

Madeleine Pascolini-Campbell

madeleine.pascolini@gmail.com

914.316.9726

Bio:

My research investigates variability and trends in the terrestrial water cycle using satellite data, *in situ* observations and land surface models. My research interests include quantifying how human activity (irrigation, agriculture, deforestation) influence regional water budgets – which has implications for managing water resources. In addition, I also am interested in applied sciences, and bridging the gap between science and policy, and I have worked on using hydrological indicators of plant stress from satellites to inform wildfire burn severity in California.

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

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

Publications:

Pascolini-Campbell, M. A., J. T. Reager, H. A. Chandanpurkar and M. Rodell “An increase in global land evapotranspiration from 2003 to 2019”, under review 2022, *Nature*

Pascolini-Campbell, M. A., Lee, C., Stavros, N. and Fisher, J. B. “ECOSTRESS reveals pre-fire vegetation controls on burn severity for Southern California Wildfires”, under review 2022, *Global Ecology and Biogeography - Fires 2020 Special Issue*

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”, resubmitted with minor reviews November 2021, *Environmental Research Letters*

Pascolini-Campbell, M. A., 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.

Pascolini-Campbell, M. A., 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>

Pascolini-Campbell, M.A., 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. A., 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. A., 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. A., 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.

Manuscripts in preparation:

Pascolini-Campbell, M. A., & J. T. Reager, “Spatial and temporal characteristics of extreme dry and wet conditions in the contiguous United States”, *In prep.*

Boser, A, **Pascolini-Campbell, M.**, Reager, J.T. “ECOSTRESS reveals agriculture enhances evapotranspiration in California by 30%”, *In Prep*

Paa, S., Wilder, B., Lee, C. **Pascolini-Campbell, M.**, Kinoshita, A. “Post-fire vegetation recovery trends in Amazonian Brazil”, *In Prep*

Selected Presentations:

Pascolini-Campbell, M. A 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. A Reager, J. T., Chandanpurkar, H. & M. Roddell. “A 10 per cent increase in global land evapotranspiration from 2003 to 2019”, American Geophysical Union Fall Meeting, *December 2021*, (Invited speaker)

Pascolini-Campbell, M. A, 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. A Reager, J. T., Chandanpurkar, H. & M. Roddell. “A 10 per cent increase in global land evapotranspiration from 2003 to 2019”, NASA Jet Propulsion Laboratory, Carbon Cycle Seminar, *June 2021*

Pascolini-Campbell, M. A., Reager, J. T., Chandanpurkar, H. & M. Roddell. “Recent increase in global land evapotranspiration from the mass-balance perspective”. AGU Fall Meeting, *December 2020* (*Oral Presentation*)

Pascolini-Campbell, M. A., 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. A., 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.A., 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*)

Skills:

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

Software: QGIS, MS Office and Adobe products, Github

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

Teaching and mentoring:

- 2022** Co-mentor for 2 interns supported by ECOSTRESS
- 2022** 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 - 2015** Dynamics of Climate Variability and Change, Columbia University – designed and delivered lectures to Masters program of 40 students
- 2015 - 2016** Regional Climate and Climate Impacts, Columbia University – designed homework assignments and mentored for Masters program of 40 students

Proposals:

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'

ROSES Subseasonal to Seasonal Hydrometeorological Prediction, Submitted 2022, CO-I (JPL Lead)
'Seasonal to Subseasonal Predictability from Remotely-Sensed Evapotranspiration in a Regional Hydroclimate Model'

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

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*

Other Experience and Field work:

- 2017** Summer Policy Colloquium -American Meteorological Society
Awarded National Science Foundation funding to participate in a workshop in Washington D.C. with politicians, scientists and business leaders to address bridging the gap between science and policy
- 2012** Geological Society of America Internship - National Park Service, Assateague National Seashore - Created a framework for measuring tidal datum using GPS measurements obtained in the field
- 2011** Visiting Scientist - Max Planck Institute for Meteorology - Published a study which led to new understanding of how to classify El Nino events
- 2011** Research Experience Undergraduates - University of California Irvine, Assisted with creating a numerical ice-sheet model for Thwaites Glacier