

Arizona State University School of Sustainable Engineering and the Built Environment Postdoctoral Research Scholar in <u>Urban Flux Measurements</u>

Description

An interdisciplinary team of faculty members across multiple schools at Arizona State University was recently awarded a five-year project titled *Southwest Urban Corridor Integrated Field Laboratory (SW-IFL)*. This project is funded by the <u>Environmental System Science Program</u> of the Department of Energy (DOE). The goal of the project is to develop and deploy novel observational and modeling capabilities that improve understanding of extreme heat as a central driver of key environmental outcomes, including greenhouse gas emissions, urban water stress, and fate and transport of urban air pollutants in the complex Arizona megaregion, extending from the US-Mexico border to the Navajo Nation. The Postdoctoral Research Associate will be responsible for the deployment and analysis of new urban flux observations using the eddy covariance method as well as support other urban hydroclimatic measurements related to water, heat, and pollutants, including during intensive observation periods (IOPs).

The postdoc will under the supervision of <u>Professor Enrique Vivoni</u>, working closely with students and researchers in the <u>Center for Hydrologic Innovations</u> and the <u>Hydrosystems</u> <u>Engineering</u> program, as well as within the broader SW-IFL project directed by Professor David Sailor. As such, there is considerable opportunity for networking and broader engagement in related research across multiple universities, national laboratories, and private sector partners.

Essential Duties

The position will require field work and instrumentation, eddy covariance data analysis, peerreviewed journal publications, engaging with faculty and graduate students, participating in project meetings, and planning and executing field IOPs. *The start date is expected in early to mid 2023*. Up to a three-year appointment is possible upon satisfactory performance.

Required Qualifications

- PhD in Civil, Environmental, or Mechanical Engineering, Earth Science, Hydrology, Geography, Meteorology, or related field.
- Experience with field deployments, datalogger programming and analyzing data in Python, R, MATLAB, or similar language.

Desired Qualifications

- Prior experience in eddy covariance data processing and analysis.
- Experience with water and carbon fluxes in urban environments.

For additional information, please contact Dr. Enrique Vivoni at <u>vivoni@asu.edu</u>. A selection of prior work that forms the basis for the effort are shown below. Women and underrepresented minority applicants are strongly encouraged to apply.

Application Instructions

To apply please submit the following to Professor Enrique Vivoni at vivoni@asu.edu.

- One-page cover letter
- Curriculum Vitae
- Writing sample such as a prior publication or report

A background check is required for employment. Arizona State University is a VEVRAA Federal Contractor and an Equal Opportunity/Affirmative Action Employer. All qualified applicants will be considered without regard to race, color, sex, religion, national origin, disability, protected veteran status, or any other basis protected by law. See ASU's full non-discrimination statement (ACD 401) at https://www.asu.edu/aad/manuals/acd/acd401.html and the Title IX statement at https://www.asu.edu/titleIX/.

References to Prior Work

Chow, W.T.L., Volo, T., Vivoni, E.R., Jenerette, G.D., and Ruddell, B.L. 2014. Seasonal Dynamics of a Suburban Energy Balance in Phoenix, Arizona. <u>International Journal of Climatology</u>. 34(15): 3863-3880.

Volo, T.J., Vivoni, E.R., Martin, C.A, Earl, S., and Ruddell, B.L. 2014. Modeling Soil Moisture, Water Partitioning and Plant Stress under Irrigated Conditions in Desert Urban Areas. <u>Ecohydrology.</u> 7(5): 1297-1313.

Templeton, N.P., Vivoni, E.R., Wang, Z-H., and Schreiner-McGraw, A.P. 2018. Quantifying Water and Energy Fluxes over Different Urban Land Covers in Phoenix, Arizona. <u>Journal of Geophysical Research - Atmospheres</u>. 123(4): 2111-2128.

Perez-Ruiz, E.R., Vivoni, E.R., and Templeton, N.P. 2020. Urban Land Cover Type Determines the Sensitivity of Carbon Dioxide Fluxes to Precipitation in Phoenix, Arizona. <u>PLOS One</u>. 15(2): e0228537.

Vivoni, E.R., Kindler, M., Wang, Z., and Perez-Ruiz, E.R. 2020. Abiotic Mechanisms Drive Enhanced Evaporative Losses under Urban Oasis Conditions. <u>Geophysical Research Letters</u>. 47: e2020GL090123.

Kindler, M., Vivoni, E.R., Perez-Ruiz, E.R., and Wang, Z. 2022. Water Conservation Potential of Modified Turf Grass Irrigation in Urban Parks of Phoenix, Arizona. <u>Ecohydrology</u>. 15(3): eco.2399.