

UN EW4All

WMO's Regional Efforts

September 2025

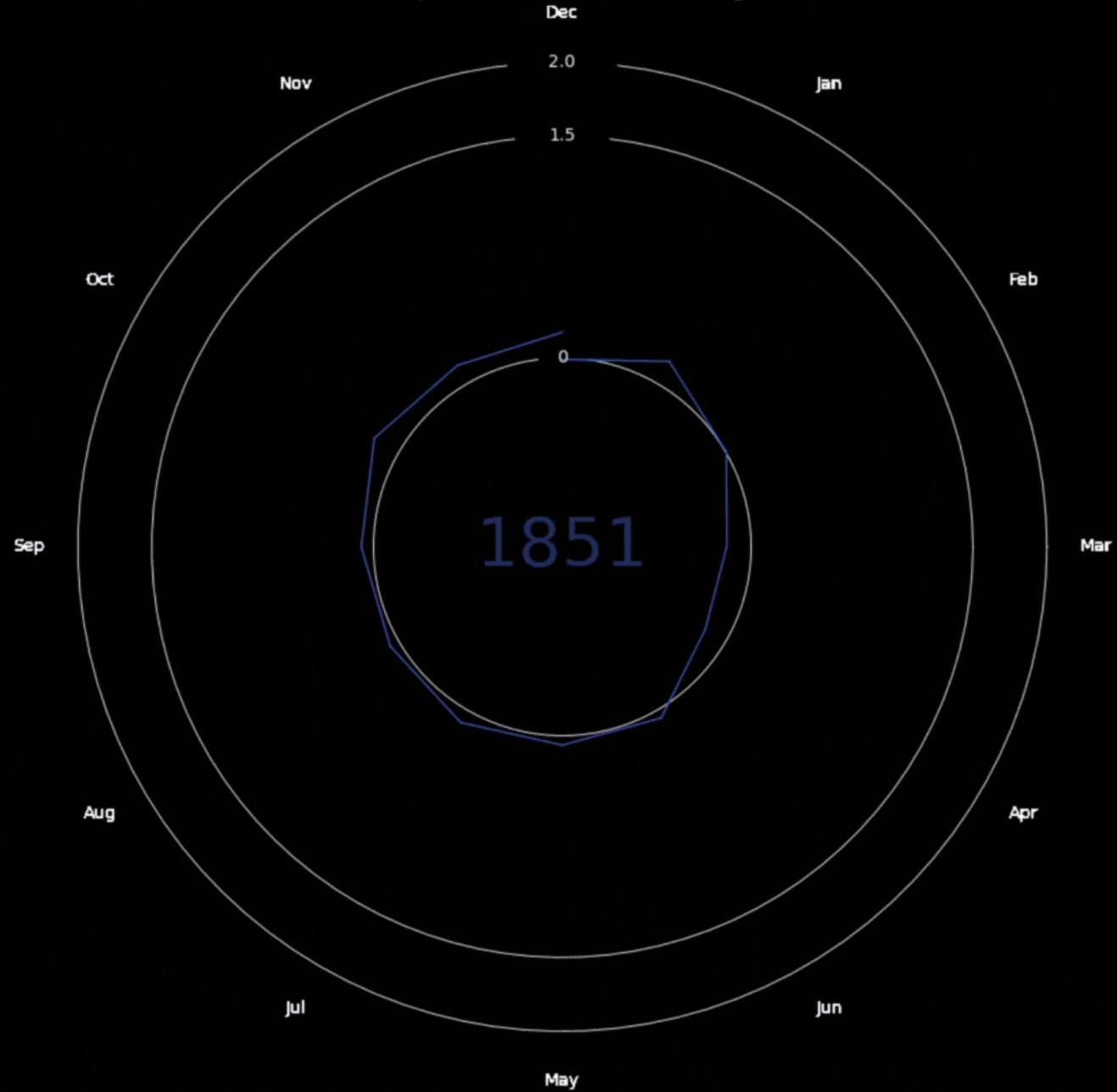


WORLD
METEOROLOGICAL
ORGANIZATION



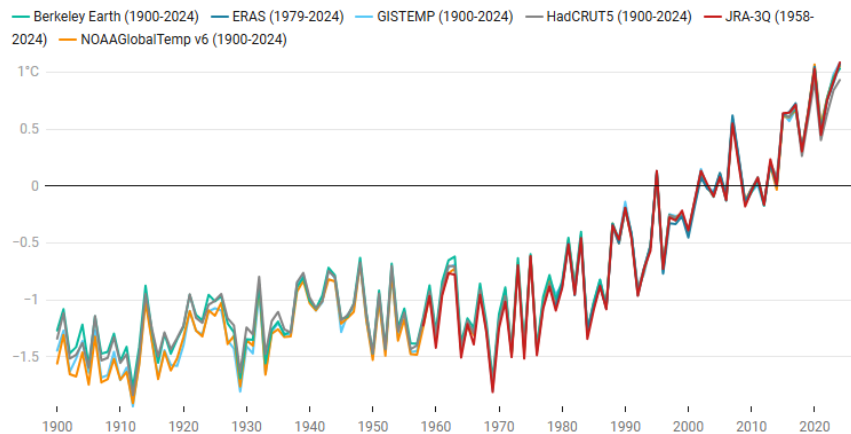


Monthly global mean temperature difference (°C)
Compared to 1850-1900 average



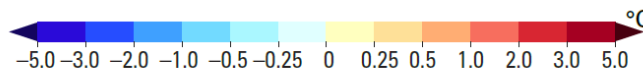
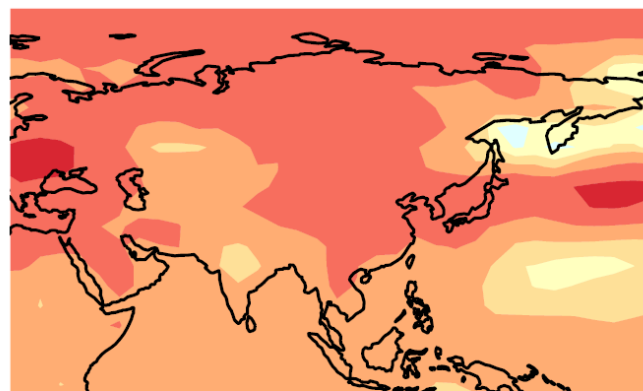
WMO RA II Asia annual land temperature 1900-2024

Difference from 1991-2020 average

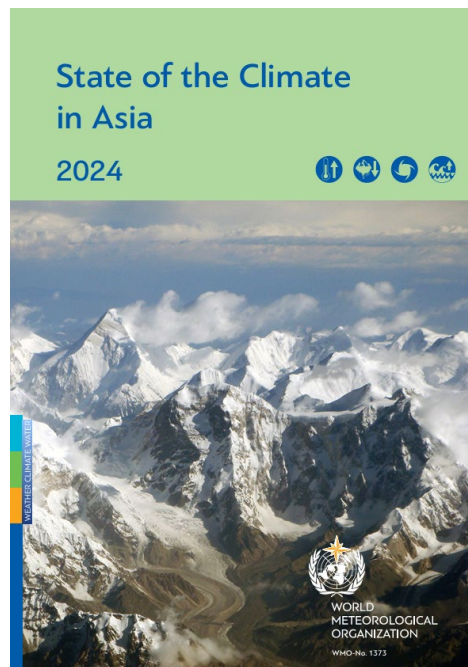


Annual Regional mean temperature for WMO RA 2 Asia (°C, difference from the 1991-2020 average) from 1900-2024. Data are from the following six data sets: Berkeley Earth, ERA5, GISTEMP, HadCRUT5, JRA-3Q, NOAA GlobalTemp v6.

Chart: WMO • Source: WMO State of the Climate Dashboard • Get the data • Embed • Download image • Created with Datawrapper

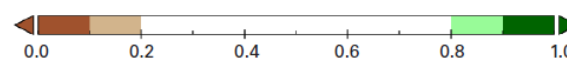
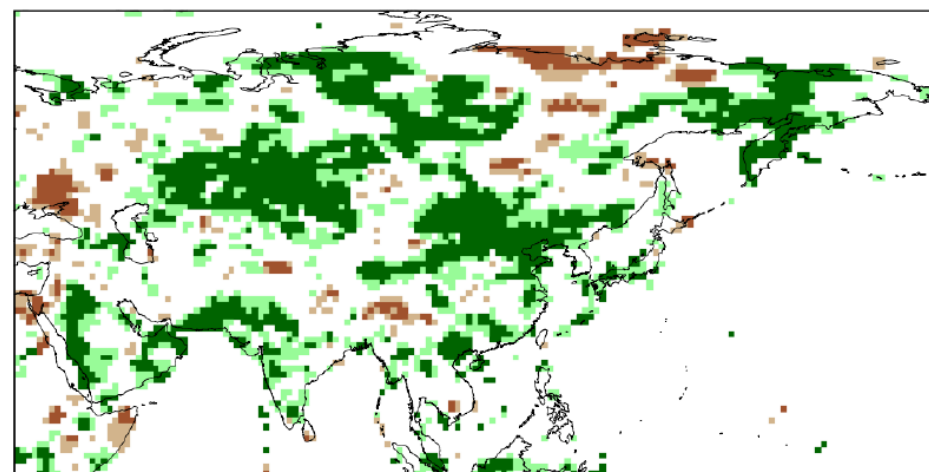


Temperature difference from 1991-2020 average



Key messages

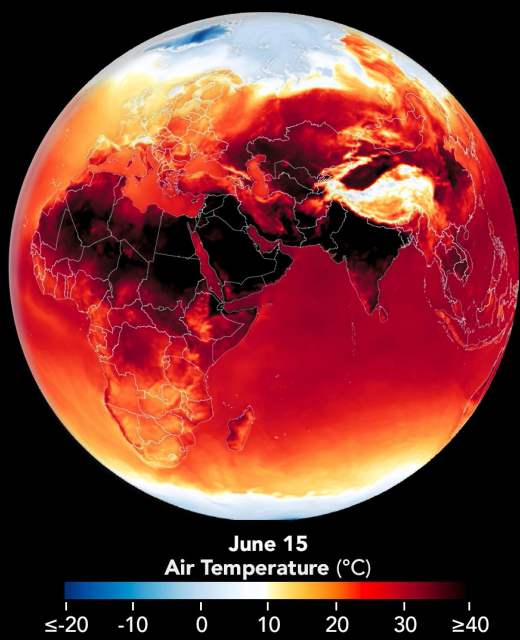
- Asia is warming at twice the global average
- Sea surface temperature record high in 2024
- Marine heatwaves were worst on record
- Glacier melt accelerated
- Floods and droughts destroyed lives and livelihoods
- **Early warnings and action save lives**



Quantile



Typhoon Yagi was the most intense storm in Asia in 2024, caused catastrophic destruction across Asia, with record-breaking landfalls in China and Vietnam and more than 700 lives lost.



Severe Heatwaves – South Asia and the Middle East

- An extraordinary heatwave across India and Pakistan lasted from April to early July, with temperatures up to **48 °C** in June.
- Daytime highs approached **50 °C** in several parts of the region, straining power systems and public health.

Severe Sand and Dust Storms

- Countries including **Saudi Arabia, Kuwait, and Iraq** experienced several intense sandstorms between March and June 2025.

Widespread heavy rainfall and Flooding

- Starting **16 July**, Republic of Korea experienced unprecedented heavy rainfall.
- Between **29 July and 5 August**, Hong Kong, China experienced four "black rainstorm" episodes, the highest alert level, breaking all previous records.
- In **July 2025**, heavy rainfall caused flash floods in mountainous outskirts of Beijing, particularly Huairou and Miyun, killing **44 people**.

Regional Drought and Water Stress

- Prolonged drought conditions continued across **Iraq, Syria, and Yemen**, reducing river flows (Euphrates, Tigris) and deepening food insecurity



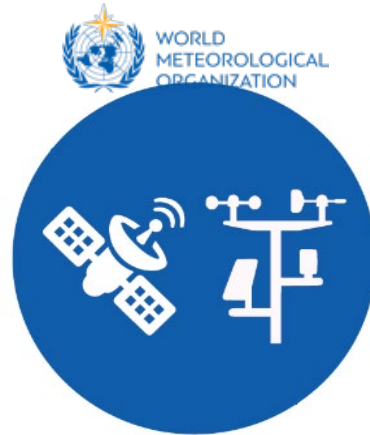
Demonstrating Global Results



55 countries out of 195 report having available disaster risk information

This represents a year-to-year **increase of 31%**

Still, this Pillar lags most behind



Global hazard forecasting is improving, but still lagging behind

108 countries now report **strengthened MHEWS capacities**



100 countries report they are disseminating warnings – the highest number!

45 countries report **use of Cell Broadcast** for warning dissemination in 2024



In 2023, **47 countries** had at least one Anticipatory Action framework, nearly **doubling from 2022**

Improved preparedness to respond reported by countries

Trends in Asia-Pacific

The ‘comprehensiveness’ of MHEWS is determined by countries’ self-assessment across the four pillars. In the Sendai Framework Monitoring, comprehensiveness is assessed on a scale of 0 to 1, where zero indicates no MHEWS and a score exceeding 0.75 reflects ‘comprehensive’ MHEWS

- **2nd largest increase in comprehensiveness** - more than global average
- Considerably **more countries reported having disaster risk knowledge systems** as compared to other regions
- Majority of the countries have reported **comprehensive coverage of pillar 2**, however, gaps exist among LDCs and SIDS
- Two-thirds of the countries have reported **coverage for warning dissemination and communication**
- **Highest overall coverage in terms of preparedness to respond to disasters**





Initial Roll-out Countries



Use tools and methodologies to rapidly scale-up the inclusion of **further countries → DPR Korea, Iran, Iraq, Kyrgyzstan, Mongolia, Yemen**

Capture support for Early Warning in all the places it occurs

Leverage Regional Partners and Specialized Centres → **ADPC, ICIMOD, IWMI, RIMES, etc.**

Enhance national ownership and sustain existing efforts

Scale-up **South-South cooperation** and **twinning/peer learning**

Continue supporting **resource mobilization** and **expand the donor base → China, Republic of Korea, Japan, ADB, etc.**

Next Phase: Broadening the tent

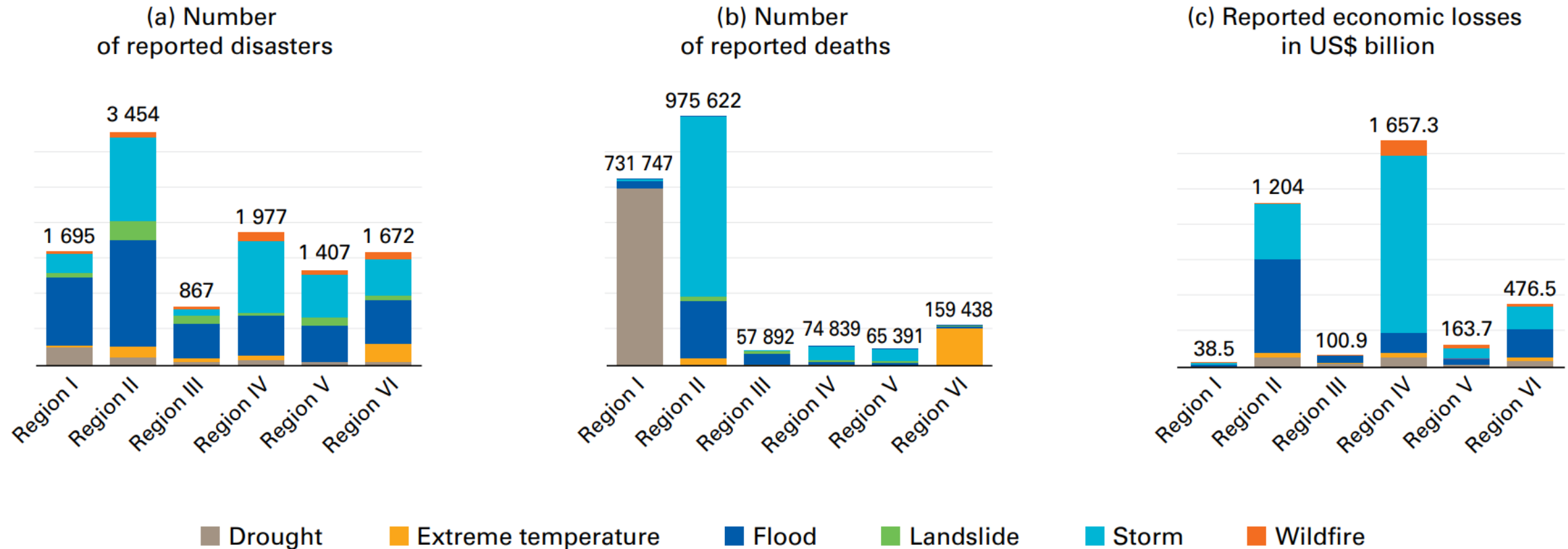


WMO Regional Associations

193 Members, 6 Regions, 9 Regional/Representative Offices



Socio-economic Impacts of Extreme Weather, Climate and Water: by WMO region (1970-2019)



Between 1970 and 2021, **31% of globally reported disasters** occurred in Asia (RA II).

WMO Technical Commission and Regional Association Priorities

Technical Commissions working together with the Research Board, **Regional Associations** & other partners to support Members' timely access to the best available information to enable them to produce, disseminate and monitor warnings & advice for weather, climate, hydrological, marine, cryosphere, and related environmental hazardous events

Infrastructure Commission focusing on enhancing Global Infrastructure for building national Early Warning Systems & developing Members' capacities:

- Implement WIS2.0 (WMO Information System), incl. CAP (Common Alerting Protocol) and WHOS (WMO Hydro Observing System)
- Implement GBON (Global Basic Observing Network), including through SOFF (Systematic Observations Financing Facility), and develop RBON (Regional)
- Enhance WIPPS (WMO Integrated Processing and Prediction System) & satellite products for hazards, also using AI, incl. those from academia and private sectors

Services Commission focusing on updating regulatory frameworks for Early Warnings Services (EWS) & supporting capacity development activities

- Global EWS Standards and Recommended Practices --> **EWS Technical Regulations (TR)**
- Cataloguing of Hazardous Events (in collaboration with UNDRR)
- Guidance, good practices, trainings & communications → e.g, SWFP, FFGS, HydroSOS, RCOFs, ...

Regional Associations:

- To promote the execution of the resolutions of Congress and the Executive Council;
- To discuss matters of general interest and to coordinate activities;
- With the assistance of the regional offices to ensure that **focused** actions on the implementation of the **EW4All** falling within their terms of reference are **prioritized** in their respective work plans for the next financial period.

RA II-18 Phase I, virtual, 22 to 25 April 2025

RA II adopted 9 resolutions and 8 decisions with the participation of 227 delegates.

The second phase of the 18th Session is expected to be held before the end of 2027, while the 19th session is planned for 2029. The region faces unique challenges, with 60% of the world's population—approximately 5 billion people—vulnerable to extreme weather events, water-related disasters, and the effects of climate change.



Regional Partners



Bilateral Cooperation

Extrabudgetary projects



RA II Task Team
on EW4All

Management Group (MG)

President

Dr Ayman Salem GHULAM (Saudi Arabia)

Vice-president

Dr Sahibzad KHAN (Pakistan)

Members

Dr Abdulla Ahmed AL MANDOUS (PR of United Arab Emirates with WMO and President of WMO)

Dr Mrutyunjay MOHAPATRA (PR of India with WMO and Third Vice-President of WMO)

Dr CHEN Zhenlin (PR of China with WMO)

Mr Ryoichi Nomura (PR of Japan with WMO)

Dr CHANG Dong-Eon (PR of Republic of Korea with WMO)

Dr Mamoru Miyamoto (Regional Hydrological Adviser (RHA))

International Advisors' network (INTAD)

Regional Network
of WMO
Operational
Centres (WIPPS,
RWC/RIC, RTC),
including Capacity
Development

WG Infrastructure

C: Mr SATO Yoshiaki (Japan)

VCs: Dr GUO Jianxia (China)

Dr. K. N. MOHAN (India)

Expert Teams/FPs

- ET-WIN
- ET-WIM
- ET-WIS
- ET-WIPPS
- ET-SOA
- ET-HM (TBD)

WG Services

C: Dr YANG Shunan (China)

VCs: Dr Rajendra KUMAR Jenamani (India)

Dr Farnaz Pourasghar
TOLOMBECHI (Iran, I.R.)

Expert Teams/FPs

- ET-DRR
- ET-CS
- ET-HS
- ET-AGR
- ET-MS
- ET-AVI
- JET - cryosphere and high mountain services (TBD)

CP or WG Hydrology

C: Dr Hyeonjun KIM (Republic of Korea)

To be discussed

CP Research and Innovation

C: Dr V.S. PRASAD (India)

VCs: Dr Mai Van Khiem (Viet Nam)
Dr Ebrahim As'adi Oskouei (Iran, I.R.)
Dr ZHOU Kanghui (China)

To be discussed

RA II Partnership Strategy

RA II Operating Plan/Work Programme (2025-2027)

Regional Partners such as:



CP Hydrology and Water Resources

C: Dr Hyeonjun KIM (Republic of Korea)

Co-Chair: Dr Mamoru Miyamoto (Regional Hydrological Adviser (RHA))

Vice Chair (Hydrologist)/WG Infrastructure (Leader or member of ICT-HS)

Vice Chair (Hydrologist)/WG Services (Leader or member of ICT-HM)

Members:

- Leader, ICT-HM/WG Infrastructure
- Leader, ICT-HS/WG Services
- Focal Point on HydroSOS
- Project leader(s), if established

WG Infrastructure

C: Mr SATO Yoshiaki (Japan)

VCs: Dr GUO Jianxia (China)

Dr. K. N. MOHAN (India)

One Hydrologist (TBD)

Expert Team

- ICT-HM (TBD)

WG Services

C: Dr YANG Shunan (China)

VCs: Dr Rajendra KUMAR Jenamani (India)

Dr Farnaz Pourasghar TOLOMBECHI (Iran, I.R.)

One Hydrologist (TBD)

Expert Teams/FPs

- ICT-HS

RA II Operating Plan/Work Programme (2025-2027)

Key Result Areas

- Organize and document Regional Hydrological Assembly
- Organize and document RA II Hydrological Advisers' Forums
- Coordinate the review of ideas/proposals by Members for Extra-budgetary projects
- Monitor the implementation of HydroSOS

- Reinforce Members' capacities in hydrometry, sediment transport, and soil moisture
- Enhance hydrological services through new technologies (AI, ML), Satellite/remote sensing and capacity development (clearly linked to LTG 2)

- Improve water resources assessment and management, including forecasting and warning (Dynamic Water resources Assessment Tool (DWAT), Global Hydrological Status and Outlook System (HydroSOS), Associated Programme on Flood Management (APFM), International Drought Management Programme (IDMP))
- Pilot flood hazard maps
- TBD: joint activities on cryosphere and high-mountain services (clearly linked to LTG 1)



RA II Operating Plan Dashboard

Click [here](#) for RA II Operating Plan (2021-2024).

Group

- ☒ Select all
- ☒ CP-H
- ☒ JET
- ☒ RFP/R
- ☒ TT-RC
- ☒ TT-RP
- ☒ WG-I
- ☒ WG-S

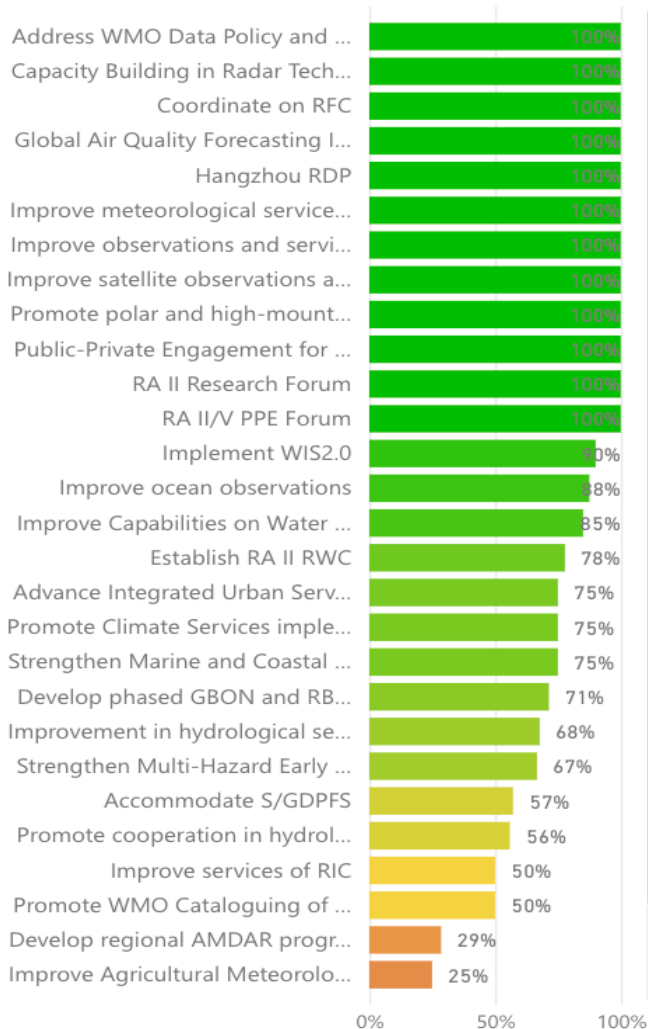
Expert Team

- ☐ ET-AGR
- ☐ ET-AVI
- ☐ ET-CS
- ☐ ET-DRR
- ☐ ET-GDPFS
- ☐ ET-HS
- ☐ ET-MS
- ☐ ET-OO
- ☐ ET-RF
- ☐ ET-RIC
- ☐ ET-SOA
- ☐ ET-US
- ☐ ET-WICAP
- ☐ ET-WIGOS

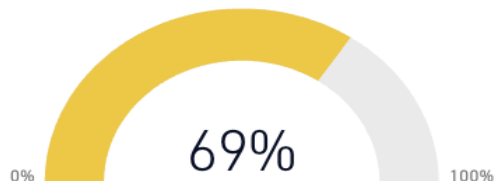
Progress
Monitoring

Working Sturcture

Progress of Activities under each KRA



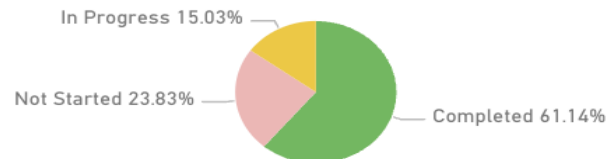
Average Activity Progress



Activity	Status (Indicator)
Data collection for the current state of the operational flood management system	Completed
6th Marine Instrumentation Workshop for Asia-Pacific Region	Completed
Analysis on the current status of GMAS-A implementation in RAII (2022)	Completed
Analyze the data and consolidate the survey results with Merits and Demerits of each method	Completed
Annual exercises among RSMCs for EER	Completed
AOMSUC-11 hosted by China in October 2021 (Virtual), together with a VLab training, and a RAII/V coordination meeting	Completed
AOMSUC-12 in 2022 hosted by Japan together with a VLab training, and a RA II/V coordination meeting	Completed
AOMSUC-13 in 2023 hosted by KMA together with a VLab training, and a RA II/V Satellite Coordination meeting (Completed)	Completed
Calibrate Members' standard instruments	Completed
Call for extrabudgetary project proposals from RA II Members	Completed
Collect final suggestion from the RA II experts on the draft 2	Completed

i Select a "Group" and then click on a bar in the KRA bar chart to select one KRA. Click anywhere else on the bar chart to select all KRAs. Hover your mouse over the KRA for more information. (Values may not be accurate.)

Status



Name	Member	Role
Mi Na	China	Associate member
Abdulrahman Alolan	Qatar	Associate member
Ahad Vazifeh	Iran, I.R	Associate member
Ali Alboinin	Qatar	Associate member
Amin Fazl Kazemi	Iran, I.R	Associate member
Ashok Kumar Das	India	Associate member
Behzad Layeghi	Iran, I.R	Associate member
BL Choy	Hong Kong, China	Associate member
Bui Thi Hong Trang	Viet Nam	Associate member
Bushra Alqubaisi	Qatar	Associate member
C. S. Tomar	India	Associate member
Cha Joo Wan	Republic of Korea	Associate member
D.R Pattanaik	India	Associate member

XB Project	Allocated Funding (CHF)	Timeframe
USAID – Flash Flood Guidance System (FFGS) Phase III	7,500,000.00	07/08/2019-08/31,
Support implementation of Central Asia Hydrometeorology Modernization Project	332,825.00	12/01/2018-03/31,
RAS-Myanmar_Technical assistance for the modernization of the	3,026,000.00	08/27/2019-09/30,



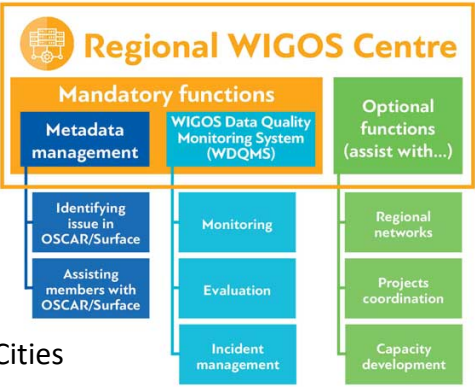
Regional Flagships in Operating Plan

Early Warnings for All

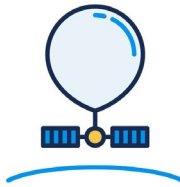
2025-2027



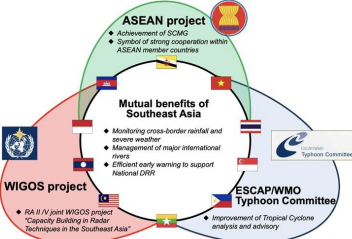
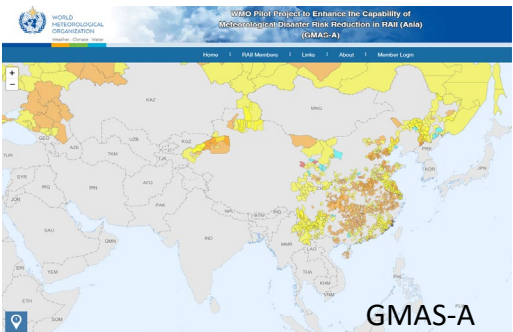
PPE for Smart Meteorological Services in Mega-Cities



RBON



Third Pole Regional Climate Centre



Sand and dust storms



WEATHER MODIFICATION



291 stations recognized worldwide



Filter by Region



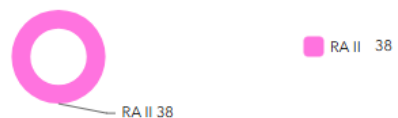
Filter by WIPPS Activities

Search...

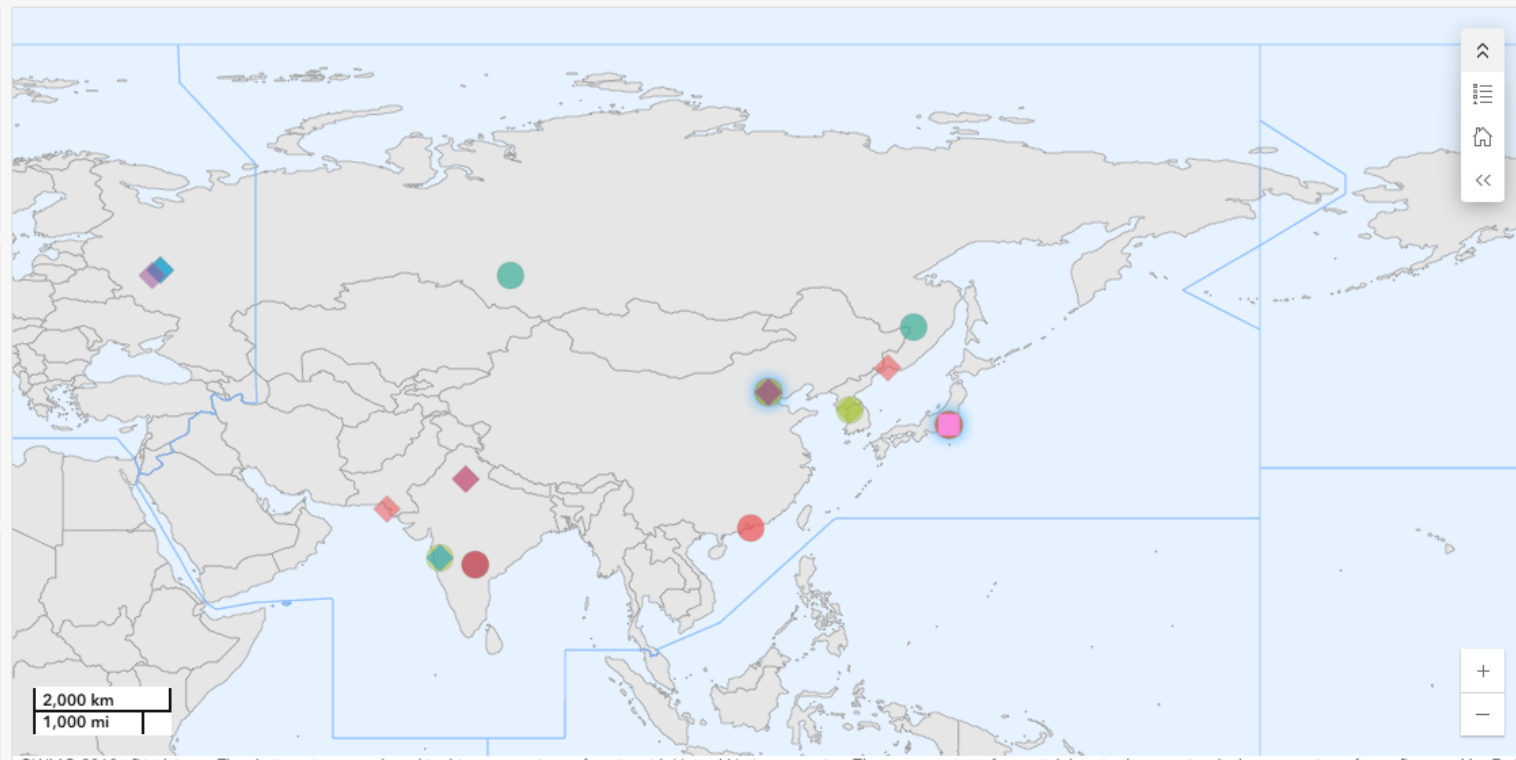
- ☐ World Meteorological Centre
- ☐ Global deterministic numerical weather prediction
- ☐ Limited-area deterministic numerical weather prediction
- ☐ Global ensemble numerical weather prediction
- ☐ Limited-area ensemble numerical weather prediction
- ☐ Global sub-seasonal prediction
- ☐ Global seasonal prediction
- ☐ Annual to decadal climate prediction
- ☐ Global climate reanalysis
- ☐ Numerical ocean wave prediction
- ☐ Global numerical ocean prediction
- ☐ Nowcasting
- ☐ Regional climate prediction and monitoring

38
centres/networks

17
activities



	WMC Beijing World Meteorological Centre
	WMC Tokyo World Meteorological Centre
	RSMC Beijing Global deterministic numerical weather prediction
	RSMC Tokyo Global deterministic numerical weather prediction
	RSMC Khabarovsk Limited-area deterministic numerical weather prediction
	RSMC Novosibirsk Limited-area deterministic numerical weather prediction
	RSMC Beijing Global ensemble numerical weather prediction
	RSMC Tokyo Global ensemble numerical weather prediction
	GPC Beijing Global sub-seasonal prediction
	GPC Tokyo Global sub-seasonal prediction



©WMO 2018 - Disclaimer: The designations employed in this map are in conformity with United Nations practice. The presentation of material therein does not imply the expression of ... Powered by Esri

World Meteorological Centre carries out at least the following activities
(a) Global deterministic NWP;
(b) Global ensemble NWP;
(c) Global numerical long-range prediction.

♥ indicates mandatory products.

Information about **WMC Beijing** (World Meteorological Centre)



Website: [Link](#)

Focal Point: [Mr Qingliang ZHOU](#)

Principal GISC: **Beijing**

This centre was designated in 1998.

Useful links

- [A full list of designated WIPPS centres](#) (Part III of Manual on the WMO Integrated Processing and Prediction System)
- [WIPPS Community site](#)

Notes to User

1. Please address requests for updating information to the Earth System

Partnerships

Partnerships between Members, development partners, multilateral organizations and international finance institutions are critical in mobilizing/allocating funds to support EW4All implementation, particularly **beyond** the initial 6 RA II Members.



137.9M

Total Contribution (CHF)

58

Total Active Projects

**15.0M**

Observations

**21.3M**

Data Management

**39.2M**

Forecasting

**36.5M**

*Service Delivery

**25.9M**

**Other

**Projects per Region****

Overview

Projects

Reset all filters

Project Location	Funding (CHF)	Benefiting Countries
Global (All WMO Members)	35.47M	
Cross-Regional	9.53M	35
RA I (Africa)	45.04M	42
RA II (Asia)	25.54M	13
RA III (South America)	12.48M	7
RA IV (North America, Central America, The Caribbean)	4.96M	17
RA V (South/West Pacific)	3.36M	14
RA VI (Europe)	1.51M	52

The designations employed in this website are in conformity with [United Nations practice](#). The presentation of material therein does not imply the expression of any opinion whatsoever on the part of WMO concerning the legal status of any country. For more detail, please visit [website](#).

*WMO Service Delivery: A user-focused model providing timely, accurate weather, water, and climate services.

**Project information is based on estimate. Details may change during implementation. For more detail, please contact us at wmoprojects@wmo.int.

**WORLD
METEOROLOGICAL
ORGANIZATION**

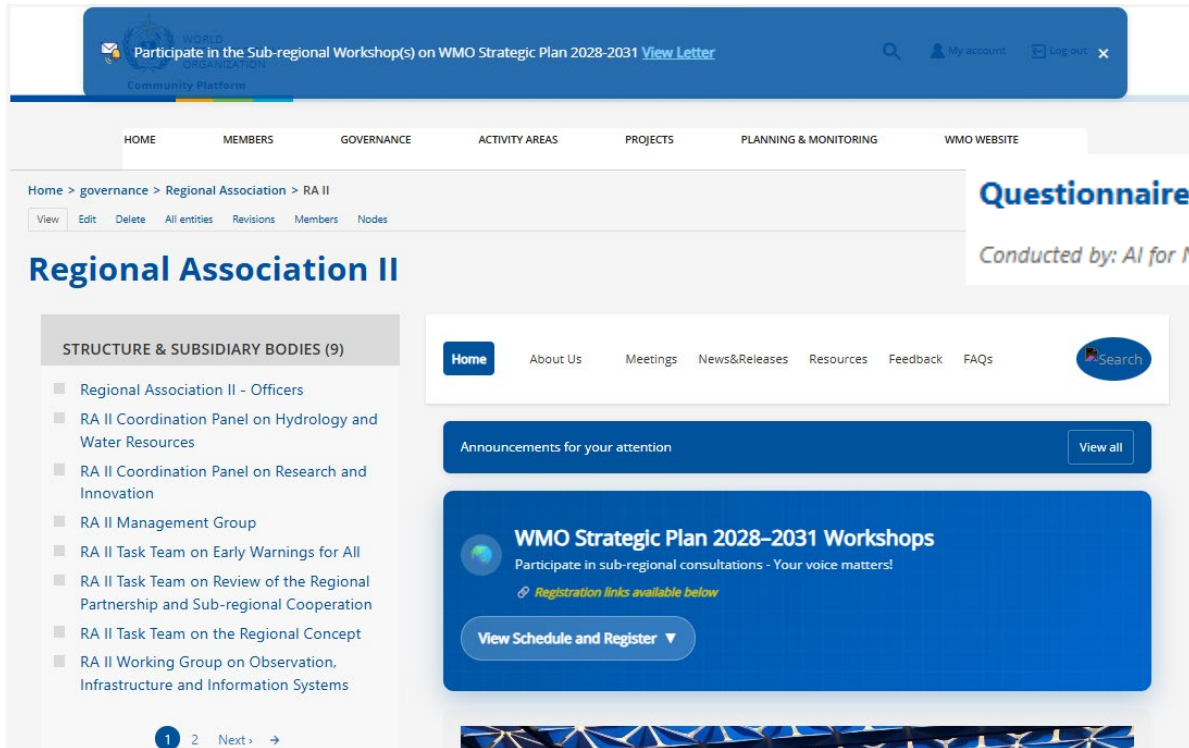
Regional Partnership Strategy

A comprehensive regional partnership strategy was endorsed to foster greater collaboration among Members and with external partners.

The strategy was facilitated by the reactivated **International Advisors Network** and a virtual **network of WMO regional centres**. Through these networks, information exchange and cooperation would be greater enhanced.

"International cooperation and strong partnerships are more critical than ever," stressed Professor Saulo, acknowledging the current global context, which is placing significant financial pressures on international organizations, including WMO.

RA II Community Website and Regional Surveys



Survey on Data Exchange with the Research Sector

Conducted by: The Research Board Task Team on Data Exchange with the Research Sector (TT-DERS)

Questionnaire to Collect the Requirements and Current Status Related to AI for Nowcasting

Conducted by: AI for Nowcasting Pilot Project (AINPP)

Training Needs Assessment for RA II Region

Conducted by: WMO Regional Training Center Tehran (Tehran-RTC)

<https://community.wmo.int/en/governance/Regional-Association/RA-II>

Regional Survey on Weather Radar
Calibration and Measurement In
ter-comparison Activities





WMO Strategic Plan 2028–2031 Workshops

Participate in sub-regional consultations - Your voice matters!

[Registration links available below](#)

 **15 September 2025** **ASIA**

 7:00-11:00 UTC

 **East and Southeast Asia**

English



 **30 September 2025** **ASIA**

 8:00-12:00 UTC

 **North and Northeast Africa and West Asia**

Arabic



 **02 October 2025** **ASIA**

 8:00-12:00 UTC

 **Europe and Central Asia**

Russian



[Hide Schedule](#) ▲

شكراً

谢谢

Thank you

Спасибо