

# Chaehyeong Lee

Boulder, Colorado, USA

✉ +1 (303) 258-6841 • ✉ Chaehyeong.Lee@colorado.edu

🌐 sites.google.com/yonsei.ac.kr/hyeong • 🌐 <https://orcid.org/0009-0005-3110-9839>

## 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

Boulder, CO, USA

*Ph.D. in Atmospheric and Oceanic Sciences*

Aug. 2024 – present

Advisors: Dr. Donata Giglio & Dr. Aneesh Subramanian

### Yonsei University

Seoul, Rep. of Korea

*M.S. in Atmospheric Science*

Mar. 2022 – Aug. 2023

Advisor: Dr. Hajoon Song

### Yonsei University

Seoul, Rep. of Korea

*B.S. in Atmospheric Science*

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

Boulder, CO, USA

*Research Assistant*

Aug. 2024 – present

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.

### Climate Processes and Predictability Group, CU Boulder

Boulder, CO, USA

*Research Assistant*

Aug. 2024 – present

### Air-Sea Modeling Lab, Yonsei University

Seoul, Rep. of Korea

*Research Assistant*

Dec. 2020 – Aug. 2024

Analyzed changes in the upper-ocean thermal state using SST observations; examined hysteresis of thermal memory under CESM 4×CO<sub>2</sub> experiments.

## Teaching Experience

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

## Awards & Scholarships

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- 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: Jilli Scholarship for academic performance, Yonsei University

## Patent

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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 Virtual Meeting  
*Assessing the Impact of Satellite Sea Surface Salinity Assimilation on Vertical Structure of the Upper Ocean in the NASA GEOS-S2S 2.* Dec. 2025

## 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> Lee, C., Giglio, D., & Subramanian, A. C.	Glasgow, Scotland Feb. 2026
AGU Fall Meeting (poster) <i>The increasing trend of persistence of sea surface temperature in the past 40 years.</i> Lee, C., Song, H., Cho, A., & Tak, Y.	Chicago, IL, USA Dec. 2022
Korean Society of Oceanography Spring Conference (talk) <i>Increasing persistence of SST anomalies and duration of marine heatwaves.</i> Lee, C., Song, H., Cho, A., & Tak, Y.	Jeju, Rep. of Korea Jun. 2022

## 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 Jan. 2022
Deep Learning Training: Fundamentals of Deep Learning <i>NVIDIA Deep Learning Institute</i>	Gonju, Rep. of Korea Jan. 2022

## Service

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Peer Reviewer: *Journal of Climate*

## Technical Skills

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

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

**Tools:** Git, Linux shell scripting, LaTeX