



ESCAP/WMO
Typhoon Committee



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2nd VIDEO CONFERENCE
**REPORT OF THE
FIFTY-SECOND SESSION
OF TYPHOON COMMITTEE**



HOSTED BY HONG KONG, CHINA
10 JUNE 2020

52

TABLE OF CONTENTS

2nd VIDEO CONFERENCE Fifty- Second Session of Typhoon Committee

	PART I – DECISIONS OF THE COMMITTEE	1
	PART II – PROCEEDINGS OF THE COMMITTEE	2
I.	OPENING REMARK (agenda item 1)	2
II.	ADOPTION OF THE AGENDA (agenda item 2)	2
III.	REPORT ON TC'S KEY ACTIVITIES AND OVERVIEW SUMMARY OF MEMBERS' REPORTS (agenda 3) 3.1 Report on TC's key activities and main events in the region 3.2 Overview summary of Members' Reports 3.3 AWG update	2
IV.	REVIEW OF ACTIVITIES OF RSMC TOKYO AND AMENDMENTS OF TOM (agenda 4) 4.1 Review of the activities of RSMC Tokyo 2019 4.2 Typhoon Committee Operational Manual (TOM)	3
V.	UPDATE OF SEQUENTIAL LIST TABLE OF ANNUAL SESSIONS AND INTEGRATED WORKSHOP (IWS) (agenda item 5)	6
VI.	PROGRAMME FOR 2020 AND BEYOND (agenda item 6) 6.1 Replacement of Typhoon Names	6
VII.	SUPPORT REQUIRED FOR THE COMMITTEE'S PROGRAMME (agenda item 7) 7.1 Report on Typhoon Committee Trust Fund (TCTF) 7.1.1 Summary income and expenditure year 2017 and 2018; Provisional summary income and expenditures from 1 January 2019-31 Dec 2019 7.2 Report on In-kind contributions	7
VIII.	HOSTING OF THE 16TH IWS AND 54TH TC SESSION	7
IX.	OTHER BUSINESS (agenda item 9) 9.1 Update of WGM recommendations 9.2 Discussion on the updating of Typhoon Committee Rules and Procedures for Meetings/Sessions arrangements under special or emergency situations	7
X.	CLOSURE OF THE 2nd VC SESSION (agenda item 10)	8

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PART I – DECISIONS OF THE COMMITTEE

1. The Committee decided to:
 - a. Consider the key tropical cyclone impacts on Members in 2019 and review the initiatives and activities to be pursued in support of the 21 TC Priorities to mitigate future impacts.
 - b. Approve the update recommendations submitted by Advisory Working Group (AWG) as expressed in paragraph 14 and request TCS to send correspondence asking Members to designate a focal point for correspondence on the drafting of the Strategic Plan 2021-2025.
 - c. Request TCS to circulate correspondence inviting Members' nominations for the new AWG Chair.
 - d. Approve the recommendations submitted by AWG as expressed in paragraphs 18 and 19.
 - e. Approve the Typhoon Committee Operational Manual (TOM) with the amendments provided in **Appendix VI**.
 - f. Approve the updated Sequential List Table for the Annual Session and Integrated Workshop (IWS).
 - g. Approve KRATHON and PULASAN as replacement names for MANGKHUT and RUMBIA, respectively, in the list of the names of tropical cyclones.
 - h. Approve the retirement of the names of tropical cyclones HAGIBIS, FAXAI, KAMMURI, PHANFONE, LEKIMA and YUTU, and request TCS to issue letters to relevant Members (Philippines, Lao PDR, Japan, Vietnam and China) to provide replacement names in accordance with the Committee's procedure.
 - i. Approve the modifications to some of the recommendations submitted by the Working Group on Meteorology (WGM) at the 1st VC as expressed in paragraph 51.
 - j. Approve the additional recommendations submitted by WGM as expressed in paragraph 52.
 - k. Request AWG to review the revised draft proposal on the Collaboration Research Center and solicit comments from Members before considering proposing an agenda item for discussion in the coming face-to-face Session.
 - l. Request TCS, in consultation with the AWG, to review and update the Rules and Procedures of the TC and, if appropriate, recommend any suitable changes to address special or emergency situations.

PART II – PROCEEDINGS OF THE COMMITTEE

I. OPENING REMARKS (agenda 1)

2. The ongoing outbreak of COVID-19 pandemic around the world has impacted the 52nd Session of the ESCAP/WMO Typhoon Committee (TC52), resulting in the cancellation of the face to face Session of TC52 originally scheduled in February 2020 and re-scheduling of the Session in Hong Kong, China. The first video conference (VC) was held on 6 March 2020 with the time-critical agenda items to be approved by the Committee. The final report can be found here.
<http://www.typhooncommittee.org/52nd/TC52FINAL.html>
3. Originally, the Committee planned to conduct a face to face Session of TC52 in Hong Kong, China in late May 2020 to discuss and approve/endorse most of the remaining agenda items of TC52. Any outstanding agenda items will be incorporated into the 53rd Session of Typhoon Committee (TC53), to be hosted by Japan in 2021. Owing to travel restriction and quarantine measures associated with the COVID-19 pandemic, the Committee decided to conduct the remaining Session by video conference instead.
4. The 2nd VC hosted by Hong Kong, China was then scheduled on 10 June 2020.
5. The opening ceremony of the Session began at 09:00 am on Wednesday, 10 June 2020 (Hong Kong Time). Dr. C. M. CHENG, the Director of the Hong Kong Observatory (HKO) and the Chairperson of the TC52, presided at the opening.
6. The 2nd VC was attended by 82 participants from 12 out of 14 Members of the Typhoon Committee, namely: China; Hong Kong, China; Japan; Laos People’s Democratic Republic (Laos PDR); Macao, China; Malaysia; the 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 2nd VC.
7. The 2nd VC was also attended by an observer from the International Federation of Red Cross and Red Crescent Societies (IFRC). The list of participants can be consulted in **Appendix I**.

II. ADOPTION OF THE AGENDA FOR THE VC (agenda item 2)

8. The Committee adopted the agenda for the 2nd VC. (**Appendix II**)

III. REPORT ON TC’S KEY ACTIVITIES AND OVERVIEW SUMMARY OF MEMBERS’ REPORTS (agenda item 3)

3.1 Report on TC's Key Activities and Main Events in the Region (Appendix III)

9. The Committee took note of the report of the Chairperson of the 51st Session of the Typhoon Committee on the TC's Key Activities and Main Events in the Region in 2019, including the Chairperson’s activities on behalf of the TC.

10. The Committee expressed its appreciation for the contributions of Mr. YU Yong and Mr. SHUN Chi-ming, as the Chairperson and Vice Chairperson of the 51st Session of the Committee.

3.2 Overview Summary of Members' Reports (Appendix IV)

11. The Committee took note of the Summary of Members' Reports for 2019, highlighting the key tropical cyclone impacts on Members in 2019, and the major activities undertaken by Members under the TC priorities and components during the year.
12. The Committee expressed its sincere appreciation to the 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 21 priorities identified in the TC Strategic Plan 2017-2021.

RECOMMENDATIONS OF AWG

13. AWG recommended that the Committee considers the key tropical cyclone impacts on Members in 2019 and reviews the initiatives and activities to be pursued in support of the 21 TC Priorities to mitigate future impacts.

3.3 Advisory Working Group (AWG) Updates

14. The Committee was informed that the USA would take the lead in coordinating and drafting the new Typhoon Committee Strategic Plan for 2021-2025 and requested TCS to send correspondence asking Members to designate a focal point for future correspondence, primarily by email and video conference. The goal was to have the first draft completed prior to the 15th IWS and a near final draft ready for discussion and approval at TC53.
15. The Committee felt that the new Strategic Plan should reflect the main ideas of the Statement of the *High-level Dialogues on Tropical Cyclones: 10-year Vision to Protect Life and Property from Tropical Cyclones* held on the occasion of the 30th anniversary of WMO's RSMC Tokyo – Typhoon Center in Japan, and suggested that the drafting team to take this into consideration.
16. The Committee also took note that Mr. Raymond TANABE's second term as AWG Chair would expire at TC53 and requested TCS to circulate correspondence inviting Members' nominations for a new AWG Chair.
17. The Committee expressed its appreciation to Mr. Raymond TANABE for serving as AWG Chair in the last two terms.

RECOMMENDATIONS OF AWG

18. AWG recommended the Committee to endorse the appointment of Mr. TANAKA Nobuyuki as the new co-Vice Chair of the AWG, replacing Mr. EITO Hisaki.
19. AWG recommended the Committee to endorse the appointment of Mr. TANAKA Nobuyuki as the new Typhoon Committee Operational Manual rapporteur, replacing Mr. EITO Hisaki.

IV. REVIEW OF ACTIVITIES OF RSMC TOKYO AND AMENDMENTS OF TOM (agenda item 4)

4.1 Review of the activities of the Regional Specialized Meteorological Center (RSMC) Tokyo 2019 (Appendix V)

20. The Committee noted with appreciation the review of 1) RSMC advisories, 2) products, and 3) operational activities, and changes made in 2019. It noted the forecast verification results for 29 TCs that reached TS intensity or higher which formed in 2019: the forecast track average errors for 2019 of 80 km (66 km in 2018), 127 km (112 km), 190 km (179 km), 263 km (277 km) and 374 km (409 km) for 24-, 48-, 72-, 96- and 120-hour forecasts, respectively, the annual mean RMSEs for central pressure forecasts of 11.2 hPa (13.8 hPa), 15.1 hPa (18.7 hPa), 17.6 hPa (20.4 hPa), 18.2 hPa and 20.3 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 5.1 m/s (5.4 m/s), 7.1 m/s (6.9 m/s), 8.0 m/s (7.3 m/s), 8.4 m/s and 9.3 m/s respectively*.

* Five-day tropical cyclone intensity forecast has been operational since 14 March 2019; therefore, T1901 and T1902 that formed before 14 March are not included in the above statistics for 96- and 120-hour forecasts of central pressure and maximum wind speed.

21. The Committee noted with appreciation the changes of RSMC advisories, products and operational/coordination activities in 2019, especially the commencement of the 5-day tropical cyclone intensity forecasts, the revision of the probability circles whose radii are on average approximately 20% smaller than before, and expressed situation-dependent forecast uncertainty more appropriately, and enhanced communication service on a trial basis. It also noted the planned upcoming changes, such as the commencement of 5-day forecasts for tropical depressions (TDs) which are expected to become tropical storm (TS) intensity within 24 hours.
22. The Committee expressed its appreciation to the operation of RSMC Tokyo's Numerical Typhoon Prediction (NTP) website and noted the remarkable enhancements made in 2019, such as the commencement of provision of ASWind (Atmospheric motion vector based Sea-surface Wind), probabilistic forecast maps for storm winds and Madden-Julian Oscillation and summer monsoon activity, as well as the expansion of contents related to atmospheric circulation data. It also noted the changes planned in the near future.
23. The Committee expressed its appreciation to the continuous contribution of RSMC Tokyo to the regional Storm Surge Watch Scheme (SSWS), especially the provision of various products including storm surge forecast distribution maps, time-series charts at selected stations and multi-scenario storm surge predictions as well as week-range wave forecasts in which probability forecasts on peak wave period in addition to significant wave heights have newly been made available since January 2019. The Committee also noted with appreciation that RSMC Tokyo had started provision of astronomical tides estimated by a global ocean tide solution (FES2014)*1 for 27 stations on 25 February 2019, where sea level observation data was not available. The Committee again encouraged Members to make their sea level observation available to contribute to the verification activity.

*1: FES2014 was produced by NOVELTIS, LEGOS, CLS Space Oceanography Division and CNES. It is distributed by AVISO, with support from CNES (<http://www.aviso.altimetry.fr/>)

24. The Committee noted with appreciation the continuous efforts and progress of RSMC Tokyo's development of tropical cyclone genesis guidance, using early Dvorak Analysis and global ensemble.
25. The Committee was pleased to note the progress of the regional radar network development project, whose experimental exchange of radar composite data among RSMC Tokyo, the Thai Meteorological Department (TMD) and the Malaysian Meteorological Department (MMD) started in 2016. The project has been expanded and three more Members, Lao P.D.R., the Philippines and Viet Nam joined in 2018. The Committee noted with appreciation that a technical meeting for experts of the six Members and some countries of interest was held at the JMA headquarters in November 2019 to exchange information on experiences and challenges relating to regional radar data exchange and quality control, and to discuss future directions in the field. The Committee also appreciated that the Weather Radar Seminar was jointly held at the JMA headquarters as a platform for sharing expertise in radar meteorology to deepen the knowledge in this field.
26. The Committee was pleased to note the activities of the project on enhancing the utilization of Himawari-8/9 products, in which technical support for developing Rapidly Developing Cumulus Area (RDCA) identification using Himawari-8/9 data had been conducted. The committee noted with appreciation the continuous discussion and support between experts of MMD and JMA. It also appreciated that a technical web-meeting was held among experts of the Meteorological Service Singapore (MSS), TMD and the Viet Nam Meteorological and Hydrological Administration (VNMHA) on 4 February 2020 to share the outline of RDCA, including the technique for development, wide range of usage and verification methods, and to discuss activities planned in 2020.
27. The Committee noted with appreciation that RSMC Tokyo published the RSMC Tokyo Technical Review No.21 and the Annual Report on the Activities of the RSMC Tokyo Typhoon Center 2018 in April and December 2019, respectively.
28. The Committee was informed that RSMC Tokyo had started tropical cyclone satellite re-analysis in 2012 for the period from 1981 to confirm and improve the quality of the Current Intensity (CI) number in the satellite TC analysis, and that the Center had completed the re-analysis for the period from 1987 to present. It was also informed that the re-analysis for the period from 1981 to 1986 was difficult to conduct with accuracy consistent with later events due to the limited availability of satellite imageries. Based on this fact and the achievement, the Committee noted with great appreciation that RSMC Tokyo would share the whole dataset for the period from 1987 to present with Members online in 2020; the URL would be announced by RSMC Tokyo in due course.
29. The Committee noted with appreciation the operation of Himawari-8/9 geostationary meteorological satellites and further welcome the intention of RSMC Tokyo to continue providing Himawari products as well as technical support for using them.
30. The Committee was pleased to note that RSMC Tokyo conducted the 19th Attachment Training from 18 to 29 November 2019, inviting four forecasters from China, Lao PDR, Thailand and Viet Nam and three forecasters (self-funded) from Hong Kong, China; Macao, China and Malaysia among the Committee Members. Two more forecasters from Bangladesh and Myanmar also participated in the training. In addition, RSMC Tokyo invited a guest lecturer from the India Meteorological Department to give a lecture on the South Asian Monsoon and TCs in the Indian Ocean area.

31. The Committee noted the results of the annual observation exchange monitoring during the period of two tropical cyclones in 2019: Podul (1912) and Mitag (1918), which highlighted the special observation conducted by China; Hong Kong, China; Japan; the Philippines; the Republic of Korea and Thailand during the periods. It expressed its appreciation to the six Members, which provided special observation data to the Committee Members, and further encouraged all the Members to conduct additional observation, as requested by the Typhoon Committee Operational Manual - Meteorological Components (TOM).
32. The Committee noted that RSMC Tokyo was invited to consider providing tropical cyclone advisory bulletins: 1) to include general hazard information of the system; 2) to cover the full life-span of tropical cyclones from their genesis to final demise, including over land after their landfall.

4.2 Typhoon Committee Operational Manual (TOM)

33. The Committee noted that the Typhoon Committee Operational Manual (TOM) rapporteur requested WMO to publish and upload the 2020 edition of TOM on the Tropical Cyclone Programme (TCP) Website as submitted by the Rapporteur, with the amendments given in **Appendix VI**.
34. The Committee expressed its appreciation to the rapporteur for updating the TOM.

V. UPDATE OF SEQUENTIAL LIST TABLE OF ANNUAL SESSIONS AND IWS (agenda item 5)

35. The Committee reviewed the current state of the hosting mechanism for the Annual Session and Integrated Workshops. Details are given in **Appendix VII**.
36. The Committee took note of the new proposal list of hosting mechanism, and agreed to use ESCAP conference facility in Bangkok, Thailand as an alternative, allowing a reasonable time frame between hosting Session and IWS by Member.
37. The Committee was also informed by Viet Nam that they were ready to host the upcoming 15th IWS. However, due to uncertainty surrounding the situation of COVID-19, they might need to consider changing the face to face meeting to another format. Viet Nam would communicate with TCS on this issue later.

VI. PROGRAMME FOR 2020 AND BEYOND (agenda item 6)

6.1. Retired and new tropical cyclone names (Appendix VIII)

38. The Committee noted Thailand provided PHATTHAI, KAPHRAO and KRATHON as candidate replacement names for MANGKHUT and decided to accept KRATHON.
39. The Committee noted Malaysia provided PETAI, PULASAN and ROTAN as candidate replacement names for RUMBIA and decided to accept PULASAN.

40. The Committee noted the request from Japan to retire the names of tropical cyclones HAGIBIS and FAXAI and requested the Philippines and Lao PDR to provide candidate replacement names.
41. The Committee noted the request from the Philippines to retire the names of tropical cyclones KAMMURI and PHANFONE and requested Japan and Lao PDR to provide candidate replacement names respectively.
42. The Committee noted the request from China to retire the name of tropical cyclone LEKIMA and requested Viet Nam to provide candidate replacement names.
43. The Committee noted the request from USA to retire the name of tropical cyclone YUTU and requested China to provide candidate replacement names.
44. The Committee noted the remark from WMO that, in considering the replacement names, those names which were highly similar to tropical cyclone names in other basins should be avoided.

VII. SUPPORT REQUIRED FOR THE COMMITTEE'S PROGRAMME (agenda item 7)

7.1. Typhoon Committee Trust Fund (TCTF)

45. The Committee reviewed the statements of account of TCTF for the period of 1 January to 31 December 2018 and 1 January to 31 December 2019, respectively, submitted by the representative of the WMO Secretariat as shown in **Appendix IX**. The statements had gone through auditing by WMO external auditors. The auditing reports had been communicated to TCS.
46. The Committee was informed by TCS, the summary of income and expenditure from 1 January to 31 December 2017 and 2018 and the provisional summary of income and expenditure for 2019 related to the execution of the Work Plan 2017, 2018 and 2019. (**Appendix X**) In addition, provisional summary of income and expenditure from 1 January to 31 March 2020 and summary of TCTF budget 2017/2018, 2018/2019 and 2019/2020 with additional three months from January to March 2018 to 2020 was provided as reference. (**Appendix XI**)

7.2. In-kind Contributions

47. The Committee expressed appreciation for the in-kind contributions from some Members, namely China; Hong Kong, China; Japan; Malaysia; Philippines; Republic of Korea; Thailand and Viet Nam. The Committee also invited other Members to report their in-kind contributions, quantifying in the corresponding units of Man-months, and any actions related to TCTF projects. (**Appendix XII**).
48. The Committee also expressed the importance of having in-kind contributions with corresponding values and encouraged more Members to contribute with in-kind contribution on the TC activities.

VIII. Hosting of the 16th IWS and 54th TC Session (agenda 8)

49. The Committee took note, and by following the updated sequential list table of Annual Sessions and IWS, that the 54th Session would be hosted by Lao PDR and their confirmation was still awaiting. The Session might also be hosted in the ESCAP conference facility as the alternative.
50. The Committee also took note that the 16th IWS would be held in the ESCAP conference facilities.

IX. OTHER BUSINESS (agenda 9)

9.1. Update of WGM Recommendations (Appendix XIII).

51. The WGM made modifications to the following recommendations in the first VC Report of TC52:
 1. To request JMA to work on the upgrade of the storm surge model to use finite volume method (FVM) with an unstructured (triangular) grid, in which the grid resolution only around coastal regions will be increased and resources for calculation are largely saved, and to work on expanding the storm surge model domain as well as increasing the number of multi-scenario prediction using whole members of the Ensemble Prediction System (EPS).
 2. To request JMA to support AOP7 of WGH by providing NWP model data necessary for the project and available to International Centre for Water Hazard and Risk Management under the auspices of UNESCO (ICHARM), and continuing to share knowledge and experience on raising awareness by governments including the appropriate use of products.
 3. To request STI/CMA to coordinate with Chairs of WGM and TRCG and JMA to host the workshop on typhoon forecasting techniques & WGM projects progress review in China. To also request TRCG to assist in arranging the speakers and program for the workshop.
52. In addition, the WGM further made the following recommendations in the second VC of TC52:
 - a) To request JMA to add storm surge time series predictions upon request from Members.
 - b) To request JMA to publish verification results of storm surge predictions.
 - c) To request JMA to encourage Members to provide complete hourly sea level data of at least one year and sea level observations during storm surge events for improving prediction and verification.
 - d) To request JMA to hold follow-up meeting(s) upon receipt of the progress report on the project (AOP7) from the participants.
53. The Committee took note the revised draft proposal presented by Dr. LEI Xiaotu on the Collaboration Research Center (**Appendix XIV**) and requested AWG to go through the revised draft proposal and solicit comments from Members before considering adding an agenda item for discussion in the upcoming Session.

9.2. Update of Discussion on the updating of Typhoon Committee Rules and Procedures for Meetings/Sessions arrangements under special or emergency situations

54. The Committee took note that under special or emergency situations (such as COVID-19), when face-to-face TC Session cannot be conducted within a reasonable timeframe, the current Rule and Procedures of the TC may not have the necessary flexibility in adopting alternative approaches (e.g. video conference, correspondence, etc).
55. The Committee requested TCS, in consultation with AWG, to review the need to update the Rules and Procedures of the TC and, if appropriate, recommend suitable amendments to better cope with special or emergency situations for Members' consideration.

X. CLOSURE OF THE VC SESSION

56. The Vice-Chairperson of TC52, Mr. SEKITA Yasuo, delivered the closing remark for the 2nd VC.
57. The delegates from the Members of the Typhoon Committee and TCS expressed their thanks and appreciation to Hong Kong, China for the successful hosting and organizing the two VCs of the 52nd Session of the Typhoon Committee in this unprecedented time.
58. The 2nd VC Session was closed by the Chairperson at 11:35 am, 10 June 2020 (Hong Kong Time).