

# K. Dana Chadwick

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Water & Ecosystems Group (329F)  
Jet Propulsion Laboratory

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## EDUCATION

- 2017 Ph.D., Earth System Science, Stanford University  
*Dissertation:* Geomorphically driven biogeochemical gradients & their influence on tropical forest canopies
- 2008 B.S., Environmental Economics and Policy, University of California, Berkeley  
*Honors Thesis:* Imperfect information and market failures in Lao livestock markets
- 2008 B.A., Molecular & Cell Biology, University of California, Berkeley  
Genetics & Development track. Distinction: College of Letters & Sciences

## POSITIONS

- 2021 – Scientist | Water & Ecosystems Group, NASA Jet Propulsion Laboratory  
VSWIR Project Science Team Member, Surface Biology Geology Mission  
Mission Applications Lead, EMIT Mission  
Lead, SBG High Frequency Timeseries Campaign
- 2021 Research Associate | Integrative Biology & Geological Sciences, UT Austin
- 2020 Postdoctoral Researcher | Dept. Earth System Science, Stanford University
- 2018 – 2019 NSF Postdoctoral Fellow | Stanford & Lawrence Berkeley National Lab
- 2017 Postdoctoral Researcher | Dept. of Global Ecology, Carnegie Institution
- 2011 – 2016 Graduate Researcher | Dept. of Global Ecology, Carnegie Institution
- 2011 Research Intern | Dept. of Global Ecology, Carnegie Institution
- 2008 – 2011 Independent Contractor; Project Manager; Analyst | 3Degrees Group, Inc.

## AWARDS, FELLOWSHIPS

- Charles Elachi Award for Outstanding Early-Career Achievement, Jet Propulsion Laboratory (2023)
- EMIT Greenhouse Gas Team Award, Jet Propulsion Laboratory (2023)
- Voyager Award, Jet Propulsion Laboratory (2022)
- NSF Earth Sciences Postdoctoral Fellowship (2018-2019)
- NASA Earth and Space Science Graduate Fellowship (2014-2016)

## AWARDED GRANTS & DIRECTED FUNDING

- NASA Earth System Science Pathfinder Program Office (FY24): Extended Applications funding awarded for EMIT Acid Mine Drainage applications.
- JPL Advanced Concepts (FY 2023): Critical Zone Science Development. PI: KD Chadwick

- JPL Researchers on Campus Program (FY 2023): Integrating Imaging Spectroscopy into the Caltech Critical Zone Initiative. PI: KD Chadwick
- JPL Strategic University Research Partnerships Program (FY 2023, 2024): Detecting toxic metal contamination through imaging spectroscopy. PI: KD Chadwick
- JPL Strategic University Research Partnerships Program (FY 2023, 2024): Quantifying functional stability of California ecosystems using imaging spectroscopy after a decade of drought and fire. PI: Fabian Schneider, CO-I: KD Chadwick
- NSF Research Coordination Networks (2021): Patterns, Places, People: A Network for Scalable Airborne Observation of Socio-Environmental Systems. PI: A. Elmore. Role: Sr. Scientist
- DOE Joint Genome Institute Community Science Program (2020). Title: Scaling microbial traits from genomes to watersheds through combined airborne hyperspectral imaging, soil biogeochemistry, and metagenome assembled genomes. PI: E. Brodie. Role: Listed co-lead investigator.
- NSF Signals in the Soils EAGER (2018-2020). Title: Can remotely imaged vegetation characteristics provide a window into soil nutrient cycles? PI: K. Maher, Role: Sr. Scientist

#### **PEER-REVIEWED PUBLICATIONS** (\* mentee)

- Rempe, D., E.L. McCormick\*, W.J. Hahm, G. Persad, C. Cummins, D.A. Lapidus, **K.D. Chadwick**, D.N. Dralle. Mechanisms underlying the vulnerability of seasonally dry ecosystems to drought. *In review*. <https://doi.org/10.31223/X5XW7D>
- Angel, Y., A. Raiho, D. Kathuria, **K.D. Chadwick**, P.G. Brodrick, E. Lang, F. Ochoa, A.N. Shiklomanov. Deciphering the Spectra of Flowers to Map Landscape-scale Blooming Dynamics. *Accepted*.
- Thompson, D.R., Green, R.O., Bradley, C., Brodrick, P.G., Mahowald, N., Dor, E.B., Bennett, M., Bernas, M., Carmon, N., **Chadwick, K.D.**, Clark, R.N., Coleman, R.W., Cox, E., Diaz, E., Eastwood, M.L., Eckert, R., Ehlmann, B.L., Ginoux, P., Ageitos, M.G., Grant, K., Guanter, L., Pearlshien, D.H., Helmlinger, M., Herzog, H., Hoefen, T., Huang, Y., Keebler, A., Kalashnikova, O., Keymeulen, D., Kokaly, R., Klose, M., Li, L., Lundeen, S.R., Meyer, J., Middleton, E., Miller, R.L., Mouroulis, P., Oaida, B., Obiso, V., Ochoa, F., Olson-Duvall, W., Okin, G.S., Painter, T.H., Pérez García-Pando, C., Pollock, R., Realmuto, V., Shaw, L., Sullivan, P., Swayze, G., Thingvold, E., Thorpe, A.K., Vannan, S., Villarreal, C., Ung, C., Wilson, D.W., Zandbergen, S., 2024. On-orbit calibration and performance of the EMIT imaging spectrometer. *Remote Sensing of Environment* 303, 113986. <https://doi.org/10.1016/j.rse.2023.113986>
- Thorpe, A.K., R.O. Green, D.R. Thompson, P.G. Brodrick, J.W. Chapman, C.D. Elder, I. Irakulis-Loitxate, D.H. Cusworth, A.K. Ayasse, R.M. Duren, C. Frankenberg, L. Guanter, J.R. Worden, P.E. Dennison, D.A. Roberts, **K.D. Chadwick**, M.L. Eastwood, J.E. Fahlen, C.E. Miller. Attribution of individual methane and carbon dioxide emission sources using EMIT observations from space. *Science Advances*, 2023.
- Blonder, B., R. P.G. Brodrick, **K.D. Chadwick**, E. Carroll, R Cruz-de Hoyos, M. Exposito Alonso, S. Hateley, M. Moon, C. Ray, H. Trang, J.A. Walton. Climate lags and genetics determine phenology in quaking aspen (*Populus tremuloides*). *New Phytologist*, 2023.

- Blonder, B., R. P.G. Brodrick, J.A. Walton, **K.D. Chadwick**, I. Breckheimer, S. Marchetti, C. Ray, K. Mock. Remote sensing of cytotype and its consequences for canopy damage in quaking aspen. *Global Change Biology*, 2022.
- Chadwick O.A., J. Chorover, **K.D. Chadwick**, J. B. Bateman, E.W. Slessarev, M. Kramer, A. Thompson, P.M. Vitousek. Soil Development within the Hawaiian Time-Climate Matrix. in *Biogeochemistry of the Critical Zone*, eds: A. Wymore and J. Chorover. Springer Nature, 2021 (*In Press*).
- McCormick\*, E., D. Dralle, W.J. Hahm, A. Tune, L. Schmidt, **K.D. Chadwick**, D. Rempe. Evidence for widespread woody plant use of water stored in bedrock. *Nature*, 2021. 10.21203/rs.3.rs-138459/v1
- Nagy R.C., et al. (inc. **K.D. Chadwick**). Harnessing the NEON Data Revolution to Advance Open Environmental Science with a Diverse and Data-Capable Community. *Ecosphere*, 2021.
- Blonder, B., C. Ray, K. Mock, M. Castaneda, **K.D. Chadwick**, M. Clyne, P. Gaüzère, L. Iversen, M. Lusk, G.R. Strimbeck, S. Troy, J.A. Walton. Environmental impacts on mortality and recruitment depend on genotype and ploidy level in quaking aspen. *Ecological Applications*, 2021
- Thompson, D.R., P.G. Brodrick, K. Cawse-Nicholson, **K.D. Chadwick**, R.O. Green, B. Poulter, S. Serbin, A. Shiklomanov, P. Townsend, K. Turpie. Spectral Fidelity of Earth's Terrestrial and Aquatic Ecosystems. *JGR: Biogeosciences* 2021. 10.1029/2021JG006273
- Ordway, E.M, A.J Elmore., S. Kolstoe, J.E. Quinn, R. Swanwick, M. Cattau., D. Taillie., S.M. Guinn, **K.D. Chadwick**, J. Atkins, et al. Leveraging the NEON Airborne Observation Platform for socio-environmental systems research. *Ecosphere*, 2021. doi: 10.1002/ecs2.3640
- Dralle, D. N., W.J. Hahm, **K.D. Chadwick**, E. McCormick\*, D. Rempe. Technical note: Accounting for snow in the estimation of root-zone water storage capacity from precipitation and evapotranspiration fluxes, *Hydrology and Earth System Sciences*, 2021. doi: 10.5194/hess-25-2861-2021
- Damerow J., C. Varadharajan, K. Boye, E. Brodie, M. Burrus, **K.D. Chadwick**, et al. Sample identifiers and metadata to support efficient data management, integration, and reuse in multidisciplinary ecosystem sciences. *Data Science Journal*, 2021. doi: 10.5334/dsj-2021-011
- Maavara T, E.R. Sirila-Woodburn, R.M. Maxwell, F. Maina, J. Sample, **K.D. Chadwick**, R. Carroll, M. Newcomer, R.M. Couture, K.H. Williams, C.I. Steefel, N.J. Bouskill. Mechanistic modeling of geogenic and atmospheric nitrogen through the East River Watershed, Colorado Rocky Mountains. *PLOS ONE*, 2021. doi: 10.1371/journal.pone.0247907
- Chadwick, K.D.**, P. Brodrick, K. Grant\*, T. Goulden, A. Henderson\*, N. Falco, H. Wainwright, K.H. Williams, M. Bill, I. Breckheimer, E. Brodie, H Steltzer, C.F.R. Williams, B. Blonder, J. Chen, B. Dafflon, M. Hancher, A. Khurram, J Lamb, C Lawrence, M McCormick\*, J Musinsky, S. Pierce, A. Polussa, M. Hastings Porro\*, A. Scott\*, H. Wu Singh, P. Sorensen, C. Varadharajan, B. Whitney, K. Maher. Integrating airborne remote sensing and field campaigns for ecology and Earth system science. *Methods in Ecology and Evolution*, 2020. doi: 10.1111/2041-210X.13463
- Chadwick, K.D.**, G.P. Asner. Geomorphic transience moderates topographic controls on tropical canopy foliar traits. *Ecology Letters*, 2020. doi: 10.1111/ele.13531
- Wainwright, H., C. Steefel; S. Trutner, A. Henderson\*, E. Nikolopoulos, C. Wilmer, **K.D. Chadwick**, N. Falco, K. Schaettle, J. Brown, H. Steltzer, K. Williams, S. Hubbard, B. Enquist. Satellite-

derived foresummer drought sensitivity of plant productivity in Rocky Mountain headwater catchments: spatial heterogeneity and geological-geomorphological control. *Environmental Research Letters*, 2020. doi: 10.1088/1748-9326/ab8fd0

- Chadwick, K.D.**, G.P. Asner. Landscape evolution and nutrient rejuvenation reflected in Amazon forest canopy chemistry. *Ecology Letters*, 2018. doi: 10.1111/ele.12963
- Martin, R.E., **K.D. Chadwick**, P.G. Brodrick, L. Carranza-Jimenez, N.R. Vaughn, G.P. Asner. An approach for foliar trait retrieval from airborne imaging spectroscopy of tropical forests. *Remote Sensing*, 2018. doi: 10.3390/rs10020199
- Johnstone, S.A., **K.D. Chadwick**, M. Frias, G. Tagliaro, and G.E. Hilley. Soil development over mud-rich rocks produces landscape-scale erosional instabilities in the northern Gabilan Mesa, California. *Geological Society of America Bulletin*, 2017. doi: 10.1130/B31546.1
- Chadwick, K.D.**, G.P. Asner. Organismic-scale remote sensing of canopy foliar traits in lowland tropical forests. *Remote Sensing*, 2016. doi: 10.3390/rs8020087.
- Chadwick, K.D.**, G.P. Asner. Tropical soil nutrient distributions determined by biotic and hillslope processes. *Biogeochemistry*, 2016. doi: 10.1007/s10533-015-0179-z
- Cleveland, C.C., P. Taylor, **K.D. Chadwick**, K. Dahlin, C.E. Doughty, Y. Malhi, W.K. Smith, B.W. Sullivan, W.R. Wieder, and A.R. Townsend. A comparison of plot-based, satellite and Earth system model estimates of tropical forest net primary production. *Global Biogeochemical Cycles*, 2015. doi: 10.1002/2014GB005022.
- Asner, G.P., D.E. Knapp, R.E. Martin, R. Tupayachi, C. B. Anderson, J. Mascaro, F. Sinca, R. Vaudry, **K.D. Chadwick**, M. Higgins, W. Farfan, W. Llactayo, and M.R. Silman. Targeted carbon conservation at national scales with high-resolution monitoring. *Proceedings of the National Academy of Sciences*, 2014. doi: <https://doi.org/10.1073/pnas.1419550111>.
- Mascaro, J., G.P. Asner, D.E. Knapp, T. Kennedy-Bowdoin, R.E. Martin, C.B. Anderson, M. Higgins, **K.D. Chadwick**. A tale of two “forests”: random forest machine learning aids tropical forest carbon mapping. *PLOS ONE*, 2014. doi: 10.1371/journal.pone.0085993.
- Asner, G.P., J.K. Clark, J. Mascaro, R. Vaudry, **K.D. Chadwick**, G. Vieilledent, M. Rasamoelina, A. Balaji, T. Kennedy-Bowdoin, L. Maatoug, M.S. Colgan, and D.E. Knapp. Human and environmental controls over aboveground carbon storage in Madagascar. *Carbon Balance and Management*, 2012. doi: 10.1186/1750-0680-7-2.
- Asner, G.P., J.K. Clark, J. Mascaro, G.A. Galindo Garcia, **K.D. Chadwick**, D.A. Navarrete Encinales, G. Paez-Acosta, E. Cabrera Montenegro, T. Kennedy-Bowdoin, A. Duque, A. Balaji, P. von Hildebrand, L. Maatoug, J.F. Phillips Bernal, D.E. Knapp, M.C. García Dávila, J. Jacobson, M.F. Ordóñez. High-resolution mapping of forest carbon stocks in the Colombian Amazon. *Biogeosciences*, 2012. doi: 10.5194/bg-9-2683-2012.

## **PUBLISHED DATASETS** (\* mentee)

**Chadwick, K.D.**, Queally, N., Zheng, T., Cryer, J., Vanden Heuvel, C., Villanueva-Weeks, C., Ade, C., Anderegg, L., Angel, Y., Baker, B., Boving, I., Braghieri, R.K., Brodrick, P., Campbell, P., Cushman, K.C., Davis, F., Dao, P.D., Dibartolo, A., Eckert, R., Grant, K., Heberlein, B., Johnson, M., Joutras, J., Kibler, C., Klope, M., Kovach, K., Kreisberg, A., Lovegreen, P., Maguire, A.J., McMahon, C., Miner, K., Nickles, C., Ochoa, F., Ocón, J.P., Ongjoco, A., Ordway,

- E., Park, M., Pavlick, R., Raiho, A.M., Roberts, D.A., Schimel, D.S., Schneider, F.D., Thompson, K., Townsend, P., Vermeer, E., Vinod, N., Zumdahl, K., 2023. SHIFT Photosynthetic and Leaf Traits, Santa Barbara County, 2022. <https://doi.org/10.3334/ORNLDAAAC/2233>
- Brodrick, P., Pavlick, R., Bernas, M., Chapman, J.W., Eckert, R., Helmlinger, M., Hess-Flores, M., Rios, L.M., Schneider, F.D., Smyth, M.M., Eastwood, M., Green, R.O., Thompson, D.R., **Chadwick, K.D.**, Schimel, D.S., 2023. SHIFT: AVIRIS-NG L2A Unrectified Reflectance. <https://doi.org/10.3334/ORNLDAAAC/2183>
- Brodrick, P.G., Pavlick, R., Bernas, M., Chapman, J.W., Eckert, R., Helmlinger, M., Hess-Flores, M., Rios, L.M., Schneider, F.D., Smyth, M.M., Eastwood, M., Green, R.O., Thompson, D.R., Chadwick, K.D., **Schimel, D.S.**, 2023. **SHIFT: AVIRIS-NG L1A Unrectified Radiance.** <https://doi.org/10.3334/ORNLDAAAC/2184>
- Zheng, T., Queally, N., **Chadwick, K.D.**, Cryer, J., Reim, P., Townsend, P., Marsh, E., Berg, M., Breuer, Z., Burkard, N., Hanson, A., Johnson, E., Lacey, D., Lee, A., Pfau, L., Shifrin, I., Skalitzky, B., Stroschein, S., Van beek, J., Vanden heuvel, C., Williams, A., 2023. SHIFT: Reflectance Measurements for Dried and Ground Leaf Materials. <https://doi.org/10.3334/ORNLDAAAC/2244>
- Chadwick K.D.**, P.G. Brodrick, K. Grant\*, A. Henderson\*, M. Bill, I. Breckheimer, C.F.R. Williams, T. Goulden, N. Falco, M. McCormick\*, J. Musinsky, S. Pierce, M. Hastings Porro\*, A. Scott\*, E.L. Brodie, M. Hancher, H. Steltzer, H. Wainwright, K. Maher (2020): NEON AOP foliar trait maps, maps of model uncertainty estimates, and conifer map. A Multiscale Approach to Modeling Carbon and Nitrogen Cycling within a High Elevation Watershed. doi: 10.15485/1618133
- Chadwick K.D.**, K. Grant\*, A. Henderson\*, I. Breckheimer, C.F.R. Williams, N. Falco, J. Chen, H. Henry, A. Khurram, J. Lamb, M. McCormick\*, H. McOmber, S. Pierce, A. Polussa, M Hastings Porro\*, A. Scott\*, H. Wu Singh, B. Whitney, E. Brodie, R. Carroll, C. Dewey, L. Kueppers, T. Maavara, H. Steltzer, K. Williams, K. Maher (2020): Locations, metadata, and species cover from field sampling survey associated with NEON AOP survey, East River, CO 2018. *Watershed Function SFA*. doi: 10.15485/1618130
- Chadwick K.D.**, K. Grant\*, A. Henderson\*, A. Scott\*, M. McCormick\*, S. Pierce, M. Hastings Porro\*, K. Maher (2020): Leaf mass per area and leaf water content measurements from field survey in association with NEON AOP survey, East River, CO 2018. *A Multiscale Approach to Modeling Carbon and Nitrogen Cycling within a High Elevation Watershed*. doi: 10.15485/1618132
- Chadwick, K.D.**, K. Grant\*, M. Bill, A. Henderson\*, A. Scott\*, K. Maher (2020). Site-level Foliar C, N, delta13C data from samples collected during field survey associated with NEON AOP survey, East River, CO 2018. *A Multiscale Approach to Modeling Carbon and Nitrogen Cycling within a High Elevation Watershed*. doi:10.15485/1631278
- Chadwick K.D.**, S. Pierce, M. Sirles, C. Lawrence, J. Cullen, K. Grant\*, N. Falco, K. Maher, B. Dafflon (2020). Soil bulk density and texture data collected during field survey associated with NEON AOP survey, East River, CO 2018. *A Multiscale Approach to Modeling Carbon and Nitrogen Cycling within a High Elevation Watershed*. doi:10.15485/1671826
- Brodrick P.G., T. Goulden, **K.D. Chadwick** (2020): Custom NEON AOP reflectance mosaics and maps of shade masks, canopy water content. *Watershed Function SFA*. doi: 10.15485/1618131

Goulden T., B. Hass, E.L. Brodie, **K.D. Chadwick**, N. Falco, K. Maher, H. Wainwright, K. Williams (2020): NEON AOP Survey of upper East River CO watersheds: LAZ files, LiDAR surface elevation, terrain elevation, and canopy height rasters. *Watershed Function SFA*. doi: 10.15485/1617203

Goulden T, D. Hulslander, B. Hass, E.L. Brodie, **K.D. Chadwick**, N. Falco, K. Maher, H. Wainwright, K. Williams (2020): NEON AOP imaging spectroscopy survey of Upper East River Colorado watersheds: Raw-space radiance and observational variable dataset. *Watershed Function SFA*. doi: 10.15485/1617204

## **OTHER PUBLICATIONS**

Asner, G.P., S.L. Ustin, P.A. Townsend, R.E. Martin, **K.D. Chadwick**. Forest biophysical and biochemical properties from hyperspectral and LiDAR remote sensing. *Land Resources Modeling, Monitoring, and Mapping with Remote Sensing*, 2015. ISBN: 978-1-4822-1795-7.

Asner, G.P., D.E. Knapp, R.E. Martin, R. Tupayachi, C.B. Anderson, J. Mascaro, F. Sinca, **K.D. Chadwick**, S. Sousan, M. Higgins, W. Farfan, M.R. Silman, W.A.L. León, A.F.N. Palomino. The High-Resolution Carbon Geography of Perú, 2014. ISBN: 978-0-9913870-7-6.

## **AIRBORNE & FIELD SAMPLING CAMPAIGNS**

SBG High Frequency Timeseries (SHIFT), Dangermond Preserve & Sedgwick Reserve, Santa Barbara County, CA (February – May, 2022, September 2022). Led terrestrial field team for sampling of vegetation traits and diversity surveys over 14 week campaign, coaligned with AVIRIS-ng airborne collections.

Rocky Mountain Biological Laboratory, Gothic, Colorado (July 2019). Completed crown delineation ground-truth work for collaboration with B. Blonder on aspen ploidy mapping using NEON AOP surveys from 2018. *2 Co-author manuscripts published.*

Rocky Mountain Biological Laboratory, Gothic, Colorado (June-October 2018). Led field ground-truth sampling campaign and coordination with flight team for first task-able National Ecological Observatory Network Airborne Observation Platform aerial surveys. *First author manuscript published, co-author manuscripts in prep, analyses ongoing.*

Rocky Mountain Biological Laboratory, Gothic, Colorado (July, 2017). Foliar collection, vegetation surveys, biomass surveys, and soil sample collection.

Kosñipata Valley, Peru (January-February 2017). Soil sampling, GPS data collection along an elevation gradient from the Amazon basin to Andean tree-line to complement Carnegie Airborne Observatory (CAO) imaging spectroscopy and LiDAR data.

Danum Valley, Danau Girang Field Centre, Sepilok; Sabah, Malaysia (May, July 2016). Tree crown geolocation, and foliar sampling in support of CAO airborne assessment of state-wide foliar characteristics. *Co-author manuscript published & second in review.*

Mt. Kinabalu Park; Sabah, Malaysia (March-April, 2016). Soil and foliar sampling and tree crown geolocation in support of landscape study on distributions of biogeochemical properties along substrate-elevation matrix utilizing imaging spectroscopy data from CAO. *First-author manuscript published.*

Gabilan Mesa, California (brief, 2015). Assisted soil sampling and geomorphic assessment. *Co-author manuscript published.*

Los Amigos Biological Station, Madre de Dios, Peru (July-August 2013, July-August 2014). Soil sampling, foliar sampling, GPS data collection in support of airborne assessment of landscape scale biogeochemical properties. *Three first-author manuscripts published.*

Tarapoto, Peru (August-September 2012). Assisted in on-board data collection, progress tracking, and data post-processing for Carnegie Airborne Observatory northern Peru campaign. *Two co-author manuscripts published.*

Vientiane, Laos (June-August 2007). Market and household surveys in support of honors thesis.

## INVITED PRESENTATIONS AND SEMINARS

**Chadwick, K.D.** 2023. Temporal dimensions of spectral diversity. *Ecological Society of America Meeting, Portland, Oregon.*

**Chadwick, K.D.,** et al. 2023. SBG High Frequency Time Series (SHIFT) Overview. *International Geoscience and Remote Sensing Symposium, Pasadena, CA.*

**Chadwick, K.D.** 2022. NASA Missions and Programs Relevant for Edifice Instability. *USGS Volcano Edifice Instability Workshop, Cascades Volcano Observatory, Vancouver, WA.*

**Chadwick, K.D.** 2022. Imaging Earth's surface with the EMIT mission and beyond. *NASA Solid Earth Team Meeting Plenary, Scripps Institute, La Jolla, CA.*

**Chadwick, K.D.,** SHIFT Team. 2022. *SHIFT-ing to an imaging spectroscopy future: An overview of the SBG High Frequency Timeseries campaign. NASA Surface Biology and Geology Mission Community Workshop, Washington DC.*

**Chadwick, K.D.** et al. 2022. SHIFTing into the time domain: exploring ecosystem phenology with imaging spectroscopy data. *Ecological Society of America Meeting, Montreal.*

**Chadwick, K.D.** 2020. Filling in the gaps: Utilizing high-resolution remote sensing to understand ecosystem development. *Ecological Society of America Meeting, Virtual.*

**Chadwick, K.D.** 2020. Utilizing imaging spectroscopy for characterizing environmental properties and the potential for synthesis. *People, Land, & Ecosystems: Leveraging NEON for Socio-Environmental Synthesis Workshop, SESYNC, University of Maryland.*

**Chadwick, K.D.** 2019. Landscape evolution as a driver of ecosystem organization. *Water, Climate, and Environment seminar series, University of Texas at Austin.*

**Chadwick, K.D.** & K. Maher. 2019. Utilizing hyperspectral characterization of vegetation to estimate soil properties across landscapes. *Soil Science Society of America Meeting, San Antonio, TX.*

**Chadwick, K.D.** 2019. Landscape-Scale biogeochemistry with the NEON AOP: ground truthing, collaboration, and accessibility. *NEON Science Summit Plenary, Earth Lab, CU Boulder.*

**Chadwick, K.D.** 2019. Landscape evolution as a driver of ecosystem organization. *Institute of Ecology and Evolution seminar series, University of Oregon.*

**Chadwick, K.D.** 2019. Predicting soil carbon organization & drivers across landscapes. *Soil Science Society of America Meeting, San Diego, CA.*

- Chadwick, K.D.** 2018. Utilizing remotely sensed foliar characteristics to understand landscape-scale critical zone processes. *Biogeosciences seminar series, University of California, Santa Barbara.*
- Chadwick, K.D.** 2018. Getting to basin scale: building surface-subsurface predictive relationships. *DOE Watershed Function Special Focus Area 2018 Retreat, Crested Butte, CO.*
- Chadwick, K.D.** & G.P. Asner. 2018. Understanding foliar trait distributions across a tropical substrate-elevation matrix using integrated imaging spectrometer and LiDAR datasets. *Ecological Society of America Meeting, New Orleans, LA.*
- Chadwick, K.D.** 2017. Geomorphically driven biogeochemical gradients and their influence on tropical canopies. *Department of Biology seminar series, Sonoma State University.*
- Chadwick, K.D.** & G.P. Asner. 2016. Using imaging spectroscopy to assess geomorphically driven gradients in canopy traits within a tropical terrace landscape. *Ecological Society of America Meeting, Fort Lauderdale, FL.*
- Chadwick, K.D.** & G.P. Asner. 2014. Exploring patterns of rock derived nutrient availability and soil chemistry along hillslopes in the Peruvian Amazon. *Goldschmidt2014 Sacramento, CA.*
- Chadwick, K.D.** & G.P. Asner. 2013. Linking terrace geomorphology and nutrient availability using high-resolution airborne remote sensing. *American Geophysical Union Fall Meeting, San Francisco, CA.*

#### **SELECTED PRESENTATIONS** (\* mentee)

- Chadwick, K.D.** et al. 2022. SHIFtIng into an imaging spectroscopy future: SBG High-Frequency Time Series Campaign Overview. *American Geophysical Union Fall Meeting, Chicago.*
- Bloom D.E.\*, **K.D. Chadwick**, N. Falco, A. Henderson\*, C. Ulrich, K. Maher, M. Bill, K. Grant\*, H.M. Wainwright. 2020. Functional Vegetation Trait Trends between Five Vegetation Types and Environmental Covariations in the East River Watershed, CO. *American Geophysical Union Fall Meeting, Virtual.*
- Chadwick, K.D.** & G.P. Asner. 2019. Hillslope controls on tropical canopy characteristics are moderated by transient landscape evolution across an elevation gradient. *American Geophysical Union Fall Meeting, San Francisco, CA.*
- Wilmer, C\*., A. Henderson\*, H. Steltzer, **K.D. Chadwick**, Y. Wu, E. Brodie, K. Williams, S. Hubbard. 2019. Hyperspectral sensing, evapotranspiration, and harvests of plant canopies in a mountain watershed help to understand what part plants play in seasonal water budget. *American Geophysical Union Fall Meeting, San Francisco, CA.*
- McCormick, M\*., **K.D. Chadwick**, M. Winnick, K. Maher. 2019. Breathing soils: implications of small-scale spatial variations in seasonal soil CO<sub>2</sub> respiration in a Rocky Mountain subalpine meadow. *American Geophysical Union Fall Meeting, San Francisco, CA.*
- Chadwick, K.D.** & G.P. Asner. 2018. Utilizing remotely sensed foliar characteristics to understand landscape-scale critical zone processes. *Goldschmidt2018 Boston, Massachusetts.*
- Chadwick, K.D.** L. Bentley, B. Enquist, V. Savage, G.P. Asner. 2017. Hillslope nutrient distributions across an Andean elevation gradient. *Ecological Society of America Meeting, Portland, OR.*
- Chadwick, K.D.** & G.P. Asner. 2015. Imaging spectroscopy of canopy nutrients on complex Amazonian landscapes. *HyspIRI Science and Applications Workshop, Pasadena, CA.*



**Chadwick, K.D.** & G.P. Asner. 2012. Landscape scale tropical forest dynamics: relating canopy traits and topographically derived hydrologic indices in a lowland system using CAO-AToMS. *American Geophysical Union Fall Meeting, San Francisco, CA.*

## **OUTREACH, TEACHING AND MENTORSHIP ACTIVITIES**

Led American Geophysical Union Fall Meeting 2023 Learning Workshop: *Space Station Synergies: Applying ECOSTRESS and EMIT ecological problems for Scientific Insight.*

Ecological Society of America 2023 Workshop: *An Introduction to Working with NASA Remote Sensing Data in the Cloud Using Open Source Software.* Led by ORNL and LP DAAC

Led imaging spectroscopy intern summer group, supporting over 12 students at weekly, cross-center meetings in collaboration with Technologist and two postdoctoral researchers, 2023.

Mentor for JPL Maximizing Student Potential in STEM program and Caltech SURF program, 5 students supported in summer 2023.

Coordinated EMIT data radiance and reflectance tutorial workshops with Land Processes DAAC and EMIT Science Team, 2023, <https://earth.jpl.nasa.gov/emit/events/4/emit-data-tutorial-series/>.

Serving as graduate committee member for students at University of Southern California and University of Wisconsin, Madison, 2022-present

Led SBG cross-center summer postdoc & intern meetings, 2022

Stanford Earth Summer Undergraduate Research Program Mentor. Stanford University, 2020

Stanford Earth Summer Undergraduate Research Program Mentor. Stanford University, 2018

Co-Instructor, EARTHSYS 111: Biology and Global Change. Instructor for half of the course focused on terrestrial ecosystems. Stanford University, 2018

Mentor to six undergraduate students. Department of Biology, Sonoma State University, 2017

Stanford Earth Summer Undergraduate Research Program Mentor. Stanford University, 2015

Head Teaching Assistant, EARTHSYS 306: An Earth System Perspective to Global Challenges. Stanford University, 2014

Teaching Assistant, EARTHSYS 155: Science of Soils. Stanford University, 2014

Stanford Earth Systems Undergraduate Internship Mentor. Stanford University, 2014-2015

## **SERVICE, LEADERSHIP, AND DEVELOPMENT**

Member, Applied Earth Observations Innovation Partnership, NASA Applied Sciences (2023)

Member, Earth Sciences Section DEIA committee (2023)

Member, Distributed Active Archive Center User Working Group, Oak Ridge National Laboratory (2023)

Member, Airborne Sampling Design Technical Working Group, National Ecological Observatory Network (2018-present)

Member, Foliar Sampling Technical Working Group, National Ecological Observatory Network (2017-present)

Plenary Speaker, NEON Science Summit Workshop, Earth Lab, Boulder, CO (2019)

Participant, NCAR-NEON Workshop: Predicting Life in the Earth System – linking the geosciences and ecology, Boulder, CO (2019)

Working Group Participant, Leveraging Distributed Research Networks to Understand Watershed Systems, DOE Biological and Environmental Research Program, Washington DC (2019)

Student, Advancing Learning Through Evidence-Based STEM Teaching, Center for Integrated Research Teaching and Learning, Stanford (2018)

Member, Biogeochemistry Technical Working Group, National Ecological Observatory Network (2017-2018)

Graduate Voice & Influence Program Fellow, Clayman Institute for Gender Research, Stanford University (2015-2016)

Graduate Student Representative. Hiring committee Water and Land Resources faculty search. Stanford University (2015)

Committee member, student committee for improving first year graduate core curriculum in Dept. of Environmental and Earth System Science. Stanford University (2014)

Stanford Reactive Transport Summer School (StaRT) Participant, Stanford University (2014).

Participant, Revisiting nutrient limitation in tropical forests working group, National Center for Ecological Analysis, Santa Barbara, CA (2013)

## **UNDERGRADUATE, GRADUATE, & POSTGRADUATE MENTEES**

### Undergraduates

Scott Roycroft, Stanford University  
 Lucas Del Toro, Stanford University  
 Heather Herman, Stanford University  
 Anthony Chui, Sonoma State University  
 Dino Sbardellati, Sonoma State University  
 Maceo Hastings Porro, Stanford University  
 Maeve McCormick, Stanford University  
 Douglas Ovick, Sonoma State University  
 Makenzie Crews, Sonoma State University  
 Bailey Crocker, Sonoma State University  
 Emily Humphree, Sonoma State University  
 Andea Scott, Stanford University  
 Mitchell Zimmerman, Stanford University  
 Gabriela Jaimes, CSU Fullerton<sup>4</sup>  
 Kushnerniva Laurent, Scripps<sup>4</sup>  
 Ardra Charath, Caltech<sup>5</sup>  
 Vivian Shay, Stanford University<sup>4</sup>  
 Shawnell McFarlane, JPL<sup>4</sup>

### Graduate Students & Post-bac

Amanda Henderson, RMBL  
 Kathleen Grant, USC<sup>2,3</sup>  
 Chelsea Wilmer, CSU  
 Dellena Bloom, LBNL  
 Alison Tune, UT Austin  
 Erica McCormick, UT Austin  
 Natalie Queally, U. Wisconsin<sup>1,3</sup>  
 Corisa Wong, Stanford University<sup>4</sup>  
 Yakshi Ortiz, University of Puerto Rico<sup>3,7</sup>  
 Piper Lovegreen, UCSB<sup>3</sup>  
 Carissa DeRanek, UCLA<sup>2</sup>  
 Germán Silva, UCSB<sup>4</sup>  
 Dain Kim, Boston University<sup>6</sup>  
 Marie Johnson, University of Montana<sup>6</sup>  
 Jocelyn Reahl, Caltech<sup>1</sup>

### Postdoctoral Researchers

Mandy Lopez, JPL

- <sup>1</sup> NASA FINESST Student Mentee
- <sup>2</sup> JPL Strategic University Research Partnership Advisee
- <sup>3</sup> Serve as committee member
- <sup>4</sup> JPL Maximizing Student Potential in STEM intern

- <sup>5</sup> Caltech Summer Undergraduate Research Fellow
- <sup>6</sup> JPL Year Round Internship Program Intern
- <sup>7</sup> NASA Puerto Rico Space Grant Fellow