Ji-Hoon Oh

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Work History

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

School of Earth and Environmental Sciences



Education

Mar 2021 - Ph.D. – Pohang University of Science and Technology Feb 2024 (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 - M. S. – Pohang University of Science and Technology Feb 2021 (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 - B. S. – Pusan National University, Busan, South Korea

Feb 2019 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)



[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, <u>J.-H. Oh</u>, 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, <u>J.-H. Oh</u>, 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, <u>J.-H. Oh</u>, W. Cai, S.-I. An, S.-K. Min, S.-Y. Jo, J. Shin, J.-S. Kug*

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*
- 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.-l. Kim, J.-H. Oh, Chao. Liu, S.-l. 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, <u>J.-H. Oh</u>, J.-S. Kug

- 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
- 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*