



WMO OMM

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

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GENEVA, 14 April 2016

Annexes: 2 (available in English only)

Subject: International Training Course on Weather Forecasting for Operational Meteorologists, from 11 to 29 July 2016, Seoul, Republic of Korea

Action required: For information and appropriate action, as necessary

Dear Sir/Madam,

I have the pleasure to inform you that the Korea Meteorological Administration (KMA) will host an International Training Course on Weather Forecasting for Operational Meteorologists from 11 to 29 July 2016 at the WMO Regional Training Centre in the Republic of Korea for 10 participants from National Meteorological and Hydrological Services (NHMSs) of WMO Regional Association I (Africa), Regional Association II (Asia), and Regional Association V (South-West Pacific).

The course aims at strengthening meteorological skills and extending their understanding in delivering weather services to the public and stakeholders. It will be designed for junior level meteorologists with at least two years of experience in weather forecasting. It will include lectures and case studies on weather forecasting; weather service; field trip; and action learning for action planning for participating Members.

It is requested that governments consider contributing to the expenses related to the participation of their respective nominees, in particular the cost of air tickets. However, if this is not possible, requests for financial assistance can be indicated on the participants nomination form. Enclosed are the Course Information (Annex 1) and Participant Nomination Form (Annex 2).

Interested candidates are requested to complete the attached Nomination Form, (Annex 2), which should be endorsed by the Permanent Representative of the respective country with WMO and sent directly to the KMA (e-mail: nyyim@korea.kr or Fax: +82 2 2181 0569) as soon as possible but not later than **25 May 2016**.

Yours faithfully,

(E. Manaenkova)
for the Secretary-General

To: Permanent Representatives of Members of Regional Association I (AFR-786)
Permanent Representatives of Members of Regional Association II (ASE-643)
Permanent Representatives of Members of Regional Association V (PSW-452)

cc: Hydrological Advisers to Permanent Representatives

Training Course on Weather Forecasting for Operational Meteorologists

11-29 July 2016

Korea Meteorological Administration

Seoul, Republic of Korea

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KMA Training Programme

The Korea Meteorological Administration, KMA, is committed to protecting the life and property of the public from weather hazards, improving the quality of life and economy and strengthening international cooperation in global weather services. The KMA conducts observations and analysis of meteorological phenomena, earthquake events and climate change and provides weather forecasts, warnings, long-term predictions and industrial meteorological information. The KMA has recently been recognized as a WMO Regional Training Centre (WMO RTC), WMO Lead Centre for Long Range Forecast & Multi Model Ensemble (WMO LC-LRFMME), the WMO World Calibration Centre for SF6 and the WMO Information Service (WIS) Global Information System Centre (GISC) Seoul with improved observation, information and communication technology, short and long range forecasting services and climate science.

To enhance the personnel capacity of the WMO Member countries, the KMA has delivered various short-term (two to four weeks) international training courses such as “Weather forecasting for operational meteorologists”, “ICT for meteorological services”, “Satellite data analysis”, and “Radar data analysis”. Other notable KMA-organized courses include “Workshop on meteorological disaster responsiveness for African countries” to improve countermeasures to high-impact weather and “Climate prediction expert course” for the acquisition of innovative techniques on climate prediction for operational use. And the Korea National Meteorological Satellite Center has been recognized as the Center of Excellence (CoE) since 2010 and delivering the advanced analysis course for enhancing knowledge and skill of products from various meteorological satellites. About 700 persons from 70 countries from the whole world have participated in the KMA’s training courses since 1998.

Part I

PROGRAMME OVERVIEW

1. Title: Weather Forecasting of Operational Meteorologists

2. Duration: 11-29 July 2016 (Participants are expected to arrive in Seoul on Sunday, 10 July 2016 and depart on Saturday, 30 July 2016)

3. Objectives

- a) Strengthen meteorological skills needed to analyze observation data, numerical weather prediction products, and satellite & radar images;
- b) Extend their understanding in delivering weather services to the public and stakeholders.

4. Number of Participants

10 participants from NMHSs of the WMO Members

5. Language: English only

6. Venue: Seoul, Republic of Korea

7. Training Institute: Korea Meteorological Administration (KMA)

8. Accommodation: Hotel in Seoul

9. Qualification of Applicants:

- a) Participants should be meteorologists who have already undertaken and successfully completed a course consistent with Basic Instruction Package – Meteorologist requirements;
- b) Participants should be meteorologists with at least two years of experience in weather forecasting;
- c) Participants should be expected to work in the related field for at least two years after the programme;
- d) Participants should have never attended KMA's training programme during the past three years;
- e) Participants should have sufficient command of both written and spoken English. (If English is not the mother tongue, certificate of proficiency in English is requested.)

10. Closing Date for Application: 25 May 2016

The completed nomination form with the signature of the PR of the relevant WMO Member should be returned to the KMA (e-mail: nyyim@korea.kr or FAX: +82-2-2181-0569) with a copy for the WMO Secretariat no later than 25 May 2016. Result of selected participants will be announced in the end of May 2016.

11. Country Report:

Final participants should submit their country report on general and weather forecast services of their NMHS in MS PowerPoint or Word to nyyim@korea.kr by 27 June 2016. If one country has more than two participants, only one report is to be submitted. Participants can submit their country report directly to KMA during the course in case that the Internet access is not available in their country.

a) Details of Country Report Preparation:

- **Current situation**
 - Explain the operational NWP model (Atmosphere, Marine),
 - Describe the current status of NWP staff's capacity and their main role,
 - Describe major challenges and opportunities your country is facing,
 - Analyze the strengths and weaknesses of NWP operating environment at your organization.
- **Future direction and cooperation**
 - Describe a realistic and practical suggestion based on the current situation,
 - Describe your expectation from the training course.
- **Please specify the information on NWP infra (hardware, software) in your organization.**
- **Country Report should also include the topic you would like to discuss during the workshop.**

Part II**PROGRAMME CONTENTS****1. TENTATIVE PROGRAMME MODULE**

Module	Lecture & Discussion	Study Visit
Module 1 Understanding of Korea & KMA	<ul style="list-style-type: none"> - Korea's Culture, Society and Language - Recent Developments and Future Plans of KMA - Global Needs for Weather Forecasters - Role of Weather Forecaster 	<ul style="list-style-type: none"> - National Weather Center - Information and Communication Center
Module 2 Weather Forecasting	<ul style="list-style-type: none"> - Weather Analysis using graphic tools - Global/Regional/Local NWP Model - Statistical Model - NWP Weather Chart Analysis - High Impact forecast - Advanced Weather Forecasting System - Weather Observation - Meteorological satellite data in now-casting and Very Short Range Forecasting - Radar Data Quality Control Techniques - Case study on Radar Data Analysis - Radar QPE(Quantitative Precipitation Estimation) Techniques - Application to forecast of Satellite data - Meteorological satellite image analysis 	<ul style="list-style-type: none"> - National Meteorological Satellite Center (NMSC) - National Meteorological Supercomputer Center - Korea Meteorological Industry Promotion Agency
Module 3 Weather Service	<ul style="list-style-type: none"> - Type of Weather Service & Delivery - Forecasting & Warning Service - Marine Meteorological Service 	
Cultural Experience	<ul style="list-style-type: none"> - Seoul City Tour - Field Trip 	
Workshop	<ul style="list-style-type: none"> - Country Report Presentation - Action Learning - Action Plan Presentation 	

2. PROGRAMME OVERVIEW

This course was designed for those who have completed the WMO BIP-M or courses equivalent to the WMO BIP-M, based on the assumption that they completed their undergraduate studies on basic theories. The course is mainly focused on providing applied knowledge that weather forecasters should know and was developed from the perspective of Fundamental WMO Competency Requirements for a PWS Forecaster of the WMO Competency Framework for PWS Forecasts and Advisors.

Part III	EXPENSES
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1. FINANCIAL SUPPORT

It is requested that governments consider contributing to the expenses related to the participation of their respective nominees, in particular the cost of air tickets. However, if this is not possible, requests for financial assistance can be indicated on the participants nomination form, and these will be considered within the limited funds available for the course.

2. INSURANCE

Participants will be provided with travel insurance for the period of the stay in the Republic of Korea with a minimal range of coverage.

3. ENTRY REQUIREMENTS

Foreigners wishing to enter the Republic of Korea should hold valid passports. Most visitors with confirmed round-trip tickets may stay for 15 days without a visa, although this does not apply to certain nationalities. Any visitors from countries with no diplomatic relations or no special visa exemption arrangements with the Republic of Korea should obtain an entry visa before entering the country. When uncertain as to the requirements for entry visa to the Republic of Korea, please contact your local Embassy or Consulate as soon as possible. For more information, please visit the website of the Ministry of Foreign Affairs of the Republic of Korea at: <http://www.mofa.go.kr/ENG/visa/application>

Part IV**USEFUL INFORMATION****1. TRAINING INSTITUTE****The Korea Meteorological Administration**

The KMA is a governmental organization of the Republic of Korea under the Ministry of Environment (MOE). Its mission is defined to protect citizens' lives and properties from natural disasters and improve the commonwealth of the public in ways such as support for economic activities. In this regard, KMA undertakes the observation and analysis of meteorological phenomena on the ground, in the ocean, and in the atmosphere, while providing weather forecasts and warnings, and presents climate statistics and industrial-meteorological data. Furthermore, KMA exchanges meteorological data and information with domestic and foreign organizations, conducts research and technology development activities, and prompts international cooperation.

KMA's head administration consists of 1 administrator, 1 vice administrator, 5 director generals, 30 divisions, and 3 centers. Its subsidiaries include the National Institute of Meteorological Research (NIMR), 6 regional administrations, the National Meteorological Satellite Center, the Weather Radar Center, and the Korea Aviation Meteorological Agency. The total number of KMA staff is approximately 1,300.

KMA operates a surface observation network consisting of 585 AWS sites, including 22 manned weather stations, an upper-air observation network consisting of 14 sites, a weather radar network with 11 sites, and a PM10 Asian Dust observation network with 29 sites. In addition, it operates 17 buoys, 9 AWS on lighthouses, 6 wave radars and 1 marine observation vessel for marine weather observation. KMA also manages the West Sea Integrated Oceanic Meteorological Observation Base Station in the West Sea, the Korea Global Atmosphere Watch Observatory, 65 seismic stations and 126 accelerometers.

The COmbined Meteorological Information System (COMIS) is KMA's system for collecting, processing, storing and disseminating the continuous flow of high-volume real-time data. This system enables the exchange of domestic and global (distributed via the Global Telecommunication System) surface, marine, upper-air, and satellite observations, all of which are used as initial data for numerical weather prediction models. A wide area network has been established to carry voice, video, alpha/numeric and graphic data.

Weather forecast products issued on a regular basis to support public activities include Digital Forecast, weekly forecasts, and 1- or 3-month outlooks. Warnings are issued to draw attention or give notice when serious weather hazards are anticipated. Warning products include heavy rainfall, heavy snowfall, strong wind, wind wave, aridity, storm surge, seismic tsunami, cold wave, typhoon, Asian Dust, and excessive heat warnings, and are classified into advisories and warnings. The Digital Forecast service divides the southern half of the Korean Peninsula into approximately 3,500 sections, and provides detailed and quantitative 3-day

forecasts in a variety of formats for 3-hour intervals. This digital service provides nationwide forecast at a resolution of 5km by 5km, for convenient use and customization by users.

KMA started operation of NWP models in 1989. The primary goal of KMA's weather forecast is to produce seamless forecasts from very-short range to seasonal scale as well as to provide user-oriented quantitative forecast. To achieve this goal, KMA is currently operating a global (GDAPS) and two regional (RDAPS and KWRF) NWP systems, as well as a global ensemble prediction system (EPS) as main NWP systems. Various kinds of application models such as wave models, Asian-dust model, storm-surge and typhoon models, and statistical models are also being operated in KMA. KMA decided to introduce Unified Model system (UMS) developed by UK Met Office as KMA's next-generation NWP system. Based on this strategic plan, the operational global and regional NWP models have been replaced with UM, and the data assimilation system has also been upgraded from 3DVAR to 4DVAR since 2010.

2. STUDY VISITS

National Meteorological Supercomputer Center

The weather forecast products that KMA provides go beyond merely predicting natural disasters and severe weather. They are being valued as critical elements that determine the nation's economic and socio-cultural conditions. KMA acquired its first supercomputer in 1999, second in 2004, third in 2009 and fourth in 2015. KMA has also founded its national Supercomputer Center for Meteorology in the Ochang Science and Industry Complex in Cheongwon-gun, Chungcheong buk-do, to provide a stable operating base for its new supercomputer.

National Meteorological Satellite Center

National Meteorological Satellite Center (NMSC), which is located in Jincheon Gun about 70km southeast from Seoul, operate receiving and processing systems for foreign satellites, and the ground system of COMS(Communication, Ocean and Meteorological Satellite) that is the first geostationary meteorological satellite of Korea to be launched in 2010 and COMS data was serviced on April 2011. NMSC is also responsible for analysis, service of meteorological satellite data as well as research activities on remote sensing based on space.

Korea Meteorological Industry Promotion Agency

Korea Meteorological Industry Promotion Agency (KMIPA) is a specialized organization to promote national meteorological industry since it has been designated as a government organization in January 2013. KMIPA creates a synergy through bridging the R&D and industry promotion through conversions of meteorology and other industries by providing value added meteorological information. Furthermore, KMIPA also builds a foundation for sound business environment for both domestic and global market by providing customized meteorological information service.

3. REGULATIONS

- Participants should participate in the training to the best of their abilities
- Participants have certificate of completion if they attend over 80% of whole lectures
- Participants should refrain from engaging in political activity or any form of employment for profit or gain
- Participants should not extend the length of the training course or stay for personal convenience
- Participants are not permitted to change the flight schedule arranged by KMA for personal convenience
- Participants are to assume responsibility for any personal expenses incurred regardless of implementation of the course
- Participants are required to strictly observe the course schedule and abide by the rules and regulations stipulated by the Korean government in respect to the training course

4. CONTACTS

- **The Korea Meteorological Administration**

- Programme Coordinator: **Ms. Nayoung YIM**

- Tel: (+82) -2-2181-0574

- Fax: (+82) -2-2181-0569

- E-mail: nyyim@korea.kr

Further information (e.g. schedule, accommodation, allowance) will be sent to the selected participants individually by e-mail.
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**International Training Course on
Weather Forecasting for Operational Meteorologists**

11-29 July 2016

Korea Meteorological Administration
Seoul, Republic of Korea

PARTICIPANT NOMINATION FORM

The Government of nominates the following candidate as a participant in the above mentioned training course:

1. Family Name(Surname):
2. First Name(Given):
3. Middle Name:
4. Date of Birth:
5. Nationality:
6. Gender: ☐ Male ☐ Female
7. Passport Number and Place and Date of Issue:
.....
8. Passport Expiry Date:
9. Do you need an entry visa for Korea? ☐ No ☐ Yes
<http://www.mofa.go.kr/ENG/visa/application>
10. Organization:
11. E-mail:
12. Telephone No.:
13. Fax No.:
14. Official Address:
.....
15. Qualifications (Certificates, Diplomas, Degrees, etc.):
.....

16. Present Position and Brief Description of Duties:

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17. Please indicate your English language skills:

	Excellent	Good	Fair	Poor	Nil
Speaking					
Reading					
Writing					
*Certificates (In case you have any):					

18. The nominee has experiences on weather forecasting:

☐ YES (how many years:) ☐ NO

The nominee has experiences on numerical weather prediction:

☐ YES (how many years:) ☐ NO

19. What do you wish to achieve by having your candidate participate in this course?

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20. We request financial assistance:

▪ Air Ticket: ☐ YES ☐ NO

▪ Daily Subsistence Allowance: ☐ YES ☐ NO

21. Name, address and phone number of a person to be notified in case of emergency:

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22. Name and Signature of Permanent Representative:

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23. Date:

Please complete and return this form no later than 25 May 2016 to:

Programme Coordinator: Nayoung YIM (Ms.)

Education and Training Division

Korea Meteorological Administration

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