

Regional WIGOS Implementation Plan for RA II

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Background

- Cg-17 (Geneva, 2015)
 - Res. 23 : Pre-operational phase of the WMO Integrated Global Observing System
 - Res. 69: WMO Strategic Plan 2016–2019
- EC-58 (Geneva, 2016)
 - Res 2: Plan for the WMO Integrated Global Observing System pre-operational phase 2016-2019
 - The development of WIGOS will continue during **its pre-operational phase 2016-2019**, building upon and adding to those key building blocks of the WIGOS Framework that have already been implemented,
 - Gradually shifting the emphasis from the global level toward **implementation activities at the regional and national levels.**

The highest priorities for the WIGOS pre-operational phase

- National **WIGOS implementation**;
- WIGOS **Regulatory Material** complemented with necessary guidance material to assist Members with the implementation of the WIGOS technical regulations;
- Further development of the WIGOS **Information Resource** (WIR), with special emphasis on the operational deployment of the Observing Systems Capability Analysis and Review (**OSCAR**) **databases**;
- Development and implementation of the **WIGOS Data Quality Monitoring System**;
- Concept development and initial establishment of **Regional WIGOS Centres**.

Updating of R-WIP-II

- Based on the evaluation of the implementation of R-WIP-II
- Address the new requirements from
 - Resolution 23 (Cg-17) – Pre-operational phase of the WMO Integrated Global Observing System
 - Resolution 69 (Cg-17) – WMO Strategic Plan 2016–2019
 - Resolution 2 (EC-68) – Plan for the WMO Integrated Global Observing System pre-operational phase 2016-2019

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***
- Resolution [4.3\(1\)/2](#) — *Regional Basic Synoptic Network (RBSN) and Regional Basic Climatological Network (RBCN) in Region II*

Main content of updated R-WIP-II

Structure of R-WIP-II

1. INTRODUCTION AND BACKGROUND
 2. KEY ACTIVITY AREAS FOR REGIONAL WIGOS IMPLEMENTATION
 3. REGIONAL PROJECT MANAGEMENT
 4. IMPLEMENTATION
 5. RESOURCES
 6. RISK ASSESSMENT/MANAGEMENT
 7. OUTLOOK
- ANNEX I RA II WIGOS Implementation Activities
- ANNEX II RA II WIGOS Implementation Projects



Core parts of R-WIP-II

- 10 key activity areas
- 31 implementation activities
- 6 WIGOS projects
 - Most of the activities will be implemented through seven “RAII WIGOS projects” under the initiatives of key regional players.
 - EG-WIGOS has responsibility for tracking execution of these activities and projects.

RA II WIGOS IMPLEMENTATION PROJECTS

No.	Project title	Project Coordinator(s)
I	Monitor and Review the Implementation of EGOS- IP in RA II	China; Hong Kong, China
II	The web-interface for sharing status of standardization and experience and monitoring synoptic observations in RA II	Republic of Korea
III	Capacity Building in Radar Techniques in the Southeast Asia	Japan, Thailand, Malaysia, and Indonesia (RA V)
IV	Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations	Japan, China
V	Developing a Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in Asia Node	China
VI	Develop Support for NMHSs in Satellite Data, Products and Training	Japan, Republic of Korea

Project. I

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

Coordinators: China; Hong Kong, China

Plann/Activities

- Monitor the progress of RA II Members on the implementation of EGOS-IP,
- Analyse gaps in the regional observing network, and prioritize actions listed in EGOS-IP
- Upgrade and maintain the Portal

Project. II

**The web-interface for sharing status of standardization and experience
and monitoring synoptic observations in RA II**

Coordinators: : Republic of Korea

Plan/ Activities

Develop the dashboard for sharing status of each Member's standardization and monitoring the observations collected in GISC Seoul

Project. III

Capacity Building in Radar Techniques in the Southeast Asia

Coordinators: : Japan , Thailand, Malaysia, Indonesia

Plan/ Activities

- Each Member will develop the capacity building on **QA/QC techniques** of weather radars, as well as establishment of domestic radar network.
- Key regional players (Indonesia, Japan, Malaysia, and Thailand) and also other Members, if they wish, will conduct experimental **data exchange** during the project period to achieve international data exchange for national DRR activities. The specifications of the international exchange including the data policy will be considered if need be.
- Noting the required functions as the **Regional WIGOS Centre(s)**, key regional players will consider providing technical advice to other Members in the region as well as data exchange platform.
- ASEAN member countries will be requested to submit their **national reports on radar system annually** at every SCMG meeting. Based on the submitted report, the meeting will identify the technical issues and update the regional strategic plan.
- Malaysia and Thailand will further develop advanced technologies of **radar data utilization**, in particular data quality management and integration, as an activity of the ESCAP/WMO Typhoon Committee. Both countries are expected to share acquired expertise with other Members.
- The **Coordination Group** will be established to facilitate the project **efficiently** and effectively.

Project. IV

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

Coordinators : Japan, China

Plan/ Activities

- Improvements of data quality at RBCN/RBSN (expected to be RBON) stations
 - **Quality monitoring**, incident management
 - Study and share **the best practices** on **QA/QC** procedures , a website
 - Possibility of technical support and information sharing within sub-regional area.
- Enhancement of RICs Services
 - a training workshop on in-situ check and calibration of instruments
 - package-type cooperation (including calibration of standards, lectures and practices, and technical support) if funds are available
 - Maintaining and expansion of elements for the International Standard ISO/IEC 17025
 - Promotion of intercomparison between RICs (including other RAs), Update of training materials, database of RIC's calibration results
- Investigation on migration error in code forms of observation: a survey on a status on data migration from observation signals into Table Driven Code Forms (TDCF) in RA II and share the results with Members.

Project. V

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

Coordinators : China, Japan, Republic of Korea

Plan/ Activities

- To push the Asian-RC, hosted by CMA, to apply for the future RSMC-ASDF representing Asian node, as suggested by all member countries.
- Data Sharing of NRT Output of SDS Model Forecasts from worldwide agencies.
- Observational Data Sharing during the Asian members.
- SDS models forecasts sharing with RA II Members.

Project. VI

Develop Support for NMHSs in Satellite Data, Products and Training

Coordinators : Japan, Republic of Korea

Plan/ Activities

- To facilitate the timely provision of satellite-related information by satellite operator to NMHSs in RA II.
- To identify requirements and current and planned utilization capabilities of NMHSs in RA II regarding data and products of Earth observation satellites
- To strengthen capabilities of NMHSs in RA II to use the routine images and derived products from the Earth observation satellites
- To develop a protocol for NMHSs of the countries in the Region to request event-driven rapid scan imagery; and (ii) to assist NMHSs to utilize rapid scan data in support of DRR in response to their requests;
- To continue the issuance of the quarterly newsletters.

Key Activity Areas For Regional WIGOS Implementation

- **Management of WIGOS implementation;**
- **Collaboration with WMO and co-sponsored observing systems;**
- **Design, planning and optimized evolution;**
- **Integrated Observing System operation and maintenance;**
- **Integrated Quality Management;**
- **Standardization and interoperability;**
- **The WIGOS Information Resource;**
- **Data and metadata management, delivery and archival;**
- **Capacity development;**
- **Communication and outreach.**

RA II WIGOS IMPLEMENTATION ACTIVITIES

No.	Activity	Deliverables	Timeline	Responsibility	Potential Risks
1. Management of WIGOS Implementation in RA II					
1.1 R	Regularly update R-WIP-II	R-WIP-II updated	when necessary	RA II EG-WIGOS/MG	Low (ongoing)
1.2 R	Report progress of the RA II R-WIP-II Projects ¹ to RA II MG	Progress reports	every year	Coordinators of Projects ²	Low
1.3 R N	Encourage RA II Members to appoint and update National Focal Points and submit national reports on progress of EGOS-IP	A list of RA II EGOS-IP National Focal Points	every year	RA II Members (Project No. I)	Mod
2. Collaboration with WMO and co-sponsored observing systems					
2.1 SR	Examine data policies and exchange observational sand and dust data	Exchange of datasets	2020	SDS-WAS Asian Node WG (China, Japan, Republic of Korea) (Project No. V)	High
3. Design, planning and optimized evolution of WIGOS and its regional, sub-regional					
3.1 R	Review the progress of EGOS-IP in RA II based on EGOS national reports submitted by RA II Members	Prioritized actions listed in the EGOS-IP	every day	China, Hong Kong, China (Project No. I)	Mod
3.2 SR	Assess enhanced capacity in monitoring and forecasting of sand and dust storms by	Identified benefits from exchange of	2020	SDS-WAS Asian Node WG (Project No. V)	Mod

Area-1: Management of the Regional WIGOS Implementation in RA II

- ***Executive Council***- monitor, guide, evaluate and support
- ***RA II*** will play the **key role** in WIGOS implementation in the Region
 - To **coordinate planning and implementation** of WIGOS on the regional level taking into account all WMO future priorities, such as GFCS and DRR through its Expert Group on WIGOS (EG-WIGOS)
 - To **assess** and continuously **monitor** regional requirements, identify regional gaps and identify capacity development projects within the Region to address those gaps.

Area-1: Management of the Regional WIGOS Implementation in RA II

EG-WIGOS, under guidance from ICG-WIGOS and the MG of RA II, and with the support, where required, of the WIGOS Project Office and the Regional Office for Asia and the South-West Pacific in the WMO Secretariat, will **be responsible for**,

- The development of the Regional WIGOS Framework Implementation Plan (**R-WIP**);
- The **integration** of WIGOS regional network components;
- The evolution of their **regional networks** according to the implementation plan for the evolution of global observing systems (EGOS-IP).

Area-1: Management of the Regional WIGOS Implementation in RA II

Members:

- **To plan, implement, operate and maintain** national networks and observing programmes based on the standard and recommended practices and procedures stated in the WMO Technical Regulations and the respective Manuals of the WIGOS component observing systems (e.g., GOS, GAW, WHOS and GCW).
- **To be encouraged to adopt a composite network approach** and to include the acquisition, and onward transmission, of data from external sources, including NMHSs and other government agencies, the commercial sector and members of the public.
- To be increased attention to **site protection and radio frequency spectrum protection.**

Specific regional/national activities for the Area-1

- Regularly update R-WIP-II
- Report progress of the **RA II R-WIP-II Projects** to RA II MG
- Encourage RA II Members to appoint and update National Focal Points and submit national reports on progress of EGOS-IP

2. Collaboration with WMO and co-sponsored observing systems

- Regional level
 - coordination and cooperation will be supported by **a mechanism to be defined** by the Regional Association and the respective regional bodies in order to resolve possible problems in data policy, product delivery and other governance issues.
- National level
 - **Interagency and inter-observing system coordination mechanism** will need to be complemented and supported through similar cooperation and coordination arrangements among NMHSs and through national implementation mechanisms for GFCS, GCOS, GOOS, GTOS, and GEOSS.

Specific regional/national activities for the Area-2

- Examine data policies and exchange observational sand and dust data
 - SDS-WAS Asian Node WG (China, Japan, Republic of Korea)
 - Project No. V

Area-3: Design, Planning and Optimized Evolution of WIGOS component observing systems

- Vision for the Global Observing Systems in 2025: high-level
- Evolution of Global Observing Systems (EGOS-IP): CBS-15 (2012)
- The Regional Association
 - coordinating the implementation of relevant elements of the WIGOS surface-based sub-system
 - evolving from the previous concepts of mainly the regional **synoptic and climatological networks** into an **integrated concept of a WIGOS regional network**.
 - **compiling the views** of Members and maintaining documented requirements and priorities for data and products to be available for the Region from the WIGOS space-based sub-system.
 - examine, and report back to CBS, its requirements for data, and any issues it identifies with the global WIGOS design, taking into account the particular requirements of the Region and international river basin authorities.

Area-3: Design, Planning and Optimized Evolution of WIGOS component observing systems

- ***National or Sub-Regional Level***
 - To assess the regional data requirements and plan the regional observing system components;
 - To implement and evolve observing systems following this plan, the EGOS-IP and other observation system implementation plans.

Specific regional/national activities for the Area-3

- Assess enhanced capacity in monitoring and forecasting of sand and dust storms by exchanged datasets; use the results to update the RRR user requirements database and to fine tune the EGOS-IP and observing system plans
- Develop strategic plan on development of the Southeast Asia radar network
- Identify the requirements of NMHSs of developing countries, regarding satellite imagery, data and products, use the results to update the RRR user requirements database and to fine tune the EGOS-IP
- **Migrate from the existing RBSN/RBCN into an integrated RBON**

Area-4: Integrated Observing System Operation and Maintenance

- Observing system owners or custodians
 - are responsible for operating and maintaining their systems and for complying with the regulations of the WMO and co-sponsored observing systems to which they contribute.

Area-4: Integrated Observing System Operation and Maintenance

- Regional level
 - involves a process for **sharing of operational experiences, practices and ideas**, for sharing of expertise and for pooling resources for joint activities.
 - RA II WIGOS Project to Enhance the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations;
 - RA II WIGOS Project to Develop Support for NMHSs in Satellite Data, Products and Training;
 - RA II WIGOS Project for Capacity Building in Radar Techniques in Southeast Asia.

Specific regional/national activities for the Area-4

- Develop and share national reports toward operational rainfall estimation/forecasting based on radar data
 - Identified technical issues and lessons learned on operation of radar systems among ASEAN countries

Area-5: Integrated Quality Management

A network of Regional WIGOS Centres (RWCs) is needed to assist RA II Members to successfully implement WIGOS at the national and regional levels.

- The examination of current quality management practices being used in the Region;
- The documentation of the quality of observations from the WIGOS regional networks at all stages of data processing; and
- Ensuring, where possible, traceability of observations to the International System of Units (SI).

Specific regional/national activities for the Area-5

- Survey and share the status on calibration instruments for surface-based observations in RA II
- Monitor data quality by utilizing NWP QC monitoring reports on surface observations
- Organize intercomparison between regional standards of RICs
- Obtain ISO/IEC 17025:2005
- Enhance support by RICs, and encourage Members to work with RICs to ensure traceability to SI

Area-6: Standardization and Interoperability

- Standardization of observations is required to achieve system interoperability (including data compatibility) across all WIGOS component observing systems and these are key to turning observations into effective data/products that meet real needs of all Members.
- WIGOS standardization should build on existing WMO and other international standards, recommended and best practices and procedures, and take into account the ongoing rapid progress in technology that will continue to provide a basis for further improvements in the capability, reliability, quality and cost-effectiveness of observations.
- System interoperability and data compatibility also rely on the use of standardized data representation and formats, standardized methods for information exchange, and standardization in data management.
- RA II will support all activities leading to the interoperability (including data compatibility) of WIGOS observing components through utilization and application of the same, internationally accepted standard and recommended practices and procedures (that is, standardization). Data compatibility will also be supported through the use of standardized data representation and formats.

Specific regional/national activities for the Area-5

- Survey and share the status on QC/QA procedures and site management for the network of RBCN and RBSN stations
- Encourage the collection of metadata on observing stations
- The web-interface for sharing status of standardization and experience and monitoring synoptic observations in RA II

Area-7: The WIGOS Information Resource

- The WIGOS Information Resource (WIR), accessible via a centralized point (web portal),
- will provide all WIGOS related operational information, including
 - observational user requirements,
 - a description of the contributing observing networks (instrument/site/platform metadata),
 - and their capabilities, list of standards used in the WIGOS framework,
 - data policies applicable, a
 - nd information on how to access data.

Specific regional/national activities for the Area-7

- Develop a portal to share EGOS national reports
- Develop a standards and best practices Portal
- Develop QA/QC Portal

Area-8: Data Discovery, Delivery and Archival

- Members of the Region are responsible for submitting their data to these regional or specialized data centres.
 - RA II will encourage its Members to abide by this commitment.
- Members of the Region will adopt WIGOS and WIS standards and make their data and metadata available through WIS for delivery or for discovery, access and retrieval services

Specific regional/national activities for the Area-8

- Encourage RA II Members to be designated as NCs and DCPCs
- Encourage RA II Members to share data via WIS, including from organizations other than NMHSs

Area-9: Capacity development

- The WIGOS capacity development activities at the regional level are focused on:
 - Providing assistance to Members of the Region to introduce or improve institutional mandates and policies that enable effective implementation, operation and management of observing systems;
 - Filling the existing gaps in the design, operation and maintenance of WIGOS observing systems, including both the infrastructure and human capacities development;
 - Technological innovation, technology transfer, technical assistance and decision-support tools.

Specific regional/national activities for the Area-9

- Technical Training on QA/QC procedures
- Hold training workshops on maintenance and calibration
- Develop training materials on maintenance and calibration of meteorological instruments meteorological instruments
- Coordinate training activities on utilization of satellite data/products
- Establishing filed intercomparison campaign for observation techniques

Area-10: Communication and Outreach

- The Region will establish its communication and outreach strategy through the efforts of WMO Members, Programmes, Regional Associations (RAs) and Technical Commissions (TCs), and co- sponsors.

Specific regional/national activities for the Area-10

- Interlink RA II WIGOS portals and related Websites
- Develop RIC Websites
- Publish newsletter regularly

REGIONAL PROJECT MANAGEMENT

- RA II, through its Management Group, will monitor, review, guide and support the overall implementation of WIGOS in the Region, and update the Implementation Plan if and when necessary;
- RA II, through the Coordinator of EG-WIGOS, will report to the ICG-WIGOS and the WIGOS Project Office on the progress in implementation of WIGOS in the Region;
- The president of RA II will report to the sessions of RA II on WIGOS implementation.

Evaluation

- The evaluation methodology will be designed against WIGOS implementation activity tables
 - activities, deliverables, timeline, responsibility and budget allocations.
 - This will include a schedule of monitoring and evaluation activities and related responsibilities.
 - Mid-term evaluation, interim progress reports and post-implementation reviews are planned as a means of providing early feedback on progress towards success, and as a means of meeting accountability and transparency requirements for the whole implementation phase.
 - The members of the Region will provide progress reports at the request of the RA II Management Group.

EG-WIGOS

EG-WIGOS	Name	Member
Coordinator	Mr Yongqing CHEN	China
Leader in Monitoring and Reviewing the Implementation of EGOS IP in RA II	Ms GUO Jianxia	China
Leader in the web-interface for sharing status of standardization and experience and monitoring synoptic observations in RA II	Mr Chulwoon CHOI	Rep. of Korea
Leader in Capacity-building in Radar Techniques in the Southeast Asia	Mr Koichiro KAKIHARA	Japan
Leader in Enhancing the Availability and Quality Management Support for NMHSs in Surface, Climate and Upper-air Observations	Mr Nobuyuki TANAKA	Japan
Leader in Developing a Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) in Asia Node	Mr ZHOU Qingliang	China
	Mr Hasan ALDASHTI	Kuwait
Leader in Developing Support for NMHSs in Satellite Data, Products and Training	Mr Hiroshi KUNIMATSU	Japan
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Thank you!