

# Peter Condit, Ph.D.

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## Qualifications

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**Research and analysis** — Hydrologic modeling & remote sensing, archival & field data collection, public health & safety, Python, Matlab, ArcGIS, R, bash, Fortran

**Project management** — Relationship building, proposal writing, reporting, accountability

**Teaching and coalitions** — Scientific presentations, academic workgroups, community teach-ins, high school classrooms, grassroots campaigns

**Publications and writing** — Six peer-reviewed articles in top academic journals, seven funding or award proposals, one report to Seattle's City Council, 30+ newsletter issues

## Education

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**Ph.D. in Geological Sciences**, University of Colorado (CU) Boulder Aug 2012 – Jun 2017

- ARCS Foundation Scholar for excellence in science and science communication
- Dissertation focused on enhancing the information content of soil moisture data

**A.B. in Environmental Earth Sciences**, Dartmouth College, NH Sep 2005 – Jun 2009

- Graduated Phi Beta Kappa and *summa cum laude*

## Professional Experience

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**Owner and Research Collaborator** at Oxbow Science, LLC, Seattle, WA Jan 2020 – Aug 2025

- Improve estimates of soil moisture, agricultural production, and continental energy fluxes by leveraging remotely-sensed and *in situ* observations
- Quantify model improvements from data assimilation (ensemble Kalman smoother)
- Participatory research among community members impacted by the criminal legal system: the [Black Brilliance Research Project](#) (BBRP) provided Seattle's City Council with a community-led framework for equity, health, and safety post George Floyd
- Coordinate field efforts with the *Tye for Five* campaign ([Tye Reed's 2023 run](#) for Seattle city council): organized volunteers, fundraised, and won public funding

**Grassroots Organizing and Communication** in Seattle, WA Jan 2021 – Dec 2024

- Organizer with [Seattle Solidarity Budget](#), a coalition and campaign to build a more equitable city by centering the needs of Seattle's most marginalized residents
- Create public-facing assets and newsletters to increase citizen research and education

**Post-doctoral Research Associate** at Univ. of Maryland / NASA Dec 2017 – Jan 2020

- Increase the resolution and observability of land-atmosphere transfer models
- Synthesize observations, models, and soil maps to estimate water, energy, and carbon fluxes, with a focus on locations that lack ground-based instrumentation
- Build in-house software modules that read new data into existing model frameworks
- Founder of a reading group to co-develop modeling and communication strategies

**Senior Engineering Technician** with Geosyntec Consultants in MA Aug 2010 – Jul 2012

- Collect and analyze field data, including installation of real-time data streams
- Produce timely text and figures for regulatory submittals to EPA

## Publications

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- Tangdamrongsub, N., Dong, J., and **Shellito, P. J.** (2022). Assessing Performances of Multivariate Data Assimilation Algorithms with SMOS, SMAP, and GRACE Observations for Improved Soil Moisture and Groundwater Analyses. *Water*, 14, 621, doi: 10.3390/w14040621
- Tangdamrongsub, N., Jasinski, M. F., and **Shellito, P. J.** (2021). Development and evaluation of 0.05° terrestrial water storage estimates using CABLE land surface model and assimilation of GRACE data. *Hydrol. Earth Syst. Sci.*, 25, 4185–4208, doi: 10.5194/hess-2020-665
- Shellito, P. J.**, Kumar, S. V., Santanello, J. A., Lawston, P. M., Bolten, J. D., Cosh, M. H., Bosch, D. D., Holifield Collins, C. D., Livingston, S., Prueger, J., Seyfried, M., and J. P. Starks (2020). Assessing the impact of soil layer depth specification on the observability of modeled soil moisture and brightness temperature. *J. Hydrometeorol.*, 21(9), 2041-2060, doi: 10.1175/JHM-D-19-0280.1
- Shellito, P. J.**, E. E. Small, and B. Livneh (2018), Controls on surface soil drying rates observed by SMAP and simulated by the Noah land surface model, *Hydrol. Earth Syst. Sci.*, 22, 1649-1663, doi: 10.5194/hess-22-1649-2018.
- Shellito, P. J.** et al. (2016), SMAP soil moisture drying more rapid than observed in situ following rainfall events, *Geophys. Res. Lett.*, 43(15), 8068–8075, doi:10.1002/2016GL069946.
- Shellito, P. J.**, E. E. Small, and M. H. Cosh (2016), Calibration of Noah Soil Hydraulic Property Parameters Using Surface Soil Moisture from SMOS and Basinwide In Situ Observations, *J. Hydrometeorol.*, 17(8), 2275–2292, doi:10.1175/JHM-D-15-0153.1.

## Other Interests

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Dancing, trail running, canoeing, dog training, gardening, mutual aid, *Avatar: The Last Airbender*