

Madeleine Pascolini-Campbell

madeleine.a.pascolini-campbell@jpl.nasa.gov

Appointments:

2021 – present Scientist, NASA Jet Propulsion Laboratory, Water and Ecosystems
2020 – 2021 JPL postdoc, NASA Jet Propulsion Laboratory, Terrestrial Hydrology
2018 – 2020 NASA Postdoctoral Program Fellow, NASA Jet Propulsion Laboratory, Terrestrial Hydrology
2013 – 2018 Graduate Student Researcher, Columbia University, Department of Earth and Environmental Sciences

Education:

2018 PhD Climate Science, Columbia University
2017 MPhil Climate Science, Columbia University
2015 MA Climate Science, Columbia University
2011 BA Geography, University of Cambridge

Publications:

Byrne, B., Liu, J., Bowman, K., **Pascolini-Campbell, M.**, Chatterjee, A., Pandey, S., Miyazaki, K., van der Werf, G., Wunch, D., Wennberg, P., Roehl, C. and S. Sinha, Carbon emissions from the 2023 Canadian wildfires, *Nature* (2024).

<https://doi.org/10.1038/s41586-024-07878-z>

Parazoo, N. C., Osman, M., **Pascolini-Campbell, M.**, & Byrne, B. (2024). Antecedent Conditions Mitigate Carbon Loss During Flash Drought Events. *Geophysical Research Letters*, 51(8), e2024GL108310. <https://doi.org/10.1029/2024GL108310>

Boser, A., Caylor, K., Larsen, A., **Pascolini-Campbell, M.**, Reager, J. T., Carleton, T. Field-scale crop water consumption estimates reveal potential water savings in California agriculture, 2024, *Nature Communications*, 15(1), 2366.

<https://doi.org/10.1038/s41467-024-46031-2>

Simafranca, N., Willoughby, B., O'Neil, E. Farr, S., Reich, B. J., Giertych, N., Johnson, M., **Pascolini-Campbell, M.** (2024), Modelling wildland fire burn severity in California using a spatial super learner approach, 2024, *Environmental and Ecological Statistics*,

<https://doi.org/10.48550/arXiv.2311.16187>

Fournier, S., Reager, J. T., Chandanpurkar, H., **Pascolini-Campbell, M. A.**, S. Jarugula, The salinity of coastal waters as a bellwether for global water cycle changes, 2023, *Geophysical Research Letters*, *Geophysical Research Letters*, 50(24), e2023GL106684 <https://doi.org/10.1029/2023GL106684>

M. Pascolini-Campbell and J. T. Reager, An Investigation of the spatial and temporal characteristics of dry and wet extreme events across NLDAS-2 models, 2023, *Journal of Hydrometeorology*, <https://doi.org/10.1175/JHM-D-23-0038.1>

Tian Hu, Kaniska Mallick, Patrik Hitzelberger, Yoanne Didry, Gilles Boulet, Zoltan Szantoi, Benjamin Koetz, Itziar Alonso, **M. Pascolini-Campbell**, Gregory H Halverson, Kerry Cawse-Nicholson, Glynn Hulley, Simon J. Hook, Nishan Bhattarai, Albert Olioso, Jean-Louis Roujean, Philippe Gamet, Z. Bob Su, Evaluating European ECOSTRESS Hub Evapotranspiration Products Across a Range of Soil-Atmospheric Aridity and Biomes over Europe. *Water Resources Research*, e2022WR034132. <https://doi.org/10.1029/2022WR034132>

Pascolini-Campbell, M. Soil and plants lose more water under drought. *Nature Climate Change – News and Views* (2022). <https://doi.org/10.1038/s41558-022-01510-6>

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. <https://doi.org/10.1111/geb.13526>

Raymond., C., Suarez-Gutierrez, L., Kornhuber, K., **Pascolini-Campbell, M.**, Sillmann, J. and D. E. Waliser “Increasing spatiotemporal proximity of heat and precipitation extremes in a warming world quantified by a large model ensemble”, 2022, *Environmental Research Letters*, 17(3), 035005. DOI: [10.1088/1748-9326/ac5712](https://doi.org/10.1088/1748-9326/ac5712)

Pascolini-Campbell, M., Fisher, J. B. & J. T. Reager “GRACE-ECOSTRESS synergies constrain fine-scale impacts on large-scale water balance”, 2021, *Geophysical Research Letters*, 48(15), e2021GL093984. DOI: [10.1029/2021GL093984](https://doi.org/10.1029/2021GL093984)

Pascolini-Campbell, M., Reager, J. T., & Fisher, J. B. “GRACE-based mass conservation as a validation target for basin-scale evapotranspiration in the contiguous United States”. *Water Resources Research* (2020), 56, e2019WR026594. <https://doi.org/10.1029/2019WR026594>
DOI: [10.1029/2019WR026594](https://doi.org/10.1029/2019WR026594)

Pascolini-Campbell, M., Seager, R., Cook, B.I. and P. Williams “Dynamics and variability of the spring dry season in the United States Southwest as observed in AmeriFlux and NLDAS-2 data”, *J. Hydrometeorology* (2019): **20**, 1081–1102

Pascolini-Campbell, M., Seager, R. Cook, B. I and Pinson, A. “Covariability of climate and streamflow in the Upper Rio Grande from interannual to decadal timescales”, *Journal of Hydrology: Regional Studies* 13 (2017): 58-71.

Pascolini-Campbell, M., Seager, R., Cook, B.I., Griffin, D. and D. Gutzler "Causes of interannual to decadal variability of Gila River streamflow over the past century." *Journal of Hydrology: Regional Studies* 3 (2015): 494-508.

Pascolini-Campbell, M., Zanchettin, D., Bothe, O., Timmreck, C., Matei, D., Jungclaus, J. H., & Graf, H. F. (2015). Toward a record of Central Pacific El Niño events since 1880. *Theoretical and Applied Climatology*, 119(1-2), 379-389.

Submitted:

M. Pascolini-Campbell, Hook, S., Mallick, K., Langsdale, M., Hulley, G., Cawse-Nicholson, K., Hu, T., Halverson, G., Freepartner, R., Rivera, G., Genesio, L. and Rabuffi, F. “A First Assessment of Airborne HyTES-based Land Surface Temperature and Evapotranspiration”, under revision, Remote Sensing Applications Society and Environment

M. Pascolini-Campbell, Fisher, J., Lee, C., Cawse-Nicholson, K., Stavros, N. “Remotely sensed plant stress observations improve fine-scale universal wildfire prediction models”, under review, Scientific Reports

Hatch, H. Joshi, R., Bogart, K., Naddour, C., **Pascolini-Campbell, M.**, Davidoff, S. and J. B. Fisher, Thermal Remote Sensing Connects Wildfire, Agriculture, and Drought for Climate Resiliency in New Mexico, submitted 2024, Remote Sensing

Joshi, R., Jensen, A., **Pascolini-Campbell, M.** and J. B. Fisher Coupling between evapotranspiration, water use efficiency, and evaporative stress index strengthens after wildfires in New Mexico, USA, submitted 2024, International Journal of Applied Earth Observation and Geoinformation

Proposals (as PI, Science PI):

ECOSTRESS Science Team, Awarded 2022, PI
'Fire Driven Changes in Landscape Water Use'

NASA Wildland Fires Program, Awarded 2022, PI
'Predicting Wildfires and Active Fire Tracking'

ROSES Ocean Salinity Science Team, Awarded 2022, Science PI
'Coastal salinity; a proxy for human and natural terrestrial hydrology changes'

NASA SERVIR Step 1, invited to Step 2, PI
'Fire Risk from Plant Water Stress in Amazonia'
Step 2 not selected.

NASA Postdoctoral Program Fellowship, Awarded 2018,
"Measuring human impacts on the global water and energy cycle using GRACE and SMAP"

Fellowships and awards:

2020 **Jet Propulsion Laboratory Postdoc Research Day Award** – GRACE-
ECOSTRESS synergies quantify human impacts on the water cycle

2018 **NASA Postdoctoral Program Fellowship** – Measuring human impacts on
the global water and energy cycle using GRACE and SMAP

2015 **Graduate Research Fellowship, National Science Foundation** - Variability
of Hydroclimate and in the North American Southwest

Media:

2022 : USGS Eyes on Earth Podcast:

<https://www.usgs.gov/centers/eros/science/eyes-earth-episode-83-ecostress-and-burn-severity>

Wildfire prediction with ECOSTRESS:

<https://www.nasa.gov/feature/jpl/nasa-data-on-plant-sweating-could-help-predict-wildfire-severity/>

<https://gizmodo.com/plant-sweat-predict-wildfires-1849446727>

Skills:

Programming: MATLAB, Python (Pandas, NumPy, SciPy), R, Linux

Software: QGIS, MS Office and Adobe products, Github

Analysis: Synthesis of complex geospatial datasets from different sources (netCDF, GRIB, TIFF, HDF), data analysis, statistical analyses, uncertainty quantification

Selected Presentations:

Pascolini, M., Lee, C., Fisher, J. B. ECOSTRESS Applications: Wildfire, Geology and Coastal Water Quality, *Guest Lecture, Chapman University, October 2023*

Pascolini, M., Lee, C., Fisher, J. B., Stavros, N., Thermal Infrared Remote Sensing Applications for Wildfire Science, *Invited Talke, Ameriflux Year of Remote Sensing, April 2023*

Pascolini, M., Parazoo, N., and C. Lee Potential Applications of OCO-2 data: drought, wildfires, forest management and carbon budgets, *OCO Science Team Meeting, Pasadena, April 2023*

Pascolini, M., Raymond, C., Lee, C., and N. Parazoo, Landscape-Driven Changes in Vegetation and Water Use due to California Wildfires, *ECOSTRESS Science Team Meeting, November 2022*

Pascolini-Campbell, M. Reager, J. T., Chandanpurkar, H., Roddell, M., Fisher, J.B.F. “A recent increase in global land evapotranspiration, and human impacts on the water cycle”, American Geophysical Union Fall Meeting, *December 2021, (Invited speaker)*

Pascolini-Campbell, M., Lee, C. Stavros, N. & Fisher, J.B.F. “ECOSTRESS reveals pre-fire burn conditions for 2020 California Wildfires”, American Geophysical Union Fall Meeting, *December 2021, (Oral Presentation)*

Pascolini-Campbell, M., Lee, C., Fisher, J. B. & Stavros, N. “The use of remote sensing-based ET and evaporative stress index to assess pre and post fire vegetation status” Tactical Fire Remote Sensing Advisory Committee, U.S. Forest Service and NASA, November 2020

Pascolini-Campbell, M., Reager, J. T., & Fisher, J. B. “GRACE-based mass conservation as a validation target for basin-scale evapotranspiration in the contiguous United States”. AGU Fall Meeting, *December 2019 (Oral Presentation)*

Pascolini-Campbell, M., Seager, R., Cook, B.I. and P. Williams “Dynamics and Variability of the Spring Dry Season in the United States Southwest”, AGU Fall Meeting, December 2017 (Oral Presentation)

Teaching and mentoring:

2022 – pres. Postdoc co-mentor on water / energy balance

2022 – pres. Mentor for 3 ECOSTRESS interns on wildfire recovery, Amazon wildfire prediction and New Mexico fire prediction

2022 2 Terms: Co-mentor for team of 5 interns in NASA Develop (Applied Science program) for a joint project with Tennessee-based non-profit ‘Protect our Aquifer’

2021 Co-mentoring JPL summer intern June – August 2021 on using ECOSTRESS satellite data to monitor irrigation in California

2014 - 2016 Teaching Assistant, Masters of Climate and Society, Columbia University

Review Activities:

2021 Proposal panelist, NASA ROSES Review Panel

2020 Proposal panelist, NASA FINESST Review Panel

Ongoing Journal reviewer for *Water Resources Research*, *Journal of Remote Sensing*, *Geophysical Research Letters*, *Journal of Geophysical Research – Atmosphere*