

CHAEHYEONG LEE

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↗ <https://sites.google.com/yonsei.ac.kr/hyeong>

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RESEARCH INTERESTS

Ocean Dynamics and Climate Sciences

- Ocean's heat budget and its change
- Ocean's role in climate systems

Physical Oceanography

- Upper ocean mixing processes in a frequency domain

EDUCATION

Ph.D in Atmospheric and Oceanic Sciences

Aug. 2024 - present

University of Colorado Boulder, Boulder, CO

Advisor: Dr. Donata Giglio & Dr. Aneesh Subramanian

M.S. in Atmospheric Sciences

Mar. 2022 - Aug. 2023

Yonsei University, Seoul, Republic of Korea

Advisor: Dr. Hajoon Song

B.S. in Atmospheric Sciences

Mar. 2016 - Feb. 2022

Yonsei University, Seoul, Republic of Korea

class ranking (2/22)

Selected course taken:

(at Yonsei) Advanced Physical Oceanography(A+); Air-sea interaction(A+); Ocean Modeling(A+); Mechanics(A+); Data Assimilation(A+); Turbulence(audit)

(at CUB) Physical Oceanography & Climate(A); Atmospheric Thermodynamics & Dynamics(A)

PUBLICATIONS

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. <https://doi.org/10.1038/s41558-025-02245-w>.

Work in Progress

Lee, C., Giglio, D., & Subramanian, A. C. Assessing the impact of sea salinity assimilation on extreme events prediction in NASA GEOS-S2S v2 Model.

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

PROFESSIONAL EXPERIENCES

Research Experiences

Research Assistant — Giglio's research group, Univ. of Colo. Boulder

Aug. 2024 - present

Working with Dr. Donata Giglio and Dr. Aneesh Subramanian to better understand the physical properties of the upper ocean and its role in Earth's climate. Developing methods to improve climate models to better simulate the real world, with ongoing research quantifying how sea surface salinity assimilation improves the NASA GEOS S2S v2 model.

Research Assistant — Air-Sea Modeling lab., Yonsei University

Dec. 2020 - Aug. 2024

Worked on many projects with Dr. Hajoon Song and colleagues estimating changes in the thermal state in the upper ocean using sea surface temperature observations. The hysteresis of thermal memory at the ocean surface is analyzed from the CESM 4×CO₂ emission and recovery experiment.

AWARDS & SCHOLARSHIPS

Third Prize (Outstanding Thesis Award), Yonsei University

Jul. 2024

Full tuition scholarship for merit (18.6M KRW), Yonsei University

Mar. 2022 - Aug. 2023

High Honors (for High Academic Performance), Yonsei University

Feb. 2022

Jilli Scholarship (2.3M KRW) (for High Academic Performance), Yonsei University

Jun. 2020 - Jun. 2021

CONFERENCES & WORKSHOPS

Conferences

AGU Fall meeting, *Chicago, IL*

Dec. 2022

Lee C.*, Song H., Cho A., & Tak Y. The increasing trend of persistence of sea surface temperature in the past 40 years. (poster)

The Korean Society of Oceanography Spring conference, *Jeju, Rep. of Korea*

Jun. 2022

Lee C., Song H., Cho A., & Tak Y. Increasing persistence of sea surface temperature anomaly and duration of marine heatwaves. (oral)

Workshops

User training for the Glosea 6 climate prediction model

Jan. 2022

Korea Meteorological Administration, Jeju, Rep. of Korea

TECHNICAL SKILLS

Programming

Python (Numpy, Xarray, Pangeo, Tensorflow and Dask)

Julia

Software & Tools

Oceananigans

High performance computing

PATENT

Hajoon Song & Chaehyeong Lee, Evaluation System and Method of persistence of Sea Surface Temperature anomalies using autocorrelation coefficient and Arctangent regressive model, Republic of Korea Patent Registered: 1028135790000

Nov. 2022

SERVICES

Peer reviewer

Journal of Climate