

## CURRICULUM VITAE TONG (TONY) LEE

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### BIO

Tong Lee is a physical oceanographer with primary research expertise in oceanic variability and processes, and their relationships with climate variability and water cycle. His research features synergistic utility of satellite data with in-situ observations, models, and data assimilation. He has 155 peer-reviewed publications (including 8 book chapters), with a H-Index of 58 (68) in Web of Science (Google Scholar). Lee has contributed significantly to broad areas of ocean/climate research. He has made fundamental contribution to the understanding of Indian Ocean circulation. He conducted seminal research on El Niño-Southern Oscillation (including diversity, teleconnection, and impact) and Indo-Pacific inter-basin linkages. He has pioneered satellite salinity science applications. His research also established the theoretical basis the design and development of in-situ monitoring systems for the Meridional Overturning Circulation in the subtropical/subpolar North Atlantic and South Atlantic.

Lee has made significant contributions to various satellite missions and concepts. He served as Project Scientist of NASA's salinity-measuring Aquarius satellite mission and the principal scientific architect and writer of the Aquarius mission extension proposal. He is the lead of NASA's Ocean Salinity Science Team to advance salinity science and to develop concepts for future salinity missions. He served as the Project Scientist for NASA Earth Venture Mission concept "Butterfly" to measure mesoscale air-sea exchanges of heat and moisture and NASA Earth System Explorers Mission concept "Ocean Dynamics and Surface Exchange with the Atmosphere" (ODYSEA) for simultaneous measurements of ocean-surface winds and currents. He also co-led the NASA-DoD Science Working Group for the DoD-sponsored STP-H8 satellite mission (for ocean surface wind, precipitation, and atmospheric profile measurements).

Lee was one of the principals of the Estimating the Circulation and Climate of the Ocean (ECCO) Consortium (<https://ecco-group.org/>). He developed the first basin-scale ocean state estimation system using the adjoint method based on NOAA/GFDL model prior to ECCO, and an adjoint-based global ocean state estimation system at JPL based on a version of the MITgcm model that resolved tropical ocean dynamics.

Lee has served in numerous committees and panels for international and domestic research programs to foster collaborative community research and observing system design and developments, serving various leadership roles including those within the US and International Climate Variability and Predictability (CLIVAR) programs, US Atlantic MOC Program, OceanObs'19 decadal ocean observing program, and Committee on Space Research (COSPAR) program.

### RESEARCH INTERESTS

General interest: physical oceanography and linkages of the ocean with the water cycle, climate variability, and weather.

Specific foci: intraseasonal-to-decadal variability; ENSO diversity and teleconnections/impacts; upper-ocean heat and salt budgets; meridional overturning circulation and heat transports; Indo-Pacific circulations and their linkages; ocean remote sensing especially salinity science; data assimilation.

### PROFESSIONAL EXPERIENCE

- Jet Propulsion Laboratory:
  - Discipline Program Manager (2023-2025, for Climate Variability and Change discipline)
  - Senior Research Scientist (since 2021); Principal Scientist (Since 2006); Scientist (1996-2006)
  - Supervisor, Ocean Circulation and Air-Sea Interaction Group (2015-2022)

- Project Scientist for Aquarius satellite mission (2013-2017)
- Supervisor, Oceans and Ice Group (2011-2015)
- University of California Los Angeles, Joint Institute for Regional Earth System Science and Engineering (JIFRESSE): Project Scientist (since 2015); Visiting Researcher (2012-2014)
- Massachusetts Institute of Technology: Postdoctoral Research Associate (1994-1996)

## EDUCATION

- Ph.D. in Oceanography, 1994, University of Rhode Island, Kingston, RI.
- M.S. in Marine Studies, 1989, University of Delaware, Newark, DE.
- B.S. in Mechanics, 1984, Sun Yat-Sen University, Guangzhou, China.

## PEER-REVIEWED PUBLICATIONS

(including books and chapters denoted by \* and Editorial denoted by \*\*)

155. Wang, O., **T. Lee**, T. Frederikse, I. Fukumori, and I. Fenty, 2026: Attribution of interannual-to-centennial sea-level changes in climate models. *Nature Comm. Earth & Environ.*, accepted.
154. Delman, A., O. Wang, and **T. Lee**, 2026: Forcing of subannual-to-decadal sea level variability and the recent rapid rise along the U.S. Gulf Coast. *J. Geophys. Res.*, 131, e2025JC023189. <https://doi.org/10.1029/2025JC023189>.
153. Jarugula, S., **T. Lee**, O. Wang, and S. Fournier, 2025: Maritime Continent water cycle as a key forcing for decadal 1 variation of upper-ocean salinity in the southeast Indian Ocean. *J. Geophys. Res.*, 130, e2025JC022733. <https://doi.org/10.1029/2025JC022733>.
152. Sabia, R., J. Boutin, N. Reul, **T. Lee**, and S. Yueh, 2025: The Bright Decade of Ocean Salinity from Space. *Remote Sensing*. 17(13), 2261; <https://doi.org/10.3390/rs17132261>.
151. Feng, X., M.-J. Widlansky, and **T. Lee**, et al., 2025: Indications of improved seasonal sea level forecasts for the United States Gulf and East Coasts using ocean-dynamic persistence. *Ocean Science*. <https://doi.org/10.5194/egusphere-2025-98>.
150. Long, X. and co-authors (incl. T. Lee), 2025: Evaluating Current Statistical and Dynamical Forecasting Techniques for Seasonal Coastal Sea Level Prediction. *J. Clim.*, <https://doi.org/10.1175/JCLI-D-24-0214.1>.
149. Lambert, H. and co-authors (incl. T. Lee), 2025: Changes in the regional water cycle and their impact on societies. *WIREs Clim. Chg.*, Wiley, <https://doi.org/10.1002/wcc.70005>.
148. Wade, J., D. and co-authors (incl. T. Lee), 2025: Intrinsic Spatial Scales of River Stores and Fluxes and Their Relative Contributions to the Global Water Cycle. *Geophys. Res. Lett., Letters*, 52, e2024GL113052. <https://doi.org/10.1029/2024GL113052>.
147. Wang, O., **T. Lee**, T. Frederikse, et al., 2024: What forcing mechanisms affect the interannual sea level co-variability between the Northeast and Southeast Coasts of the United States? *J. Geophys. Res.*, 129, e2023JC019873, <https://doi.org/10.1029/2023JC019873>.
- \*146. McPhaden, M.J., L.M. Beal, U. Bhaskar, T. Lee, M. Nagura, P.G. Strutton, and L. Yu, 2024: The Indian Ocean Observing System (IndOOS). Book chpt. on “The Indian Ocean and its role in the global climate system”. C. Ummerhofer and R. Hood, ed., Elsevier Press. ISBN 978-0-12-822698-8. DOI <https://doi.org/10.1016/C2019-0-04588-8>

145. Torres, H., A. Wineteer, P. Klein, **T. Lee**, J. Wang, E. Rodriguez, D. Menemenlis, and H. Zhang, 2023: Anticipated Capabilities of the ODYSEA Wind and Current Mission Concept to Estimate Wind Work at the Air–Sea Interface. *Remote Sens.* 15(13), 3337; <https://doi.org/10.3390/rs15133337>
144. Wang, X., **T. Lee**, and C. Mears, 2023: Evaluation of blended wind products and its implications for offshore wind power estimation. *Remote Sens.* 15(10), 2620; <https://doi.org/10.3390/rs15102620>.
143. Boutin, J., S. Yueh, R. Bindlish, S. Chan, D. Entekhabi, Y. Kerr, N. Kolodziejczyk, **T. Lee**, N. Reul, and M. Zribi, 2023: Soil Moisture and Sea Surface Salinity. *Surveys in Geophysics. Special issue Oceanography, Hydrology and Glaciology from Space*. DOI: 10.1007/s10712-023-09798-5. <https://link.springer.com/article/10.1007/s10712-023-09798-5>
142. Akins, A., S. Brown, **T. Lee**, S. Misra, and S. Yueh, 2023: Simulation Framework and Case Studies for the Design of Sea Surface Salinity Remote Sensing Missions. *IEEE J. Selected Topics in Applied Earth Observations and Remote Sensing*. Vol. 16, 1321-1334, DOI: [10.1109/JSTARS.2023.3234407](https://doi.org/10.1109/JSTARS.2023.3234407).
141. Mears, C., **T. Lee**, L. Ricciardulli, X. Wang, F. Wentz, 2022: Improving the Accuracy of the Cross-Calibrated Multi-Platform (CCMP) Ocean Vector Winds. *Remote Sens.* 2022, 14, 4230. <https://doi.org/10.3390/rs14174230>.
140. Frederikse, T., **T. Lee**, O. Wang et al., 2022: A hybrid dynamical approach for seasonal prediction of sea-level anomalies: a pilot study for Charleston, South Carolina. *J. Geophys. Res.* 127, e2021JC018137. <https://doi.org/10.1029/2021JC018137>.
139. Cronin, M., and co-authors (incl. T. Lee), 2022: Developing an Observing Air-Sea Interactions Strategy (OASIS) for the global ocean. *ICES J. Mar. Sci.*, <https://doi.org/10.1093/icesjms/fsac149>.
138. Wang, O., **T. Lee**, C. Piecuch, et al., 2022: Local and remote forcing of interannual sea-level variability at Nantucket Island. *J. Geophys. Res.-Oceans*, 127, e2021JC018275, <https://doi.org/10.1029/2021JC018275>
137. Chandanpurkar, H., **T. Lee**, X. Wang, et al., 2022: Influence of nonseasonal river discharge on sea surface salinity and height. *J. Adv. Model. Earth Sys.*, 14, e2021MS002715. <https://doi.org/10.1029/2021MS002715>.
136. Guimbard, S.; Reul, N.; Sabia, R.; Herlédan, S.; Khoury Hanna, Z.E.; Piollé, J.-F.; Paul, F.; **Lee, T.**; Schanze, J.J.; Bingham, F.M.; et al., 2021: The Salinity Pilot-Mission Exploitation Platform (Pi-MEP): A Hub for Validation and Exploitation of Satellite Sea Surface Salinity Data. *Remote Sensing*, 13, 4600. <https://doi.org/10.3390/rs13224600>
- 135: Delman, A. and **Lee, T.**, 2021: Global Contributions of Mesoscale Dynamics to Meridional Heat Transport. *Ocean Sci.*, <https://doi.org/10.5194/os-2021-9>
134. Ummenhofer, C.C., S.A. Murty, J. Sprintall, **T. Lee**, and N.J. Abram, 2021: Recent heat and freshwater changes over the Indian Ocean region: variability, trends and mechanisms. *Nature Rev. Earth Environ.*, <https://doi.org/10.1038/s43017-021-00192-6>

133. Johnson, J. and co-authors (incl. T. Lee), 2021: Microwave Radiometry at Frequencies from 500 to 1400 MHz: An Emerging Technology for Earth Observations. IEEE Xplore, DOI: 10.1109/JSTARS.2021.3073286

132. Wouter, D. and co-authors (incl. T. Lee), 2021: Closing the water cycle from observations across scales: where do we stand? Bull. Amer. Meteorol. Soc., DOI 10.1175/BAMS-D-19-0316.1.

131. Yu, L, F. Bingham, **T. Lee**, D. Emmanuel, S. Fournier, O. Melnichenko, W. Tang, and S. Yueh, 2021: Revisiting the Global Patterns of Seasonal Cycle in Sea Surface Salinity. J. Geophys. Res., <https://doi.org/10.1029/2020JC016789>

130. Fournier, S. and **Lee, T.**, 2021: Seasonal and interannual variability of sea surface salinity near major river mouths of the world ocean inferred from gridded satellite and in-situ salinity products. Remote Sensing. [doi.org/ 10.3390/rs13040728](https://doi.org/10.3390/rs13040728).

\*129. Lee., T., S. Speich, and L. Lorenzoni et al., 2020: OceanObs'19: An Ocean of Opportunity. Vol. I, II, III. Frontiers Media SA. <https://www.frontiersin.org/research-topics/8224/oceanobs19-an-ocean-of-opportunity>

128. Dzwonkowski, B., J. Coogan, S. Fournier, G. Lockridge, K. Park, and **T. Lee**, 2020: Compounding impact of severe weather events fuels marine heatwave in the coastal ocean. Nature Comm., 11, 4623. <https://doi.org/10.1038/s41467-020-18339-2>.

\*127. McPhaden, M.J., **T. Lee**, S. Fournier, and M.A. Balmaseda, 2020: ENSO Observations, Chpt.3 in: “*El Niño Southern Oscillation in a Changing Climate*”, M. J. McPhaden, A. Santoso, and W. Cai, Eds. AGU Geophysical Monograph Series, ISBN: 978-1-119-54812-6. 528pp. Wiley, Hoboken NJ. <https://doi.org/10.1002/9781119548164.ch3>

126. Beal, L. and co-authors (incl. T. Lee), 2020: A roadmap to IndOOS-2: Better observations of the rapidly-warming Indian Ocean. Bull. Amer. Meteorol. Soc., 1-50, <https://doi.org/10.1175/BAMS-D-19-0209.1>.

125. Delman, A. and **T. Lee**, 2020: A new method to assess mesoscale contributions to meridional heat transport in the North Atlantic Ocean. Ocean Sci., 16, 979–995, <https://doi.org/10.5194/os-16-979-2020>.

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123. Fournier, S., **T. Lee**, X. Wang, T.W.K. Armitage, O. Wang, I. Fukumori, and R. Kwok, 2020: Sea surface salinity as a proxy for Arctic Ocean freshwater changes. J. Geophys. Res., DOI: [10.1029/2020JC016110](https://doi.org/10.1029/2020JC016110).

122. Yu, L., S. Josey, F. Bingham, and **T. Lee**, 2020: Intensification of the Global Water Cycle and Salinity Evidence: A Synthesis Review. Ann. New York Aca. Sci., <https://doi.org/10.1111/nyas.14354>.

121. Reul, N and co-authors (incl. T. Lee), 2020: Sea Surface Salinity estimates from Spaceborne L-band radiometers: an overview of the first decade of observation (2010-2019). Remote Sensing of Env., vol 242, 111769, <https://doi.org/10.1016/j.rse.2020.111769>.

120. Fournier, S., **T. Lee**, W. Tang, M. Steele, E. Olmedo, 2019: Evaluation and Intercomparison of SMOS, Aquarius and SMAP Sea Surface Salinity Products in the Arctic Ocean. *Remote Sensing*, 11, 3043; doi:10.3390/rs11243043.

\*\*119. Speich, S., **T. Lee**, F. Muller-Karger, and L. Lorenzoni et al., 2019: Editorial: OceanObs'19: An Ocean of Opportunity. *Front. Mar. Sci.*, <https://doi.org/10.3389/fmars.2019.00570>.

118. Sloan, B. and co-authors (incl. **T. Lee**), 2019: Evolving the global ocean observing system for research and application services through international coordination. *Frontiers in Mar. Sci.*, DOI:10.3389/fmars.2019.00449.

117. Hermes, J.C. and co-authors, 2019: A sustained ocean observing system in the Indian Ocean for climate related scientific knowledge and societal needs. *Frontiers in Mar. Sci.* <https://doi.org/10.3389/fmars.2019.00355>.

116. Melnichenko, O., P. Hacker, F. Bingham, **T. Lee**, 2019: Patterns of SSS variability in the eastern tropical Pacific: intra-seasonal to inter-annual time-scales from seven years of NASA satellite data. *Oceanogr.*, <https://doi.org/10.5670/oceanog.2019.208>.

115. Palmer M.D. and co-authors (incl. **T. Lee**), 2019: Adequacy of the ocean observation system for quantifying regional heat and freshwater storage and change. *Frontiers Mar. Sci.*, DOI:10.3389/fmars.2019.00416

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113. **Lee, T.**, S. Fournier, A. L. Gordon, J. Sprintall, 2019: Maritime continent water cycle regulates low-latitude chokepoint of global ocean circulation. *Nature Comm.*, 10, 2013 (2019), DOI:10.1038/s41467-019-10109-z.

112. Vinogradova, N., **T. Lee**, J. Boutin, et al., 2019: Satellite salinity observing system: recent discoveries and the way forward. *Frontiers Mar. Sci.*, <https://doi.org/10.3389/fmars.2019.00243>.

111. Hasson, A., J.T. Farrar, J. Boutin, F. Bingham, and **T. Lee**, 2019: Intraseasonal variability of surface salinity in the eastern tropical Pacific associated with mesoscale eddies. *J. Geophys. Res.*, DOI: 10.1029/2018JC014175.

110. Fu, L.-L., **T. Lee**, W.T. Liu, R. Kwok, 2019: 50 years of Satellite Remote Sensing of the Ocean. *Meteorological Monographs*, 59, 5.1–5.46, <https://doi.org/10.1175/AMSMONOGRAPHS-D-18-0010.1>.

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108. Delman, A., **T. Lee**, and B. Qiu, 2018: Interannual and decadal forcing of mesoscale eddy kinetic energy in the subtropical southern Indian Ocean. *J. Geophys. Res.*, 123, 8180-8202, DOI: 10.1029/2018JC013945, November, 2018.

107. Le Vine, D. M., E. Dinnat, T. Meissner, F. Wentz, H.-Y. Kao, G. Lagerloef, and **T. Lee**, 2018:

Status of Aquarius and salinity continuity. *Remote Sens.*, 10(10):1585, DOI: 10.3390/rs10101585.

106. Kao, H.-Y., G. Lagerloef, **T. Lee**, O. Melnichenco, T. Meissner, and P. Hacker, 2018: Assessment of Aquarius sea surface salinity data using Aquarius Validation Data System (AVDS) and other statistical methods. *Remote Sens.*, 10(9):134, DOI:10.3390/rs10091341.

\*105. **Lee, T.**, and C. Gentemann, 2018: Satellite SST and SSS observations and their roles to constrain ocean models. In "New Frontiers in Operational Oceanography", E. Chassignet, A. Pascual, J. Tintoré, and J. Verron, Eds., GODAE OceanView, 271-288, doi:10.17125/gov2018.ch11

104. Tang, W., S. Yueh, D. Yang, A. Fore, A. Hayashi, **T. Lee**, S. Fournier, and B. Holt, 2018: The Potential and Challenges of Using Soil Moisture Active Passive (SMAP) Sea Surface Salinity to Monitor Arctic Ocean Freshwater Changes. *Remote Sens.*, 10, 869; <https://doi.org/10.3390/rs10060869>.

103. Li, J., E. Suhas, W. Lee, M. Richardson, Y. Wang, J. Yu, **T. Lee**, E. Fetzer, G. Stephens, and M.H. Shen, 2018: The Impacts of Bias in Cloud-Radiation-Dynamics Interactions on Central-Pacific Seasonal and El Nino Simulations in Contemporary GCMs. *J. Geophys. Res.*, DOI:10.1002/2017EA000304.

102. Fournier, S., J. Vialard, M. Lengaigne, **T. Lee**, M.M. Gierach, and A.V.S. Chaitanya, 2017: Modulation of the Ganges-Brahmaputra river plume by the Indian Ocean Dipole and eddies inferred from satellite observations. *J. Geophys. Res.*, 122. <https://doi.org/10.1002/2017JC013333>.

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\*99. **Lee, T.**, J.T. Farrar, and S. Arnault, et al. 2017: Monitoring and interpreting the tropical oceans by satellite altimetry. Chapter 7 in satellite altimetry textbook "Satellite Altimetry Over Ocean and Land Surfaces", Editors D. Stammer and A. Cazenave, CRC Press, Taylor and Francis Group. 644pp, ISBN 9781498743457. <https://doi.org/10.1201/9781315151779>.

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19. Kim, S.-B., I. Fukumori, **T. Lee**, 2006: The closure of the ocean mixed layer temperature budget using level-coordinate model fields. *J. Ocean. Atmos. Tech.*, 23, 840-853.
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17. Menemenlis, D., I. Fukumori, and **T. Lee**, 2005: Using Green's functions to calibrate an ocean general circulation model. *Mon. Weather. Rev.*, 133, 1224-1240.
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13. Wang, O., I. Fukumori, **T. Lee**, and B. Cheng, 2004: On the cause of eastern equatorial Pacific Ocean T-S variations associated with El Nino. . *Geophys. Res. Lett.*, 31, L15310, doi:10.1029/2004GL02472.
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11. Wang, O., I. Fukumori, **T. Lee**, and G. Johnson, 2004: Eastern equatorial Pacific Ocean T-S variations with El Nino. *Geophys. Res. Lett.*. 31, L04305. doi:10.1029/2003GL019087.
10. **Lee, T.**, and I. Fukumori, 2003: Interannual to decadal variation of tropical-subtropical exchange in the Pacific Ocean: boundary versus interior pycnocline transports. *J. Climate*. 16, 4022-4042.
9. **Lee, T.**, I. Fukumori, D. Menemenlis, Z. Xing, and L.-L. Fu, 2002: Effects of the Indonesian Throughflow on the Pacific and Indian Ocean. *J. Phys. Oceanogr.*, 32, 1404-1429.
8. **Lee, T.**, J.-P. Boulanger, A. Foo, L.-L. Fu, and R. Giering, 2000: Data assimilation by an intermediate coupled ocean-atmosphere model: application to the 1997-1998 El Nino. *J. Geophys. Res.*, 105, 26063-26087.

7. Marotzke, J., R. Giering, K. Zhang, D. Stammer, C. Hill, and **T. Lee**, 1999: Construction of the adjoint MIT ocean general circulation model and application to Atlantic heat transport sensitivity. *J. Geophys. Res.*, 104, 29529-547.
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5. **Lee, T.** and J. Marotzke, 1997: Inferring meridional mass and heat transports of the Indian Ocean by fitting a GCM to climatological data. *J. Geophys. Res.*, vol. 102, 10585-10602.
4. **Lee, T.** and P. Cornillon, 1996: Propagation of Gulf Stream meanders between 74 and 70W. *J. Phys. Oceanogr.*, vol. 26, 205-224.
3. **Lee, T.** and P. Cornillon, 1996: Propagation and growth of Gulf Stream meanders between 75 and 45W. *J. Phys. Oceanogr.*, vol. 26, 225-241.
2. **Lee, T.** and P. Cornillon, 1995: Temporal variation of meandering intensity and domain-wide lateral oscillations of the Gulf Stream. *J. Geophys. Res.*, vol. 100, 13603-13613.
1. Cornillon, P., **T. Lee**, and G. Fall, 1994: On the probability that a Gulf Stream meander crest detaches to form a warm core ring. *J. Phys. Oceanogr.*, vol. 96, 132-155.

#### **SELECTED AWARDS**

- 2020 NASA Exceptional Scientific Achievement Medal
- 2020 JPL Ed Stone Award for Outstanding Research Publication
- 2015 JPL People Leadership Award
- 2012 NASA Exceptional Scientific Achievement Medal
- 2012 JPL Team Achievement Award for contribution to IPCC Fifth Assessment Report
- 2011 JPL Mariner Award for extraordinary scientific productivity
- 2010 NASA Exceptional Achievement Medal
- 2009 NASA Group Achievement Award: PO.DAAC Team
- 2003 and 2008 JPL Team Achievement Award: ECCO Ocean Data Assimilation Team

#### **CONTRIBUTIONS TO NASA/JPL MISSION EFFORTS**

- Project Scientist of NASA Aquarius satellite mission (2013-2017) and the principal architect and writer for the Science Section of the 2015 NASA Senior Review Proposal for Aquarius Extended Mission, leading to a selection for the extended mission.
- Project Lead of the NASA Salinity Continuity Project (since 2017) beyond Aquarius Phase-F to extend NASA salinity record using measurements from NASA's SMAP satellite.
- Team Lead for NASA Ocean Salinity Science Team (2019-present).
- Leads for community white papers in response to NRC Decadal Survey in Earth Science and Applications from Space 2017-2027 RFI#1 (2015) and RFI#2 (2016).
- Project Scientist of NASA Earth Venture Mission concept "Butterfly" for air-sea heat and moisture flux measurements (since 2019).
- Project Scientist of NASA Earth System Explorers satellite mission concept "Ocean Dynamics and Surface Exchange with the Atmosphere" (ODYSEA) for simultaneous measurements of ocean-surface winds and currents (since 2022).
- Co-lead of Science Working Group for the DoD-sponsored STP-H8 satellite mission (2020-2025).

- Project Lead for in-situ field tests of broad-band low-frequency radiometer to advance next-gen satellite sensors for polar ocean/ice measurements (since 2018).
- Project Lead for development of a miniaturized upward-looking remote-sensing instrument (microwave sounder) to profile atmospheric boundary layer from ocean-surface autonomous platforms for satellite cal/val (since 2020).

#### **AFFILIATION WITH PROFESSIONAL SOCIETIES**

- Member of American Geophysical Union since 1998
- Member of American Meteorology Society since 2006
- The Oceanography Society since 2018

#### **COMMUNITY LEADERSHIP & SERVICES**

- US CLIVAR Air-Sea Transition Zone Task Team (2022).
- Global Climate Observing System (GCOS) Ocean Observation Panel for Climate (OOPC) and Global Ocean Observing System (GOOS) Panel for Physics and Climate member (2017-present).
- Tropical Pacific Observing System (TPOS) 2020 Backbone System Task Team member (2015-2021).
- **Chair** of the Committee on Space Research (COSPAR) Sub-commission A2 “Ocean Dynamics, Productivity, and Cryosphere” (2016-2021).
- **Lead** guest editor for Frontiers in Marine Science OceanObs’19 e-book Collection of 150 peer-reviewed community perspective papers that chart the course for the next decade of ocean observing (2018-2020)
- **Chair** of US Climate Variability and Predictability (CLIVAR) Program Scientific Steering Committee (2019) and Executive Committee Member (2017-2019)
- **Co-chair** of OceanObs’19 Program Committee (2017-2020)
- **Co-chair** of International Climate Variability and Predictability (CLIVAR) Program’s Global Synthesis and Observations Panel (2012-2016) and member (2010-2016)
- **Co-chair** of US CLIVAR Phenomena, Observations, and Synthesis Panel (2010-2011) and member (2007-2009)
- **Executive Committee** and task team leader for US Atlantic Meridional Overturning Circulation (AMOC) Program (2007-2010)
- **Steering Team member** of Global Ocean Data Assimilation Experiment (GODAE) (2003-2008)
- International CLIVAR Indonesian Throughflow Task Force member (2011-2014)
- International CLIVAR ENSO in a Changing Climate Task Team member (2013-2019)
- US CLIVAR ENSO Diversity Working Group member (2012-2015)
- International CLIVAR and IOC/GOOS Indian Ocean Panel member (2006-2013)
- US Argo Program panel member (2004-2009)
- Mentor and NASA host for the “Mentoring Physical Oceanography Women for Increasing Retention” (MPOWIR, <https://mpowir.org>) Program (2010-2022)

#### **OTHER COMMUNITY LEADERSHIP EFFORTS AND PROFESSIONAL SERVICES**

##### **Leadership of Community whitepapers**

- Lead-authored an International CLIVAR whitepaper on a framework for the evaluation and Intercomparison of global ocean synthesis products (2006).
- Lead-authored a US CLIVAR whitepaper on the strategy for a US Integrated Earth System Analysis (2007).
- Lead-authored an OceanObs’99 community whitepaper on ocean state estimation for climate research (2009).
- Lead-authored a review article in Oceanography Magazine article on ocean state estimation for climate research (2009).

- Lead-authored a review article in Oceanography Magazine on applications of satellite observations for ocean and climate research (2010).
- Co-led two community whitepapers for Tropical Observing System (TPOS) 2020 on ENSO and on satellite observing systems (2014).
- Lead-authored community whitepaper on ocean salinity and water cycle research priorities in response to US National Academy of Sciences 2017-2027 Decadal Survey in Earth Science and Technology from Space RFI#1 (2015).
- Lead-authored community whitepaper on a space-based measurement concept for ocean salinity and sea ice in response to US National Academy of Sciences 2017-2027 Decadal Survey in Earth Science and Technology from Space RFI#2 (2016).
- IPCC Assessment Report 5, Chapter 9 contributing author (2013).

### **Initiatives**

- Leadership role for a US CLIVAR initiative on Integrated Earth System Analysis (IESA); represented ocean assimilation/synthesis community in National Research Council Climate Research Committee meeting in 2006 on IESA.
- Leadership role under International CLIVAR and GODAE to develop a framework and lead an internationally coordinated effort on the evaluation and intercomparison of global ocean synthesis products during 2006-2010 and with a renewed effort from 2013 onward.
- Served as US AMOC Program Executive Committee member to help develop the US AMOC Program Implementation Plan (2007).
- Initiated the US CLIVAR ENSO Diversity Working Group (2012).
- Helped establish “ENSO in a Changing Climate” Research Focus under International CLIVAR and form an international task team for this Research Focus (2013).

### **Organizations of professional workshops and conference special sessions:**

- Co-convended Ocean Sciences Meeting special session on high-wavenumber and high-frequency wind forcing of the ocean (2004).
- Key organizer of Global Ocean Data Assimilation Experiment (GODAE) Symposium, Beijing, China (2006).
- Co-convended Fall AGU Meeting special session on earth system data assimilation (2006).
- Co-convended Ocean Sciences Meeting special session on global and regional ocean synthesis (2008).
- Key organizer for US CLIVAR Integrated Earth System Analysis workshop (2008).
- Co-organized a decadal variability workshop (2009).
- Organized and chaired a joint US-Europe AMOC Science Team meeting (2010).
- Co-organized a US CLIVAR ENSO Diversity workshop (2013).
- Co-convended International CLIVAR workshop on surface fluxes and ocean synthesis (2013).
- Served as a key organizer of the COSPAR/WCRP/ESA/IOC sponsored capacity-building workshop for the Indonesian throughflow (2014).
- Served as member of scientific organizing committee for Tropical Pacific Observing System (TPOS) 2020 International workshop (2014).
- Co-convended Ocean Sciences Meeting special session on ocean salinity and water cycle (2014).
- Co-convended two special sessions in 2014 Fall AGU meeting (“Maritime Continent” and “From QuikSCAT to RapidSCAT”).
- Co-organized “Ocean Salinity Science & Salinity Remote Sensing” workshop in UK Met Office, 2014.
- Co-organized International “Global Heat Balance and Ocean Heat Content” workshop in UK Met Office, 2015.
- Co-organized International Conference on “Ocean Salinity and Freshwater Changes” in Hamburg, Germany, 2015.

- Main organizer of Aquarius/SAC-D Science Team Meeting, Buenos Aires, Argentina, Nov. 2015.
- Co-convener of EGU “Ocean Salinity and Marine Hydrological Cycle”. 2016-2018.
- Scientific Organizing Committee member, European Space Agency Living Planet Symposium 2016.
- Co-convener of 2016 Fall AGU “Ocean salinity and water cycle” session. 2016.
- Co-convener of 2017 Fall AGU “Ocean salinity and its role in ocean dynamics and the water cycle” session. 2017.
- Lead organizer of COSPAR 2018 session “Scientific Exploitation of Oceanographic Measurements From New Missions and Heritage Data Sets”.
- Scientific Committee member of Liege Colloquium on Ocean Dynamics, Liege, Belgium, May 2018.
- Organizer of 2018 NASA Ocean Salinity Science Team and Salinity Continuity Processing meeting, Santa Rosa, CA, Aug. 2018.
- Scientific Committee member for Ocean Salinity Science Conference, Paris, France, November 2018.
- Scientific Organizing Committee member, European Space Agency Living Planet Symposium 2019.
- Co-Chair and key organizer of decadal ocean observing community conference OceanObs’19.
- Lead organizer of COSPAR 2021 Event “Scientific Exploitation of Oceanographic Measurements From New Missions and Heritage Data Sets”.
- Lead organizer of the International Ocean Salinity Conference, June 2022.
- Key organizer of the 2024 International Ocean Salinity Conference, May 2024.
- Key organizer of the 2026 Ocean Salinity Science and Technology Meeting, May 2026.
- Co-convener of EGU “Ocean Remote Sensing” Session 2014-2025.

#### **SELECTED INVITED PRESENTATIONS IN INTERNATIONAL CONFERENCES/WORKSHOPS**

- International Union of Geodesy and Geophysics (IUGG) Conference, Cairns, Australia, 2005 (two invited presentations).
- Ocean Surface Topography Science Team Meeting, Hobart, Australia, 2007.
- Pan Ocean Remote Sensing Conference, Guangzhou, China, 2008.
- Global Ocean Data Assimilation Experiment (GODAE) Final Symposium, Nice, France, 2008.
- International Workshop on Decadal Variability and Predictability, St. Michaels, MD, 2009.
- 10<sup>th</sup> International Conference on Southern-hemisphere Meteorology and Oceanography, Noumea, New Caledonia, 2013.
- International Union of Geodesy and Geophysics (IUGG) Conference, Gothenburg, Sweden, 2014.
- Ocean Salinity Science & Salinity Remote Sensing Workshop in UK Met Office, 2014.
- International Global Navigation Satellite System (GNSS) Reflection Conference in Potsdam, Germany, 2015.
- IEEE International Geoscience and Remote Sensing Society (IGARSS) conference, Milan, Italy, 2015.
- International Conference on Ocean Salinity and Freshwater Changes, Hamburg, Germany, 2015.
- European Union Cooperation in Science and Technology (COST) Action Evaluation of Ocean Synthesis Consortium workshop, Porto, Portugal, March 2016.
- EUMETSAT Satellite Meteorology Conference, Darmstadt, Germany, September 2016.
- Global Ocean Salinity and the Water Cycle Workshop, Woods Hole, MA. May 2017.
- ESA/ECMWF Workshop on Using Low Frequency Passive Microwave Measurements in Research and Operational Applications. Reading, UK. December, 2017.
- Global Ocean Data Assimilation Experiment (GODAE) OceanView International School, September 2017, Mallorca, Spain.
- Joint American Meteorology Society & Australian Meteorological and Oceanographic Society’s International Conference on Southern Hemisphere Meteorology and Oceanography, Sydney, Australia, January 2018.
- ESA Salinity Science and Climate Change Initiative workshop, Hamburg, Germany, September 2019.

- Interagency Arctic Research Policy Committee (IARPC) Physical Oceanography Self-formed Team invited virtual seminar, Nov., 2021.
- Invited talk at the 2025 Joint JpGU-AUG conference, May 2025.
- Invited seminar at Texas A&M University on predictability studies using ocean dynamic persistence, Nov., 2025.

**REVIEW PANELS:**

- Review panel members in various NASA and NOAA review panels and as mail reviewers for NASA, NOAA, NSF (since 1998).
- COSPAR review panel for COSPAR fellowships (2014-2017).
- International Advisory Board member for EU EuroSea Consortium (<https://eurosea.eu/>) (since 2019).

**POSTDOCS ADVISED/MENTORED:**

Seungbum Kim, Cecile Cabanes, Denis Volkov, Daria Halkides, William Llovel, Carmen Boening, Audrey Hasson, Severine Fournier, Andrew Delman, Hrishikesh Chandanpurkar. Sreelekha Jarugula.

**PH.D THESIS COMMITTEES:**

- University of California Irvine, 2005-2009 (student advised: Hsun-Ying Kao), 2012-2015 (student advised: Yuhao Zhou).
- University of Delaware, 2012-2016 (student advised: Autumn Kidwell).