

# Chaehyeong Lee

Boulder, Colorado, US

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

🌐 [sites.google.com/yonsei.ac.kr/hyeong](https://sites.google.com/yonsei.ac.kr/hyeong)

🆔 <https://orcid.org/0009-0005-3110-9839>

## Research Interests

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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

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### 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 Sciences*

Advisor: Dr. Hajoon Song

**Seoul, Rep. of Korea**

*Mar. 2022 – Aug. 2023*

### Yonsei University

*B.S. in Atmospheric Sciences*

**Seoul, Rep. of Korea**

*Mar. 2016 – Feb. 2022*

## Publications

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### In Progress

Lee, C., Giglio, D., & Subramanian, A. C. *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

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### 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×CO<sub>2</sub> experiments.

**Seoul, Rep. of Korea**

*Dec. 2020 – Aug. 2024*

## Awards & Scholarships

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**2025:** ATOC Fellowship (4000 USD), Department of Atmospheric and Oceanic Sciences, University of Colorado Boulder

**2025:** Academic Research Grants (GCP research credits ~ 1000 USD), 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 (2.3M KRW) 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)

### Glasgow, Scotland

*Assessing the Impact of Satellite Sea Surface Salinity Assimilation on the Upper Ocean Thermal State in the NASA GEOS S2S-v2 Model.*

Feb. 2026

Lee, C., Giglio, D., & Subramanian, A. C.

### AGU Fall Meeting (poster)

### Chicago, IL, USA

*The increasing trend of persistence of sea surface temperature in the past 40 years.*

Dec. 2022

Lee, C., Song, H., Cho, A., & Tak, Y.

### Korean Society of Oceanography Spring Conference (talk)

### Jeju, Rep. of Korea

*Increasing persistence of SST anomalies and duration of marine heatwaves.*

Jun. 2022

Lee, C., Song, H., Cho, A., & Tak, Y.

## Workshops

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### User Training for the GloSea 6 Climate Prediction Model

### Jeju, Rep. of Korea

*Organized by the Korea Meteorological Administration*

Jan. 2022

### Deep Learning Training: Fundamentals of Deep Learning

### Gonju, Rep. of Korea

*NVIDIA Deep Learning Institute*

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