



57



REPORT OF THE FIFTY-SEVENTH SESSION OF TYPHOON COMMITTEE

MANILA • THE PHILIPPINES
17- 20 FEBRUARY 2025

TABLE OF CONTENTS
Fifty-Seventh Session of Typhoon Committee

	PART I – DECISIONS OF THE COMMITTEE	2
	PART II – PROCEEDINGS OF THE COMMITTEE	2
I.	ORGANIZATION OF THE SESSION Opening of the Session (agenda item 1)	4
II.	REPORT ON CREDENTIAL COMMITTEE (agenda item 2)	4
III.	ELECTION OF OFFICERS (agenda item 3)	5
IV.	ADOPTION OF THE AGENDA (agenda item 4)	5
V.	TECHNICAL PRESENTATION (agenda item 5) 5.1 Summary of the 2024 typhoon season 5.2 Report on the progress of research collaboration between Typhoon Committee and Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) 5.3 Other technical presentations	5
VI.	REPORT ON TC'S KEY ACTIVITIES AND OVERVIEW SUMMARY OF MEMBERS' REPORTS (agenda item 6) 6.1 Report on TC's Key Activities and Main Events in the Region 6.2 Overview Summary of Members' Reports	7
VII.	REVIEW OF THE ACTIVITIES OF RSMC TOKYO AND AMENDMENTS OF TOM (agenda 7) 7.1 Review of the activities of RSMC Tokyo 2024 7.2 Typhoon Committee Operational Manual (TOM)	8 10
VIII.	REPORTS OF TC WORKING GROUPS AND TRCG (agenda 8) 8.1 Working Group on Meteorology (WGM) Report 8.2 Working Group on Hydrology (WGH) Report 8.3 Working Group on Disaster Risk Reduction (WGDRR) Report 8.4 Training and Research Coordination Group (TRCG) Report	10
IX.	REPORTS OF TCS AND AWG (agenda 9) 9.1 Typhoon Committee Secretariat (TCS) Report 9.2 Advisory Working Group (AWG) Report	17 19
X.	TCTF MEMBER'S ANNUAL CONTRIBUTION (agenda item 10)	19
XI.	SUMMARY REPORT ON RESOURCE MOBILIZATION (agenda 11)	20
XII.	ELECTION OF THE AWG CHAIRPERSON (agenda 12)	20
XIII.	TYPHOON COMMITTEE RESEARCH AWARD FOR YOUNG SCIENTIST (agenda 13)	20
XIV.	PUBLICATIONS (agenda 14)	20
XV.	PROGRAMME FOR 2025 AND BEYOND (agenda item 15) 15.1 Replacement of Typhoon Names	21
XVI.	COORDINATION WITH OTHER ACTIVITIES OF THE WMO TROPICAL CYCLONE PROGRAMME (agenda item 16)	21
XVII.	SUPPORT REQUIRED FOR THE COMMITTEE'S PROGRAMME (agenda item 17) 17.1 Typhoon Committee Trust Fund (TCTF) by World Meteorological Organization (WMO) 17.2 In-kind Contributions 17.3 Approval of Typhoon Committee Trust Fund 2025/2026 Budget	23
XVIII.	DATE AND PLACE FOR THE 20th INTEGRATED WORKSHOP (agenda item 17)	24
XIX.	DATE AND PLACE FOR THE 58th TC Session (agenda item 18)	24
XX.	HOSTING OF THE 21st INTEGRATED WORKSHOP and 59th TC Session (agenda item 20)	24
XXI.	OTHER BUSINESS (agenda item 21)	25
XXII.	ADOPTION OF THE REPORT (agenda item 22)	25
XXIII.	CLOSURE OF THE SESSION (agenda item 23)	25

**REPORT OF THE FIFTY-SEVENTH SESSION
OF TYPHOON COMMITTEE**

**Manila, Philippines
17 – 20 February 2025**

PART I – DECISIONS OF THE COMMITTEE

1. The Committee decided to:
 - a. Approve Dr. Nathaniel SERVANDO, Administrator of PAGASA of the Philippines as the elected Chairperson and Dr. IN, Heejin, Director General of the Forecast Bureau of KMA, of the Republic of Korea as Vice-Chairperson of the Committee. Mr. Tom EVANS, Deputy-Director of Pacific Region, NOAA, National Weather Service, USA, was appointed as the Chairperson of the Drafting Committee.
 - b. Consider the key tropical cyclone impacts on Members in 2024 and review the initiatives and activities to be pursued in support of the 19 TC Priorities to mitigate future impacts.
 - c. Adopt Section 2 of the Summary of Members' Reports 2024 as an "Executive Summary" to be distributed to Members' governments for information and reference.
 - d. Approve the Typhoon Committee Operational Manual (TOM) with the amendments provided in the **Appendix VIII**.
 - e. Approve the recommendations submitted by Working Group on Meteorology (WGM) as expressed in **paragraph 55**.
 - f. Approve the recommendations submitted by Working Group on Hydrology (WGH) as expressed in **paragraph 66**.
 - g. Approve the recommendations submitted by Working Group on Disaster Risk Reduction (WGDRR) as expressed in **paragraph 70**.
 - h. Approve the recommendations submitted by Training and Research Coordination Group (TRCG) as expressed in **paragraph 79**.
 - i. Approve the suggestion submitted by TCS as expressed in **paragraph 88**.
 - j. Approve the recommendations submitted by the AWG as expressed in **paragraph 93**.
 - k. Request TCS to setup a task team to further explore Resource Mobilization, and if appropriate, to draft relevant mechanisms and guidelines.
 - l. Approve Mr. Tom EVANS as the new Chairperson of the AWG Group for a two-year term.
 - m. Request TCS to implement the Typhoon Committee Research Award for Young Scientist starting from 2025.
 - n. Approve **BORI**, **SAOBIEN** and **TIANMA** as replacement names for DOKSURI, SAOLA and HAIKUI, respectively, in the list of the names of tropical cyclones.
 - o. Approve the retirement of the names of tropical cyclones YAGI, USAGI, EWINIAR, KRATHON, TRAMI, KONG-REY, TORAJI, MAN-YI and JEBI request TCS to issue letters to relevant Members (Japan, USA, Thailand, Viet Nam, Cambodia, Democratic People's Republic of Korea, Hong Kong, China and Republic of Korea) to provide replacement names in accordance with the Committee's procedure.

- p. Agree to share the information on Education and Training opportunities on WMO regional association community webpages, where appropriate.
- q. Approve the 2025/2026 Budget as presented below (see **Appendix XXI** for detail):

By Group	Apr-Dec2025/ Jan-Mar2026	
	Proposed	
TCS	42,500.00	
ALL WGS (IWS ONLY)	58,000.00	
TRCG	27,000.00	
WGM	47,000.00	
WGH	29,000.00	
WGDRR	26,000.00	
TOTAL	229,500.00	
Total Proposed Budget in 2025/2026		229,500.00

- r. Accept the kind offer of Macao, China to host the 20th IWS and High-Level Forum. The proposed dates are 02-05 December 2025. The arrangements will be communicated to TCS.
- s. Accept the kind offer of the Republic of Korea to host the 58th Session of TC in 2026, tentatively in the early of March 2026. The final date and place will be confirmed in due course by Republic of Korea and later communicated to TCS.
- t. Accept the dates 01-04 December 2026 for the 21st IWS to be held in UNCC, ESCAP facility, Bangkok, Thailand and the allocation of USD7,000 for room charges to be included in the next budget 2026/2027.
- u. Accept kind offer of the Singapore to host the 59th Session in 2027. The final date, place and arrangements will be confirmed by Singapore to TCS and communicated later to Members.

PART II – PROCEEDINGS OF THE COMMITTEE

I. ORGANIZATION OF THE SESSION

2. The Fifty-Seventh Session of the ESCAP/WMO Typhoon Committee (TC) was held at the Hilton Manila Hotel, Manila, Philippines, from 17 to 20 February 2025.

The Session was attended by **101** participants from 12 of 14 Members of the Typhoon Committee, namely: China; Hong Kong, China; Japan; Lao People's Democratic Republic (PDR); Macao, China; Malaysia; Philippines; Republic of Korea; Singapore; Thailand; United States of America (USA); and the Socialist Republic of Viet Nam. Representatives of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), World Meteorological Organization (WMO) and Typhoon Committee Secretariat (TCS) also attended the Session.

The Session was attended by observers from International Federation of Red Cross and Red Crescent Societies (IFRC), Tohoku University of Japan and the Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC). The list of participants is given in **Appendix I**.

Opening of the Session (agenda item 1)

3. The opening ceremony of the Session began at 9:30 am on Monday, 17 February 2025. Mr. Bernard PUNZALAN and Ms. Vivian Gay AGGASID of PAGASA, Local Organizing Committee of the Philippines, conducted the opening ceremony.
4. The following speeches were delivered at the opening ceremony and are provided in **Appendix II**:
 - a) **Dr. Mohd Hisham Mohd ANIP**, Director General, Malaysian Meteorological Department, on behalf of TC56 Chairperson
 - b) **Mr. Cyrille HONORE**, Director of the Disaster Risk Reduction, Multi-Hazards Early Warning System (MHEWS) Office and Public Weather Services, World Meteorological Organization (WMO)
 - c) **Mr. Daisuke MARUICHI**, Economic Affairs Officer, Information and Communications Technology Disaster Risk Reduction, ESCAP
 - d) **Dr. DUAN Yihong**, Secretary of the Typhoon Committee
 - e) **Dr. Nathaniel T. SERVANDO**, Administrator, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
 - f) **Honorable Imelda G. CALIXTO-RUBIANO**, Mayor of Pasay City, represented by Attorney Peter MANZANO, OIC of DRRM Office and City Administrator of Pasay City
 - g) **Honorable Renato U. SOLIDUM, Jr.**, Secretary, Department of Science and Technology, Philippines declared the Session opened at 10:30 am.
5. The Dr. Roman L. KINTANAR Award for typhoon related disaster mitigation Ceremony was conducted and plaque delivered to PAGASA, in recognition of their outstanding contribution in empowering communities with disaster preparedness with improved tropical cyclone forecasts and warning services, and innovation in localized services

II. REPORT ON CREDENTIAL COMMITTEE (agenda item 2)

6. Dr. TANG Jie, on behalf of the Credential Committee, reviewed the Credential Letters submitted by Members, presented the Summary Report of the Credential Committee which can be consulted at **Appendix III**.

III. ELECTION OF OFFICERS (agenda item 3)

7. Dr. Nathaniel Servando, Administrator of PAGASA of the Philippines was elected Chairperson and Dr. IN, Heejin, Director General of the Forecast Bureau of Korea Meteorological Administration (KMA), of the Republic of Korea was elected Vice-Chairperson of the Committee.
8. Mr. Tom EVANS, Deputy-Director of Pacific Region, NOAA, National Weather Service, USA, was appointed as the Chairperson of the Drafting Committee.

IV. ADOPTION OF THE AGENDA (agenda item 4)

9. The Committee adopted the agenda as shown in **Appendix IV**.

V. TECHNICAL PRESENTATIONS (agenda item 5)

5.1 Summary of the 2024 typhoon season

10. The Committee noted with appreciation the review of the 2024 typhoon season provided by the RSMC Tokyo in **Appendix V**, for which a summary is presented in paragraph 11 – 22.
11. The track/intensity commentaries provided here for Pabuk (2426) are preliminary and subject to change once best-track data are finalized.
12. Over the western North Pacific and the South China Sea, 26 named tropical cyclones (TCs) formed in 2024, which was almost the same as the 30-year average of 25.1 (1991 – 2020). Thirteen of these reached typhoons (TY) intensity, which was almost the same as the 30-year average of 13.3. A total of 4 had formed by July, which was below the average of 7.8, and the other 22 formed from August onward, which was higher than the average of 17.3. The El Niño event that continued until spring suppressed convection in the tropical western North Pacific until the end of July, similar to conditions observed in other post-El Niño summers and reduced tropical cyclone genesis. However, the number of named TC formations increased from August onward, likely in association with weakened influences of the El Niño event and enhanced convection from the Philippines to the southeast of Japan in August and September.
13. The 2024 typhoon season started with Ewiniar (2401), which formed over the sea east of Mindanao at 18 UTC on 23 May 2024. The last-named tropical cyclone of the year was Pabuk (2426), which formed in December 2024 over the South China Sea and weakened to tropical depression (TD) intensity over the same waters.
14. The mean genesis point of named TCs was 17.9°N and 134.6°E, representing a north-westward deviation from the 30-year average (16.3°N and 135.9°E). The mean in summer (June to August) was 21.9°N and 136.6°E, representing a north-eastward deviation from the 30-year summer average (18.5°N and 134.2°E), and that in autumn (September to November) was 16.5°N and 137.3°E, representing almost the same area from the 30-year autumn average (16.2°N and 137.0°E).
15. The mean duration of TCs with tropical storm (TS) intensity or higher was 4.8 days, which was shorter than the 30-year average of 5.2 days. That of TCs with TS intensity or higher in summer was 4.4 days, which was shorter than the average of 5.0 days, and that of TCs with TS intensity or higher in autumn was 5.5 days, which was almost the same as the average of 5.4 days.
16. Two named TCs formed in May. The first, Ewiniar (2401), formed over the sea east of Mindanao (here, TC locations are expressed as the area of TD formation unless otherwise

noted) and hit the Philippines with typhoon (TY) intensity. The second, Maliksi (2402) formed over the South China Sea and dissipated over the sea south of Japan.

17. Two named TCs formed in July. The first, Gaemi (2403), formed over the sea east of the Philippines and reached TY intensity, then hitting Taiwan Island and South China with STS intensity. The second, Prapiroon (2404), formed over the South China Sea and reached severe tropical storm (STS) intensity, crossing Hainan Island with TS intensity and hitting Viet Nam with STS intensity.
18. Six named TCs formed in August. Maria (2405) formed over the sea around the Ogasawara Islands, reached STS intensity and made landfall near Ofunato in Japan's Iwate Prefecture, bringing heavy rain to northern parts of the country. Son-tinh (2406) formed over the sea north of Minamitorishima Island. Ampil (2407) formed over the sea south of Japan and reached TY intensity, bringing heavy rain to areas of the country. Wukong (2408) formed over the sea east of the Ogasawara Islands. Jongdari (2409) formed over the sea south of Okinawa, crossing the Korean Peninsula with TD intensity and dissipating over the Sea of Japan. Shanshan (2410) formed over the sea around the Mariana Islands and reached TY intensity, making landfall around Satsumasendai City in Japan's Kagoshima Prefecture with TY intensity and bringing heavy rain, strong winds and storm surges to areas of the country.
19. Eight named TCs formed in September. Yagi (2411) formed over the sea east of the Philippines, crossing north of Luzon Island with TS intensity and increasing to TY intensity over the South China Sea. It developed rapidly and reached peak intensity with maximum sustained winds of 105 kt and a central pressure of 915 hPa (a record for 2024). After crossing Hainan Island, it hit Northern Viet Nam with TY intensity, bringing heavy rain, strong winds and storm surges to areas of the Philippines, China, Viet Nam, Myanmar, Laos and Thailand. Leepi (2412) formed around the Ogasawara Islands. Bebinca (2413) formed around the Mariana Islands, and after passing around Amami-Oshima Island was upgraded to TY intensity over the East China Sea and hit Central China with TY intensity. Pulasan (2414) formed around the Mariana Islands, crossing Okinawa Island and hitting central China with TS intensity. Soulik (2415) formed over the sea east of the Philippines, crossing north of Luzon Island with TD intensity and hitting Viet Nam with TS intensity. Cimaron (2416) formed over the sea north of Amami-Oshima Island. Jebi (2417) formed around the Mariana Islands and reached TY intensity. Krathon (2418) formed over the sea south of Okinawa and reached TY intensity, hitting Taiwan Island with STS intensity and then dissipating over the island.
20. Three named TCs formed in October. Barijat (2419) and Trami (2420) formed around the Mariana Islands. Trami (2420) crossed north of Luzon Island with STS intensity and hit Viet Nam with TS intensity. Kong-rey (2421) formed around the Chuuk Islands and hit Taiwan Island with TY intensity.
21. Four named TCs formed in November. Yinxing (2422) formed around the Caroline Islands. Toraji (2423) formed over the sea east of the Philippines. Man-yi (2424) formed around the Mariana Islands. Usagi (2425) formed around the Chuuk Islands. Yinxing (2422) passed over the northern coast of Luzon Island, and other TCs also crossed north of the Island. All four reached TY intensity and brought heavy rain and strong winds to the Philippines.
22. The last-named TC, Pabuk (2426) formed in December over the South China Sea and weakened to TD intensity over the same waters.

5.2 Report on the progress of research collaboration between Typhoon Committee and AP-TCRC

23. The Committee took note with appreciation of the report on the progress of research collaboration between Typhoon Committee and AP-TCRC presented by Mr. Robert ROGERS from AP-TCRC.

5.3 Other technical presentations

24. The technical presentations were presented as shown below. The Committee expressed its appreciation to all the speakers and requested the TCS to post all the technical presentations on the TC website. The following technical presentations were presented:

- 1) Typhoon Severe Wind Impact Prediction in the Philippines: Recent Developments - Mr. Robb P. GILE, Department of Science and Technology, PAGASA
- 2) An integrated approach for effective flood management: Real-time flood forecasting for timely response and long-term statistical analysis of future extreme events - Mr. TAKEGAWA Shinya, ICHARM, Japan
- 3) Dropsonde Operation for Typhoon Observation - Mr. Marco Mang-hin KOK, Acting Senior Scientific Officer, Hong Kong Observatory (HKO)
- 4) Climatology and impacts of multiple tropical cyclone events in the Philippines – Prof. Gerry BAGTASA, University of the Philippines, Institute of Environmental Science and Meteorology
- 5) Experimental Ocean Observation for Typhoon Analysis – Ms. Seonghee WON, Korea Meteorological Administration (KMA), Republic of Korea
- 6) Brief introduction of Early Warning for All (EW4All) during extreme typhoon YAGI - Dr. XIANG Chunyi, China Meteorological Administration (CMA), China
- 7) Predicting rapid intensification of tropical cyclones in the western North Pacific - Dr. Woojeong LEE, KMA, Republic of Korea
- 8) Introduction of the "Fengqing" Large Model and Its Application in Typhoon Forecasting - Dr. QIAN Qifeng, CMA, China
- 9) Water Resources Information System for IWRM of the Philippines - Dr. Deuk-koo KOH, Vice President, Dongbu Engineering, Republic of Korea
- 10) Application of FengYun satellite observation in typhoon disaster monitoring and early warning - Dr. REN Suling, CMA, China
- 11) Verification of Tropical Cyclone Operational Forecast in 2024 - Dr. YANG Mengqi, CMA, China
- 12) Introduction to WMO/WWRP Working Group on Tropical Meteorology Research and Its Tropical Cyclone Related Activities - Ms. YU Hui, Co-Chair, WMO/World Weather Research Programme (WWRP) Working Group on Tropical Meteorology Research

VI. REPORT ON TC'S KEY ACTIVITIES AND OVERVIEW SUMMARY OF MEMBERS' REPORTS (agenda item 6)

6.1 Report on TC's Key Activities and Main Events in the Region

25. The Committee took note of the report of the Typhoon Committee Chairperson on the TC's Key Activities and Main Events in the Region, 2024. **(Appendix VI)**
26. The Committee expressed appreciation to the contributions of Mr. Muhammad Helmi ABDULLAH, Mr. Mohd Hisham Mohd ANIP and Mr. Nathaniel SERVANDO, as the chairperson, on behalf of Chairperson and Vice Chairperson of the Committee.

6.2 Overview Summary of Members' Reports

27. The Committee took note of the Summary of Members' Reports 2024 highlighting the key tropical cyclone impacts on Members in 2024 and the major activities undertaken by Members under the TC Priorities and components during the year.
28. The Committee expressed its sincere appreciation to AWG Chair for preparing the Summary of Members' Reports and the observations made with respect to the progress of Members' activities in support of the 19 Priorities identified in the TC Strategic Plan 2022-2026 and their relevance to the Early Warnings for All (EW4All) initiative of the United Nations.
29. The Committee encouraged the drafting teams of the WMO publication to consider Typhoon Committee Members' reports for input to the State of the Climate reports for Asia and the South-West Pacific, where appropriate.

RECOMMENDATIONS of AWG

30. Consider the key tropical cyclone impacts on Members in 2024 and review the initiatives and activities to be pursued in support of the 19 TC Priorities to mitigate future impacts.
31. Adopt Section 2 of the Summary of Members' Reports 2024 as an "Executive Summary" to be distributed to Members' governments for information and reference.

VII. REVIEW OF THE ACTIVITIES OF RSMC TOKYO AND AMENDMENTS OF TOM (agenda item 7)

7.1 Review of the activities of the Regional Specialized Meteorological Center (RSMC) Tokyo 2024 (Appendix VII)

32. The Committee noted with appreciation the review of RSMC advisories, products and operational activities and changes made in 2024. It noted the forecast verification results for 26 TCs that reached TS intensity or higher formed in 2024: the forecast track errors of the year of 71 km (61 km in 2023), 106 km (110 km), 152 km (165 km), 245 km (249 km) and 424 km (356 km) for 24-, 48-, 72-, 96- and 120-hour forecasts, respectively, the annual mean Root Mean Squared Errors (RMSEs) for central pressure forecasts of 10.9 hPa (12.8 hPa), 13.5 hPa (16.9 hPa), 16.5 hPa (18.0 hPa), 20.4 hPa (20.6 hPa) and 23.8 hPa (22.1 hPa) for 24-, 48-, 72-, 96- and 120-hour forecasts, respectively, and those for maximum wind speed forecasts for 24-, 48-, 72-, 96- and 120-hour forecasts of 5.3 m/s (5.1 m/s), 6.2 m/s (7.2 m/s), 7.3 m/s (7.9 m/s), 8.6 m/s (9.2 m/s) and 10.5 m/s (10.4 m/s) respectively. Please note that the track/intensity commentaries for Pabuk (2426) are preliminary at the moment and subject to change after best-track data are finalized.
33. The Committee noted with appreciation the changes made to RSMC advisories, products and operational/coordination activities in 2024, especially the upgrades of the Japan Meteorological Agency's (JMA's) storm surge watch scheme model.
34. The Committee noted with appreciation the operation of RSMC Tokyo's Numerical Typhoon Prediction (NTP) website, and noted changes made in 2024 as well as those planned for the near future.
35. The Committee noted with appreciation RSMC Tokyo's maintenance of a dedicated platform for enhanced communication between operational forecasters and RSMC-Tokyo, as well as the sharing of advance-notice updates. In the 2024 typhoon season, 21 inquiries relating to tropical cyclones have been submitted, with related discussion helping to clarify TC status and forecasts.

36. The Committee noted with appreciation the contribution of RSMC Tokyo (which also serves as an International Civil Aviation Organization (ICAO) Tropical Cyclone Advisory Centre (TCAC Tokyo)) to compliance with ICAO Standards and Recommended Practices (SARPs), addressing the provision of TCA information in text, graphical and the ICAO Meteorological Information Exchange Model (IWXXM) 3.0 formats via multi-platform channels such as the TCAC Tokyo website.
37. The Committee noted with appreciation the ongoing contribution of RSMC Tokyo to the regional Storm Surge Watch Scheme (SSWS), especially the provision of various products including storm surge forecast distribution maps and time-series charts for selected stations, as well as week-range probabilistic wave forecasts for significant wave heights and peak wave periods. The Committee again encouraged Members to make their sea level observation data available to support verification activity. The committee was pleased to note the progress of the regional SSWS, which includes an upgrade of JMA's storm surge watch scheme model in January 2025.
38. The Committee welcomes RSMC Tokyo's efforts in seeking further approaches to increase the benefits of ensemble forecast utilization, including improvement of current operational products.
39. The Committee was pleased to note the progress of the regional radar network development project, which was launched in 2016, especially the creation of a sample regional composite map based on Members' radar data. The project has been expanded, with Japan, Thailand, Malaysia, Viet Nam and Singapore now participating in the regional radar data exchange. The Committee appreciated that Members held a workshop on regional radar data exchange in Japan in February 2025.
40. The Committee was pleased to note the activities of the project for enhancing the utilization of Himawari-8/9 products, under which technical support for developing Rapidly Developing Cumulus Area (RDCA) identification using Himawari-8/9 data is provided. The Committee noted with appreciation the ongoing discussion, support and efforts contributed by project Members (Malaysia, the Philippines, Singapore, Thailand and Vietnam). The Committee also noted that HCAI (High-resolution Cloud Analysis Information) data and AMV-based Sea-surface Wind data are provided to NMHSs every 10 minutes.
41. The Committee noted with appreciation RSMC Tokyo's publication of Technical Review No. 27 in January 2025, and the Annual Report on the Activities of the RSMC Tokyo - Typhoon Center 2023 in November 2024.
42. The Committee was pleased that RSMC Tokyo had completed in 2023 the tropical cyclone satellite re-analysis along with basic quality checking (QC) for the period from 1987 to 2016, which it began in 2012, to enable evaluation and improvement regarding the quality of the Current Intensity (CI) number in satellite TC analysis. The Committee also noted that there had been 12 requests for the dataset since the service began.
43. The Committee noted with appreciation the operation of Himawari-8/9 geostationary meteorological satellites and further welcomed the intention of RSMC Tokyo to continue providing Himawari products as well as technical support for using them.
44. The Committee noted with appreciation that RSMC Tokyo had conducted the 24th Attachment Training course from 14 to 23 January 2025, hosting four forecasters from Lao PDR, the Philippines, Thailand and Viet Nam, and three (self-funded) from China, Hong Kong (China), and the Republic of Korea. In accordance with a decision made at the third joint session of the Panel on Tropical Cyclones (PTC) and the Typhoon Committee, the RSMC Tokyo, ESCAP, WMO, and PTC secretariats invited four forecasters from PTC Members: Bangladesh, Maldives, Oman and Pakistan.
45. The Committee noted with appreciation RSMC Tokyo's contribution to WMO Programmes and related activities, and its promotion of cooperation with other RSMCs for the Tropical

Cyclone Programme. These included participation in the Advisory Group on Tropical Cyclones (AG-TC) under the Standing Committee on Disaster Risk Reduction and Public Services (SC-DRR), provision of real-time forecast guidance to Typhoon Committee Members, and contribution to capacity building within the framework of the Severe Weather Forecasting Programme – Southeast Asia (SWFP-SeA) and the Expert Team of Marine Services (ET-MS) under WMO Regional Association II. The Committee also noted with thanks the Center's coordination with adjacent RSMCs for ensuring consistent information delivery across basins.

7.2 Typhoon Committee Operational Manual (TOM)

46. The Committee noted that the Typhoon Committee Operational Manual (TOM) rapporteur requests WMO to publish and upload the 2025 edition of TOM on the Tropical Cyclone Programme (TCP) Website as submitted by the Rapporteur, with the amendments given in **Appendix VIII**.
47. The Committee also noted that the tropical cyclone forecast competency in the region is kept the same when added to the Compendium of WMO Competency Frameworks (WMO-No. 1209).
48. The Committee expressed its appreciation to the rapporteur for update of TOM.

VIII. REPORTS OF TC WORKING GROUPS AND TRCG (agenda item 8)

49. Parallel sessions of the Working Groups on Meteorology, Hydrology and Disaster Risk Reduction were convened during the 19th IWS to review progress of work during the past year, identify priorities for cooperation and make recommendations to the Committee.
50. The outcomes of the parallel sessions of the three Working Groups were reported to the plenary session as given in the following sections.

8.1. Meteorological Component

51. The Committee took note of the Member's activities and major progress and issues in Meteorological Component in 2024 as reported by Members at the 19th IWS.
52. The Committee reviewed the activities of Members in implementing the TC Strategic Plan and its annual operating plan in relation to Meteorological Component during past year, details of which are presented in **Appendix IX**.
53. The Committee took note of the outcomes of the WGM Parallel Session at the 19th IWS on 19-22 November 2024. With the assistance of TCP/WMO and TCS and the strong support from all Members, WGM has successfully completed the tasks in 2024 with significant outcomes as follows:
 - a. WGM has fulfilled all the action plans (4 POPs, 12 AOPs and 1 PP) in 2024, which were endorsed at the 56th TC Session.
 - b. After the 56th TC Session in 2024, WGM has been carrying out the following activities that involve cooperations among Members as well as other TC WGs and international organizations:
 - i. Coordinated with RSMC Tokyo Typhoon Center for the Attachment Training Course from 14 to 23 January 2025.
 - ii. Coordinated with Japan Meteorological Agency (JMA), Japan to organize the 7th WGM Annual Meeting in hybrid mode from 30 to 31 October 2024.
 - iii. Coordinated with Thailand Meteorological Department (TMD) for the Roving Seminar 2024 in hybrid mode from 17 to 19 December 2024.
 - iv. Coordinated with TRCG to offer one research fellowship hosted by the Hong Kong Observatory (HKO).

CONCLUSIONS of WGM

54. Based on the information provided by Members and the respective coordinators of the operating plans, and discussions during the Parallel Meeting, the following conclusions were reached:
- a. Members have made important progress in the implementation of the TC Strategic Plan during the year 2024.
 - b. Members made significant progress during 2024 in tropical cyclone monitoring and communication systems, data assimilation and numerical weather prediction systems, tropical cyclone forecast-aiding systems, and scientific understanding of tropical cyclone activities.
 - c. With the help of Tropical Cyclone Programme (TCP) of WMO and Typhoon Committee Secretariat (TCS), and the sincere cooperation of all Members and the effective efforts of the WGM focal points, WGM has successfully completed the tasks in 2024 as listed in Annex I of Appendix C.
 - d. Based on the discussion on the operating plans for 2024 during the 19th IWS, it was concluded to adopt the operating plans as follows:
 - i. POP item 2 will be closed. POP items 1, 3 and 4 will continue in 2025 as POP1-3.
 - ii. AOP items 1-12 will continue in 2025.
 - iii. PP item 1 will continue and will be moved to AOP item 13 in 2025.
 - iv. A new PP1 titled "Utilization of FengYun Satellite for High Frequency Observation of Tropical Cyclone" will start in 2025.
 - e. The total budget proposed by WGM, which will be concurred at the AWG meeting, for undertaking the operating plans (AOPs, POPs and PPs) including the 8th WGM annual meeting in 2025 is US\$47,000.
 - f. The proposed WGM 2025 operating plans (AOPs, POPs and PPs) including the actions, the success indicators, coordinators and budget is listed in Annex II of Appendix C.

RECOMMENDATIONS of WGM

55. Based on the deep discussion, WGM submit the following recommendations to the Committee at TC 57th Annual Session:
- a. To request KMA to:
 - (i) improve typhoon summer prediction techniques; and share knowledge and encourage TC Member's cooperation.
 - (ii) introduce and share GK2A products related to typhoon forecast.
 - (iii) provide real-time drifting buoys data for monitoring tropical cyclones; and enhance the use of ocean data in analysing impact on tropical cyclone activities.
 - b. To request STI/CMA to:
 - (i) enhance the role of the TCRR editorial board; increase international influence; and align research and publication with the development of the Asia Pacific-Typhoon Collaborative Research Center (AP-TCRC).
 - (ii) continue scientific experiments for EXOTICCA; share experiment data under the support of AP-TCRC; and improve forecast skills based on experiment data.
 - (iii) share the AI-based TC forecast information; and continue strengthening international cooperation and promote the exchange of TC data and verification techniques.
 - c. To request CMA to

- (i) continue to organize satellite workshop in 2025 for further collaboration among TC Members; and develop and implement new satellite data and technology for operational tropical cyclone monitoring.
 - (ii) enhance research cooperation among experts participating in the 4th assessment report on impact of climate change on tropical cyclones in the Typhoon Committee Region; and request the AP-TCRC to offer international cooperation opportunities.
 - (iii) continue improving the physical process, data assimilation and ensemble forecasting of the CMA-TRAMS model with the use of AI techniques.
- d. To request JMA to:
- (i) continue providing operational tropical cyclone products using ensemble forecast; research probabilistic forecast products; and update the Global Ensemble Prediction System for improving probabilistic forecasts.
 - (ii) further refine quality control techniques in the radar network; implement and refine QPE calibration with MMD and TMD; support applicants to join the experimental radar data exchange as contribution to RBON (Regional Basic Observing Network) of WMO; and hold follow-up technical meetings/workshop upon submission of progress reports by participants.
 - (iii) publish verification results of storm surge predictions and improve storm surge watch scheme mode; add storm surge time series points if requested by TC Members.
 - (iv) assist MMD, MSS, TMD and VNMHA to improve Himawari 8/9 RDCA algorithm product verification; and provide support for operating RDCA by PAGASA; hold follow-up technical meetings/workshop upon submission of progress reports by participants.
- e. To request Met Malaysia to organize the next Attachment Training on RaINS in 2025 with modules 1) radar QPF/nowcasting; 2) NWP blended with radar QPF; 3) nowcast verification and 4) satellite-derived reflectivity.
- f. To request HKO to establish an expert team for AI applications under WGM and decide the scope and implementation plan regarding the research-to-operation initiative on tropical cyclone forecasting and verification; and organize a workshop if resources are available.
- g. To endorse the proposed action plans in 2025 (including 3 POPs, 13 AOPs and 1 PP) as listed in Annex II of Appendix C – Summary Report for the WGM Parallel Meeting at the 19th IWS, which summarizes the above recommendations with additional action items.
- h. To endorse the WGM budget request included in the budget proposal to be submitted by AWG for TC's approval.
- i. To re-appoint Dr. ISHIHARA Koji as the rapporteur of TOM.
- j. To re-appoint Dr. TANG Jie as Chairperson and appoint Mr. Ambun DINDANG and Mr. Juanito GALANG as Vice-chairpersons of WGM.
- k. To encourage project coordinators of all working groups to submit the outcome (research paper) to the TCRR journal.
- l. To encourage more members to join the collaborative research of AP-TCRC and apply the funding of STCRF of AP-TCRC.

8.2. Hydrological Component

56. The Committee reviewed the activities of the Members related to the implementation of the decision of TC 56th Session and its Annual Operating Plan (AOP) for the hydrological component during the past year. Details can be found in the **Appendix X**.

57. The Session was noted the flood-related disasters happened in 2024 and hydrological activities conducted in Members in the year, and also noted the efforts and measures were taken in Members for flood disaster risk reduction and the progresses achieved in Hydrological component of Members.
58. The Session was noted with pleasure that, Working Group on Hydrology (WGH) successfully held its 13th working meeting which was joint organized by Typhoon Committee Secretariat (TCS), Information Center (IC) of the Ministry of Water Resources (MWR), and Nanjing Hydraulic Research Institute (NHRI) in cooperation with Nanjing Research Institute of Hydrology and Water Conservation Automation (NIHWA) in Nanjing, China on 22-24 October 2024.
59. The Session was noted with appreciation that Guam, USA and MLIT of Japan will co-host WGH 14th working meeting of 2025 in Guam with funding support.
60. Following the decisions made at TC 56th Session, WGH tried its best to conduct a series of activities for implementing its following on-going AOPs in 2024:
- a. AOP1: Knowledge Sharing on Storm Surge Inundation Mapping
 - b. AOP2: Improvement of Hydrological Data Quality Control System by Using AI technology
 - c. AOP3: Improvement of Flood Forecasting modelling by Using AI technology
 - d. AOP4: OSUFFIM Phase-II—Extension of OSUFFIM Application in TC Members
 - e. AOP5: Impact Assessment of Climate Change on Water Resource Variability in TC Members
 - f. AOP6: Flood Risk Mapping with Ground/Satellite Observation Data
 - g. AOP7: Flood resilience enhancement through Platform on Water Resilience and Disasters
 - h. AOP8: Training Course on Hydrological Monitoring and Flood Management for Developing Countries
 - i. AOP9: Synergized Standard Operating Procedures for Coastal Multi-Hazard Early Warning System (SSOP)-Phase III
61. The Session was informed that, WGH will close its AOP4 and AOP5 at 57th Session, and replaced by two new AOPs proposed by China, namely: 1) Review on specifications for hydrological information and forecasting in TC Members; and (2) Application Study on New Generation of Integrated Micro-siphon Rain Gauge in TC Members.
62. The Session was informed that, WGH will extend AOP1 one more year to 2026; AOP8 three more years to 2028; and update the implementation period for AOP9 (SSOP-III) from 2023-2025 to 2025- 2027.
63. The Session was informed that WGH recommended its 2 AOPs, namely AOP1 “Knowledge Sharing on Storm Surge Inundation Mapping” led by USA and AOP7 “Flood resilience enhancement through Platform on Water Resilience and Disasters” led by Japan, to be linked with SSOP-III. Three projects will conduct joint activities in future once SSOP-III is approved by ESCAP.
64. The Session was informed that, WGH discussed its chairmanship and accepted the current Chairman and Vice Chairmen to continue serving for WGH for the next two years to TC 59th Session.

CONCLUSIONS of WGH

65. Based on the discussion and outcomes at 13th WGH working meeting and the parallel session of TC 19th IWS, participants recognized the importance in following aspects for further direction of WGH:
- a. WGH agreed to enhance the AI application research in hydrological information and forecasting in next up-coming years.
 - b. WGH recognized the importance to improve the capacity building on in hydrological data monitoring and collection by enhancement the advanced technology application and agreed to propose from China “Application Study on New Generation of Integrated Micro-siphon Rain Gauge in TC Members” as one of AOPs.
 - c. WGH recognized that strengthening the standardization of hydrological information and forecasting is very important to promote the capacity of national hydrological services in Members, so that the theme of WGH 13th Working Meeting was proposed as “Strengthen Standardization for Better National Hydrological Services”. WGH agreed the proposal from China “Review and enhancement on specifications for hydrological information and forecasting in TC Members” as one of WGH AOPs.
 - d. WGH noted that most of AOPs will be closed in 2026-2027 and call on Members to consider and submit to new AOP proposals for 2027 and beyond. The proposals will be discussed at WGH 14th working meeting and TC 20th IWS in 2025.

RECOMMENDATIONS of WGH

66. Based on the deep discussion, WGH submit the following recommendations to the Committee at TC 57th Annual Session:
- a. to re-appoint Dr. Mamoru MIYAMOTO from Japan as WGH Chairperson, Dr. CHO Hyo Seob from Republic of Korea, Dr. HOU Aizhong from China, and Mr. Kenneth KLEESCHULTE from Guam, USA as WGH Vice-chairpersons for the next two years to TC 59th Session.
 - b. to request US\$29,000 from TCTF for supporting overall WGH activities for 2025 calendar year.
 - c. to thank China for hosting WGH 13th Working Meeting on 21-24 October 2024 with funding support generously.
 - d. to request Guam, USA and Japan to co-host WGH 14th working meeting in 2025 with funding support.
 - e. to approve AOP1 “Knowledge Sharing on Storm Surge Inundation Modeling” led by Guam USA to extend one more years to 2026.
 - f. to approve AOP8 “Training Course on Hydrological Monitoring and Flood Management for Developing Countries” led by China to extend three more years to 2028.
 - g. to approve AOP9 “Synergized Standard Operating Procedures for Coastal Multi-Hazard Early Warning System (SSOP)-Phase III” led by USA to update its implementation period from 2023-2025 to 2025-2027.
 - h. to approve the two new proposals from China as AOPs of WGH from 2025 to 2027, namely: (1) Review on specifications for hydrological information and forecasting in TC Members; and (2) Application Study on New Generation of Integrated Micro-siphon Rain Gauge in TC Members.

8.3. Disaster Risk Reduction Component

67. The Committee took note of the activities; relevant major progress and issues related to Working Group on Disaster Risk Reduction (WGDRR) as presented in WGDRR report 2024.
68. The Committee took note of the outcome of Parallel Session of WGDRR at the 19th IWS that was held in Shanghai, China, details of which are presented in the **Appendix XI**, which are included the progress of implementation of Annual Operating Projects of (AOPs) 2024 of WGDRR.

CONCLUSIONS of WGDRR

69. Based on the information provided by the Members, the reports presented by project coordinator/leader and findings of the parallel session on WGDRR, the following conclusions were reached:
 - a. AOP 1 Capacity Building / Knowledge Sharing, NDMI plans to participate in the PRIMO (Pacific Risk Management 'Ohana) conference, scheduled for 17th to 20th March 2025, in Honolulu, Hawaii. Additionally, NDMI intends to attend the World Bosai Forum, which will take place from 7th to 9th March 2025, at the Sendai International Centre in Japan.
 - b. The AOP 2 project focuses on installing early warning systems for typhoon disasters in the Philippines. It includes a self-assessment of the project's effectiveness from 2023 to 2024, using OECD DAC criteria: relevance, efficiency, effectiveness, impact, sustainability, and coherence. Suggestions for improvement include creating utilization plans, conducting stakeholder surveys, and offering community training programs. There is no plan of EWS installation in 2025.
 - c. AOP 3 WGDRR Annual Meeting. NDMI will continue to host the 20th WGDRR meeting in conjunction with AWG Meeting in 2025.
 - d. AOP 4 Benefit Evaluation of Typhoon Disaster Prevention and Preparedness Project. The Shanghai Typhoon Institute fellowship program is expected to continue in 2025. The fellowship program will be hosted by STI/CMA and co-organized by AP-TCRC. One participant from Malaysia worked in STI from 21st November to 20th December 2024.
 - e. AOP 5 Sharing Information related to DRR. Members are requested to register the Glide. WGDRR will continue to exchange information and experience related to DRR through the forum on TC Website.
 - f. At the 19th WGDRR annual meeting, Hong Kong Observatory expressed that they could continue contributing educational videos related to DRR for TC DRR public education use. The project will continue to be led by HKO.
 - g. For implementation of the proposed projects in 2025, WGDRR proposed the request of USD 26,000 to be allocated TCTF for the following items:
 - i. To allocate USD 11,000 budget of TCTF in 2025 for Capacity Building/Knowledge Sharing in DRR, due to the postponement of PRIMO Conference in Hawaii, USA
 - ii. To allocate USD 6,000 budget of TCTF in 2025 for STI Benefit Evaluation of Typhoon Project
 - iii. To allocate USD 6,000 budget of TCTF in 2025 for supporting the WGDRR Annual Meeting in NDMI, Republic of Korea
 - iv. To allocate USD 3,000 budget of TCTF in 2025 for Making Education Video related to DRR.

RECOMMENDATIONS of WGDRR

70. Based on the conclusion of discussion and deliberations, the WGDRR made the following recommendations:
- a. To request NDMI to organize the team for the project of capacity building and knowledge sharing in DRR.
 - b. To request NDMI to continue supporting the development and improvement of the early warning and alert systems related to typhoon disaster in the participating members.
 - c. To request NDMI, to continue supporting and hosting the WGDRR Annual Meeting in conjunction with AWG Meeting in 2025, in ROK.
 - d. To request STI, China to continue conducting the research of the project of benefit evaluation of typhoon disaster prevention and preparedness.
 - e. To encourage the Members to share information related to DRR on the established forum of TC Website and to register the Glide.
 - f. To request the HKO to continue providing WGDRR with a video related to typhoon disaster or severe weather and translate it into English version (voiceover and subtitle) for Members use on DRR public education.
 - g. To request the cooperation of the Synergized Standard Operating Procedures for Coastal Multi-Hazard Early Warning System Phase 3 concept SSOP III with WGDRR.
 - h. To request the Typhoon Committee to approve the proposed projects and related budget in 2025.
 - i. To appoint the new Director-General of NDMI, Dr. OH, Keumho as WGDRR Chair; to appoint Dr. Chihun LEE as Vice-Chair in replacement of Dr. Woojung CHOI; and to reappoint Mr. Marcus AYDLETT as Vice-Chair of WGDRR.

8.4. Training and Research Coordination Group (TRCG)

71. The Committee took note of the progress made in training and research activities as presented in the TRCG Report 2024. **(Appendix XII)**
72. The Committee thanked Hong Kong Observatory for hosting research fellowship programs in 2024.
73. The Committee expressed gratitude to Thai Meteorological Department for hosting the Typhoon Committee Roving Seminar in December 2024.
74. The Committee took note of the successful RSMC Tokyo training attachment of forecasters in January 2025, and thanked JMA and WMO TCP for continuously supporting this capacity-building initiative.
75. The Committee took note of the successful CMA's Typhoon Forecaster Training Programme in 2024, and thanked CMA for continuously supporting this capacity-building initiative.
76. The Committee took note of the successful 1st AP-TCRC forum in 2024 and thanked AP-TCRC for continuously supporting this capacity-building initiative.
77. The Committee appreciated TRCG's input in support of training and research activities in connection with TC's cross-cutting projects.

78. The Committee expressed gratitude to Dr. Eun Jeong CHA, co-vice-chair of TRCG, for her invaluable contributions to TRCG over the years.

RECOMMENDATIONS of TRCG:

79. Based on the discussion in the TRCG Meeting on 13 February 2025 and as presented in the TRCG Report 2024, TRCG recommended the Committee to:
- a. Endorse the TRCG Work Plan for 2024 – 2027.
 - b. Endorse TRCG AOP 2025.
 - c. Appoint Ms. Seonghee WON to be vice-chairperson of TRCG
 - d. Reappoint Dr. Anh Tien DO and Mr. CHOY Chun-wing to be Chairperson and vice-chairperson of TRCG.

IX. REPORTS OF THE TCS AND AWG (agenda item 9)

9.1 Activities of TCS

80. The Committee took note of the report of the Typhoon Committee Secretariat (TCS). Details presented in **Appendix XIII**.
81. The Committee expressed its appreciation for the effective and efficient secretariat services and support provided by TCS in 2024. TCS successfully coordinated the activities of three WGs, AWG, and TRCG, supported Members to host the TC Annual Session and TC 19th IWS/AP-TCRC Forum, supported Members' activities, and executed other decisions of the Committee
82. The Committee noted that TCS, under the guidance from AWG, has proposed the Typhoon Committee Research Award for Young Scientist. The purpose of this award is to encourage and recognize young scientists in the Typhoon Committee Region who have made distinguished contributions to typhoon-related research, particularly those connected with Typhoon Committee activities.
83. The Committee expressed its appreciation for the significant efforts made by TCS in 2024 on enhancing the internal capacity of the Secretariat. These efforts included the updating the TC webpage, promoting exchanges and visits to high-level officials from the Members and related agencies, and enhancing the visibility of the Committee across the region. The Committee also appreciated TCS/AWG for reviewing and proposing updated arrangements of releasing meeting documents online based on Members' feedback.
84. The Committee expressed its gratitude for the efforts undertaken by TCS in 2024 on mobilize resources, including expertise, in-kind contributions, and funding. Such initiatives should be further encouraged in the future to strengthen and support the activities and enhance the visibility of the Committee.
85. The Committee expressed its high appreciation for the strong support provided by Macao, China to TCS in the past years. Additionally, the Committee acknowledged the cooperation implementing the Agreement between the Government of the Macao Special Administrative Region of the People's Republic of China and the ESCAP/WMO Typhoon Committee regarding Administrative, Financial, and Related Arrangements for the Typhoon Committee Secretariat

86. The Committee expressed its appreciation to Members for their contributions to the Typhoon Committee Trust Fund and in-kind contributions. Furthermore, the Committee encouraged Members to sustain their support for the activities of the Committee.

CONCLUSIONS of TCS

87. The Session was noted that, the following items should be highlighted:
- a. An effective Secretariat is crucial for the Committee to implement decisions, coordinate activities, and achieve its strategic goals. TCS is dedicated to building its capacity, improving efficiency, actively engaging in regional initiatives, and engaging collaboration with regional and international organizations.
 - b. Resource mobilization is a key focus of the Committee's strategic plan. Since the 44th Session in Hangzhou in 2012, the Typhoon Committee decided that TCS will serve as the main implementer of the Committee's resource mobilization efforts. It is essential for TCS to undertake further research and provide clear, actionable recommendations to enhance resource mobilization for the Committee's consideration.
 - c. The Typhoon Committee's "Strategic Plan" (2022–2026) will conclude at the end of 2026, with the new "Strategic Plan" (2027–2031) scheduled to begin in 2027. Under the guidance of the AWG, TCS will continue to support the Committee in preparing the new Strategic Plan.
88. Based on the experience of routine operation in 2024 and in the past years, and considering needs and potential developments, TCS made the following suggestions to TC 57th Session for consideration:
- a. To allocate US\$33,500 from TCTF for supporting overall TCS activities next year; US\$5,000 for supporting 20th IWS and related activities.
 - b. To support TCS to enhance resource mobilization efforts.
 - c. To support TCS to communicate and interact with other international organizations to enhance the visibility of the Typhoon Committee.
 - d. To promote internship opportunities for TC Members.
 - e. To request WGs, in collaboration with TCS to enhance the effectiveness and efficiency of their activities by monitoring and evaluating their initiatives, including Annual Operating Plans (AOPs), aligning with the stated mission in the Strategic Plans 2022-2026 and UN Early Warning for All initiative.
 - f. To note and endorse the updated arrangements in releasing TC meeting documents online for Members/public's access.
 - g. To express gratitude to Members for their contributions to the TCTF and in-kind contributions, while encouraging ongoing support for the Committee's activities.
 - h. To thanks Macao Government, through SMG, for supporting of TCS in the past years, and thanks for increment of the endowment fund to TCS and for cooperating to implement the Agreement between the Government of the Macao Special Administrative Region of the People's Republic of China and the ESCAP/WMO Typhoon Committee regarding Administrative, Financial and Related Arrangements for the Typhoon Committee Secretariat.

9.2 Activities of AWG

89. The Committee was informed of the activities and major issues discussed at the AWG Meetings in 2024 and prior to the 57th Session of the Typhoon Committee (**Appendix XIV**).
90. The Committee was informed of the proposed budget for 2025/2026 and noted that there was no special budget proposed in 2025/2026.
91. The Committee was briefed on the initial plan and tentative timeline for preparing Typhoon Committee's Strategic Plan for 2027-2031 (Appendix XIV). The Committee also noted that China expressed an interest in taking lead in coordinating the drafting of the new Strategic Plan.
92. The Committee expressed its appreciation to AWG for offering advice and support to TC Chairperson and TCS in following up the key issues identified at the last Session and in coordinating key TC activities.

RECOMMENDATIONS of AWG

93. AWG recommended the Committee to:
 - a. Recognize and thank Malaysia for their leadership and great effort in hosting the 56th Session of the Typhoon Committee in Kuala Lumpur, Malaysia during 27 February – 1 March 2024.
 - b. Recognize and thank China for their exceptional effort in preparing and hosting the highly successful 19th Integrated Workshop/AP-TCRC Forum in Shanghai, China during 19-22 November 2024.
 - c. Take note of the progress and recommendations made in the planning and implementation of Typhoon Committee's activities, including the preparation of the budget for 2025/2026, the proposed Typhoon Committee Research Award for Young Scientist, the review on the Member's Annual Contribution to the TCTF, and the summary report on resource mobilization
 - d. Take note of the plan and tentative timeline for preparing the Strategic Plan for 2027-2031 and request TCS to coordinate the setting up of the drafting team.

X. TCTF MEMBER'S ANNUAL CONTRIBUTION (agenda item 10)

94. The Committee took note of the background information provided by the AWG and TCS on the review of the income and expenditure of TCTF and Member's annual contribution as expressed in **Appendix XV**. It also noted the discrepancies between the proposed budgets and actual expenditures in recent years.
95. The Committee expressed its appreciation to the AWG and TCS in reviewing the TCTF status and the Working Group Chairs in alleviating the deficit in TCTF budget in the past few years.
96. The Committee examined the AWG's findings and noted the need to overcome the structural deficit. It discussed the need of adjusting Member's annual contribution for TCTF at an opportune time, based on actual expenditures and financial resources needed for future priority activities of the Committee with a view to achieving a sustainable budget, acceptable for Members.

XI. SUMMARY REPORT ON RESOURCE MOBILIZATION (RM) (agenda item 11)

97. The Committee noted the presentation made by TCS and relevant key findings of the research on resource mobilization (**Appendix XVI**), as per AWG's advice.
98. The Committee expressed its appreciation to TCS for their great effort in conducting the research on resource mobilization. WMO recommended connecting RM when developing the next Strategic Plan for the Committee.
99. TC Chairperson requested TCS to setup a task team to further explore this matter and, if appropriate, draft relevant mechanisms and guidelines.

XII. ELECTION OF THE AWG CHAIR (agenda item 12)

100. The Committee was informed Dr. T.C LEE from Hong Kong, China successfully completed the second two-year term as AWG Chairperson.
101. The Committee was informed that, according to the Terms of Reference for the AWG, the term of service for the AWG Chairperson is two years and the limit of service for the Member providing the Chairperson shall be two consecutive terms.
102. The Committee was informed that the TCS had solicited nominations from Members with two candidates applying for the position: Mr. Tom EVANS, nominated by the United States of America, and Dr. Sukrit KIRTSANG, nominated by Thailand.
103. The Committee took note of the presentations made by both candidates, which outlined their backgrounds and perspectives on key issues concerning the Typhoon Committee.
104. The Committee expressed its appreciation for the voting process organized by the TCS during the Session. The votes were counted, the new AWG Chairperson was announced.
105. The Committee endorsed Mr. Tom EVANS as the new AWG Chairperson for a two-year term through TC59.

XIII. TYPHOON COMMITTEE RESEARCH AWARD FOR YOUNG SCIENTIST (agenda 13)

106. The Committee took note of the proposal and the presentation made by AWG Chairperson on the Typhoon Committee Research Award for Young Scientist.
107. The Committee discussed and approved the proposal to setup the Typhoon Committee Research Award for Young Scientist (**Appendix XVII**).
108. The Committee requested TCS to implement the Typhoon Committee Research Award for Young Scientist starting from 2025.

XIV. PUBLICATIONS (agenda item 14)

14.1. Publications by TCS

109. The Committee took note of the publications of the Typhoon Committee in 2024.
110. The Committee noted with appreciation the all-Members' contributions to the publications of Typhoon Committee which have promoted the visibility and transparency of TC.

111. The Committee further urged Members to take measures and actions for continuing support the TC publication and making contributions to the TCRR Journal especially.

14.2. Publications by WMO

112. The Committee was informed of recent WMO publications, which are available on the WMO e-library. These publications include information related to the UN Early Warnings for All Initiative (EW4All).
113. The Committee was presented with the 2023 "State of the Climate" series, covering:
- State of the Global Climate
 - State of the Climate in Asia
 - State of the Climate in the South-West Pacific
114. For 2024, the Committee was introduced to the State of Climate Services and the Global Climate Update prepared for United Nations Climate Change Conferences (COP) 29 in November 2024.
115. Additionally, several publications relevant to the hydrological community were presented, such as the State of Global Water Resources, Strategy for the Flash Flood Guidance System with Global Coverage, and the Associated Programme on Flood Management. The Guidelines for WMO Members on Business Continuity Management are also available in the WMO e-library.
116. Finally, TC Members were reminded of the COPE Disaster Series – Early Warnings for Youth, which can be translated into local languages.

14.3. Publications by ESCAP

117. The Committee was informed and took note on recent ESCAP publication on Asia-Pacific Disaster Report 2024 for ESCAP Subregions for South-East Asia & East and North-East Asia, titled Targeting Transformative Disaster Risk Resilience.

XV. PROGRAMME FOR 2025 AND BEYOND (agenda item 15)

15.1. Retired and new tropical cyclone names

118. The Committee noted Republic of Korea provided DAENAMU, **BORI** and SALGU as replacement names for DOKSURI.
119. The Committee noted Viet Nam provided **SAOBIEN**, DE-MEN and SAMCAM as replacement names for SAOLA.
120. The Committee noted China provided **TIANMA**, HONGHU and FEILIAN as replacement names for HAIKUI.
121. The Committee noted the request from China and the Philippines to retire the name of YAGI and requested Japan to provide replacement names.
122. The Committee noted the request from the Philippines to retire the names of EWINIAR, YAGI, KRATHON, TRAMI, KONG-REY, TORAJI, USAGI and MAN-YI and to request Micronesia, Japan, Thailand, Viet Nam, Cambodia, Democratic People's Republic of Korea and Hong Kong, China to provide replacement names.
123. The Committee noted the email from United Kingdom Met Office for concern about the name of JEBI and requested Republic of Korea to provide a replacement name.

XVI. COORDINATION WITH OTHER ACTIVITIES OF THE WMO TROPICAL CYCLONE PROGRAMME (agenda item 16)

124. The Committee agreed to share the information on Education and Training opportunities on WMO regional association community webpages, where appropriate.

16.1. Coordination with WMO Activities

125. The Committee was informed by the WMO Secretariat of the relevant resolutions from WMO constituent bodies, including:
- a. Resolution 1 of the Executive Council (EC-78, June 2024) – Strategic priorities – WMO Roadmap for Early Warnings for All (EW4All) Initiative: urging Members to support the successful implementation of Multi-Hazard Early Warning Systems within their national context and encouraging Members to share best practices. An update on the EW4All progress after two years of implementation was also presented.
 - b. Resolution 11 (EC-78, June 2024) – presenting the Business Continuity Management (BCM) approved guidelines. The Typhoon Committee Members were encouraged to develop region-specific BCM guidance and tools for tropical cyclone-related activities. The contact is Ms Xiao Zhou xzhou@wmo.int.
 - c. Resolution 25 (EC-78, June 2024) describing the WMO Major Programmes for the 19th financial period, including the updated description of the Tropical Cyclone Programme
 - d. Resolution 2 of the WMO Technical Commission for Services (SERCOM-3, March 2024) presenting the SERCOM Work Programme 2024-2027
 - e. Decision 3 (SERCOM-3) describing the Process for the amendments to the Technical Regulations to include Early Warning Systems.
 - f. Decision 6 (SERCOM-3, March 2024) related to the addition of the TC forecaster competencies in the Compendium of WMO Competency Frameworks (WMO-No. 1209)
 - g. Recommendation 9 of the WMO Technical Commission for Infrastructure (INFCOM-3, April 2024) to include additional mandatory TC parameters to the WMO Integrated processing and Prediction System Manual.
126. TCP activities during the inter-sessional period were highlighted as follows, and WMO Secretariat informed that all the documents are available via the <https://community.wmo.int/en/tropical-cyclone-programme-tcp-events-and-activities>
- a. Training and Capacity Development
Workshops on TC Forecasting and Warning in Miami, Florida, USA from 8-12 April 2024, in Nadi, Fiji, 14-18 and 21-25 October 2024 (respectively regular and advanced).
RSMC La Reunion co-organized the Fifth Miniforum on Tropical Cyclone Outlook in the Southwest Indian Ocean for humanitarian agencies (online, 26 October 2024)
RSMC attachment trainings for tropical cyclones in New Delhi, India (19-30 August 2023), and in Tokyo, Japan from 14-23 January 2025.
 - b. TCP regional bodies sessions were conducted as follows:
RA IV Hurricane Committee (HC-46, Panama City, Panama, 18-22 March 2024) (HC-47 is planned in El Salvador, 31 March-3 April 2025, back-to-back with the RA-19 session and the meeting of the Regional Subprogramme Management Team (RSMT) of the Severe Weather Forecasting Programme (SWFP) for Eastern Caribbean).
RA V Tropical Cyclone Committee for the South Pacific and Southeast Indian Ocean (RAV TCC-22, Brisbane, Australia, 30 July- 1 August 2024, back-to-back with the RSMT SWFP South Pacific)

RA I Tropical Cyclone Committee for the Southwest Indian Ocean (RA I TCC-Ext 2024, online, 12 September 2024) (RAI TCC-26 planned in Seychelles, 6-10 October 2025 - TBC)
PTC-51, online, 16-19 December 2024

- c. Global technical guidance and coordination – Advisory Group on Tropical Cyclones
The main objective of this Group – subsidiary body of SERCOM and the Standing Committee on DRR - is to provide technical guidance and coordination in support of the delivery of globally consistent tropical cyclone-related services. The work includes updating regulations, improving coordination among tropical cyclone centers, and fostering engagement between operational and research communities. It is a very active Group, meeting twice a year. The working documents and final reports of the AG-TC meetings are available here.

Its priorities and future activities are listed below:

- Further developing the TC Impact-Based Forecasting products
- Developing probabilistic products
- Following-up and supporting the materialization of the technical recommendations from the International Workshop on Tropical Cyclones (IWTC-10, Bali, Indonesia, 5-9 December 2022)
 - Addition of mandatory TC parameters into the WIPPS Manual (WMO Integrated Processing and Prediction System)
 - Trainings – design of webinars on specific topics of interest such as AI
 - Difficult TC cases added in TCP database
- RSMC Compliance review – ongoing – by INFCOM-4 (2026)

127. WWRP and TCP have planned to organize the 11th International Workshop on Tropical Cyclones (IWTC-11) in Shanghai, China (TBC) from 16 to 20 November 2026 (TBC). The IWTC is a quadrennial forum for tropical cyclone community (both researcher and forecasters) to discuss together all aspects related to tropical cyclones with particular focus on track, intensity, structure, related hazards, and societal impacts.

16.2. Coordination with ESCAP Activities

128. The Committee was informed and took note on ESCAP activities; Early Warnings for All; Committee on Disaster Risk Reduction and Disaster Resilience Week; ESCAP Multi-donor Trust Fund for Tsunami, Disaster and Climate Preparedness.

XVII. SUPPORT REQUIRED FOR THE COMMITTEE'S PROGRAMME (agenda item 17)

17.1. Typhoon Committee Trust Fund (TCTF)

129. The Committee reviewed the final statement of account of TCTF for the period of 1 January to 31 December 2024 as in the Appendix B and the final statement for 1 January to 31 December 2023 as in **Appendix XVIII**, submitted by the representative of the WMO Secretariat. The statement for 2023 had gone through auditing by WMO external auditors. The auditing report for 2023 statement had been communicated to TCS. The Committee expressed appreciation to WMO Secretariat for its good management of the TCTF.
130. The Committee encouraged its Members to continue and possibly enhance Members' contribution to the Fund, although on voluntarily basis, for the purpose of sustainable supporting of activities of the Committee.
131. The Committee was informed by TCS, the summary of income and expenditure from 1 January to 31 December 2022 and 2023 and the provisional summary of income and expenditure for 2024 related to the execution of the Work Plan 2022, 2023 and 2024. In addition, provisional summary of income and expenditure from 1 January to 31 March 2025 and summary of TCTF

budget 2022/2023, 2023/2024 and 2024/2025 with additional three months from January to March 2023 to 2025 was provided as reference. **(Appendix XIX).**

17.2. In-kind Contributions

132. The Committee expressed appreciation for the in-kind contributions from some Members, namely China; Hong Kong, China; Japan; Malaysia; Republic of Korea; Thailand, USA and Viet Nam. The Committee also invited the other Members to report their in-kind contributions, quantifying the corresponding unit of Man-months that have consumed in actions related to TCTF projects. **(Appendix XX)**
133. The Committee also expressed the importance of having in-kind contributions with correspondence values.

17.3. Approval of Typhoon Committee Trust Fund (TCTF) 2025/2026

134. The Committee noted the report of 2024/2025 budget presented by AWG Chairperson.
135. The Committee discussed and approved the TCTF budget proposal for 2025/2026 **(Appendix XXI).**

XVIII. DATE AND PLACE OF THE 20TH IWS (agenda 18)

136. The Committee was informed that Macao, China will host the 20th IWS and High-Level Forum in Macao, China. The proposed dates are 02-05 December 2025, with Macao, China providing financial support for Members (PR, 3 delegates of Members, WG Chairperson and Vice-Chairpersons) on the 1st day for the High-Level Forum. The final arrangements will be confirmed and later communicated to TCS.

XIX. DATE AND PLACE OF THE 58TH TC SESSION (agenda 19)

137. The Committee was informed of the kind offer of Republic of Korea to host the 58th Session in 2026. The tentative dates would be early of March in 2026, and venue and final arrangements will be confirmed and later communicated to TCS.

XX. HOSTING OF THE 21ST INTEGRATED WORKSHOP (IWS) AND 59TH TC SESSION (agenda 20)

138. The Committee was informed that based on the Mechanism for Hosting Sessions, the 21st IWS will be held in ESCAP facility. The cost involved on the room charges were presented and the dates are blocked for 01-04 December 2026.
139. The Committee approved the dates for the 21st IWS in 2026 and the allocation of USD7,000 for room charges to be included in the next budget 2026/2027.
140. The Committee was informed that the Singapore is willing to host the 59th Session of Typhoon Committee in 2027. The final date and place will be confirmed in due course by Singapore and later communicated to TCS.

XXI. OTHER BUSINESS (agenda item 19)

141. The USA informed that the Satellite Analysis branch of NOAA will discontinue the subjective Dvorak Satellite Analyses. Therefore, the USA invited Members to share real-time Dvorak Analyses.

XXII. ADOPTION OF THE REPORT (agenda item 20)

142. The Committee adopted the report of the session at 11:17 am, 20 February 2025.

XXIII. CLOSURE OF THE SESSION

143. The delegates from the Members of the Typhoon Committee, representatives of WMO and TCS expressed their thanks and appreciation to the PAGASA for the successful hosting for organizing the Fifty-Seventh Session of the Typhoon Committee. They also expressed gratitude to Dr. Nathaniel SERVANDO, Administrator of PAGASA and his staff for the warm hospitality and excellent arrangements made.
144. The Session was closed by the Chairperson at 11:55am, 20 February 2025.