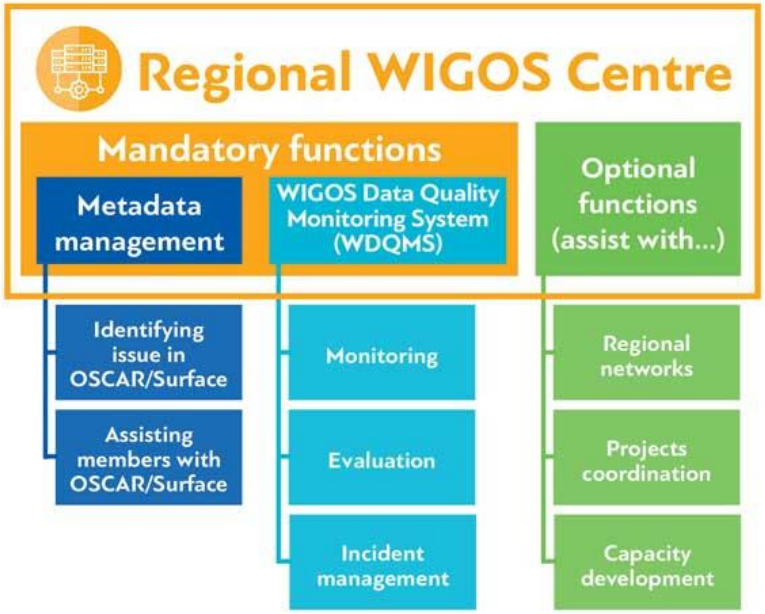
Regional WIGOS Centre Tokyo

I. MANDATORY FUNCTIONS

I. RWC's Mandatory Functions

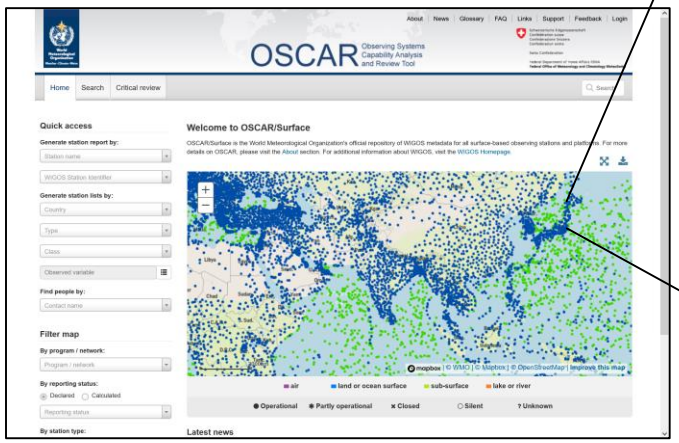
I-1) Regional WIGOS metadata management (to work with data providers to facilitate collection, updating and provision of quality control for WIGOS metadata in OSCAR/Surface)

I-2) Regional WIGOS performance monitoring and incident management (WIGOS Data Quality Monitoring System; WDQMS) and follow-up with data providers on availability/quality issues

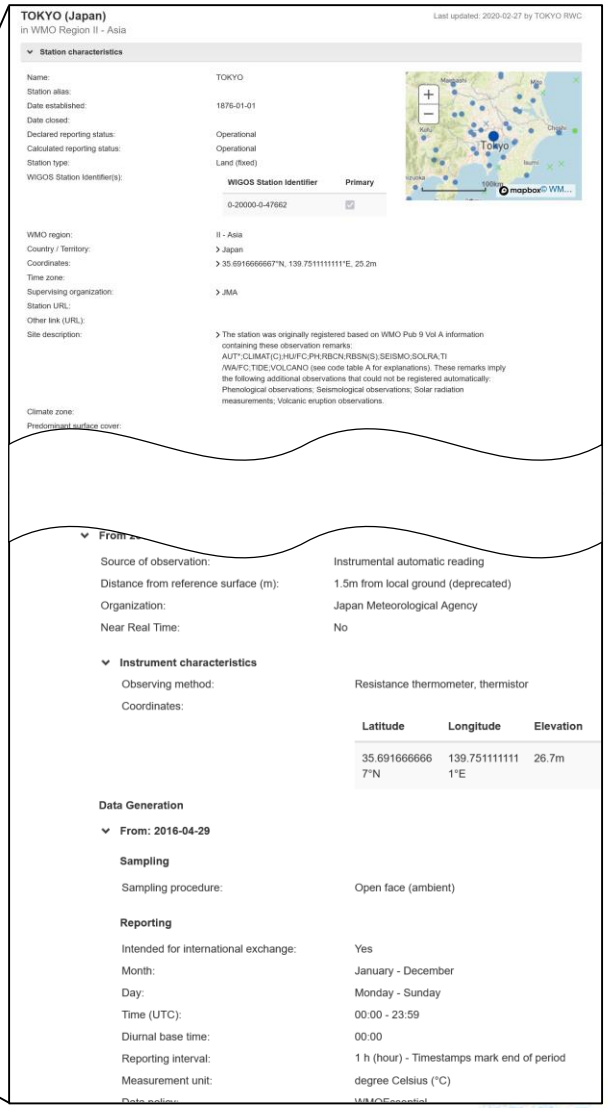


I-1. Regional WIGOS metadata management

- ✓ RWC Tokyo will support RA II Members to identify issues in OSCAR/Surface and update it through exercising the RWC's WDQMS and other means.
- ✓ RWC Tokyo will assist RA II Members to understand OSCAR/Surface and WIGOS metadata via close communication, workshops and various activities.



https://oscar.wmo.int/surface/



I-1. Regional WIGOS metadata management

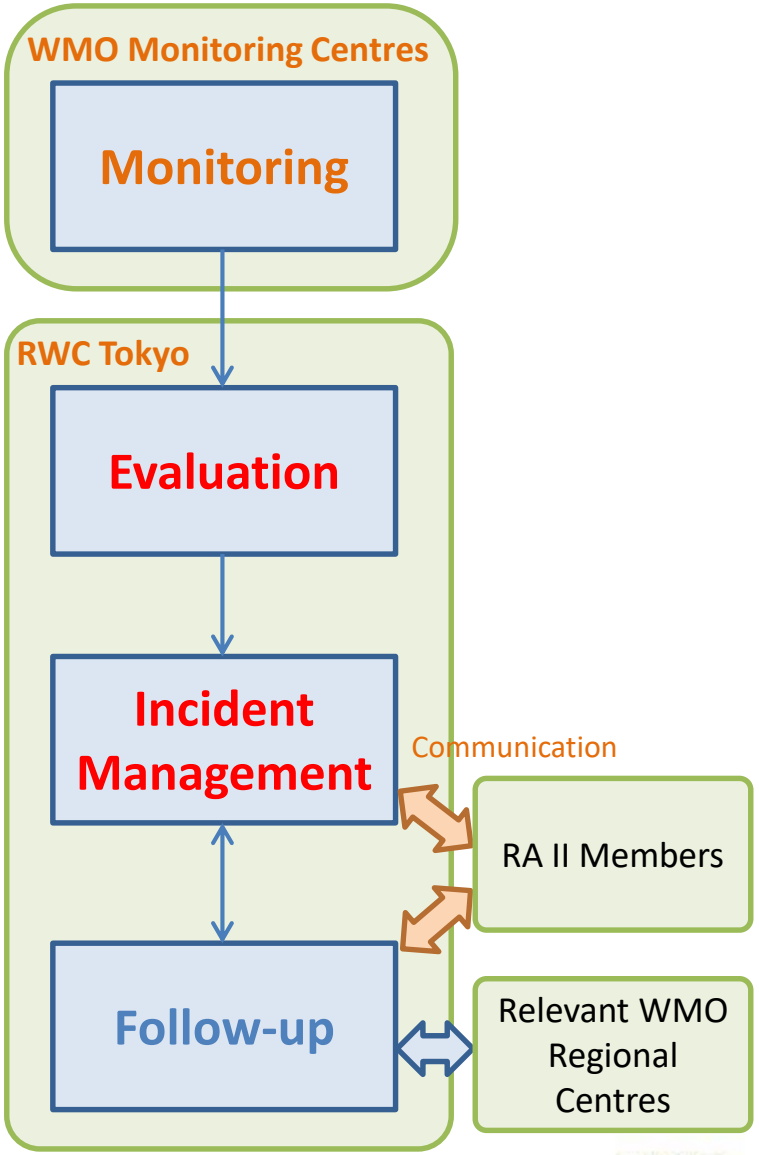
– OSCAR/Surface Training Course for the RA-II East Asia Subregion – (Tokyo, Japan, 13 - 15 November 2019)

- ✓ The event was attended by 16 OSCAR/Surface National Focal Points or their alternates from 14 NMHSs.
  - ✓ NFPs from Bangladesh, Bhutan, China, India, Iran, Japan, Lao PDR, the Maldives, Mongolia, Myanmar, the Republic of Korea, Sri Lanka, Thailand and Vietnam
- ✓ The course covered the WIGOS Metadata Representation model, updating of metadata for surface-based observation systems with the OSCAR/Surface web interface, and review/improvement of national processes related to metadata collection and processing.

https://www.jma.go.jp/jma/en/photogallery/OSCAR_Surface_Training_201911.html

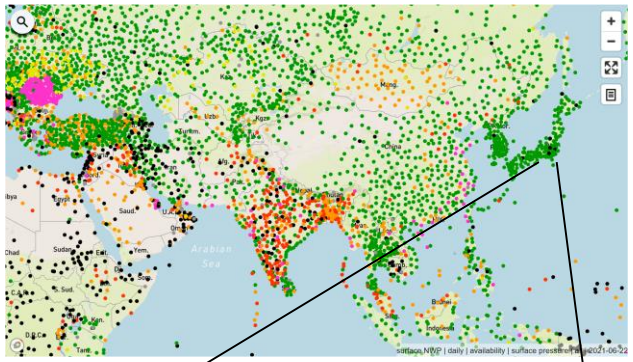
I-2. WDQMS

1. Monitoring:
   To monitor availability, timeliness and quality of observation data
2. Evaluation:
   To evaluate the monitoring results and specify problematic stations
3. Incident Management:
   To Notify the problem to Members and keep track of rectifying progress
4. Follow-up:
   To assist Members in solving problems in collaboration with relevant WMO Regional Centres
   e.g. RIC Tsukuba, GISC Tokyo, Tokyo Climate Center

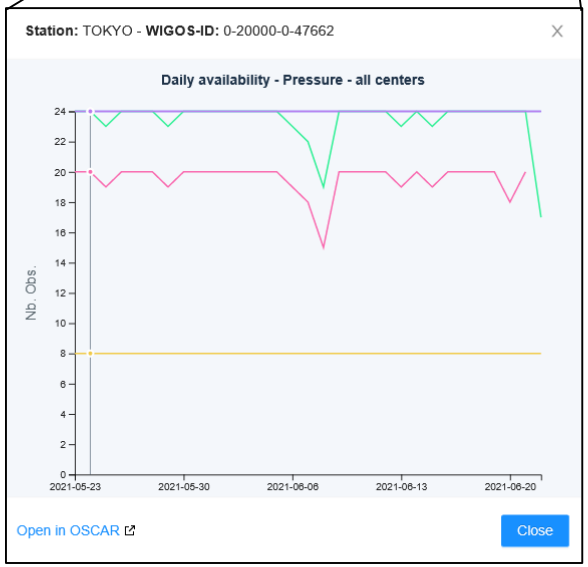


I-2. WDQMS (Monitoring)
– WDQMS webtool developed by WMO –

- ✓ RWC Tokyo will use the WDQMS webtool launched by WMO as a resource to monitor the performance of WIGOS observing components.



- ✓ The webtool shows the availability and quality of surface/upper-air observational data based on OSCAR/Surface and near-real-time NWP monitoring information from DWD, ECMWF, JMA and NCEP.
  - ✓ JMA has participated in the NWP Quality Monitoring Pilot Project on WDQMS since 2016 and provided monitoring output.



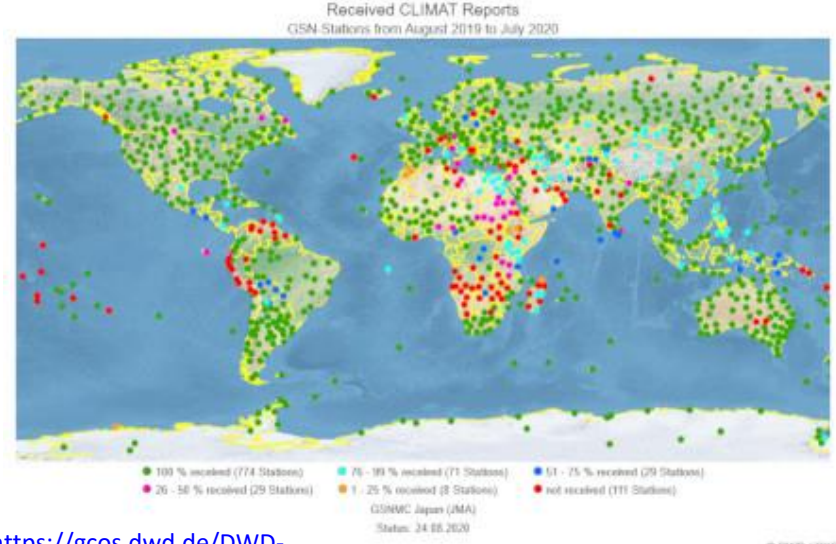
https://wdqms.wmo.int/

I-2. WDQMS (Monitoring)
– Collaboration with relevant Centers –

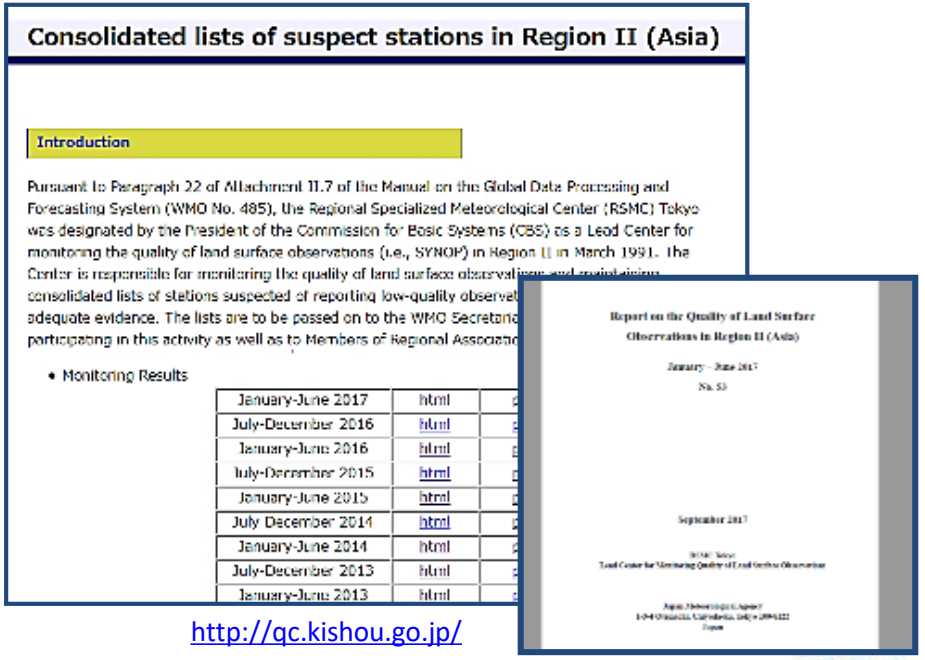
RWC Tokyo will collaborate with experienced monitoring Centers.

- GSN Monitoring Center for climate data
- CBS Lead Centre monitoring for land surface observations

Those Centers monitoring land/sea surface and upper-air observation data have been operated by JMA.



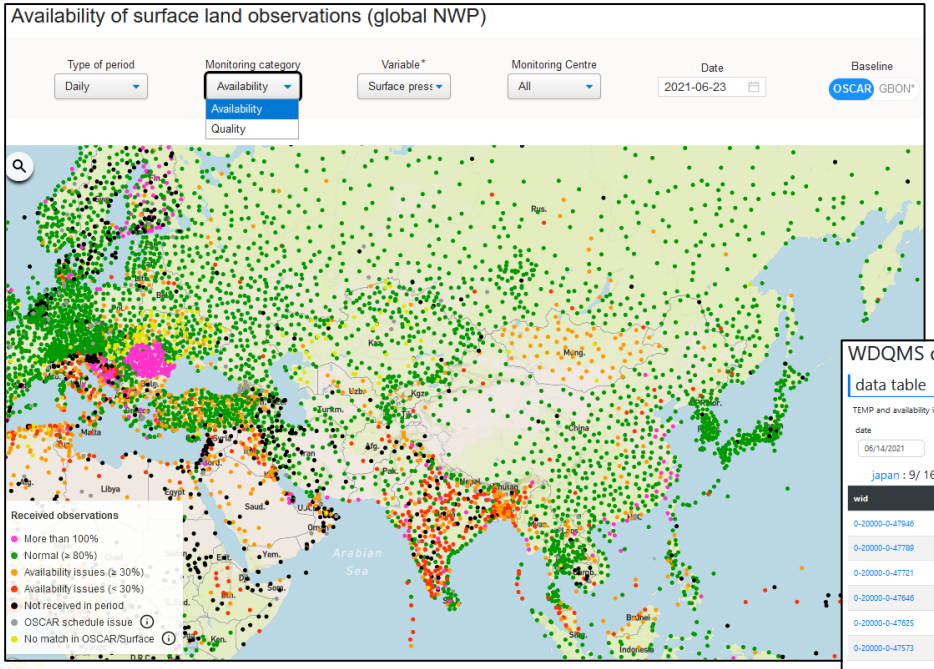
https://gcos.dwd.de/DWD-GCOS/EN/nationalcontributions/servicesforgcos/centresforqualityassurance/gsmnc/gsnmc_monitoring_produkte/gsnmc/climat_avail_new/climat_avail_node.html

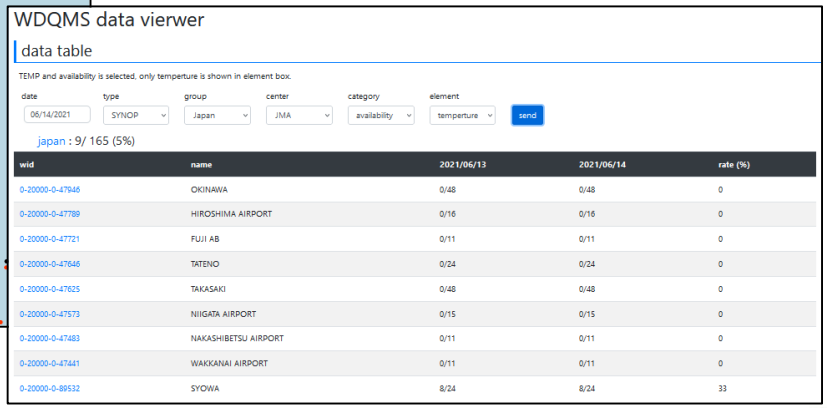


http://qc.kishou.go.jp/

I-2. WDQMS (Evaluation)

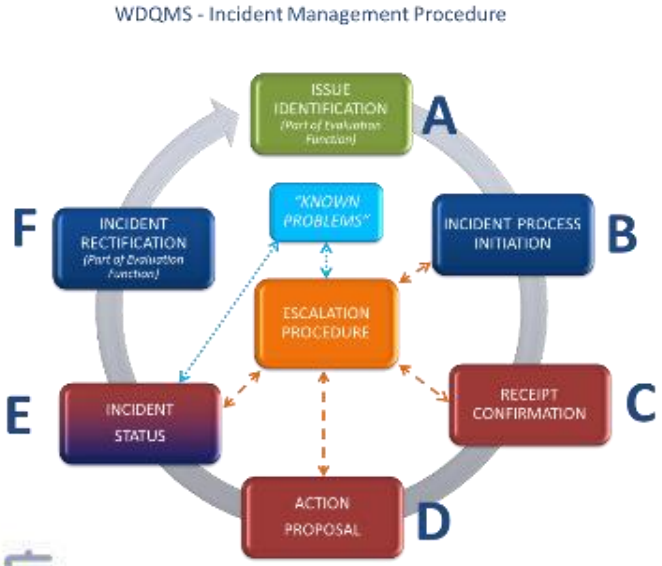
- WDQMS Technical Guidelines defines the key areas in the Evaluation function: Data availability, timeliness and accuracy.
- RWC Tokyo will prioritize data availability over the others and use its own evaluation tool.
  - Monitoring the number of observation reports from each station

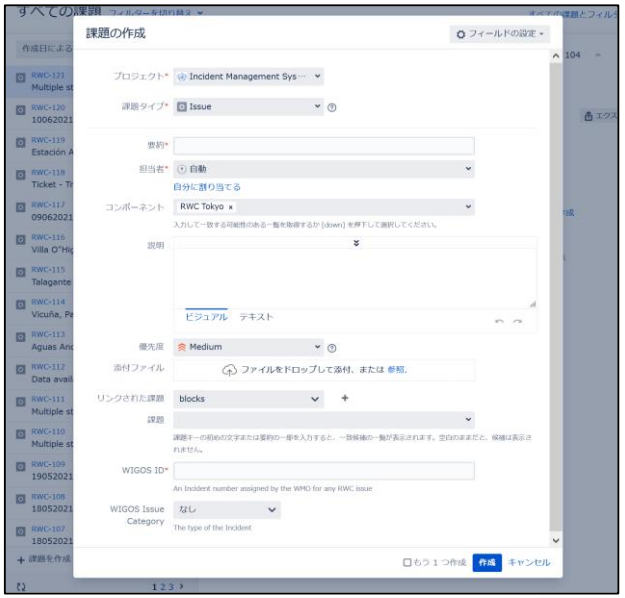




I-2. WDQMS (Incident Management)
RWC Tokyo's Incident Management procedure

- RWC Tokyo will use JIRA, the common Incident Management System of WDQMS, to conduct its function.
- RWC Tokyo will issue the tickets when finding any incidents in the evaluation process.
- RWC Tokyo will communicate with the Members while they deal with the incidents, and support them.





Regional WIGOS Centre Tokyo

II. OPTIONAL FUNCTIONS

RWC Tokyo's Optional Functions

JMA will continue the regional activities as "RWC Tokyo's Optional Functions" in collaboration with relevant WMO Centres.

a. **Assistance with the coordination of regional/sub-regional and national WIGOS projects**
   - ✓ Coordinating the RA II WIGOS Implementation Projects as the Project Leaders/Coordinators, and advising national WIGOS projects in each Member

b. **Assistance with regional and national observing network management**
   - ✓ Providing advices on management of regional and national observing networks in collaboration with relevant WMO Centres (RIC, RCC, RRC, WCC and QA/SAC)

c. **Support for regional capacity development activities**
   - ✓ Supporting regional capacity development activities through technical cooperation in collaboration with relevant WMO Centres (RSMC for Nowcasting, RIC and RCC)

Regional WIGOS Centre Tokyo

III. JOINT OPERATION OF RWCS

Joint operation of RWCs in RA II

Group A Lead by RWC Tokyo (From 1 Jan. to 30 Jun.) Lead by RWC Beijing (From 1 Jul. to 31 Dec.)	**Group B** Lead by RWC Beijing (From 1 Jan. to 30 Jun.) Lead by RWC Tokyo (From 1 Jul. to 31 Dec.)
Afghanistan	Cambodia
Bahrain	Democratic People's Republic of Korea
Bangladesh	Hong Kong, China
Bhutan	Kazakhstan
India	Kyrgyzstan
Iraq	Lao People's Democratic Republic
Islamic Republic of Iran	Macao, China
Kuwait	Mongolia
Maldives	Myanmar
Nepal	Republic of Korea
Oman	Russian Federation
Pakistan	Tajikistan
Qatar	Thailand
Saudi Arabia	Turkmenistan
Sri Lanka	Uzbekistan
United Arab Emirates	Viet Nam
Yemen	

RWCs: China and Japan

Thank you!

Contact:
rwc-tokyo@met.kishou.go.jp

Japan Meteorological Agency

CBS Lead Centre monitoring for land surface observations

- JMA has been providing 6-Monthly monitoring report on land surface observations in Region II since 1991.
  - This activity is based on the designation of the RSMC Tokyo as a Lead Centre for monitoring the quality of land surface observations (i.e., SYNOP) in Region II by the President of the CBS in March 1991.

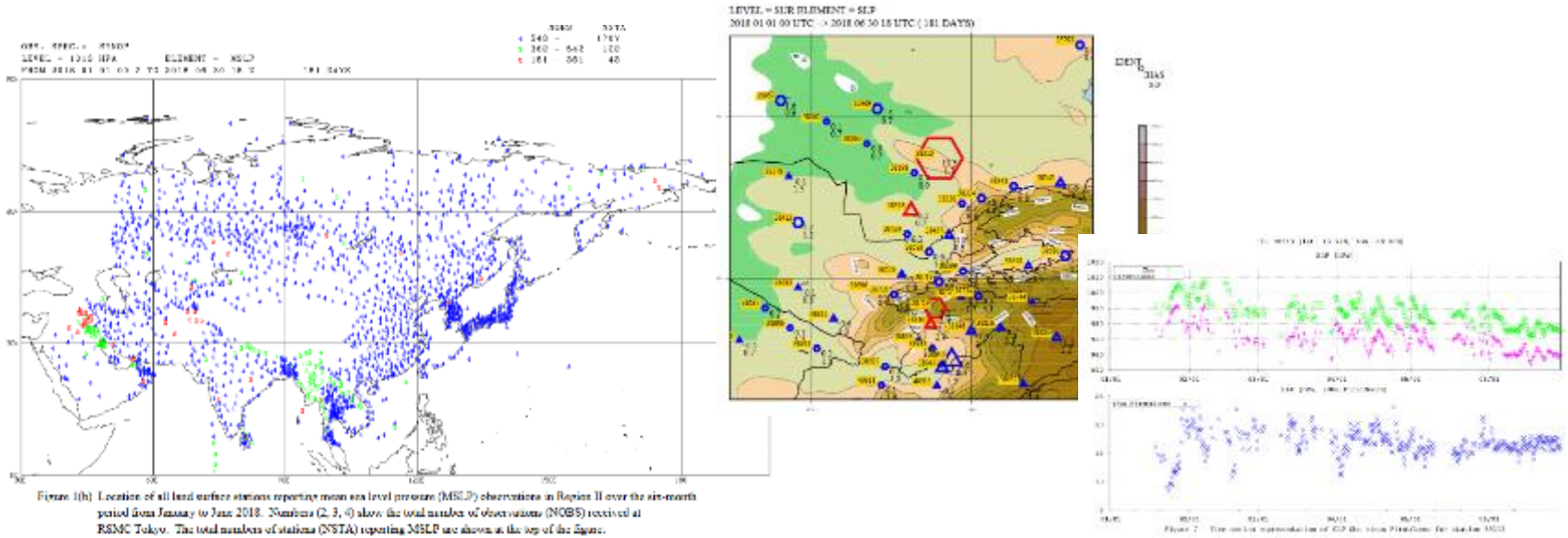
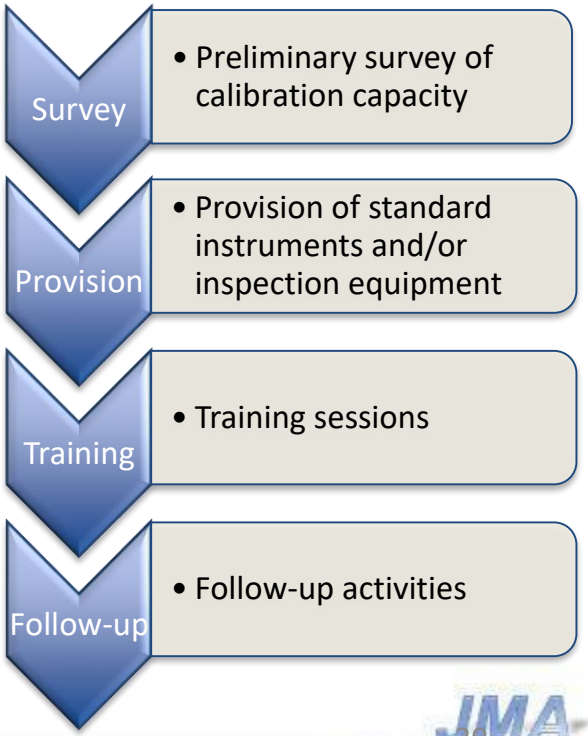


Figure 1(b) Location of all land surface stations reporting mean sea level pressure (MSLP) observations in Region II over the six-month period from January to June 2018. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting MSLP are shown at the top of the figure.

Regional Instrument Centre (RIC) Tsukuba

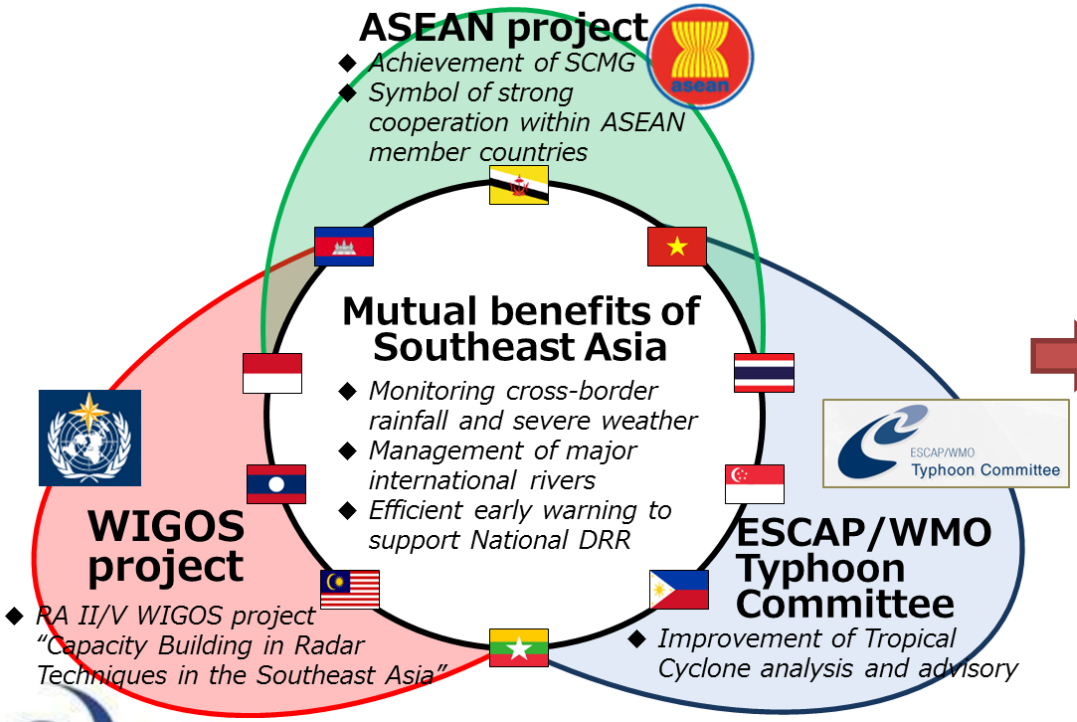
- ✓ Conducts regional capacity development activities to ensure accuracy of meteorological observation in RA II.
- ✓ Runs the **"RIC Tsukuba Package"** as a comprehensive support approach encompassing the following activities.
  - Calibration of national standard instruments
  - Transfer of calibration technology
  - Preparation of instruments for national standards where necessary
- ✓ RIC-RWC collaboration brings efficient and effective services, especially for quality management.

RIC Tsukuba Package

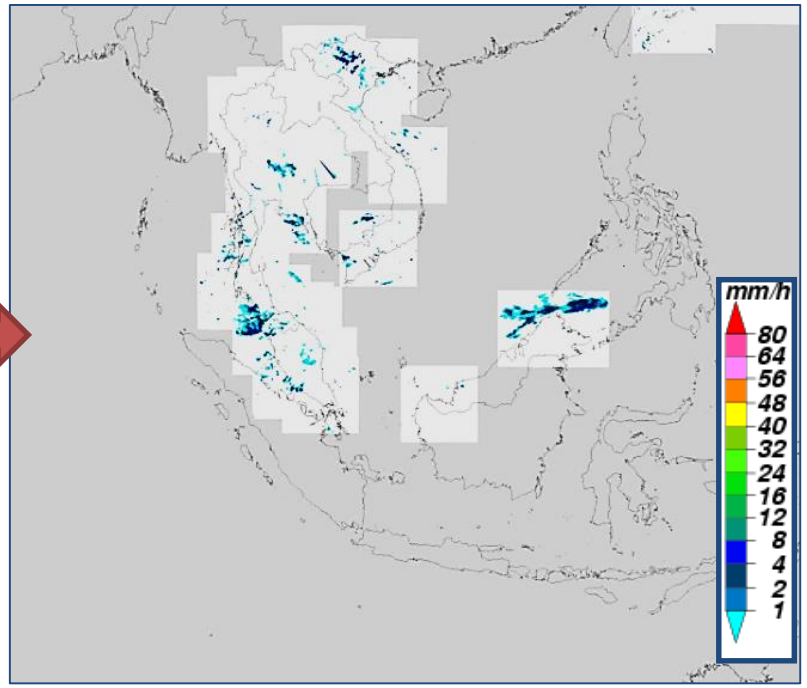


RA II WIGOS Implementation Project No. III
Capacity Building in Radar Techniques in the Southeast Asia

- ✓ ASEAN Radar Workshops (2014 and 2018)
- ✓ WMO RA II & V WIGOS regional radar project
- ✓ Technical cooperation on development of regional radar network in Southeast Asia under the ESCAP/WMO Typhoon Committee



Southeast Asian Radar Network



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RA II WIGOS Implementation Project No. IV
Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations and Project

Survey ⇨ Workshop ⇨ Report ⇨ Actions

Round 1

Gap-analysis between user requirements and current status in NMHSs in RA II
(27-30 July 2010, Tokyo, Japan)

Round 2

Improvement of understanding of and skills in traceability of measurements in NMHSs in RA II
(19-22 February 2013, Tsukuba, Japan)

Round 3

Capacity building on Quality Management techniques in rainfall observation in NMHSs in RA II
(19-23 March 2018, Tokyo, Japan)

RA II WIGOS Implementation Project No. VI
Develop Support for NMHSs in Satellite Data, Products and Training

(1) Support for the preparation of satellite data users in relation to the new generation of geostationary meteorological satellites

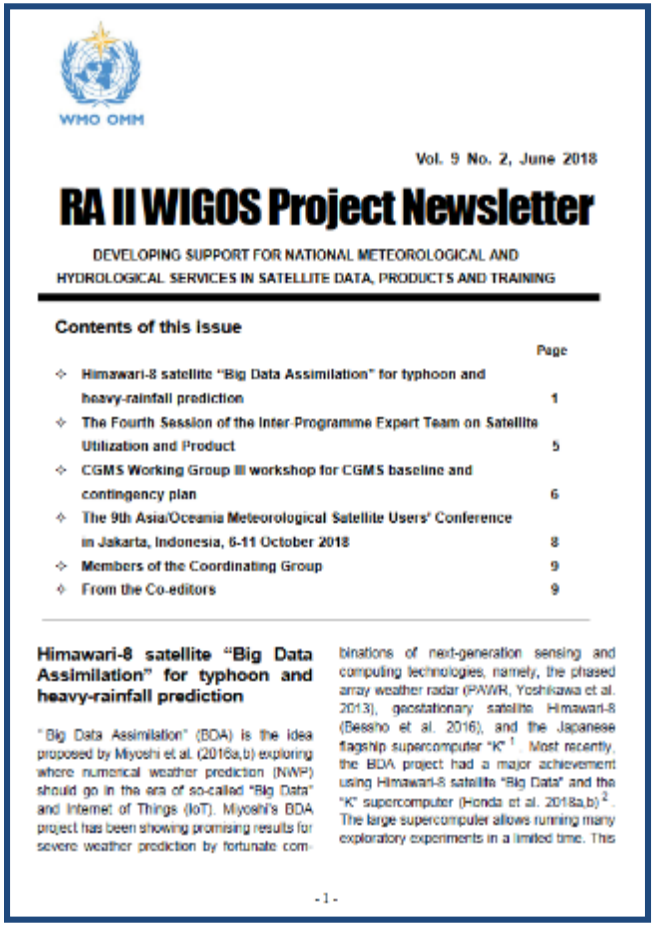
(2) Establishment of close coordination between the RA II WIGOS Project and the RA-V Task Team on Satellite Utilization

(3) Establishment of the new webpage of the RA II WIGOS Project (hosted by JMA)

(4) Convening the series of Asia/Oceania Meteorological Satellite Users' Conference (AOMSUC)

(5) Conducting the trainings and questionnaires on the utilization of new generation of geostationary meteorological satellites through the AOMSUCs

(6) Quarterly newsletters for RA II Members



WMO OMM

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RA II WIGOS Project Newsletter

DEVELOPING SUPPORT FOR NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES IN SATELLITE DATA, PRODUCTS AND TRAINING

Contents of this issue

Himawari-8 satellite "Big Data Assimilation" for typhoon and heavy-rainfall prediction

"Big Data Assimilation" (BDA) is the idea proposed by Miyoshi et al. (2016a,b) exploring where numerical weather prediction (NWP) should go in the era of so-called "Big Data" and Internet of Things (IoT). Miyoshi's BDA project has been showing promising results for severe weather prediction by fortunate combinations of next-generation sensing and computing technologies, namely, the phased array weather radar (PAWR, Yoshikawa et al. 2013), geostationary satellite Himawari-8 (Bessho et al. 2016), and the Japanese flagship supercomputer "K" [1]. Most recently, the BDA project had a major achievement using Himawari-8 satellite "Big Data" and the "K" supercomputer (Honda et al. 2018a,b) [2]. The large supercomputer allows running many exploratory experiments in a limited time. This

-1-

https://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html