

Madeleine Pascolini-Campbell

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Appointments:

- 2021 – present** Scientist II, 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:

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.

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

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.

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:

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., Sinha, S., Unprecedented Canadian forest fire carbon emissions during 2023, 2023, under review, *Nature*

M. Pascolini-Campbell, Hook, S., Mallick, K., Langsdale, M., Hulley, G., Cawse-Nicholson, K., Hu, T., Halverson, G., Freepartner, R. and G. Rivera “Application of the Surface Temperature Initiated Closure Model for Evapotranspiration using Thermal Remote Sensing Data from HyTES Flightlines”, under review, *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, *Communications Earth and Environment*

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 Talk, 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*