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WMO OMM
World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Our ref.: 29154/2021/DPS/SWFP/S-Asia & SE-Asia 8 December 2021

Annexes: 2

Subject: Severe Weather Forecasting programme (SWFP)–South Asia and Southeast Asia-Online Training Workshop on Severe Weather and Impact Based Forecasting and Warning Services, 28 February – 10 March 2022

Action required: To nominate a maximum of three operational forecasters from your Service to attend the subject SWFP online training workshop and convey the nominations to WMO Secretariat as soon as possible, **but no later than 10 January 2022**

Dear Sir/Madam,

As you might be aware, the World Meteorological Organization (WMO) Severe Weather Forecasting programme (SWFP) has been implemented in various sub-regions of the world including South Asia and Southeast Asia. SWFP makes efficient use of the 'cascading forecasting process' with contributions from the Global Data Processing and Forecasting System (GDPFS) Centres. The Numerical Weather Prediction (NWP) outputs are made available from the contributing global centres including World Meteorological Centres (WMCs) and the daily severe weather forecast guidance product is issued to the NMHSs of SWFP participating countries by the relevant Regional Centre(s) in each sub-region. For the NMHSs involved in SWFP-South Asia and SWFP-Southeast Asia, the guidance product is issued by the Regional Specialized Meteorological Centre (RSMC) New Delhi and the Regional Forecast Support Centre (RFSC), Hanoi respectively.

Capacity development of the operational forecasters and public weather services (PWS) staff of the NMHSs in improving their skills in severe weather and impact-based forecasting through specialized training workshops is a salient feature of SWFP. Since 2013, several SWFP workshops have been organized in both sub-regions to develop capacity of the participating NMHSs. In 2019, two such workshops were organized in Lao People's Democratic Republic (February/March 2019) and Pakistan (November 2019) and an online training workshop was organized jointly for both sub-regions in February 2021.

In this context, WMO, in collaboration with the UK Met Office, RSMC New Delhi, RFSC Hanoi and RSMC Hong Kong is organizing a remote online SWFP Regional Training Workshop on Severe Weather and Impact Based Forecasting and Warning Services from 28 February to 10 March 2022. The UK Met Office is supporting this workshop through the UK-aid funded Asia Regional Resilience to a Changing Climate (ARRCC) programme.

To: Permanent Representatives of Members with WMO: Bangladesh, Bhutan, Cambodia, India, Lao People's Democratic Republic, Philippines, Maldives, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand and Viet Nam) (limited distribution)

cc: Permanent Representative of the United Kingdom (kind attention: Ms Catrina Johnson, Science Manager, Weather Analytics, Met Office, Exeter, United Kingdom)

This online training workshop will follow a blended learning approach to training, with a mix of synchronous ("live") sessions, supplemented with online self-study modules using a range of media, to be completed outside of the facilitated sessions. The workshop will be conducted in English. An Information Note including training objectives, topics and a provisional program is attached as **Annex I.**

You are invited to kindly nominate, from your Service, up to three early career operational forecasters (preferably those currently involved in, or with recent experience in, the delivery of public weather services) to attend the subject online training workshop from 28 February to 10 March 2022.

Although the nominated forecasters will attend the training remotely, large parts will need to be completed in real-time. The time commitment is expected to be around 25-30 hours per week. Therefore, any nomination from your Service will commit to guaranteeing participants will be available to attend all live sessions, 4 per week, and have sufficient time allocated to allow for the completion of all self-study modules, which will be a pre-requisite for the facilitated sessions. Each participant needs to have access to an individual computer or laptop, with a reliable internet connection, which allows streaming of video and sound, as well as connection to remote servers to complete self-study modules and participate in practical sessions during the remote training.

A prescribed nomination form is attached as **Annex II.** Its electronic copy is available on WMO Community Platform here: https://community.wmo.int/meetings/swfp-south-asia-and-southeast-asia-training-workshop-severe-weather-and-impact-based-forecasting-and-warning-services-online-28-february-10-march-2022

Nomination forms should be completed and returned to the WMO Secretariat with a copy to the UK Met Office, at your earliest convenience, but **no later than 10 January 2022.**

I wish to thank you for your continued support to the WMO activities.

Yours faithfully,

Dr Elena Manaenkova
for the Secretary-General

Ref.: 29087/2021-LL SDPS

Severe Weather Forecasting programme (SWFP) –Training Workshop on Severe Weather and Impact Based Forecasting and Warning Services for South Asia and Southeast Asia (ONLINE), 28 February – 10 March 2022

Information Note

Training Objectives

To address the capacity building needs of operational forecasters and public weather services (PWS) staff of NMHSs of countries involved in SWFP (South Asia and Southeast Asia) and Asia Regional Resilience to a Changing Climate (ARRCC) programme (Met Office UK, in partnership with the UK Foreign, Commonwealth and Development Office (FCDO) and the World Bank).
This will be achieved through enhancing the participants' capability in;

- Interpretation of Numerical Weather Prediction (NWP), including Ensemble Prediction System (EPS) outputs;
- Nowcasting tools and techniques including use of satellite-based information and radar output (e.g. QPE & QPF) to help with the nowcasting of severe weather;
- Medium-range forecasting tools and techniques;
- Understanding and implementing impact-based forecasting and early warnings services;
- Communication of forecasts including impact-based forecasts and warning services provided to the general public, key stakeholders and primary users, including disaster managers and media.

Training Program

The training program has been designed based on responses from SWFP training needs surveys carried out in 2019 and 2020 and feedback obtained through evaluation of 2021 workshop. Below is the provisional training program for the SWFP online remote training workshop. It may be subject to minor changes in terms of the scheduling of each specific session, however the topics will remain same.

Week 1	Monday 28th February	Tuesday 1st March	Wednesday 2nd March	Thursday 3rd March	Friday 4th March
Topics to be covered	**The Forecast Process; Impact Based Forecast (IBF); Forecast uncertainty; Regional case studies in IBF implementation; Common Alerting Protocol (CAP); Working with Stakeholders**				
Live Sessions Times	07:30-10:30 (UTC time)	08:00-10:30 (UTC time)	08:00-10:30 (UTC time)	08:00-10:30 (UTC time)	No live session on Friday
Online Modules	Introduction to IBF; IBF Scenario exercise; Communicating Risk; Introduction to NWP (common limitation & handling uncertainty); Communicating probabilistic forecasts; Building customer relationship; Leveraging social science to improve risk communication.				
Live Sessions	**Monday:** Opening/Introduction; The forecast process; Introduction to IBF (Interactive session) **Tuesday:** Dealing with forecast uncertainty (A case study example); Risk Matrix and IBF **Wednesday:** IBF case studies and importance of pilots; Implementation of IBF in Hong Kong; IBF pilot implementation in Nepal and lessons learnt				

	Thursday: Common Alerting Protocol (CAP); Methods of communication; Working with Stakeholders

Week 2	**Monday 7th March**	**Tuesday 8th March**	**Wednesday 9th March**	**Thursday 10th March**	**Friday 11th March**
Topics to be covered	**Available products (SWFP Portals); Severe convection & Heavy Rainfall Events. Diagnosing Severe Weather; Satellite Imagery and Radar Analysis. Nowcasting; Medium-range Forecasting.**				
Live Sessions Times	08:00-10:30 (UTC)	08:00-10:30 (UTC)	08:00-10:30 (UTC)	08:00-11:00 (UTC)	No live session on Friday
Online Modules	COMET modules on principles of convection (I, II & III); Satellite imagery and channels; COMET modules on precipitation estimation & quantitative precipitation forecasting (QPF), and Typhoon QPF in Taiwan (case study); ECMWF modules on ensemble forecasting, forecast jumpiness and extreme forecast index (EFI); Tropical cyclone case study (SWFP)				
Live Sessions	**Monday:** Application of convective indices; Regional forecast techniques **Tuesday:** Nowcasting using satellite; Application of nowcasting **Wednesday:** Radar based nowcasting (e.g. use of QPE/QPF); Effective use of Doppler radar for diagnosis and monitoring **Thursday**: Medium-range forecasting considerations including effective use of ensembles and limitations of medium-range forecasts; Course conclusion				
For full credit: Submission of a case study on severe weather based on the techniques/forecast processes identified during the 2 weeks. Application of the knowledge gained, and the techniques explored to a severe weather event observed in participant's country around the time of the course or after. Case studies to be submitted by **Friday, 15th April 2022.**					

Live, facilitated sessions from Monday to Thursday (during both weeks) will be important for giving participants the chance to contextualise and apply theoretical knowledge from self-study modules, and also work together and learn from the experience of their peers. It is therefore mandatory that participants attend all of these sessions. The sessions will take place during **0800 -1030 UTC** each day except on day-1 (28 February 2021) when the session will start at **0730 UTC** to allow for any technical difficulties (e.g. microphones, connections etc.) and formal opening of the course, and on day-8 (10 March 20210 when the course will conclude at **1100 UTC** allowing time for formal closing and certification presentation.

The corresponding local times in various countries are as follows:

Local Time	Countries
16:00 – 18:30	Philippines, Hong Kong
15:00 – 17:30	Thailand, Cambodia, Lao People's Democratic Republic, Vietnam
14:30 – 17:00	Myanmar
14:00 – 16:30	Bangladesh, Bhutan
13:45 – 16:15	Nepal
13:30 – 16:00	Sri Lanka, India
13:00 – 15:30	Maldives, Pakistan

Medium of instruction

The training will be delivered in English

Qualification of participants

- Nominated participants must be proficient in English.
- They should be early career operational forecasters with minimum 2 years' experience in weather forecasting including in the delivery of public weather services (PWS).
- Preference should be given to those who had not attended any SWFP workshop in the past.
- They will be required to:
  - attend all live sessions as detailed above, and which will be confirmed with the participants via joining instructions prior to course commencement;
  - complete all prescribed course material on the online learning platform by the dates indicated on the joining instructions (the intention is to make the online material available in advance of the advertised start date should any delegates wish to make a start at their convenience);
  - provide the course organizers with feedback on the usefulness and effectiveness of the online training immediately following the workshop (WMO will send an online survey for this purpose);
  - actively maintain technical exchanges and communication with the lecturers/ experts, organizers and their peers, both during and after the workshop (A forum will be created on the learning portal to help facilitate this engagement);
  - carry out case studies on severe weather events observed in participants' countries to apply the knowledge gained, and the techniques learned and to submit case studies within 5 weeks' time after the workshop;
  - complete a follow up survey provided by the course organizers (in 3 months' time after the conclusions of the course), reflecting on how knowledge and skills acquired during the training have been applied in their NMHSs.

Lecturers

Experts from the Met Office UK, RSMC New Delhi, RFSC Ha Noi, RSMC Hong Kong and WMO will contribute to the workshop.

Training delivery

The training will be delivered in a blended learning format making use of both self-study modules hosted on an online learning platform, and synchronous sessions delivered in real-time using video conferencing software alongside a mix of tools to encourage engagement and collaboration. For this to be effective each delegate will need to have access to an individual computer with a reliable internet connection which allows streaming of video and audio, as well as access to remote servers to complete online self-study modules. If you believe access to, or reliability, of local internet connections may be a barrier to participation please contact WMO & Met Office representatives as soon as possible to discuss options (contact details are given below in enquiries section). More information including instructions for how to use the various platforms, along with log-in details will be provided to the participants via email at a later date, likely early to mid-February. Therefore, please ensure to include **direct email addresses for the nominated delegates** on the nomination forms in **Annex-II** as these will be required to generate each participant a unique login for the learning platform.

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Places offered

Around 40 registered participants (a maximum of 3 participants per country) from the NMHSs of countries involved in SWFPs in South Asia and Southeast Asia and ARRCC programme.

Deadline for application

The completed prescribed Nomination Form should be returned to the WMO Secretariat and Met Office UK no later than **10 January 2022.**

Enquiries

For any queries or clarification, please contact the following:
Ms Helen CAUGHEY (Helen.Caughey@metoffice.gov.uk) at Met Office UK and
Mr Ata HUSSAIN (AHussain@wmo.int) at WMO Secretariat.

Annex-II

Severe Weather Forecasting programme (SWFP) –Training Workshop on Severe Weather and Impact Based Forecasting and Warning Services for South Asia and Southeast Asia (ONLINE), 28 February – 10 March 2022

Ref.: 29089/2021-LL1 S/DPS

PARTICIPANT NOMINATION FORM

(Note: Preferably, please nominate those who have not attended any SWFP workshop in the past)

The following operational forecasters are nominated from (name of country): to attend the above captioned SWFP online Training Workshop from 28 February to 10 March 2022:

Sr #	Nominees particulars	Participant Contact detail
1.	Name: Date of birth: Gender (Male/Female): Title/Designation: Responsibilities: Qualification: Experience as forecaster: years	E-Mail*: Tel: Mobile:
2.	Name: Date of birth: Gender (Male/Female): Title/Designation: Responsibilities: Qualification: Experience as forecaster: years	E-Mail*: Tel: Mobile:
3.	Name: Date of birth: Gender (Male/Female): Title/Designation: Responsibilities: Qualification: Experience as forecaster: years	E-Mail*: Tel: Mobile:

**Please ensure the email address is a direct email for the delegate you are nominating as this will be required to generate the login and provide access to the online learning portal.*

The nominating authority hereby confirms that each of the above nominee(s) will have access to a personal computer and/or laptop with good internet connection to ensure smooth streaming of video and sound, as well as connection to remote servers to enable him/her to take part in self-study modules and practical sessions during the online training workshop. It is also confirmed that all nominees from our NMHS will be spared to attend to all live sessions of the training and will be given adequate time to complete self-study modules and case studies as mentioned in the information note (a time commitment of approximately 25-30 hours per week is expected).

Date: Nominating NMHS:

Signature of Director of NMHS (or Permanent Representative): _____

Note: Please complete and submit this nomination form by E-Mail to Ata HUSSAIN (AHussain@wmo.int) at WMO Secretariat and copy to Ms Helen Caughey (helen.caughey@metoffice.gov.uk) at Met Office UK as soon as possible, but **no later than 10 January 2022.**

To enable us to provide you with the best service please complete all the fields by computer and send us an electronic copy