

# WIPPS: Doc.8.4(1) ~ 8.4(5)

Pre INFCOM-3 Information Session  
(25 March - 5 April 2024)

David Richardson

Chair, Standing Committee on Data Processing  
for Applied Earth System Modelling and Prediction (SC-ESMP)

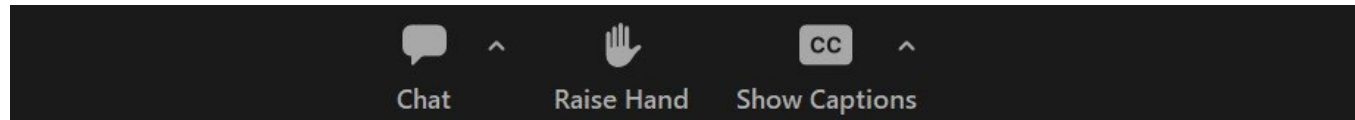
3 & 4 April 2024



WORLD  
METEOROLOGICAL  
ORGANIZATION

# General remarks

1. There will be 2 identical sessions:
  - a) 3 April (14:30 - 16:00 UTC) - Eastern Hemisphere
  - b) 4 April (7:00 - 8:30 UTC) - Western Hemisphere
2. The sessions will be recorded, and the recordings will be available on the INFCOM-3 website.
3. **Second part of the session will be dedicated to your questions, please:**
  - raise your hand,
  - use the chat, or
  - send an email (in any WMO language) to: [wipps@wmo.int](mailto:wipps@wmo.int).
4. The working language is English.
5. INFCOM-3 documents: [INFCOM-3 - Session Information \(wmo.int\)](#)



# INFCOM-3 documents in WIPPS session (14:00-17:00(CEST) on 17 April)

(in blue: to debate; in grey: approve without debate)

**8.4(1) Amendments to the *Manual on the WMO Integrated Processing and Prediction System* (WMO-No.485)**

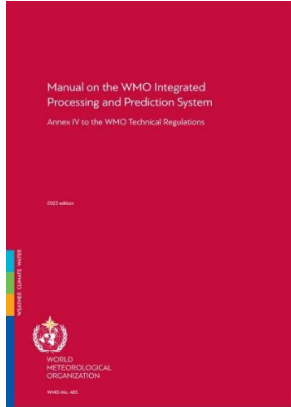
8.4(2) Update of the *Guide to the WMO Integrated Processing and Prediction System* (WMO-No.305)

**8.4(3) Demonstration of integration of products from non-traditional source into WIPPS**

**8.4(4) Demonstration of the WIPPS Rolling Review of Requirements**

8.4(5) Roadmap for the integration of Cryosphere in WIPPS

# WIPPS Manual and Guide



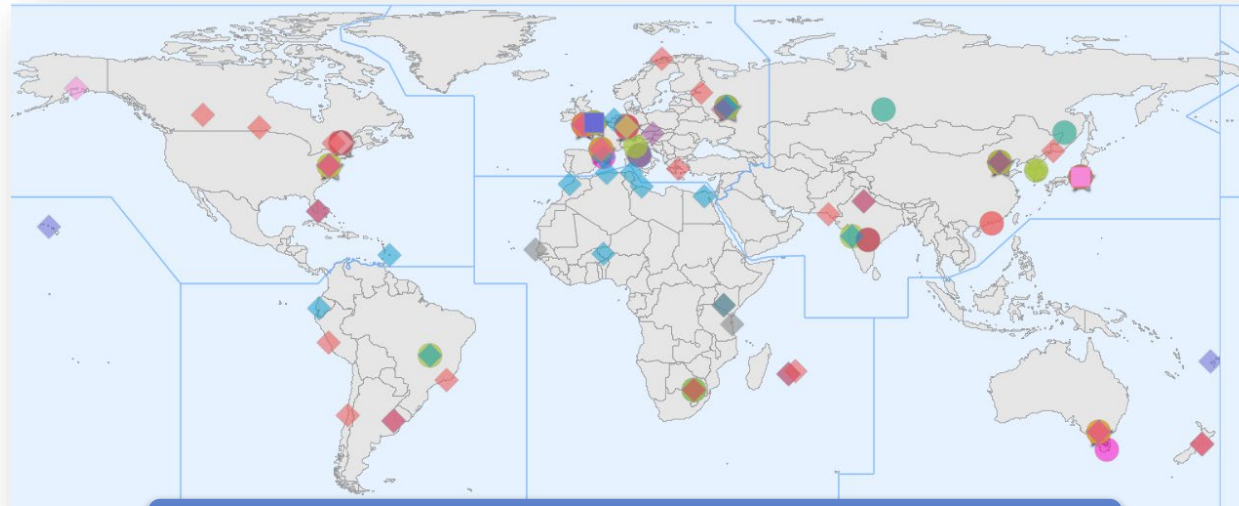
## Manual on WIPPS (WMO-No.485)

- Part I) Outline the WIPPS, including its purpose and structure
- Part II) Specify WIPPS activities and Centres designation criteria
- Part III) List all WIPPS Designated Centres

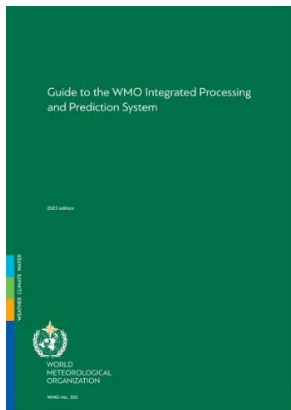


Members, especially those hosting WIPPS Designated Centres, need to be compliant

- SHALL (obligation)
- SHOULD (recommended)



WIPPS Designated Centres



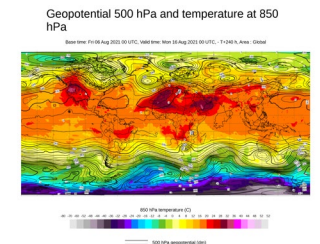
**Guide to WIPPS (WMO-No.305)** provides detailed explanation of WIPPS framework, relevant procedures and activities to assist administrative and technical staff of WMO Members in understanding and implementing WIPPS activities and utilizing WIPPS products.



Members hosting WIPPS-DCs obtain guidance to be compliance. All Members learn good practice to update WIPPS products.



WMO Members



## Doc.8.4(1) Amendments to the Manual on WIPPS

Updates in response to Members requirements supporting Early Warnings for All

- Make the WIPPS Manual clearer and easier to read
  - Names for WIPPS Centres
  - definition of “mandatory products” and “recommended products”
  - classification of “core data” (WMO Unified Data Policy)
- More global/regional prediction data
  - More variables, higher resolution, tropical cyclones
- New WIPPS activities
  - climate reanalysis, fire/smoke, marine emergency, storm surge
- Designate additional centres to carry out these WIPPS activities

# Doc.8.4(1) Amendments to the Manual on WIPPS

## THREE draft Recommendations

- Draft Recommendation 8.4(1)/1 – for **weather** prediction
  - General WIPPS
  - Global/Limited-area deterministic/ensemble NWP
- Draft Recommendation 8.4(1)/2 – for **climate** prediction
  - Sub-seasonal forecasts, Long-range prediction
  - Annual to decadal prediction, global climate reanalysis
- Draft Recommendation 8.4(1)/3 – for **water and related environmental** prediction
  - Nuclear/non-nuclear environmental emergency response
  - Marine emergency response, Global storm surge prediction
  - Atmospheric sand and dust storm forecasts, Vegetation fire and smoke pollution forecasts

# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/1 – for weather prediction

- Introduce the definition of WIPPS activity categories: general-purpose activities, specialized activities, non-real-time activities – [Annex 1](#)
  - Move from ‘Note’ to main body
- Change the generic name of Centres of WIPPS – [Annex 1](#)
  - GDPFS Centres (WMCs, RSMCs and NMCs) -> WIPPS Centres
  - RSMCs -> WIPPS Designated Centres (WIPPS-DCs)
  - RSMC Network -> WIPPS Centre Network
- Unify the terminologies relevant to “recommended products”
- Introduce the definition of “mandatory products” and “recommended products” with classification of “core data” – [Annex 1](#)

**1.2.3.4 Products that that are necessary for the provision of services in support of the protection of life and property and for the well-being of all nations and are classified as “core data” shall be labeled as “core data” explicitly in the Manual.**

# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/1 – for weather prediction

- Update the mandatory and recommended products for global deterministic and ensemble NWP, - [Annex 2 and 3](#)  
**data size: deterministic NWP – 40 times, ensemble NWP – 270 times**
- Develop a list of mandatory and recommended products of tropical low/cyclone vortex variables of deterministic and ensemble NWP variables
  - in close collaboration with AG-TC and World Weather Research Programme (WWRP) Project Tropical Cyclone-Probabilistic Forecast Products (TC-PFP),
- **INF 8.4(1b) Interim Report on the review of standardized verification methods for NWP data**



# Global deterministic NWP for short to medium range

Parameter	Level (hPa)	Resolution	Forecast range	Time steps	Frequency
Geopotential height	850/500/250/200	1.50.5° × 1.50.5°	Up to 3 days/ Beyond 3 days up to 6 days	Every 63 hours/ Every 126 hours	Twice a day (0000 and 1200 UTC) / Once a day
Temperature	850/500/250/200				
Wind zonal velocity (u) and meridional velocity (v)	925/850/700/500/250/200				
Relative humidity	850/700/500/200				
<del>Divergence, vorticity</del>	<del>925/700/250</del>				
MSLP	Surface				
2-m temperature 2-m minimum and maximum temperatures in the periods of the last 3/6 hours 2-m dewpoint temperature 10-m u, 10-m v 10-m wind gusts <sup>1</sup> Total precipitation Total Solid precipitation <sup>2</sup> CAPE <sup>3</sup> Total precipitable water Total cloud cover	Surface				

**Additional recommended products:**

- Tropical storm tracks (latitudinal/longitudinal locations, maximum sustained wind speed, MSLP)
- More fields describing precipitation type
- Mid-level CAPE
- 1-hour accumulated total precipitation
- Snow depth
- Divergence and vorticity (925/850/700/500/250/200)
- Downward solar radiation at surface
- Outgoing longwave radiation at surface
- Heatwave Index
- Wind u and v at additional heights 80m, 100m, 120m
- Option to access high-resolution data (up to full model)
- Provide data additionally in form of map layers, graphs

**Notes:**

1. Wind gusts are the maximum gusts in the period
2. Water equivalent of total solid precipitation
3. Recommended most unstable CAPE (MUCAPE) model characteristics web page

- Increase horizontal resolution and time steps
- Add more variables and levels

# Global ensemble NWP for short to medium range (1/2)

Parameter	Level (hPa)	Thresholds <sup>1</sup>	Resolution (lat/lon grid)	Forecast range	Time steps	Frequency
Probability of total precipitation in the last 6 hours and 24 hours	Surface	1, 5, 10, 25, 50 and 100 mm/24 hours; 1, 5, 10, 25 and 50 mm/6 hours	1.50.5° × 1.50.5°	±14 days (or the maximum range if less)	Every 12 hours Every 3 hours to 22 hours, then every 6 hours.	Once/Twice a day
Percentiles for total precipitation in the last 6 hours and 24 hours	Surface	25th, 50th, 75th, max				
Percentiles for total solid precipitation <sup>2</sup> in the last 6 hours	Surface	25th, 50th, 75th, max				
Percentiles for temperature	2 m, 850 hPa	min., 25th, 50th, 75th, max				
Probability of 10-m sustained wind and gusts	Surface 10 m	10, 15, 20 and 25 m s <sup>-1</sup>				
Probability of 10-m wind gusts <sup>3</sup>	10 m	15, 25 and 35 m s <sup>-1</sup>				
Percentiles for 10-m wind speed	10 m, 850 hPa, 250 hPa	min., 25th, 50th, 75th, max				
Percentiles for 10-m wind gusts <sup>3</sup>	10 m	min., 25th, 50th, 75th, max				
Percentiles for CAPE <sup>4</sup>	Surface	25th, 50th, 75th, max				

- Increase horizontal resolutions and time steps and frequency
- Add more variables
- Introduce 'percentile' products

(there is one more table to show all variables)

# Tropical low/cyclone vortex variables

## Mandatory Products:

<i>Parameter</i>	<i>Unit</i>	<i>Forecast range</i>	<i>Time steps</i>	<i>Frequency</i>
<u>Location (latitude and longitude) of the vortex centre</u>	[degree]	Up to 6 days <sup>3</sup>	Every 6 hours	Twice a day <sup>4</sup>
<u>Maximum sustained 10 m wind speed</u>	[m/s]			
<u>Location<sup>1</sup> (latitude and longitude) of maximum sustained 10 m wind</u>	[degree]			
<u>Minimum mean sea level pressure (MSLP)</u>	[hPa]			
<u>Quadrant radii of sustained 10 m winds of 28/34/50<sup>2</sup>/64 kt</u>	[km]			

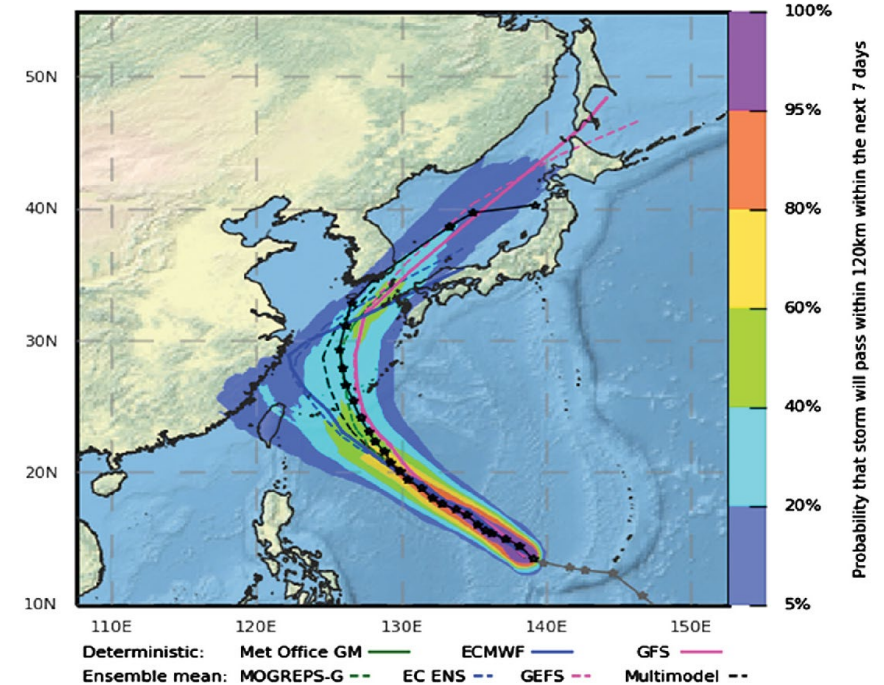
14 days for ensemble

## Recommended Products:

<i>Parameter</i>	<i>Unit</i>	<i>Forecast range</i>	<i>Time steps</i>	<i>Frequency</i>
<u>Average steering wind zonal velocity (u) and meridional velocity (v)<sup>1</sup> at 850/500/200 hPa</u>	[m/s]	Up to 6 days <sup>2</sup>	Every 6 hours	Twice a day <sup>3</sup>

The same set of variables are mandatory products of RSMCs for global deterministic and ensemble NWP.

MULTIMODEL ensemble  
Forecast tropical cyclone track probability  
for KONG-REY from 00UTC 30/09/2018



From Titley, H.A., et al (2019)  
<https://doi.org/10.1002/qj.3712>

# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/1 – for weather prediction

- Classify the mandatory products of RSMCs for limited-area deterministic and ensemble NWP as core data - [Annex 4](#)
- Update the list of the mandatory and recommended products of those RSMCs - [Annex 5 and 6](#)
- Confirm the capabilities of USA (NCEP) applying for the designation of the RSMC conducting global ensemble NWP



**Mandatory Products:**

Parameter	Level (hPa)	Resolution	Forecast range	Time steps	Frequency
Geopotential height	925/850/700/500/250	0.25° × 0.25°	2± day	Every 36 hours (Every 1 hour for total and convective precipitation)	Twice a day
Temperature	925/850/700/500/250				
u, v	925/850/700/500/250				
Relative humidity	925/850/700/500				
Divergence, vorticity	925/850/700/500/250				
Mean sea level pressure (MSLP)	Surface				
2-m temperature					
2-m dewpoint temperature					
2-m 3-hourly minimum and maximum temperature					
10-m u, 10-m v					
10-m wind gust <sup>1</sup>					
Total precipitation (1-hour accumulation)					
Convective precipitation (1-hour					

Saved to this PC

Limited-area deterministic NWP

Limited-area ensemble NWP

**Mandatory Products:**

Parameter	Level (hPa)	Thresholds	Resolution (lat/lon grid)	Forecast range	Time steps	Frequency
Probability of total precipitation	Surface	1, 5, 10, 25, 50 and 100 mm/24 hours 1, 5, 10, 25 and 50 mm/3 hours	0.25° × 0.25°	2 days (or the maximum range if less)	Every 36 hours	Once a day
Percentiles for total precipitation in the last 3 hours	Surface	25th, 50th, 75th, max				
Percentiles for temperature	2 m, 850 hPa	min, 25th, 50th, 75th, max				
Percentiles for dewpoint temperature	2 m	min, 25th, 50th, 75th, max				
Probability of 10-m sustained wind and gusts	Surface, 10 m	10, 15, 20 and 25 m s <sup>-1</sup>				
Probability of 10-m wind gusts	10 m	15, 25 and 35 m s <sup>-1</sup>				
Percentiles for wind speed	10 m	min, 25th, 50th, 75th, max				
Percentiles for wind gust (max during period)	10 m	25th, 50th, 75th, max				
Percentiles for CAPE	Surface	25th, 50th, 75th, max				
Percentiles for magnitude of wind shear	Vector difference between 250 and 850 hPa	min, 25th, 50th, 75th, max				
Percentiles for total cloud cover	Surface	min, 25th, 50th, 75th, max				



# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/2 – for climate prediction

- Develop the functions and products of two new types of WIPPS activities regarding global climate reanalysis and coordination of assessment of multiple climate reanalysis - Annex 1

### Centre for Global Climate Reanalysis (GCR)

<i>Variable</i>	<i>Level</i>
Total precipitation	Surface
Pressure	Surface
Mean sea level pressure (MSLP)	Surface
Sea surface temperature (SST)	Surface
Land mask	Surface (constant)
Topography	Surface (constant)
Sea ice cover	Surface
Water Equivalent of Snow Cover (Snow Water Equivalent)	Surface
Incoming short-wave radiation	Surface
Outgoing long-wave radiation	Top of Atmosphere (TOA)
Dew point temperature / specific humidity / Relative humidity	2 m
Temperature	2 m
Zonal and meridional wind velocity (u, v)	10 m
Geopotential height	850, 500, 200, 100, 50, 30 and 5 hPa
Temperature	850, 500, 200, 100, 50, 30 and 5 hPa
Zonal and meridional wind velocity (u, v)	850, 500, 200, 100, 50, 30 and 5 hPa
Specific humidity	850, 500, 200, 100, 50, 30 and 5 hPa

### Centre for coordination of assessment of multiple climate reanalysis

- Mandatory functions
  - Collect an agreed set of mandatory products from GCR centres
  - Interpolate the collected products onto a common horizontal grid, generate climatology and make them available
  - Provide a set of graphical products
  - Make a set of tools to visualize the products
- Recommended functions
  - Define and provide common evaluation metrics to compare

etc...

# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/2 – for climate prediction

- Introduce the concept of the ‘the contributing centre’ to the WIPPS activity of coordination of multi-model ensembles for sub-seasonal forecasts (LC-SSFMME) - [Annex 3](#)
- Remove password protection for downloading digital products from LC-LRFMME and provide snow water equivalent and other variables as recommended products - [Annex 5](#)

Contributing centres

Special arrangement of contributing centres is provisional for operational centres that potentially meet GPC-SSP criteria. This provision will be terminated in the next few years to strongly encourage the centres to apply for a formal GPC-SSP designation.

  
 Beijing

  
 Exeter

  
 Montreal

  
 Moscow

  
 Seoul

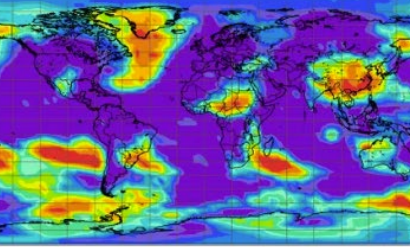
  
 Tokyo

  
 Toulouse

  
 Washington

### Recommended products

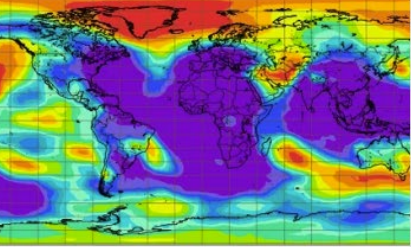
<i>Variable</i>	<i>Level (hPa)</i>	<i>Resolution</i>	<i>Forecast range</i>	<i>Time steps</i>	<i>Frequency</i>
<a href="#">Sea-ice concentration</a>	Surface	2.5° × 2.5°	Minimum three months from the month of submissions	Monthly mean	Once a month
<a href="#">Snow Water Equivalent (SWE)</a>	Surface				
<a href="#">Velocity (u,v)</a>	10-meter				
<a href="#">Velocity (u,v)</a>	200 hPa				



Subseasonal forecast

[Customizable] Multi-Model: 2m temperature probability terciles

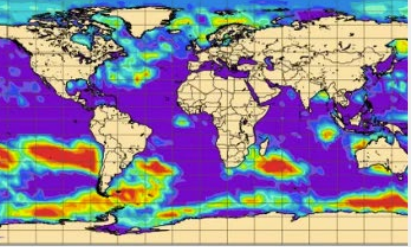
These products are based on the S2S archive.  
\*\*They are under construction and are not fully ...



Subseasonal forecast

[Customizable] Multi-Model: Mean sea level pressure probability terciles

These products are based on the S2S archive.  
\*\*They are under construction and are not fully ...



Subseasonal forecast


[Customizable] Multi-Model: Sea surface temperature probability terciles

These products are based on the S2S archive.  
\*\*They are under construction and are not fully ...

# Doc.8.4(1) Amendments to the Manual on WIPPS


## Draft Recommendation 8.4(1)/2 – for climate prediction

- Introduce the provision of **Global Annual to Decadal Climate Update (GADCU)** as a mandatory function of lead centre for conducting the coordination of annual to decadal climate prediction (LC-ADCP) - [Annex 6](#)
- Rearrange the contents structure of WIPPS activities (global numerical sub-seasonal forecasts, global numerical long-range prediction, coordination of multi-model ensembles for sub-seasonal forecasts, and coordination of multi-model ensemble prediction for long-range forecasts) - [Annexes 2, 3, 4, and 5](#)



### WMO Lead Centre for Annual-to-Decadal Climate Prediction


The Lead Centre for Annual-to-Decadal Climate Prediction collects and provides hindcasts, forecasts and verification data from a number of contributing centres worldwide.



Contributing centres shown on the map include: BCCR, SMHI, Reading, DMI, DWD/MPI, MOHC, IPSL, BSC, CERFACS, CMCC, LASG, MRI, MIROC, CCCMA, NCAR, GFDL, and NRL.

[WMO Global Annual to Decadal Climate Update: a synthesis report for 2023–2027.](#)

Past reports: [2020-2024](#) | [2021-2025](#) | [2022-2026](#)



# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/2 – for climate prediction

- Confirm the capabilities of centres applying for the designation of the following WIPPS centres to be officially designated - [Annex 7](#):
  - a) Centres for conducting global numerical sub-seasonal forecasts: Brazil (Centro de Previsão de Tempo e Estudos Climáticos (CPTEC)), China, Japan and Russia,
  - b) Centres for conducting the global climate reanalysis: USA (National Aeronautics and Space Administration (NASA)) and European Centre for Medium-Range Weather Forecasts (ECMWF),
  - c) Lead Centre for conducting coordination of assessment of multiple climate reanalysis: ECMWF
  - d) RCC Network for the Arctic (ArcRCC-Network)
- Change the names of WIPPS activities:
  - a) Global numerical sub-seasonal forecasts  $\Rightarrow$  global sub-seasonal prediction,
  - b) Global numerical long-range prediction  $\Rightarrow$  global seasonal prediction
- Inclusion of information regarding the linkage of the Climate Service Information System (CSIS) to the WIPPS in the Manual on the WIPPS - [Annex 8](#)



# Doc.8.4(1) Amendments to the Manual on WIPPS

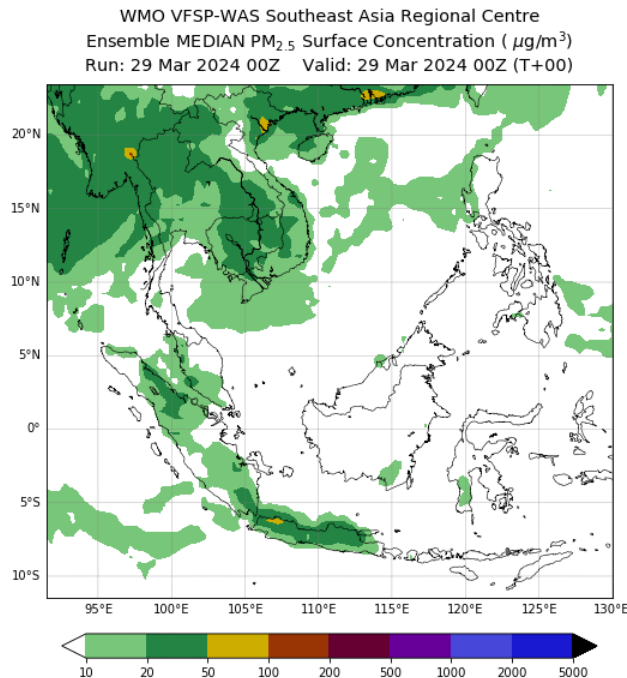
## Draft Recommendation 8.4(1)/3 – for water and related environmental prediction

- Update of Environmental Emergency Response activities
  - **Nuclear EER** - [Annex 1](#)
    - (1) improve temporal and spatial resolution in backward transport and dispersion products
    - (2) add noble-gas-related products, and
    - (3) change the request method from fax to email by both CTBTO and IAEA
  - **Non-nuclear EER**: introduce a **global arrangement** - [Annex 2](#)
    - RA VI-designated RSMCs be responsible for RA I and RA II;
    - RA IV-designated RSMCs be responsible for RA III, RA V and the Antarctic
  - Introduce the Regional Association as a responsible body in the designation of RSMCs conducting nuclear EER and non-nuclear EER - [Annex 1 and 2](#)

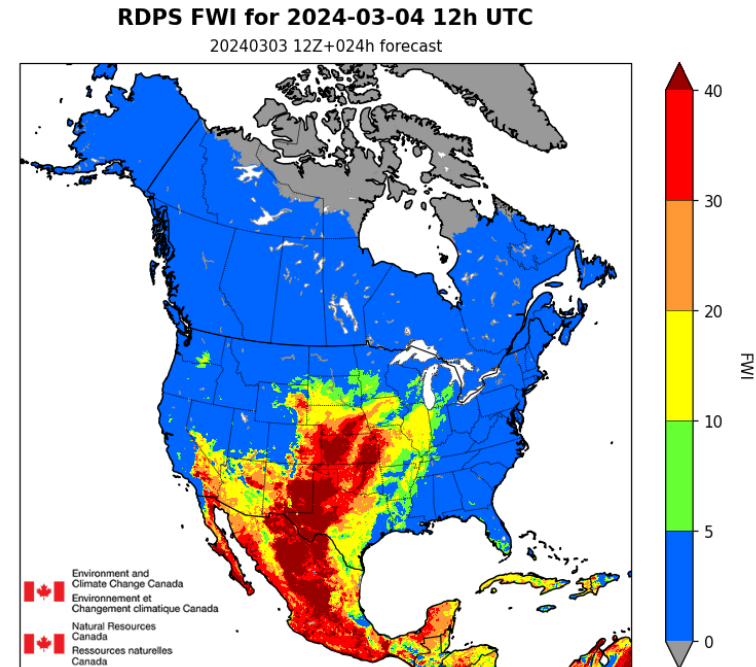
# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/3 – for water and related environmental prediction

- Recommendation from Research Board
  - Establishment of “Vegetation fire and smoke pollution forecasts” as a new WIPPS activity for specialized purpose.
  - Designation of Canada (ECCC) and Singapore (MSS)



PM<sub>2.5</sub> surface concentration from  
Southeast Asia Regional Centre - Singapore



Fire Weather Index (FWI) from  
North American Regional Centre – Canada

# Doc.8.4(1) Amendments to the Manual on WIPPS

## Draft Recommendation 8.4(1)/3 – for water and related environmental prediction

- Recommendation from SERCOM

- Establishment of Marine Emergency Response (MER) as a WIPPS activity for specialized activity by replacing Marine Environmental Emergency Response (MEER)

<i>Scenario*</i>	<i>Type of event</i>	<i>Material released</i>	<i>Vertical distribution</i>
Oil Spill	Oil	Tracer	Surface
Non-nuclear hazardous and noxious substances other than oil	Chemical, algae, etc.	Tracer	Constant from the surface to 200 m
Search and Rescue	Human/wrecks, container, etc.	Tracer	Surface
-	-	-	RSMC defined

- Establishment of Global numerical storm surge prediction (GNSSP) as a new WIPPS activity for general purpose activity

<i>Parameter</i>	<i>Level</i>	<i>Minimum resolution</i>	<i>Forecast range</i>	<i>Minimum time steps</i>	<i>Frequency</i>
Total Water level	Surface	0.1° x 0.1°	Up to 3 days	Hourly	Twice a day
Tide	Surface				
Storm Surge	Surface				

# Doc 8.4(2) Draft Decision: Update of the Guide to WIPPS (WMO-No.305)

NON-DEBATE DOCUMENT

- Introduce the Guidelines for producing tropical low/cyclone vortex variables into the Guide as Appendix 2.3, as per Annex
  - To facilitate the provision of products of tropical low/cyclone vortex variables (hereafter, TC vortex products) generated using the same methods, the RSMCs for global deterministic and ensemble NWP are recommended to adopt the following guidelines.
- Contents
  - Identifying Tropical Cyclones in NWP Grids
  - Tropical Cyclone Identifiers in BUFR Format
  - Recommended calculation methods of tropical low/cyclone vortex variables
    - Location of the vortex centre
    - Maximum sustained 10m wind speed
    - Location of maximum sustained 10m wind speed
    - Minimum Mean Sea Level Pressure
    - Wind Radii
    - Average Steering Wind

# Doc 8.4(3) Draft Recommendation: Demonstration of integration of products from non-traditional source into WIPPS

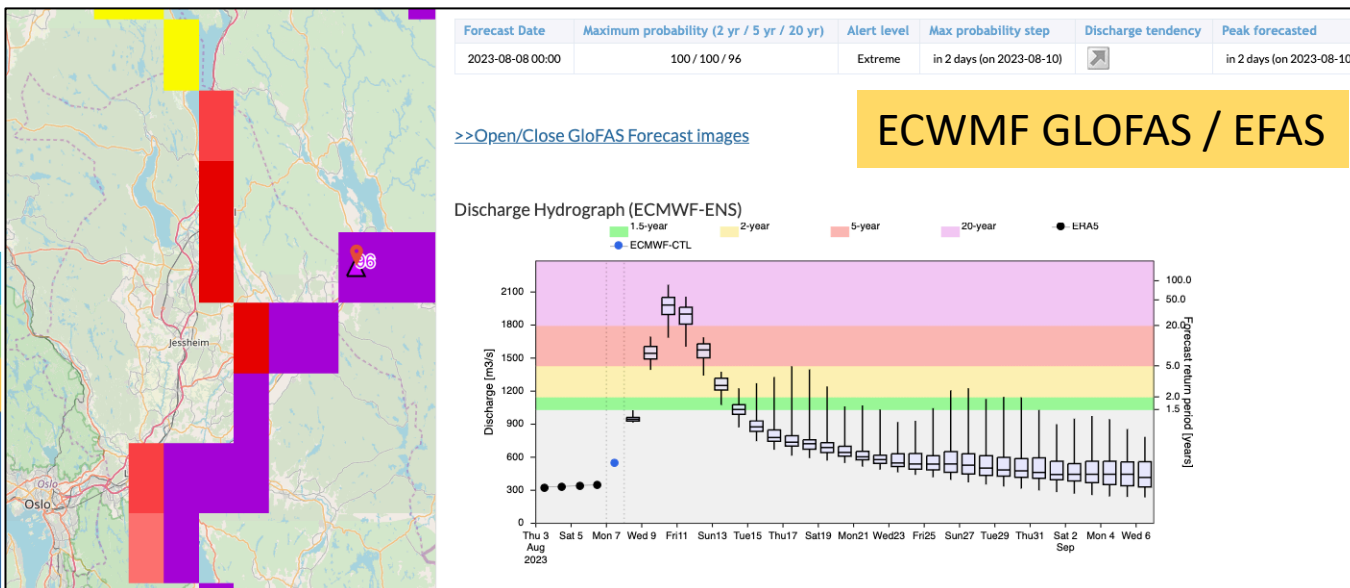
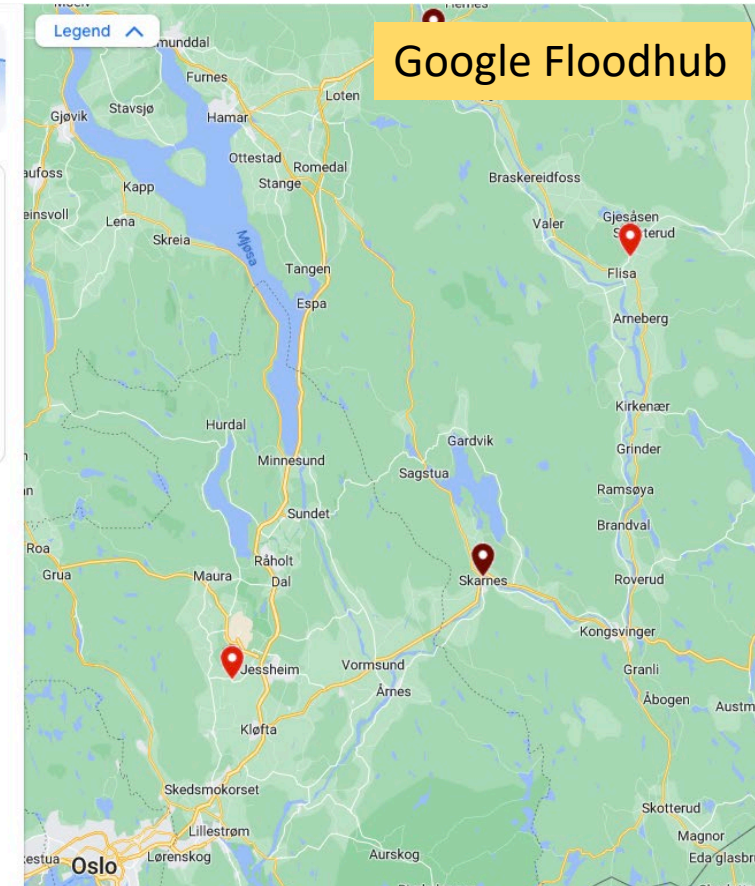
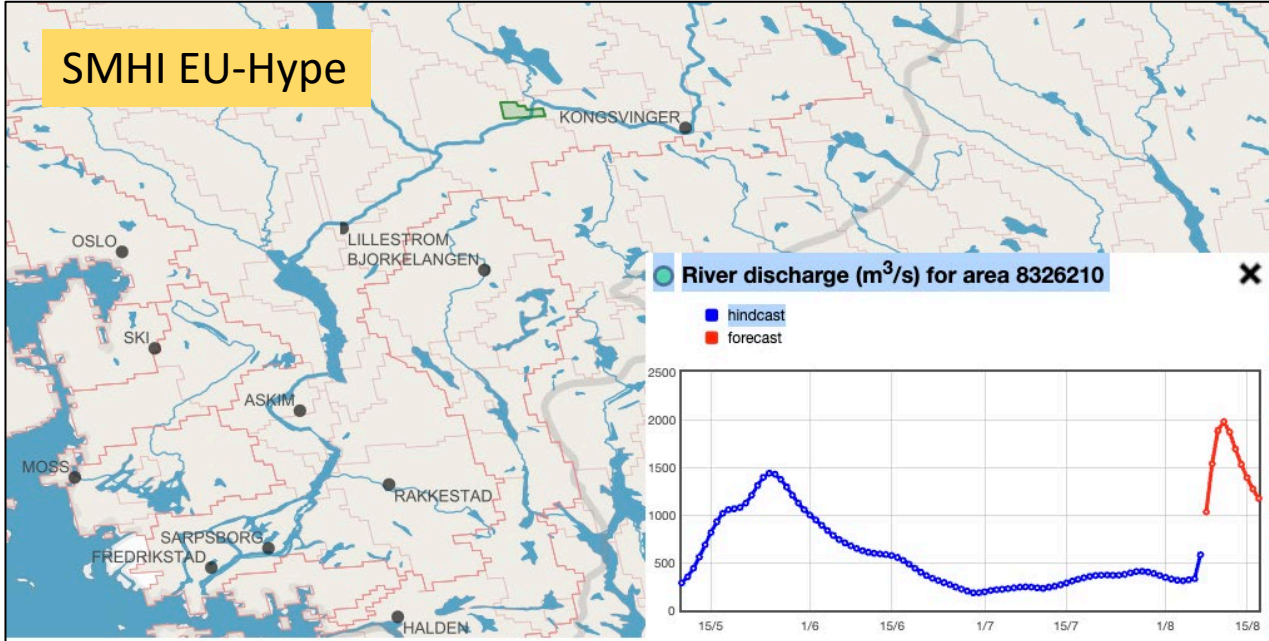
## Terminology:

- non-traditional sources = entities other than national governmental organizations such as NMHSs, e.g. private entities or international/intergovernmental organization

## Why do we need to consider non-traditional sources:

- In hydrology and meteorology, an increasing number of non-traditional sources are providing global forecasting products
- UN Early Warnings for All Initiative requires innovative solutions in the provision of forecasting products. INFCOM considers Flood as one of high priority hazards based on the needs of 30 priority countries.

# Examples of (non)-traditional sources of riverine forecasting (operational)

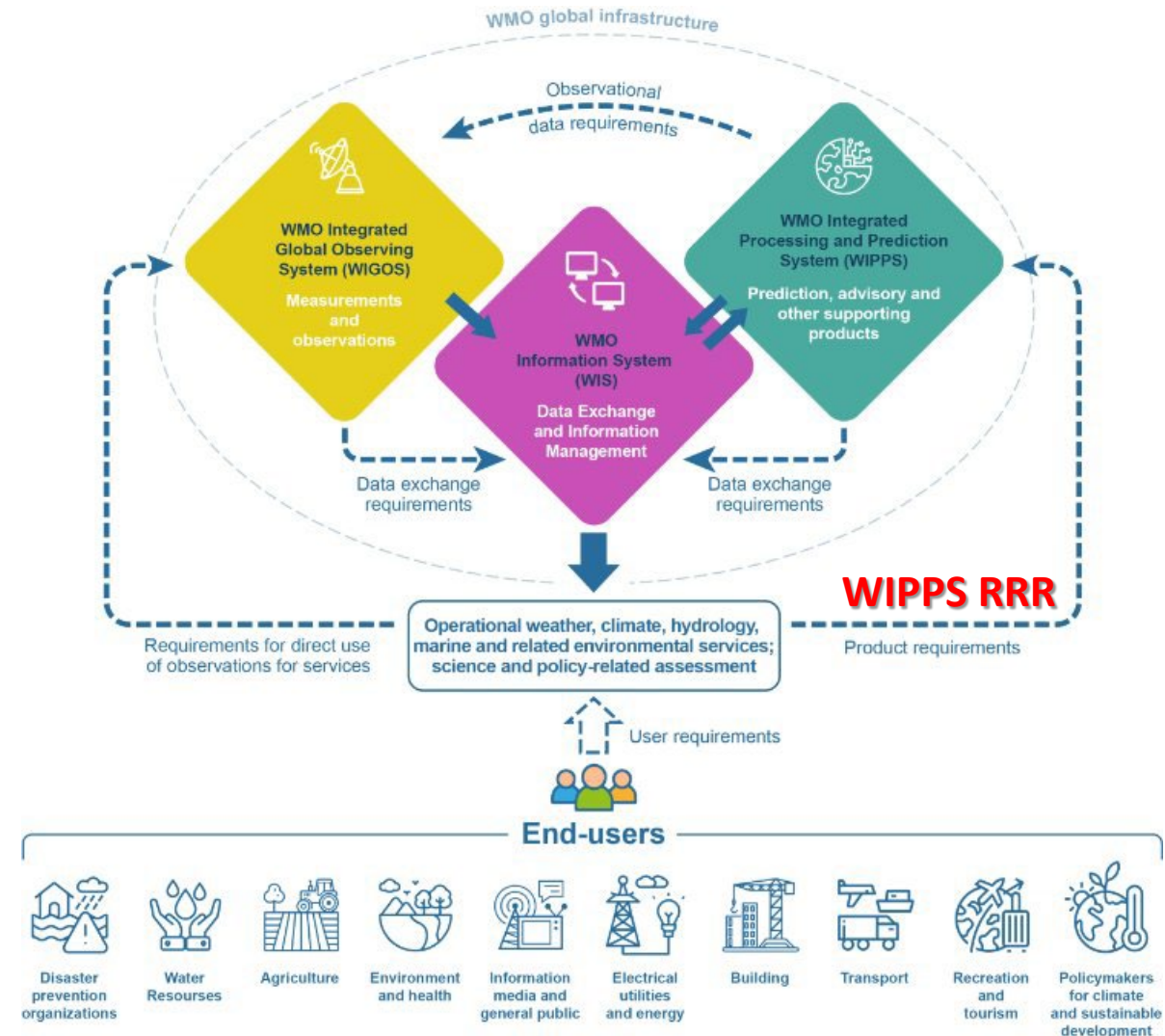


# Doc 8.4(3) Draft Recommendation: Demonstration of integration of products from non-traditional source into WIPPS

- Plan to demonstrate global riverine flood prediction products  
**INF 8.4(3) Plan for the demonstration of global riverine flood prediction products**
- Need the guidance of the Executive Council on the non-technical aspects including the following items regardless of the type of organization
  - 1) Extent to which the status of the WIPPS Designated Centre is used to promote the designated organization and its activities,
  - 2) Role of the Permanent Representatives of WMO Members and the presidents of the Regional Associations in the centre designation process and procedures,
  - 3) Compliance with the public-private engagement policy called on through the Geneva Declaration, to safeguard and strengthen the authoritative voice of NMHSs,
  - 4) Ways to establish the commitment to, and the transparency of the products and services provided by commercial entities for the global public good

# Doc 8.4(4) Draft Decision: Demonstration of WIPPS Rolling Review of Requirements

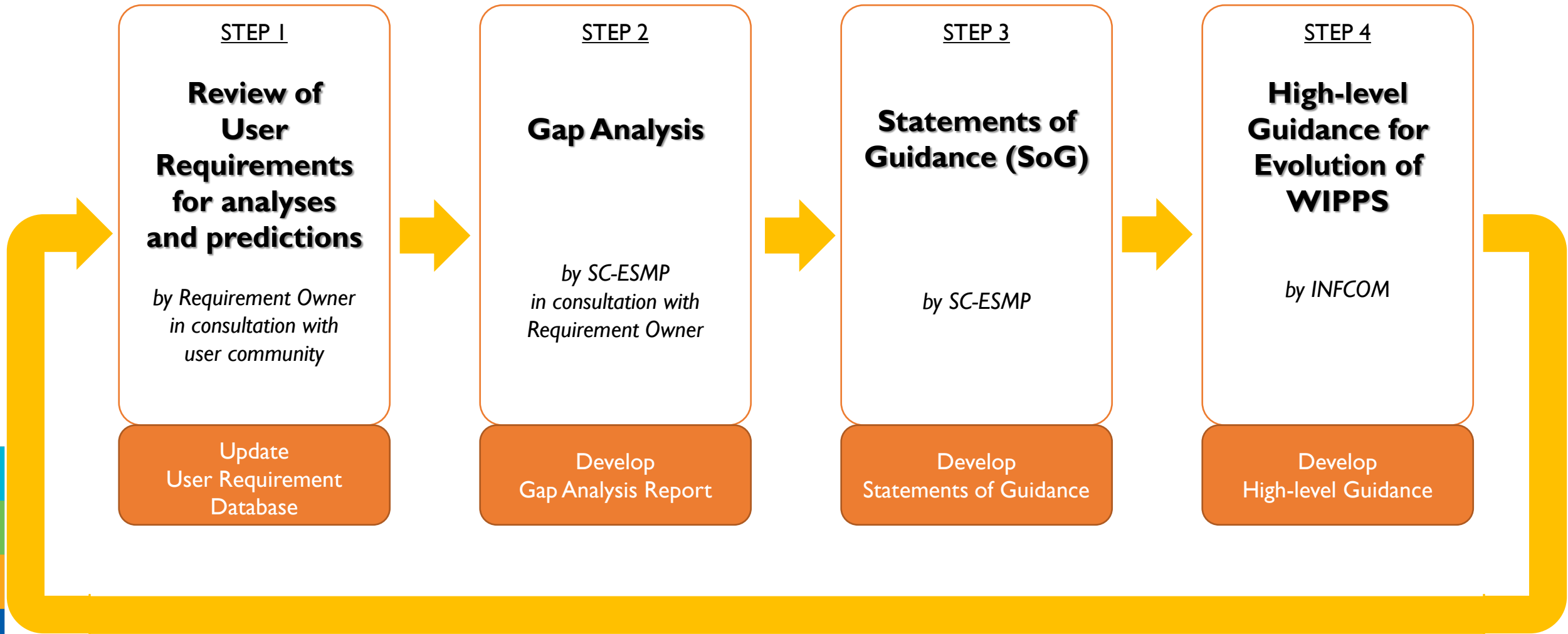
- The purpose is to provide a systematic and transparent process to support the high-level design and evolution of WIPPS.
- The RRR process compiles information on Members' evolving requirements on analyses and predictions.
- Demonstration till INFCOM-4
  - Collaborate with SERCOM
  - Test and elaborate the process
  - Propose the final process to INFCOM-4



See more detail - INF 8.4(4) WIPPS Rolling Review of Requirements



# Doc 8.4(4) Draft Decision: Demonstration of WIPPS Rolling Review of Requirements



# Doc 8.4(5) Draft Decision: Roadmap for the integration of Cryosphere in WIPPS

NON-DEBATE DOCUMENT

- The purpose is to integrate cryosphere information and products in WIPPS
  - Many of the potential products are still in the research domain
  - It is aimed that these products would be disseminated as core or recommended products
- Milestones
  - Integration in the Manual on WIPPS of cryosphere products available from global and regional producing centres
  - Daily outputs from seasonal models in support of the detection of extreme events
  - Survey on other available products on the cryosphere or relevant to characterize changes in the cryosphere
  - Designation of RSMC for Limited Area NWP for polar regions
  - Proposals for potential WIPPS Pilot Projects on the cryosphere
- Long-term exploratory proposals for new types of centres - high-mountain centres, Centres of excellence on cryosphere processes and services
- Information session on Cryosphere: 4 April 13h30-14h30 UTC
  - <https://wmo-int.zoom.us/j/94777081677?pwd=aXNtSmtLMnpIYXM0RmYvNXA4MEpjQT09>

# Highlights from the SC-WIPPS workplan (Doc.6.1, INF6.1)

## (1) Development, maintenance and monitoring activities in 2024-2025:

- Demonstration and finalization of the WIPPS RRR process
- Continuous compliance review of WIPPS Designated Centres
- Identification, development and demonstration of additional mandatory and recommended products and services such as visualization to meet user requirements, especially for Early Warnings for All (EW4All), and definition of more products as 'core data' to follow up the WMO Unified Data Policy
- Further definition of 'core data' of WIPPS Designated Centres' products in other Earth system domains than weather and climate
- Review and development of the updated standardized verification procedures for global numerical weather prediction (NWP)
- In collaboration with the regional associations (RAs), exploration and support of the potential Members that could host WIPPS Centres to enable essential products to be more accessible
- Demonstration of the integration of products from non-traditional sources and review and update of WIPPS framework to integrate them into WIPPS
- Refinement of evaluation metrics to compare climate reanalysis data and identification of areas to be improved
- Promotion of recommended actions in accordance with the Roadmap for the integration of Cryosphere in WIPPS



# Highlights from the SC-WIPPS workplan (Doc.6.1, INF6.1)

## **(2) Specific elements/focus areas from the Strategic Plan under each relevant SO in 2024-2025:**

- Upgrade of WIPPS Web Portal to further improve the accessibility and discoverability of WIPPS products
- Enhancement of the capacity development and outreach activities to raise the capacity of Members to uptake WIPPS products
- Initiation of a pilot project to outline the requirements and feasibility to provide the access to high-resolution NWP data to drive limited-area models

## **(3) Explore new initiatives to be promoted in the next intersessional period:**

- In collaboration with RB, development and support of WIPPS pilot projects to facilitate the implementation of new technologies, especially AI



# Artificial Intelligence Side Event on 17 April 2024

## From 17:15 to 18:30 CEST (i.e. 15:15 to 16:30 UTC)

- Purpose

- to highlight the current status of AI development in the Earth system prediction
- to share experiences and best practices among WMO Members.

- Program

Title	Time (UTC)	Presenter
Opening remarks	15:15-15:20	David Richardson Chair of SC-ESMP, ECMWF
AI and NWP: recent developments in data-driven weather forecasting	15:20-15:35	David Richardson
AI for Nowcasting Pilot Project (AINPP)	15:35-15:45	David John Gagne NCAR (online)
Progress of AI's Application in Intelligent Digital Weather Forecasting in CMA	15:45-15:55	Kan Dai and Bo Lu CMA
Panel Discussion	15:55-16:30	David Richardson, David John Gagne, Kan Dai, Jeremy Tandy (UK Met Office)



# Thank you

**Please consider supporting the WIPPS: provide feedback on WIPPS products, volunteer as expert, consider to contribute as WIPPS centre (e.g., limited-area NWP)**



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