

SHUWEN TAN

South Circle View Dr, Multipurpose Science and Technology Building, Irvine, CA 92617, USA
s.tan@uci.edu

EDUCATION

- Ph.D., Physical Oceanography** *September 2014 - September 2020*
University of Chinese Academy of Sciences (UCAS), Beijing, China
- B.S., Marine Science** *September 2010 - July 2014*
Ocean University of China, Qingdao, China

RESEARCH EXPERIENCE

Postdoctoral Scholar *December 2022 - Ongoing*
Supervised by Dr. Kristen Davis
Department of Civil and Environmental Engineering, University of California, Irvine, USA

- on project “Refraction and Reflection of Nonlinear Internal Waves from Steep Topography”

Postdoctoral Research Scientist *April 2021 - December 2022*
Supervised by Dr. Andreas Thurnherr
Ocean & Climate Physics Division, Lamont-Doherty Earth Observatory, USA

- U.S. Global Ocean Ship-based Hydrographic Investigations Program (GO-SHIP) Postdoc Fellow
- Co-chief Scientist on GO-SHIP cruise P02W

Graduate Research Assistant *September 2015 - September 2020*
Supervised by Dr. Dongliang Yuan
Institute of Oceanology, Chinese Academy of Sciences, China

- Participated in program “Northwestern Pacific Ocean Circulation & Climate Experiment (NPOCE/CLIVAR)”

Guest student *September 2017 - September 2019*
Supervised by Dr. Larry Pratt
Physical Oceanography Department, Woods Hole Oceanographic Institution, USA

- Conducted projects: “Hydraulics and mixing in the deep branch of the Indonesian Throughflow” and “Hydraulic control and adjustment in a channel+plateau system”

Guest student *April 2019 - May 2019*
Multiscale Ocean Dynamics Group, Scripps Institution of Oceanography, USA

- Collaborated on the “Samoan Passage Project” with Dr. Gunnar Voet, Dr. Matthew Alford, etc.

Peer-reviewed articles

- Tan, S.** and Thurnherr, A.M., 2023: On the global decrease in the deep and abyssal density stratification along the spreading pathways of Antarctic Bottom Water since the 1990s. *Geophysical Research Letters*, 50, e2022GL102422.
- Voet, G., Alford, M. H., Cusack, J. M., Pratt, L. J., Girton, J. B., Carter, G. S., Klymak, J. M., **Tan, S.**, Thurnherr, A. M., 2023: Energy and momentum of a density-driven overflow in the Samoan Passage. *Journal of Physical Oceanography*
- Yuan, D., X. Yin, X. Li, C. Corvianawatie, Z. Wang, Y. Li, Y. Yang, X. Hu, J. Wang, **S. Tan**, et al., 2022: A Maluku Sea intermediate western boundary current connecting Pacific Ocean circulation to the Indonesian Throughflow. *Nat Commun*, 13, 2093.
- Tan, S.**, L.J. Pratt, G. Voet, J.M. Cusack, K.R. Helfrich, M.H. Alford, J.B. Girton, G.S. Carter, 2022: Hydraulic control of flow in a multi-passage system connecting two basins. *Journal of Fluid Mechanics*, 940, A8.
- Zhou, H., H. Liu, **S. Tan**, W. Yang, Y. Li, X. Liu, Q. Ren, and W. K. Dewar, 2021: The Observed North Equatorial Countercurrent in the Far Western Pacific Ocean during the 2014/16 El Niño. *Journal of Physical Oceanography*, 51 (6).
- Tan, S.**, L.J. Pratt, D. Yuan, C. Corvianawatie, Dewi Surinati, Asep S. Budiman, Ahmad Bayhaqi, 2020: Hydraulics and Mixing of the Deep Overflow in the Lifamatola Passage of the Indonesian Seas. *Journal of Physical Oceanography*, 50, 2797–2814.
- Zhang, Z., L.J. Pratt, J. Wang, F. Wang, and **S. Tan**, 2020: Intermediate Intraseasonal Variability in the Western Tropical Pacific Ocean: Meridional Distribution of Equatorial Rossby Waves Influenced by a Tilted Boundary. *Journal of Physical Oceanography*, 50(4), 921–933.
- Cusack, J.M., G. Voet, M.H. Alford, J.B. Girton, G.S. Carter, L.J. Pratt, K.A. Pearson-Potts, and **S. Tan**, 2019: Persistent Turbulence in the Samoan Passage. *Journal of Physical Oceanography*, 49(12), 3179–3197
- Carter, G.S., G. Voet, M.H. Alford, J.B. Girton, J.B. Mickett, J.M. Klymak, L.J. Pratt, K.A. Pearson-Potts, J.M. Cusack, and **S. Tan**, 2019: A spatial geography of abyssal turbulent mixing in the Samoan Passage. *Oceanography*, 32(4), 194–203.
- Girton, J.B., J.B. Mickett, Z. Zhao, M.H. Alford, G. Voet, J.M. Cusack, G.S. Carter, K.A. Pearson-Potts, L.J. Pratt, **S. Tan**, and J.M. Klymak, 2019: Flow–topography interactions in the Samoan Passage. *Oceanography*, 32(4), 184–193.
- Pratt, L.J., G. Voet, A. Pacini, **S. Tan**, M.H. Alford, G.S. Carter, J.B. Girton, and D. Menemenlis, 2019: Pacific Abyssal Transport and Mixing: Through the Samoan Passage versus around the Manihiki Plateau. *Journal of Physical Oceanography*, 49, 1577–1592.
- Tan, S.** and Zhou, H., 2018: The observed impacts of the two types of El Niño on the North Equatorial Countercurrent in the Pacific Ocean. *Geophysical Research Letters*, 45, 10,493–10,500.
- Yuan, D., X. Li, Z. Wang, Y. Li, J. Wang, Y. Yang, X. Hu, **S. Tan**, H. Zhou, A.K. Wardana, D. Surinati, A. Purwandana, M.F. Azis Ismail, P. Avianto, D. Dirhamsyah, Z. Arifin, and J.v. Storch, 2018: Observed Transport Variations in the Maluku Channel of the Indonesian Seas Associated with Western Boundary Current Changes. *Journal of Physical Oceanography*, 48, 1803–1813.

Tan, S. and Thurnherr, A.M., Implications of the decadal stratification changes for hydraulic control of abyssal channel flow.

Cusack, J. M., **Tan, S.**, Voet, G., Pratt, L. J., Alford, M. H., Carter, G. S. Girton, J. B., The structure and stability of a deep ocean overflow.

Tan, S., Cusack, J. M., Voet, G., Pratt, L. J., Alford, M. H., Carter, G. S. Girton, J. B., On the cyclic instability of the overflow in the Samoan Passage.

Tan, S., Davis, K., Rogers, J., Fringer, O., Pawlak, G., Okun, K., Numerical modeling of solitary wave interactions around an idealized conical island.

SEMINAR AND CONFERENCE PRESENTATIONS

Tan, S., K. Davis, et al., (2023), How do solitary waves distribute their energy at Dongsha Atoll? **Poster**, Coastal Ocean Dynamics Gordon Research Conference, Bryant University, USA.

Tan, S., K. Davis, et al., (2023), On the energy budget of solitary waves at Dongsha Atoll: an idealized model study. **Invited talk**, International Workshop on the 2019 Internal Solitary Waves Experiment in the South China Sea, virtual.

Tan, S. and A. Thurnherr, (2022), Decadal changes in stratification of the abyssal oceans and implications for hydraulic control of abyssal channel flow. **Oral**, Woods Hole Oceanographic Institution PO Seminar, Woods Hole, USA.

Tan, S. and A. Thurnherr, (2022), Decadal changes in stratification of the abyssal oceans and implications for hydraulic control of abyssal channel flow. **Oral**, Ocean Science Meeting, virtual.

Tan, S., A. Thurnherr, et al., (2022), Hydraulically Controlled Flow in Abyssal Ocean Passages. **Invited talk**, Atmospheres and Oceans Seminar at Johns Hopkins University, virtual.

Tan, S., L.J. Pratt, et al., (2020), Hydraulic control and wave adjustment in a channel+plateau system: Deep Western Boundary Current passing through the Samoan Passage. **Poster**, AGU Fall Meeting, virtual.

Tan, S., L.J. Pratt, D. Yuan, and C. Corvianawatie (2019), Hydraulics and mixing in the deep branch of the Indonesian Throughflow. **Oral**, Woods Hole Oceanographic Institution PO Seminar, Woods Hole, USA.

Tan, S., D. Yuan, and H. Zhou (2018), Significant Cooling in the Deep Philippine Sea during the recent Global Warming Hiatus. **Poster**, AGU Fall Meeting, Washington, D.C., USA.

Tan, S., B. Li and D. Yuan (2016), Interannual Variations of Low Latitude Western Boundary Currents in the Tropical Western Pacific Ocean. **Poster**, CLIVAR Open Science Conference, Qingdao, China.

FIELD EXPERIENCE

R/V Roger Revelle

44 days at sea, April –June 2022

- GO-SHIP cruise P02W, Guam-Honolulu, Co-chief Scientist. Chief Scientist: Dr. Alison Macdonald

R/V Kexue

31 days, August–October 2015

- NSFC Western Pacific Open Cruise, mooring recovery team, winch driver, CTD watch-stander. Chief Scientist: Dr. Dongliang Yuan

TEACHING EXPERIENCE

Substitute Lecturer

spring 2023

University of California, Irvine, USA

- on undergraduate course: “Computational Problem Solving”

Guest Lecturer

fall 2022

Columbia University, New York, USA

- on graduate course: “Introduction to Physical Oceanography”

Research mentor

summer 2021 - spring 2022

Columbia University, New York, USA

- on undergraduate research project: “Different flavors of bottom boundary layer stratification profiles” with Dr. Andreas Thurnherr
- student’s work presented in poster sessions, AGU Fall Meeting 2021 and Ocean Sciences Meeting 2022

SERVICE

Co-chair of the Gordon Research Seminar on Coastal Ocean Dynamics

summer 2023

with Dr. Elizabeth Brasseale

Member of GO-SHIP PI Committee

spring 2021 –Ongoing

and of Subcommittees on software writing and chief/co-chief scientist training

Coordinator of the OCP Seminar

fall 2021 –spring 2022

Lamont-Doherty Earth Observatory, Columbia University, New York, USA

Reviewer

spring 2022 –Ongoing

*Journal of Physical Oceanography, Nature Communications,
UK Natural Environment Research Council grant proposal*