May 7, 2020

Curriculum Vitae

Name: Ryuji YOSHIDA

Title: Research Scientist II (Ph. D)

Institution: CIRES, University of Colorado Boulder, Boulder, CO /
NOAA Earth System Research Laboratory, Boulder, CO.

Project division: Chemical Sciences Division

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Education:

2014 : Ph.D. Department of Geophysics, Kyoto University, Kyoto, Japan
2010 : M.S. Department of Geophysics, Kyoto University, Kyoto, Japan
2008 : B.S. Department of Earth Sciences, Okayama University, Okayama, Japan

Employment:

May, 2019 – :	Research Associate (Research Scientist II) *CIRES / University of Colorado Boulder, work at NOAA ESRL, Boulder Colorado, USA*
Aug, 2018 – Apr, 2019:	Research Associate (Research Scientist I) *CIRES / University of Colorado Boulder, work at NOAA ESRL, Boulder Colorado, USA*
Aug, 2016 – Jul, 2018:	Project Assistant Professor *KOBE Univeristy, Kobe, Japan (Cross Appointment)*
Oct, 2014 – Jul, 2018:	Postdoctoral Researcher *RIKEN Center for Computational Science, Japan*
Oct, 2011 – Sep, 2014:	Research Associate *RIKEN AICS, Japan (worked for G8 Call program of "Exa-scale earth system simulation in icosahedral model: ICOMEX")*

Research Interest:

- Climate dynamics, Largescale circulations
- Mesoscale meteorology, Tropical meteorology
- Tropical cyclones, Tropical waves, and Intra-seasonal oscillations

- Clouds and turbulence processes, parameterizations
- Global and Regional atmospheric numerical modeling
- Disaster Prevention and Mitigation for atmospheric natural disasters
- Computational science and Visualization

Academic achievements:

[27] Fudeyasu H., R. Yoshida, M. Yamaguchi, H. Eito, C. Muroi, S. Nishimura, K. Bessho, Y. Oikawa, N. Koide, 2020: Development Conditions for Tropical Storms over the Western North Pacific Stratified by Large-Scale Flow Patterns. *J. Met. Soc. Japan*, 98 (1), 61-72, ISSN 0026-1165, doi: 10.2151/jmsj.2020-004.

[26] **Yoshida R.**, and H. Fudeyasu, 2020: How Significant are Low-Level Flow Patterns in Tropical Cyclone Genesis over the Western North Pacific?, *Mon. Wea. Rev.*, 148, 559-576, doi: 10.1175/MWR-D-19-0023.1.

[25] Sueki K., T. Yamaura, H. Yashiro, S. Nishizawa, **R. Yoshida**, Y. Kajikawa, and H. Tomita, 2019: Convergence of Convective Updraft Ensembles with Respect to the Grid Spacing of Atmospheric Models. *Geophys. Res. Lett.*, Volume 46 (24), Pages 14817-14825, doi: 10.1029/2019GL084491.

[24] Fudeyasu, H and **R. Yoshida**, 2019: Statistical Analysis of the Relationship between Upper Tropospheric Cold Lows and Tropical Cyclone Genesis over the Western North Pacific. *J. Met. Soc. Japan*, 97 (2), 439-451, issn: 0026-1165, doi: 10.2151/jmsj.2019-025.

[23] Zarzycki, C. M., C. Jablonowski, J. Kent, P. H. Lauritzen, R. Nair, K. A. Reed, P. A. Ullrich, D. M. Hall, D. Dazlich, R. Heikes, C. Konor, D. Randall, X. Chen, L. Harris, M. Giorgetta, D. Reinert, C. Kühnlein, R. Walko, V. Lee, A. Qaddouri, M. Tanguay, H. Miura, T. Ohno, **R. Yoshida**, S.-H. Park, J. Klemp, W. Skamarock, 2019: DCMIP2016: The splitting supercell test case. *Geosci. Model Dev.*, 12 879-892, doi: 10.5194/gmd-12-879-2019.

[22] **Yoshida R.**, S. Nishizawa, H. Yashiro, S. A. Adachi, T. Yamaura, H. Tomita, and Y. Kajikawa, 2018: Maintenance condition of back-building squall-line in a numerical simulation of a heavy rainfall event in July 2010 in Western Japan. *Atmos. Sci. Lett.*, 20 (1), Art. No. e880, doi: 10.1002/asl.880.

[21] Adachi S. A., S. Nishizawa, K. Ando, T. Yamaura, **R. Yoshida**, H. Yashiro, Y. Kajikawa, and H. Tomita, 2018: An evaluation method for uncertaintiesin regional climate projections. *Atmos. Sci. Lett.*, 20 (1), Art. No. e877, doi: 10.1002/asl.877.

[20] Fudeyasu H, and **R. Yoshida**, 2018: Western North Pacific Tropica Cyclone Characteristics Stratified by Genesis Environment, *Mon. Wea. Rev.*, 146, 435-446, doi: 10.1175/MWR-D-17-0110.1.

[19] Nishizawa S., S. A. Adachi, Y. Kajikawa, T. Yamaura, K. Ando, **R. Yoshida**, H. Yashiro and H. Tomita, 2018: Decomposition of the large-scale atmospheric state driving downscaling: a perspective on dynamical downscaling for regional climate study, *Progress in Earth and Planetary Science*, 2018-5:2, doi:10.1186/s40645-017-0159-0.

[18] Adachi S. A., S. Nishizawa, **R. Yoshida**, T. Yamaura, K. Ando, H. Yashiro, Y. Kajikawa, and H. Tomita, 2017: Contributions of changes in climatology and perturbation and the resulting nonlinearity to regional climate change. *Nat Commun*, 8 (2224), doi:10.1038/s41467-017-

02360-z.

[17] Honda, T., T. Miyoshi, G.-Y. Lien, S. Nishizawa, **R. Yoshida**, S. A. Adachi, K. Terasaki, K. Okamoto, H. Tomita and K. Bessho, 2017: Assimilating All-Sky Himawari-8 Satellite Infrared Radiances: A Case of Typhoon Soudelor (2015). *Mon. Wea. Rev.*, 146, 213-249, doi:10.1175/MWR-D-16-0357.1.

[16] Ullrich, P. A., Jablonowski, C., Kent, J., Lauritzen, P. H., Nair, R., Reed, K. A., Zarzycki, C. M., Hall, D. M., Dazlich, D., Heikes, R., Konor, C., Randall, D., Dubos, T., Meurdesoif, Y., Chen, X., Harris, L., Kühnlein, C., Lee, V., Qaddouri, A., Girard, C., Giorgetta, M., Reinert, D., Klemp, J., Park, S.-H., Skamarock, W., Miura, H., Ohno, T., **Yoshida, R.**, Walko, R., Reinecke, A., and Viner, K., 2017: DCMIP2016: A Review of Non-hydrostatic Dynamical Core Design and Intercomparison of Participating Models, *Geosci. Model Dev.*, 10, 4477-4509, doi:10.5194/gmd-10-4477-2017.

[15] **Yoshida, R.**, S. Nishizawa, H. Yashiro, S. A. Adachi, Y. Sato, T. Yamaura, and H. Tomita, 2017: CONeP: A cost-effective online nesting procedure for regional atmospheric models, *Parallel Computing*, 65, 21-31, doi:10.1016/j.parco.2017.04.004.

[14] Lien, G.-Y., T. Miyoshi, S. Nishizawa, **R. Yoshida**, H. Yashiro, S. A. Adachi, T. Yamaura, and H. Tomita, 2017: The near-real-time SCALE-LETKF system: A case of the September 2015 Kanto-Tohoku heavy rainfall., *SOLA*, 13, 1-6, doi:10.2151/sola.2017-001.

[13] **Yoshida, R.**, Y. Miyamoto, H. Tomita, and Y. Kajikawa, 2017: The effect of water vapor on tropical cyclone genesis: A numerical experiment of a non-developing disturbance observed in PALAU2010, *J. Met. Soc. Japan*, 95, 35-47, doi:10.2151/jmsj.2017-001.

[12] Nasuno, T., H. Yamada, M. Nakano, H. Kubota, M. Sawada, and **R. Yoshida**, 2016: Global cloud-permitting simulations of Typhoon Fengshen (2008). *Geoscience Letters*, 3:32, doi: 10.1186/s40562-016-0064-1.

[11] Yashiro, H., Y. Kajikawa, Y. Miyamoto, T. Yamaura, **R. Yoshida**, and H. Tomita, 2016: Resolution dependence of the diurnal cycle of precipitation simulated by a global cloud-system resolving model. *SOLA*, 12, 272-276, doi:10.2151/sola.2016-053.

[10] Miyamoto, Y., T. Yamaura, **R. Yoshida**, H. Yashiro, H. Tomita, and Y. Kajikawa, 2016: Precursors of deep moist convection in a subkilometer global simulation, *JGR: Atmospheres*, doi: 10.1002/2016JD024965.

[9] Zhao H., C. Wang, **R. Yoshida**, 2016: Modulation of the Quasi-Biweekly Oscillation on Tropical Cyclogenesis in the Western North Pacific, *Advances in Atmospheric Sciences*, doi: 10.1007/s00376-016-5267-z.

[8] Yashiro, H., M. Terai, **R. Yoshida**, S. Iga, K. Minami, and H. Tomita, 2016: Performance Analysis and Optimization of Nonhydrostatic ICosahedral Atmospheric Model (NICAM) on the K computer and TSUBAME2.5, *Proceedings of the Platform for Advanced Scientific Computing Conference (PASC '16)*, doi: 10.1145/2929908.2929911.

[7] Kajikawa Y., Y. Miyamoto, **R. Yoshida**, T. Yamaura, H. Yashiro, H. Tomita, 2016: Resolution dependence of deep convections in a global simulation from over 10-kilometer to sub-kilometer grid spacing, *Progress in Earth and Planetary Science*, 3:16, doi: 10.1186/s40645-016-0094-5

[6] Zhao H., **R. Yoshida**, and G. B. Raga, 2015: Impact of the Madden-Julian Oscillation on

Western North Pacific Tropical Cyclogenesis Associated with Large-Scale Patterns. *J. Appl. Meteor. Climatol.*, 54, 1413-1429. doi: 10.1175/JAMC-D-14-0254.1.

[5] Sato Y., Y. Miyamoto, S. Nishizawa, H. Yashiro, Y. Kajikawa, **R. Yoshida**, T. Yamaura, and H. Tomita, 2015: Horizontal Distance of Each Cumulus and Cloud Broadening Distance Determine Cloud Cover, *SOLA*, 11, 75-79, doi:10.2151/sola.2015-019.

[4] Miyamoto Y., **R. Yoshida**, T. Yamaura, H. Yashiro, H. Tomita and Y. Kajikawa, 2014: Does convection vary in different cloudy disturbances?, *Atmospheric Science Letters*, doi: 10.1002/asl2.558.

[3] **Yoshida R.**, Y. Kajikawa, H. Ishikawa, 2014: Impact of Boreal Summer Intraseasonal Oscillation on Environment of Tropical Cyclone Genesis over the Western North Pacific, *SOLA*, 10, 15-18, doi:10.2151/sola.2014-004.

[2] Miyamoto, Y. and Y. Kajikawa, **R. Yoshida**, T. Yamaura, H. Yashiro and H. Tomita, 2013: Deep moist atmospheric convection in a sub-kilometer global simulation, *Geophys. Res. Lett.*, doi:10.1002/grl.50944.

[1] **Yoshida R.** and H. Ishikawa, 2013: Environmental Factors Contributing to Tropical Cyclone Genesis over the Western North Pacific. *Mon. Wea. Rev.*, 141, 451-467.

Publications without review:

[2] **Yoshida R.**, H. Yashiro, M. Satoh, and H. Tomita, 2017: Modification of a baroclinic test case to a height-based coordinate system without topography implementation, *AICS Tech. Rep.*, 2017-001.

[1] Hisashi Yashiro, A. Naruse, **R. Yoshida**, and H. Tomita, 2014: A Global Atmosphere Simulation on a GPU Supercomputer using OpenACC: Dry Dynamical Core Tests, *Tsubame ESJ. : e-science journal*, **12**, 8-11.

Proceedings papers:

[3] Kunkel J., T. Ludwig, T. Dubos, N. Maruyama, T. Aoki, G. Zangl, H. Yashiro, **R. Yoshida**, H. Tomita, M. Satoh, Y. Meurdesoif, N. Jumah, A. Novikova, and A. Gerbes: Advanced Computation and I/O Methods for Earth-System Simulations (AIMES), *ISC 2018*, **PP16** (Project Posters Presentation), June 26, 2018, Frankfurt, Germany.

[2] Kunkel J., T. Ludwig, T. Dubos, N. Maruyama, T. Aoki, G. Zangl, H. Yashiro, **R. Yoshida**, H. Tomita, M. Satoh, Y. Meurdesoif, N. Jumah, and A. Novikova: Advanced Computation and I/O Methods for Earth-System Simulations (AIMES), *ISC 2017*, **PP15** (Project Posters Presentation), June 20, 2017, Frankfurt, Germany.

[1] Miyoshi T., G. Lien, S. Satoh, T. Ushio, K. Bessho, H. Tomita, S. Nishizawa, **R. Yoshida**, S. A. Adachi, J. Liao, B. Gerofi, Y. Ishikawa, M. Kunii, J. Ruiz, Y. Maejima, S. Otsuka, M. Otsuka, K. Okamoto, and H. Seko: "Big Data Assimilation" Toward Post-Petascale Severe Weather Prediction: An Overview and Progress, *Proceedings of the IEEE*, **104, 11**, 2155 – 2179, DOI: 10.1109/JPROC.2016.2602560.

Oral presentation in international conferences and workshops:

[11] **Yoshida R.**, and H. Fudeyasu: Climatological Environmental Flow Patterns of Tropical Cyclone Genesis over the Western North Pacific, AS31-A071, *AOGS 2018*, Jun. 5, 2018, Hawaii, USA.

[10] **Yoshida R.** and Y. Kajikawa: Maintenance Mechanism of Back-Building Rainband in A Numerical Simulation of A Heavy Rain in July 2010 in Western Japan, *International Symposium on Earth-Science Challenges 2017*, Oct. 3, 2017, Uji, Japan.

[9] **Yoshida R.**: CONeP: A Cost-Effective Online Nesting Procedure for Regional Climate Model, *7th Joint Laboratory for Extreme-Scale Computing Workshop*, Jul. 17, 2017, Urbana, USA.

[8] **Yoshida R.**, and H. Yashiro: Acceleration of Global Atmospheric Model by Heterogeneous Computing, *NII Shonan Meeting (Putting Heterogeneous High-Performance Computing at the Fingertips of Domain Experts)*, Nov. 17-20, 2015, Zushi, Japan.

[7] **Yoshida R.** and Tomita H.: NICAM current and future, *2nd G8-call ECS workshop*, Mar. 6-7, 2012, Aachen, Germany.

[6] **Yoshida R.**, Tomita H., Satoh M., Ludwig T., Linardakis L., Thuburn J., Dubos T., and Gunther Z.: G8-call ICOMEX project, *2nd G8-call ECS workshop*, Mar. 6-7, 2012, Aachen, Germany.

[5] **Yoshida R.**, Tomita H., Satoh M., Ludwig T., Linardakis L., Thuburn J., Dubos T., and Gunther Z.: G8 call ICOMEX - Introduction and preliminary result, *The 14th international specialist meeting on the next generation models on climate change and sustainability for advanced high performance computing facilities*, Mar. 12-15, 2012, Hawaii, USA.

[4] **Yoshida R.**, Tomita H., Satoh M., Ludwig T., Linardakis L., Thuburn J., Dubos T., and Gunther Z.: An Inter-Comparison of Icosahedral Climate Models on the G8 Call: ICOMEX Project. Session: Novel Optimization Techniques, *PDEs on the sphere*, Sep. 24-28, 2012, Cambridge, UK.

[3] **Yoshida R.**, H. Ishikawa: A numerical simulation of early phase of tropical cyclogenesis associated with multiple tropospheric vortices, *14th AMS Meso. Conf.*, Aug. 3, 2011, Los Angles, USA.

[2] **Yoshida R.**, H. Ishikawa: A Numerical Simulation of Tropical Cyclone Formation with MCSs Merger, *AOGS2010 7th Annual Meeting and Geosciences World Community Exhibition*, AS11-A023, July 5-9, 2010, Hyderabad, India, **(invited)**.

[1] **Yoshida R.**, Y. Oku, T. Takemi, H. Ishikawa: Satellite and Modeling Analysis of Elliptical Eye of Tropical Cyclone, *Fourth Japan-China-Korea Joint Conference on Meteorology*, S5-28, 2009, Tsukuba, Japan.

Poster presentation in international conferences and workshops:

[14] **Yoshida R.**, T. Yamaguchi, and G. Feingold: Two-dimensional Hadley circulation modeling with explicitly simulated convective processes, P-18, *4th Convective Scale Modeling Workshop*, 28-31 Jan., 2020, Boulder CO, USA.

[13] **Yoshida R.**, T. Yamaguchi, and G. Feingold: Two-dimensional Hadley circulation modeling as a test bed for high resolution climate simulation, A11Q-2745, *AGU Fall Meeting 2019*, Dec. 9, 2019, San Francisco CA, USA.

[12] **Yoshida R.**, T. Yamaguchi, and G. Feingold: Two-dimensional Hadley Circulation modeling

toward high resolution climate simulation, *Gordon Research Conference / Gordon Research Seminars*, 2019 Radiation and Climate, Jul. 21, 2019 – Jul. 26, 2019, Lewiston ME, USA.

[11] **Yoshida R.**, T. Yamaura, S. A. Adachi, S. Nishizawa, H. Yashiro, Y. Sato, and H. Tomita: Maintenance Conditions of Back-Building MCS in a Numerical Simulation of a Heavy Rainfall in July 2010 in Western Japan, AS05-A071, *AOGS 2018*, Jun. 4, 2018, Hawaii, USA.

[10] **Yoshida R.**, and H. Fudeyasu: Environmental Flow Patterns of Tropical Cyclone Genesis over the western North Pacific, P147, *AMS 33rd Conference on Hurricanes and Tropical Meteorology*, Apr. 17, 2018, Florida, USA.

[9] **Yoshida R.**, S. Nishizawa, H. Yashiro, S. A. Adachi, Y. Sato, T. Yamaura, and H. Tomita: CONeP: A Cost-effective Online Nesting Procedure for Regional Atmospheric Models. *AICS Symposium 2016*, P-39, Feb. 22-23, 2016, Kobe, Japan.

[8] **Yoshida R.**, T. Yamaura, S. A. Adachi, S. Nishizawa, H. Yashiro, Y. Sato, and H. Tomita: New Computationally Cost-Effective Implementation of Online Nesting for a Regional Model, A11F-0110, *AGU Fall Meeting 2015*, Dec. 14, 2015, San Francisco, USA.

[7] **Yoshida R.**, H. Yashiro, and H. Tomita: An Impact of Vertical Grid Arrangement in Baroclinic Wave Test. *AICS Symposium 2014*, 27P, Dec. 8-9, 2014, Kobe, Japan.

[6] **Yoshida R.**: An Impact of Vertical Grid Arrangement in Baroclinic Wave Test, *Joint Workshop of 6th International Workshop on Global Cloud Resolving Modeling and 3rd International Workshop on Nonhydrostatic Numerical Models*, Sep 24-26, 2014, Kobe, Japan.

[5] **Yoshida R.**, Y. Kajikawa, and H. Ishikawa: Impact of Boreal Summer Intraseasonal Oscillation on Environment of Tropical Cyclogenesis Over the Western North Pacific, *AOGS 11th Annual Meeting*, Jul 28-Aug 1, 2014, Sapporo, Japan.

[4] **Yoshida R.**: A development process of the tropical disturbance observed in PALAU2010 for understanding tropical cyclogenesis, *30th Conference on Hurricanes and Tropical Meteorology*, Apl. 14-22, 2012, Ponte Vedra Beach, Florida, USA.

[3] **Yoshida R.**, H. Ishikawa: A numerical simulation of tropical cyclone genesis associated with two lower tropospheric vortices, *International Conference on MCSs and High-Impact Weather in East Asia (ICMCS-8)*, P-06, 2011, Nagoya, Japan.

[2] **Yoshida R.**, H. Ishikawa: A numerical simulation of tropical cyclogenesis with MCS merger, *The Third International Workshop on Prevention and Mitigation of Meteorological Disasters in Southeast Asia*, P-14, 2010, Beppu, Japan.

[1] **Yoshida R.**, H. Ishikawa: A frequency of occurrences of MCSs merging Tropical cyclogenesis and a case study by modeling, *International Symposium on Radar and Modeling Studies of the Atmosphere*, Po-24, 2009, Kyoto, Japan.

Oral presentation in seminar (Invited):

[3] **Yoshida R.**: A Numerical Simulation Study of Heavy Rainfall for Disaster Prevention and Mitigation (in Japanese), *228th Kobe University RCUSS open seminar*, Dec 9, 2017, Kobe City Hall, Kobe, Japan.

[2] **Yoshida R.**: Typhoon Forecast in a Future (in Japanese), *Open seminar for meteorology supported by the Meteorological Society of Japan*, May 21, 2016, National Olympics

Memorial Youth Center, Tokyo, Japan.

[1] **Yoshida R.**: The international project of icosahedral grid model development for an exa-scale computing (in Japanese), *GFD Dennou-Club Workshop*, March 11, 2014, Kobe University, Kobe, Japan.

Grant:

- 2017-2019: JSPS KAKENHI, Grant-in-Aid for Young Scientists (B), 17K14398, representative person.
- 2017-2019: JSPS KAKENHI, Grant-in-Aid for Scientific Research (B), 17H02956, assignation person.
- 2017: HPCI Computational Resource of K computer, hp170164, “A numerical study by high-resolution LES model for investigation of the heavy rain mechanism”.

Award:

- Young Scientists Encourage Prize, Numerical simulation of organization process of Vortical Disturance in PALAU2010 project, JAMSTEC Blue Earth 2011 (03, 2011)
- 2017 JMSJ Award: **Yoshida, R.**, Y. Miyamoto, H. Tomita, and Y. Kajikawa, "The effect of water vapor on tropical cyclone genesis: A numerical experiment of a non-developing disturbance observed in PALAU2010".

Etcetera:

- Joined to Dynamical Core Model Intercomparison Project Workshop 2016 (as a menter for NICAM), June 6-17, 2016 at NCAR, Boulder, CO.
- Joined to Dynamical Core Model Intercomparison Project Workshop 2012 (as a menter for NICAM), July 30-August 10, 2012 at NCAR, Boulder, CO.
- Joined to Observation Project JAMSTEC PALAU2010 (MR10-03 Leg2：May -- June, 2010, on R/V Mirai, JAMSTEC)
- Member of American Geophysical Union (from 2013)
- Member of Americal Meteorological Society (from 2010)
- Member of The Meteorological Society of Japan (from 2009)