# **WMO OMM**



World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
旧址结本部 النظمة العالمية للأرصاد الجوية
世界气象组织

Secrétariat

7 bis, avenue de la Paix – Case postale 2300

CH 1211 Genève 2 – Suisse Tél.: +41 (0) 22 730 81 11 Fax: +41 (0) 22 730 81 81

wmo@wmo.int - public.wmo.int

Notre réf.:

11430/2018/DPFS/New Manual/GDPFS-2018

17 mai 2018

Annexes:

2 (disponibles en anglais seulement)

Objet:

Publication de la version révisée du *Manuel du Système mondial de traitement des données et de prévision* (SMTDP) (OMM-N° 485)

Suite à donner:

Confirmer dans les meilleurs délais la cartographie des CMM et/ou des CMRS actuellement hébergés par votre Service en fonction des nouveaux types de centres (compte tenu de leurs fonctions décrites dans la version révisée du

Manuel du SMTDP)

Madame, Monsieur,

Comme suite à la lettre envoyée par l'OMM le 15 juin 2016 (réf.: 8384-16/WDS-DPFS/New Manual on GDPFS-2016 (annexe I)), j'ai le plaisir de vous informer que la nouvelle version du *Manuel du Système mondial de traitement des données et de prévision* (SMTDP) (OMM-N° 485), telle qu'approuvée par le Conseil exécutif de l'OMM via sa résolution 18 (EC-69), a été publiée le 16 février 2018 et est disponible à l'adresse suivante:

https://library.wmo.int/opac/index.php?lvl=notice\_display&id=12793#.WughM66WaWk

Les Membres de l'OMM qui hébergent un centre météorologique mondial (CMM) et/ou un centre météorologique régional spécialisé (CMRS) sont invités à en confirmer la cartographie (voir l'annexe I) en fonction des nouveaux types de centres (compte tenu des fonctions de ces centres décrites dans la version révisée du Manuel du SMTDP). Par ailleurs, il est demandé aux Membres qui ont déjà procédé à cette confirmation (voir l'annexe II) de bien vouloir vérifier que les informations qu'ils ont communiquées ont été correctement enregistrées.

Veuillez noter que pour conserver leur désignation au-delà du Dix-huitième Congrès météorologique mondial (juin 2019), les centres dont la cartographie a été confirmée sont tenus de prouver avant ladite session qu'ils sont capables de remplir les fonctions concernées. Il est rappelé aux Membres hébergeant actuellement des CMRS à spécialisation géographique qu'ils doivent veiller à en confirmer la cartographie en fonction des nouveaux types de centres, étant donné que la désignation «CMRS à spécialisation géographique» disparaîtra après le Dix-huitième Congrès.

Je tiens à rappeler qu'au titre des dispositions transitoires recommandées par la Commission des systèmes de base à sa session extraordinaire de 2014, le Dix-septième Congrès (2015) est convenu que les CMM et les CMRS conserveront leur statut jusqu'au Dix-huitième Congrès (2019) et que, pour conserver ce statut au-delà, ils devront démontrer, d'ici au Dix-huitième Congrès, qu'ils respectent pleinement les critères de désignation.

Aux: Représentants permanents (ou directeurs des Services météorologiques ou hydrométéorologiques) des Membres de l'OMM (distribution restreinte)

(Afrique du Sud, Algérie, Allemagne, Arabie Saoudite, Argentine, Arménie, Australie, Autriche, Brésil, Canada, Chine, Corée (République de), Égypte, Espagne, Etats-Unis, Fédération de Russie, Fidji, France, Hongrie, Inde, Italie, Japon, Kenya, Norvège, Nouvelle-Zélande, Ouzbékistan, Pays-Bas, Royaume-Uni, Sénégal, Serbie, Suède, Tunisie et Turquie)

Directrice générale du CEPMMT

Je saisis cette occasion pour vous remercier, vous et votre Service, du soutien sans faille que vous apportez au Système mondial de traitement des données et de prévision et vous prie d'agréer, Madame, Monsieur, l'expression de ma considération distinguée.

(W. Zhang)

pour le Secrétaire général

**WMO OMM** ANNEX I





World Meteorological Organization Organisation météorologique mondiale Organización Meteorológica Mundial Всемирная метеорологическая организация المنظمة العالمية للأرصاد الجوية 世界气象组织

Secrétariat

7 bis, avenue de la Paix - Case postale 2300

CH 1211 Genève 2 - Suisse Tél.: +41 (0) 22 730 81 11 Fax: +41 (0) 22 730 81 81

wmo@wmo.int - www.wmo.int

Our ref.: 8384-16/WDS-DPFS/New Manual on GDPFS-2016 GENEVA, 15 June 2016

Annexes: 2 (available in English only)

Subject:

Revision of the Manual on the Global Data-processing and Forecasting System

(GDPFS) (WMO-No. 485)

Action required: To confirm the mapping of the WMC and/or RSMC currently hosted by your Service onto the new designations (taking into account their functions described in the revised Manual on the GDPFS) at your earliest convenience

but not later than 15 August 2016

Dear Sir/Madam,

The Manual on the Global Data-processing and Forecasting System (GDPFS) (WMO-No. 485) is the single source of technical regulations for all operational data-processing and forecasting systems of WMO Members, including their designated meteorological centres. Following the request by the Commission for Basic Systems, at its fourteenth session (CBS-XIV, 2009), progress has been made with the revision of the Manual on the GDPFS, including the development of an outline for a new Manual, which was adopted by the Sixteenth World Meteorological Congress (Cg-XVI, 2011) through Resolution 6 (Cg-XVI). Noting that the new Manual introduces a number of changes to the current procedures, the Commission for Basic Systems, at its 2014 extraordinary session (CBS-Ext.(2014)), considered the comprehensive summary of changes of functions and procedures that would ensure a smooth transition to the new Manual. Acknowledging that the new Manual is being developed in accordance with quality management principles, which ensure its sustainability as part of the WMO Quality Management Framework (QMF), and would facilitate the review of compliance of GDPFS Centres against the designation criteria, CBS-Ext.(2014) recommended a roadmap for the completion of the new Manual (which will replace the current version), including transition arrangements for its implementation to manage the technical changes and the initial designation of the GDPFS Centres as defined in the new Manual, including World Meteorological Centres (WMCs) and Regional Specialized Meteorological Centres (RSMCs), which were approved by the Seventeenth World Meteorological Congress (Cg-17, 2015) in Resolution 12 (Cg-17).

I wish to bring to your attention that the new Manual introduces a clear definition for a WMC, for which a WMC shall be appointed if fulfilling the following functions:

- RSMC for global deterministic numerical weather prediction;
- RSMC for global ensemble numerical weather prediction; and
- RSMC for global numerical long-range prediction (known as Global Producing Centre for Long-range Forecasts).

Permanent Representatives of Members of Algeria, Argentina, Armenia, Australia, To: Austria, Brazil, Canada, China, Egypt, Fiji, France, Germany, Hungary, India, Italy, Japan, Kenya, Korea (Republic of), Netherlands, New Zealand, Norway, Russian Federation, Saudi Arabia, Senegal, Serbia, South Africa, Spain, Sweden, Tunisia, Turkey, UK, USA and Uzbekistan Director General of ECMWF

In addition, as per the summary of changes of functions and procedures, RSMCs with geographical specialization would become RSMCs with specialization in one (or more) of the following activities:

- RSMC for regional severe weather forecasting;
- RSMC for global deterministic numerical weather prediction;
- RSMC for limited-area deterministic weather prediction;
- RSMC for global ensemble numerical weather prediction; and
- RSMC for limited-area ensemble numerical weather prediction.

RSMCs with other activity specialization are redefined in the new Manual for clarity in the description of functions, not altering the designation criteria.

As part of the above-mentioned roadmap, WMO Members hosting a WMC and/or an RSMC are invited to confirm the mapping of the WMC and/or RSMC currently hosted by your Service (as per Appendix I-1 of the current version of the Manual on the GDPFS, Annex I) onto the corresponding designations (taking into account their functions described in the revised Manual on the GDPFS) at your earliest convenience **but not later than 15 August 2016**. Also for your easy reference, I wish to inform you that the draft version of the revised Manual (table of contents given in Annex II) is available on the WMO website at:

https://www.wmo.int/pages/prog/www/DPS/Manual/Table-of-content\_Manual-gdpfs.html

This version takes into account comments received by WMO Members following the request to review its content in the WMO circular letter ref. WDS-DPFS/New Manual on GDPFS-2015, dated 11 May 2015.

I wish to recall that as part of the transitional arrangements recommended by CBS-Ext.(2014), Cg-17 agreed that the existing WMCs and RSMCs will retain their status until the Eighteenth session of the World Meteorological Congress (Cg-18) in 2019; and to retain status after Cg-18, they need to demonstrate compliance by Cg-18.

I would like to take this opportunity to express my personal gratitude to you and your Service for your continued support in making meteorological products of the WMO's Global Data-processing and Forecasting System (GDPFS), including Emergency Response Activities (ERA), increasingly more relevant in the world.

Yours faithfully,

(E. Manaenkova) for the Secretary-General

# Confirmation form for mapping of the WMC and/or RSMC hosted by your Centre

WMO MEMBER:

Focal Point: E-mail address:

# Q1. World Meteorological Centre (WMC)

The new Manual introduces a clear definition for a WMC, which WMC shall be appointed if fulfilling the following functions:

- RSMC for global deterministic numerical weather prediction;
- RSMC for global ensemble numerical weather prediction; and
- RSMC for global numerical long-range prediction (known as GPC).

If you currently host a WMC, please answer *YES* or *No* to confirm your will to map its functions onto a new designation of WMC.

Designated Centre	Mapping confirmation (Yes/No)
Melbourne (southern hemisphere only)	
Moscow	
Washington	

# Q2. Regional Specialized Meteorological Centre (RSMC) with geographical specialization

RSMCs with geographical specialization would become RSMCs for one (or more) of the following activities:

- (1) RSMC for regional severe weather forecasting;
- (2) RSMC for global deterministic numerical weather prediction;
- (3) RSMC for limited-area deterministic weather prediction;
- (4) RSMC for global ensemble numerical weather prediction; and
- (5) RSMC for limited-area ensemble numerical weather prediction.

If you currently host an RSMC with geographical specialization, please answer *YES* if you confirm your will to map its functions onto a new designation(s) of one (or more) of RSMC(s).

Designated Centre	(1) RSMC for regional severe weather forecasting	(2) RSMC for global deterministic numerical weather prediction	(3) RSMC for limited-area deterministic weather prediction	(4) RSMC for global ensemble numerical weather prediction	(5) RSMC for limited-area ensemble numerical weather prediction
Algiers					
Beijing					
Brasilia					
Buenos Aires					
Cairo					
Dakar					
Darwin					
Exeter					
Jeddah					
Khabarovsk					
Melbourne			_	_	

Miami			
Montreal			
Moscow			
Nairobi			
New Delhi			
Novosibirsk			
Offenbach			
Pretoria			
Rome			
Tashkent			
Tokyo			
Tunis			
/Casablanca			
Washington			
Wellington			

# Q3. Regional Specialized Meteorological Centre (RSMC) with activity specialization

If you currently host an RSMC with activity specialization, please answer YES or No to confirm your will to map its functions onto a new designation of its corresponding RSMC.

Designated Centre	Mapping confirmation (Yes/No)
Designated Centre  Global Producing Centre for Long-range For	
	orecasts (GPC)
Beijing CPTEC (Brazil)	
Exeter	
Melbourne	
Montreal	
Moscow	
Pretoria	
Seoul	
Tokyo	
Toulouse	
Washington	
European Centre for Medium-range	
Weather Forecasts (ECMWF)  Tropical Cyclone Centre / Hurricane Centre	/ Typhoon Contro
	e / Typhoon Centre
Nadi – Tropical Cyclone Centre	
New Delhi – Tropical Cyclone Centre Miami – Hurricane Centre	
Tokyo – Typhoon Centre	
La Réunion – Tropical Cyclone Centre	
Honolulu – Hurricane Centre	To you and the
RSMC for Atmospheric Sand and Dust stor	Th Forecasts
Barcelona	av Dagagagagagagagagagagagagagagagagagagag
RSMC for Nuclear Environmental Emergen	cy Response and/or Backtracking
Beijing	
Exeter	
Melbourne	
Montreal	
Obninsk	
Offenbach (backtracking only)	
Tokyo	
Toulouse	
Vienna (backtracking only)	
Washington	

Regional Climate	Centre	
Africa hosted by the African Centre of		
Meteorological		
Development (AC	CMAD) (RA I)	
Beijing (RA II)		
Tokyo (RA II)		
Moscow (RA II)		
Western South	America hosted by the	
International Res	search Centre on El Niño	
(RA III)		
Network	De Bilt	
(RA VI)	(Climate Data Service)	
	Offenbach	
	(Climate Monitoring)	
	Toulouse	
(Long-range		
Forecasts)		
Moscow		
	(Long-range	
	Forecasts)	

If you currently host an RSMC with activity specialization for Region VI (Europe), please answer *YES* or *No* to confirm your will to map its functions onto a new designation and indicate the corresponding RSMC.

Designated Centre	Mapping confirmation (Yes/No), if yes, please indicate the corresponding RSMC		
RSMC for Medium-range Weather Forecasts for Region VI (Europe)			
ECMWF			
RSMC for the Provision of Ultraviolet-index	r forecasts for Region VI (Europe)		
Offenbach			

# **TABLE OF CONTENTS**

### INTRODUCTION

# PART I - OUTLINE OF THE WMO GLOBAL DATA-PROCESSING AND FORECASTING SYSTEM (GDPFS)

# 1. PURPOSE AND SUPPORTED ACTIVITIES

- **General description**
- 1.2. **Activities supported by the GDPFS**
- 2. CENTRES
  - **Definitions** 2.1

Appendix A.I.2.1 Definitions of meteorological forecasting ranges

- 2.2 **Designation process**
- 3. COORDINATION WITH OTHER SYSTEMS OR PROGRAMMES

## PART II - SPECIFICATIONS OF GDPFS ACTIVITIES

# 1. OVERALL REQUIREMENTS AND STANDARDS

**Quality control of incoming observations** 1.1.

Appendix A.II.1.1-a Techniques for monitoring the quality of observations

Appendix A.II.1.1-b Procedures and formats for the exchange of monitoring results

- 1.2. Data collection and product dissemination
- Long-term storage of data and products 1.3.
- 1.4. **Product verification**
- 1.5. **Documentation on system and products**
- 1.6. Training
- 1.7. Reporting on compliance
- 1.8. Graphical representation of observations, analyses and forecasts

# 2. SPECIFICATION OF ACTIVITIES AND PROCEDURES FOR THEIR MODIFICATION

**General purpose activities** 2.1

# **Global Deterministic Numerical Weather Prediction**

Appendix A.II.2.1.1-a Minimum list of global deterministic NWP products to be made available on the WIS

Appendix A.II.2.1.1-b Characteristics of global deterministic NWP systems

# **Limited Area Deterministic Numerical Weather Prediction**

Appendix A.II.2.1.2-a Minimum list of limited area deterministic NWP products to be made available on the WIS

Appendix A.II.2.1.2-b Characteristics of limited area deterministic NWP systems

# **Global Ensemble Numerical Weather Prediction**

Appendix A.II.2.1.3-a Minimum list of global EPS products to be made available on the WIS

Appendix A.II.2.1.3-b Characteristics of global EPS

# **Limited Area Ensemble Numerical Weather Prediction**

Appendix A.II.2.1.4-a Minimum list of limited area EPS products to be made available on the WIS

Appendix A.II.2.1.4-b Characteristics of limited area EPS

#### **Global Numerical Long-range Prediction** 2.1.5.

Appendix A.II.2.1.5-a Mandatory and highly recommended seasonal numerical prediction products to be made available on the WIS

Appendix II.2.1.5-b Characteristics of seasonal numerical prediction systems

Appendix II.2.1.5-c Additional seasonal numerical prediction products to be made available on the WIS

#### **Numerical Ocean Wave Prediction** 2.1.6.

Appendix A.II.2.1.6-a Minimum list of numerical ocean wave prediction products to be made available on the WIS

Appendix A.II.2.1.6-b

Appendix A.II.2.1.6-c Characteristics of global NOWP systems

#### **Global Numerical Ocean Prediction** 2.1.7

Appendix A.II.2.1.7-a Minimum list of global numerical ocean prediction products to be made available on the WIS

Appendix A.II.2.1.7-b

Appendix A.II.2.1.7-c Characteristics of global NOP systems

#### 2.1.8. **Nowcasting**

Appendix II.2.1.8 Characteristics of Nowcasting systems

#### 2.2 Specialized activities

#### **Regional Severe Weather Forecasting** 2.2.2.

#### Regional climate prediction and monitoring 2.2.3.

Appendix A.II.2.2.3-a RCC mandatory functions
Appendix A.II.2.2.3-b Additional highly recommended RCC functions

Annex A.II.2.2.3-annex Guidelines for feedback from RCCs/NHMSs to GPCs

#### Coordination of Multi Model Ensemble Prediction for Long Range 2.2.4. **Forecasts**

Appendix A.II.2.2.4-a Minimum information to be available from LCs-LRFMME

Appendix A.II.2.2.4-b Additional information to be available from LCs-LRFMME

Appendix A.II.2.2.4-c Access to GPC data and visualization products held by the Lead Centres for LRFMME

#### 2.2.5. **Tropical Cyclone Forecasting, including marine-related hazards**

2.2.6. **Volcanic Contaminants** 

#### **Marine Meteorological Services** 2.2.7.

#### 2.2.8. **Nuclear Environmental Emergency Response**

Appendix A.II.2.2.8-a Activation of support for nuclear emergency response and standards in the provision of international services by RSMCs

Appendix A.II.2.2.8-b Minimum list of products and rules for displaying products

Appendix A.II.2.2.8-c Default emission source parameters

Appendix A.II.2.2.8-d Characteristics of atmospheric transport modelling system

Appendix A.II.2.2.8-e Request form to activate RSMC support Appendix A.II.2.2.8-f Specifications for support to CTBTO

#### 2.2.9. **Non-nuclear Environmental Emergency Response**

Appendix A.II.2.2.9-a Activation of support for non-nuclear emergency response

Appendix A.II.2.2.9-e Request form to activate RSMC support

Appendix A.II.2.2.9-f Users interpretation guide for non-nuclear atmospheric transport model products provided by RSMCs

# 2.2.10. Atmospheric sand and dust storm forecasting

Appendix A.II.2.2.10-a Minimum list of atmospheric sand and dust storm products to be made available on the WIS

#### Non real-time coordination activities 2.3

#### 2.3.1. **Coordination of deterministic NWP verification**

Appendix A.II.2.3.1 I – Standardized verification of deterministic NWP products

#### **Coordination of EPS verification** 2.3.2.

Appendix A.II.2.3.2 II - Standard verification measures of global EPS

# Coordination of LRF verification

Appendix A.II.2.3.3 II - Standardized verification System for long-range forecasts (SVSLRF)

#### 2.3.4. **Coordination of ocean wave forecast verification**

- 2.3.5 Coordination of tropical cyclone forecast verification
- 2.3.6. **Coordination of observation monitoring**

# **PART III - GDPFS IMPLEMENTATION**

**ACRONYMS** 

**INDEX** 

-----

# STATUS OF CONFIRMATION OF THE MAPPING OF EXISTING WMCs, RSMCs ACTIVITY SPECIALIZATION AND LEAD CENTRES (HOSTED BY MEMBERS) ONTO THE CORRESPONDING DESIGNATIONS DESCRIBED IN THE REVISED MANUAL ON THE GDPFS (WMO-No. 485) (2017 Edition)

# 1. World Meteorological Centres (WMCs)

The new Manual introduces a clear definition for a WMC, which WMC shall be appointed if fulfilling the following functions:

- RSMC for global deterministic NWP;
- RSMC for global ensemble NWP; and
- RSMC for global numerical long-range prediction (known as GPC).

Designated Centre	Mapping confirmation received at WMO  (Yes/No)
Melbourne (southern hemisphere only)	No response
Moscow	Yes
Washington	Yes
New WMCs designated by EC-69 (2017)	
Canada (Montreal)	Yes
UK (Exeter)	Yes
Japan (Tokyo)	Yes
China (Beijing)	Yes
ECMWF (Reading)	Yes
Designation of new WMC (to designated by	y EC-70 (in June 2018)
Germany (Offenbach)	In consideration

# 2. Regional Specialized Meteorological Centre (RSMC) with geographical specialization

The Members who are currently hosting RSMCs with geographical specialization are especially required to map themselves against any of new types of centres considering that RSMCs with geographical specialization will cease to exist after Congress-18 in 2019. Such RSMCs may become RSMCs for one (or more) of the following activities depending upon their functions and capacities:

- (1) RSMC for regional severe weather forecasting;
- (2) RSMC for global deterministic NWP;
- (3) RSMC for limited-area deterministic NWP;

- (4) RSMC for global ensemble NWP; and
- (5) RSMC for limited-area ensemble NWP.

Therefore, Members hosting RSMCs with geographical specialization, are requested to please answer *YES* if they confirm their Centre(s) will to map its functions onto a new designation(s) of one (or more) of following RSMC(s).

Designated	(1)	(2)	(3)	(4)	(5)	<b>Mapping</b>
Centre	RSMC for	RSMC for	RSMC for	RSMC for	RSMC for	<b>confirmation</b>
	regional	global	limited-	global	limited-	<mark>received at</mark>
	severe	determini	area	ensemble	area	WMO
	weather	stic NWP	determinist	NWP	ensemble	(Yes/No)
	forecasting		ic NWP		NWP	
Algiers						No response
Beijing	Yes	Yes		Yes		No response
Brasilia						No response
Buenos Aires						No response
Cairo						No response
Dakar						No response
Darwin						No response
Exeter		Yes	Yes	Yes	Yes	Yes
Jeddah						No response
Khabarovsk						No response
Melbourne						No response
Miami						No response
Montreal						No response
Moscow						No response
Nairobi						No response
New Delhi						No response
Novosibirsk						No response
Offenbach	Yes					Yes
Pretoria	Yes	-	Yes	-	-	Yes
Rome	-	Yes	-	-	Yes	Yes
Tashkent	Yes	-	-		-	Yes
Tokyo	Yes	Yes	-	Yes	-	Yes
Tunis						No response
/Casablanca						
Washington						No response

Wellington	Yes	-	-	-	-	No response
ECMWF	-	Yes	-	Yes	-	Yes
(new						
centre)						

# 3. Regional Specialized Meteorological Centre (RSMC) with activity specialization

If you currently host an RSMC with activity specialization, please answer *YES* or *No* to confirm your will to map its functions onto a new designation of its corresponding RSMC.

Designated Centre	Mapping confirmation received at WMO (Yes/No)			
Global Producing Centre for Long-range Forecasts (GPC)				
Beijing	Yes			
CPTEC (Brazil)	Yes			
Exeter	Yes			
Melbourne	No response			
Montreal	Yes			
Moscow	Yes			
Pretoria	No response			
Seoul	No response			
Tokyo	Yes			
Toulouse	Yes			
Washington	Yes			
European Centre for Medium-range	Yes			
Weather Forecasts (ECMWF)				
Tropical Cyclone Centre / Hurricane Centre	e / Typhoon Centre			
Nadi – Tropical Cyclone Centre	Yes			
New Delhi – Tropical Cyclone Centre	Yes			
Miami – Hurricane Centre	Yes			
Tokyo – Typhoon Centre	Yes			
La Réunion – Tropical Cyclone Centre	Yes			
Honolulu – Hurricane Centre	Yes			
RSMC for Atmospheric Sand and Dust storm Forecasts				
Barcelona				
RSMC for Nuclear Environmental Emergen	cy Response and/or Backtracking			
Beijing	Yes			
Exeter	Yes			

Melbourne		No response
Montreal		Yes
Obninsk		Yes
Offenbach (bac	ktracking only)	Yes
Tokyo		Yes
Toulouse		Yes
Vienna (backtra	cking only)	Yes
Washington		Yes
Regional Climat	e Centre	
Africa hosted k	by the African Centre of	Yes
Meteorological	Applications for	
Development (A	ACMAD) (RA I)	
Beijing (RA II)		Yes
Tokyo (RA II)		Yes
Moscow (RA II)		Yes
New Centres	designated by EC-69	
(2017)		
ICPAC		Yes
Pune		Yes
CIMH, Barbados	S	Yes
North Africa Ne	twork RA I	Yes
Western South	America hosted by the	
International Re	esearch Centre on El Niño	Yes
(RA III)		
Network (RA	De Bilt	Yes
VI)	(Climate Data Service)	
	Offenbach	Yes
	(Climate Monitoring)	
	Toulouse	Yes
(Long-range Forecasts)		
	Moscow	Yes
	(Long-range Forecasts)	

# 4. Lead Centres

Designated Centre	Mapping confirmation
Long-range Forecast Multi-model Ensemble (LRFMME)	
Seoul	No
Washington	Yes

Standard Verification System for Long-range Forecasts (SVSLRF)	
Melbourne	No
Montreal	Yes
Deterministic NWP Verification	
ECMWF	Yes
EPS Verification	
Tokyo	Yes