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Work History

Dec 2024 – Present – **Postdoctoral Research Associate – UC San Diego, La Jolla, San Diego, United States**

Scripps Institution of Oceanography

Mar 2024 – Nov 2024 – **Postdoctoral Research Associate – Seoul National University, Seoul, South Korea**

School of Earth and Environmental Sciences



Education

Mar 2021 – Feb 2024 – **Ph.D. – Pohang University of Science and Technology (POSTECH), Pohang, South Korea**

Department of Environmental Science and Engineering

Dissertation: Irreversibility of global climate system and its potential predictability

Advisor: Prof. Jong-Seong Kug

Mar 2019 – Feb 2021 – **M. S. – Pohang University of Science and Technology (POSTECH), Pohang, South Korea**

Department of Environmental Science and Engineering

Thesis: Impact of Antarctic meltwater forcing on East Asian climate under global warming

Advisor: Prof. Jong-Seong Kug

Mar 2013 – Feb 2019 – **B. S. – Pusan National University, Busan, South Korea**

Atmospheric Science



Fellowship

2022 Brain Korea 21 (BK21) POSTECHIAN Fellowship



Research Interests

- Climate Dynamics
- Irreversibility and tipping point of climate system
- Atlantic Meridional Overturning Circulation
- Earth System Modeling
- Marine Biogeochemical Circulation



Awards

- Best Poster Award, Korea Hydrographic and Oceanographic Agency, Jun 2019
- Best Poster Award, Korean Meteorological Society (KMS), Apr 2023
- Best Dissertation Award in the field of Natural Science (Sung-Kee Chung Award), Pohang University of Science and Technology (POSTECH), Feb 2024
- Best Dissertation Award, Korean Meteorological Society (KMS), Oct 2024



Publications

(† : co-first author, * : corresponding author)

< Published (12) >

[2024]

1. **Fast recovery of North Atlantic sea level in response to atmospheric CO₂ removal (2024), *Communications Earth & Environment* [in press]**
S. Wang, Y. Shin, [J.-H. Oh*](#), J.-S. Kug*
2. **Delayed ENSO impact on phytoplankton variability over the Western-North Pacific Ocean (2024), *Environmental Research Communications*, 6, 10, 101006 [link]**
D.-G. Lee, [J.-H. Oh*](#), J.-S. Kug*
3. **Deep ocean warming-induced El Niño changes (2024), *Nature Communications*, 15, 1, 6225 [link]**
G.-I. Kim, [J.-H. Oh](#), N.-Y. Shin, S.-I. An, S.-W. Yeh, J. Shin, J.-S. Kug*
4. **Fast and Slow Responses of Atlantic Meridional Overturning Circulation to Antarctic Meltwater Forcing (2024), *Geophysical Research Letters*, 51, 9, e2024GL108272 [link]**
Y. Shin, X. Geng, [J.-H. Oh](#), K.-M. Noh, E. K. Jin, J.-S. Kug*
5. **Emergent climate change patterns originating from deep ocean warming in climate mitigation scenarios (2024), *Nature Climate Change*, 14, 3, 260-266 [link]**
[J.-H. Oh](#), J.-S. Kug*, S.-I. An, F.-F. Jin, M. McPhaden, J. Shin

6. Role of Atlantification in enhanced primary productivity in the Barents Sea (2024), *Earth's Future*, 12, 1, e2023EF003709 [\[link\]](#)

K.-M. Noh, [J.-H. Oh](#), H.-G. Lim, J.-S. Kug*

[2023]

7. Increase in convective Extreme El Nino events in the CO₂ removal scenario (2023), *Science Advances*, 9, 25, eadh2412 [\[link\]](#)

Pathirana. G, [J.-H. Oh](#), W. Cai, S.-I. An, S.-K. Min, S.-Y. Jo, J. Shin, J.-S. Kug*

8. What controls the future phytoplankton change over Yellow and East China Seas under global warming? (2023), *Frontiers in Marine Science*, 10, 1010341 [\[link\]](#)

D.-G. Lee, [J.-H. Oh](#), K.-M. Noh, E.-Y. Kwon, Y.-H. Kim, J.-S. Kug*

[2022]

9. Centennial memory of the Arctic Ocean for future Arctic climate recovery in response to carbon dioxide removal (2022), *Earth's Future*, 10, 8, e2022EF002804 [\[link\]](#)

[J.-H. Oh](#), S.-I. An, J. Shin, J.-S. Kug*

10. Antarctic meltwater-induced dynamical changes in phytoplankton in the Southern Ocean (2022), *Environmental Research Letters*, 17, 2, 024022 [\[link\]](#)

[J.-H. Oh](#), K.-M Noh, H.-G Lim, E. K. Jin, S.-Y. Jun, J.-S. Kug*

11. Hysteresis of intertropical convergence zone to CO₂ forcing (2022), *Nature Climate Change*, 12, 1, 47-53 [\[link\]](#)

J.-S. Kug^{†*}, [J.-H. Oh](#)[†], S.-I. An, S.-W. Yeh, S.-K. Min, S.-W. Son, J. Kam, Y.-G. Ham, J. Shin

[2020]

12. Impact of Antarctic meltwater forcing on East Asian climate under greenhouse warming (2020), *Geophysical Research Letters*, 47, 21, e2020GL089951 [\[link\]](#)

[J.-H Oh](#), W.-S. Park, H.-G. Lim, K.-M. Noh, E. K. Jin, J.-S. Kug*

< In Progress / Submitted >

1. Emergence of the ocean CO₂ uptake hole under global warming, *Nature Communications (in minor revision)*

H. Lee, K.-M. Noh, [J.-H. Oh](#), S.-W. Park, Y. Shin*, J.-S. Kug*

2. Emergence of South Atlantic Convergence Zone-ENSO connection under global warming, *Communications Earth & Environment (in major revision)*

J.-H. Park*, J.-S. Kug*, Y.-M. Yang, H.-J. Park, G.-I. Kim, [J.-H. Oh](#), Chao. Liu, S.-I. An

3. Pervasive fire danger continued under a negative emission scenario, *Nature Communications (in minor revision)*

H.-J. Kim, J.-S. Kim*, S.-I. An*, J. Shin, [J.-H. Oh](#), J.-S. Kug

4. Forthcoming tipping point of Atlantic Meridional Overturning Circulation collapse with carbon stabilization, *Nature Climate Change (in minor revision)*

[J.-H. Oh](#), J.-S. Kug*, Y. Shin, X. Geng, S. Wang, F.-F. Jin, S.-I. An, S.-P. Xie, W. Liu

5. Non-monotonic future changes in the North Atlantic warming hole under a fast CO2 emission scenario, *Journal of Climate* (in review)

X. Geng, [J.-H. Oh](#), Y. Shin, J. Shin, K.-M. Noh, J.-S. Kug*, S.-W. Park

6. Two different phytoplankton blooming mechanisms over the East Asian Marginal Seas during El Niño decaying summers, *Science of the Total Environment* (submitted)

D.-G. Lee, [J.-H. Oh](#), J. Kam, J.-S. Kug*

< In Progress / In Preparation >

7. Amplified climate extremes in North America and Europe upon crossing the tipping point of Atlantic Meridional Overturning Circulation collapse (in prep)

[J.-H. Oh](#), G.-I. Kim, J.-H. Park, J.-S. Kug*, S.-P. Xie

8. Reconciled early-warning signal in observation and model supports nearing tipping of the Atlantic Meridional Overturning Circulation (in prep)

Y. Shin, [J.-H. Oh](#), N. Boers, S. Bathiany, M. Arthun, H. Kim, H. Lee, J.-S. Kug*

9. The impact of urbanization on vegetation and climate on the island of Borneo, Indonesia (in prep)

D. Lee, S.-W. Park, [J.-H. Oh](#), J.-S. Kug*

10. Why is sea level irreversible?: role of SST pattern induced by deep ocean warming (in prep)

S. Wang, Y. Shin, [J.-H. Oh](#), H. Kim, J.-S. Kug*