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Curriculum Vitae

Kosuke Ito
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Data of Birth October 24, 1981

Nationality Japanese

Educational Background

- Ph.D., Kyoto University, March 23, 2011.
- M.S., Kyoto University, March 24, 2008.
- B.S., Kyoto University, March 24, 2006.

Professional Experience

- 2024.07-present: Associate Professor, Severe Storm and Extreme Weather, Center for Climate Change Adaptation Strategy (CASTR), Disaster Prevention Research Institute, Kyoto University (primary)
- 2023.04-present IMS Guest Associate Professor, Typhoon Prediction Research Laboratory, Typhoon Science and Technology Research Center (TRC)
- 2023.04-2024.06: Associate Professor, Severe Storm and Atmospheric Environment, Research Division of Atmospheric and Hydrospheric Disasters, Atmosphere-Hydrosphere Research Group, Disaster Prevention Research Institute, Kyoto University
- 2022.04-2023.03 Part-time Lecturer, Faculty of Sciences, Kyoto University
- 2021.10-2023.03 IAS Guest Associate Professor, Typhoon Sience and Tecnology Reserch Center
- 2021.04-2023.03 Guest Associate Professor, Division of Eatrh Planetary Sciences, Kyoto University
- 2021.04-2021.09, 2022.04-2022.09 Part-time Lecturer, The open university of Japan
- 2019.04-2024.03: Guest Scientist, Observation and Data Assimilation Research Department, Meteorological Research Institute
- 2019.04-2020.03: Visiting senior scientist, Information Engineering Program, JAMSTEC
- 2018.08-2023.03: Associate Professor, University of the Ryukyus
- 2018.04-2019.03: Visiting scientist, Project Team for HPC Advanced Predictions utilizing Big Data Research Unit for Mesoscale Weather Predictions, JAMSTEC
- 2012.04-2019.03: Guest scientist, Meteorological Research Institute
- 2014.04-2018.07: Assistant Professor, University of the Ryukyus
- 2012.04-2014.03: Post-doctoral Research Fellow, Japan Agency for Marine-Earth Science and Technology
- 2011.06-2012.03: Post-doctoral Research Fellow, National Taiwan University
- 2009.04-2011.03: Fellowship, Japan Society for the Promotion of Science

Research Interests Tropical cyclone, Data assimilation, Atmosphere-ocean coupled system

Papers in Refereed Journals (English publications only)

1. **Ito, K.**, and E. Maru, 2024: Evaluation of rainfall prediction in the vicinity of Solomon Islands with a high-resolution non-hydrostatic model, *Hydro. Res. Lett.*, in print.
2. Aizawa, M., **K. Ito**, and U. Shimada, 2024: Revisiting Koba's relationship to improve minimum sea-level pressure estimates of western North Pacific tropical cyclones, *J. Meteorol. Soc. Japan*, **102(3)**, 377-390, doi:10.2151/jmsj.2024-018.

3. Holbach, M. H., O. Bousquet, L. Bucci, P. Chang, J. Cione, S. Ditchek, J. Doyle, J.-P. Duvel, J. Elston, G. Goni, K. K. Hon, **K. Ito**, Z. Jelenak, X. Lei, R. Lumpkin, C. R. McMahon, C. Reason, E. Sanabia, L. K. Shay, J. A. Sippel, A. Sushkot, J. Tang, K. Tsuboki, H. Yamada, J. Zawislak, J. A. Zhang, 2023: Recent advancements in aircraft and in situ Observations of tropical cyclones, *Tropical Cyclone Res. Rev.*, **12(2)**, 81-99, doi:10.1016/j.tcrr.2023.06.001.
4. Hirano, S., **K. Ito**, and H. Yamada, 2023: Tropical cyclone track modified by a front located to the northeast, *SOLA*, **19**, 109-115, doi:10.2151/sola.2023-015.
5. **Ito**, **K.**, S. Hirano, J.-D. Lee, and J. C. L. Chan, 2023: Three-dimensional Fujiwhara Effect for binary tropical cyclones in the western North Pacific, *Mon. Wea. Rev.*, **151(7)**, 1779-1795, doi: 10.1175/MWR-D-22-0239.1.
6. Lee, J.-D., **K. Ito**, and J. C. L. Chan, 2023: Importance of Self-Induced Vertical Wind Shear and Diabatic Heating on the Fujiwhara Effect, *Quart. J. Roy. Met. Soc.*, doi:10.1002/qj.4448.
7. Chang K.-F., C.-C. Wu, **K. Ito**, 2023: On the rapid weakening of typhoon Trami (2018): Strong sea surface temperature cooling associated with slow translation speed, *Mon. Wea. Rev.*, **159(1)**, 227-251, doi:10.1175/MWR-D-22-0039.1.
8. **Ito, K.**, and R. Yamamoto, 2022: Thermodynamic and kinematic structure of tropical cyclones in the western North Pacific based on ACARS/AMDAR, *Front. Earth Sci. Sec. Atmospheric Science*, doi:10.3389/feart.2022.1058262.
9. Hirano, S., **K. Ito**, H. Yamada, S. Tsujino, K. Tsuboki, C.-C. Wu, 2022: Deep Eye Clouds Observed in Tropical Cyclone Trami (2018) during T-PARCII Dropsonde Observations, *J. Atmos. Sci.*, **79(3)**, 683-703, doi:10.1175/JAS-D-21-0192.1.
10. **Ito, K.**, 2022: Bias in Near-Real-Time Global Sea Surface Temperature Analysis of Japan Meteorological Agency Associated with Tropical Cyclone Passages in Western North Pacific, *J. Meteorol. Soc. Japan*, **100(2)**, 321-341, doi:10.2151/jmsj.2022-016.
11. Lee, J.-D., **K. Ito**, C.-C. Wu, and D.-S. Park, 2021: Effects of the Assimilation of Relative Humidity Reproduced from T-PARCII and Himawari-8 Satellite Imagery using Dynamical Initialization and Ocean-Coupled Model: A Case Study of Typhoon Lan (2017), *J. Geophys. Res. Atmos.*, **126**, 17, doi:10.1029/2020JD034516.
12. Yamada, H., **K. Ito**, K. Tsuboki, T. Shinoda, T. Ohigashi, M. Yamaguchi, T. Nakazawa, N. Nagahama, K. Shimizu, 2021: The Double Warm-Core Structure of Typhoon Lan (2017) as Observed through the First Japanese Eyewall-Penetrating Aircraft Reconnaissance, *J. Meteorol. Soc. Japan*, **99(5)**, 1297-1327, doi:10.2151/jmsj.2021-063.
13. Higa, M., S. Tanahara, Y. Adachi, N. Ishiki, S. Nakama, H. Yamada, **K. Ito**, A. Kitamoto, R. Miyata, 2021: Domain knowledge integration into deep learning for typhoon intensity classifcation, *Sci. Rep.*, **11**, doi:10.1038/s41598-021-92286-w.
14. Tsujino, S., K. Tsuboki, H. Yamada, T. Ohigashi, **K. Ito**, N. Nagahama, 2021: Intensification and maintenance of a double warm-core structure in Typhoon Lan (2017) simulated by a cloud-resolving model, *J. Atmos. Sci.*, **78(2)**, 595-617, doi:10.1175/JAS-D-20-0049.1.
15. **Ito, K**. and H. Ichikawa, 2021: Warm ocean accelerating tropical cyclone Hagibis (2019) through interaction with a mid-latitude westerly jet, *SOLA*, **17A**, 1-6, doi:10.2151/sola.17A-001.
16. Lee, J.-D., C.-C. Wu, and **K. Ito**, 2020: Diurnal variation of the convective area and eye size associated with the rapid intensification of tropical cyclones, *Mon. Wea. Rev.*, **148(10)**, 4061-4082, doi:10.1175/MWR-D-19-0345.1.
17. **Ito, K.**, C.-C. Wu, K. T. F. Chan, R. Toumi, and C. Davis, 2020: Recent Progress in the Fundamental Understanding of Tropical Cyclone Motion, *J. Meteorol. Soc. Japan*, **98(1)**, 5-17, doi:10.2151/jmsj.2020-001.
18. Fujita, M., T. Sato, T. J. Yamada, S. Kawazoe, M. Nakano, and **K. Ito**, 2019: Analyses of extreme precipitation associated with the Kinugawa River flood in September 2015 using a large ensemble downscaling experiment, *J. Meteorol. Soc. Japan*, **97**, 387-401, doi:10.2151/jmsj.2019-022.
19. Fudeyasu, H., **K. Ito**, and Y. Miyamoto, 2018: Characteristics of tropical cyclone rapid intensification over the Western North Pacific., *J. Climate*, **31(21)**, 8917-8930, doi:10.1175/JCLI-D-17-0653.1.
20. **Ito, K.**, H. Yamada, M. Yamaguchi, T. Nakazawa, N. Nagahama, K. Shimizu, T. Ohigashi, T. Shinoda, and K. Tsuboki, 2018: Analysis and forecast using dropsonde data from the inner-core region of Tropical Cyclone Lan (2017) obtained during the first aircraft missions of T-PARCII, *SOLA*, **14**, 105-110, doi:10.2151/sola.2018-018.
21. Maru, E., T. Shibata, and **K. Ito**, 2018: Statistical Analysis of Tropical Cyclones in the Solomon Islands, *Atmosphere*, **9(6)**, doi:10.3390/atmos9060227.
22. Kunii, M., **K. Ito**, and A. Wada, 2017: Preliminary test of data assimilation system with a regional high-resolution atmosphere-ocean coupled model based on an ensemble Kalman filter, *Mon. Wea. Rev.*, **145(2)**, 565-581, doi:10.1175/MWR-D-16-0068.1.
23. Aonashi, K., K. Okamoto, T. Tashima, T. Kubota, and K. Ito, 2016: Sampling error damping method for a cloud-resolving model using a dual-scale neighboring ensemble approach, *Mon. Wea. Rev.*, **144(12)**, 4751-4770,

doi:10.1175/MWR-D-15-0410.1.

24. **Ito, K.**, 2016: Errors in tropical cyclone intensity forecast by RSMC Tokyo and statistical correction using environmental parameters, *SOLA*, **12**, 247-252, doi:10.2151/sola.2016-049.
25. **Ito, K.**, M. Kunii, T. Kawabata, K. Saito, K. Aonashi, and L. Duc, 2016: Mesoscale hybrid data assimilation system based on JMA nonhydrostatic model, *Mon. Wea. Rev.*, **144(9)**, 3417-3439, doi:10.1175/MWR-D-16-0014.1.
26. Nakano, S., **K. Ito**, K. Suzuki, and G. Ueno, 2015: Decadal-scale meridional shift of the typhoon recurvature latitude over five decades, **36**, 3819-3827, *Int. J. Climatol.*, doi:10.1002/joc.4595.
27. Kano, M., S. Miyazaki, Y. Ishikawa, H. Yoshihisa, **K. Ito**, and K. Hirahara, 2015: Real data assimilation for optimization of frictional parameters and prediction of afterslip in the 2003 Tokachi-oki earthquake inferred from slip velocity by an adjoint method, *Geophys. J. International*, **203(1)**, 646-663.
28. **Ito, K.**, T. Kuroda, K. Saito and A. Wada, 2015: Forecasting a Large Number of Tropical Cyclone Intensities around Japan Using a High-Resolution Atmosphere-Ocean Coupled Model, *Wea. Fore.,* **30(3)**, 793-808.
29. Kawabata, T., **K. Ito**, and K. Saito, 2014: Recent progress of the NHM-4DVAR towards a super-high resolution data assimilation, *SOLA,* **10,** 145-149.
30. Kano, M., S. Miyazaki, **K. Ito** and K. Hirahara, 2013: An Adjoint Data Assimilation Method for Optimizing Frictional Parameters on the Afterslip Area, *Earth, Planets and Space.,* **65(12)**, 1575-1580.
31. Saito, K., T. Tsuyuki, H. Seko, F. Kimura, T. Tokioka, T. Kuroda, L. Duc, **K. Ito**, T. Oizumi, G. Chen, J. Ito, and SPIRE Field3 Mesoscale NWP group, 2013: Superhigh-resolution meso scale weather prediction, J. Phys. Conf. Ser., doi:10.1088/1742-6596/454/1/012073.
32. **Ito, K.**, T. Kawabata, T. Kato, Y. Honda, Y. Ishikawa and T. Awaji, 2013: Simultaneous optimization of air-sea exchange coefficients and initial conditions near a tropical cyclone with JNoVA, *J. Meteorol. Soc. Japan*, **91(3)**, 337-353.
33. **Ito, K.** and C.-C. Wu, 2013: Typhoon-position- oriented sensitivity analysis. Part I: Methodology and verification, *J. Atmos. Sci.,* **70(8)**, 2525–2546.
34. Luu, Q., **K. Ito**, Y. Ishikawa and T. Awaji, 2011: Tidal exchange through the Tsugaru Strait. Part I: Characteristics of major tides and tidal residual currents, *Ocean Sci. J.*, **46(4)**, 273-288.
35. **Ito, K.**, Y. Ishikawa, Y. Miyamoto and T. Toshiyuki, 2011: Short-time-scale processes in a mature hurricane as a response to sea surface fluctuations, *J. Atmos. Sci.*, **68(10)**, 2250-2272.
36. **Ito, K**., Y. Ishikawa, and T. Awaji, 2010: Specifying air-sea exchange coefficients in the high-wind regime of a mature tropical cyclone by an adjoint data assimilation method, *SOLA*, **6**, 13-16.
37. **Ito, K.**, Y. Naito and S. Yoden, 2009: Combined effects of QBO and 11-year solar cycle on the winter hemisphere in a stratosphere-troposphere coupled system, *Geophys. Res. Lett.*, **36**, L11804, doi:10.1029/2008GL037117.

Invited oral presentations (International only)

1. **Ito, K.**: Japanese Eyewall-Penetrating Typhoon Aircraft Missions in T-PARCII, AP-TCRC Forum, Shanghai, November 2024.
2. **Ito, K.**: Significant TC-ocean interaction causing deep eye clouds, International Workshop on Tropical Cyclone-Ocean Interaction in the Northwest Pacific (TCOI 2023), Korea, November 2023.
3. **Ito, K.**: Japanese Eyewall-Penetrating Aircraft Missions in T-PARCII, 1st IAMES conference, Online, November 2021.
4. **Ito, K.**: Forecasting a large number of tropical cyclone intensities using a high-resolution atmosphere-ocean coupled model, International Workshop on Tropical Cyclone-Ocean Interaction in the Northwest Pacific (TCOI 2019), Jeju, Korea, June 2019.
5. **Ito, K.**, H. Yamada, M. Yamaguchi, T. Nakazawa, N. Nagahama, K. Shimizu, T. Ohigashi, and K. Tsuboki: Analysis and Forecast Using Dropsonde Data from the Inner-Core Region of Tropical Cyclone Lan (2017) Obtained during the First Aircraft Missions of TPARCII, ICMCS-XIII, Okinawa, March 2019.
6. **Ito, K.**: Tropical cyclone forecasts with a JMA-NHM-based coupled model, International Science Forum on the South China Sea, Taipei, Septempber 2017.
7. **Ito, K.**, T. Kuroda, A. Wada, and K. Saito: Forecasting a large number of tropical cyclone intensities around Japan using a high-resolution atmosphere-ocean coupled model, PAMS 2015, Okinawa, Japan, April 2015.
8. **Ito, K.**: Recent development in typhoon intensity forecast with the JMA non-hydrostatic model, 5th THORPEX-ASIA Science Workshop, Jeju, Korea, November 2013.
9. **Ito, K.**: Optimization of air-sea exchange coefficients around a tropical cyclone with a variational data assimilation system, Taiwan-Japan Joint Workshop on Numerical Analysis and Scientific Computation, Taipei, Taiwan, November

2011.

10. **Ito, K.**, Y. Ishikawa, T. Awaji, Y. Miyamoto and C.-C. Wu: How do anomalous surface heat fluxes strengthen the maximum tangential velocity in a tropical cyclone?, Asia Oceania Geosciences Society Annual Meeting, Taipei, Taiwan, August 2011.

Award

1. The Okada award in 2024, Japan Weather Association, 2024 (**Kosuke Ito**)
2. The Shono award in 2022, Meteorological Society of Japan, 2023 (**Kosuke Ito**, Hiroyuki Yamada, Munehiko Yamaguchi, Tetsuo Nakazawa, Norio Nagahama, Kensaku Shimizu, Tadayasu Ohigashi, Taro Shinoda, and Kazuhisa Tsuboki)
3. The SOLA award in 2018, Meteorological Society of Japan, 2018 (**Kosuke Ito**)
4. Professor of the year, University of the Ryukyus, FY2017 (**Kosuke Ito**)
5. Excellent paper award, The Seismology Society of Japan, 2011 (Masayuki Kano, Shin'ichi Miyazaki, **Kosuke Ito**, Kazuro Hirahara)

Professional services

- 2014.06-present: Scientific Online Letters on the Atmosphere (SOLA), Editor
- 2014.06-present: Typhoon Research Group, Meteorological Society of Japan, Chair
- 2018.01-2024.01: American Meteorological Society STAC Committee on Tropical Meteorology and Tropical Cyclones, Committee member
- 2017.07-2019.03 JMSJ special edition on 'Tropical cyclones in 2015-2016', Co-Chief Editor
- 2016.06-2023.03 Okinawa local branch of Meteorological Society of Japan, a member of the board of directors