

Chaehyeong Lee

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Research Interests

Ocean dynamics and climate sciences: ocean heat budget; ocean's role in climate systems.

Geofluid dynamics: upper-ocean mixing processes in the frequency domain.

Education

University of Colorado Boulder

Ph.D. in Atmospheric and Oceanic Sciences

Advisors: Dr. Donata Giglio & Dr. Aneesh Subramanian

Boulder, CO, USA

Aug. 2024 – present

Yonsei University

M.S. in Atmospheric Science

Advisor: Dr. Hajoong Song

Seoul, Rep. of Korea

Mar. 2022 – Aug. 2023

Yonsei University

B.S. in Atmospheric Science

Seoul, Rep. of Korea

Mar. 2016 – Feb. 2022

Publications

In Progress.....

Lee, C., Giglio, D., Subramanian, A. C., Han, W., Capotondi, A., Du, D., & Molod, A. *Assessing the impact of sea surface salinity assimilation on extreme event prediction in NASA GEOS-S2S v2 model.*

Lee, C., Giglio, D., & Subramanian, A. C. *Bridging gaps in the upper-ocean heat budget between observations and climate models: a frequency-domain perspective.*

Published.....

Lee, C., Song, H., Choi, Y., Cho, A., & Marshall, J. (2025). Observed multi-decadal increase in the surface ocean's thermal inertia. *Nature Climate Change*, 1–7. doi:10.1038/s41558-025-02245-w

Research Experience

Giglio's Research Group, CU Boulder

Research Assistant

Developing methods to improve NASA GEOS-S2S v2 simulations via sea-surface salinity assimilation; Filling gaps in upper-ocean mixing processes between observations and models through frequency-domain analysis.

Boulder, CO, USA

Aug. 2024 – present

Climate Processes and Predictability Group, CU Boulder

Research Assistant

Boulder, CO, USA

Aug. 2024 – present

Air-Sea Modeling Lab, Yonsei University

Research Assistant

Analyzed changes in the upper-ocean thermal state using SST observations; examined hysteresis of thermal memory under CESM 4×CO₂ experiments.

Seoul, Rep. of Korea

Dec. 2020 – Aug. 2024

Teaching Experience

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| Data Science Laboratory, taught by Dr. Donata Giglio at CU Boulder <i>Teaching Assistant</i> | Boulder, CO, USA <i>Spring 2026</i> |
| Climate & Civilization, taught by Dr. Yign Noh at Yonsei Univ. <i>Teaching Assistant</i> | Seoul, Rep. of Korea <i>Spring 2023</i> |
| Physical Oceanography, taught by Dr. Hajoong Song at Yonsei Univ. <i>Teaching Assistant</i> | Seoul, Rep. of Korea <i>Fall 2022</i> |

Awards & Scholarships

2025: ATOC Fellowship, Department of Atmospheric and Oceanic Sciences, University of Colorado Boulder
2025: Academic Research Grants (GCP research credits), Google LLC
2024: Outstanding Thesis Award, Yonsei University Graduate School, Yonsei University
2022–2023: Full tuition merit scholarship (for the top 2 graduate students), Yonsei University
2022: High Honors for academic performance, Yonsei University
2020–2021: Jillli Scholarship for academic performance, Yonsei University

Patent

Song, H., & Lee, C. (2025). *Evaluation system and method of persistence of SST anomalies using autocorrelation coefficient and arctangent regressive model*. Rep. of Korea Patent #1028135790000. doi:10.8080/1020220157159

Invited Talk

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| NASA Salinity Telecon <i>Assessing the Impact of Satellite Sea Surface Salinity Assimilation on Vertical Structure of the Upper Ocean in the NASA GEOS-S2S 2.</i> | Virtual Meeting <i>Dec. 2025</i> |
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Conferences

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| OSM 2026 (poster) <i>Assessing the Impact of Satellite Sea Surface Salinity Assimilation on the Upper Ocean Thermal State in the NASA GEOS S2S-v2 Model.</i> <i>Lee, C., Giglio, D., & Subramanian, A. C.</i> | Glasgow, Scotland <i>Feb. 2026</i> |
| AGU Fall Meeting (poster) <i>The increasing trend of persistence of sea surface temperature in the past 40 years.</i> <i>Lee, C., Song, H., Cho, A., & Tak, Y.</i> | Chicago, IL, USA <i>Dec. 2022</i> |
| Korean Society of Oceanography Spring Conference (talk) <i>Increasing persistence of SST anomalies and duration of marine heatwaves.</i> <i>Lee, C., Song, H., Cho, A., & Tak, Y.</i> | Jeju, Rep. of Korea <i>Jun. 2022</i> |

Workshops

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| User Training for the Glosea 6 Climate Prediction Model <i>Organized by the Korea Meteorological Administration</i> | Jeju, Rep. of Korea <i>Jan. 2022</i> |
| Deep Learning Training: Fundamentals of Deep Learning <i>NVIDIA Deep Learning Institute</i> | Gonju, Rep. of Korea <i>Jan. 2022</i> |

Service

Peer Reviewer: *Journal of Climate*

Technical Skills

Programming: Python (xarray, dask, Pangeo), Julia (Oceananigans)

HPC: Parallel/distributed computing, NCAR Casper/Derecho clusters

Tools: Git, Linux shell scripting, LaTeX