

**ASIA-PACIFIC TYPHOON COLLABORATIVE RESEARCH CENTER
ANNUAL REPORT 2022**

(Submitted by TCS)

ACTION REQUIRED:

The Committee is invited to:

- a) Review the progress of Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) in 2022.
- b) Provide the recommendations on AP-TCRC's planned activities for 2023 and beyond.

APPENDICES:

- A. Report on the progress of Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) in 2022

APPENDIX A

Report on the Progress of Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) in 2022

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1. Introduction

1.1 The AP-TCRC is an official institution, established with the support of the ESCAP/WMO Typhoon Committee. It aims to be a center of coordinated research and typhoon technology transfer mainly in Asia and the Pacific, and potentially over the globe. The AP-TCRC will organize

- (a) technical training on the new operational technology and products, in collaboration with scientists from the Members of the Committee;
- (b) academic exchanges to encourage scientists from the Members of the Committee to participate in the Pilot Project;
- (c) tropical cyclone international forums or other related international cooperation and related research collaborations with the Members of the Committee in the tropical cyclone communities in the western North Pacific.

1.2 The AP-TCRC aims to strengthen scientific and technical cooperation with the Committee and other related international organizations. It provides a sustainable platform for conducting collaborative research on advanced sciences and key techniques in typhoon monitoring, typhoon forecasting and modelling, and typhoon associated disaster prevention and mitigation.

1.3 The research scope of the AP-TCRC includes key techniques of typhoon numerical modelling and prediction, international tropical cyclone observation experiment and big data analytics, and scientific understanding of tropical cyclone development and variability on different scales. Furthermore, the AP-TCRC devotes its efforts to organize technical trainings, academic journals and international forums in collaboration with the Committee.

2. Major AP-TCRC Activities in 2022

Agreement on Technical Cooperation and Research Activities between TC and AP-TCRC

2.1 The Draft Agreement on Technical Cooperation and Research Activities between Typhoon Committee and the Asia Pacific Typhoon Collaborative Research Center was approved at the 54 session of Typhoon Committee. The Agreement was signed at the first Administration Group meeting of AP-TCRC.

The First Administration Group Meeting of AP-TCRC

2.2 The first Administration Group meeting of AP-TCRC was held on 9 August 2022. The meeting adopted the *Charter of the Asia-Pacific Typhoon Collaborative Research Center*, appointed the

director of the AP-TCRC, approved the rules and regulations on the management of AP-TCRC, and discussed the long-term research plan and the annual work plan of 2022.

Office Decoration and Operation

2.3 The office of AP-TCRC is located in the “Innovative Crystal” of the Lingang Science and Technology Park, Shanghai, China. The AP-TCRC is located on the 17th floor of the tallest T3 tower with a total area of 1621.13 m². The renovation of the office space has been completed and the office has started its operation.

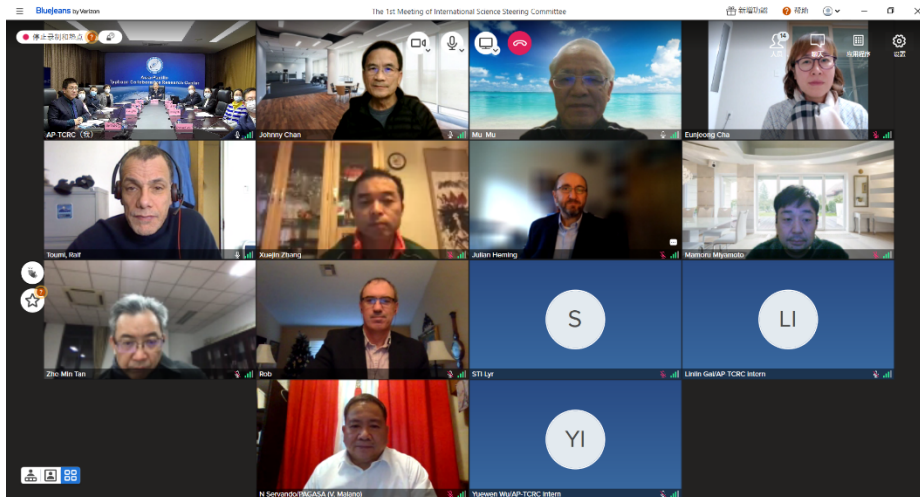


Establishment of the International Scientific Steering Committee (ISSC)

2.4 The AP-TCRC has invited 12 distinguished tropical cyclone scientists from 6 countries as members of the ISSC, which include representatives from the ESCAP/WMO Typhoon Committee. The ISSC members are responsible for:

- (a) advising on the strategic plan on the long-term goals of the AP-TCRC;
- (b) advising on annual work plan and implementation strategy of the AP-TCRC;
- (c) evaluating and advising on the achievements of cooperation projects of the AP-TCRC.

2.5 In the first meeting of the ISSC of the AP-TCRC. Prof. Lianshou CHEN, and Prof. Johnny C. L. CHAN were appointed Honorary Science Director and Science Director of AP-TCRC, respectively. Mr. Rong DONG, Vice President of the Council of AP-TCRC congratulated the meeting. The ISSC members offered advice and suggestions around the *International Tropical Cyclone Collaborative Research Guide (2023-2025)* and the 2023 work plan of AP-TCRC.



Shanghai Typhoon Collaborative Research Fund

2.6 The 2023 Shanghai Typhoon Collaborative Research Fund (STCRF) from the Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) is open to the world. The fund covers both long-term (1 year, could be extended) and short-term (2-3 months) studies. Specific areas include observing, understanding, modeling and predicting tropical cyclones, marine meteorology and related new technologies.

Time-bound Pilot Project under collaboration of AP-TCRC and Typhoon Committee

2.7 Discussions on Time-bound Pilot Project between AP-TCRC and TRCG were conducted. The research topic “Understanding of rapid intensification mechanism of tropical cyclone and influence of climate change” was included in the “Priority Funding Missions for 2023” of the *International Tropical Cyclone Collaborative Research Guide (2023-2025)*. The Time-bound Pilot Project will be covered by the STCRF.

Research Activities

2.8 During the 2022 Typhoon season, the AP-TCRC, together with several research institutions, carried out the field experiment of the impact of typhoons on coastal megacities for the first time in China. On the basis of the experiment, the typhoon modeling and digital application for coastal megacities were explored. Other studies on typhoon climate have also been conducted, and results have been published in international journals.

3. The AP-TCRC’s plans in 2023

3.1 The Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) aims to reach normal operation of the institution, have a gradual expansion of the team, and achieve some of the short-term goals in 2023. The detailed work plan is as follows.

3.2 Promote efficient operation of the institution

- (a) Improve institutional settings and scientific management of the team
- (b) Formulate the management system and regulate the operation of the center
- (c) Recruit talents worldwide and establish research teams

3.3 Launch research plan and carry out core scientific research

- (a) Collect and sort out the requirements of the Members of the ESCAP/WMO Typhoon Committee, and clarify every key task and implementation step of the scientific and technological development plan of the AP-TCRC.
- (b) Define core problems and carry out scientific research
 - Tropical cyclone scientific experiments and mechanism
 - R&D of tropical cyclone modeling
 - Multidisciplinary application
- (c) Conduct technology exchanges and training
 - Advance the level of the journal Tropical Cyclone Research and Review (TCRR)
 - Launch the “World Typhoon Distinguished Lecturer” series of lectures from the international top typhoon scientists.

3.4 Make full use of the policy resources such as the talent plan “Gathering global talents in Shanghai” and the policies related to the international talent cultivation development in Pudong New Area, residential registration policy for overseas professionals in Shanghai, fast-service channel for permanent residence application, talent rental and housing policy to attract talents in typhoon research area.