

Hyodae Seo

Associate Scientist with Tenure

Physical Oceanography Department

Woods Hole Oceanographic Institution

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Google Scholar – Researcher ID – ResearchGate – ORCID – GitHub

EDUCATION

2007 Ph.D., Oceanography, Scripps Institution of Oceanography, UC San Diego

2002 B.S., Meteorology, Yonsei University, Seoul, South Korea

POSITIONS HELD

2018 July – Associate Scientist with Tenure, WHOI

2014 – 2018 Associate Scientist, WHOI

2010 – 2014 Assistant Scientist, WHOI

2009 – 2010 Visiting Assistant Researcher, IPRC, Univ. Hawaii

2007 – 2008 NOAA Climate and Global Change Postdoctoral Fellow, UCLA and Univ. Hawaii

2007 Visiting Scientist, International Pacific Research Center, Univ. Hawaii, Manoa

2002 – 2007 Graduate Research Assistant, Scripps Institution of Oceanography, UCSD

PUBLICATIONS

In Prep**Submitted or Under Revision**[55] Shinoda, T., S. Pei, W. Wang, J. X. Fu, R.-C. Lien, **H. Seo**, and A. Soloviev: Climate Process Team: improvement of ocean component of NOAA Climate Forecast System relevant to Madden-Julian Oscillation simulations. *JAMES*, *Submitted*.[54] Choi, J., H. Song, H. Seo, E. Doddridge, and J. Holte, 2021: Opposing decadal trend of wintertime mixed layer depth in the Pacific and Indian sectors of the Southern Ocean from 2005 to 2019. *Geophys. Res. Lett.*, *Submitted*[53] **Seo, H.**, H. Song, L. W. O'Neill, M. R. Mazloff, and B. D. Cornuelle: Impacts of ocean currents on the South Indian Ocean extratropical storm track through the relative wind effect. *J. Climate*, *Revised*.**2021**[52] Pei, S., T. Shinoda, J. Steffen, and **H. Seo**, 2021: Substantial Sea Surface Temperature cooling in the Banda Sea associated with the Madden-Julian Oscillation in the boreal winter of 2015. *J. Geophys. Res. Oceans*. <https://doi.org/10.1029/2021JC017226>.[51] Shroyer, E., and Co-authors including **H. Seo**, 2021: Bay of Bengal Intraseasonal Oscillation and the 2018 Monsoon Onset. *Bull. Amer. Meteor. Soc.*, *Accepted*[50] Bartusek, S., **H. Seo**, C. C. Ummenhofer, and J. D. Steffen, 2021: The role of nearshore air-sea interactions for landfalling atmospheric rivers on the U.S. West Coast. *Geophys. Res. Lett.*, 48, e2020GL091388.[49] Sun, R., A. C. Subramanian, B. D. Cornuelle, M. R. Mazloff, A. J. Miller, F. M. Ralph, **H. Seo**, and I. Hoteit, 2021: The role of air-sea interactions in atmospheric river events: Case studies using the SKRIPS regional coupled model. *J. Geophys. Res. Atmosphere*, 126, e2020JD032885.**2020**[48] Liang, Y.-C., M.-H. Lo, C.-W. Lan, **H. Seo**, C. C. Ummenhofer, S. Yeager, R.-J. Wu, and J. D. Steffen, 2020: Amplified Seasonal Cycle in Hydroclimate over the Amazon River Basin and its Plume Region in the Atlantic. *Nat. Commun.*, 11, 4390.

- [47] Yuan, X., C. C. Ummerhofer, **H. Seo**, and Z. Su, 2020: Relative contributions of heat flux and wind stress on the spatiotemporal upper-ocean variability in the tropical Indian Ocean. *Env. Res. Lett.*, 15, 084047.
- [46] Gentemann, C., C. A. Clayson, S. Brown, T. Lee, R. Parfitt, J. T. Farrar, M. Bourassa, P. J. Minnett, **H. Seo**, S. T. Gille, and V. Zlotnicki, 2020: FluxSat: Measuring the ocean-atmosphere turbulent exchange of heat and moisture from space. *Remote Sensing*, 12, 1796.
- [45] Sprintall, J., K. A. Reed, A. H. Butler, G. R. Foltz, S. G. Penny, and **H. Seo**, 2020: Best Practice Strategies for Process Studies designed to Improve Climate Modelling, *Bull. Amer. Met. Soc., Bull. Amer. Met. Soc.*, 101, E1842-E1850
- [44] Song, H., J. Marshall, D. J. McGillicuddy Jr., and **H. Seo**, 2020: The impact of the current-wind interaction on the vertical processes in the Southern Ocean. *J. Geophys. Res.-Oceans*, 125, e2020JC016046
- [43] Gopalakrishnan, G., A. C. Subramanian, A. J. Miller, **H. Seo**, and D. Sengupta, 2020: Estimation and prediction of the upper ocean circulation in the Bay of Bengal, *Deep-Sea Res. II*, 172, 104721
- [42] Hagos, S., G. R. Foltz, C. Zhang, E. Thompson, **H. Seo**, S. Chen, A. Capotondi, K. A. Reed, C. DeMott, and A. Protat, 2020: Atmospheric Convection and Air-Sea Interactions over the Tropical Oceans: Scientific Progress, Challenges and Opportunities. *Bull. Amer. Met. Soc.*, 101, E253–E258.
- [41] Kwon, Y.-O., **H. Seo**, C. C. Ummerhofer, and T. M. Joyce, 2020: Impact of Multidecadal Variability in Atlantic SST on Winter Atmospheric Blocking. *J. Climate*, 33, 867-892
- 2019**
- [40] **Seo, H.**, A. C. Subramanian, H. Song, and J. S. Chowdary, 2019: Coupled effects of ocean current on wind stress in the Bay of Bengal: Eddy energetics and upper ocean stratification. *Deep-Sea Res. II*, 168, 104617
- [39] Prend, C. J., **H. Seo**, R. A. Weller, and J. T. Farrar, 2019: Impact of freshwater plumes on intraseasonal upper ocean variability in the Bay of Bengal. *Deep-Sea Res.-II.*, 161, 63-71.
- [38] Joyce, T. M., Y.-O. Kwon, **H. Seo**, and C. C. Ummerhofer, 2019: Meridional Gulf Stream shifts can influence wintertime variability in the North Atlantic Storm Track and Greenland Blocking. *Geophys. Res. Lett.*, 46, 1702-1708.
- [37] Weller, R. A., J. T. Farrar, **H. Seo**, C. J. Prend, D. Sengputa, J. Sree Lekha, M. Ravichandran, and R. Venkatesen, 2019: Moored observations of the surface meteorology and air-sea fluxes in the northern Bay of Bengal in 2015, *J. Climate*, 32, 549-573.
- 2018**
- [36] Parfitt, R., and **H. Seo**, 2018: A New Framework for Near-Surface Wind Convergence over the Kuroshio Extension and Gulf Stream in Wintertime: The Role of Atmospheric Fronts. *Geophys. Res. Lett.*, 45, 9909–9918.
- [35] Pullen, J., R. Allard, **H. Seo**, A. J. Miller, S. Chen, L. P. Pezzi, T. Smith, P. Chu, J. Alves, and R. Caldeira, 2018: Coupled ocean-atmosphere forecasting at short and medium time scales. *J. Mar. Res.*, 75, 877-921.
- [34] Jin, X., Y.-O. Kwon, C. C. Ummerhofer, **H. Seo**, Y. Kosaka, and J. S. Wright, 2018: Distinct mechanisms of decadal subsurface heat content variations in the eastern and western Indian Ocean modulated by tropical Pacific SST, *J. Climate*, 31, 7751-7769.
- [33] Jin, X., Y.-O. Kwon, C. C. Ummerhofer, **H. Seo**, F. U. Schwarzkopf, A. Biastoch, C. W. Böning, and J. S. Wright, 2018: Influences of Pacific Climate Variability on Decadal Subsurface Ocean Heat Content Variations in the Indian Ocean. *J. Climate*, 31, 4157-4174.
- [32] Kwon, Y.-O., A. Camacho, C. Martinez-Zayas, and **H. Seo**, 2018: North Atlantic Eddy-driven Jet and Blocking Variability in the Community Earth System Model Version 1 Large Ensemble Simulations. *Climate Dyn.*, 51, 3275-3289.
- 2017**
- [31] **Seo, H.**, Y.-O. Kwon, T. M. Joyce, and C. C. Ummerhofer, 2017: On the predominant nonlinear response of the extratropical atmosphere to meridional shift of the Gulf Stream. *J. Climate*, 30, 9679-9702.

- [30] Morrow, R., L.-L. Fu, T. Farrar, **H. Seo**, P.-Y. Le Traon, 2017: Ocean eddies and mesoscale variability. Satellite Altimetry Over Oceans and Land Surfaces, In D. Stammer and A. Cazenave, editors, *Satellite Altimetry Over Ocean and Land Surfaces*. CRC Press, Taylor and Francis Group, [Satellite Altimetry Over Oceans and Land Surfaces](#).
- [29] Centurioni, L. R., and Co-authors, 2017: Northern Arabian Sea Circulation-Autonomous Research (NASCar): A Research Initiative Based on Autonomous Sensors. *Oceanography*, 30, 74-87.
- [28] Ummenhofer, C. C., **H. Seo**, Y.-O. Kwon, R. Parfitt, S. Brands, and T. M. Joyce, 2017: Emerging European winter precipitation pattern linked to atmospheric circulation changes over the North Atlantic region in recent decades. *Geophys. Res. Lett.*, 44, 8557–8566.
- [27] **Seo, H.**, 2017: Distinct influence of air-sea interactions mediated by mesoscale sea surface temperature and surface current in the Arabian Sea. *J. Climate*, 30, 8061-8079.
- [26] Miller, A. J., M. Collins, S. Gualdi, T. G. Jensen, V. Misra, L. P. Pezzi, D. W. Pierce, D. Putrasahan, **H. Seo**, and Y.-H. Tseng, 2017: Coupled Ocean-Atmosphere-Hydrology Modeling and Predictions, *J. Mar. Res.*, 75, 361-402.
- [25] Parfitt, R., A. Czaja, and **H. Seo**, 2017: A simple diagnostic for the detection of atmospheric fronts, *Geophys. Res. Lett.*, 44, 4351–4358.
- [24] Jongaramrungruang, S., **H. Seo**, and C. C. Ummenhofer, 2017: Intraseasonal rainfall variability in the Bay of Bengal during the Summer Monsoon: Coupling with the ocean and modulation by the Indian Ocean Dipole. *Atmos. Sci. Lett.*, 18, 88–95.

2016

- [23] Chowdary, J. S., G. Srinivas, T. S. Fousiya, A. Parekh, C. Gnanaseelan, **H. Seo**, and J. A. MacKinnon, 2016: Representation of Bay of Bengal Upper-Ocean Salinity in General Circulation Models. *Oceanography*, 29, 38–49.
- [22] **Seo, H.**, A. J. Miller, and J. R. Norris, 2016: Eddy-wind interaction in the California Current System: dynamics and impacts, *J. Phys. Oceanogr.*, 46, 439-459.
- [21] Brink, K. H. and **H. Seo**, 2016: Continental Shelf Baroclinic Instability 2: Oscillating wind forcing, *J. Phys. Oceanogr.*, 46, 569-582.

2015

- [20] Oltmanns, M., F. Straneo, **H. Seo**, and G. W. K. Moore, 2015: The role of wave dynamics and small-scale topography for downslope wind events in southeast Greenland. *J. Atmos. Sci.*, 72, 2786-2805.
- [19] Cavanaugh, N., T. Allen, A. Subramanian, B. Mapes, **H. Seo**, A. J. Miller, 2015: The Skill of Tropical Linear Inverse Models in Hindcasting the Madden-Julian Oscillation. *Climate Dyn.*, 44, 897-906.

2014

- [18] **Seo, H.**, A. C. Subramanian, A. J. Miller, and N. R. Cavanaugh, 2014: Coupled impacts of the diurnal cycle of sea surface temperature on the Madden-Julian Oscillation. *J. Climate*, 27, 8422-8443.
- [17] Park, J.-Y., J.-S. Kug, **H. Seo**, and J. Bader, 2014: Impact of bio-physical feedbacks on the tropical climate in coupled and uncoupled GCMs. *Climate Dyn.*, 43, 1811-1827.
- [16] **Seo, H.**, Y.-O. Kwon, and J.-J. Park, 2014: On the effect of the East/Japan Sea SST variability on the North Pacific atmospheric circulation in a regional climate model. *J. Geophys. Res.-Atmospheres*, 119, 418-444.
- [15] Subramanian, A, M. Jochum, A. J. Miller, R. Neale, **H. Seo**, D. Waliser, and R. Murtugudde, 2014: The MJO and Global warming: A study in CCSM4. *Climate Dyn.*, 42, 2019-2031.

2013

- [14] **Seo, H.**, and J. Yang, 2013: Dynamical response of the Arctic atmospheric boundary layer process to uncertainties in sea ice concentration. *J. Geophys. Res.-Atmosphere*, 118, 12383-12402.
- [13] Putrasahan, D. A. J. Miller, and **H. Seo**, 2013: Regional coupled ocean-atmosphere downscaling in the Southeast Pacific: Impacts on upwelling, mesoscale air-sea fluxes, and ocean eddies. *Ocean Dynam.*, 63, 463-488.

[12] Seo, H. and S.-P. Xie, 2013: Impact of ocean warm layer thickness on the intensity of hurricane Katrina in a regional coupled model. *Meteor. Atmos. Phys.*, 122, 19-32.

[11] Putrasahan, D. A. J. Miller, and H. Seo, 2013: Isolating Mesoscale Coupled Ocean-Atmosphere Interactions in the Kuroshio Extension Region. *Dyn. Atmos. Oceans.*, 63, 60-78.

2012

[10] Seo, H., K. H. Brink, C. E. Dorman, D. Koracin, and C. A. Edwards, 2012: What determines the spatial pattern in summer upwelling trends on the U.S. West Coast? *J. Geophys. Res.-Oceans*, 117, C08012.

[9] Alexander, M.A., H. Seo, S.-P. Xie, and J.D. Scott, 2012: ENSO's impact on the gap wind regions of the eastern tropical Pacific Ocean. *J. Climate*, 25, 3549-3565.

2006-2011

[8] Seo, H., and S.-P. Xie, 2011: Response and Impact of Equatorial Ocean Dynamics and Tropical Instability Waves in the Tropical Atlantic under Global Warming: A regional coupled downscaling study. *J. Geophys. Res.-Oceans*, 116, C03026.

[7] Seo, H., S.-P. Xie, R. Murtugudde, M. Jochum, and A. J. Miller, 2009: Seasonal effects of Indian Ocean freshwater forcing in a regional coupled model. *J. Climate*, 22, 6577-6596.

[6] Seo, H., R. Murtugudde, M. Jochum, and A. J. Miller, 2008: Modeling of Mesoscale Coupled Ocean-Atmosphere Interaction and its Feedback to Ocean in the Western Arabian Sea. *Ocean Modell.*, 25, 120-131.

[5] Seo, H., M. Jochum, R. Murtugudde, A. J. Miller, and J. O. Roads, 2008: Precipitation from African Easterly Waves in a Coupled Model of the Tropical Atlantic. *J. Climate*, 21, 1417-1431.

[4] Small, R. J., S. de Szoeke, S. P. Xie, L. O'Neill, H. Seo, Q. Song, P. Cornillon, M. Spall, and S. Minobe, 2008: Air-Sea Interaction over Ocean Fronts and Eddies. *Dyn. Atmos. Oceans.*, 45, 274-319.

[3] Seo, H., M. Jochum, R. Murtugudde, A. J. Miller, and J. O. Roads, 2007: Feedback of Tropical Instability Wave - induced Atmospheric Variability onto the Ocean. *J. Climate*, 20, 5842-5855.

[2] Seo, H., A. J. Miller and J. O. Roads, 2007: The Scripps Coupled Ocean-Atmosphere Regional (SCOAR) model, with applications in the eastern Pacific sector. *J. Climate*, 20, 381-402.

[1] Seo, H., M. Jochum, R. Murtugudde and A. J. Miller, 2006: Effect of Ocean Mesoscale Variability on the Mean State of Tropical Atlantic Climate. *Geophys. Res. Lett.*, 33, L09606.

FUNDED PROJECTS

NASA MAP (2021-2024): Improving coupled atmosphere-ocean processes in NU-WRF for the simulation of coast-threatening extratropical cyclones in the northeastern US. Seo, Edson, Clayson (WHOI), Braun and Shi (NASA GSFC). 1.16M to WHOI.

DOE eXCHANGE (2021-2016): Improving High Resolution Offshore Wind Resource Assessments and Forecasts using Observations in the MA/RI Lease Areas. Kirincich et al.

NSF PO/CLD (2020-2023): Collaborative Research: Coupled Ocean-Atmosphere Feedbacks Affecting California Coastal Climate: Current Conditions and Future Projections. PIs: Seo and Miller (SIO) 0.50M to WHOI

NOAA CVP (2020-2023): Regional multi-year prediction for the Northeast U.S. Continental Shelf. PIs: Kwon, Seo, Chen, Frantantoni, Saba, and Alexander. 0.66M to WHOI

NOAA CVP (2019-2022): Coupled ocean-atmosphere interaction mediated by ocean mesoscale eddies in the Northwestern Tropical Atlantic Ocean. PIs: Seo and Clayson. 0.76M to WHOI

WHOI ISA (2019-2020): Southern Ocean eddies and atmospheric storm tracks. PI: Seo. \$60K Internal

ONR DRI MISO-BoB (2017-2021): Coupled Air-Sea Interactions in the Bay of Bengal: Dynamics and Predictability of Monsoon Intraseasonal Oscillation. PI: Seo. 0.5M to WHOI

NOAA CVP (2017-2020): Upper ocean processes in the Maritime Continent and their impact on the air-sea interaction and MJO predictability. PI: Seo. 0.69M to WHOI

PENDING PROJECTS

NASA EVM3: Butterfly: revealing the oceans' impact on our weather and climate. Gentemman et al.

PAST PROJECTS

ONR YIP (2015-2019): Dynamics, Impacts, and Predictability of Coupled Ocean-Atmosphere Interactions in the Northern Indian Ocean. \$490K to WHOI

NOAA CVP (2015-2019): Improvement of MJO simulation in NCEP Coupled Forecast System: Upper ocean and air-sea coupled processes. \$180K to WHOI

NSF PO (2014-2019): EaSM-3: Collaborative Research Quantifying Predictability Limits, Uncertainties, Mechanisms, and Regional Impacts of Pacific Decadal Climate Variability. \$368K to WHOI

NSF CLD (2014-2019): Decadal Variability in the North Atlantic Extra-Tropics: The Role of Coupling Between Atmospheric Blocking and the Atlantic Multi-decadal Oscillation. \$500K to WHOI

NASA PO (2013-2017): Coupling Between the Atmospheric Intra-Seasonal Variability and Ocean Circulation in the Northern Hemisphere. \$494K to WHOI

WHOI OCCI (2015-2016): A regional coupled model with explicit convection: diurnal rainfall and air-sea-land interaction in the Maritime Continent. \$55K Internal funding

WHOI ISA (2013-2014): Air-Sea Interaction on Oceanic Submesoscales. \$55K Internal funding

WHOI ISA (2010-2011): Trends in Coastal Upwelling and Sea Breeze in the California-Oregon Coast: Land-Ocean-Atmosphere Interactions in Data and Model. \$47K Internal funding

ONR (2010-2011): Coupled Ocean-Atmosphere Dynamics and Predictability of MJO's. \$42K to WHOI.

AWARDS AND HONORS

- Office of Naval Research (ONR) Young Investigator Award (2015)
- NOAA Climate and Global Change Postdoctoral Fellowship (2007-2009)
- Physical Oceanography Dissertation Symposium V, Honolulu (2008)
- NCAR Advanced Study Program (ASP) Graduate Student Visiting Fellowship (2006)
- Scripps Institution of Oceanography Frieman Director's Prize for Excellence in Graduate Student Research (2006)
- Outstanding Student Paper Award, Ocean Sciences Meeting, Honolulu (2006)

MIT/WHOI JOINT PROGRAM TEACHING

- **Fall Semester, 2019:** Climate Variability and Diagnostics, MIT/WHOI Joint Program Course 12.860, Co-teaching with C. Ummerhofer
- **Fall Semester, 2019:** Introduction to Physical Oceanography, MIT/WHOI Joint Program Course 12.808, Co-teaching with J. Toole
- **Fall Semester, 2018:** Introduction to Physical Oceanography, MIT/WHOI Joint Program Course 12.808, Co-teaching with L. Pratt and J. Toole
- **Fall Semester, 2017:** Climate Variability and Diagnostics, MIT/WHOI Joint Program Course 12.860, Co-teaching with C. Ummerhofer
- **Fall Semester, 2017:** Introduction to Observational Physical Oceanography, MIT/WHOI Joint Program Course 12.808, Co-teaching with L. Pratt and J. Toole
- **Fall Semester, 2016:** Introduction to Observational **Physical** Oceanography, MIT/WHOI Joint Program Course 12.808, Co-teaching with M. Andres and L. Pratt
- **Fall Semester, 2015:** Guest Lecture on "Intraseasonal Variability in the Tropics". Climate Variability and Diagnostics, MIT/WHOI Joint Program

ADVISING AND MENTORING

Dissertation Committee

- Ph.D. Thesis Committee Chair for Hanyuan Liu (MIT-WHOI Joint Program), 2021
- Ph.D. External Examiner for Christoph Renkl (Dalhousie University, Oceanography), 2020
- Ph.D. Thesis committee for Jared Buckley (University of Massachusetts, Dartmouth), 2015-2019

- M.S. Thesis committee for Xin Zhou (Florida Institute of Technology), 2015-2016
- M.S. Thesis committee for Sara Bosshart (MIT-WHOI Joint Program), 2013

Postdocs

- César Sauvage (2020-, Postdoctoral Investigator)
- John Steffen (2019-2021, now at NOAA)
- Rhys Parfitt (2016-2018, now Assistant Professor, FSU)

Undergraduate and Guest Students

- Sam Bartusek (Princeton University, SSF 2019): Coastal Ocean impacts on landfalling ARs ([Bartusek et al. 2021](#))
- Yuqing Liu (Bremen University, Guest Student, 2018): Submesoscale air-sea coupling
- Manthan Shah (Northeastern Univ., Guest Student, 2018): Scale-dependence of SST-wind coupling
- Yuan Xu (Univ. Twente, Guest Student, 2018): Decadal variability in the Indian Ocean (Yu et al. 2020, ERL)
- Xiaolin Jin (Tsinghua University, Visiting Student, 2017), Decadal Subsurface Ocean Heat Content Variations in the Indian Ocean. ([Jin et al. 2018a](#), [Jin et al. 2018b](#))
- Samuel Coakley (Rutgers University, SSF 2017): Southeast Asian monsoon variability in the CESM-Last Millennium Ensemble
- David Smith (Northeastern University, Guest Student, 2016): Decadal predictability of the North Atlantic Blocking
- Channing Prend (Columbia Univ., SSF 2016, now at Scripps): Impact of freshwater plumes on intraseasonal SST variability in the Bay of Bengal ([Prend et al. 2018](#))
- Siraput Jongaramrungruang (Univ. Cambridge, SSF 2015, now at Caltech): Interannual modulation of intraseasonal convection in the Bay of Bengal [Jongaramrungruang et al. 2017](#))
- Alicia Camacho (Valparaiso University, UCAR SOARS student 2015, now at Stony Brook University): North Atlantic Oscillation, Jet and Blocking in CESM1 Large Ensemble Simulations. ([Kwon et al. 2018](#))
- Carlos Martinez (Texas A&M University, UCAR SOARS student 2014, now at Columbia University): North Atlantic Atmospheric Blocking and Atlantic Multi-decadal Oscillation in CESM1 Large Ensemble Simulations. ([Kwon et al. 2018](#))

PROFESSIONAL ACTIVITIES

Community Activities

- Co-Chair: US CLIVAR Working Group on “Mesoscale and frontal-scale ocean-atmosphere interactions and influence on large-scale climate”. 2019-Present
- Associate Editor: *Journal of Climate*, 2019- Present
- Member: AMS STAC committee on Air-Sea Interaction, 2019- Present
- (Past) Member: US CLIVAR Process Study and Model Improvement Panel: 2016-2020
- (Past) Associate Editor: *Atmospheric Science Letters*, 2015-201
- (Past) Member: AMS STAC committee on Coastal Environment, 2011-2017

Agency Proposal Review Panels

NASA SWOT 2012; DOE ESMD 2020

Journal Reviewer

Atmos. Sci. Lett., Bull. Amer. Met. Soc., Clim. Dynm., Cont. Shelf Res., Dynm. Atmos. Oceans, Geophys. Res. Lett., J. Adv. Modeling, J. Atmos. Sci., Earth Syst., J. Climate, J. Mar. Syst., J. Phys. Oceanogr., Prog. Oceanogr., J. Geophys. Res.–Atmosphere, Oceans, Nat. Geosci., Nat. Comm., Ocean Dynm., Ocean Modell., Remote Sensing, Sci. Rep. ^[1]_[SEP]

Proposal Reviewer

NOAA (CPO); NSF (OCE Physical Oceanography, ATM Climate and Large-scale Dynamics, ATM Physical and Dynamic Meteorology); The Portuguese Foundation for Science and Technology (FCT); The French Research Agency (ANR); Programme on National Monsoon Mission (India); FONDECYT Program (Chile), BSF (US-Israel Binational Science Foundation)

WHOI Committee and Service

- Summer Student Fellowship (SSF) Physical Oceanography Coordinator, 2017-2019
- Advisory committee for the WHOI High Performance Computing Facility, 2010-2017
- Physical Oceanography Department Seminar Series Organizer, 2010-2011

Society Memberships

- American Geophysical Union (2002-Present)
- American Meteorological Society (2002-Present)
- The Oceanography Society (2012-Present)
- The Korean Society of Oceanography (2012-Present)

Meeting Convener and Organizing Committee

- Co-chair: [International workshop for mid-latitude air-sea interaction: Advancing Predictive Understanding of Regional Climate Variability and Change across Timescales](#). Japan, 2021
- Program Co-Chair, [22nd Conference on Air-Sea Interaction](#), AMS Annual Meeting, 2021
- Co-chair: [Atmospheric and Oceanic Processes Governing the Trade-wind Regions](#). AGU 2020
- Co-chair, [Extratropical oceans and atmosphere](#), JGPU Meeting, Japan 2020
Organizing committee: Surface Currents in the Coupled Ocean-Atmosphere System Workshop, Scripps, February 22-23, 2020 <https://usclivar.org/meetings/air-sea-interactions-tropical-oceans>
- Co-chair, [Influence of mesoscale and submesoscale ocean-atmosphere interactions on Earth's climate](#). Ocean Sciences Meeting, San Diego, 2020
- Lead convener: [IUGG IAPSO Ocean Boundary Current Systems](#), July 2019
- Organizing committee: Atmospheric Convection and Air-Sea Interactions of the Tropical Oceans, May 7-9 2019, NCAR <https://usclivar.org/meetings/air-sea-interactions-tropical-oceans>
- Organizing committee: Sources and Sinks of Ocean Mesoscale Eddy Energy, March 12-14, 2019, FSU, <https://usclivar.org/meetings/sources-and-sinks-ocean-mesoscale-eddy-energy>
- Co-chair: CLIVAR Climate Process Teams for Developing Improved Parameterization of Atmosphere and Ocean Climate Model Processes: Why, When, Where, and How. V. Cole, H. Seo, A. Subramanian, and C. Ummerhofer, AGU 2018
- Lead Chair: Air-Sea Interaction from Tropics to Extratropics: Ocean Mesoscales, Teleconnections, and Climate Predictions, H. Seo, M. Nonaka, L. O'Neill, and N. Schneider, AGU 2018
- Co-convener: New Insights into the Dynamics of the Western Tropical Indian Ocean. Ocean Sciences Meeting, 2018, With V. Hormann, J. Sprintall, and A. Scherbina
- Co-convener: Air-Sea Interaction at the Mesoscale and Submesoscale, Ocean Sciences Meeting, 2018. With J. Wenegrat, L. O'Neill, S. de Szoeke
- Program Chair for 14th Symposium on the Coastal Environment, AMS Meeting, 2016.
- Air-sea interactions in coastal environments AMS Annual Meeting, Phoenix, 2015
- Regional climate modeling in the North Pacific, PICES Annual Meeting, Yeosu, 2014
- East Asian Marginal Seas: sea surface temperature variability and ocean-atmosphere process, Ocean Sciences Meeting, Honolulu, February 2014
- Climate Trends and Projections in the Coastal Environment, American Meteorological Society Annual Meeting, Austin, January 2013
- Marine Regional Integrated Assessments: Observations, Predictions, and Uncertainty, WCRP Open

Science Conference, Denver, 2011

- Regional and Mesoscale Coupled Air-Sea Modeling, Ocean Sciences Meeting, 2010

LECTURES AND SEMINARS

2020

- Coupled Ocean-Atmosphere Interactions over Oceanic Boundary Currents. Ocean Sciences Meeting, San Diego, February 2020
- Small-scale upper ocean processes in the Bay of Bengal: Do they matter to air-sea interaction and monsoon? MISO-BoB Discussion Meeting, Ahmedabad, India, January 2020

2019

- Review of Mesoscale and frontal-scale air-sea interactions: physics, diagnostics, and impacts. US CLIVAR Summit, Long Beach, Aug 6, 2019
- Coupled ocean-atmosphere interactions over the oceanic boundary currents. IAPSO IUGG, Montreal, July 13, 2019
- (Invited) Distinct influence of coupled ocean-atmosphere interactions mediated by sea surface temperature and current. Yonsei University, Seoul, Korea, March 5, 2019
- Coupled ocean-atmosphere interaction mediated by SST and surface current: Distinctive impacts and scale dependence. OFES Meeting, Japan, Feb 28, 2019
- Coupled effects of ocean current on wind stress in the Bay of Bengal: EKE and ML stratification. MISO-BoB Meeting, ICTS, Bangalore, Feb 22, 2019

2018

- Modulation of wind work by surface current; eddy energetics and mixed layer stratification in the Bay of Bengal. MISO-BoB meeting, APL/UW, November 8-9, 2018
- Distinct Influence of air-sea coupling mediated by SST and current, Ocean Sciences Meeting, Portland, February, 2018
- Coupled modeling of air-sea interactions and MISO in the Bay of Bengal. ICO-BoB2. Colombo, Sri Lanka, Jan. 10-11, 2018

2017

- Distinct influence of air-sea coupling mediated by SST and surface current in the Arabian Sea: regional coupled modeling, ONR Program Review, April 29, 2017
- (Invited) Eddy- driven air-sea interactions in the California Current System and the western Arabian Sea: dynamics and impacts. Stony Brook University, February 22, 2017.
- Influence of freshwater plumes on intraseasonal variability in the Bay of Bengal. ONR ASIRI/OMM Meeting, Chennai, India, January, 2017

2016

- On the nonlinear response of the North Atlantic atmosphere to shift of Gulf stream path. AGU Fall meeting, December, 2016
- Coupled modeling of mesoscale dynamics and air-sea interaction in the Arabian Sea, ONR NASCar Science Meeting, Univ. Washington, October, 2016
- Predominant nonlinear atmospheric response to meridional shift of the Gulf Stream path, AMS Air-Sea Interaction Workshop, 2016/08
- Dynamics and impact of eddy-driven air-sea interactions in the California Current System, Scripps Institution of Oceanography CASPO Seminar, May 2016
- Dynamics and impact of eddy-driven air-sea interactions in the California Current System, WHOI PO Seminar, April, 2016
- Predominant nonlinear atmospheric response to meridional shift of the Gulf Stream path, Ocean Sciences Meeting, New Orleans, Feb. 2016

2015

- (Invited) SST variability in the East Asian marginal seas: mechanisms for local and remote atmospheric impacts. AGU, Dec. 2015 ^[1]_{SEP}

- Dynamics and impacts of eddy-driven air-sea interaction in a regional air-sea coupled model for the US West Coast. AGU, Dec. 2015 ^[1]_[SEP]
- Coupled impacts of the diurnal cycle of sea surface temperature on the Madden-Julian Oscillation, IUGG, Prague, Jun. 25, 2015 ^[1]_[SEP]
- Coupled modeling of eddy-wind interaction in the California Current System, IUGG, Prague, Jun, 2015 ^[1]_[SEP]
- Eddy-driven air-sea interaction and feedback in the western Arabian Sea, ONR NASCar Planning Meeting, Reston VA, Jun. 2-3, 2015 ^[1]_[SEP]
- Diurnal SST and diurnal rainfall in the Maritime Continent, YMC Planning Meeting, NCAR, May 27-29, 2015 ^[1]_[SEP]
- Coupled Ocean-Atmosphere Interaction in the Northern Indian Ocean: Motivation and Proposed Research, ONR SIRI Science Meeting, U. Mass. Dartmouth, May 26-28, 2015 ^[1]_[SEP]
- Coupled modeling of eddy-wind interaction in the California Current System: Impact on eddy kinetic energy and Ekman pumping, AMS Annual Meeting, Jan. 5, 2015

2014

- (Invited) Eddy-wind interaction in the California Current System - Eddy kinetic energy and Ekman pumping, Korean Institute of Ocean Science and Technology, Dec. 19, 2014
- Eddy-wind interaction in the California Current System: Eddy kinetic energy and Ekman pumping, Kyushu University, Dec. 15, 2014
- Coupled impacts of the diurnal cycle of sea surface temperature on the Madden-Julian Oscillation, International Regional Spectral Meeting, JAMSTEC, Japan, Nov. 27-28
- Coupled impacts of the diurnal cycle of sea surface temperature on the Madden-Julian Oscillation, Korean Oceanographic Society Meeting, Jinhae, Korea, Nov. 7, 2014
- (Invited) Regional coupled modeling of eddy-wind interaction in the California Current System: Eddy kinetic energy and Ekman pumping, PICES Annual Meeting, Yeosu, Korea, Oct. 21, 2014 ^[1]_[SEP]
- Effect of Eddy-Wind Interaction on Ekman pumping and Eddy Kinetic Energy in the California Current System: A Regional Coupled Modeling Study, OFES Workshop, Aizu, Oct. 2-3, 2014 ^[1]_[SEP]
- Coupled impacts of the diurnal cycle of sea surface temperature on the Madden-Julian Oscillation, Kyushu University, Sep. 26, 2014 ^[1]_[SEP]
- Mesoscale Air-Sea Interactions, WHOI Summer Lecture Series, Jul. 28, 2014 ^[1]_[SEP]
- Effect of the East Asian Marginal Sea SST variability on the North Pacific atmospheric ^[1]_[SEP]circulation: East/Japan Sea case study, European Geophysical Union, Vienna, Austria, Apr. ^[1]_[SEP]28 - May 1, 2014
- Surface wind response to Arctic sea ice in a regional weather model, WHOI Physical ^[1]_[SEP]Oceanography Seminar, Apr. 15, 2014 ^[1]_[SEP]
- Effect of the East/Japan Sea SST variability on the on the North Pacific atmospheric ^[1]_[SEP]circulation, Ocean Sciences Meeting, Honolulu, Feb. 24-28, 2014 ^[1]_[SEP]^[1]_[SEP]

2013

- Dynamics of near-surface winds over ocean eddies and sea ice: Regional modeling studies of tropical and arctic atmospheres, University of Rhode Island, GSO Seminar, Dec. 6, 2013
- Predictability and Coupled Dynamics of MJO during DYNAMO: Role of diurnal cycle in the intensity of MJO2, ONR Physical Oceanography Peer Review Program, Monterey, Sep. 23-24 ^[1]_[SEP]
- (Invited) Ocean mesoscale eddies, air-sea interactions and regional climate: regional coupled climate modeling, APEC Climate Center, Busan, Korea, Sep. 13, 2013 ^[1]_[SEP]
- (Invited) Effect of East/Japan Sea SST variability on the North Pacific atmospheric circulation, International Workshop on Regional Climate Models-II, Busan, Korea, Sep. 10-12, 2013
- Dynamical response of the Arctic surface winds to sea ice variability, Climate Implications of Frontal Scale Air-Sea Interaction. NCAR, Aug. 5-7, 2013 ^[1]_[SEP]
- Dynamical response of the Arctic atmospheric boundary layer process to uncertainties in sea ice concentration AMS Polar Meeting, Seattle, April 29 - May 1, 2013 ^[1]_[SEP]
- What determines the spatial pattern in summer upwelling trends on the U.S. West Coast? AMS Annual

Meeting Austin, TX, Jan. 9, 2013. [L][SEP]

2012 [L][SEP]

- Role of Ocean Mesoscale Eddies in Air-Sea Interaction and Regional Climate Change. MIT MSEAS Seminar. Nov. 16, 2012 [L][SEP]
- Role of the East/Japan Sea SST variability in the atmospheric circulation in the North Pacific. AMS 18th Conference on Air-Sea Interaction, Boston. Jul. 12, 2012 [L][SEP]
- (Invited) Mesoscale air-sea interactions and regional climate change: the Tropical Instability Waves example KORDI, May 30, 2012 [L][SEP]
- Role of the East/Japan Sea SST variability in the atmospheric circulation in the North Pacific. KORDI-WHOI Workshop, May 25, 2012 [L][SEP]
- (Invited) Role of the East-Asian marginal sea SST in the regional predictability and the North Pacific climate variability Japan Geoscience Union Meeting, May 23, 2012 [L][SEP]
- Regional modeling of ocean-atmosphere interaction: from tropics to mid-latitude. Kyushu University, Japan, May 21, 2012 [L][SEP]

2011 [L][SEP]

- Effect of Seasonal Freshwater Forcing on the Indian Monsoon: A Regional Coupled Modeling Study Bay of Bengal Monsoon Workshop, WHOI, Nov. 16-18, 2011 [L][SEP]
- Mesoscale air-sea interactions and regional climate change: Tropical Instability Waves in a regional coupled model. Yonsei University, Seoul, Korea, Oct. 14, 2011 [L][SEP]
- (Invited) Regional coupled downscaling: Role of mesoscale ocean eddies in climate- Tropical Instability Waves. International Workshop Development and Application of Regional Climate Models. Korea, Oct. 11-12 [L][SEP]
- Tropical Instability Waves in the Atlantic: Air-sea interactions and climate change, Coupled Ocean-Atmosphere-Land Processes in the Tropical Atlantic, Miami, Mar. 24, 2011 [L][SEP]

2010 [L][SEP]

- Regional coupled downscaling of climate and weather, NRL-Stennis Space Center, May 26 [L][SEP]
- Regional coupled downscaling: mesoscale air-sea interaction and regional climate change, [L][SEP]UT-Austin, April 26, 2010 [L][SEP]
- Regional coupled-downscaling of climate and weather, WHOI, Mar. 23, 2010 [L][SEP]
- Applications of a regional coupled model to studies of global warming and hurricane-ocean [L][SEP]interaction, NCAR, Mar. 4, 2010 [L][SEP]

2009

- Downscaling Global Warming with a Regional Ocean-Atmosphere Model over the Tropical Atlantic Role of equatorial ocean dynamics, AGU Fall Meeting, Dec. 2009 [L][SEP]
- Tropical Atlantic response to global warming: Equatorial upwelling and tropical instability waves- International RSM Workshop, Maui, Aug. 4, 2009 [L][SEP]
- Seasonal effects of Indian Ocean freshwater forcing in a regional coupled model-Barrier Layers and Indian Monsoon- IPRC Annual Symposium, Jun. 2, 2009 [L][SEP]
- Mesoscale air-sea interaction and feedback in the western Arabian Sea: CLIVAR Western Boundary Current Workshop, Phoenix, Jan. 15, 2009 [L][SEP]
- Mesoscale air-sea interaction and feedback in the western Arabian Sea: AMS Annual Meeting, Phoenix, Jan. 14, 2009 [L][SEP]

2008 [L][SEP]

- Overview of the Scripps Coupled Ocean-Atmosphere Regional Model: ONR Coupled Modeling Workshop, Ballston, VA, Dec. 12, 2008 [L][SEP]
- Mesoscale ocean-atmosphere interaction due to the ocean mesoscale eddies: Physical Oceanography Dissertation Symposium V, Oct. 6, 2008 [L][SEP]
- Coupled modeling of mesoscale ocean-atmosphere interactions: tropical instability waves and ocean eddies: NOAA C&GC Summer Institute, Jul. 14, 2008 [L][SEP]

- Mesoscale ocean-atmosphere interaction in the western Arabian Sea: Dynamic and thermodynamic feedback to the ocean: NCAR CGD Seminar, May 23, 2008 ^[1]_[SEP]
- Mesoscale coupled ocean-atmosphere Interaction; Tropical Instability Waves and Atmospheric Feedback: ESSIC Seminar, University of Maryland, Jan. 18, 2008 ^[1]_[SEP]

2002-2007 ^[1]_[SEP]

- Ocean-Atmosphere Interaction in a High-Resolution Regional Coupled Model: Oceanography Seminar, University of Hawaii, Manoa, Aug. 23, 2007 ^[1]_[SEP]
- Effect of Coupling of Wind and Current on Tropical Instability Waves in the Atlantic Ocean: CLIVAR Tropical Atlantic Variability Meeting, Paris, Oct. 18, 2006 ^[1]_[SEP]
- Tropical Ocean-Atmosphere Interaction in a Regional Coupled High-Resolution GCM: NCAR CGD Seminar, Aug. 23, 2006 ^[1]_[SEP]
- Regional Ocean-Atmosphere Interactions in the Eastern Pacific: TIWs, Mesoscale Eddies and Gap Winds: Woods Hole Oceanographic Institution Seminar, Apr. 2006 ^[1]_[SEP]
- Air-sea coupling associated with the TIWs; high-resolution coupled-model study: Ocean Sciences Meeting, Honolulu, Feb. 24, 2006 ^[1]_[SEP]
- Atmospheric Boundary Layer Response to SST in the Eastern Pacific: AGU Fall Meeting, San Francisco, Dec. 2005 ^[1]_[SEP]
- Tropical Instability Waves and Ocean-Atmosphere Feedback. ROMS Workshop, La Jolla, Oct
- Regional Ocean-Atmospheric Feedback in the Eastern Pacific; Gap Winds, TIWs, and Mesoscale Eddies: UCLA AOS 270 Seminar, UCLA, Oct. 12, 2005 ^[1]_[SEP]
- Regional Air-Sea Interaction in the Eastern Pacific: RSM User Workshop, New York, Aug. ^[1]_[SEP]
- Development of the Regional Coupled Ocean-Atmosphere Model: AMS Annual Meeting, San Diego, Jan. 2005 ^[1]_[SEP]
- Preliminary Simulation of the Regional Coupled Atmosphere-Ocean Model in the Southern California Coastal Region: RSM User Workshop, Yonsei University, Korea, Aug. 2004