

IWTRC 2023 YOKOHAMA PROGRAM



The **1st** International Workshop of the **Typhoon**



Science and Technology Research Center

November 8-9, 2023 on-site
Yokohama National University, Japan
<https://trc.ynu.ac.jp/IWTRC/>

Presented with the Support of

**THE FIRST INTERNATIONAL WORKSHOP OF THE
TYPHOON SCIENCE AND TECHNOLOGY RESEARCH CENTER,
YOKOHAMA NATIONAL UNIVERSITY**

YOKOHAMA NATIONAL UNIVERSITY EDUCATION AND CULTURE HALL
NOVEMBER 8–9 (UPDATED ON OCT. 25, 2023)

PROGRAM

DAY 1: WEDNESDAY, NOVEMBER 8

09.00–09.50 OPENING CEREMONY, INTRODUCTION OF TRC, AWARD CEREMONY, CHAIR: JUN MATSUMOTO

10.00–11.30 KEYNOTE LECTURE I: KERRY A. EMANUEL (MIT), CHAIR: MASAKI SATOH
The challenge of estimating long-term tropical cyclone risk

11.30–12.10 POSTER SESSION FLASH TALKS, CHAIR: JUN MATSUMOTO

12.10–12.40 LUNCH BREAK

12.40–13.30 POSTER SESSION CORE TIME (ODD NUMBERS)

13.30–15.00 KEYNOTE LECTURE II: CHUN-CHIEH WU (NTU), CHAIR: KOSUKE ITO
The roles of wind-induced surface heat exchange in secondary eyewall formation, rapid intensification and size of tropical cyclones

15.00–15.30 COFFEE BREAK

15.30 – 17.30 SESSION I: LARGE-SCALE ENVIRONMENT AND PREDICTION, CHAIR: RYUJI YOSHIDA

15.30–15.45 Hironori Fudeyasu (YNU) et al. Tropical cyclone characteristics over the western North Pacific stratified by genesis environment

15.45 – 16.00 Haikun Zhao (NUIST) et al. Counterbalancing impacts from historical anthropogenic aerosols and greenhouse gases on global-scale tropical cyclone genesis potential

16.00–16.15 Li Tao (NUIST) et al. On the intensification of typhoon Damrey with the monsoon gyre

16.15 – 16.30 Tomoe Nasuno (JAMSTEC; YNU) et al. Relationship between tropical cyclone intensity and SST

16.30–16.45 Masashi Minamide (UT) Multi-scale interaction and predictability/ controllability of the tropical cyclone intensification

16.45–17.00 Haoyan Liu (HU; UT) et al. Predictability of the most long-lived tropical cyclone Freddy over the southern tropical Indian Ocean in 2023

17.00–17.15 Yohei Yamada (JAMSTEC) et al. Evaluation of relationship between precipitation associated with typhoon near Japan and typhoon activity by using a large ensemble simulation

17.15–17.30 Junshi Ito (TU; UT) et al. Large eddy simulation of entire tropical cyclone

18.00-20.00 WELCOME RECEPTION

20.00 END OF DAY 1

DAY 2: THURSDAY, NOVEMBER 9**9.00–10.30 KEYNOTE LECTURE III: YUQING WANG (UH), CHAIR: HIRONORI FUDEYASU**

A unified time-dependent theory of tropical cyclone intensification and its applications: current status and future directions

10.30–11.00 COFFEE BREAK**11.00–13.05 SESSION II: DYNAMICS AND OBSERVATION, CHAIR: TAKESHI HORINOUCI**

11.00–11.20 I-I Lin (NTU) et al. (INVITED) Ocean interaction and the intensity evolution of two high-impact super typhoons: Hagibis (2019) and Haiyan (2013)

11.20–11.35 Masaki Hisada (NTT) et al. Joint research between TRC and NTT on typhoon prediction method using atmospheric and oceanographic observation data

11.35–11.50 Asanobu Kitamoto (NII; YNU) et al. Digital Typhoon Dataset: 40+ years of satellite images of tropical cyclones for machine learning research

11.50–12.05 Hiroyuki Yamada (UR; YNU) et al. Civilian aircraft ability to monitor tropical cyclone intensity

12.05–12.20 Taiga Tsukada (HU) et al. Wind distribution in the eye of tropical cyclone revealed by a novel atmospheric motion vectors derivation

12.20–12.35 Kosuke Ito (KU; UR; YNU) et al. Three-dimensional Fujiwhara effect

12.35–12.50 Qingqing Li (NUIST) et al. Secondary eyewall formation in sheared tropical cyclones

12.50–13.05 Masaki Satoh (UT; YNU) et al. Formation mechanism of TC secondary eyewall by numerical experiments: Role of dry air inflow from the middle and upper troposphere and cooling by evaporation and sublimation

13.05–13.20 GROUP PHOTO**13.20–13.50 LUNCH BREAK****13.50–14.30 POSTER SESSION CORE TIME (EVEN NUMBERS)****14.30–16.35 SESSION III: EFFECT AND CONTROL, CHAIR: UDAI SHIMADA**

14.30–14.50 Johnny C. L. Chan (CityU; AP-TCRC) et al. (INVITED) Impact of urbanization on precipitation associated with typhoon landfall

14.50–15.05 Rakesh Teja Konduru (RIKEN) et al. Energy cascading during typhoon and calm weather scenarios over urban atmosphere

15.05–15.20 Thanh Ngo-Duc (USTH) et al. Historical trends of tropical cyclones and related compound hazards along the coastline of Vietnam

15.20 – 15.35 Satoki Tsujino (MRI) et al. Observing system simulation experiments toward objective analysis of tropical-cyclone intensity by assimilation of satellite-based cloud-tracking winds in the typhoon inner core

15.35 – 15.50 Lin Li (RIKEN) et al. Measuring controllability of chaotic systems with deep reinforcement learning

15.50 – 16.05 Ryuji Yoshida (YNU) et al. Development of a seeding method for the typhoon weakening based on the laboratory and the numerical simulation experiments

16.05–16.20 Marguerite Lee (UT) et al. Reducing the intensity of an approaching typhoon forced by an artificial cold pool using the stretched version of a Non-hydrostatic Icosahedral Atmospheric Model (NICAM)

16.20–16.35 Manami Sasaoka (YNU) et al. Typhoon control and its ELSI

16:40–17.00 DISCUSSION & CLOSING CEREMONY, CHAIR: PROF. JUN MATSUMOTO

17.00 END OF DAY 2

POSTER SESSION**SESSION IV: LARGE-SCALE ENVIRONMENT AND PREDICTION**

- 4-1 Cong Gao (SJTU) et al. Subsurface ocean suppresses tropical cyclone genesis during El Niño
- 4-2 Jun Gao (NUIST) et al. Environmental characteristics of western North Pacific tropical cyclone onset in neutral ENSO years
- 4-3 Jiuwei Zhao (NUIST) et al. Atmospheric modes fiddling the simulation of ENSO impact on Northwest Pacific tropical cyclone
- 4-4 Kexin Song (FU; NUIST) et al. Influence of the Atlantic Multidecadal Oscillation on rapid intensification tropical cyclones over the western North Pacific
- 4-5 Ganadhi Mano Kranthi (IITM) et al. Climatology and characteristics of rapidly intensifying tropical cyclones over the North Indian Ocean
- 4-6 Ruifen Zhan (FU; STI) et al. Applying a time-dependent theory of tropical cyclone intensification for predicting tropical cyclone intensity
- 4-7 Yiwei Ye (IAP; UCAS) et al. Comparisons between the predictability of tropical cyclone track forecasts in WNP and ATL basins
- 4-8 Takashi Yanase (FUJITSU) et al. Factor analysis and prediction of typhoon development using explainable AI
- 4-9 Robb Prieto Gile (PAGASA) et al. Weighted Analog Intensity Prediction (WAIP) guidance for Philippine tropical cyclones: Initial assessment in intensity bifurcation cases
- 4-10 Masuo Nakano (JAMSTEC; YNU) et al. Typhoon seasonal forecast using a high-resolution AOGCM

SESSION V: DYNAMICS, OBSERVATION AND SIMULATION

- 5-1 Yuanlong Li (NJU) et al. Relative timing of rapid intensification and rapid contraction of the radius of maximum wind in tropical cyclones
- 5-2 Arpita Muni (NAIR) et al. Helicity evolution during the life cycle of tropical cyclones formed over the north Indian ocean
- 5-3 Anu Gupta (TMU) et al. Exploring aerosol effects on a tropical cyclone dynamics and cloud microphysics
- 5-4 Hanley Andrean (OIST) et al. Towards a new conceptual understanding of the decay of landfalling typhoons
- 5-5 Shun Ito (KU) et al. Long-term analysis of tropical cyclone intensity using MPI theory based on HighResMIP projections
- 5-6 Hsiao Li-Peng (AS) et al. Refined tropical cyclone genesis potential index for enhanced tropical cyclone projection in the western North Pacific region

- 5-7 Shun-Nan Wu (UO) et al. The role of cloud-radiation interactions in accelerating tropical cyclone development
- 5-8 Jianing Feng (CAMS) et al. Sensitivity analysis of assimilating Doppler radar radial winds within the inner- and outer-core regions of tropical cyclones
- 5-9 Takeshi Horinouchi (HU; YNU) Angular momentum transport and instability in the eye: observational evidence from a 30-second imaging with Himawari-8
- 5-10 Gota Yamasaki (KU) et al. Typhoon-generated extreme wave reanalysis with data assimilation of drifting buoy observations
- 5-11 Naoko Kosaka (NTT) et al. Simultaneous observations of atmosphere and ocean directly under typhoons using autonomous surface vehicles
- 5-12 Yusuke Umemiya (NTT) et al. Impacts of Assimilating Sea Surface Observation directly under Super Typhoon Hinnamnor (2022) in the Northwest Pacific
- 5-13 Po Hsiung Lin (NTU) et al. Atmospheric turbulence observation and simulation in typhoon circulation
- 5-14 Yusuke Majima (FUJITSU) et al. Optimization of a numerical weather model for the supercomputer Fugaku
- 5-15 Chunyi Xiang (NMC; YNU) et al. Near landfall intensification of tropical cyclones in the South China Sea: Coastal shallow water responses
- 5-16 Clint Eldrick R. Petilla (AMU; MO) et al. The impact of varying SSTs on the track and intensity of Tropical Storm WASHI (2011)
- 5-17 Lyndon Mark P. Olaguera (AMU; MO) et al. Changes in intensity and tracks of tropical cyclones crossing the central and southern Philippines from 1979 to 2020: an observational study
- 5-18 Xianling Jiang (SCSMDPMHP; HMO) et al. Numerical simulation of topographic influence on the heavy rainfall of Typhoon Rammasun
- 5-19 Jing Xu (CAMS) et al. Tropical cyclone wind field reconstruction for hazard estimation via Bayesian hierarchical modeling

POSTER SESSION VI: EFFECT OF TROPICAL CYCLONES

- 6-1 Chenhong Rao (IAP) et al. Impacts of Typhoons, Western Pacific Subtropical Highs, and Upper-Level Jets on a predecessor rain event in Central China
- 6-2 Jiwei Wu (KU) et al. Tropical cyclone induced remote precipitation over Yangtze River Basin during the last stage of Meiyu Period
- 6-3 Roja Chaluvadi (IITM; KBCNMU) et al. The association of west Pacific subtropical high with Typhoons over the northwest Pacific Ocean and its impact on Indian summer monsoon rainfall
- 6-4 Koki Iida (KU) et al. Quantification and attribution of ocean cooling induced by the passages of typhoons Faxai (2019) and Hagibis (2019) over the same region using a high-resolution ocean model and cooling parameters

6-5 Mincheol Moon (PUST) et al. Rainfall strength and area from landfalling tropical cyclones over the North Indian and western North Pacific oceans under increased CO2 conditions

6-6 Ryosuke Shibuya (YNU) et al. Risk assessment for sediment disaster using typhoon path ensemble simulation

IWTRC presentation guide

Oral presentation:

1. Please conduct your presentation using either your personal computer (PC) or the common PC (Windows10) Power Point equipped in the room. Your PC will be connected to the projector via the HDMI cable. In case your PC does not have an HDMI connection port, please prepare the adapter by yourself. You may use a Mac (M1) if you'd like. If you use the common PC, prepare your slide file on a USB memory stick or SSD and transfer your slide file to the equipped PC before your session starts. If you can, send your presentation file to our secretariat (iwtrc-info@ynu.ac.jp) by November 1. We will prepare it on our common PC which will be the most reliable way for your presentation.
2. The next presenter is invited to wait on the left-hand side of the front row seats when the previous speaker starts their presentation.
3. Since the time schedule is tight, please strictly keep your presentation time, which is 20-min for the invited talk and 15-min for the ordinary talk, both including discussions. When the time is over, the chairperson will stop your presentation.

Poster presentation:

1. Please prepare your poster within approx. 90 x 120 cm (A0 vertical size is recommended). Put your poster on the designated poster number in the program shown at the top-left corner of the poster board. The necessary equipment (thumbtacks and/or magnets) will be available in the poster room. However, we won't provide any printing service. Ensure you prepare your poster by yourself.
2. You can put up your poster either in the afternoon (13:00–17:00 JST) of November 7 or in the morning (8:00–10:00 JST) of November 8 before the oral session starts.
3. Please give a flash talk on your poster presentation for 1-minute before the lunch break on November 8. Prepare one PowerPoint slide in the standard screen ratio (4:3), convert it to a PDF file to avoid format changes, and send it to the workshop secretariat (iwtrc-info@ynu.ac.jp) by November 1 (JST). The file name should be your poster presentation number followed by your full name. We will prepare your presentation on our common computer. The flash talk will be conducted in the order of poster numbers.
4. Stand beside your poster during the poster session core time after the lunch break (odd numbers on November 8, even numbers on November 9). Of course, you can present anytime during both poster session core times, and during lunch or coffee breaks.
5. Please remove your poster right after the entire session ends (17:00–18:00 JST) on November 9. Ensure you take down your poster by yourself and bring it with you. Please note that you shouldn't discard your poster in the conference room.