

# SHANTONG SUN

California Institute of Technology, Pasadena, CA 91125

[shantong@caltech.edu](mailto:shantong@caltech.edu), <https://stsun.github.io>

## RESEARCH DESCRIPTION

---

**Interests:** Large-scale circulation of the ocean, especially the global ocean overturning circulation and its interaction with the atmosphere and cryosphere; Paleoclimate

**Methods:** Numerical simulations using general circulation models (GCMs); development of idealized conceptual models

## EDUCATION

---

Ph.D., Physical Oceanography Scripps Institution of Oceanography, UC San Diego Advisor: Ian Eisenman	2013-2019
M.S., Physical Oceanography Ocean University of China Advisor: Lixin Wu	2011-2013
B.S., Marine Science Ocean University of China	2007-2011

## APPOITMENTS

---

09/2019-present: Postdoctoral scholar, California Institute of Technology

09/2013-08/2019: Graduate Student Research Assistant, Scripps Institution of Oceanography, UC San Diego

## PUBLICATIONS

---

Submitted or In preparation

S. Sun, A.F. Thompson, S.-P. Xie, and S.-M. Long, Indo-Pacific warming induced by a weakening in the Atlantic Meridional Overturning Circulation, *in prep.*

Peer-reviewed

12. S. Sun and I. Eisenman, 2021: Observed Antarctic sea ice expansion reproduced in a climate model after correcting biases in sea ice drift velocity. *Nat. Commun.*
11. S. Sun and A. F. Thompson, 2020: Centennial changes in the Indonesian Throughflow connected to the Atlantic Meridional Overturning Circulation: the ocean's transient conveyor belt. *Geophys. Res. Lett.*, 47, e2020GL090615
10. S. Sun, A. F. Thompson, and I. Eisenman, 2020: Transient overturning compensation between Atlantic and Indo-Pacific basins. *J. Phys. Oceanogr.*, 50(8), 2151–2172

9. S. Sun, I. Eisenman, L. Zanna, and A. L. Stewart, 2020: Surface constraints on the depth of the Atlantic Meridional Overturning Circulation: Southern Ocean vs North Atlantic. *J. Clim.*, 33(8), 3125–3149
8. S. Sun, I. Eisenman, and A. L. Stewart, 2018: Does Southern Ocean surface forcing shape the global ocean overturning circulation? *Geophys. Res. Lett.*, 45(5), 2413–2423
7. S. Sun and J. Liu, 2017: Sensitivity of the Antarctic Circumpolar Current transport to surface buoyancy conditions in the North Atlantic. *Ocean Modell.*, 118, 118–129
6. H. Yang, L. Wu, S. Sun, and Z. Chen, 2017: Role of the South China Sea in Regulating the North Pacific Double-Gyre System. *J. Phys. Oceanogr.*, 47(7), 1617–1635
5. H. Yang, L. Wu, S. Sun, and Z. Chen, 2017: Selective Response of the South China Sea Circulation to Summer Monsoon. *J. Phys. Oceanogr.*, 47(7), 1555–1568
4. S. Sun, I. Eisenman, and A. L. Stewart, 2016: The influence of Southern Ocean surface buoyancy forcing on glacial-interglacial changes in the global deep ocean stratification. *Geophys. Res. Lett.*, 43(15), 8124–8132
3. H. Yang, L. Wu, S. Sun, and C. Zhaohui, 2015: Low-frequency variability of monsoon-driven circulation with application to the south china sea. *J. Phys. Oceanogr.*, 45(6), 1632–1650
2. Z. Chen, L. Wu, B. Qiu, S. Sun, and F. Jia, 2014: Seasonal variation of the South Equatorial Current bifurcation off Madagascar. *J. Phys. Oceanogr.*, 44(2), 618–631
1. S. Sun, L. Wu, and B. Qiu, 2013: Response of the inertial recirculation to intensified stratification in a two-layer quasigeostrophic ocean circulation model. *J. Phys. Oceanogr.*, 43(7), 1254–1269

Non-refereed

S. Sun (2019). Surface constraints on the global ocean overturning circulation: Southern Ocean vs North Atlantic. PhD thesis, Scripps Institution of Oceanography, UC San Diego, 216 pages.

## SELECTED PRESENTATIONS

---

- (2015) AGU Fall Meeting: Influence of the Southern Ocean on the global deep ocean stratification (*talk*)
- (2017) Southern Ocean Workshop at NCAR: Does Southern Ocean surface forcing shape the global ocean overturning circulation? (*talk*)
- (2018) Ocean Science Meeting: Does Southern Ocean surface forcing shape the global ocean overturning circulation? (*poster*)
- (2019) 22nd AOFD: What sets the depth of the Atlantic Meridional Overturning Circulation? (*talk*)
- (2020) Ocean Science Meeting: The role of the Indo-Pacific Ocean in mediating the transient response of the Atlantic Meridional Overturning Circulation (*talk*)
- (2020) JPL/Caltech: Centennial changes in the Indonesian Throughflow connected to the Atlantic Meridional Overturning Circulation: a transient Conveyor Belt (*seminar*)
- (2020) DAMTP/Cambridge: The ocean's transient conveyor belt (*seminar*)
- (2020) AGU Fall Meeting: Connecting the Atlantic Meridional Overturning Circulation to the Indonesian Throughflow: a transient Conveyor Belt (*talk*)

## TEACHING EXPERIENCE

---

1. Fall, 2010 (OUC): Teaching assistant for *Internal Waves* (Instructor: Xu Chen)
2. Fall, 2016 (SIO): Teaching assistant for *Introduction to Physical Oceanography* (Instructor: Lynne Talley)
3. Fall, 2017 (SIO): Guest Lecture for *Numerical Modelling of the Climate System* (Instructor: Ian Eisenman)

## OTHER ACTIVITIES

---

- Educational outreach - Volunteer for Science Expo Day in San Diego (March, 2015)
- NASA Summer School on Satellite Observations and Climate Models (2019)
- Reviewer for *Journal of Physical Oceanography*, *Geophysical Research Letters*, *Communications Earth & Environment*, *Journal of Geophysical Research-Ocean*, and *Deep Sea Research I*