

WIGOS Implementation Activities in RA II

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Outline

- **Events related to WIGOS**
 - **Establishment of EG-WIGOS**
 - **Joint WMO RA II/V WIGOS Workshop on DRR**
 - **The First session of RA II EG-WIGOS (EG-WIGOS-1)**
 - **WIGOS Workshop for West Asia**
 - **WIGOS/AMDAR Workshop for West Asia**
 - **WIGOS in the RA II Operating Plan 2016–2019**
- **Progress on implementation of R-WIP-II**
- **Result of First session of EG-WIGOS and follow-up decisions/resolution of RA II**

Events related to WIGOS



13 -19, December 2012, Doha, Qatar

R-WIP-II Approved

- *Res. 3:*
RAII-15 **Decides** to **adopt** **Regional WIGOS**
Implementation Plan for RA II

RA II WIGOS Implementation Projects

No.	Project title	Key regional players
I	Monitor and review the Implementation of EGOS- IP in RA II	China; Hong Kong, China
II	Standard and best practise Portal, including technical documents with necessary details in English from all RA II Members	Republic of Korea
III.1	Observing systems integration for supporting disaster risk reduction - Integration of Surface-based Remote Sensing Data in the East Asia	China, Japan, Republic of Korea
III.2	Observing systems integration for supporting disaster risk reduction - in Radar Techniques in the East Asia	ASEAN (Thailand, Malaysia)
IV	Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations	Japan
V	Developing a Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in Asian Node	China, Japan, Republic of Korea
VI	Develop Support for NMHSs in Satellite Data, Products and Training	Japan, Republic of Korea



13 -19, December 2012, Doha, Qatar

EG-WIGOS Re-established

- WG-WIGOS/WIS re-established by 15th session of RA II
 - **EG-WIGOS**
 - 2 Co-coordinators
 - 10 Theme Leaders
 - 13 Volunteer Experts
 - EG-WIS

Members of EG-WIGOS

Co-Coordinator		Mr Yongqing Chen	China
		Dr Jaegwang Won	Republic of Korea
Theme Area in Implementation and Updating of R-WIP	Theme Leader	Mr Yoshiro Tanaka	Japan
	Volunteer Expert	Dr Sarantuya Ganjuur	Mongolia
Theme Leader in Implementation of EGOS-IP		Mr Yatian Guo	China
Theme Area in Standard and Best Practice	Theme Leader	Dr Seongchan Park	Republic of Korea
	Volunteer Experts	Mr Xiaolei He	China
		Dr Hyeongyo Jeong	Republic of Korea
Theme Area in Observational Requirements and Regional Network	Theme Leader	Mr D. K. Malik	India
		Mr Abdulqaleq Ali Ali	Iraq
	Volunteer Experts	Ms Jianxia Guo	China
		Mr Jiankai Wang	China
		Mr Ibrahim N. Lawend	Iraq
		Dr Andrey Dubovetskiy	Russian Federation
Theme Area in Data Availability and Quality of Observations	Theme Leader	Mr Yoshihisa Kimata	Japan
	Volunteer Experts	Mr Haihe Liang	China
		Mr Hesam Sajdeh	I. R. of Iran
Theme Area in Surface-based Remote Sensing for Disaster Risk Reduction	Theme Leader	Mr Feng Li	China
		Dr Oleg Pokrovsky	Russian Federation
	Volunteer Experts	Ms Ann Goryunova	Uzbekistan
		Dr Wattana Kanbua	Thailand
Theme Area in Satellite Data, Products and Training	Theme Leader	Mr Tomoo Ohno	Japan
		Dr Dohyeong Kim	Republic of Korea
	Volunteer Experts	Ms Jian Liu	China
		Mr Ashok Sharma	India



The Work Plan of EG-WIGOS

- **Nine tasks , with several activities in each task**
 - Implemented through the RAI WIGOS projects and RA II members under the initiative of key regional players.
 - The theme leaders of EG-WIGOS has responsibility to track and promote the execution of these activities and projects.
 - The EG has report the progress to the concerned meetings or management group meetings

12-14, October 2015, Jakarta Indonesia

Joint WMO RA II/V WIGOS Workshop on DRR





Joint WMO RA II/V WIGOS Workshop on DRR

- Representatives from 8 RA II and 6 RA V WMO Members reported on their national observing networks and participated in the discussions.
- Specific topics presented by 8 invited experts:
 - Weather forecasting and warnings,
 - Radar observations,
 - Lightning detection systems,
 - Satellite observations
 - GSM (Global System for Mobile communications) attenuation by rain,
 - OSCAR databases.
- Two Joint RA II/RA V WIGOS projects were reviewed and further developed, one on weather radar data, one on satellite data.



The Jakarta Declaration

- Joint RA-II/RA-V WIGOS Satellite Data Project
 - Strengthening the **capabilities** of all Members to use geostationary satellite images and derived products in support of Disaster Risk Reduction
 - Developing **a protocol** for the NMHSs in the project countries to request **event-driven rapid-scan imagery** for their respective national areas of interest
- Joint RA-II/RA-V WIGOS Radar Data Project
 - Improvement **of data quality** of existing radars
 - Development and **expansion** of national radar networks
 - Near real time **international exchange** of radar data, and
 - Development of sub-regional **radar data centre(s)**
- **Follow-up:** The proposals have been incorporated into the updated R-WIP-II

The First session of RA II EG-WIGOS (EG-WIGOS-1)



- Review of progress
- Discussion of future plan for 2017-2020
- Recommendations provided

WIGOS Workshop for West Asia

- Education of WIGOS
- Discussion on *Strengthening the observing capabilities of West Asia for better climate & weather services*



Recommendations to RA II MG/West Asia Members

- To support the urgent delivery of **training** on **OSCAR/Surface** for NFPs of West Asia
- To support the development of the **WDQMS** and related **training** in West Asia
- To support the development of a Regional **WIGOS Centre pilot project for West Asia**
- To consider the establishment of **thematic specific RWCs** for sub-regions of RA II, e.g. for Weather Radar data processing, AMDAR data processing
- To take into account the existing infrastructures of GISCs as a basis for sub-regional RWC – putting **WIS and WIGOS working close together**
- To support further promotion **and communications on benefits** of WIGOS to Members of West Asia;
- To urge Members of West Asia to support the **protection of Radio-Frequencies** used by observing systems, by taking appropriate actions at national level
- To urge Members of West Asia to **nominate the WIGOS NFPs** as well as the OSCAR/Surface NFPs, if not done yet
- To support the **sharing of documentation** about WIGOS National Implementation Plans from the Members of RA II

WIGOS/AMDAR Workshop for West Asia

- Education of Aircraft-Based Observations and AMDAR
 - History, Status
 - Data Impacts and Benefits
 - Program Requirements and Implementation
- Discussion on program proposal in West Asia
- **Follow-up:** Establishment of a task team in RA-16 to develop the program

WIGOS in the RA II Operating Plan 2016–2019

- **11 Deliverables for WIGOS**
- **24 Activities**

DEPT	BRANCH	ER	KEY OUTCOME	KEY PERFORMANCE INDICATOR	DELIVERABLE	PRORGAMME	TC	REGION	ACTIVITY
DRA	RAP	4	4.1	4.1.1	Update of Regional WIGOS Implementation Plan (RWIP)	WWW	CBS	RA II	Encourage the Task Team on Regional for updating RWIP
DRA	RAP	4	4.1	4.1.1	Pre-operation of WIGOS in region II	WWW	CBS	RA II	(a) Establish a task team to analyze the main requirement of pre-operation of WIGOS and challenges for pre-operation WIGOS in RA II; (b) Develop a guidance to pre-operation WIGOS in Region II for Members; (c) Encourage Members to finalize the national WIGOS implementation plan.
DRA	RAP	4	4.1	4.1.2	Regular maintenance and calibration of observation instruments, and implementation of reliability measures on quality management routines and procedures of weather observations	IMOP, WWW	CIMO, CBS	RA II	Implement the RA II WIGOS Project to enhance the availability and quality management support for NMHSs in sur climate and upper-air observations
DRA	RAP	4	4.1	4.1.2	Maintenance and enhancement of the measuring stations in the Region	WWW, WCP, MMOP	CBS, CCI, JCOMM	RA II	(a) Collect and share standard and best practices documents from RA II Member (b) Encourage the collection of metadata observing systems; (c) Support standard of Regional Instrument Centre (RIC)
DRA	RAP	4	4.1	4.1.2	Implementation of Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP)	WWW	CBS	RA II	(a) Encourage Members to develop national reports on progress of Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP); (b) Make gap analysis of observing network in RA II on the basis of users' requirements and existing observing network.
DRA	RAP	4	4.1	4.1.2	Development of Regional Basic Observing	WWW	CBS	RA II	(a) Survey the comprehensive review of existing observing systems in the Region (b) Hold a workshop to develop a concept

Progress on implementation of R- WIP-II

RAII-15 (Doha, 2012)
Decides to **adopt R-WIP-II** (*Res. 3*)

RA II WIGOS Implementation Projects

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Project. I

Monitor and review the Implementation of EGOS- IP in RA II

Key Regional Players: China; Hong Kong, China

Aim(s)

- To identify gaps and prioritize actions listed in the EGOS-IP through reviewing the progress of the Evolution of Global Observing Systems (EGOS),
- The progress and experiences are shared by RA II members when implementing the EGOS-IP.

Achievements

- A **portal** for sharing the national progress of EGOS-IP implementation was established by CMA.
- A **report template** has been prepared.
- The **technical scheme** of assessing the progress was drafted.

Project. II

Standard and Practical Portal, including Technical Documents with Necessary Details in English from all RA II Members

Key Regional Players: Republic of Korea

Aim(s)

- To develop a Standard and Best Practise Portal
- To establish regional standard and best practices documentation (regional practices database) for enhanced observational data/products utilization, including data/metadata management
- To specify mechanisms, procedures for regular monitoring and updating of the portal.

Achievements

- KMA's domestic project for standardization of met observations finished 1st phase (2013).
- By 2015, more than 3,600 sites data from 28 agencies (including local gov.) were collected into one system. 85% of the data are collected in real time.
- QCed data are open for domestic agencies for DRR, public broadcast and local governments.

Project. III-1

RA II WIGOS Project for Observing Systems Integration for Supporting Disaster Risk Reduction -**Integration of Surface-based Remote Sensing Data in the East Asia**

Key Regional Players: Japan, Republic of Korea, China

Aim

- to develop a feasible and optimal draft design of integrated surface-based remote sensing observations toward operational assimilation of those data in meso-scale NWP model of the participating organs at the sub-regional level, as well as real-time quality-assured radar composite maps.

Achievements

- Real-time exchange of radar CAPPI products and automated weather station data between Japan and Korea
- Evaluation of Impact of assimilation of QPE over Korea on NWP over Japan

Project. III-2

RA II WIGOS Project for Observing Systems Integration for Supporting Disaster Risk Reduction -Capacity Building in Radar Techniques in the Southeast Asia

Key Regional Players: ASEAN (Thailand, Malaysia)

Aim

- To develop effective early warning systems building on radar data in Southeast Asia.

Achievements

- ASEAN Regional Training Workshop on Weather Radar Maintenance, QPE and Forecast (Bangkok, 2014) with 20 participants from 7 ASEAN members.
- National reports on usage of weather radar (Thailand and Malaysia submitted to 35th ASEAN/SCMG, 2013)
- TMD – JMA technical meetings on radar issues started in 2011 and followed by 2012, 2013, 2014, 2015 meetings as activities of WMO/ESCAP Typhoon Committee.
- MMD – JMA technical meetings on radar issues started in 2014.
- BMKG – JMA technical meetings on remote-sensing technology started in 2015.

Project. IV

Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations

Key Regional Players: Japan

Aim

- Improvement of data quality at RBCN/RBSN stations and enhancement of services of RA II RICs.

Achievements

- WMO/JMA Survey on met. instruments, calibration and training in RA II was implemented, and the consolidated report was issued as WMO/IOM No. 122 (available on RIC Tsukuba website)
<http://www.jma.go.jp/jma/jma-eng/jma-center/ric/material.html>
- The users' needs were clarified (i.e. lack of standard instruments, SI tractability etc.)
- So-called "RIC-Tsukuba Package", combination of cooperative activities;
 - (a) Preliminary survey
 - (b) Provision of standard instruments and/or inspection equipment
 - (c) On-the-job training
 - (d) Follow-upsuccessfully implemented in some NMHSs (i.e. Bangladesh, Sri Lanka etc.)

Project. V

Develop a Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in Asia Node

Key Regional Players: China, Japan, Republic of Korea

Aim

- Mitigation of risks in many affected areas in the Asia Node countries through enhancement of systematic NRT monitoring of sand and dust storm.

Achievements

- The three dust forecast models (from CMA JMA and KMA) have been continuously operated.
- A web portal to display in real time all SDS models including ECMWF and NCEP forecast products was developed.
<http://eng.weather.gov.cn/dust/>
- Dust forecast model products verification has been carried out. Data –exchanged list has been identified.

Project. VI

Develop Support for NMHSs in Satellite Data, Products and Training

Key Regional Players: Japan, Republic of Korea

Aim

- To encourage NMHSs in RA II to make a kind of self-help effort to improve the flow of satellite-derived information,
- To improve the knowledge and techniques to use satellite data and products.

Achievements

- Establishment of the Project website
http://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html
- RA II WIGOS Project Newsletters (quarterly)
- Asia/Oceania Meteorological Satellite Users' Conference (AOMSUC):
 - 4th Conference, Melbourne, Australia (Oct 2013)
 - 5th Conference, Shanghai, China (Nov 2014)
 - 6th Conference, Tokyo, Japan (Nov 2015)
 - 7th Conference, Incheon, Republic of Korea (Oct 2016)
 - Russia, India and Indonesia newly joined.
 - Memorandum signed by PR from sponsors (WMO EC-68, 2016)
- Coordination Group meetings:
 - 3rd meeting, Tokyo, Japan (Nov 2015)
 - 4th meeting, Incheon, Republic of Korea (Oct 2016)
- Held training seminars on meteorological satellite data for NMHSs in Asia and Pacific region along with AOMSUC.
- Support users for smooth transition to the new generation satellites.
- Tutor programs (dispatching experts on satellite data utilization) for users in Asia and Pacific to facilitate efficient use of Himawari-8.
- Feasibility study on Himawari-8 event-driven rapid-scan with AuBoM.

Result of First session of EG-WIGOS and follow-up decisions/resolutions of RA II

Recommendation 1:

The Continuation of WIGOS Projects

- EG-WIGOS recommended that 6 of 7 Projects should continue in the next four years and should be updated in accordance with the new requirement of preoperational phase of WIGOS. (I, II, III-2, IV, V, VI)

Recommendation 2:

WIGOS Centers

- WIGOS Centers should be established in pilot mode in the next RA II session.
- The WIGOS Centers should cover west and east Parts of Region II
- Unlike WIS, RWCs do not have responsible countries to take care of
- The function of WIGOS Data Quality Monitoring System should be included in RWC
- A document addressing this issue will be submitted to the RA II session.

Recommendation 3:

RBON-Regional Observing Network

- A Task Team on developing the RBON in RA II is proposed to be established by RA-II-16.
- TOR with a roadmap for the implementation of RBON in RA II is also submitted to RA II MG for consideration.

Terms of Reference

TT-RBON

- **Develop the proposal for the Regional Basic Observing Network in RA II:**
 - **Prioritize the WMO application areas relevant to the Region;**
 - **Define the RA II specific criteria for the selection of stations/platforms into RBON of RA II;**
 - **Select the RBON stations/platforms in accordance with the RBON concept and RA II specific criteria;**
 - **Identify gaps and develop a draft action plan to deal with them;**
 - **Develop the Roadmap for, and coordinate the activities on the implementation of the RBON in RA II;**
- **Work with RA II EG-WIGOS and WIGOS-PO on the further elaboration of the RBON concept**

Roadmap for the implementation of the RBON in RA II

- February 2017, establishment of TT-RBON;
- April 2017, RA II specific criteria for the selection of stations/platforms into RBON;
- June 2017, a draft pilot RBON;
- July 2017 to June 2018, the pilot RBON testing;
- September 2018, evaluation for the pilot RBON
- December 2018, the draft RBON
- January 2019, submission of the draft RBON to president of RA II

Recommendation 4:

Updating of R-WIP-II

- The R-WIP-II should be updated taking into account the Plan for the WIGOS pre-operational phase 2016-2019.
- The updated R-WIP-II is submitted to RA II MG for consideration.

Recommendation 5:

Updating of RBSN/RBCN

- The current RBSN/RBCN should continue to be operational until the new RBON is formally implemented based on the approval by P-RA/MG or the RA session.
- The RBSN/RBCN lists should be updated and be submitted to the 16th session of RA II for approval.
- When the RBSN/RBCN lists are being updated, the RBON concept, specifically the key attributes and criteria for the selection of stations/platforms into RBON should be taken into account.

Updating Principal

- In order to keep the continuity of the network, the RBSN/RBCN list approved by the 15th session of RA II is proposed to continue in the next four years, and be updated incorporating the minor changes approved by the President of RA II upon the request of concerned members.
- Considering the RBSN/RBCN stations are the primary candidates for the RBON, and are expected to constitute the backbone of the RBON, when the RBSN/RBCN lists are being updated, the RBON concept, specifically the key attributes and criteria for the selection of stations/platforms into RBON should be taken into account.
- As a first step, stations whose status not recorded in OSCAR are marked with "X", indicating that those stations cannot meet the first criteria into RBON currently and measures should be made if they want to be RBON stations.

Result

- RBSN :1696
 - 1634 SURFACE stations
 - 286 Radiosonde stations
 - 30 Radiowind stations.
 - 25 station but not recorded in OSCAR
- RBCN : 673
 - 1634 CLIMAT stations.
 - 20 stations : not recorded in OSCAR

The status of the stations which are not recorded in the OSCAR/Surface

RBCN(25)		RBSN(20)	
OMAN	20	CHINA	3
RUSSIAN	5	JAPAN	1
		OMAN	9
		RUSSIAN	7

Recommendation 6:

Future Structure of EG-WIGOS

- The term “Theme Leader” should be changed to “Project Leader”
- The name of the Project Leaders should be identical to those listed in the R-WIP-II Projects.
- Task Team leader should be a member of EG-WIGOS

EG-WIGOS

Title	Name	Country
Co-Coordiators		
Project Leader in Monitoring and Reviewing the Implementation of EGOS IP in RA II		
Project Leader in The web-interface for sharing status of standardization and experience and monitoring synoptic observations in RA II		
Project Leader in Capacity Building in Radar Techniques in the Southeast Asia		
Project Leader in Enhancing the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations		
Project Leader in Developing a Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in Asia Node		
Project Leader in Developing Support for NMHSs in Satellite Data, Products and Training		
Chair of Task Team on RBON		

EG-WIGOS _ TOR_(1/2)

- To coordinate the planning and implementation of WIGOS in the Region in accordance with the Regional WIGOS Implementation Plan (R-WIP-II), in accordance with decisions and guidance from **Cg-17**, the follow-up EC sessions, RA II Management Group, and the RA II Strategic and Operating Plan;
- To provide support and assistance to RA II Members in accordance with the R-WIP-II and in a response to their requests (subject to availability of resources/funds);
- To assist RA II Members to develop their National WIGOS Implementation Plans (N-WIPs);
- To monitor the progress in the implementation and operations of WIGOS in the Region; advise on possible improvements and priorities for appropriate actions and the need for external support, where required, according to the technical guidance from the technical commissions, specified in the GFCS-IP, EGOS-IP, GCOS-IP and other observing system implementation plans in order to evolve and implement WIGOS in the Region;

EG-WIGOS _ TOR(2/2)

- To support the implementation and improvement of **OSCAR/Surface** in the Region;
- To collaborate with related bodies on the implementation of **WDQMS** in the Region;
- To collaborate with the RWC candidates, RA II management group and WIGOS-PO on the establishment of the **Regional WIGOS Centres** in the Region;
- To coordinate relevant activities with the regional groupings involved in observations to ensure consistency of approach and synergy;
- To advise the president of the Regional Association and the chair of the WIGOS relevant Working Group on the proposed composition and changes to the Regional Basic Synoptic Network and Regional Basic Climatological Network;
- To collaborate with **TT-RBON** on the implementation of the Regional Basic Observing Network in the Region.
- To advise RA-II/MG on WIGOS implementation in the Region.

Decisions/Resolutions by RA-16 related to WIGOS

- Decision [4.3\(1\)/1](#) — *Establishing Regional WIGOS Centres (RWCs) in RA II in pilot phase*
- Decision [4.3\(1\)/2](#) — *Regional Basic Observing Network (RBON) Pilot in Region II*
- Decision [4.3\(1\)/3](#) — *Radio Frequency Matters;*
- **Resolution [4.3\(1\)/1](#) — *Regional WIGOS Implementation Plan 2017-2020***
- (e) Resolution [4.3\(1\)/2](#) — *Regional Basic Synoptic Network (RBSN) and Regional Basic Climatological Network (RBCN) in Region II*

Thank you!