

# Madeleine Pascolini-Campbell

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## Appointments:

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

## Education:

- 2018** PhD, Columbia University  
**2011** BA, University of Cambridge

## Publications:

**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. (2024) “A First Assessment of Airborne HyTES-based Land Surface Temperature and Evapotranspiration”, Remote Sensing Applications Society and Environment, 36, 101344. <https://doi.org/10.1016/j.rsase.2024.101344>

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**, Fisher, J., Lee, C., Cawse-Nicholson, K., Stavros, N. “Remotely sensed plant stress observations improve fine-scale universal wildfire prediction models”, under revision, 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, Accepted - October 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 Water and Ecosystems 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, 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*