**WMO’s Severe Weather Forecasting Demonstration Project (SWFDP)**

**SWFDP Regional Subproject for Southeast Asia (SWFDP-SeA)**

**SWFDP-SeA Training Desk at RFSC Ha Noi**

**(Ha Noi, Viet Nam, 7-18 May 2018)**

**Tentative Program**

**1. Background**

As recommended by the Regional Subproject Management Team (RSMT) of SWFDP-Southeast Asia in its meeting in 2015 (Ha Noi, Viet Nam, August 2015) and agreed during its meeting in 2017 (Ha Noi, Viet Nam, November 2017), a two-week Training Desk will be organized at RFSC Ha Noi from 7 to18 May 2018 with attachment of two experts from NMHSs of Philippines (which is also RTC for RA V) and Thailand and several forecasters from Viet Nam Meteorological and Hydrological Administration (VMHA). Two expert lecturers from Hong Kong Observatory (HKO), Hong Kong, China will also contribute to the training desk. HKO is the regional technical training support centre for SWFDP-Southeast Asia. One HKO lecturer will attend week-1 of the training desk to cover rainfall nowcasting and forecasting aspects, while the second HKO expert will participate in week-2 to provide contribution on tropical cyclone analysis and forecasting.

**2. Objective**

The training desk is expected to accomplish following objective under the co-supervision of RFSC Ha Noi focal point (Mr Du Duc Tien) and two external trainers from HKO:

* To better understand the forecast process and RFSC Guidance product issued for the NMHSs of participating countries of SWFDP-Southeast Asia;
* To share and exchange local knowledge and experience with RFSC forecasters to improve the guidance product for NMHSs; and
* To do case studies and prepare final report including follow up actions.

In the training process, they will make best use of NWP/EPS products in severe weather forecasting and warning services and improve nowcasting skills using radar and satellite based information

**3. Responsibilities of participants (both invited and local)**

The training desk will be attended by following forecasters:

* Two forecasters invited from NMHSs in the sub-region (one from Philippines and one from Thailand)
* Duty Forecasters from RFSC Ha Noi (VMHA)

Participants are expected to participate in the training desk with enthusiasm and willingness to learn from and share/exchange information with forecasters of RFSC Ha Noi (VMHA). The invited participants are expected to provide training to their fellow forecasters upon return to their home countries. During the two-week training desk, each participant is expected to:

* Participate in the daily production of severe weather guidance for SWFDP-Southeast Asia, under the co-supervision and guidance from Senior/Chief Forecasters of RFSC Ha Noi (VMHA) and HKO experts, and take part in a weather briefing to explain the forecast reasoning to fellow participants. This will be done by using the resources available through SWFDP-Southeast Asia such as:
* RFSC Ha Noi website;
* RSMC Tokyo/New Delhi website (in case of TC forecast support);
* Websites of contributing global centres (CMA, KMA, JMA, and ECMWF) etc.
* Prepare weather forecasts for his/her respective country (or any other country if there is no active weather expected in his/her home country) using the RFSC Guidance product;
* Do evaluation/verification of the previous day’s guidance for severe weather using all the tools available through SWFDP including RFSC website. This has to reflect the performance of the available NWP/EPS models form each global and regional centers;
* Prepare a media release for any country where adverse weather conditions were expected. If no severe weather occurs during the training period, a media release may be prepared as part of the case study. Briefing on electronic media may be done in addition to a written press release. The media release should highlight the impacts of the expected weather on human activity and/or on various socioeconomic sectors. Each Participant is expected to prepare at least one media release;
* Prepare a case study on a recent severe weather event in any country by demonstrating the use of all the tools available through SWFDP. This case study will subsequently be presented at the end of the training event;
* Actively participate in all sessions e.g. lectures, discussions, practical, case study etc.;
* Make a short and precise presentation on forecast process (implemented in his/her home country) and important local factors and influencing phenomenon relevant that are considered relevant in preparing forecasts of severe weather at national/ local levels as well as challenges and impacts for their home countries;
* Complete a daily attendance register;
* Provide a report on RFSC Training Desk (Note: All participants may also prepare a joint report to highlight various aspects of the training desk including strengths and weakness, for example, what works well and what does not, areas of improvement and enhancement and what values for them from such training events etc.).

**4. Responsibilities of invited Experts/Lecturers (from HKO)**

The Experts/Lecturers from HKO are expected to provide following contributions to achieve the objective of RFSC Training Desk:

* Develop a training program for RFSC Training Desk with support from WMO Secretariat and RFSC Ha Noi;
* Provide lectures on specific, pre-determined and agreed topics during focused training sessions as mentioned in the provisional work plan below;
* Supervise and guide the participants during different sessions as appropriate e.g. forecast verification, case studies;
* Co-supervise and guide the participants (along with Senior Forecasters (shift in-charge) in their exercise to contribute to the development of Guidance product as well as during their training in operational forecasting in terms of appropriate use of Guidance products and the RFSC web portal;
* Coordinate discussions during different sessions of the Training Desk as per its program e.g. evaluation of forecast process, evaluation of training desk etc.;
* Develop a final report of the Training Desk (including follow up actions) in collaboration with RFSC Ha Noi focal point and participants.

**5. Responsibilities of RFSC Ha Noi (Senior Forecasters at VMHA)**

Mr Du Duc Tien, the designated focal point of RFSC Ha Noi, with support of his team, will coordinate and supervise the RFSC Training Desk and will provide necessary support to the invited Expert/Lecturer from HKO to successfully accomplish the objective of this training event in collaboration with WMO Secretariat including to develop a final report of the Training Desk. In addition, Senior Forecasters (shift in-charge) working as operational resource persons at RFSC are also expected to support the training of participants in operational forecasting in terms of appropriate use of Guidance products and the RFSC web portal. This includes the following:

* Each day a senior/chief forecaster shall work alongside the participants during the Guidance product preparation;
* The methodology and wisdom behind the Guidance product preparation, including all aspects of using NWP/EPS and nowcasting products, will be shared with participants;
* Senior/chief forecaster shall learn from participant’s feedback concerning weather patterns, local information and challenges in their home countries and adapt training, where possible, to address such needs;
* Forecasters shall be available for general guidance and information sharing with foreign participants as the opportunity arise;
* Senior/chief forecaster will supervise the daily completion of an evaluation form for participants.

**6. Daily tentative work plan for week-1 & 2**

Daily tentative work plan for both weeks is available on the next and following pages.

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| **Work plan for Week 1 (7-12 May 2018)** | | | | | | |
| **Time** | **MONDAY, 7 May** | **TUESDAY, 8 May** | **WEDNESDAY, 9 May** | **THURSDAY,10 May** | **FRIDAY, 11 May** | **SATURDAY, 12 May** |
| **09:00–11:00**  (Coffee/ tea break) (30 min) | * SWFDP & its contribution (WMO) * Program of RFSC Training Desk (HKO) * NWP products at NCHMF and how Guidance product is prepared (Mr. Tien, RFSC) * Forecast process and important local factors for severe weather forecasting in Philippines/ Thailand (PAGASA & TMD) | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Study tour/field trip including visit to regional centre of VMHA   (The detail will be provided during coarse the training desk) | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Work on assignments as agreed |
| **11:00-12:30** | * Severe weather forecasting process (HKO) * Discussion: Evaluation of Forecast process and Gap analysis (HKO) | * Prepare country forecasts | * Prepare country forecasts | * Prepare country forecasts | * Work on assignments as agreed |
| **12:30-14:00** | **Daily Lunch break** | | | | | |
| **14:00–16:00**  (Coffee/ tea break) (30 min) | * Operational procedure for heavy rainfall forecast at NCHMF (Mr. Lam, RFSC) * Using ECMWF products in medium-range forecasts at NCHMF (Mr Quang, RFSC) | * Use of EPS products in severe weather forecasting(HKO) * Stability Indices (WMO) | * Nowcasting using radar and satellite products (HKO) * Use of different media for effective warning delivery (HKO) | -do- | * Prepare Case study * Presentation of week-1 case studies | * Working with RFSC forecasters |
| **16:00–17:00** | * Introduction to case studies - week-1 (HKO) | * Prepare Case study | * Prepare Case study | * Preparation of Report for week-1 (RFSC & HKO) | * Working with RFSC forecasters |

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| **Work plan for Week 2 (14-18 May 2018)** | | | | | |
| **Time** | **MONDAY, 14 May** | **TUESDAY, 15 May** | **WEDNESDAY, 16 May** | **THURSDAY, 17 May** | **FRIDAY, 18 May** |
| **09:00–11:00**  (Coffee/ tea break) (30 min) | * Program of RFSC Training Desk (HKO) * Operational TC forecast at NCHMF and how Guidance product is prepared especially for strong wind & TC (RFSC) * Tropical cyclone (TC) analysis and forecasting in Philippines/ Thailand (PAGASA & TMD) * Tropical cyclone (TC) (typhoon) forecasting process and important factors (HKO) | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing | * Take part in Guidance forecast preparation with RFSC forecasters * Complete daily evaluation and verification of forecast * Conduct weather briefing |
| **11:00–12:30** | * Complete daily evaluation and verification of forecast * Discussion: Evaluation of TC Forecast process and Gap analysis (HKO) | * Prepare country forecasts | * Prepare country forecasts | * Prepare country forecasts | * Presentation of week-2 case studies |
| **12:30–14:00** | **Daily Lunch break** | | | | |
| **14:00–16:00**  (Coffee/ tea break) (30 min) | * TC Analysis (HKO) * Introduction to case studies - week-2 (HKO) | * TC Track and Intensity Forecasting and use of NWP/EPS products (HKO) | * Forecasting impacts of TC at landfall (HKO) | * Prepare Case study | * Training Evaluation and Discussion (RFSC & HKO) |
| **16:00–17:00** | * Prepare Case study | * Prepare Case study | * Prepare Case study | * Final Report Preparation (RFSC & HKO) | * Review of Final Report (All) |