

**REPORT ON ACTIVITIES OF WORKING GROUP ON  
TRAINING AND RESEARCH COORDINATION GROUP (TRCG)  
OF TC IN 2025**  
(Item 8 of Tentative Programme for TC 58th Session)  
(Submitted by TRCG)

**ACTION REQUIRED:**

The Working Group is invited to:

- A. Review the activities of TRCG conducted in 2025
- B. Approve the recommendations and AOPs with the related budget of TRCG in 2026

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**APPENDICES:**

- 1) DRAFT TEXT FOR INCLUSION AT SESSION REPORT
- 2) TRCG ACTIVITIES REPORT 2025

## **APPENDIX A**

### **7.4. Training and Research Coordination Group**

1. The Committee took note of the progress made in training and research activities as presented in the TRCG Report 2025.
2. The Committee thanked Hong Kong Observatory and Korea Meteorological Administration for hosting research fellowship programs in 2025.
3. The Committee expressed gratitude to China Meteorological Administration for hosting the Typhoon Committee Roving Seminar in November 2025.
4. The Committee took note of the successful RSMC Tokyo training attachment of forecasters in January 2026, and thanked JMA and WMO TCP for continuously supporting this capacity-building initiative.
5. The Committee took note of the successful CMA's Typhoon Forecaster Training Programme in 2025, and thanked CMA for continuously supporting this capacity-building initiative.
6. The Committee appreciated TRCG's input in support of training and research activities in connection with TC's cross-cutting projects.
7. The Committee noted that Dr Anh Tien DO of Vietnam had stepped down from the Chairperson of TRCG and expressed gratitude to Dr DO for his invaluable contributions to TRCG.
8. The Committee noted that Mr CHOY Chun-wing of Hong Kong, China will step down from Co-Vice-chairperson of TRCG and expressed gratitude to Mr CHOY for his invaluable contributions to TRCG.

### **RECOMMENDATIONS of TRCG:**

9. Based on the discussion among TRCG Members and as presented in the TRCG Report 2025, TRCG recommended the Committee to:
  - a. Take note of TRCG Report 2025.
  - b. Endorse TRCG AOP 2026.
  - c. Appoint Dr Danice NG Yin-lam of Hong Kong, China as the new Chairperson of TRCG, replacing Dr Anh Tien DO.
  - d. Appoint Dr. QIAN Qifeng of China as co-vice chairperson of TRCG.

## **APPENDIX B**

### **TRAINING & RESEARCH COORDINATION GROUP (TRCG) Annual Report 2025**

Chun Wing CHOY (TRCG Acting Chair)  
Hong Kong, China

#### **1. Introduction**

1.1 According to the Terms of Reference, TRCG is to promote research and training activities on various aspects of tropical cyclone analysis and forecasting, including assessment of tropical cyclones' impacts on Members' socio-economic development processes, and to encourage cooperation of efforts among Members. Towards this end, TRCG is expected to assist in:

- (a) identifying scientific and technical problems in the analysis and forecasting of tropical cyclones and their impacts on water resources and measures for disaster prevention and preparedness;
- (b) facilitating the exchange of experience and knowledge on the latest development and techniques related to the above problems;
- (c) coordinating training and research programmes, including activities in support of cross-cutting initiatives and other collaboration programmes among Members such as twinning and mentoring arrangement, aimed at improving the technical capacity and capability of Members to better serve the people in the region;
- (d) evaluating the effectiveness of training and research activities undertaken by TRCG, and providing support to other working groups in performing such evaluation; and
- (e) recommending to the Committee priority areas and long-term plans for cooperation in research and training in support of the targets and various KRAs of the Committee's Strategic Plan.

#### **2. Membership**

2.1 The composition and members list of TRCG (as of 06 February 2026) are:

Acting Chair: Mr CHOY Chun-wing (Hong Kong, China)

Vice Chair: Ms Seonghee Won (Republic of Korea)

Members: Mr So Im Monichoth (Cambodia)

Dr QIAN Qifeng (China)

Mr SONG Yong Choi (DPR Korea)

Dr ISHIHARA Koji (Japan)

Dr Mayphou Mahachaleun (Lao PDR)

Mr HO Kuok Hou (Macao, China)

Dr Fariza binti Yunus (Malaysia)

Ms Shirley David (Philippines)

Ms Kyungho Lee (Republic of Korea)  
Mr Eugene Chong (Singapore)  
Mr Pattara Sukthawee (Thailand)  
Mr Eric Lau (USA)

### 3. Major TRCG Activities in 2025

#### *Roving Seminar / Visiting Lecturers Programme*

3.1 Roving seminars have been arranged for capacity building purposes on both research and operational aspects. Knowledgeable experts travel to Members' countries and deliver lectures focused on subjects of current interest to operational centers. A record of all roving seminars previously organized can be found in **Annex I**.

3.2 The Typhoon Committee Roving Seminar 2025 was successfully held on 3 – 5 November 2025 in Guangzhou of China. The seminar was kindly hosted by the China Meteorological Administration (CMA). The theme of this seminar was on “Operational Application of Remote Sensing Technology in Tropical Cyclone Monitoring and Forecasting”.



Figure 1: Roving Seminar 2025: Operational Application of Remote Sensing Technology in Tropical Cyclone Monitoring and Forecasting (3 – 5 November 2025, Guangzhou, China)

3.3 The seminar was attended by 20 participants from Cambodia (1); China (11); Hong Kong, China (1); Republic of Korea (2); Thailand (3) and Viet Nam (1). The participants considered that the lectures and advice provided by the speakers are useful and gave a warm

appreciation to the resource persons for their presentations and useful advices as well as examples of good practices on the relevant topic. They also expressed that the lectures could be more focused on the practical skills without sacrificing theoretical depth. A summary report of the seminar can be found in **Annex II**.

### ***Forecasters' Training Attachment***

3.4 The RSMC Tokyo successfully hosted its Attachment Training course on operational tropical cyclone forecasting from 13 to 22 January 2026. The Regional Specialized Meteorological Centre (RSMC) Tokyo - Typhoon Center has organized ESCAP/WMO Typhoon Committee Attachment Training courses annually since 2001 with the support of the WMO Tropical Cyclone Programme and the Typhoon Committee in order to advance the tropical cyclone (TC) analysis and forecasting capacity of the Typhoon Committee Members. The course has been set out under Category 2 Unit of the Tropical Cyclone Forecast Competency given in the Typhoon Committee Region specifications in the Typhoon Committee Operational Manual (TOM). Six forecasters from Hong Kong, China; Malaysia; the Philippines; Republic of Korea; Thailand and Viet Nam in the Typhoon Committee as well as one forecaster from Sri Lanka in the Panel on Tropical Cyclone attended the training. In this training, not only researchers but also Japanese experts from the Typhoon Committee's Hydro and Disaster Risk Reduction group were invited as lecturers, with the expectation that the training would give forecasters a broader perspective and contribute to the UN's EW4ALL initiative.



Figure 2: RSMC Tokyo Attachment Training in 2026 (13-22 January 2026, Tokyo, Japan)

3.5 CMA's Typhoon Forecaster Training Programme, the 10th International Training Course on Tropical Cyclone Monitoring and Forecasting was held at the World Meteorological Centre (Beijing) Guangdong-Hong Kong-Macao Greater Bay Area Branch in Guangzhou, China from October 27 to November 7, 2025. Co-organized by the Guangdong Meteorological Service and the CMA Training Centre (CMA International Cooperation and Training Centre), this training course attracted 24 participants from 9 countries. Focusing on key technologies for tropical cyclone monitoring and forecasting, the training aims to enhance capabilities in early

warning, typhoon forecasting, and disaster prevention and mitigation for developing countries. The training workshop and programme design were well appreciated by the participants, most of them reflected that the training materials are highly useful and practical for operational applications.



Figure 3. CMA's Typhoon Forecaster Training Programme (October 27 to November 7, 2025, Guangzhou, China)

### ***Research Fellowship Scheme***

3.6 The Research Fellowships are awarded to Members to promote joint research through the exchange of visiting scientists on a short-term basis with voluntary funding and logistic support by host Members. One of the merits of the scheme is that the visiting fellow has a chance to work closely with forecasters, experienced scientists or forecast system developers at the host centre, providing an opportunity to transfer knowledge and latest research findings to operational applications. The scheme has worked well on the basis of bilateral cooperation mutually agreed between the host and the applicant.

3.7 Hong Kong, China offered a fellowship research project during February to April 2025 on the topic entitled "Deep Learning Model of Tropical Cyclone Rainfall Nowcasting Using Satellite and Radar Data". Two research fellows from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Thai Meteorological Department (TMD) joined the fellowship programme. They successfully implemented the deep learning precipitation nowcast algorithm, namely TrajGRU, for their historical radar datasets with the application of transfer learning and thorough validation. Hong Kong, China will continue the same theme and host a fellowship research project in Q1 2026 on the topic entitled "Development of AI Rainfall Nowcasting Model for Weather Radar and Satellite Images". The fellowship has been awarded to a fellow from Malaysian Meteorological Department (MET Malaysia).

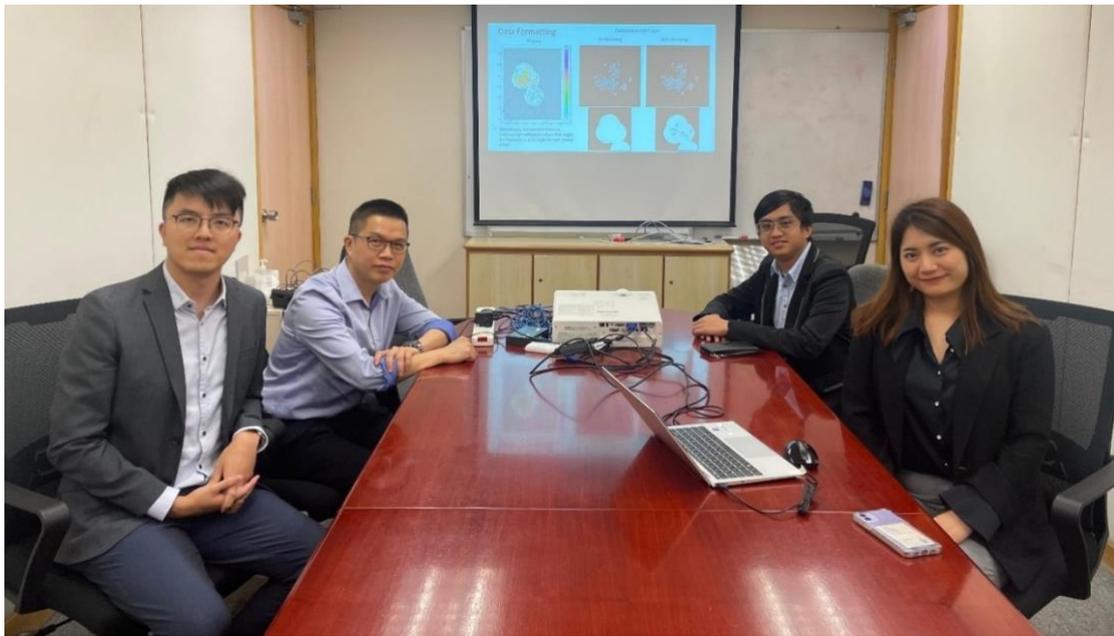


Figure 4 – Two research fellows from the Philippines (2nd from right) and Thailand (1st from right) in the presentation session of their progress during attachment.

3.8 The Republic of Korea offered a fellowship scheme in 2025 with research topics including “Analysis of typhoon intensification” and “Analysis of typhoon environment interactions”. Two forecasters from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the China Meteorological Administration (CMA) visited the National Typhoon Center (NTC) of the Korea Meteorological Administration (KMA) from 8 June to 21 June 2025. During the fellowship period, one participant conducted a comparative verification analysis of typhoon intensity prediction accuracy using two different typhoon intensity prediction models from KMA and CMA. The other participant analyzed the precipitation associated with Typhoon DORAJI (2423) using the WRF model with a 3 km horizontal resolution and identified that the rainfall was influenced by the interaction between the typhoon and the monsoon system. KMA also plans to offer the Research Fellowship Programme in Q2 2026.



Figure 5 – Research fellowship participants and staff members of the National Typhoon Center, Korea Meteorological Administration

3.9 For future research fellowship arrangement, opportunities in coordination with AP-TCRC under time-bound pilot projects or related on-going research initiatives would also be explored. Information of the latest projects under the scheme, as well as a summary of previous fellowships awarded, can be found in Annex III. Publications and papers published in connection with the scheme are listed in Annex IV.

### ***Asia-Pacific Typhoon Collaborative Research Centre (AP-TCRC)***

3.10.1 The 54th Session of TC (TC54) endorsed the theme “Advances in application of new observations and technologies for improving tropical cyclone prediction in various time scales and related disaster prevention activities”. AP-TCRC has since advanced three research topics under this pilot project. Attachment visits, initially planned for mid-2023, were discussed by TRCG leadership with AP-TCRC Directors Dr TANG Jie and Dr FANG Zheqing; progress was reported at the 17th IWS. Draft documents (application procedures, selection criteria) were being circulated for comment and presented at TC55.

3.10.2 WMO Secretary-General Visits AP-TCRC. On 27 July 2025, WMO Secretary-General Prof. Celeste Saulo, accompanied by senior officials, visited AP-TCRC. The delegation toured the exhibition gallery, learned about international typhoon research collaborations, the Global Typhoon Data Centre, joint observation experiments, and new-generation equipment. Prof. Saulo inscribed a message appreciating the Center’s contributions to global typhoon risk reduction.



Figure 6 – Prof. Celeste Saulo, WMO Secretary-General, visited AP-TCRC on 27 July 2025

### 3.10.3 TC Member Visits.

Vietnam: Ms Nguyen Thu Hang (VNMHA) visited to collaborate on AI applications in tropical cyclone intensity and precipitation forecasting. Her expertise supports AP-TCRC’s AI for typhoon prediction efforts.



Figure 7 - Research Fellow of VNMHA made presentation at AP-TCRC

Thailand: Mr Tanabodi Krongyuti (DDPM) spent one month at AP-TCRC studying typhoon disaster prevention benefit assessment, contributing to joint research on risk and loss evaluation.

TC Member Joint Research on Typhoon Yagi: An international team comprising Prof. Chanh Kieu (Indiana University), Dr Robert Rogers (AP-TCRC), and Ms Thu Hang (VNMHA) was formed to address forecast challenges for Typhoon Yagi. A manuscript on their findings is in preparation.

3.10.4 Scientific Advances and Capacity Building: The research topic “Understanding of rapid intensification mechanism of tropical cyclone and influence of climate change” was included in the “Priority Funding Missions for 2023” of the International Tropical Cyclone Collaborative Research Guide (2023–2025). Under this project, international scientists (including Prof. Porpattama Hammachukiattikul of Thailand, Dr Xiangbo Feng of University of Reading, Dr Ayesha Kanwal of Pakistan, Dr Wahiduzzaman MD. and Dr Alea Yeasmin of Australia, Dr Xiaoyang Li of University of Tokyo, and Dr Galina Levina of Space Research Institute of RAS) visited AP-TCRC.

Three research teams have been established, each comprising internationally-acclaimed meteorologists: Typhoon Scientific Experiments, Digital Typhoon Technology, and Typhoon Disaster Prevention Strategies, along with a comprehensive management office team. These three teams together with several research institutions, carried out the field experiment on the impact of typhoons on coastal megacities for the first time in China. On the basis of the experiment, the typhoon modeling and digital application for coastal megacities were explored. Other studies on typhoon climate have also been conducted, and results have been published in several international journals.

Meanwhile, three AP-TCRC young researchers attended the Typhoon Forecasting and Research Training Course in Guangzhou, where they discussed AI applications with experts from Thailand and Cambodia and explored future collaborations.



To further support members, the Shanghai Typhoon Collaborative Research Fund (STCRF) 2026 Guide has already been released on met-job, Tstorm list, and the AP-TCRC website, aiming to foster visiting scholar exchanges and joint projects.

#### **4. Resource Support for Research and Training**

4.1 The available resource persons on specialized research subjects provided by Members are tabulated for reference in **Annex V**.

4.2 The Pacific International Training Desk (PITD) (website: <http://pacificdesk.org>), funded by the USA's National Weather Service as part of the US contribution to the WMO Voluntary Cooperation Program (VCP) is currently managed by the Telecommunications and Social Informatics (TASI) Research Program at the University of Hawaii.

4.3 Up until 2016, all the PITD training were conducted at the RSMC Honolulu. In 2016, the PITD training reached out to include the Weather Service Offices in Micronesia. The training continued in a virtual capacity in 2022 due to the ongoing global pandemic. There are two levels of training offered: Basic (I) and Intermediate (II). The introductory training itself consists of four components: (a) basic forecaster training, to be implemented through use of e-learning modules that will be readily available to anyone; (b) a month long, instructor led onsite training program carried out at RSMC Honolulu and/or WFO Guam; (c) training on use of communications equipment, also to be funded by the VCP; and (d) in-Island workshops on severe weather event topics.

4.4 An intermediate course was started in 2018 and is offered as a supplemental, more in-depth course for returning students. This allows students from the Micronesia Weather Service Offices and from other Pacific Islands national meteorological services to continue their development in the field of Meteorology, Hydrology and Disaster Preparedness. It also offers an insight into other Pacific Islands national meteorological services and their operations. The PITD curriculum includes introductory and intermediate weather analysis and forecasting topics, as well as communications systems training. The PITD programs include partners such as NOAA National Weather Service-Pacific Region, City and County of Honolulu Emergency Management, Joint Typhoon Warning Center, UH School of Ocean and Earth Science and Technology, and KHON2. In 2025, PITD hosted a level-1 cohort with five participants; one (1) from the Cook Islands, two (2) from Fiji and two (2) from Papua New Guinea. In 2026, three (3) courses are planned.

## **5. Prioritization of Training and Research Areas**

5.1 Based on the discussion during the 4<sup>th</sup> TRCG Meeting held in conjunction with the 18<sup>th</sup> Integrated Workshop (IWS) in Bangkok, Thailand on 28 November – 1 December 2023. The priority and needs for training and research activities have been reviewed by TRCG Members and updated as follows:

### ***(A) Meteorology***

#### **Monitoring**

- (i) application of new technologies, especial artificial intelligence in TC analysis;
- (ii) application of IoT in observation network;
- (iii) application of Dvorak and microwave satellite image analysis techniques;
- (iv) application of radar-based analysis/products for landfalling tropical cyclones and monsoon depressions; and
- (v) application of new observation technologies (such as aircraft reconnaissance, weather buoys, automatic weather network and mobile observations) in tropical cyclone monitoring and forecasting;

#### **Forecasting and warning**

- (i) application of new technologies, especially artificial intelligence, in TC track and intensity forecasting;
- (ii) development and enhancement of tropical cyclone analysis and forecast techniques from nowcast to medium range, and seasonal to long-range predictions;
- (iii) development of tropical cyclone structure and intensity forecasting techniques such as rapid intensification and wind structure;
- (iv) application of ensembles of guidance from global and regional dynamical models, ensemble prediction systems, conceptual models, statistical models and systematic knowledge-based approach;
- (v) use of high-resolution numerical models with advanced data assimilation techniques;

- (vi) rainfall forecasting: development of nowcasting and very short range forecasting techniques, and understanding of interaction between tropical cyclones and monsoon;
- (vii) development of probability forecasting and extended outlook;
- (viii) development of impact-based forecast and risk-based warnings; and
- (ix) better understanding of wave, storm surge and marine forecasting;

**(B) *Meteorology and Hydrology***

- (i) application of new technologies, especially artificial intelligence, for forecasting of river flooding and urban flash flood;
- (ii) application of meteorological and hydrological information for forecasting of river flooding and urban flash flood; and
- (iii) geological hazards associated with heavy rain and tropical cyclones such as flash flood, mudslides and landslides;

**(C) *Meteorology and DRR***

- (i) development of technical procedures to quantify forecast uncertainties and to convert probabilistic information into effective warnings;
- (ii) development of decision-making tools for DRR purpose, including the integration of forecast information with GIS and the use of automated information processing systems;
- (iii) making use of new communication technology; and
- (iv) community response and outreach effort for mitigation of the societal impact caused by disasters.

**(D) *Other Cross Cutting Topics***

- (i) better understanding of tropical cyclone related issues, such as rapid intensification, and impacts across different spatial and time scales, from mesoscale and synoptic analysis arising from El Nino/La Nina and global warming / climate change;
- (ii) forecasting and warning systems for better coastal protection from multi-hazards such as storm surge, high winds, heavy rain, river delta inundation and urban flooding;
- (iii) effective communication of warning messages to stakeholders, DRR users and communities at risk; and
- (iv) utilization of Big Data, social media, crowdsourcing and artificial intelligence in tropical cyclone and weather monitoring, impact assessment, DRR and public education.

**6. Future Directions and Strategies**

6.1 Review of the TRCG AOP 2025 can be found in **Annex VI**.

6.2 The provisional TRCG work plan for 2024 to 2027/28 and Annual Operating Plan of 2025 are in Annex VII and VIII respectively. Research projects and training opportunities arising from the time-bound Pilot Project under the collaboration of the Committee with the Asia-Pacific Typhoon Collaborative Research Centre (AP-TCRC) have been incorporated in the TRCG's work plan and Annual Operating Plan. The 4<sup>th</sup> online meeting of International Science Steering Committee (ISSC) was held on 29 January. Prof. Johnny C.L. CHAN and Dr. Robert Fulton ROGERS, Science Director of AP-TCRC, reported the (1) 2025 Progress of AP-TCRC; (2) Action items in response to comments from ISSC members; (3) 2026 International Tropical Cyclone Collaborative Research Guide ; and (4) 2026 Annual Work Plan of AP-TCRC and ISSC members discussed the 2026 work plan. The AP-TCRC plans the (1) Typhoon Structure and Intensity Change and Associated Impacts under EXOTICCA; (2) Subseasonal, seasonal, and climate-scale prediction for landfalling typhoons; (3) Typhoon Early Warning multidisciplinary research in 2026. The provisional TRCG and AP-TCRC work plan for 2026 and Annual Operating Plan of 2026 are in **Annex VII and VIII** respectively.

6.3 In accordance with the approval of at the 56<sup>th</sup> session of the Typhoon Committee, the 13 Members regularly attending the Roving Seminar are divided into three sub-regions: (1) China; DPR Korea; Hong Kong, China; Macao, China and Republic of Korea; (2) Cambodia; Philippines, U.S.A and Viet Nam; and (3) Lao PDR; Malaysia; Singapore and Thailand; and the seminars will normally be organized by rotation in the three sub-regions. Priority of TCTF support will be given to on-site participants from Members within the same sub-region (other than the host Member). This will help to minimize long travels and will provide more opportunities for local forecasters to attend. Consider the higher travel cost the TCTF budget will be adjusted for the year when U.S.A. hosts of the roving seminar to cater similar number of keynote lecturers and participants.

6.4 The initial theme of the roving seminar in the coming three years were also discussed during the TRCG planning meeting in November 2023. They are (1) Application of Artificial Intelligence/Machine Learning (AM/ML) in Tropical Cyclone forecasting and Warning; (2) Application of remote sensing technologies in operational tropical cyclone monitoring and forecasting and (3) Tropical cyclone related hazards (Storm Surge/flooding/landslides) and the application of big data/social media in weather warning services/emergency management. Thailand hosted the roving seminar in 2024 with the topic "Artificial Intelligence for Enhanced Tropical Cyclone Prediction and Emergency Response" which is the combination of the theme (1) and (3). And China hosted the roving seminar in 2025 with the topic of theme (2): Application of remote sensing technologies in operational tropical cyclone monitoring and forecasting. With all the three themes having been used, a TRCG meeting will be organized to determine the potential theme of roving seminar in 2026. Philippines expressed interests to host the roving seminar and proposes to host the Seminar in 2026.

6.5. TRCG will continue to support plans to have more cross-cutting training and research initiatives in consultation with the meteorology, hydrology and DRR components. Members are in turn encouraged to promote such initiatives through proactive involvement of the appropriate meteorological, hydrological and DRR personnel in their countries/places.

6.6. The current arrangements in RSMC Forecasters' Training Attachment operated smoothly in the past few years and will generally be maintained. Starting from 2019, the self-funded participation by Members will be considered. For better allocation of manpower, the RSMC Attachment Training will continue to be conducted during the first quarter of the year. The possibility of involving hydrologists and DRR experts in RSMC Attachment Training, CMA Typhoon Forecaster Training, and TC Research Fellowship Schemes could be explored by corresponding Members. Moreover, training and research opportunities will be explored in collaboration with WGM, WGH, WGDRR, AP-TCRC and WMO Training Centre in Nanjing as well as various interested Members if the opportunity arises.

## Summary of Roving Seminars

Year	Dates	Venue	Topic	Lecturers
2003	20 – 21 Oct	Seoul	Interpretation of Typhoon Forecasts and Analyses	Dr. H-J Kwon Mr. MANNOJI Nobutaka
	22 – 24 Oct	Hong Kong	Interpretation of Satellite Data and Use of Radar Data in Operational Tropical Cyclone Forecasting	Dr. Mark Lander Dr. P.W. Li Dr. B.-J. Sohn
	27 – 29 Oct	Shanghai	Interpretation of Satellite Data and Use of Radar Data in Operational Tropical Cyclone Forecasting	Dr. Mark Lander Dr. P.W. Li
2004	22 – 24 Nov	Beijing	Operational Application of Multi-model Ensemble Typhoon Forecasts	Prof. Johnny C.L. Chan Mr. MANNOJI Nobutaka
	25 – 27 Nov	Kuala Lumpur	Operational Application of Multi-Model Ensemble Typhoon Forecasts	Prof. Johnny C.L. Chan Mr. MANNOJI Nobutaka
2006	4 – 7 Sep	Ha Noi	Tropical Cyclone Motion and Intensity, and Principles of Dvorak Method	Prof. Johnny C.L. Chan Mr. Joe Courtney Dr. B.-J. Kim
2007	5 – 8 Sep	Manila	Satellite and Radar Analysis Techniques, and Tropical Cyclone Interaction with Monsoon Systems	Mr. Roger Edson Mr. Bart Hagemeyer Dr. NAKAZAWA Tetsuo
2009	16 – 19 Nov	Nanjing	Forecasting of High-impact Weather associated with Tropical Cyclones, and Formulation and Communication of Warning Messages	Mr. S.T. Chan Mr. Chip Guard Mr. Sam Muchemi
2010	30 Nov – 3 Dec	Ubon Ratchathani	Tropical Cyclone Genesis and Large Scale Interaction	Mr. S.M. Lee Prof. Zhang Qinghong Dr. Mark Lander
2011	20 – 23 Sep	Petaling Jaya	Heavy Rain and Flood Hazards associated with Landfalling Tropical Cyclones	Dr. Siriluk Chumchean Mr. H.Y. Yeung Prof. Chen Charng-Ning
2012	30 Oct – 1 Nov	Seoul	Tropical Cyclone Damage Assessment and Impact Forecast	DRR experts from NDMI Ms. Xu Jing Mr. W.K. Wong
2014	3-5 Nov	Hong Kong	Warning communication	Mr. Chip Guard Mr. Ahmed Nadeem

				Ms. Sandy, M.K. Song Mr. K.L. Lee
2015	4-6 Nov	Lao PDR	Flash flood and landslides	Mr NAGAI Yoshiki Prof. Xu-dong Fu Dr. Dong-ryul Lee
2016	15-17 Nov	Viet Nam	Storm Surge	Mr. KOHNO Nadao Mr. Author Taylor Mr. Dickson Lau
2018	20-22 Nov	Singapore	Application of Remote Sensing Technologies	Mr. YAMASHITA Koji Dr. Xiang Fang Mr. Ray Kong
2019	11-13 Nov	China	Quantitative precipitation estimation and forecasting (QPE/QPF)	Mr. W C Woo Mr. Erik Beaker Prof. NAKAKITA Eiichi
2023	28-30 Jun	Ha Noi, Viet Nam	Advances in Tropical Cyclone Monitoring and Prediction for Impact based forecasting	Assoc. Prof. Dr. Pham Thi Thanh Nga Dr. Zifeng Yu Prof. Dong In Lee Dr. Chail Park Dr. Hoang Phuc Lam Dr. Craig Earl-Spurr Prof. Kosuke Ito Dr. Senaka Basnayake Mr. Nadao Kohno
2024	17-19 Dec	Bangkok, Thailand	Artificial Intelligence for Enhanced Tropical Cyclone Prediction and Emergency Response	Prof. Dr. Chidchanok Lursinsap Assoc. Prof. Dr. Chanh Kieu Dr. ZHOU Kanghui Dr. MIYAMOTO Mamoru Assistant Prof. Dr. Somporn Chuai-Aree Prof. ONO Yuichi Mr. Nie Gaozhen
2025	3-5 Nov	Guangzhou, China	Operational Application of Remote Sensing Technology in Tropical Cyclone Monitoring and Forecasting	Professor Dr. LV Xinyan Professor Dr. ZHANG Xubin Dr. ZHAI Zhihong Dr. LAU Tszki Mr. YIP Kaihou Professor Dr. REN Suling

## **Report of Roving Seminar**

### **SUMMARY OF TYPHOON COMMITTEE ROVING SEMINAR 2025 (Guangzhou, China, 3 – 5 November 2025)**

#### **I. Organization**

1. The Typhoon Committee Roving Seminar (TCRS) 2025 with the theme “Operational Application of Remote Sensing Technology in Tropical Cyclone Monitoring and Forecasting” was successfully held on 3–5 November 2025 in Guangzhou, China. It was presented by ESCAP/WMO Typhoon Committee (TC), hosted by the China Meteorological Administration (CMA), organized by CMA Training Centre (Guangdong), and co-organized by the National Meteorological Centre, CMA.

2. International participants were nominated and recommended by member countries of the Typhoon Committee, while domestic participants were nominated by the National Meteorological Centre of CMA and relevant provincial meteorological bureaus from Tianjin, Shanghai, Jiangsu, Fujian, Guangdong, Guangxi, Hainan, and other units. A total of 20 trainees from Mainland China, Hong Kong (China), Thailand, the Republic of Korea, Cambodia, Viet Nam, and other countries and regions attended the training.

#### **II. Opening**

1. Mr. Zhihong ZHAI, Deputy Director of the Data Center at Guangdong Meteorological Service, announced the commencement of the course and introduced its basic details, including the seminar schedule and learning objectives.

2. The representative of the Typhoon Committee Secretariat (TCS), Mr. Clarence FONG, expressed his gratitude to the China Meteorological Administration for hosting the Roving Seminar, highlighting it as one of the key activities of the Typhoon Committee. He emphasized that the goal of the seminar is to encourage members to share expertise and engage in capacity-building activities in tropical cyclone analysis, forecasting, and warning. He also thanked the organizers and all the speakers for sharing their valuable expertise.

3. A pre-recorded speech by Mr. C.W. CHOY was played, in which he extended his greetings and support for the seminar's initiatives.

4. The representative of the National Meteorological Center, CMA, Mr. Qifeng QIAN, Deputy Director, extended a warm welcome to the participants and congratulations on the successful holding of the roving seminar. He stated that the goal of this seminar is to discuss cutting-edge technologies in typhoon monitoring and share valuable experience in disaster prevention and mitigation. He also expressed his

gratitude to the Guangdong Meteorological Service and the Local Organizing Committee for hosting the event.

### **III. Seminar Programme**

1. The seminar spanned three days, from 3 to 5 November 2025. On first day, there were two lectures. Professor Dr. Lyu Xinyan from China Meteorological Administration delivered a lecture named by "The Technology of Typhoon Monitoring and Forecasting of CMA".

2. The afternoon session of Day 1 featured a lecture on the "Application of Numerical Weather Prediction (NWP) in Typhoon Monitoring and Forecasting" by Professor Dr. ZHANG Xubin from CMA. The day concluded with a practical session on "Early Warning Practice of Guangdong" presented by Dr. ZHAI Zhihong from CMA.

3. Day 2 focused on regional expertise and impact-based forecasting. Dr. LAU Tszki from the Hong Kong Observatory (HKO) conducted a morning session on "Applications of Radar in Typhoon Monitoring". This was followed in the afternoon by Mr. YIP Kaihou (HKO), who delivered a lecture on "Forecasting and Impact-Based Early Warning".

4. The final day (Day 3) began with a lecture on "Satellite Monitoring Applications" by Professor Dr. REN Suling from CMA. The seminar then progressed to the "Participant's Forum", where all attendees engaged in global experience sharing on the application of remote sensing technologies. The programme concluded with a Closing Ceremony.

5. To complement the theoretical knowledge, a field visit to the SuperMap South China Headquarters was organized on the afternoon of Day 3. The eventful day ended with a cultural visit to the Flower City Square in Guangzhou, providing participants with a valuable networking opportunity.

6. The Roving Seminar Programme is given in Attachment B.

### **IV. Proposals and Recommendations**

1. The participants gave a warm appreciation to the resource persons for their presentations and useful advice as well as examples of good practices on the relevant topics.

2. To give our training program a clear focus and a strong identity, we could position the "MAZU" early warning system as the centerpiece of our curriculum. The goal would be to make "MAZU" a recognized knowledge brand for our trainees.

3. Based on the common feedback from students wanting more practical skills, we could enhance the curriculum by adding more hands-on and interactive elements,

without sacrificing theoretical depth. Consider adding case studies and software labs to the core courses. Besides, it would also be helpful to incorporate problem-based learning into workshops and forums.

4. To enhance the participant experience, we can provide more practical arrival guides covering payments and consider including popular local snacks as farewell gifts to create a warmer, more supportive program environment.

5. To sustain impact beyond the course, we propose creating an on-line group for sharing China's latest forecast updates. Besides, we can host annual reviews and invite previous participants to share new application results to maintain collaboration and strengthen international partnership.

6. The feedbacks and recommendations collated from the participants are summarized in Attachment C.

## **V. Closing**

1. The participants expressed their gratitude to the CMA for hosting this seminar and for the warm hospitality.

2. The closing ceremony was attended by Mr. Clarence FONG, Meteorologist from the ESCAP/WMO Typhoon Committee Secretariat, and Mr. ZHAI Zhihong, Director of the China Meteorological Administration Training Centre (Guangdong), alongside all training participants and relevant faculty.

3. The ceremony commenced with a Certificate and Souvenir Presentation to the participants, followed by a Group Photo Session to commemorate the successful completion of the seminar.

4. Mr. Clarence FONG delivered closing remarks on behalf of the Typhoon Committee Secretariat, formally marking the end of the Roving Seminar 2025.

**List of Participants of the Typhoon Committee Roving Seminar 2025 (Guangzhou, China, 3 – 5 November 2025)**

<b>Members</b>	<b>Name of Participants</b>
China	Qian WANG
	Haoran ZHAO
	Gufeng BIAN
	Hao CHEN
	Lin CHEN
	Yue WANG
	Xi GUO
	Kailin LI
	Xin HUANG
	Ziyi HUANG
	Xiaowen WEI
Hong Kong, China	WONG Sze Wa
Thailand	Putchaphan SIRISAP
	Naipaporn SUTIPANWIHAN
	Attasit PHAKAM
	Kanjanarat NONGHANPITAK
Cambodia	Thaily OY
Viet nam	Hoang Phuc LAM
South Korea	Taeyong LEE
	Gyeong Su JO

**PROGRAMME FOR ESCAP/WMO TYPHOON COMMITTEE ROVING SEMINAR 2025**

Theme: Operational Application of Remote Sensing Technology in Tropical Cyclone Monitoring and Forecasting

Date: November 3<sup>rd</sup> -5<sup>th</sup>, 2025

Location: WMC GBA Branch, Guangzhou, China

Time	Content	
<b>Day 1, Monday, November 3, 2025</b>		
08:30-08:50	Opening Workshop	Organizing Committee
	Introduction	All participants
	Welcome Speech	TCS / TRCG CMA
	Group photo	All participants
08:50-9:00	Break	
9:00-12:00	<b>Typhoon Monitoring and Forecasting</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Q&amp;A</li> </ul>	Professor Dr. LV Xinyan CMA
12:00-13:30	Lunch	
13:30-16:30	<b>Application of Numerical Weather Prediction (NWP) in Typhoon Monitoring and Forecasting</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Q&amp;A</li> </ul>	Professor Dr. ZHANG Xubin CMA
16:30-16:45	Break	
16:45-17:30	<b>Early Warning Practice of Guangdong</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Q&amp;A</li> </ul>	Dr. ZHAI Zhihong CMA

<b>Day 2, Tuesday, November 4, 2025</b>		
09:00-12:00	<b>Applications of Radar in Typhoon Monitoring Tropical Cyclone</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Break(20 min)</li> <li>• Q&amp;A</li> </ul>	Dr. LAU Tszki HKO
12:00-14:00	Lunch	
14:00-17:00	<b>Forecasting and Impact-Based Early Warning</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Break(20 min)</li> <li>• Q&amp;A</li> </ul>	Mr. YIP Kaihou HKO
<b>Day 3, Wednesday, November 5, 2025</b>		
08:30-11:30	<b>Satellite Monitoring Applications</b> <ul style="list-style-type: none"> <li>• Main Lecture</li> <li>• Break(20 min)</li> <li>• Q&amp;A</li> </ul>	Professor Dr.REN Suling CMA
11:30-13:30	Lunch	
13:30-15:00	<b>Participant's Forum</b> <ul style="list-style-type: none"> <li>• Global Experience Sharing on application of remote sensing technologies in operational tropical cyclone monitoring and forecasting.</li> <li>• Closing Ceremony</li> </ul>	All participants
15:00-17:30	<b>Field Visit:</b> SuperMap South China Headquarters	All participants
17:30-20:00	<b>Cultural Visit :</b> Flower City Square (Guangzhou)	All participants

## ESCAP/WMO Typhoon Committee

### TRCG ACTIVITIES EVALUATION FORM

Roving Seminar 2025  
(Guangzhou, China, 3-5 November 2025)

*TO BE COMPLETED BY PARTICIPANT*

We value your feedback. Completing this workshop evaluation form will help us to improve future organization of the Roving Seminar.

You are thus requested to complete this form and hand it in to the LOC before your departure.

#### Part A: Event Logistics

<i>Please tick the boxes to indicate how well your expectations of the seminar were met</i>	<b>Below expectation</b> 	<b>Met expectation</b> 	<b>Exceeded expectation</b> 
1. Overall administration/organization	0	4	11
2. Pre-event arrangement and liaison	0	4	11
3. Venue facilities	0	0	15
4. Informative announcements and instructions	0	2	13
5. Travel arrangements	0	5	10
6. Funding arrangements	0	4	11
7. Accommodation	0	1	14
8. Refreshments	1	2	12
9. Social events and visitors' information	0	2	13
10. Helpfulness and friendliness of organizers	0	0	15

**Specific points for improvement, if any:**

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## Part B: Technical Contents

### Lectures:

1. Typhoon Monitoring and Forecasting by Prof. Dr. LV Xinyan, CMA
2. Application of Numerical Weather Prediction in Typhoon Monitoring and Forecasting by Prof. Dr. ZHANG Xubin, CMA
3. Early Warning Practice of Guangdong by Dr. ZHAI Zhihong, CMA
4. Applications of Radar in Typhoon Monitoring by Dr. LAU Tszki, HKO
5. Forecasting and Impact-based Early Warning by Mr. YIP Kaihou, HKO
6. Satellite Monitoring Applications by Prof. Dr. REN Suling, CMA

Lecture	Interest in Topic (1-5)	Topic Contents (1-5)	Topic Organization (1-5)	Lecture/ Workshop Presentation (1-5)	Training or Practical Material (1-5)	Language (1-5)	Effectiveness (1-5)
1	4.8	4.9	4.9	4.7	4.7	4.2	4.8
2	4.6	4.9	4.9	4.7	4.7	4.9	4.6
3	4.5	4.9	4.9	4.9	4.8	4.9	4.7
4	4.6	4.9	4.9	4.9	4.9	5.0	4.8
5	4.6	4.9	4.9	4.9	4.9	4.9	4.6
6	4.9	4.9	4.8	4.9	4.8	4.8	4.9

Interest in Topic:	1=disinterested, 5=most interested
Topic Contents:	1=irrelevant, 5=most relevant
Topic Organization:	1=loosely structured, 5=well-structured
Lecture/Workshop Presentation:	1=poor, 5=excellent
Training or Practical Material:	1=ill-prepared, 5=well-prepared
Language:	1=hard to understand, 5=easy to follow
Effectiveness:	1=little understanding gained, 5=much understanding gained

Lecture	Objectives and Scope (L = too narrow; M = just right; R = too wide)	Emphasis (L = too theoretical; M = just right; R = too practical)	Length (L = too short; M = just right; R = too long)	Technical Level (L = too elementary; M = just right; R = too difficult)
1	L+13M+R	L+14M	13M+2R	L+12M+2R
2	2L+12M+R	L+3R+11M	14M+R	9M+6R
3	L+14M	14M+R	L+14M	L+14M
4	L+14M	14M+R	15M	15M
5	L+14M	14M+R	14M+R	13M+2R
6	L+14M	15M	L+13M+R	L+14M

### Part C: Follow-ups

1. What operational benefits (new ideas, skills or methodology) you think would be gained from your experience in the event?

2. Any foreseeable opportunity for operational implementation of the above benefits?  
 No foreseeable opportunity  
 Yes, benefits likely to be felt in about \_\_\_\_\_ years' time.

*Contact information for future follow-up of this evaluation:*

*Participant's name and email (or fax):* \_\_\_\_\_

*Thank you for taking the time to assist us to improve the Roving Seminar.*

## Summary of Awarded Research Fellowships

Subject	Fellow	Host	Period
Analysis of evolution of landfalling tropical cyclones with a view to developing forecast guidance for wind and rain	Mr. XUE, Jianjun (China)	Hong Kong Observatory	1 Feb – 31 Mar. 2001
TC track forecasting with use of super-ensemble	Dr. PENG, Taoyong (China)	Korea Meteorological Administration	15 Jun – 15 Nov 2001
Near real-time analysis of the wind structure of tropical cyclones	Dr. Nathaniel T. SERVANDO (Philippines)	Hong Kong Observatory	5 May – 4 Jul 2002
Numerical modelling on typhoon intensity change	Ms. YU, Hui (China)	Kongju National University and Korea Meteorological Administration	15 Jul – 15 Sep 2002
Tropical cyclone track forecasting method	Dr. KANG, Bom Jin Dr. KIM, Tae Jin (DPR Korea)	Shanghai Typhoon Institute	Feb – Mar 2001 Oct – Nov 2002
Analyses on the responses of extratropical transition of tropical cyclone to its environment	Dr. Vicente B. MALANO (Philippines)	Korea Meteorological Administration	Jun – Aug 2004
Effect of tropical cyclone bogussing on model analysis and forecasts	Ms. WANG, Dongliang (China)	Hong Kong Observatory	11 Oct – 10 Dec 2004
Evaluation of the model performance in typhoon prediction in the high-resolution global model (T426L40)	Ms. Sugunyane YAVINCHAN (Thailand)	Kongju National University and Korea Meteorological Administration	1 Aug – 30 Oct 2005
Impact study of Moisture Data on TC forecasting in South China Sea and Western North Pacific	Dr. Vicente B. MALANO (Philippines)	Hong Kong Observatory	20 Sep – 19 Nov 2005
Using ensemble prediction system	Ms. CHEN, Peiyan	Hong Kong Observatory	13 Oct – 12 Dec 2006

(EPS) information in tropical cyclone forecasting	(China)		
Numerical simulation of Typhoon RUSA with a very high resolution mesoscale model, and calibration of intensity of typhoon with Kalman filtering	Mr. HOA, Vo Van (Viet Nam)	Korea Meteorological Administration	Jun – Aug 2006
Use of EPS information in TC forecasting	Mr. NGUYEN, Dang Quang (Viet Nam)	Hong Kong Observatory	15 Sep – 14 Nov 2007
Seasonality of Tropical Cyclone Activities over the Western North Pacific	Ms. YING, Ming	Korea Meteorological Administration	22 Sep – 20 Dec 2008
Study of high resolution non-hydrostatic model in prediction of landfalling tropical cyclones	Mr. Santi SUMDIN (Thailand)	Hong Kong Observatory	20 Oct – 19 Dec 2008
Tropical cyclone bogus in NHM and its impact on forecast track and intensity	Mr. QU, Anxiang (China)	Hong Kong Observatory	29 Oct – 28 Dec 2009
Typhoon Vortex Initialization Scheme and typhoon Ensemble Forecast Techniques	Ms. NGUYEN Thi Minh Phuong (Viet Nam) and Mr. Chatchai CHAIYASAEN (Thailand)	National Meteorological Center, China Meteorological Administration	Early Dec 2009 – Early Feb 2010
Improvement of typhoon analysis and forecast with KMA's TAPS	Mr. TRAN Quang Nang (Viet Nam)	Korea Meteorological Administration	1 Sep – 27 Nov 2010
Study on the tropical cyclone genesis in the northwestern Pacific	Mr. Kamol Promasakha Na SAKOLNAKHON (Thailand)	Korea Meteorological Administration	1 Sep – 27 Nov 2010
Typhoon Information Processing System	Mr. NGUYEN Manh Linh (Viet Nam) and Ms. Kamolrat SARINGKARNPHASIT (Thailand)	National Meteorological Center, China Meteorological Administration	8 Oct – 8 Dec 2010
Can the extreme rainfall associated with Typhoon Morakot (0908) happen in Hong Kong?	Mr. HUANG, Yiwu (China)	Hong Kong Observatory	29 Oct – 28 Dec 2010

Improvement of typhoon analysis and forecast with KMA's TAPS	Mr. Jori J. LOIZ (Philippines)	Korea Meteorological Administration	Sep – Nov 2011
Improvement of typhoon analysis and forecast with KMA's TAPS	Mr. Chukiat THAIJARATSATIAN (Thailand)	Korea Meteorological Administration	Sep 2011
Implementation of Tropical Cyclone Intensity Forecast in the Tropical Cyclone Information Processing System (TIPS) of the Hong Kong Observatory	Mr. Nursalleh K. CHANG (Malaysia)	Hong Kong Observatory	24 Oct – 23 Dec 2011
Improvement of Prediction Method for the Rapid Intensification of Tropical Cyclones in the South China Sea	Dr. Sukrit KIRTSAENG (Thailand)	National Meteorological Center, China Meteorological Administration	2 Nov – 29 Dec 2011
Application of Numerical Ensemble Prediction in the Forecasting of Typhoon Sharp Turning Tracks	Mr. Raymond C. ORDINARIO (Philippines)	National Meteorological Center, China Meteorological Administration	14 Nov 2011 – 13 Jan 2012
Typhoon Analysis and Prediction System (TAPS), genesis and dissipation of tropical cyclones, and change of typhoon characteristics due to climate change	Mr. Renito B. PACIENTE (Philippines), Ms. Plaidao KHUMCHAIYAPHUM (Thailand) and Mr. Bounteum SYSOUPHANTHAVONG (Lao PDR)	Korea Meteorological Administration	May – June 2012
Enhancement of rainfall nowcast in tropical cyclone situation	Mr. Maqrun Fadzli Mohd Fahmi (Malaysia) and Mr. Michael S. Bala (Philippines)	Hong Kong Observatory	22 Oct – 21 Dec 2012
Optimizing typhoon forecast using Typhoon Analysis and Prediction System (TAPS), and research on intensity and track forecasts using model ensemble, correction of track forecast bias according to synoptic patterns, and analysis of synoptic features and	Dr. Bonifacio Galt Pajulelas (Philippine) , Mr. Nguyen Huu Thanh (Vietnam), and Ms. Prapaporn Wongsaming (Thailand)	Korea Meteorological Administration	1 May – 30 June 2013

typhoon model forecast errors in anomalous typhoon tracks.			
Development of location-specific severe weather nowcasting techniques.	Dr. Sukrit KIRTSAENG (Thailand)	Hong Kong Observatory	21 Oct – 20 Dec 2013
Optimizing typhoon forecast using Typhoon Analysis and Prediction System (TAPS) and separate researches (typhoon-mid latitude pressure system interaction, study on the typhoon recurvature and moving speed, and study on the relationship between the central pressure and maximum sustained winds for typhoon)	Ms. Bai Lina (China) Mr. Nguyen Tung Thanh (Vietnam) Mr. Juanito S. Galang (The Philippines)	Korea Meteorological Administration	1 May – 30 June 2014
Tropical Cyclone Genesis Forecast Technique	Mr. Boonthum Tanglumlead (Thailand)	Shanghai Typhoon Institute	1 Jul – 31 Aug 2014
The utilization of ECMWF products in detecting storm tracks over the North Western Pacific	Mr. Pak Sang Il and Mr Song Yong Chol (DPR Korea)	Shanghai Typhoon Institute	1-30 Sept 2014
Nationwide Nowcast of Tropical Cyclone Rainfall	Mr. Evan James K. Carlos (The Philippines)	Hong Kong Observatory	6 Oct – 5 Dec 2014
Optimizing typhoon forecast using Typhoon Analysis and Prediction System (TAPS), and research on typhoon monitoring, interpretation of satellite-based and radar images, typhoon track and intensity forecast and tropical	Ms. Akhom THAMALANGSY (Lao PDR) Mr. Aldczar D. Aurelio (The Philippines), Mr. Jose Frivaldo, JR. (The Philippines), Mr. Somprat Srithagon (Thailand),	Korea Meteorological Administration	19 April - 2 May 2015

depression or extra-tropical transition	and Ms. DO Thi Thanh Thuy (Viet Nam)		
Tropical cyclone genesis forecast technique	Mr. Pak Sang Il (DPR Korea) Mr. Ri Hak Il (DPR Korea)	Shanghai Typhoon Institute	26 Oct - 25 Nov 2015
Visiting editor for Tropical Cyclone Research and Review (TCRR)	Dr. Jason Sippel (USA) Dr. Nguyen Dang Quang (Viet Nam)	Shanghai Typhoon Institute	6-13 Dec 2015 20-26 Dec 2015
Development of objective guidance on tropical cyclone genesis forecast using global models	Mr. Wen FENG (China)	Hong Kong Observatory	Mid Nov 2015 – mid Jan 2016
Training for typhoon forecast - Typhoon genesis and analysis - Typhoon track and intensity forecast - TAPS* operations and products	Benison Jay N. Estareja(The Philippines) Boonthum Tanglumlead(Thailand) Narongpon Thongsang(Thailand)	Korea Meteorological Administration	1 May to 14 May 2016
Tropical cyclone genesis forecast technique	Mr. Pak Sang Il and Mr. Kim Kum Song (DPR Korea)	Shanghai Typhoon Institute	24 October to 23 November 2016
Visiting editor for Tropical Cyclone Research and Review (TCRR)	Mr. Kamol Promasakha na Sakolnakhon (Thailand) Dr. Chen Yi-Leng (USA)	Shanghai Typhoon Institute	17-21 October 2016
Tropical Cyclone Size Climatology	Mr. Wei HONG (China)	Hong Kong Observatory	mid-Dec 2016 – 31 Jan 2017
Training for typhoon forecast - Typhoon genesis and analysis - Typhoon track and intensity forecast - TAPS* operations and products	Ms. Pensiri Trisataya and Ms. Chuanpit Ngerchalad (Thailand) Mr. Robert B. Badrina (The Philippines) Ms. Hoang Thi Mai (Viet Nam)	Korea Meteorological Administration	16-29 April 2017
Observational Study on Intensity and Structure of Offshore Typhoon for EXOTICCA	Mr. Jaral Yiemwech (Thailand) Ms. Khanh Hoa Bui Thi (Viet Nam)	Shanghai Typhoon Institute	September 2017
Benefit evaluation of Typhoon disaster prevention and	Mr. Nursalleh Chang (Malaysia)	Shanghai Typhoon Institute	September 2017

preparedness			
Visiting Editor for Tropical Cyclone Research and Review	Mr. Somkuan Tonjan (Thailand) Dr. Doan Quang Tri from (Viet Nam)	Shanghai Typhoon Institute	February 2018
Tropical Cyclone Precipitation Verification	No nomination was received	Shanghai Typhoon Institute	NA
Short-term Rainfall Forecast for Tropical Cyclone Using Himawari-8 Data and NWP Model Products	Applicant who was accepted for the fellowship withdrew from the offer	Hong Kong Observatory	NA
Benefit evaluation of Typhoon disaster prevention and preparedness	Mr. Nursalleh K Chang (Malaysia)	Shanghai Typhoon Institute	2 May – 1 June 2018
Training for forecasters: - Tropical meteorology & climatology - Processing observed meteorological variables - Typhoon analysis and monitoring- - Producing typhoon information using TAPS and TOS - Seasonal typhoon prediction	Mr. Nuthakit Singhaphet, (Thailand) Mr. Tran Quang Nang, Typhoon (Viet Nam) Dr. Guanbo Zhou (China) Mr. Robb Prieto Gile (the Philippines) Mr. Wan Muhammad Hafiz Bin Husin, (Malaysia)	Korea Meteorological Administration	23 April to 4 May 2018
Short-term Rainfall Forecast for Tropical Cyclone Using Himawari-8 Data and NWP Model Products	Ms. Nguyen Thu Hang (Viet Nam)	Hong Kong Observatory	January – March 2019
Training for forecasters: - Tropical meteorology & climatology - Processing observed meteorological variables - Typhoon analysis and monitoring- - Producing typhoon information using TAPS and TOS - Seasonal typhoon prediction	Ms. Reyes Sheilla Mae R. (the Philippines) Mr. Tran Van Vu (Viet Nam)	Korea Meteorological Administration	20 May to 14 June 2019

Visiting Editor for Tropical Cyclone Research and Review	Prof. Kimberly Wood (USA) Prof. Shishir Dube (India)	Shanghai Typhoon Institute	24-29 March 2019 13-19 October 2019
Integrated Precipitation Estimator using Radar and Satellite (IPERS) for Tropical Cyclone Rainfall (TC) Analysis and Nowcasting	Mr. Benison Jay N Estareja (the Philippines)	Hong Kong Observatory	January – February 2020
Verification of tropical cyclone wind structure forecasts from global NWP models and ensemble prediction system	Ms Xiaoqin LU (China)	Hong Kong Observatory	Q1 2021
Study on the characteristics and model forecast performance of rapid intensification (RI) of near-landfall tropical cyclones (TCs)	Mr Nawin Sermsook (Thailand)	Hong Kong Observatory	Q1 2022
Study on the characteristics and model forecast performance of rapid intensification (RI) of near-landfall tropical cyclones (TCs)	Ms Xiang Chunyi (China)	Hong Kong Observatory	Q1 2023
Characteristics Analysis of Binary TC Interaction Analysis of the Mechanism for Rapid Intensification	Mr. Jun Ezra M. Bulquerin (Philippines) Mr. Somprat Srithagon (Thailand)	Korea Meteorological Administration	11-24 June 2023
Understanding of rapid intensification mechanism of tropical cyclone and influence of climate change.	Prof. Porpattama Hammachukiattiku (Thailand)	AP-TCRC	2023
Study on analogue forecasting for track and intensity of tropical cyclones using deep learning techniques	Mr. Boonyuen Pakornpop (Thailand)	Hong Kong Observatory	Q1 2024
Deep Learning Model of Tropical Cyclone Rainfall Nowcasting Using Satellite and Radar Data	Ms Saowapak Buphu (Thailand) Mr Michael B. Simora (Philippines)	Hong Kong Observatory	Q1 2025

Study on improving TC intensity prediction and TC interactions	Mr. Qu Hongyu (China) Ms. Analiza C. Clauren-Jorda (Philippines)	Korea Meteorological Administration	8-21 June 2025
Study on improving TC intensity prediction and TC interactions	TBC	Korea Meteorological Administration	Q1 2026
Development of AI Rainfall Nowcasting Model for Weather Radar and Satellite Images	Mr. Yip Weng Sang (Malaysia)	Hong Kong Observatory	Q1 2026

**TRCG Publications / Papers**

Xue, J.J., 2002: Structural and Diagnostic Analyses of Landfalling Tropical Cyclones near Hong Kong in 1999 and 2000. Typhoon Committee Annual Review 2001, pp. 153-161

Servando, N.T., P.W. Li and E.S.T. Lai, 2003: Near Real-time Analysis of the Wind Structure of Tropical Cyclones. Typhoon Committee Annual Review 2002 (in CD form)

Peng, T.-Y., H.-J. Kwon, W.-J. Lee, and J.-H. Lim, 2005: A systematic approach to tropical cyclone track. *The International Journal of Systems & Cybernetics*. **34**, 681-693.

Wang, D.L., W.K. Wong and E.S.T. Lai, 2005: A Study on Tropical Cyclone Bogussing Strategies in NWP Model Analysis and Forecast. Typhoon Committee Annual Review 2004.

Yu, Hui and H. Joe Kwon, 2005: Effect of TC–Trough Interaction on the Intensity Change of Two Typhoons. *Weather and Forecasting*. **20**, 199–211.

Malano, V.B., W.K. Wong and E.S.T. Lai 2006: Effect of Moisture Data to the Numerical Simulation of Tropical Cyclone in the Western North Pacific. Typhoon Committee Annual Review 2005, pp. 242 – 251.

Chen, P.Y. and S.T. Chan, 2009: Use of the JMA Ensemble Prediction System for Tropical Cyclone Intensity Forecasting. Typhoon Committee Annual Review 2008, pp. 276-285.

Nguyen, D.Q. and S.T. Chan, 2009: Study on Application of Ensemble Prediction System Information in Tropical Cyclone Track Forecasting. Typhoon Committee Annual Review 2008, pp. 286-291.

Wong W.K., S. Sumdin, and E.S.T. Lai 2010: Development of Air-Sea Bulk Transfer Coefficients and Roughness Lengths in JMA Non-hydrostatic Model and Application in Prediction of an Intense Tropical Cyclone. *Scientific Online Letters on the Atmosphere (SOLA)*, **6**, 65-68.

Chan, S.T. and Y. Huang, 2012: Can the Extreme Rainfall Associated with Typhoon Morakot (2009) Happen in Hong Kong? *Tropical Cyclone Research and Review*, **1**, 1-15.

Chang, N.K., L.S. Lee and Y.S. Li, 2012: Comparison of Performance of Various Multiple-Model Ensemble Techniques in Forecasting Intensity of Tropical Cyclone. *Tropical Cyclone Research and Review*, **1**, 353-360.

Woo, W.C., K.K. Li and Michael Bala 2014: An Algorithm to Enhance Nowcast of Rainfall Brought by Tropical Cyclones Through Separation of Motions[J]. *Tropical Cyclone Research and Review*, 2014, 3(2): 111-121. doi:10.6057/2014TCRR02.04

Choi, K-S, Prapaporn Wongsaming, S. Park, Y. Cha, W. Lee, I. Oh, J-S Lee, S-B Jeong, D-J Kim, K-H Chang, J. Kim, W-S Yoon, and J-H Lee, 2013: An Analysis of Model Bias Tendency in Forecast for the Interaction between Mid-latitude Trough and Movement Speed of Typhoon Sanba. *Jour. Korean Earth Science Society*, 34, 303-312.

Feng, W, W K Wong, Y T Tam and CW Choy, 2016 : Tropical Cyclone Genesis Forecasting based on Thresholds of Multiple Physical Parameters and Verification of Performance using ECMWF Model, *Journal of Tropical Meteorology*, 32(6), 908-917.

Lee, T C and Edwin S T Lai, 2018: Training and Research under the Typhoon Committee. *Tropical Cyclone Research and Review*, 7(1), 23-30. DOI: 10.6057/2018TCRR01.03

Lu X., W.K. Wong, K.C. Au-Yeung, C.W. Choy, H. Yu, 2022: Verification of tropical cyclones (TC) wind structure forecasts from global NWP models and ensemble prediction systems (EPSs), *Tropical Cyclone Research and Review*, <https://doi.org/10.1016/j.tcr.2022.07.002>

## List of Resource Persons

Member	Specialties	Name	E-mail	Affiliation
<b>(A) Data Assimilation</b>				
China	TC vortex initialization	LIANG, Xudong	<a href="mailto:Liangxd@mail.typhoon.gov.cn">Liangxd@mail.typhoon.gov.cn</a>	Shanghai Typhoon Institute
	TC intensity estimation by radar, satellite, SSMI and QuikScat	DONG, Lin ZHOU, Bing	<a href="mailto:donglin@cma.gov.cn">donglin@cma.gov.cn</a> <a href="mailto:bingz@cma.gov.cn">bingz@cma.gov.cn</a>	National Meteorological Center
	Radar data quality control and assimilation scheme	GONG, Jiandong	<a href="mailto:gongjd@cma.gov.cn">gongjd@cma.gov.cn</a>	National Meteorological Center
Hong Kong, China	TC data assimilation, ensemble radar assimilation	K. K. HON	<a href="mailto:kkhon@hko.gov.hk">kkhon@hko.gov.hk</a>	Hong Kong Observatory
Japan	Satellite data assimilation	OKAMOTO Kozo	<a href="mailto:kokamoto@mri-jma.go.jp">kokamoto@mri-jma.go.jp</a>	Meteorological Research Institute
	Data assimilation	ISHIBASHI Toshiyuki	<a href="mailto:ishibasi@mri-jma.go.jp">ishibasi@mri-jma.go.jp</a>	Meteorological Research Institute

<b>(A) Data Assimilation (cont'd)</b>				
Republic of Korea	Typhoon bogussing	HA, Ji-Hyun	<a href="mailto:ihha80@korea.kr">ihha80@korea.kr</a>	Korea Meteorological Administration
	Satellite data analysis	CHUN, Hyoung-Wook	<a href="mailto:chunhw@korea.kr">chunhw@korea.kr</a>	Korea Meteorological Administration
	Radar data analysis	HA, Jong-Chul	<a href="mailto:bellfe@korea.kr">bellfe@korea.kr</a>	Korea Meteorological Administration
USA (western North Pacific)	TC analysis, satellite interpretation, use of microwave imagery and scatterometer data	Tom LEE Peter BLACK Paul CHANG	<a href="mailto:Lee@nrlmry.navy.mil">Lee@nrlmry.navy.mil</a> <a href="mailto:Peter.Black.ctr@nrlmry.navy.mil">Peter.Black.ctr@nrlmry.navy.mil</a> <a href="mailto:Paul.S.Chang@noaa.gov">Paul.S.Chang@noaa.gov</a>	NRL, Monterey, CA NRL, Monterey CA NOAA/NESDIS, Suitland MD
Viet Nam	TC vortex initialization; Typhoon bogussing	NGUYEN, Van Hiep	<a href="mailto:hiepwork@gmail.com">hiepwork@gmail.com</a>	Viet Nam Meteorological and Hydrological Administration
<b>(B) Modelling</b>				
China	Numerical schemes of TC model	DUAN, Yihong	<a href="mailto:duanyh@mail.typhoon.gov.cn">duanyh@mail.typhoon.gov.cn</a>	Shanghai Typhoon Institute
	TC model physics and bogussing schemes	MA, Suhong	<a href="mailto:mash@cma.gov.cn">mash@cma.gov.cn</a>	National Meteorological Center
	Ensemble track forecasting	ZHOU, Xiaqiong	<a href="mailto:zhouxq@mail.typhoon.gov.cn">zhouxq@mail.typhoon.gov.cn</a>	Shanghai Typhoon Institute
	Typhoon modelling	LIANG, Xudong	<a href="mailto:Liangxd@mail.typhoon.gov.cn">Liangxd@mail.typhoon.gov.cn</a>	Shanghai Typhoon Institute
Hong Kong, China	Mesoscale and ensemble TC modelling	W.K. WONG	<a href="mailto:wkwong@hko.gov.hk">wkwong@hko.gov.hk</a>	Hong Kong Observatory

**(B) Modelling (cont'd)**

Japan	Ensemble track forecasting	KAWABATA Yasuhiro	<a href="mailto:kawabata@mri-jma.go.jp">kawabata@mri-jma.go.jp</a>	Meteorological Research Institute
	TC-ocean interaction (incl. mixed-layer ocean and ocean surface wave modelling)	WADA Akiyoshi	<a href="mailto:awada@mri-jma.go.jp">awada@mri-jma.go.jp</a>	Meteorological Research Institute
	TC modeling	TSUJINO Satoki	<a href="mailto:satoki@mri-jma.go.jp">satoki@mri-jma.go.jp</a>	Meteorological Research Institute
	Storm surge / wave modelling	KOHNO Nadao	<a href="mailto:nkohno@mri-jma.go.jp">nkohno@mri-jma.go.jp</a>	Meteorological Research Institute
Republic of Korea	Global NWP model	CHOI, Hyun-Joo	<a href="mailto:hjchoi81@korea.kr">hjchoi81@korea.kr</a>	Korea Meteorological Administration
	Ensemble track forecasting	SHIN, Hyun Cheol	<a href="mailto:sinhyo@korea.kr">sinhyo@korea.kr</a>	Korea Meteorological Administration
	Storm surge / wave modelling	CHANG, Pil-Hun	phchang@korea.kr	Korea Meteorological Administration
Thailand	Numerical ocean wave modelling	KANBUA, Wattana	wattkan@gmail.com	Thai Meteorological Department

USA (western North Pacific)	TC Modeling Extratropical Transition TC Genesis Sub-Tropical Systems Structure	Jim DOYLE Pat HARR  Jenni EVANS	<a href="mailto:James.Doyle@nrlmry.navy.mil">James.Doyle@nrlmry.navy.mil</a> <a href="mailto:paharr@nps.edu">paharr@nps.edu</a>  <a href="mailto:evans@meteo.psu.edu">evans@meteo.psu.edu</a>	NRL, Monterey CA Naval Postgraduate School, Monterey CA  Pennsylvania State Univ
<b>(C) Forecasting</b>				
China	Track and intensity forecasting	QIAN, Qifeng	<a href="mailto:qianqf@cma.gov.cn">qianqf@cma.gov.cn</a>	National Meteorological Center
	Long-range prediction of typhoon	XU, Ming	<a href="mailto:Xum@mail.typhoon.gov.cn">Xum@mail.typhoon.gov.cn</a>	Shanghai Typhoon Institute
Hong Kong, China	TC climatology and best track analysis	Y.S. LUI	<a href="mailto:yslui@hko.gov.hk">yslui@hko.gov.hk</a>	Hong Kong Observatory
	Radar and satellite nowcasting in TC	W.K. WONG	<a href="mailto:wkwong@hko.gov.hk">wkwong@hko.gov.hk</a>	Hong Kong Observatory
	TC intensity, structure and landfall impact	C.W. CHOY	<a href="mailto:cwchoy@hko.gov.hk">cwchoy@hko.gov.hk</a>	Hong Kong Observatory
	Long-range forecasting of TCs	W.P. TSE	<a href="mailto:wptse@hko.gov.hk">wptse@hko.gov.hk</a>	Hong Kong Observatory
	TC motion, intensity, size, modelling and seasonal prediction	Johnny C.L. CHAN	<a href="mailto:Johnny.Chan@cityu.edu.hk">Johnny.Chan@cityu.edu.hk</a>	City University of Hong Kong.
Japan	Satellite data analysis, use of microwave imagery, AMSU	OYAMA Ryo	<a href="mailto:oyama@met.kishou.go.jp">oyama@met.kishou.go.jp</a>	Japan Meteorological Agency

	Doppler radar data analysis	SHIMADA Udai	<a href="mailto:ushimada@mri-jma.go.jp">ushimada@mri-jma.go.jp</a>	Meteorological Research Institute
Republic of Korea	Track and intensity forecasting	LEE, Kyung-Ho	<a href="mailto:khlove1119@korea.kr">khlove1119@korea.kr</a>	Korea Meteorological Administration
	Long-range prediction of typhoon			
Singapore	Seasonal prediction of typhoon	CHOW Kwok Wah	<a href="mailto:CHOW_Kwok_Wah@nea.gov.sg">CHOW_Kwok_Wah@nea.gov.sg</a>	Meteorological Service Singapore National Environment Agency

***(C) Forecasting (cont'd)***

USA (western North Pacific) USA (western North Pacific)	TC analysis and forecasting, seasonal prediction, use of microwave imagery and scatterometer data, Dvorak technique	Roger EDSON	<a href="mailto:Roger.Edson@noaa.gov">Roger.Edson@noaa.gov</a>	University of Guam (WERI) National Weather Service, Forecast Office Guam
	Satellite data analysis, use of microwave imagery	Jorel TORRES Dan LINDSEY	<a href="mailto:Jorel.Torres@colostate.edu">Jorel.Torres@colostate.edu</a> <a href="mailto:Dan.Lindsey@colostate.edu">Dan.Lindsey@colostate.edu</a>	NOAA/NESDIS at CIRA, Colorado State University
	Satellite data analysis, use of microwave	Chris VELDEN Derrick HERNDON	<a href="mailto:chris.velden@ssec.wisc.edu">chris.velden@ssec.wisc.edu</a> <a href="mailto:dherndon@ssec.wisc.edu">dherndon@ssec.wisc.edu</a>	CIMSS, University of Wisconsin-Madison

	imagery, automated Dvorak Technique, AMSU			
	Satellite data analysis, use of microwave imagery, AMSU	John KNAFF	<a href="mailto:john.knaff@noaa.gov">john.knaff@noaa.gov</a>	NOAA/NESDIS at CIRA, Colorado State University
	Satellite-based rainfall estimates in TCs (eTRaP)	Bob KULIGOWSKI Shelden KUSSELSON	<a href="mailto:bob.kuligowski@noaa.gov">bob.kuligowski@noaa.gov</a> <a href="mailto:sheldon.kusselson@noaa.gov">sheldon.kusselson@noaa.gov</a>	NOAA/NESDIS Suitland, Maryland
Viet Nam	Track and intensity forecasting; Typhoon-terrain interaction and application in forecasting; TC related heavy rainfall and strong wind forecast.	NGUYEN, Van Hiep	<a href="mailto:hiepwork@gmail.com">hiepwork@gmail.com</a>	Viet Nam Meteorological and Hydrological Administration
<b><i>(D) Application</i></b>				
Hong Kong, China	TC warning systems and operations	C.W. CHOY	<a href="mailto:cwchoy@hko.gov.hk">cwchoy@hko.gov.hk</a>	Hong Kong Observatory
	TC information visualization and display systems	C.K. HO	<a href="mailto:ckho@hko.gov.hk">ckho@hko.gov.hk</a>	Hong Kong Observatory
USA (western)	TC warning and disaster	Chip GUARD	<a href="mailto:chip.guard@noaa.gov">chip.guard@noaa.gov</a>	NOAA National Weather Service Guam

North Pacific)	preparedness, seasonal prediction, Dvorak technique			
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Review of Training and Research Coordination Group (TRCG) Annual Operating Plan 2025 (including Q1 of 2026)											
Objective Number	KRAs	Objective	Action	Other WGs Involved	TCS Responsibility	Expected Quarter Completed	Other Organizations Involved	Success Indicators	Funding Required	Funding Sources	Review and Target Met (Yes/No)
1	KRA 1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Attachment of forecasters from TC Members to RSMC Tokyo	nil	Provision of administrative and logistic support.	Q1 of 2025 (14-23 Jan 2025)	RSMC Tokyo, WMO	Assessment as given in RSMC Tokyo report.	USD 11,000*	TCTF and Member self-funded	Yes
2	KRA 1-3	To facilitate technology transfer among TC Members through research and development initiatives.	Research Fellowship	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q1-Q3	HKO, KMA	Publication of research findings and development output in TCRR or other journals.	Fellowship offered by voluntary hosts.	TC Members	Yes, onsite (HKO, KMA)
3	KRA 1-3	To: (a) implement training initiatives in the priority operational and research areas as identified in the TRCG annual report; and (b) enhance Members' capability and capacity in the assessment of damage and pre-assessment of potential impact caused by landfalling TCs	Roving Seminar Theme: Application of remote sensing technologies in operational tropical cyclone monitoring and forecasting	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q4 2025 (3 – 5 Nov 2025)	CMA	Feedback from evaluation forms to be completed by a target audience of about 30 people.	USD 16,000	TCTF	Yes
4	KRA 1-3	To: conduct of international scientific workshop to raise the knowledge level of TC forecasters the ESCAP/WMO Typhoon Committee.	AP-TCRC 4TH FORUM	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q1 2026 (29 – 30 Jan 2026)	TRCG & AP-TCRC	Assessment as given in TRCG & AP-TCRC report	Self-funded	AP-TCRC	Yes
5	KRA 1-3	To: implement training initiatives Regular invitation of TC prevention and mitigation personnel to conduct technical training for members of the ESCAP/WMO Typhoon Committee.	Fellowship or Attachment of researchers from TC Members to AP-TCRC, Shanghai	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q4 2025 (27 Oct - 7 Nov 2025)	TRCG & AP-TCRC	Assessment as given in TRCG & AP-TCRC report	Self-funded	AP-TCRC	Yes

6	KRA1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Up to 4 forecasters from TC to CMA Forecaster Training	nil	Provision of administrative and logistic support.	Q3 – Q4 2025	CMA	Assessment as given in CMA report.	Participation will be supported by CMA	CMA	Yes
7	KRA 1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Attachment of forecasters from TC Members to RSMC Tokyo	nil	Provision of administrative and logistic support.	<i>Q1 of 2026 (13 – 22 Jan 2026)</i>	RSMC Tokyo, WMO	Assessment as given in RSMC Tokyo report.	USD 11,000	TCTF and Member self-funded	Yes

## Provisional TRCG Work Plan for 2024 – 2027 (including Q1 of 2028)

Year	Quarter	Typhoon Committee Activity	Training and Research Activities (*activities organized by parties other than TRCG)	Themes (if any) / Remarks
2024	Q1	TC-56 (Malaysia)	RSMC Tokyo Attachment Training	15 – 26 January
			Research Fellowship	HKO Fellowship in Jan - Mar. Theme: A study on analogue forecasting for track and intensity of tropical cyclones using deep-learning techniques
	Q2		Research Fellowship	Fellowship or attachment visit(s) hosted by STI
	Q4	19th IWS (China)	Roving Seminar	17-19 December, Thailand Theme: Artificial Intelligence for Enhanced Tropical Cyclone Prediction and Emergency Response
			CMA Training Programme*	25 November – 5 December.
1 <sup>st</sup> AP-TCRC Forum	19 November, China			
2025	Q1	TC-57 (Philippines)	RSMC Tokyo Attachment Training*	14 - 23 January
			Research Fellowship	HKO Fellowship in Feb-Apr TRCG Research Fellowship hosted by KMA in June
	Q2			
	Q3		Research Fellowship	Fellowship or attachment visit(s) hosted by STI
	Q4	20 <sup>th</sup> IWS (Macao, China)	CMA Training Programme *	27 Oct - 7 Nov 2025
			Roving Seminar	3 – 5 November, Guangzhou, China Application of remote sensing technologies in operational tropical cyclone monitoring and forecasting
			4 <sup>th</sup> AP-TCRC Forum	29-30 January 2026
AP-TCRC Fellowship or Attachment Training			Q4 2025	
2026	Q1	TC-58 (Jeju, Republic	RSMC Tokyo Attachment Training*	13 – 22 January

		of Korea)	Research Fellowship	HKO Fellowship in Jan – Mar
	<b>Q2</b>		Research Fellowship	Fellowship or attachment visit(s) hosted by KMA, STI and/or AP-TCRC
	<b>Q3</b>			
	<b>Q4</b>	21 <sup>st</sup> IWS (TBC)	Roving Seminar	Proposed theme: TBD
			CMA Training Programme*	TBC
<b>2027</b>	<b>Q1</b>	TC-59 (TBC)	RSMC Tokyo Attachment Training*	12 – 21 January (TBC)
			Research Fellowship	HKO Fellowship in Jan – Mar (TBC)
	<b>Q2</b>		Research Fellowship	Fellowship or attachment visit(s) hosted by KMA, STI and/or AP-TCRC
	<b>Q3</b>			
	<b>Q4</b>	22 <sup>nd</sup> IWS (TBC)	CMA Training Programme*	TBC
<b>2028</b>	<b>Q1</b>	TC-60 (TBC)	5 <sup>th</sup> TRCG Forum / TRCG Planning Meeting (in conjunction with TC60)	Proposed theme: TBC
			RSMC Tokyo Attachment Training*	TBC
			Research Fellowship	HKO Fellowship in Jan – Mar (TBC)

Training and Research Coordination Group (TRCG) Annual Operating Plan 2026 (including Q1 of 2027)										
Objective Number	KRAs	Objective	Action	Other WGs Involved	TCS Responsibility	Expected Quarter Completed	Other Organizations Involved	Success Indicators	Funding Required	Funding Sources
1	KRA 1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Attachment of forecasters from TC Members to RSMC Tokyo	nil	Provision of administrative and logistic support.	Q1 of 2026 (13-22 Jan 2026)	RSMC Tokyo, WMO	Assessment as given in RSMC Tokyo report.	USD 11,000*	TCTF and Member self-funded
2	KRA 1-3	To facilitate technology transfer among TC Members through research and development initiatives.	Research Fellowship	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q1-Q3	HKO, KMA	Publication of research findings and development output in TCRR or other journals.	Fellowship offered by voluntary hosts	TC Members
3	KRA 1-3	To: (a) implement training initiatives in the priority operational and research areas as identified in the TRCG annual report; and (b) enhance Members' capability and capacity in the assessment of damage and pre-assessment of potential impact caused by landfalling TCs	Roaming Seminar Proposed theme: TBC	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q4 2026	PAGASA (TBC)	Feedback from evaluation forms to be completed by a target audience of about 30 people.	USD 16,000	TCTF
5	KRA 1-3	To: implement training initiatives Regular	Fellowship or Attachment of researcher	WGM, WGH and WGDRR	Provision of administrative and logistic support.	Q4 2026	TRCG & AP-TCRC	Assessment as given in TRCG &	Fellowship offered by AP-TCRC	AP-TCRC

		invitation of TC prevention and mitigation personnel to conduct technical training for members of the ESCAP/WMO Typhoon Committee.	s from TC Members to AP-TCRC, Shanghai					AP-TCRC report		
6	KRA1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Up to 4 forecasters from TC to CMA Forecaster Training	nil	Provision of administrative and logistic support.	Q3 – Q4 2026	CMA	Assessment as given in CMA report.	Participation will be supported by CMA	CMA
7	KRA 1-3	To enhance TC Members' capacity and knowledge in operational tropical cyclone forecasting.	Attachment of forecasters from TC Members to RSMC Tokyo	nil	Provision of administrative and logistic support.	<i>Q1 of 2027 (12 – 21 January (TBC))</i>	RSMC Tokyo, WMO	Assessment as given in RSMC Tokyo report.	USD 11,000	TCTF and Member self-funded