Last updated: 2023-05-10

Christine M. Lee

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PROFESSIONAL EXPERIENCE

2014-Present NASA Jet Propulsion Laboratory (Pasadena, CA)
Technical Group Supervisor, Water and Ecosystems Group (2022-current)
Scientist, Water and Ecosystems Group (2019-current)
Visiting Associate Scientist, UCLA (2015-2021/Institute of Environment and Sustainability, 2022-present/JIFRESSE)
SBG Co-Lead Applications (2023-current)
ECOSTRESS Applications Lead (2014-current)
Associate Program Manager for NASA's Water Resources Program (2014-2022)
Project Scientist, NASA's Western Water Applications Program (2016-2018)
Systems Engineer, Applied Science Systems Engineering Group (2017-2019)
Software Engineer, Scientific Applications Group (2014-2017)

2012-2014 NASA Headquarters, Applied Sciences Program (Washington, DC)

- NASA Water Resources Program Team, Water Quality Subject Matter Expert
- NASA Capacity Building Program Team, providing leadership and support for workforce development (NASA DEVELOP), international development (NASA/USAID SERVIR), and training (NASA ARSET) programs

2010-2012 NASA Jet Propulsion Laboratory (Pasadena, CA)
Postdoctoral Researcher, Astrobiology / Planetary Sciences, investigating microbial detection in extreme environments, biosecurity applications, and water quality

EDUCATION

2006-2010 University of California, Los Angeles: Ph.D. in Civil and Environmental Engineering, Thesis: Development of rapid, viability-based methods for enumerating fecal indicator bacteria and tracking fecal pollution in urban watersheds

2006 University of California, Los Angeles, M.S. in Civil and Environmental Engineering, Thesis: Persistence of fecal indicator bacteria in Santa Monica Bay beach sediment

2000-2005 University of California, Los Angeles, B.S. in Chemical Engineering, Biomedical Engineering Focus; Minor in English

HONORS AND AWARDS

2023 Wiley Publishing – Top Downloaded Article (Lee et al., Monitoring Turbidity in San Francisco Estuary Delta Using Satellite Remote Sensing, JAWRA)
2022 JPL Voyager Award (ECOSTRESS)
2022 JPL Voyager Award (SBG/SHIFT Team)
2019 NASA Early Career Public Achievement Medal
2019 JPL Voyager Award (Earth Ventures / Applications Leadership)
2018 JPL Team Award (ECOSTRESS Team)
2017 JPL Voyager Award (Water Resources Leadership)
2016 NASA DEVELOP Advisor Recognition (Costa Rica Agriculture Project)
2015 NASA Group Achievement Award (Harmful Algal Bloom Airborne Hyperspectral Team)
2012 AAAS Science and Technology Policy Fellowship
2012 Switzer Foundation Grant
2010 UCLA Civil and Environmental Engineering, Outstanding Ph.D. Student Award
2010 UCLA O'Kern Dissertation Year Fellowship
2009 UCLA Faculty Women's Club Scholarship
2009 Asian American Engineers Scholarship
2009 EPA People, Planet and Prosperity Award
2006 UCLA School of Engineering and Applied Sciences, Outstanding Master's Student Award
2006 UCLA Civil and Environmental Engineering, Outstanding Master's Student Award

RESEARCH EXPERIENCE

2023-current	PI, Coastal Habitat Vulnerability Assessment Using Satellite Remote Sensing (California Ocean Protection Council)
2022-current	Co-I, Fire Risk Vulnerability Prediction and Fire Tracking (NASA FireSense)
2022-current	Co-I, An Investigation of Fire-Driven Changes in Landscape Water Use (NASA ECOSTRESS SAT)
2022-current	Co-I, Integrating ECOSTRESS into Community Research (NASA ECOSTRESS SAT)
2022-current	Co-I, Building a model for regenerative kelp cultivation in coastal oceans (NASA Coastal Resilience)
2022-current	Co-I, Application of UAV and satellite based optical sensors to preserve coral reefs in the U.S. Virgin Islands (NASA EpSCOR)
2021-current	Co-I, Wildfire Impacts on Carbon Transport to Coasts (MUREP/NASA OBB)
2020-2021	PI, Snow Data System (NASA Terrestrial Hydrology)
2020-2021	PI, User Design for NASA Prize Competitions (NASA Applied Sciences)
2020-2021	PI/Technical Manager, Surface Biology and Geology Community Needs Assessment and Value of Information (NASA Applied Sciences)
2018	PI, Data Science Working Group, Data Science for Assessing Western Water Applications and Stakeholder Needs (JPL Data Science Working Group)
2019-2021	PI, ECOSTRESS Surface Temps for Aquatic Applications (NASA ECOSTRESS SAT)
2019-2022	Co-I, Evaluating a CONUS-wide disALEXI Evapotranspiration Product (NASA ECOSTRESS SAT)
2018-current	Co-I, Climate Induced Nutrient Flows and Threats to the Biodiversity of the Belize Barrier Reef Reserve System (NASA Ecological Forecasting)
2017-2018	PI, Monitoring Water Quality with Landsat-8 (Metropolitan Water District)
2016-2020	PI, Maximizing Remote Sensing for Water Quality Monitoring in California's Water Systems, (NASA Water Resources)
2015	Principal Investigator, Water Quality Project (JPL Advanced Concepts)
2012-2013	Co-I, The State of Water Quality and Monitoring Practices in Southern California, Switzer Network Innovation Grant
2010	Student Co-I, California Sea Grant Development Grant
2009-2010	Student PI, EPA Planet, Prosperity and People Grant
2008-2009	Student Co-I, BP Alternative Energy and Environmental Education Grant
2008-2009	Student Co-I, American Institute of Chemical Engineers, Education Grant

MENTORSHIP

Postdoctoral Scholars: A. Lopez, C. Ade, C. Nickles, M. Pascolini-Campbell
Interns (40+ since 2014): A. Bafna, M. Ayad, E. Ortiz, P. Sey, D. Harris, R. Gustine, A. Bailey, G. Kohli, L. De Vera, I. Callejas, M. Cira, J. Vellanoweth, C. Chidiac, S. Payne, K. Alvarez, M. Bruce, R. Ly, K. Cavanaugh, L. Kucera, L. Wakamatsu, A. Lin, S. Kim, R. Avila, X. Wang, M. Spater, C. Devine, V. Valenti, H. Pippin, R. Pilot, A. Olarte, S. Pestana, S. Cooley, M. Vermillion, K. Gold, D. Kim, C. Wong, L. Berberian, M. Johnson, S. Patel, R. Suhs, K. Jimenez, Z. Ali, G. Trolley, R. Neuren, S. Eubanks (>50% under-represented groups, >50% women)

MEMBERSHIP AND COMMITTEEE SERVICE

Membership	American Geophysical Union (2012-2021), American Society of Microbiology (2010-2012), American Association for the Advancement of Science (AAAS) (2014-current) AGU Fall Meeting Sessions – convener and / or chair from 2016-2020
Editor Roles	Associate Guest Editor, Journal of American Water Resources Association, Special Issue: Use of NASA Earth Observations to Support Water Management (2022) Associate Guest Editor**,** Frontiers in Marine Science**,** Special Issue: Impact of COVID-19 Lockdowns on Regional and Global Oceans and Coasts (2021)
Student Committees	5 Ph.D. Committees (I. Callejas/UCLA, M. Cira/UCLA, B. Wilder/Boise State, M. Ayad/UC Santa Cruz, R. Gustine/Washington State University) 2 M.S. Committees (M. Ayad/CSULA, J. Vellanoweth/CSULA)

NASA Press Releases / Media Featuring C. Lee Research

Predicting Burn Severity of California Wildfires (https://tinyurl.com/NASAJPL-CA-Fires)
Assessing Coral Ecosystem Vulnerability in Belize (https://tinyurl.com/NASAJPL-BZ-Corals)
Impacts of Wildfires on Coastal Water Quality (https://tinyurl.com/NASAJPL-CA-Coasts-Fires)

PEER-REVIEWED PUBLICATIONS

31. Gustine RN, Nickles C, **Lee, C.M.,** et al. Evaluating Habitat Suitability and Tidal Wetland Restoration Actions with ECOSTRESS, in revision.
30. Callejas IA, Osborn K, **Lee, C.M.**., et al. A GEE Toolkit for water quality monitoring from 2002-2022 in support of SDG 14 and coral health in Marine Protected Areas in Belize, *Frontiers in Remote Sensing*.
29. Stavros EN,…**Lee, C.M.**, et al. Designing an Observing System to Study the Surface Biology and Geology (SBG) of the Earth in the 2020s. *Journal of Geophysical Research: Biogeosciences.*
28. **Lee, C. M.**, Glenn, N. F., Stavros, E. N., Luvall, J., Yuen, K., Hain, C., & Uz, S. S. (2022). Systematic integration of applications into the Surface Biology and Geology (SBG) Earth mission architecture study. *Journal of Geophysical Research: Biogeosciences*.
27. Pascolini-Campbell, M., Lee, C., Stavros, N. & Fisher, J. B. (2022). ECOSTRESS reveals pre-fire vegetation controls on burn severity for Southern California wildfires of 2020. *Global Ecology and Biogeography*, 31, 1976– 1989.
26. Martin-Arias, V., Evans, C., Griffin, R., Cherrington, E. A., Lee, C. M., Mishra, D. R., et al. (2022). Modeled Impacts of LULC and Climate Change Predictions on the Hydrologic Regime in Belize. *Frontiers in Environmental Science*.
25. Cira, M., Bafna, A., **Lee, C.M.** *et al.* Turbidity and fecal indicator bacteria in recreational marine waters increase following the 2018 Woolsey Fire. *Nature Sci Rep* **12,** 2428 (2022)
24. Gustine RN, **Lee CM,** et al. Using ECOSTRESS to Observe Diurnal Variability in Water Temperature Conditions in the San Francisco Estuary. *IEEE Transactions in Geoscience and Remote Sensing*, 2021. **DOI:** 10.1109/TGRS.2021.3133411
23. Halverson G, **Lee CM,** et al. Decline in Thermal Habitat Conditions for the Endangered Delta Smelt as Seen from Landsat Satellites (1985-2019). *Environmental Science and Technology*,
22. Bales J and **Lee CM.** Introduction to Featured Collection on Use of NASA and Other Earth Observations, Data, Assets, and Tools to Support Water Management, *Journal of American Water Resources Association,* 2021.
21. Wong AJ,… **Lee CM**, et al. Assessment of Agricultural Consumptive Water Use in California's Central Valley. AGU Water Resources Research, 2021.
20. **Lee CM**, Hestir EL, Tufillaro N, Palmieri B, Acuna S, Osti A, Bergamaschi B, Sommer T., Monitoring turbidity in San Francisco Estuary and Sacramento-San Joaquin Delta using satellite remote sensing. *Journal of American Water Resources Association,* 2021.
19. Ade C, Hestir EL, **Lee CM**, Assessing Fish Habitat and the Effects of an Emergency Drought Barrier on Estuarine Turbidity Using Satellite Remote Sensing. *Journal of American Water Resources Association,* 2021.
18. Callejas I, **Lee CM**, Mishra DR, Felgate SL, Evans C, Carrias A, Rosado A, Griffin R, Cherrington EA, Ayad MA, Rudresh M, Page BP, Jay JA. Effect of COVID-19 Anthropause on Water Clarity in Belize Coastal Lagoon. *Frontiers in Marine Science,* 2021.
17. Cawse-Nicholson K, et al. NASA's surface biology and geology designated observable: A perspective on surface imaging algorithms. *Remote Sensing of Environment,* 2021.
16. **Lee CM**, Fisher JB, Hook SJ, ECOSTRESS Maps Vegetation Health Around the World. *AGU Eos Transactions*, 2020.
15. Kohli G, **Lee CM**, Fisher JB, Halverson G, Variano E, Jin Y, Carney D, Wilder BA, Kinoshita AM. ECOSTRESS and CIMIS: A Comparison of Potential and Reference Evapotranspiration in Riverside County, CA, Remote Sensing, 2020.
14. Ayad M, Li J, Holt B, **Lee CM**, Analysis and Classification of Stormwater and Wastewater Runoff from Tijuana River Using Remote Sensing Imagery, Frontiers Env Sci, 2020.

13. Zimmer-Faust A, Thulsiraj V, **Lee CM**, et al. Multi-tiered approach utilizing microbial source tracking and human associated-IMS/ATP for surveillance of human fecal contamination in Baja California, Mexico. Science of the Total Environment, 2018.
12. **Lee CM**, et al. Applying Earth Observations for Water Resources Challenges, Ch 6. *Earth Science Satellite Applications,* Springer Remote Sensing/Photogrammetry, 2016.
Cooley SA, Fisher JB, Williams C, Halverson G, Williams C, **Lee CM**, Assessing regional drought impact on vegetation and evapotranspiration: a case study in Guanacaste, Costa Rica, Ecological Applications, 2018.
11. Hossain F, Serrat-Capdevila, Granger S, Thomas A, Saah D, Ganz D, Mugo R, Murthy MSR, Ramos VH, Anderson E, Schumann G, Lewison R, Kirschbaum D, Escobar V, Srinivasan M, **Lee CM,** et al. A Global Capacity Building Vision for Societal Applications of Earth Observation Systems and Data: Key Questions and Recommendations, *Bulletin in American Meteorological Society,*2016.
10. Bolten JB, **Lee CM**, Houser P. Satellite Data for Water Resources Mgmt. *AGU Eos transactions,* 2015.
9. **Lee CM,** Cable ML, Hook SJ, et al. An introduction to the NASA Hyperspectral InfraRed Imager (HyspIRI) mission and preparatory activities, *Remote Sensing of Environment,* 2015.
8. **Lee CM,** Orne T., Schaeffer B. How can remote sensing be used for water quality? Bridging the operational and applications communities. *AGU Eos transactions*, 2014.
7. Noell AC, Greenwood A, **Lee CM,** Ponce A. High Density, Homogeneous Endospore Monolayer Deposition on Test Surface, *Journal of Microbiological Methods,* 2013.
6. **Lee CM,** Hemmings SN, Searby ND. Using Earth observations to enhance WR decision-making & disaster assessment processes in the U.S. and in the developing world. *IEEE GHTC*, 2013.
5. Ros-Giralt J, Laungluckna valai K,Massaguer D, Casanova J, **Maxwell (Lee) CM.** Using Labdoo to Bridge the Digital Divide: A New Form of International Cooperation. Service Learning in the Computer and Information Sciences: Practical Applications in Engineering Education, Ch 18 © 2012.
4. **Lee CM,** Griffith JF, Kaiser W, Jay JA. Covalently-linked immunomagnetic separation/adenosine triphosphate technique is a rapid and field-portable method for measuring E. coli and Enterococcus spp., in fresh and marine water environments. Journal of Applied Microbiology. 2010.
3. Mika KB, Imamura G, Chang C, Conway V, Fernandez G, Griffith J, Kampalath R, **Lee CM,** et al. Pilot and bench-scale testing of fecal indicator bacteria survival in marine beach sand near point sources. *Jounral of Applied Microbiology.* 2009.
2. Ramanathan N, **Lee CM,** et al. Sensor-based investigation of biogeochemical control on arsenic mobilization in rural Bangladesh. Conference Proceedings, *American Chemical Society.* 2007.
1. **Lee CM,** Lin TY, Lin CC, Kohbodi G., Bhatt A, Lee R, Jay JA. Persistence of fecal indicator bacteria in Santa Monica Bay beach sediments. *Water Research.* 2006