KELLY LUIS

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CURRENT APPOINTMENT

NASA Postdoctoral Program Fellow   2021.9-Present
Water & Ecosystems Group
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

EDUCATION

Ph.D., Marine Science and Technology   2021
School for the Environment
University of Massachusetts, Boston, MA

M.S., Marine Science and Technology   2020
School for the Environment
University of Massachusetts, Boston, MA

B.A., Environmental Science   2015
Department of Earth and Environmental Sciences
Columbia University, New York, NY

PAST APPOINTMENTS:

Research Assistant   2021.5-2021.8
School for the Environment
University of Massachusetts, Boston, MA

Career Building Coordinator   2020.5-2020.8
Woods Hole Partnership Education Program, Woods Hole, MA

Research Assistant II   2015.8-2016.8
Department of Marine Chemistry and Geochemistry
Woods Hole Oceanographic Institution, Woods Hole, MA

AWARDS & HONORS

JPL Postdoc Research Day: 2021
      Best Poster in Earth Science: Water, Land, Biome, Carbon Cycle

NASA Postdoctoral Program Fellowship	2021
Robert & Patricia Switzer Foundation – Switzer Environmental Fellow	2020
ASLO – Limnology and Oceanography Research Exchange Fellow	2019
Ford Foundation – Predoctoral Fellowship	2018
National Science Foundation –IGERT Advanced Fellowship	2016
University of California-Santa Cruz – Climate Engagement Fellow	2017
National Science Foundation –IGERT Fellowship	2016
Woods Hole Oceanographic Institution – Whelan Memorial Fund	2016
Columbia University - King's Crown Leadership Award: Columbia Spirit	2015
Mellon Mays Undergraduate Research Fellowship	2013

PUBLICATIONS

[13] **Luis, K.,** Köhler, P., Gierach, M. Leveraging TROPOMI Solar Induced chlorophyll Fluorescence (SIF) Retrievals in the Detection and Monitoring of *K. brevis* blooms. (*in prep*)

[12] **Luis, K.,** Serban, I., Lee, Z. The fusion of multispectral ocean color sensors for water clarity monitoring. (*in prep*)

[11] **Luis, K.**, Kuhn, C., Terzic, E., Berman, H., Simpson, A., Garcia-Tigreros, F., Gierach. M., Butman, D.E. Advances in modeling lake inherent optical properties from hyperspectral remote sensing in subarctic lakes (*in prep*)

[10] Lang, S., **Luis, K.,** Doney, S., Castorani, M. Modeling Coastal Water Clarity Using Landsat-8 and Sentinel-2 (in review)

[9] Menikmann, K., Gushulak, C.A.C, Ghosh, A., Bizic, M., Ping Lee, Y., **Luis, K.,** Grossart, P. ASLO's Early Career Committee Amplifies Voices in Underrepresented Groups in Aquatic Science. *Limnology and Oceanography Bulletin*

[8] Lee, Z., Shang, S., Li, Y., **Luis, K.**, Dai, M., & Wang, Y. (2021). Three-Dimensional Variation in Light Quality in the Upper Water Column Revealed With a Single Parameter. *IEEE Transactions on Geoscience and Remote Sensing*.

[7] Scott Price, O., **Luis, K.,** Price, A. L., Harden, B., Howard, J., Valentin, L. E., Liles, G., Jearld Jr, A. (2020). Same Program Different Delivery: Adapting the Woods Hole Partnership Education Program for a Virtual Era. *Limnology and Oceanography Bulletin*, *29*(4), 117-124.

[6] Lee, Z., Wang, Y., Yu, X., Shang, S., **Luis, K.** Evaluation of forward reflectance and empirical algorithm for chlorophyll concentration of stratified waters. *Applied Optics,* 59(30) 9340-9352.

[5] Wei, J., Wang, M., Lee, Z., Briceño, H. O., Yu, X., Jiang, L., Garcia, R., Wang, J., **Luis, K**. (2020). Shallow water bathymetry with multi-spectral satellite ocean color sensors: Leveraging temporal variation in image data. *Remote Sensing of Environment*, *250*, 112035.

[4] **Luis, K. M.**, Rheuban, J. E., Kavanaugh, M. T., Glover, D. M., Wei, J., Lee, Z., & Doney, S. C. (2019). Capturing coastal water clarity variability with Landsat 8. *Marine Pollution Bulletin*, *145*, 96-104.

[3] Torres, A. D., Keppel-Aleks, G., Doney, S. C., Fendrock, M., **Luis, K.**, De Mazière, M., ... & Sussmann, R. (2019). A geostatistical framework for quantifying the imprint of mesoscale atmospheric transport on satellite trace gas retrievals. *Journal of Geophysical Research: Atmospheres*, *124*(17-18), 9773-9795.

[2] Kavanaugh, M. T., Rheuban, J. E., **Luis, K. M**., & Doney, S. C. (2017). Thirty-Three Years of Ocean Benthic Warming Along the US Northeast Continental Shelf and Slope: Patterns, Drivers, and Ecological Consequences. *Journal of Geophysical Research: Oceans*, *122*(12), 9399-9414.

[1] Lee, Z., Shang, S., Lin, G., Liu, T., Liu, Y., Du, K., & **Luis, K.** (2017). Secchi disk observation with spectral-selective glasses in blue and green waters. *Optics Express*, *25*(17), 19878-19885.

MEDIA & NON-PEER REVIEWED PUBLICATIONS

JPL Employee Spotlight. Meet Kelly, Postdoctoral Fellow for Water & Ecosystems

Luis, K. The Simplification of an Indigenous Scientist. *ASLO Bulletin*

Luis, K. Online Conversations for Equity, Action, and Networking. ASLO Blog

Luis, K. Ocean Hues. Schmidt Institute Cruise Log: Studying the Sea-Surface Microlayer 2

Luis, K. TOS Student Highlight. The Oceanography Society Student Newsletter

SELECTED CONFERENCE ACTIVITY
*Denotes Undergraduate Student Mentee

Luis. K., Ocean Visualization: Extracting insight, interactive analysis, exploration, and outreach. Ocean Science Meeting 2022 (convener)

Luis. K., Hill, P., Inferring Subsurface Estuarine Sediment Processes with Landsat 8 and

Sentinel 2. Ocean Sciences Meeting 2022 (oral presentation)

Luis, K., Köhler, P., Frankenberg, C., Gierach, M. Leveraging TROPOMI Solar Induced chlorophyll Fluorescence (SIF) Retrievals in the Detection and Monitoring of *K. brevis* blooms – Jet Propulsion Laboratory Virtual Postdoc Research Poster Conference (virtual poster)

Luis, K., Lee. Z. Fusion of Ocean Color Sensors for Global Water Clarity Monitoring – 2nd International Ocean Color Symposium, (virtual poster)

Meletis, O.*, **Luis, K.**, Lee. Z. Analyzing Coral Reef Ecosystem Health Using Remote Sensing Reflectance, School for the Environment – Earth Day Symposium 2021 (virtual poster)

Charrak, Y.*, **Luis, K.**, Lee. Z. The Effects of Climate Change on the Stellwagen Bank National Marine Sanctuary, School for the Environment – Earth Day Symposium 2021 (virtual poster)

Meletis, O.*, **Luis, K.**, Testing Coral Classification Methods for Remote Sensing, School for the Environment – Earth Day Symposium 2020 (virtual poster)

Smith, R.*, **Luis, K.**, Zhang, S., Lee, Z. Spectral Absorption of Colored Dissolved Organic Matter (CDOM) at Fox Point Dock, Boston Harbor (virtual poster)

Luis, K., Lee. Z. The fusion of multispectral ocean color sensors for water clarity monitoring. Ocean Sciences 2020, San Diego, CA (poster presentation)

Chen, R., **Luis, K.**, Largier, J. Transdisciplinary Research and Education in Coastal Systems Posters, San Diego, CA (co-chair)

Luis, K., Lee, Z., McNally, S. Remote Sensing of Water Quality Parameters for *Vibrio* spp. monitoring. School for the Environment – Earth Day Symposium 2019, Boston, MA (oral presentation)

Luis, K., Lee, Z., Capturing coastal water clarity variations with Landsat 8 and Citizen Science. Ocean Sciences Meeting 2018, Dubrovnik, Croatia (poster presentation, sponsored by TOS student travel award)

Davis. S, Foint, Y., **Luis, K.**, Sheldon, P. Water Security. Land of a Thousand Ideas: Rwanda and the Sustainability Challenge 2018, Boston, MA (oral presentation)

Luis, K., Lee, Z., Capturing coastal water clarity variations with Landsat 8 and Citizen Science. Ocean Sciences Meeting 2018, Portland, OR (poster presentation)

Luis, K., Doney, S. Measuring Carbon Dioxide from Space. Woods Hole Partnership Education Program Symposium 2015, Woods Hole, MA (oral presentation)

GRANTS

NASA – MUREP INCLUDES Grant, author	2021
Partners Aligned To Heighten broad participation in STEM	
NASA – MUREP OCEAN Grant, author	2021
Using Hyperspectral Imagery to Assess the Effects of Warming on New England Kelp Forests	
Social Sciences Research Council – Predoctoral Research Development, PI	2020
Coastal and Inland Ocean Color Remote Sensing for Water Quality Monitoring	
NASA – MUREP INCLUDES Planning Grant, author	2020
Partners Aligned To Heighten broad participation in STEM	
Woods Hole Sea Grant – Advancing Diversity, Equity, and Inclusion, PI	2020
Online Conversation for Equity, Action, and Networking	
Woods Hole Sea Grant – Advancing Diversity, Equity, and Inclusion Partnership Education Program-II*, author*	2020
Social Sciences Research Council – Graduate Enhancement Grant, PI	2019
Remote Sensing of Water Quality Parameters for Vibrio Monitoring	
Social Sciences Research Council – Dissertation Development Grant, PI	2018
After the storm: Coastal Underwater Habitat Mapping for Improved Storm Response and Coastal Management	

INVITED TALKS & PANELS

Ocean Sciences Meeting 2022	2022
Title: Mental Health and Self Care in the Ocean Sciences (*Moderator*)	
Title: Paper Writing (*Moderator*)	
Title: Meet the Plenary – Dr. Angelicque White (*Moderator*)	
Cal Poly Pomona Native American Student Center and AISES	2021
Title: Native Success in STEM: NASA JPL (*Panelist*)	
Ecological Society of America 2021- Inspire talk	2021
Title: Online Conversation for Equity, Action, and Networking	
Massachusetts Institute of Technology – EAPS Seminar Series	2021
Title: Finding Clarity in the Crowd: Improving Water Quality Monitoring	
Harris Center for Conservation Education – Women in Science Series	2021
Title: The Urban Ocean – The View from Boston Harbor	
Indigenous Peoples Day at UMass Boston (*Moderator*)	2020
Title: Climate Change and Indigenous Resistance: An Intergeneration	

and Inter-tribal Conversation
Sea Education Association – The Ocean Odyssey Lecture Series   2020
      Title: Painting the Oceans with Satellites and Planes
Lamont Doherty Earth Observatory – Biology Department Seminar Talk   2020
      Title: Coastal and Inland Ocean Color Water Quality Monitoring
Documentary Educational Resources   2019
      Documentary: Smokin' Fish (*Panelist*)
Ocean Sciences Meeting 2018 – Fluid Oceans: Pecha Kucha Evening   2018
      Title: Satellite Imagery

CRUISES & FIELDWORK

Massachusetts Bay, Massachusetts, *R/V Neritic*, NOAA-VIIRS Validation Day Cruises, 2016-2020
Suva, Fiji, *R/V Falkor,* Sea Surface Microlayer 2, November – December 2019
Maui, Hawaii, 32' Dive boat, NASA HyspIRI and CORAL Campaigns, February 2017 & 2018

TEACHING & MENTORING:

Mentor, Ocean Sciences Meeting 2022, for Yulun Wu, Alan Mason, and Junsu Jang
Mentor, NASA DEVELOP Spring 2022, for Updating and Expanding the Optical Reef and Coastal Area Assessment (ORCAA) Tool
Associate Lecturer, Spring 2020 & Spring 2021, The Urban Oceans, University of Massachusetts – Boston
Guest Lecturer, Spring 2019, Coral Reefs and Climate Change for Climate Change, Emerson College
Guest Lecturer, Spring 2019, Ocean Acidification and Aquatic Optics for Introduction to Oceans, University of Massachusetts-Boston
Undergraduate Mentor, 2020-2021, for Ryan Smith, Orpheus Meletis, Samuel Domingues, and Yasmine Charrak
Course Assistant, 2013-2015, Environmental Sustainability and Corporate Decision Making, Introductory to Ecology, Climate Change Adaptation and Natural Disasters, Climate and Biodiversity, Evolution: Darwin to DNA, and Systems and Sustainability, Earth Institute at Columbia University

COURSES AND CERTIFICATIONS

OceanHackWeek – Summer 2021, virtual
Commonwealth Seminar: Opening the Doors of Government to Everyone – Fall 2020, Boston, MA
Near Term Ecological Forecasting Course – July 2019, Boston University, Boston, MA

Imaging FlowCytobot Training Course – November 2018, McLane Research Laboratories, Inc., Falmouth, MA
Calibration and Validation of Ocean Color Remote Sensing Course – June 2017, Darling Marine Center, Damariscotta, ME (Travel expenses sponsored by Ocean Carbon & Biogeochemistry)
PADI Open Water Diver, Advanced Diver, and Rescue Diver – Summer 2014, Little Cayman, Cayman Islands
Emergency First Responder – Summer 2014, Little Cayman, Cayman Islands
Field Geology Courses: Death Valley, CA; Barbados; Coldigioco, Italy

COMMUNITY ENGAGEMENT

GeoAquaWatch, Google Earth Engine Working Group, November 2021 - Present
Letters to a Pre-Scientist, September 2021-Present
Association for Limnology & Oceanography Early Career Researcher Committee, January 2021 - Present
Ocean Sciences Meeting 2022 ASLO Student Program Representative, Fall 2020-Present
Girls Who Code Lead Instructor, 2016-2020, Grove Hall Branch of the Boston Public Library, Dorchester, MA
NASA HyspIRI Outreach Activities Coordinator, 2017 & 2018, Maui, HI
SUBMERGE Marine Science Festival Volunteer, 2017, Hudson River Park, New York, NY
Neponset RiverFest Volunteer, 2018, Neponset River, Dorchester, MA
Ocean Sciences Meeting K-12 Day Mentor, 2018, Portland, Oregon
Hōkūle'a Coordinator and Guest Crew Member, 2016, Massachusetts

ACADEMIC & INSTITUTIONAL SERVICE

Convener of the School for the Environment Graduate Student Anti-Racism Taskforce
Convener of UMass-Boston's Deep Learning Group
Peer Reviewer: Estuarine, Coastal, and Shelf Science, Limnology and Oceanography Letters, Marine Pollution Bulletin

MEMBERSHIPS

Ecological Forecasting Initiative
Association for Sciences in Limnology and Oceanography
The Oceanography Society
Society for Advancement of Chicanos/Hispanics & Native Americans in Science

RESEARCH SKILLS

Computational:
- Proficient in Linux, Mac, Python, MATLAB, R, SeaDAS, ACOLITE, Hydrolight, High-Performance Computing Clusters (SLURM, LSF), Google Earth Engine, Git
- Familiar with SNAP, Tensorflow, ArcGIS, QGIS

Instrumentation:
- Field: Hyperpro-profiler, Spectral Evolution – Handheld Radiometer, AC-9, AC-S, BB7, Microtops sunphotometer, CTD, Secchi Disk, Van Dorn Sampling
- Laboratory: UV-Probe, Imaging Flow Cytobot (benchtop), VINDTA 3-C