

CURRICULUM VITAE

Elizabeth J. Thompson

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Citizenship: United States of America

Research Statement

I study precipitation, cloud systems, and coupled ocean-atmosphere boundary layer processes over oceans. This includes cloud microphysics, large scale forcing on precipitation and clouds, and how clouds, precipitation, air-sea fluxes, and coupled boundary layer evolution influence each other. I also study how these processes impact weather and climate variability. I collect and analyze in-situ observations, use satellite observations, and partner with modeling teams to improve process level understanding, develop algorithms, determine observational capabilities and needs, and evaluate models with process-oriented diagnostics.

Research Interests

Air-sea fluxes and their role in the co-evolution of atmospheric and oceanic boundary layers; Studies of meteorology, precipitation, and clouds using observations from dual- and single-polarization radars for clouds and rain, satellites, and disdrometers; Algorithms for quantitative precipitation estimation, precipitation classification, and near-surface ocean stability; Investigations of meteorological and physical oceanographic processes with satellite and in-situ observations; Observation-based research on atmospheric dynamics, physical oceanography, as well as synoptic-scale and mesoscale meteorology; Use of in-situ measurements to evaluate and improve environmental prediction models and remote sensing products.

Education

- 2012-2016 Ph.D. Atmospheric Science, Colorado State University
Advisor: Steven A. Rutledge; co-advisor: James N. Moum (Oregon State Univ.)
Dissertation: “*Tropical warm pool rainfall variability and impact on upper ocean variability throughout the Madden-Julian Oscillation*”
- 2010-2012 M.S. Atmospheric Science, Colorado State University
Advisor: Steven A. Rutledge
Thesis: “*Development of a Polarimetric-Radar Based Hydrometeor Classification Algorithm for Winter Precipitation*”
- 2006-2010 B.S. Meteorology, minors in Mathematics and Geography, Valparaiso University
Advisor: Bart Wolf

Professional Experience

- 2019-present Research Meteorologist, NOAA OAR Physical Sciences Laboratory
Boundary Layer Observations and Processes Division, Marine Team Lead since 2022
- 2019-present Affiliate Scientist, Applied Physics Laboratory at Univ. of Washington, Air-Sea Interaction and Remote Sensing Dept.
- 2018-2019 Senior Meteorologist, Applied Physics Laboratory at Univ. of Washington, Air-Sea Interaction and Remote Sensing Dept.
- 2016-2018 Postdoctoral Research Associate, Applied Physics Laboratory at Univ. of Washington, Air-Sea Interaction and Remote Sensing Dept. Mentors: Kyla Drushka, William E. Asher, Andrew T. Jessup
- 2010-2016 Graduate Research Assistant, Colorado State Univ., Radar Meteorology Group, Advisor: Steven A. Rutledge
- 2014 Graduate Teaching Assistant, Atmospheric Thermodynamics and Cloud Physics, Supervisor: Prof. Steven A. Rutledge, Colorado State Univ.
- 2011-2012 Graduate Student Representative, Colorado State Univ.
- 2010 Environmental Science Interpretation and Visitor Services Assistant, U.S. Forest Service, Chugach National Forest, Glacier Ranger District, Alaska. Mentor: Lezlie Murray
- 2009-2010 Undergraduate Teaching Assistant, Atmospheric Dynamics, Supervisor: Prof. Teresa Bals-Elsholz, Valparaiso Univ.
- 2009 Undergraduate Research Assistant. NOAA OAR National Severe Storms Lab, Mentor: Kenneth Howard
- 2008 Student Volunteer, NOAA National Weather Service Weather Forecast Office Baltimore/Washington D.C., Mentor: Steven Zubrick
- 2007 Undergraduate Research Assistant, NASA/Texas Commission for Environmental Quality and Valparaiso Univ. Tropospheric Ozone Pollution Project, Mentor: Gary Morris

Field Experiments (13 total)

- 2023 Moisture and Aerosol Gradients and Physics of Inversion Evolution (MAGPIE), 1-31 Aug, ONR Marine Meteorology, role: co-lead in Science Implementation Plan, field operations, and data collection plans. Coordinated communications and planning for joint data collection between Navy CIRPAS Twin Otter and NOAA P-3 aircraft, G-IV aircraft, and Hurricane Monitoring Saildrones. Helped deploy Sofar wave and SST buoy. Deployed PSL W-band cloud, light rain, and sea spray radar on NOAA P-3 for MAGPIE/APHEX/Hurricane Field Program joint goals.
- 2023 Hurricane Field Program / Advancement of Prediction in Hurricanes Experiment (HFP/APHEX), summer-fall 2023, NOAA AOML. Deployed PSL W-band cloud, light rain, and sea spray radar on NOAA P-3 for MAGPIE/APHEX/Hurricane Field Program joint goals.
- 2020 Atlantic Tradewind Ocean- Atmosphere Mesoscale Interaction Campaign (ATOMIC), Jan 6 - Feb 13, NOAA Climate Program Office, role: collected and analyzed observations from SWIFT buoys (Surface Wave Instrument Float with Tracking), wave gliders, R/V Ronald H. Brown, and NOAA P3 aircraft. Observations were taken from the upper ocean mixed layer, ocean surface, air-sea fluxes, clouds, and rain. These were analyzed for gaining a better understanding of coupled boundary layer processes. Gave science presentation at Outreach Day on the ship with Barbados students, Barbados/US Embassy, NOAA Assistant Secretary and Program Managers, EUREC4A scientists, Barbados Coast Guard, scientists from Caribbean Institute of Meteorology and Hydrology. Chief Scientists: Patricia Quinn (NOAA PMEL) and Janet Intieri (NOAA PSL)
- 2019 Propagation of Intra-Seasonal Tropical Oscillations II (PISTON-2), Sept 2 – Sept 27, NOAA Climate Program Office and ONR Marine Meteorology role: collected ship-based oceanographic, air-sea flux, cloud, and rain measurements, analyzed observations for better understanding of coupled boundary layer processes, R/V Sally Ride, Chief Scientist: James N. Moum (OSU)
- 2018 Propagation of Intra-Seasonal Tropical Oscillations I (PISTON-1), Sept 14 – Oct 15, NOAA Climate Program Office and ONR Marine Meteorology, role: collected ship-based oceanographic and rain measurements, analyzed all observations for better understanding of coupled boundary layer processes, R/V Thomas G. Thompson, Chief Scientist: James N. Moum (OSU)
- 2017 Salinity Processes in the Upper Ocean Regional Study 2 (SPURS-2), Oct 16 – Nov 17, NASA Physical Oceanography, role: collected and analyzed ship-based observations of the upper ocean and lower atmosphere, including radar-based rainfall; also analyzed air-sea fluxes, R/V Roger Revelle, Chief Scientist: Kyla Drushka (APL-UW)

- 2017 UNOLS Chief Scientist Training Cruise: Diurnal Warm Layers in the Great Lakes, June 8 -11, role: collected and analyzed upper ocean and meteorological observations, R/V Blue Heron, co-Chief Scientist: Elizabeth J. Thompson (APL-UW)
- 2016 Salinity Processes in the Upper Ocean Regional Study 2 (SPURS-2), Aug 13 – Sept 23, NASA Physical Oceanography, role: collected and analyzed ship-based observations of the upper ocean and lower atmosphere, including radar-based rainfall; also analyzed air-sea fluxes, R/V Roger Revelle, Chief Scientist: Andrew T. Jessup (APL-UW)
- 2011 Dynamics of the Madden-Julian Oscillation (DYNAMO), Nov 3 – Dec 13, NOAA Climate Program Office and ONR Marine Meteorology, role: lead radar scientist operating NASA TOGA C-Band Doppler radar used to measure precipitation; analyzed measurements of rain, the upper ocean, the lower atmosphere, and air-sea fluxes, R/V Roger Revelle, Chief Scientist: James N. Moum (OSU)
- 2011 Midlatitude Continental Convective Clouds Experiment (MC3E), May –June, DOE, role: launched radiosondes for DOE to test NASA Global Precipitation Measurement satellite algorithms; PI: Steven A. Rutledge (CSU)
- 2009 Engineers Without Borders Valparaiso Univ. Assessment Trip to Tanzania, Africa, May 15-24, role: designed and conducted Geographic Information System (GIS) project to map demographics and deteriorating water canal in primitive village
- 2008 Plains Convective Storms Student Field Study, May 2008, role: lead Doppler radar data interpreter for the forecasting and interception of severe storms in 20-student team; Supervisor: Bart Wolf (Valparaiso Univ.)
- 2007 Texas Commission for Environmental Quality Study (TexAQS II), June-July 2007, role: launched daily ozonesondes to study the atmospheric boundary layer and tropospheric ozone in urban environment of Houston; Supervisor: Gary Morris (Valparaiso Univ.)

Publications

In Review

Accepted

Riihimaki, L.D. and coauthors including E. J. Thompson, (2024) Ocean Surface Radiation Measurement Best Practices, accepted to *Frontiers in Marine Science*.

Chi, N. E. J. Thompson, H. Chen, A. Shcherbina, F. Bingham, L. Rainville, submitted: Spatiotemporal variability of rainfall and surface salinity in the Eastern Pacific Fresh Pool: A joint in-situ and satellite analysis during the SPURS-2 field campaign. *Journal of Geophysical Research: Oceans*, <https://doi.org/10.1029/2022JC019599>

- Chen, X., J. Dias, B. Wolding, R. Pincus, C. DeMott, G. Wick, E. J. Thompson, and C. W. Fairall, 2023: Ubiquitous Sea Surface Temperature Anomalies Increase Spatial Heterogeneity of Trade-Wind Cloudiness on Daily Timescale. *J. Atmos. Sci.*, <https://doi.org/10.1175/JAS-D-23-0075.1>
- Clayson, C. A., DeMott, C., De Szoeke, S., Chang, P., Foltz, G., Krishnamurthy, R., Lee, T., Moloud, A., Ortiz-Suslow, D., Pullen, J., Richter, D., Seo, H., Taylor, P., Thompson, E.J., Villas Bôas, B., Zappa, C., Zuidema, P. (2023). A New Paradigm for Observing and Modeling of Air-Sea Interactions to Advance Earth System Prediction. (S. Coakley & M. Patterson, Eds.). Washington, DC: U.S. CLIVAR Project Office
<http://dx.doi.org/10.5065/24j7-w583>
- Chen, H., C. W. Fairall, C. R. Williams and E. J. Thompson, "Vertical Air Motion Retrievals From Airborne W -Band Cloud Radar," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 16, pp. 9565-9572, 2023, <https://doi.org/10.1109/JSTARS.2023.3322346>
- Bytheway, J. L., E. J. Thompson, J. Yang, and H. Chen, 2023: Evaluation of the RainFARM Statistical Downscaling Technique Applied to IMERG over Global Oceans using Passive Aquatic Listener in situ rain measurements. *J. Hydrometeor.*, <https://doi.org/10.1175/JHM-D-23-0090.1>, in press.
- Li, Z., E. J. Thompson and H. Chen, "The Uncertainty of IMERG Over the Western Edge of the Eastern Pacific Fresh Pool: An Error Model Based on SPURS-2 Field Campaign Observations," in *IEEE Transactions on Geoscience and Remote Sensing*, vol. 61, pp. 1-14, 2023, Art no. 4104914, <https://doi.org/10.1109/TGRS.2023.3306795>
- Davis, J. R., Thomson, J., Houghton, I. A., Doyle, J. D., Komaromi, W. A., Fairall, C. W., et al. (2023). Saturation of ocean surface wave slopes observed during hurricanes. *Geophysical Research Letters*, 50, e2023GL104139. <https://doi.org/10.1029/2023GL104139>
- Li, Z., Thompson, E. J., Behrangi, A., Chen, H., & Yang, J. (2023). Performance of GPCP daily products over oceans: Evaluation using Passive Aquatic Listeners. *Geophysical Research Letters*, 50, e2023GL104310. <https://doi.org/10.1029/2023GL104310>
- Brizuela, N. G., Johnston, T. M. S., Alford, M. H., Asselin, O., Rudnick, D. L., Moum, J. N., Thompson, E. J., Wang, S., Lee C.-Y. (2023). A vorticity-divergence view of internal wave generation by a fast-moving tropical cyclone: Insights from Super Typhoon Mangkhut. *Journal of Geophysical Research: Oceans*, 128, e2022JC019400. <https://doi.org/10.1029/2022JC019400>
- Bytheway, J. L., Thompson, E. J., Yang, J., & Chen, H. (2023). Evaluating satellite precipitation estimates over oceans using passive aquatic listeners. *Geophysical Research Letters*, 50, e2022GL102087. <https://doi.org/10.1029/2022GL102087>

- Reeves Eyre, J. E. J., M. F. Cronin, D. Zhang, E. J. Thompson, C. W. Fairall, and J. B. Edson, 2023: Saildrone direct covariance wind stress in various wind and current regimes of the tropical Pacific. *J. Atmos. Oceanic Technol.*, <https://doi.org/10.1175/JTECH-D-22-0077.1>
- Reid, J. S., and many coauthors including E. J. Thompson, 2023: The coupling between tropical meteorology, aerosol lifecycle, convection, and radiation, during the Cloud, Aerosol and Monsoon Processes Philippines Experiment (CAMP2Ex). *Bull. Amer. Meteor. Soc.*, <https://doi.org/10.1175/BAMS-D-21-0285.1>
- Bailey, A. J., F. Aemisegger, L. Villiger, S. A. Los, G. Reverdin, E. Q. Meléndez, C. Acquistapace, D. B. Baranowski, T. Böck, S. Bony, T. Bordsdorff, D. Coffman, S. P. de Szoeke, C. J. Diekmann, M. Dütsch, B. Ertl, J. Galewsky, D. Henze, P. Makuch, D. Noone, P. K. Quinn, M. Rösch, A. Schneider, M. Schneider, S. Speich, B. Stevens, and E. J. Thompson, 2023: Isotopic measurements in water vapor, precipitation, and sea water during EUREC4A, *Earth Syst. Sci. Data Discuss.* <https://doi.org/10.5194/essd-15-465-2023>
- Iyer, S., Drushka, K., Thompson, E. J., & Thomson, J., 2022. Small-scale spatial variations of air-sea heat, moisture, and buoyancy fluxes in the tropical trade winds. *Journal of Geophysical Research: Oceans*, 127, <https://doi.org/10.1029/2022JC018972>
- Yao, S., H. Chen, E. J. Thompson and R. Cifelli, 2022: An improved deep learning model for high-impact weather nowcasting. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, <https://doi.org/10.1109/JSTARS.2022.3203398>
- Iyer, S., J. Thomson, K. Drushka, E. J. Thompson, 2022: Variations in wave slope and momentum flux from wave-current interactions in the tropical trade winds. *Journal of Geophysical Research, Oceans*, <http://doi.org/10.1029/2021JC018003>
- Shackelford, K., C. A. DeMott, P. J van Leeuwan, E. J. Thompson, S. Hagos, 2022: Rain-induced stratification of the tropical Indian Ocean and its potential feedbacks to the atmosphere. *Journal of Geophysical Research, Oceans*, <https://doi.org/10.1029/2021JC018025>
- Quinn, P. K., Thompson, E.J., Coffman, D. J., Baidar, S., Bariteau, L., Bates, T. S., Bigorre, S., Brewer, A., de Boer, G., de Szoeke, S. P., Drushka, K., Foltz, G. R., Intrieri, J., Iyer, S., Fairall, C. W., Gaston, C. J., Jansen, F., Johnson, J. E., Krüger, O. O., Marchbanks, R. D., Moran, K. P., Noone, D., Pezoa, S., Pincus, R., Plueddemann, A. J., Pöhlker, M. L., Pöschl, U., Quinones Melendez, E., Royer, H. M., Szczodrak, M., Thomson, J., Upchurch, L. M., Zhang, C., Zhang, D., and Zuidema, P.: 2021. Measurements from the RV Ronald H. Brown and related platforms as part of the Atlantic Tradewind Ocean-Atmosphere Mesoscale Interaction Campaign (ATOMIC), *Earth Syst. Sci. Data Discuss.*, <https://doi.org/10.5194/essd-2020-331>
- Pincus, R., Fairall, C. W., Bailey, A., Chen, H., Chuang, P. Y., de Boer, G., Feingold, G., Henze, D., Kalen, Q. T., Kazil, J., Leandro, M., Lundry, A., Moran, K., Naehar, D. A., Noone, D., Patel, A. J., Pezoa, S., PopStefanija, I., Thompson, E. J., Warnecke, J., and Zuidema, P,

- 2021: Observations from the NOAA P-3 aircraft during ATOMIC, Earth Syst. Sci. Data Discuss. <https://doi.org/10.5194/essd-2021-11>
- Stevens, B., and over 292 coauthors, 2021: EUREC4A, Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-18>
- Jackson, R., Collis, S., Louf, V., Protat, A., Wang, D., Giangrande, S., Thompson, E.J., Dolan, B., Powell, S.W., 2021. The development of rainfall retrievals from radar at Darwin. Atmospheric Measurement Techniques 14, 53–69. <https://doi.org/10.5194/amt-14-53-2021>
- Reverdin, G., A. Supply, K. Drushka, E. J. Thompson, W. E. Asher, 2020. Intense and small freshwater pools from rainfall investigated during SPURS-2 on November 9 2017 in the eastern tropical Pacific. Journal of Geophysical Research: Oceans. 125, e2019JC015558. <https://doi.org/10.1029/2019JC015558>
- 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. Meteor. Soc., 101, E253–E258, <https://doi.org/10.1175/BAMS-D-19-0261.1>
- Thompson E. J., W. E. Asher, A. T. Jessup, K. Drushka, 2019: High-resolution rain maps from an X-band marine radar and their use in understanding ocean freshening. Oceanography 32(2):58–65, <https://doi.org/10.5670/oceanog.2019.213>
- Asher, W. E., K. Drushka, A. T. Jessup, E. J. Thompson, D. Clark, 2019: Estimating rain-generated turbulence at the ocean surface using the Active Controlled-Flux Technique. Oceanography 32(2):108–115, <https://doi.org/10.5670/oceanog.2019.218>
- Drushka, K., W.E. Asher, A.T. Jessup, E.J. Thompson, S. Iyer, and D. Clark, 2019: Capturing fresh layers with the Surface Salinity Profiler. Oceanography 32(2):76–85, <https://doi.org/10.5670/oceanog.2019.215>
- Thompson, E. J., Moum, J. N., Fairall, C. W., & Rutledge, S. A. 2019: Wind limits on rain layers and diurnal warm layers. Journal of Geophysical Research: Oceans, 124, 897–924. <https://doi.org/10.1029/2018JC014130>
- Dolan, B., B. Fuchs, S. A. Rutledge, E. A. Barnes, E. J. Thompson, 2018: Primary modes of global drop-size distributions. J. Atmos. Sci., 75, 1453–1476, <https://doi.org/10.1175/JAS-D-17-0242.1>
- Thompson, E. J., S. A. Rutledge, B. Dolan, M. Thurai, and V. Chandrasekar, 2018: Dual-polarization radar rainfall estimation over tropical oceans. J. Appl. Meteor. Climatol., 57, 755–775, <https://doi.org/10.1175/JAMC-D-17-0160.1>

Thompson, E. J., S. A. Rutledge, B. Dolan, and M. Thurai, 2015: Drop size distributions and radar observations of convective and stratiform rain over the equatorial Indian and west Pacific Oceans. *J. Atmos. Sci.*, 72, 4091-4125. <https://doi.org/10.1175/JAS-D-14-0206.1>

Moum, J. N., S. P. de Szoeke, W. D. Smyth, J. B. Edson, H. L. DeWitt, A. J. Moulin, E. J. Thompson, C. J. Zappa, S. A. Rutledge, R. H. Johnson, and C. W. Fairall, 2014: Air-sea interactions from MJO westerly wind bursts. *Bull. Am. Meteorol. Soc.*, 95, 1185-1199. <https://doi.org/10.1175/BAMS-D-12-00225.1>

Thompson, E. J., S. A. Rutledge, B. Dolan, V. Chandrasekar, and B.-L. Cheong, 2014: A dual-polarization radar hydrometeor classification algorithm for winter precipitation. *J. Atmos. Oceanic Technol.*, 31, 1457-1481. <https://doi.org/10.1175/JTECH-D-13-00119.1>

Willingham, K. M., E. J. Thompson, K. W. Howard, and C. L. Dempsey, 2010: Characteristics of Sonoran Desert microbursts. *Weather Forecast.*, 26, 94-108. <https://doi.org/10.1175/2010WAF2222388.1>

Published Code

Bariteau Ludovic, Blomquist Byron, Fairall Christopher, Thompson Elizabeth, Edson Jim, & Pincus Robert. (2021, July 16). Python implementation of the COARE 3.5 Bulk Air-Sea Flux algorithm (Version v1.1). Zenodo. <http://doi.org/10.5281/zenodo.5110991>

PSL GitHub for COARE bulk air-sea flux algorithm in python, matlab, and fortran: <https://github.com/NOAA-PSL/COARE-algorithm>

Published Datasets

1. DYNAMO 2011 ship ocean surface stable layers and upstream radar rainfall - submitted
2. SPURS-2 2016-2017 ship X-band radar rain maps - in press
3. SPURS-2 2016-2017 ship disdrometer drop size distributions and rain - in press
4. SPURS-2 2016-2017 ship underway salinity and temperature ship data - <https://doi.org/10.5067/SPUR2-USPS0> and <https://doi.org/10.5067/SPUR2-MET00>
5. SPURS-2 2016-2017 Surface Salinity Profiler data - <https://doi.org/10.5067/SPUR2-SSP00>
6. SPURS-2 2016-2017 Passive Aquatic Listener rain and wind speed data - <https://doi.org/10.5067/SPUR2-PALS0>
7. ** led effort to publish and obtain DOIs for all 34 PISTON 2018-2019 experiment datasets for the entire campaign – <https://asdc.larc.nasa.gov/project/PISTON> (link broken, TBD)
 - R/V Mirai ship sondes and radar data: <https://doi.org/10.5067/SUBORBITAL/PISTON2018-ONR-NOAA/RVMIRAI/DATA001> or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?RV-THOMPSON=1>
 - Island sondes:

- <https://doi.org/10.5067/SUBORBITAL/PISTON2018-2019-ONR-NOAA/ISLANDS/DATA001>
or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?SONDES=1>
- R/V Thompson 2018 ship data from all ocean/atmosphere instruments:
<https://doi.org/10.5067/SUBORBITAL/PISTON2018-ONR-NOAA/RVTHOMPSON/DATA001>
or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?RV-THOMPSON=1>
 - R/V Sally Ride 2019 ship data from all ocean/atmosphere instruments:
<https://doi.org/10.5067/SUBORBITAL/PISTON2019-ONR-NOAA/RVSALLYRIDE/DATA001>
or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?RV-SALLY-RIDE=1>
 - Autonomous measurements from moorings and floats:
<https://doi.org/10.5067/SUBORBITAL/PISTON2018-2019-ONR-NOAA/AUTONOMOUS/DATA001>
or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?MOORING=1>
or <https://www-air.larc.nasa.gov/cgi-bin/ArcView/camp2ex?TRAJECTORY=1>
8. PISTON 2018 ship disdrometer drop size distributions and rain (R/V Thompson link above)
 9. PISTON 2018-2019 ship W-band radar (R/V Ride and Thompson links above)
 10. PISTON 2018-2019 ship ceilometer cloud height statistics and backscatter (R/V Ride and Thompson links above)
 11. PISTON 2018-2019 ship navigation, meteorology, seawater, air-sea flux (R/V Ride and Thompson links above)
 12. PISTON 2018-2019 ship skin sea surface temperature (R/V Ride and Thompson links above)
 13. ** led effort to publish and obtain DOIs for all 27 ATOMIC 2020 experiment datasets for the entire campaign - <https://www.ncei.noaa.gov/archive/accession/ATOMIC-2020>
 14. ATOMIC 2020 ship W-band cloud and precipitation radar - <https://doi.org/10.25921/44cy-kr53>
 15. ATOMIC 2020 ship ceilometer cloud height statistics and backscatter - <https://doi.org/10.25921/jbz6-e918>
 16. ATOMIC 2020 ship navigation, meteorology, seawater, air-sea flux - <https://doi.org/10.25921/etxb-ht19>
 17. ATOMIC 2020 ship skin sea surface temperature - <https://doi.org/10.25921/nwx9-rd07>
 18. ATOMIC 2020 SWIFT drifters - <https://doi.org/10.25921/s5d7-tc07>
 19. ATOMIC 2020 Wavegliders - <https://doi.org/10.25921/dvys-1f29>
 20. Global Oceanic Passive Aquatic Listener (PAL) rain rate and wind speed database - <https://dx.doi.org/10.5067/GPMGV/PAL/DATA101>
 21. NOAA PSL synthesized all-cruise ship-based air-sea flux database (doi coming soon) https://downloads.psl.noaa.gov/psd3/cruises/PSL_FluxBase_synthesis/

Research Grants

Current Awards:

- PI: ONR Marine Meteorology, FY 23-27
“Boundary Layer Motion, Moisture, Clouds, Precipitation, and Air-Sea Interaction in Caribbean Warm-Season Convective Environments”
- PI: NOAA PSL internal, FY 23
“Marine Boundary Layer Observations and Processes Team W-band Radar Relocation, Training of CSU Radar Engineers, and Ability to do simple/short domestic aircraft or land deployments each year”
- PI (co-I 2020-2022): NOAA GOMO, FY 23-present
“High Resolution Climate Data from Research and Volunteer Observing Ships”

- PI: NOAA COM/GOMO/CVP, FY 21-24
“An Air-Sea Flux, SST, Wave Database from the ATOMIC field program”
- PI: NASA Ocean Salinity Science Team, FY17-22 *mentor early career scientist
“Bridging satellite and in-situ scales of near-surface salinity stratification”
- Co-I: ONR NOPP, FY21-24
“Air-Deployed Wave Buoys for Hurricane Forecast Improvements”: led by J. Thomson APL-UW *providing unfunded effort
- Co-I: NASA Physical Oceanography, FY18-21 *mentor postdoc
“SPURS-2 Synthesis: Multi-scale Integration of Freshwater into the Upper Eastern Pacific Ocean” led by A. Shcherbina, APL-UW
- Collaborator: NSF Oceanography Technology, FY19-21
“Simultaneous Remote Measurement of Skin and Sub-skin Temperature for USVs and Ships Buoys” by A. Jessup, APL-UW
- Collaborator: NOAA WPO Precipitation Precip Grand Challenge, FY20-21.
“Boundary-layer and Microphysical Properties of Convective Precipitation in VORTEX-SE” by R. Cifelli NOAA PSL

Past Awards:

- Collaborator: NSF Physical Oceanography, FY19-21 *co-mentor MS student
“Formation of rain layers in the Warm Pool and their feedbacks to atmospheric convection in an idealized modeling framework” led by C. DeMott, CSU
- PI: NASA Precipitation Measurement Mission, FY18-22*mentor early career scientist
“Comparison of oceanic acoustic rain measurements with downscaled IMERG rainfall for the study of air-sea interaction”
- PI: NOAA CPO CVP, FY18-22*co-mentored PhD student
“Spatial structure of air-sea interaction in the tropical Atlantic Ocean”
- Co-PI: NOAA WPO Precipitation Prediction Grand Challenge, FY20-21.
“Identifying physical processes responsible for tropical UFS errors and their relation to UFS week 2-4 precipitation predictability in the western US” with J. Dias NOAA PSL
- PI: University of Washington Royalty Research Fund, FY19-20
“The skin and subskin temperature of seas surrounding the Maritime Continent”
- Co-I: NASA Salinity Science Team, FY17-21
“The Generation and Evolution of Near-Surface Salinity Stratification” led by J. Schanze, ESR * *providing unfunded effort*

White Papers

- 2023 US CLIVAR Air-Sea Transition Zone Study Team Report: [A New Paradigm for Observing and Modeling of Air-Sea Interactions to Advance Earth System Prediction](#)
Also available at: usclivar.org/us-clivar-reports and <https://doi.org/10.5065/24j7-w583>
- 2023 CLIVAR Workshop Report: Role of the Gulf Stream in Weather and Climate, 2022 (in press)
- 2022 CLIVAR Variations White Paper / Newsletter Articles: Satellite Observations and Needs for Air Sea Interaction; Tropical Pacific in-situ Observing System (in press)

- 2021 [Ocean Best Practices Workshop Report on ocean surface radiation measurements](#)
- 2021 [NOAA-DOE Workshop Report on Interdisciplinary Processes session from 2020 Workshop on Precipitation Predictability and Processes](#)
 Balmaseda M, A Barros, S Hagos, B Kirtman, H-Y Ma, Y Ming, A Pendergrass, V Tallapragada, E Thompson. 2020. “NOAA-DOE Precipitation Processes and Predictability Workshop.” U.S. Department of Energy and U.S. Department of Commerce NOAA; DOE/SC-0203; NOAA Technical Report OAR CPO-9.
- 2020 [NOAA Precipitation Prediction Grand Challenge](#): Chapter 5 Observations
- 2019 ATOMIC Field Experiment Implementation Plan: Science Themes chapter
- 2019 [US CLIVAR Workshop Report \(later a published manuscript *Hagos et al. 2020*\) on Atmospheric Convection and Air-Sea Interaction over Tropical Oceans](#)

Awards and Honors

- 2019 US CLIVAR Early Career Scientist Leadership Award: Processes, Observations, Synthesis (US Climate Variability and Predictability Program)
- 2016-2018 APL-UW SEED Postdoctoral Research Fellowship
- 2012-2015 NSF Graduate Research Fellowship
- 2010-2011 AMS Graduate Research Fellowship
- 2010 NSF Graduate Research Fellowship Program Honorable Mention
- 2010 Valparaiso Univ. Eugene M. Rasmussen Meteorology Scholarship and Service Award
- 2008-2010 NOAA Ernest F. Hollings Undergraduate Scholarship Program
- 2009 AMS John R. Hope Endowed Scholarship in Atmospheric Sciences
- 2009 NWA Arthur C. Pike Scholarship in Meteorology
- 2008-2009 Valparaiso Univ. Swim Team Captain

Invited Seminars

- 2024 Air-Sea Interaction from GATE to the future, 2024 AMS Annual Meeting
- 2022 NASA Global Modeling and Assimilation Office (GMAO) invited seminar: “Observations of precipitation, boundary layer clouds, and coupled air-sea transition zones over tropical oceans: science questions, satellite evaluation, and model improvement opportunities”, oral virtual
- 2020 NOAA-DOE Precipitation Processes and Predictability Workshop, Keynote Speaker of Interdisciplinary Processes session: “[Atmosphere-Ocean Interactions Related to Precipitation Predictability](#)”
- 2020 AGU Fall Meeting session on Tropical Pacific Observing System (TPOS) In Situ and Remote Sensing Technology: “Observing rain layers, diurnal warm layers, and their impacts in tropical oceans”
- 2018 NASA Coupled Ocean Surface Variables Workshop: “Outstanding questions regarding air-sea interaction and near-surface processes: How can satellites be used to find answers?”
- 2014 University of Oklahoma School of Meteorology: “Development of a Polarimetric Radar Based Hydrometeor Classification Algorithm for Winter”

Science Teams and Committee Service

Co-author / Member, US CLIVAR Air-Sea Transition Zone Study Group, 2022-2023
Scientific Steering Committee, US CLIVAR workshop on The Role of the Gulf Stream in
Climate Variability and Predictability, 2021-2022
co-Chair Ocean Best Practices Workshop Session for Surface Solar Radiation. 2020-present
co-Chair 3-day Data Analysis Hackathon from the NOAA ATOMIC field campaign, including
converting, organizing, and posting all field campaign datasets into common data format on
shared website, planning and leading 3-day virtual event during pandemic, co-leading
communication and planning announcements. 2020
Scientific Steering Committee, US CLIVAR workshop on Atmospheric Convection and Air-Sea
Interaction over Tropical Oceans, including co-leading the workshop agenda, breakout
discussions, and published summary report; encouraged participation and representation
from oceanography. 2018-2020
Member, NASA Ocean Salinity Science Team. 2018-present
Member, NASA Precipitation Measurement Mission Team. 2018-present
Convener, AGU Fall Meeting Session 2020, 2021

Public Science Article Contributions

Barbados in-person MAGPIE/CIMH/BACO Media Day
CBS This Morning Saturday: [Study aims to examine links between climate change and clouds](#)
NOAA Research: [New research helps crack the mystery of clouds to improve climate prediction
\(plus coverage on data papers and data archive\)](#)
NOAA Research: [Barbadian students tour NOAA Ship Ronald H. Brown](#)
NOAA Research: [Wave gliders, ocean drifters and drones to help international researchers solve
key climate question](#)
NOAA Research: [NOAA launches major field campaign to improve weather and climate
prediction](#)
NOAA Research: [From the ocean to the clouds: Life on the NOAA ATOMIC mission](#)
NOAA PSL: [The ATOMIC Field Project](#)
NASA Notes from the Field: [The Salinity Processes in the Upper Ocean Regional Study
\(SPURS2\)](#)

Science Mentoring and Outreach

Chair, Steering Committee: NOAA PSL Workplace Advisory Committee, understanding
workplace interpersonal issues and promoting workplace respect, unity, and efficiency.
Steering Committee member: 2019-present; Chair: 2022-present.
Mentor: one PhD student 2022-2023 through NOAA's Educational Partnership Program for
Minority Serving Institutions Graduate Research Fellowship
Mentor: one undergraduate interns through NOAA Hollings Undergraduate Research Internship.
2022. Projects included: gustiness in the COARE bulk flux algorithm using Saildrone data
Mentor: two undergraduate interns through NOAA Lapenta Undergraduate Research Internship.
2021. Projects included: Air-Sea Boundary Layer Interactions During PISTON and also
[Cloud Fraction Estimates from Saildrone Sky Cameras during ATOMIC](#)
Volunteer Presenter: NOAA ATOMIC field campaign Outreach Day in Barbados aboard NOAA
ship Ronald H. Brown. Gave guided tour of ship oceanographic and atmospheric
instrumentation and mission goals to Barbados high school students, Barbados/US Embassy,

NOAA Assistant Secretary and Program Managers, EUREC4A scientists, Barbados Coast Guard, and scientists from Caribbean Institute of Meteorology and Hydrology. 2020
 Volunteer Presenter: NOAA PSL “Funtastic” virtual presentation during pandemic to children on “[Ocean Robots](#)”. 2020
 Volunteer Presenter: CU CIRES at Home presentation to children during pandemic on “[Ocean-Atmosphere Interactions: Amphibious Science](#)”. Shared on multiple media platforms. 2020
 Volunteer Presenter: NOAA/ONR PISTON field campaign Outreach Day in Taiwan aboard R/V Sally Ride. Gave guided tour of ship oceanographic and atmospheric instrumentation and science mission goals to National Taiwan University students, faculty, and researchers, as well as Taiwan/US Embassy. 2019.
 Mentor and Project Manager: co-mentoring 1 PhD student and 1 postdoc, co-supervising 3 early career scientists. 2019-present
 Steering Committee: APL-UW Early Career Principal Investigators, raising awareness about challenges, building community, and advocating for opportunities for early-career oceanographers, meteorologists, and engineers. 2018-present
 Steering Committee and still current member: [SeaTalk](#) at APL-UW aimed at building community between fieldgoers in APL and Oceanography” by addressing and preventing sexual harassment, improving communication techniques and effectively planning for field work at sea. 2017-2019
 Volunteer Presenter at Seattle’s Polar Science Weekend: “Waves in the Arctic”. 2017
 Volunteer Presenter at Bush School 5th grade: “Life as a Scientist”. 2016
 Volunteer Presenter for [PROGRESS: Promoting Geoscience Research, Education and Success](#), PI: Emily Fischer, CSU. Workshops open up valuable professional development opportunities to undergraduate women in the geosciences. 2015
 Mentor of student between middle and high school in meteorology and preparation for college education. 2012-2016
 Tutor: two 7th grader girls for meteorology Olympiad contest, weekly meetings. 2010
 Project co-lead for Engineers Without Border: developing water resources project between Valparaiso University students and community in Tanzania, Africa. 2008-2009

Workshop and Training Participation

2023-2024 Mid-Career Leadership Development Program, NOAA
 2023 NASA Decadal Survey Planetary Boundary Layer Incubation Community Meeting
 2023 Atmosphere-Ocean Coupling at (Sub)Mesoscales Workshop, Leiden, Netherlands
 2023 Empathy in the Workplace Training, NOAA
 2023 US CLIVAR Mesoscale and Frontal-Scale Air-Sea Interactions Workshop
 2022 US CLIVAR Whither the Gulf Stream: Present Understanding and Future Opportunities for Elucidating the Role of the Gulf Stream in Weather and Climate *Scientific Steering Committee member
 2021 ESWN Women in Sciences Leadership Workshop
 2021 NOAA Diversity, Inclusion & Equity: A Culture of Engagement Workshop
 2021 US CLIVAR Tropical Pacific Ocean Observing Needs for Modeling Workshop
 2021 NOAA GOMO Integrating Ocean Observations to Improve NOAA’s Hurricane Intensity Forecasts *session moderator
 2021 [Unlearning Racism in the Geosciences](#) 8-part curriculum
 2020 [NOAA-DOE Precipitation Processes and Predictability Workshop](#) *keynote speaker

- 2020 ATOMIC Data Analysis Hackathon *co-Lead
- 2020 NOAA Diversity and Inclusion workshop on Implicit Bias
- 2020 NASA Planetary Boundary Layer Workshop
- 2019 US CLIVAR Atmospheric Convection and Air-Sea Interaction over Tropical Oceans Workshop (NCAR) *Scientific Steering Committee Member
- 2019 NOAA Engineering Forum (NOAA PMEL): learning to work more successfully with engineers, advocate for their success, retention, and innovation
- 2018 NASA Coupled Ocean Surface Variables Workshop (APL-UW)
- 2017 NASA Global Ocean Salinity and Water Cycle Workshop (WHOI)
- 2017 NASA/GPM OLYMPEX Science Workshop (UW)
- 2017 Cross-cultural Communication Workshop (UW)
- 2016 NASA Coupled Ocean Surface Variables Workshop (APL-UW)
- 2014 NASA Jet Propulsion Laboratory (JPL) Summer School: Using Satellite Observations to Advance Climate Models
- 2011 American Meteorological Society Summer Policy Colloquium (Washington D.C.)

Reviews

- 1-2 proposal panel reviews per year
- Approximately 10 journal article reviews total per year for: *Journal of the Atmospheric Sciences*, *Journal of Oceanic and Atmospheric Technology*, *Journal of Applied Meteorology and Climatology*, *Monthly Weather Review*, *Journal of Climate*, *Journal of Physical Oceanography*, *Weather and Forecasting*, *Journal of Geophysical Research: Atmospheres*, *EGU Atmospheric Measurement Technique*, *Institute of Electrical and Electronics Engineers Sensors Journal*, *Artificial Intelligence for the Earth Systems*

Technological and Instrumentation Expertise

Led the collection, quality-controlling, processing, and analysis of measurements from sea/land:

- W-, X-, C-, and S-band single and dual polarization Doppler radars and ceilometer lidars (precipitation, clouds, wind, atmospheric boundary layer)
- X-band marine navigation radar (precipitation)
- 2D-video and optical disdrometers: ground and ship-based (raindrop size distributions)
- air-sea turbulent fluxes over ocean (bulk, eddy covariance, inertial dissipation)
- surface meteorology over ocean (wind, humidity, pressure, temperature)
- surface radiation over ocean (solar, infrared)
- sea surface temperature (infrared radiometer, sea snake, throughflow ports)
- radiosondes (meteorological data and ozone concentration as functions of height)
- ocean CTDs: underway, profiling, through-flow on hull, towed from ship (ocean temperature, salinity, velocity)

Presentations

Thompson, E. J., C. W. Fairall, H. Chen, C. R. Williams, J. P. Dunion, J. S. Reid, Airborne W-band Radar Applications in Marine Boundary Layer and Hurricane Environments, 36th AMS Hurricanes and Tropical Meteorology Meeting 2024, oral

Zhang, D., G. R. Foltz, C. Zhang, C. W. Fairall, J. Zhang, H-S. Kim, A. Mehra, A. M. Chiodi, M. F. Cronin, E. J. Thompson, J. Thomson, L. Looney, N-H. Chi, H. Schulz, A. Savarin, E. Mazza, Direct covariance wind stress measurements under tropical cyclones and hurricanes by Sairdrone Uncrewed Surface Vehicles, 36th AMS Hurricanes and Tropical Meteorology Meeting 2024, oral

J. R. Davis, J. Thomson, B. Butterworth, I. Houghton, C. Fairall, E. J. Thompson, G. De Boer, Multiscale Measurements of Hurricane Waves Using Buoys and Airborne Radar, 2024 IEEE/OES Thirteenth Currents, Waves, Turbulence Measurement (CWTM) Workshop, April 2024

Cox, C., Gallagher, M., Persson, O., Fairall, C., Shupe, M., Bariteau, L., Thompson, E., and Blomquist, B.: Evaluation of errors in bulk aerodynamic parameterizations over snow-covered sea ice due to approximations of roughness length, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-6685, <https://doi.org/10.5194/egusphere-egu24-6685>, 2024

Zhang, D., Foltz, G., Zhang, C., Fairall, C., Zhang, J., Kim, H.-S., Mehra, A., Chiodi, A., Cronin, M., Thompson, E., Thomson, J., Looney, L., Chi, N.-H., Schulz, H., Savarin, A., and Mazza, E.: Eddy covariance measurements of air-sea heat and momentum fluxes under tropical cyclones and hurricanes in the northwest Tropical Atlantic, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-14170, <https://doi.org/10.5194/egusphere-egu24-14170>, 2024.

Davis, J., J. Thomson, I. Houghton, C. W. Fairall, E. J. Thompson, W. Komaromi, J. D. Doyle, J. Moskaitis, Wave Slopes and Surface Roughness During Hurricanes, Ocean Sciences Meeting 2024, oral

Kessler, W. S., A-L. Deppenmeier, D. Cherian, E. J. Thompson, F. Bryan, L. Thompson, D. B. Whitt, PUMACAT: Richardson number variation and its role in SST variability along the Pacific equator from moored observations and an OGCM, Ocean Sciences Meeting, 2024, poster

Thompson, E. J., A-L. Deppenmeier, F. Bryan, W. S. Kessler, L. Thompson, D. B. Whitt, D. Cherian, PUMACAT: Towards reliable SST predictions in the Tropical Pacific Cold Tongue (the atmospheric perspective), Ocean Sciences Meeting, 2024, oral

Deppenmeier, A-L., E. J. Thompson, F. Bryan, W. S. Kessler, L. Thompson, D. B. Whitt, D. Cherian, PUMACAT: Towards reliable SST predictions in the Tropical Pacific Cold Tongue (the ocean perspective), Ocean Sciences Meeting, 2024, oral

- Weller, R. A., A. J. Plueddemann, S. P. Bigorre, R. Lukas, J. T. Potemra, E. J. Thompson, C. W. Fairall, A. J. Sutton, Sustained Ocean Reference Stations are essential for a global air-sea interaction observing system, Ocean Sciences Meeting 2024, oral
- Gamage, D., S. Bolella, G. Modjeski, J. Phadtare, E. J. Thompson, A. Tandon, C. Lee, H. J. Fernando, Influence of a Dry Air Layer Aloft during the Decay Phase of Arabian Sea Mini Warm Pool, Ocean Sciences Meeting 2024, oral
- Zhang, D., G. R. Foltz, C. Zhang, C. W. Fairall, J. Zhang, H-S. Kim, A. Mehra, A. M. Chiodi, M. F. Cronin, E. J. Thompson, J. Thomson, L. Looney, N-H. Chi, H. Schulz, A. Savarin, E. Mazza, Direct covariance wind stress measurements under tropical cyclones and hurricanes by Sairdrone Uncrewed Surface Vehicles, Ocean Sciences Meeting 2024, oral
- Anderson, N., M. F. Cronin, D. Zhang, R. A. Weller, E. J. Thompson, A. J. Plueddemann, B. Greenwood, An Interoperability Test of Sairdrone, Inc. Explorer Uncrewed Surface Vehicles and Moored Buoys at the Woods Hole Oceanographic Institution Hawaii Ocean Timeseries Site (WHOTS), Ocean Sciences Meeting 2024, poster
- Chen, X., J. Dias, B. Wolding, R. Pincus, C. A. DeMott, G. A. Wick, E. J. Thompson, C. W. Fairall, Ubiquitous Sea Surface Temperature Warm Anomalies Increase Trade-wind Cloudiness, AGU Fall Meeting 2023, poster
- Zhang, D., E. J. Thompson, C. W. Fairall: Near air-sea interface atmospheric and oceanic profiles as revealed by shipboard and USV-based measurements, AGU Fall Meeting 2023, poster
- Hu, I-K., J. Dias, L. K. Bengtsson, X. Chen, E. J. Thompson, S. Tulich: ATOMIC Test Case in the Common Community Physics Package Single Column Model, AGU Fall Meeting, 2023, poster
- Bolella, S., D. Gamage, G. Modjeski, J. Phadtare, E. J. Thompson, A. Tandon, C. M. Lee, H. J. S. Fernando: Influence of Tropical Cyclone Biparjoy on Arabian Sea Mini Warm Pool: Insights from EKAMSAT Pilot Cruise, AMS Annual Meeting, Baltimore, MD, 2024, Student Conference
- Thompson, E. J., C. W. Fairall, C. Zhang: GATEway to the Future: Observing, Understanding, and Modeling the Air-Sea Transition Zone (ASTZ), AMS Annual Meeting, Baltimore, MD, 2024, oral invited
- Forcone, N., M. F. Cronin, S. M. Wills, E. J. Thompson, D. Zhang: Evaluating Wind Gust Parameterization in the COARE Air-Sea Flux Algorithm, AMS Annual Meeting, Baltimore, MD, 2024, poster

J. R. Davis, J. Thomson, I. Houghton, C. Fairall, E. J. Thompson, G. De Boer, W. Komaromi, J. Doyle, Saturation of wave slopes observed during hurricanes, Waves in Sea Environments (WISE) meeting, Princeton, NJ, USA, May 2023.

Chen, H., L. Wang, E. J. Thompson: Interpretable Deep Learning for Polarimetric Radar Rainfall Estimation. AMS Annual Meeting 2023.

Bytheway, J., E. J. Thompson, J. Yang, H. Chen: Evaluation of Downscaled IMERG Precipitation over Global Oceans Using PALs. AMS Annual Meeting 2023.

Zhang, D., G. Foltz, C. Zhang, C. W. Fairall, H.-S. Kim, J. A. Zhang, A. Mehra, A. M. Chiodi, M. F. Cronin, E. J. Thompson, J. Thomson: Air-Sea Surface Fluxes in Tropical Cyclones Measured By Uncrewed Surface Vehicle Saildrones. AMS Annual Meeting 2023.

Li, Z., E. J. Thompson, H. Chen, J. L. Bytheway: The Uncertainty of IMERG Over the Eastern Pacific Fresh Pool (EPFP): An Error Model Based on SPURS-2 Field Campaign Observations. AMS Annual Meeting 2023.

Clayson, C. A., N. Laxague, J. F. Booth, D. Kang, L. O'Neill, M. J. Roberts, R. J. Small, R. Samuelson, E. J. Thompson: Advances and Opportunities for Predicting and Understanding Gulf Stream Impacts on Weather and Climate: 2022 CLIVAR Workshop Report. AMS Annual Meeting 2023.

J. L. Bytheway, E. J. Thompson, H. Chen, J. Yang: Evaluating Satellite Precipitation Estimates over Ocean Using Passive Aquatic Listeners. AMS Annual Meeting 2023.

Chen, H., C. W. Fairall, C. R. Williams, E. J. Thompson: Vertical Air Motion Retrievals from Airborne W-band Cloud Radar. AMS Annual Meeting 2023.

Chen, X., J. Dias, B. Wolding, R. Pincus, C. DeMott, G. Wick, E. J. Thompson, C. W. Fairall: An Observation-Based Air-Sea Interaction Study in the Northwestern Atlantic Trade-wind Boundary Layer: Can Weak Sea Surface Temperature Anomalies Do Heavy Lifting for Shallow Convection? AMS Annual Meeting 2023.

J. F. Booth, E. J. Thompson, Clayson, C. A., N. Laxague, D. Kang, R. Samuelson, R. J. Small, M. J. Roberts, L. O'Neill: Advances and Opportunities for Predicting and Understanding Gulf Stream Impacts on Weather and Climate: 2022 CLIVAR Workshop Report. AGU Fall Meeting 2022.

Zhang, D., G. Foltz, C. Zhang, C. W. Fairall, H.-S. Kim, J. A. Zhang, A. Mehra, A. M. Chiodi, M. F. Cronin, E. J. Thompson, J. Thomson: Concurrent surface flux, current and wave measurements by Uncrewed Surface Vehicle Saildrones in Tropical Cyclones. AGU Fall Meeting 2022.

Thompson, E. J., K. Drushka, H. Chen, Z. Li, J. Bytheway, 2022: Bridging satellite and in-situ scales of rain-induced near-surface salinity stratification. Ocean Salinity Conference, oral.

- Chi, N., H. Chen, E. J. Thompson, A. Shcherbina, F. Bingham, L. Rainville, 2022: Ocean Salinity Conference, poster.
- Davis, J., J. Thomson, I. Houghton, C. Fairall, E. J. Thompson, G. de Boer, 2022: Wave slopes observed during hurricanes using arrays of drifting buoys. Waves in Sea Environments Conference, poster.
- Chen, X, J. Dias, R. Pincus, C. DeMott, B. Wolding, G. Wick, E. J. Thompson, C. Fairall, 2022: Understanding the Role of Sea Surface Temperature Warm Anomalies in Mesoscale Organization of Shallow Cumulus in the Northwestern Atlantic Trade Wind Boundary Layer. Ocean Sciences Meeting, poster.
- Iyer, S., J. Thomson, K. Drushka, E. J. Thompson, 2022: Small-scale spatial variations of air-sea heat and moisture fluxes in the tropical trade winds. Ocean Sciences Meeting, oral.
- Speich, S., and many coauthors including E. J. Thompson, 2022: Preliminary results from the EUREC4A Ocean-Atmosphere/ATOMIC project: An overview. Ocean Sciences Meeting, oral.
- Karstensen, J., and many coauthors including E. J. Thompson, 2021: The EUREC4A Ocean/Atmosphere campaign: status. AGU Fall Meeting, oral.
- Zhang, D., and many coauthors including E. J. Thompson, 2021: Air-sea heat and momentum fluxes measured by uncrewed surface vehicles during EUREC4A/ATOMIC. AGU Fall Meeting, oral.
- Pate, A., E. J. Thompson, D. Zhang, 2021: Cloud fraction estimates from saildrone sky cameras during ATOMIC. AGU Fall Meeting, poster.
- Iyer, S., J. Thomson, K. Drushka, E. J. Thompson, 2021: The influence of wave-current interactions on wave slope and momentum flux in an area of moderate ocean current variability. AGU Fall Meeting, oral.
- Penunuri, A., E. J. Thompson, C. Zhang, 2021: Air-sea boundary layer interactions during PISTON. AGU Fall Meeting, poster.
- Reid, J., and many coauthors including E. J. Thompson, 2021: Aerosol Vertical Transport, Exchange, and Transformation in the Maritime Southeast Asia: Observations and Implications from CAMP2EX and PISTON. AGU Fall Meeting, oral.
- Thompson, E.J., J. N. Moum, C. W. Fairall, S. A. Rutledge, 2021: Air-sea flux responses to warm or fresh ocean surface stable layers: measured processes and modeling considerations. US CLIVAR Workshop - Tropical Pacific Observing Needs to Advance Process Understanding and Representation in Models, virtual, poster.

Thompson, E.J., J. N. Moum, C. W. Fairall, S. A. Rutledge, Wind limits on Ocean Rain Layers and Diurnal Warm Layers. AMS 34th Conference on Hurricanes and Tropical Meteorology, virtual, poster.

Chen, H., E. J. Thompson, 2021: Reducing uncertainty in satellite precipitation estimates using machine learning. AMS Annual Meeting, virtual, poster

Thomson, J., S. Iyer, K. Drushka, E. J. Thompson, 2020: Mesoscale air-sea interactions observed by autonomous platforms during ATOMIC. AGU Fall Meeting, virtual, poster.

Thompson, E.J., and many coauthors, 2020: [Observing rain layers, diurnal warm layers, and their impacts in tropical oceans](#). AGU Fall Meeting, virtual, poster *invited

Fairall, C.W., E. J. Thompson, B. Blomquist, L. Bariteau, S. Pezoa, 2020: [Surface Energy Budgets in MISOBAB and PISTON](#). AGU Fall Meeting, virtual, oral.

Maring, H. B., J. S. Ried, and many coauthors including E. J. Thompson, 2020: [The Rock Matrix Around CAMP²Ex's Gemstones: The Value of the Apparently Mundane in Shaping Earth System Observation](#). AGU Fall Meeting, virtual, oral.

Thomson, J.M., S. Iyer, K. Drushka, E.J. Thompson, 2020: [Mesoscale Air-Sea Interactions Observed by Autonomous Platforms During ATOMIC](#). AGU Fall Meeting, virtual, poster.

Chen, H., R. Cifelli, P. Xie, E.J. Thompson, 2020: [Improving GOES-R/ABI rainfall estimates with ground-based radar observations using machine learning](#). AGU Fall Meeting, virtual, poster.

Thompson, E.J. 2020: [Air Sea Interactions Related to Precipitation Predictability and Bias](#). NOAA-DOE Workshop on Precipitation Predictability and Processes, virtual, oral *invited

Thompson, E. J., and coauthors, 2020: [Spatial Variability of Air-Sea Interaction and Coupled Boundary Layers Observed During ATOMIC](#). NOAA PSL Flash Seminar, oral.

Thompson, E.J., J. N. Moum, C. W. Fairall, S. A. Rutledge, 2020: Wind Limits on Rain Layers and Diurnal Warm Layers. Ocean Sciences Meeting, San Diego, CA, poster.

Thompson, E.J., J. N. Moum, C. W. Fairall, S. A. Rutledge, 2020: Wind Limits on Rain Layers and Diurnal Warm Layers. Ocean Sciences Meeting, San Diego, CA, poster.

Schanze, J. J., S. R Springer, E. J. Thompson, G. S. E. Lagerloef, and R. W. Schmitt, 2020: Salinity Physics in the ITCZ - Modelling of Freshwater Lenses Constrained by In Situ Observations. Ocean Sciences Meeting, San Diego, CA, oral.

Thompson, E. J., and coauthors, 2020: [Ship observations and autonomous ocean/air-sea observations during ATOMIC](#). NOAA PSL Flash Seminar, oral

- Jackson, R. C., S. M. Collis, Y. Feng, V. Louf, A. Protat, E. J. Thompson, B. Dolan, S. W. Powell, S. E. Giangrande, R. J. Warren, 2019: The influence of large scale forcing on the diurnal cycle of rainfall over Darwin: observations and modeling. AGU Fall Meeting, San Francisco, CA, poster.
- Thompson, E.J., J. N. Moum, C. W. Fairall, S. A. Rutledge, 2019: Wind Limits on Rain Layers and Diurnal Warm Layers. CLIVAR Workshop: Atmospheric Convection and Air-Sea Interactions over Tropical Oceans, Boulder, CO, poster
- Thompson, E. J., J. Thomson, 2018: Air-Sea Interaction during EUREC4A: Spatially distributed observations. Planning Workshop for the Atlantic Trade wind Ocean-Atmosphere Mesoscale Interaction Campaign (ATOMIC), Boulder, CO, oral
- Thompson, E. J., and M. Bourassa, 2018: Outstanding questions regarding air-sea interaction and near-surface processes, and how satellites can be used to find answers. NASA Coupled Surface Variables Workshop, Seattle, WA, oral (invited)
- Thompson, E. J., 2018: Salinity Stratification by Rain during SPURS-2. Synthesis Meeting for the Salinity Processes Upper Ocean Regional Study 2 Experiment, La Jolla, CA, oral.
- Thompson, E. J., K. Drushka, W. E. Asher, A. T. Jessup, J. J. Schanze and D. Clark, 2018: How is salinity stratification affected by surrounding precipitation variability? AGU Ocean Sciences, Portland, OR, oral
- K. Drushka, W. E. Asher, E. J. Thompson, S. Iyer, A. T. Jessup, and D. Clark, 2018: A mechanistic synthesis of turbulence measurements made during SPURS-2. AGU Ocean Sciences, Portland, OR, oral
- W. E. Asher, Kyla Drushka, E. J. Thompson, S. Iyer, A. T. Jessup, and D. Clark, 2018: Rain-generated ocean surface turbulence and salinity stratification. AGU Ocean Sciences, Portland, OR, poster
- Schanze, J. J., S. R Springer, G. S E. Lagerloef, and E. J. Thompson, 2018: The Physics of Very-Near Surface Salinity Stratification and its Effects on Satellite Salinity. AGU Ocean Sciences, Portland, OR, oral
- Thompson, E. J., J. Thomson, 2017: Air-Sea Interaction during EUREC4A: SWIFT Buoys, Wave Glider, and Underway Ship Measurements, Meeting for the Elucidating the Role of Cloud-Circulation Coupling in Climate Campaign (EUREC4A), New Orleans, LA, oral
- Thompson, E. J., K. Drushka, W. E. Asher, A. T. Jessup, J. J. Schanze and D. Clark, 2017: Utility of shipborne disdrometer and marine navigation radar observations during convective and stratiform rain. AMS 38th Conference on Radar Meteorology, Chicago, IL, oral: <https://ams.confex.com/ams/38RADAR/meetingapp.cgi/Paper/321223>

- Thompson, E. J., K. Drushka, W. E. Asher, J. J. Schanze, A. T. Jessup, and D. Clark, 2017: Predictability of tropical freshwater lenses due to convective and stratiform rain during SPURS-2. Global Ocean Salinity and Water Cycle Workshop, Woods Hole Oceanographic Institution, Woods Hole, MA, oral
- Thompson, E. J., K. Drushka, W. E. Asher, J. J. Schanze, A. T. Jessup, and D. Clark, 2017: Satellite Rain Rate from IMERG as a Predictor for Salinity Stratification in the Upper Meter of the Ocean during SPURS-2 Rain Events. AMS Annual Meeting, Seattle, WA, poster
- Drushka, K., W. E. Asher, E. J. Thompson, A.T. Jessup, D. Clark, 2017: Observations of near-surface fresh layers during SPURS-2. European Geophysical Union General Assembly Conference Abstracts 19, 10658, oral
- Thompson, E. J., S. A. Rutledge, B. Dolan, M. Thurai, V. Chandrasekar, 2017: Dual-polarization radar rainfall estimation over warm tropical oceans. AMS Annual Meeting, Seattle, WA, poster
- Asher, W. E., E. J. Thompson, K. Drushka, A. T. Jessup, J. J. Schanze, D. Clark, 2016: Comparing spatial scales of IMERG rain with depth-resolved near-surface salinity structure as measured during the SPURS-2 experiment. AGU Fall Meeting, San Francisco, CA, poster
- Thompson, E. J., W. E. Asher, K. Drushka, A. T. Jessup, J. J. Schanze, D. Clark, 2016: Rain Rate from IMERG as a Predictor for Salinity Stratification in the Upper Meter of the Ocean during SPURS-2 Rain Events. AGU Fall Meeting, San Francisco, CA, oral
- Thompson, E. J., S. A. Rutledge, J. N. Moum, C. W. Fairall, 2016: Rain-formed and diurnal warming-formed near-surface ocean mixed layers: impacts on SST throughout the MJO. AMS 31st Conference on Hurricanes and Tropical Meteorology, San Juan, PR, oral: <https://ams.confex.com/ams/32Hurr/webprogram/meeting.html#Friday1>
- Timothy J. Lang, NASA/MSFC, Huntsville, AL; and B. Dolan, B. Fuchs, P. Hein, E. J. Thompson, S. Collis, J. Helmus, and N. Guy, 2015, Marshall Space Flight Center and the open-source radar software revolution. AMS 37th Conference on Radar Meteorology, Norman, OK, oral
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