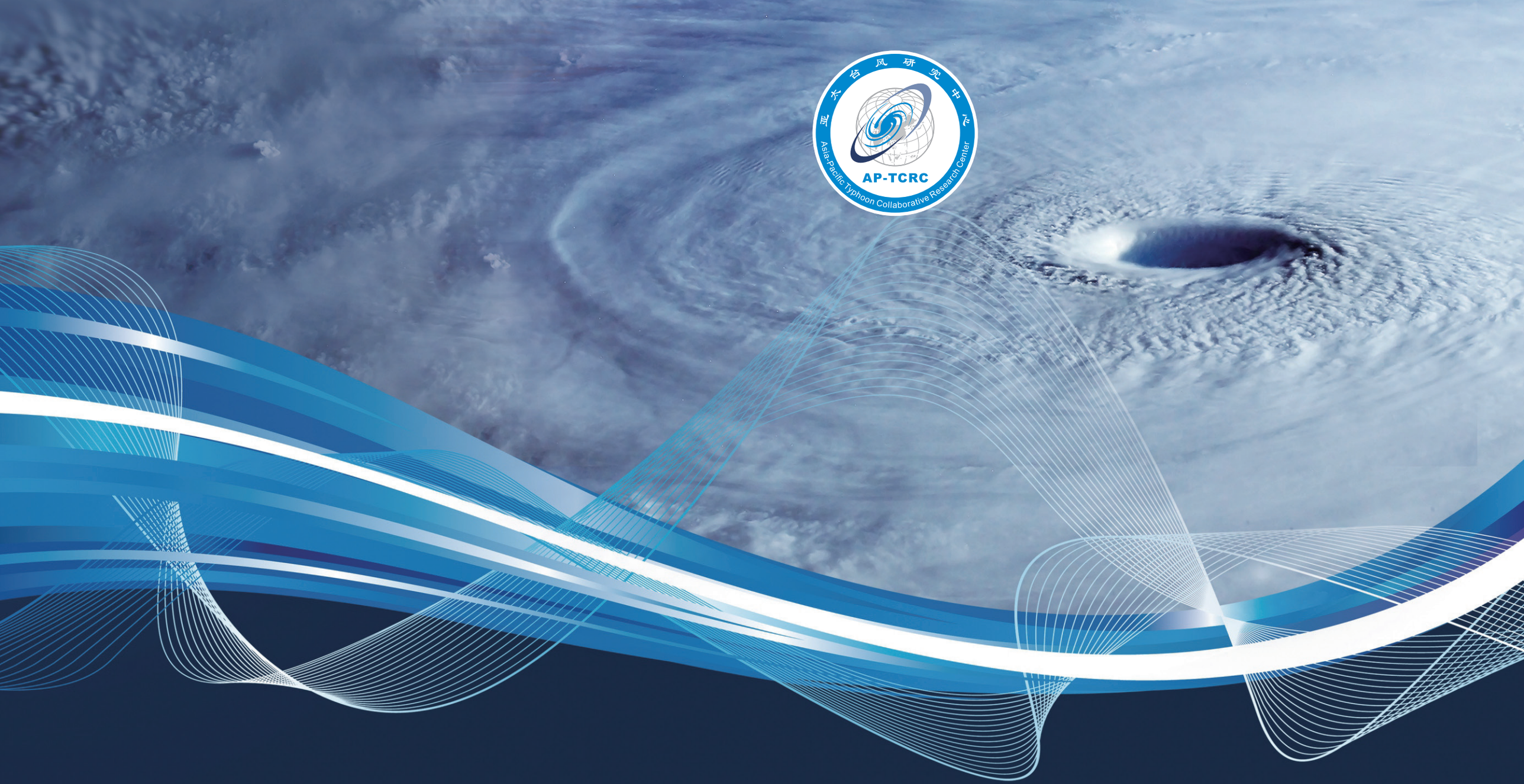

Asia-Pacific Typhoon Collaborative Research Center

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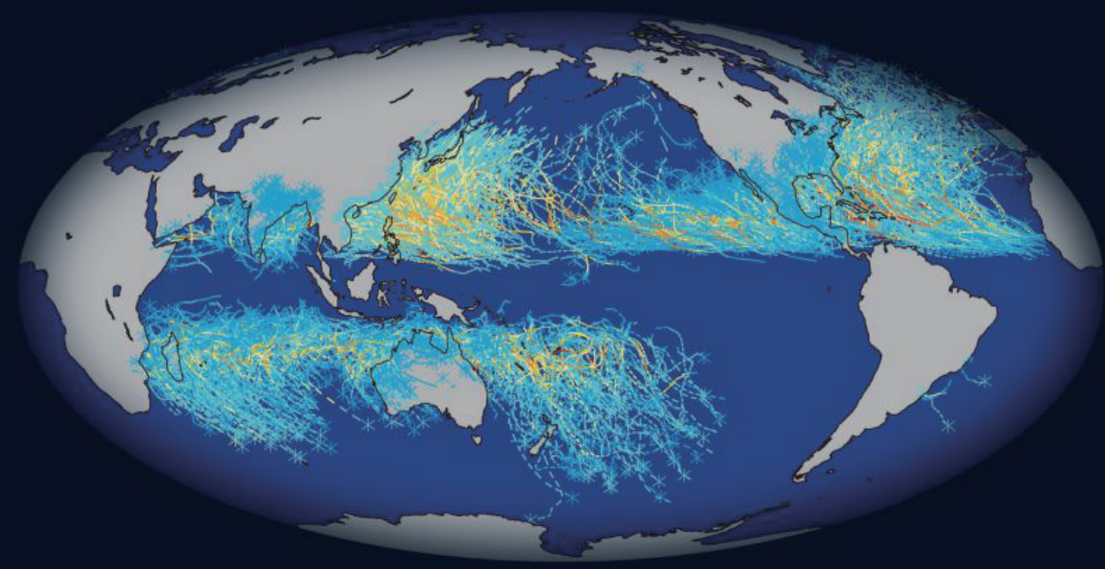
Email: zp-aptcrc@typhoon.org.cn



Asia-Pacific Typhoon
Collaborative Research Center

The Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) is a newly established international joint typhoon research unit, located in the Lingang Special Area of Shanghai, China. It is supported by the ESCAP/WMO Typhoon Committee (the Committee) and hosted by the Shanghai Municipal Government of China and the China Meteorological Administration.

2021

The 53th session of the Typhoon Committee adopted China's proposal to establish an Asia-Pacific Typhoon Collaborative Research Center in February 2021.

The Asia-Pacific Typhoon Collaborative Research Center (AP-TCRC) was inaugurated in the Chinese coastal city of Shanghai on December 1, 2021.

2022

The Agreement on Technical Cooperation and Research Activities between the Typhoon Committee and AP-TCRC was signed at the First Administration Group Meeting of AP-TCRC on August 9, 2022.

The center set up its international scientific steering committee composed of world-renowned experts in the field of tropical cyclones.

2023

The Secretary-General of the World Meteorological Organization (WMO) visited the AP-TCRC on April 14, 2023 and expressed his great appreciation for the visit.

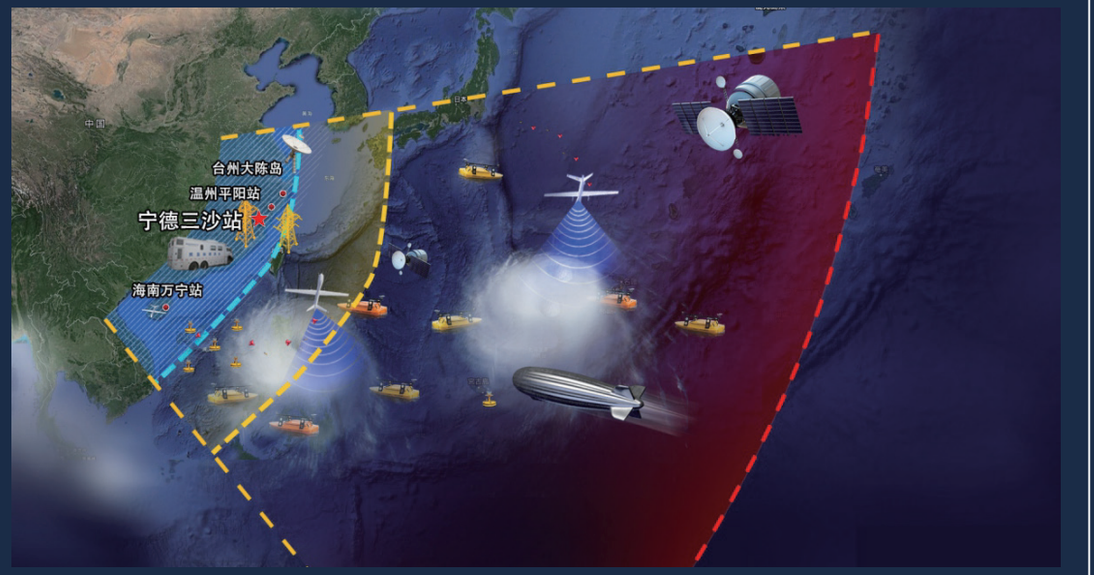
Goal

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.

Scope

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

Task One: International Typhoon Science Experiment



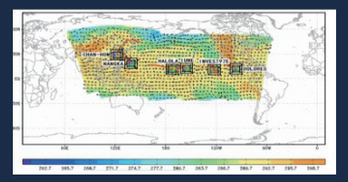
Leading the international big science program: Experiment on Typhoon Intensity Change in Coastal Area (EXOTICCA)

- Organize international typhoon experiments and observational studies, including new ground-based, satellite, aircraft, and ocean observations.
- Enhance multi-source data compilation methodologies. Assess disaster risks related to typhoons and develop effective risk management and reduction strategies.
- Investigate the impact of global climate changes on typhoons and their impacts.

Task Two: Tropical cyclone numerical modelling

1 Understand physical processes

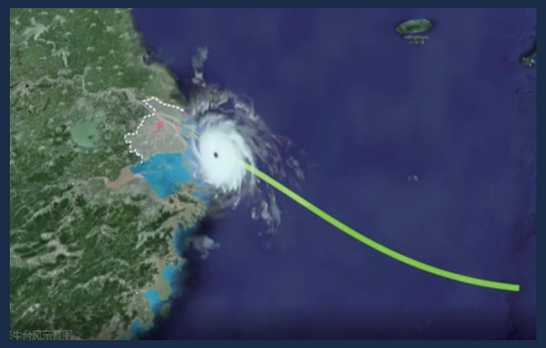
2 Improve physical parameterization schemes



3 Implement multi-scale coupled numerical modeling system

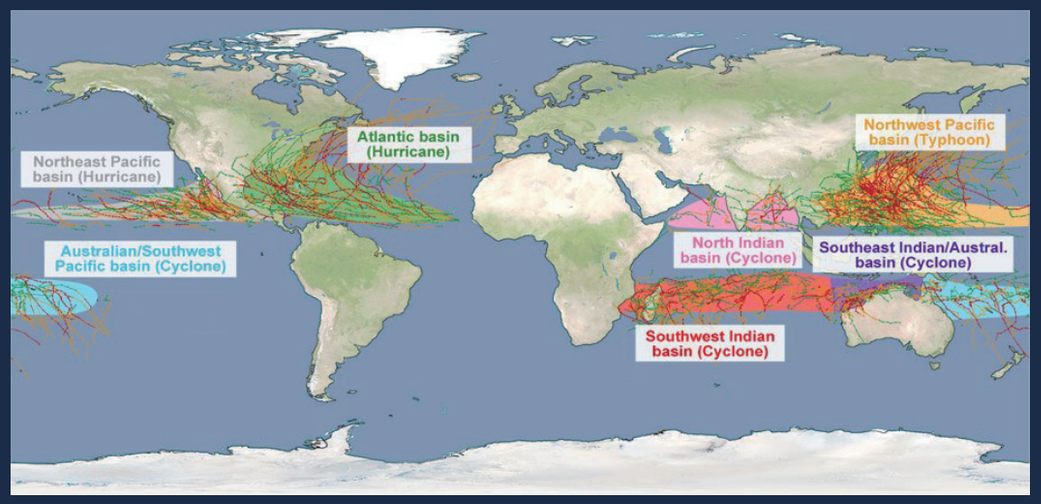
Task Three: Application of disruptive technologies in Typhoon prevention

Apply new technologies (Artificial Intelligence/Deep Learning /Internet of Things / Image Recognition) to typhoon monitoring, forecasting and disaster risk reduction.



Task Four: Research collaboration and capacity building

- Launch the “Shanghai International Forum for Tropical Cyclone Disaster Risk Reduction”;
- Provide training for tropical cyclone related technologies in Asia-Pacific Region;
- Promote regional cooperation in the framework of WMO and Typhoon Committee's capacity building.



Research Activities

EXOTICCA

The Experiment on Typhoon Intensity Change in Coastal Area (EXOTICCA) was proposed by the China Meteorological Administration (CMA) and Hong Kong Observatory (HKO) and endorsed by the ESCAP/WMO Typhoon Committee (TC). The major goals and objectives of EXOTICCA are:

- To conduct field campaigns on the structure and intensity characteristics of target offshore and landfalling tropical cyclones by employing integrated and novel observation techniques;
- To conduct demonstration research on the utilization of the synergized field observation data with the aim of deepening the understanding of the mechanisms of structure and intensity changes and improving the relevant capability of operational analyses, numerical weather prediction (NWP) model forecasts, and reliable storm surge, flooding and associated risk assessment.

TLFDP

The “World Meteorological Organization (WMO) Typhoon Landfall Forecast Demonstration Project (TLFDP)” proposal was endorsed by the Commission for Atmospheric Sciences (CAS) of the WMO during its fifteenth session held in Incheon, Republic of Korea from 18 to 25 November 2009. The main goals of the TLFDP included:

- Develop a system to collect, integrate and display real-time forecasting products for TCs in the western North Pacific, including their track, intensity, gale extent and rainstorm distributions, from various institutions;
- Undertake and integrate techniques to evaluate the accuracy of forecasts for TC track, intensity, landfall location and time;
- Comprehensively evaluate the TC forecast reliability and develop integrated forecast techniques based on the evaluation.

TCRR

Tropical Cyclone Research and Review, published by the ESCAP/WMO Typhoon Committee (TC), is an international journal focusing on tropical cyclone monitoring, forecasting, and research as well as associated hydrological effects and disaster risk reduction.
It was officially published in January 2012, and has been included by ESCI, with more than 80,000 downloads per year. The Impact Factor is 2.4 and CiteScore is 4.6.

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Scope of the journal includes:

- Reviews of tropical cyclones exhibiting unusual characteristics or behavior or resulting in disastrous impacts on Typhoon Committee Members and other regional WMO bodies;
- Advances in applied and basic tropical cyclone research or technology to improve tropical cyclone forecasts and warnings;
- Basic theoretical studies of tropical cyclones;
- Event reports, compelling images, and topic review reports of tropical cyclones;
- Impacts, risk assessments, and risk management techniques related to tropical cyclones.

Experts in AP-TCRC

Prof. Johnny C. L. Chan
Science Director

Dr. Robert Fulton Rogers
Science Director and Chief Scientist for
Typhoon Observations and Research

Ms. Nanette Lomarda
International Liaison Officer

Visiting Scholars

- Dr. Kevin Cheung:
  Coupled Network Analysis of Typhoon Rainfall during Landfall
- Prof. Porpattama Hammachukiattikul:
  Understanding of rapid intensification mechanism of tropical cyclone and influence of climate change
- Dr. Xiangbo Feng:
  Multi-timescale prediction methods for typhoons
- Dr. John Leonard McBride:
  Climate and landfalling typhoon precipitation forecasts

Location

The AP-TCRC is nestled in the “Innovative Crystal” of the Lingang Science and Technology Park, Shanghai, China. The “Innovative Crystal” is composed of three crystal-like towers and is a landmark building complex in the park.

The AP-TCRC is located on the 17F of the tallest T3 tower with a total floorage of 1621.13 m^2. The seaview office building provides supporting facilities including large conference center, high-quality cafeteria, convention center and auditorium.

Position and Salary

Applications for full-time and part-time positions here are sincerely invited. Salary will be commensurate with qualifications and experience.

Talent policy

The AP-TCRC will be included in the talent housing preferential list of the Lingang Special Area. Those who meet the talent criteria can apply for the “3.1” or “3.2” talent certificate. The Lingang Special Area implements loose settlement policies and preferential talent housing policies. Convenient application for work permit and residence permit are also provided for overseas talents and excellent graduates studying abroad. Furthermore, the AP-TCRC also provides rental allowance and talent apartments in Lingang Special Area for talents who work here.