Masashi Minamide

Assistant Professor
The Department of Civil Engineering, the University of Tokyo
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RESEARCH INTEREST

- Disaster prevention from severe weather events
- Data assimilation, numerical weather prediction, remote sensing observations
- Atmospheric dynamics and predictability
- Tropical meteorology and tropical cyclones

EDUCATION

2014.9 – 2018.5, **Ph.D. in Meteorology and Atmospheric Science**
Department of Meteorology and Atmospheric Science, The Pennsylvania State University
Thesis: On the Predictability of Tropical Cyclones through All-sky Satellite Infrared Brightness Temperatures Assimilation
Advisor: Fuqing Zhang

2013.4 – 2014.9, **M.S. in Civil Engineering**
Department of Civil Engineering, The University of Tokyo
Thesis: Improvement of the Understandings of Asian Summer Monsoon Variability by Theoretical, Analytical and Numerical Approaches
Advisor: Toshio Koike

2009.4 – 2013.3, **B.S. in Civil Engineering**
Department of Civil Engineering, The University of Tokyo
Thesis: Research on the seasonal prediction of extreme precipitation events in Pakistan, focusing on the anomaly of global circulation
Advisor: Toshio Koike

HONORS and AWARDS

2020	Yamamoto Award (early career award from the Meteorological Society of Japan)
2018	AMS IOAS-AOLS Travel Award for the 22nd IOAS-AOLS Conference
2017	NCAR's Advanced Study Program (ASP)'s Graduate Student Fellowship
2014 - 2016	Funai Overseas Scholarship (Scholarship for PhD study by Funai Foundation for Information Technology, Japan)
2014	Kōi Furuichi Award (Master Dissertation Award in Department of Civil Engineering, University of Tokyo)

RESEARCH EXPERIENCE

2020.4 – present, **Assistant Professor**

The Department of Civil Engineering, the University of Tokyo, Japan

2018.6 – 2020.3, **JPL Postdoctoral Fellow**

Jet Propulsion Laboratory, California Institute of Technology / NASA, Pasadena, CA, US

- Conducting Observing System Simulation Experiments (OSSEs) for the numerical weather and air-quality predictions to evaluate the impacts of current/future satellite missions

2014.9 – 2018.5, **Research Assistant**

Department of Meteorology and Atmospheric Science, The Pennsylvania State University, University Park, PA, US

- Built the Advanced-PSU ensemble-based data assimilation system for infrared satellite radiances with ensemble Kalman filter, using Weather Research and Forecasting Model (WRF) and Community Radiative Transfer Model (CRTM)
- Developed new data assimilation algorithms for all-sky satellite radiances with ensemble Kalman filter
- Analyzed the impacts of assimilating all-sky satellite radiances from new-generation geostationary satellites GOES-16 and Himawari-8 through observing system simulation experiments (OSSEs), and real-data observing system experiments (OSEs)
- Analyzed the predictability of tropical cyclones through sensitivity experiments

2017.4 – 2017.7, **NCAR's Advanced Study Program's Graduate Visiting Program**

National Center for Atmospheric Research, Boulder, CO, US

- Developed a modified version of Empirical (covariance) Localization Functions (ELFs) in ensemble Kalman filter for all-sky satellite radiance assimilation

2012.4 – 2014.9, **Research Assistant**

Department of Civil Engineering, University of Tokyo, Tokyo, Japan

- Conducted numerical experiments for sensitivity analysis of orographic effect on typhoon precipitation with Regional Spectral Model (RSM)
- Conducted numerical experiments for idealized simulation of artificially modified sea surface temperature with WRF
- Analyzed extreme events in South Asian Summer Monsoon region with NCEP and JRA25 reanalysis datasets

2011.8 – 2011.9, **Field observation (through visiting study)**

Department of Civil Engineering, University of Notre Dame, IN, US

- Conducted the field observation of the inundation with a hydraulic gauge in North Carolina caused by the Hurricane Irene in 2011, through the international visiting program of the Department of Civil Engineering, the University of Tokyo

PEER-REVIEWED PUBLICATIONS

Minamide, M., F. Zhang, E.E. Clothiaux, 2020: Nonlinear Forecast Error Growth of Rapidly Intensifying Hurricane Harvey (2017) Examined through Convection-permitting Ensemble Assimilation of GOES-16 All-sky Radiances, *Journal of the Atmospheric Sciences*, doi: 10.1175/JAS-D-19-0279.1

Minamide, M., and F. Zhang, 2019: Adaptive Background Error Inflation for Assimilating All-sky Satellite Radiance, *Quarterly Journal of the Royal Meteorological Society*, doi:10.1002/qj.3466.

Zhang, F., **M. Minamide**, X. Chen, R. G. Nystrom, S.-J. Lin and L. M. Harris, 2019: Improving Harvey Forecasts with Next-Generation Weather Satellites: Advanced Hurricane Analysis and Prediction with Assimilation of GOES-R All-Sky Radiances, *Bulletin of American Meteorological Society*, 100, doi:10.1175/BAMS-D-18-0149.1

Minamide, M., and F. Zhang, 2018: Assimilation of all-sky infrared radiances from Himawari-8 and impacts of moisture and hydrometer initialization on convection-permitting tropical cyclone prediction, *Monthly Weather Review*, 146, 3241-3258, doi:10.1175/MWR-D-17-0367.1.

Liu, S., D. Tao, K. Zhao, **M. Minamide**, and F. Zhang, 2018: Dynamics and predictability of the rapid intensification of Super Typhoon Usagi (2013), *Journal of Geophysical Research – Atmospheres*, 123, 2147-2159, doi:10.1029/2018JD028561.

Minamide, M., and F. Zhang, 2017: Adaptive Observation Error Inflation for Assimilating All-sky Satellite Radiance, *Monthly Weather Review*, 145,1063-1081, doi:10.1175/MWR-D-16-0257.1

Zhang, F., **M. Minamide**, E.E. Clothiaux, 2016: Potential Impacts of Assimilating All-sky Satellite Radiances from GOES-R on Convection-Permitting Analysis and Prediction of Tropical Cyclones, *Geophysical Research Letters*, 43, doi:10.1002/2016GL068468.

Minamide M., K. Yoshimura, 2014: Orographic effect on the precipitation with Typhoon Washi, *Scientific Online Letters on the Atmosphere*, 10, 67–71, doi:10.2151/sola.2014-014

Minamide M., T. Koike, 2013: Research on the Difficulty in Seasonal Prediction of Extreme Precipitation Events in Pakistan Focusing on the Anomaly of General Circulation, *Journal of Hydraulic Engineering (Japan Society of Civil Engineering)*, Vol.70, 301-306

Kennedy A. B., J. J. Westerink, J. M. Smith, M. E. Hope, M. Hartman, A. A. Taflanidis, S. Tanaka, H. Westerink, K. F. Cheung, T. Smith, M. Hamann, **M. Minamide**, A. Ota, C. Dawson, 2012: Tropical cyclone inundation potential on the Hawaiian Islands of Oahu and Kauai, *Ocean Modeling*, Vol.52-53, 54-68

Yokouchi N., I. Shibata, S. Abe, **M. Minamide**, H. Kato, 2011: Newspaper Reports on East Japan Great Earthquake in Four Countries: Comparative Analysis with Articles during One Month After the Disaster, *Sociotechnology Research Journal*, Vol.9, 1-29

PRESENTATIONS

Minamide M.: All-sky Infrared Satellite Radiance Assimilation for the severe weather event predictions, *Fall Meeting of the Meteorological Society of Japan*, online, Japan (Invited Oral Presentation)

Minamide M., F. Zhang, D. J. Posselt, 2020: Forecast error growth of convective processes through nonlinear interaction between dynamical and moisture initialization uncertainties, *the 100th Annual Meeting of American Meteorological Society*, Boston, MA (Invited Oral Presentation)

Minamide M., D. J. Posselt, 2020: Potential sources of variability in the vortex precession process prior to the onset of tropical cyclone rapid intensification, *the 100th Annual Meeting of American Meteorological Society*, Boston, MA (Poster Presentation)

Minamide M., D. J. Posselt, 2019: Predictability of atmospheric moist convection revealed by all-sky infrared satellite radiance assimilation, *Fall Meeting of American Geophysical Union*, San Francisco, CA (Poster Presentation)

Minamide M., D. J. Posselt, 2019: Potential impacts of tropical cyclone inner-core convective activity on the predictability of rapid intensification, *Annual meeting of Japanese Geophysical Union*, Chiba, Japan (Oral Presentation)

Minamide M., F. Zhang, D. J. Posselt, 2019: An adaptive background error inflation method for assimilating all-sky radiances, *Spring Meeting of the Meteorological Society of Japan*, Tokyo, Japan (Oral Presentation)

Minamide M., D. J. Posselt, 2019: Potential impacts of tropical cyclone inner-core moisture initializations on the predictability of the onset of rapid intensification, *The 99th Annual Meeting of American Meteorological Society*, Phoenix, AZ (Oral Presentation)

Minamide M., Y. Zhang, F. Zhang, 2019: Adaptive Observation Error Inflation (AOEI) and Adaptive Background Error Inflation (ABEI) for Convection-permitting Ensemble Assimilation of All-sky GOES-16 Radiances, *The 99th Annual Meeting of American Meteorological Society*, Phoenix, AZ (Oral Presentation)

Minamide M., F. Zhang, 2018: On the Predictability of Tropical Cyclones through All-sky Infrared Satellite Radiance Assimilation, *Second ADAPT Symposium on "Advanced Understanding, Monitoring and Prediction of Weather, Climate and Environmental Systems"*, University Park, PA (Invited Oral Presentation)

Minamide M., Jonathan H. Jiang, Hui Su, 2018: The Air Quality Prediction and Predictability through the 2017 California Wildfire, *Fall Meeting of the Meteorological Society of Japan*, Sendai, Japan (Poster Presentation)

Minamide M., F. Zhang, 2018: On the Predictability of Tropical Cyclones through All-sky Infrared Satellite Radiance Assimilation, *Fall Meeting of the Meteorological Society of Japan*, Sendai, Japan (Oral Presentation)

Minamide M., F. Zhang, 2018: Convection-Permitting Analysis and Prediction of Hurricane Harvey (2017) through Ensemble Assimilation of All-Sky GOES-R Radiance, *The 33rd Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra, FL (Oral Presentation)

Minamide M., J. Anderson, F. Zhang, 2018: Application of Empirical Localization Functions on All-Sky Satellite Radiance Assimilation, *The 98th Annual Meeting of American Meteorological Society*, Austin, TX (Oral Presentation)

Minamide M., Y. Zhang, F. Zhang, 2018: Assimilating High-resolution All-sky Infrared Radiances from GOES-R and Himawari-8 for Severe Weather and Tropical Cyclone Prediction, *The 98th Annual Meeting of American Meteorological Society*, Austin, TX (Oral Presentation)

Minamide M., F. Zhang, E. Clothiaux, 2016: Assimilation of all-sky infrared radiance from geostationary satellites, *Symposium on Advanced Assimilation and Uncertainty Quantification in BigData Research for Weather, Climate and Earth System Monitoring and Prediction*, State College, PA (Invited Oral Presentation)

Minamide M., F. Zhang, E. Clothiaux, 2016: Assimilation of All-sky Infrared Brightness Temperatures and Atmospheric Motion Vectors in Tropical Cyclone Forecasting, *the American Meteorological Society's 32nd Conference on Hurricanes and Tropical Meteorology*, San Juan, PR (Oral Presentation)

Minamide M., F. Zhang, E. Clothiaux, 2015: Impact of Assimilating GOES-R Infrared Brightness Temperatures on the Forecast of Tropical Cyclones, *American Meteorological Society's 27th Conference on Weather Analysis and Forecasting / 23rd Conference on Numerical Weather Prediction*, Chicago, IL (Oral Presentation)

Minamide M., T. Koike, 2014: The Impact of Boreal Summer Intra-Seasonal Oscillation on the development of extremely wet and dry condition in South Asian Summer Monsoon, *Fall Meeting of American Geophysical Union*, San Francisco, CA (Poster Presentation)

Minamide M., T. Koike, 2014: Research on the Difficulty in Seasonal Prediction of Extreme Precipitation Events in Pakistan Focusing on the Anomaly of General Circulation, *58th Conference on Hydraulic Engineering*, Kobe, Japan (Oral Presentation)

Minamide M., T. Koike, 2014: The Impact of Madden-Julian Oscillation on the Asian Summer Monsoon Precipitation in Pakistan, *95th Annual Meeting of American Meteorological Society*, Atlanta, GA (Poster Presentation)

Minamide M., T. Koike, 2013: The Impact of Local Meridional Circulations and Madden-Julian Oscillation on the Asian Summer Monsoon Precipitation in Pakistan, *Fall Meeting of American Geophysical Union*, San Francisco, CA (Poster Presentation)

Minamide M., T. Koike, 2013: Research on the Difficulty in Seasonal Prediction of Extreme Precipitation Events in Pakistan Focusing on the Anomaly of General Circulation, *GEOSS Joint Asia – Africa Water Cycle Symposium*, Tokyo, Japan (Poster Presentation)

Minamide M., K. Yoshimura, 2013: Orographic effect on the precipitation with Typhoon Washi, *Fall Meeting of the Meteorological Society of Japan*, Sendai, Japan (Oral Presentation)

Minamide M., S. Tanabe, H. Kato, 2012: Success Factors of Technology Transfer in the Bridge Engineering Training Center in Burma, *Fall Meeting of Committee of Infrastructure Planning and Management of Japan Society of Civil Engineering*, Saitama, Japan (Poster Presentation)

SKILLS

- **OS**: Linux, Unix, Windows, macOS
- **Programming:** Fortran, Python, MATLAB, GrADS
- **Office suites:** Microsoft Office
- **Miscellaneous:** Vim, Git, shell scripts
- **Language:** English (fluent), Japanese (native), French (intermediate)

TEACHING, LEADERSHIP AND MANEGERIAL EXPERIENCE

2016.9 – present, **President of Japanese Graduate Student Association in the US (JGSAU)**

- Managed an all-volunteer organization that serves the community of Japanese graduate students who are going to attain academic degrees in the US or some other countries
- Held and managed more than 30 seminars at more than 10 universities in Japan (including the University of Tokyo), to provide information about graduate schools all over the world (such as the comparison of education system)

2018.8, **Director of Funai Overseas Scholarship's Summer Workshop**

The Westin Bonaventure Hotel and Suites, Los Angeles, CA, US

- Coordinated and managed an academic workshop among the recipients of Funai Overseas Scholarship (FOS) as a representative of all recipients studying all over the world

2017.8, **Director of Funai Overseas Scholarship's Summer Workshop**

Boston Marriott Copley Place, Boston, MA, US

- Coordinated and managed an academic workshop among the recipients of Funai Overseas Scholarship (FOS) as a representative of all recipients studying all over the world

2009.5 – 2012.8, **Teaching Assistant**

Sundai Preparatory School, Tokyo and Kanagawa, Japan

- Guided high school students for their preparation of university entrance exam
    - Particularly, Mathematics, Physics, English and national language

2011.12 – 2012.5, **Project Manager of Disaster Recovery Assistance Program**

Kuya Fish Campaign, Cagayan de Oro, the Philippines

- Planned, Managed and Completed a well-construction project in the devastated area of Typhoon Washi (2011) in the Mindanao island of the Philippines

2011.3 – 2011.4, **Work-Camp Leader of Disaster Recovery Assistance Program**

NGO NICE, Rikuzentakada, Iwate, Japan

- Coordinated various volunteer work in the Devastated Area of East Japan Great Earthquake, cleaning destroyed houses, cultivating rice and offering mental care

2010.2 – 2010.3, **Internship for International Development Program**

NGO Gawad Kalinga, Davao, the Philippines

- Engaged in development assistance, construction and Elementary education projects