

Samuel Taylor

Personal Information:

- Location: Broomfield, CO
- Email: samuel.j.taylor@noaa.gov
- Mobile: 775.857.9654
- LinkedIn: <https://www.linkedin.com/in/sam-taylor-29a01011b/>

Education:

Associate of Science: (Received December, 2013)

Truckee Meadows Community College

Bachelor of Science in Atmospheric Science, minor in mathematics (Graduated December 2017)

Department of Physics, University of Nevada, Reno

Thesis title: "A Comparison of Industry Standard and New Consumer-Grade Particulate Matter Measurements, and Insights from Air Pollution Vectoring in Reno, Nevada."

Master of Science in Atmospheric Science (Graduated August 2021)

Department of Physics, University of Nevada, Reno

Thesis title: "Development and Testing of a New Airborne Silica Monitoring Technique Based On Photoacoustic Spectroscopy and Comparison to Current Techniques"

Work Experience:

- **3 years woodworking apprenticeship at Reno Woodworking**
- **2 ½ years Undergraduate Research Assistantship at UNR (lab experience)**
- **½ year collab on project between UNR and DRI (lab experience)**
- **2 years Graduate Research Assistantship at UNR (lab experience)**
- **1 year (present) Instrument Software Engineer (Associate Scientist 1) at Cooperative Institute for Research in Environmental Science**

Research:

- **Summer 2015 – Fall 2017. Undergraduate Research Assistant, UNR Physics Department.**

Responsibilities included instrument installation and daily maintenance, data retrieval, processing, and analysis, LabView and Arduino code development for atmospheric instrumentation, and instrument prototyping and programming, as well as handling instruments in a laboratory environment.

- **January 2018 – June 2018. Nevada NASA EPSCOR Project, UNR and DRI collaboration.**

Responsibilities included the development of Arduino code for a small instrument that measures ambient particulate matter in the atmosphere and daily assistance in running comparison experiments with other similar instruments in a laboratory environment.

• September 2019 – August 2021. NIOSH-funded development of a real-time airborne silica monitoring instrument

Responsibilities included development of a photoacoustic instrument capable of quantifying airborne silica concentrations, data collection, processing, and analysis of aerosol data from several instruments, hazardous aerosol and laser safety, collecting and organizing aerosol filter samples, FTIR spectroscopy, and writing research papers collaboratively and solo.

Technical Skills:

- Proficiency in programming/plotting in R, Excel, LabView, C/C++, Fortran, Python
- Proficiency with handling large, complex data sets
- Proficiency with microcontrollers, like Arduino and Raspberry Pi
- Photoacoustics and photoacoustic spectroscopy
- FTIR spectroscopy
- Laser usage and safety, both visible and IR
- Basic electrical engineering
- Circuit board planning via ExpressSCH and ExpressPCB
- Installation and maintenance of instrumentation
- Data processing and analysis
- Limited experience running WRF

Personal Skills:

- Calendar time activation and scheduling
- Meticulous attention to detail
- Works well in groups, with people, and on collaborative projects
- Mechanically inclined
- Academic and critical thinking
- Excellent data representation and communication skills
- High enjoyment of field work and travel

Publications:

- Taylor, S. J., Nascimento, P., Arnott, W. P., & Kocsis, C. (2022). Real-time photoacoustic measurements of the mass concentration of respirable crystal silica dust: Theory. *Mining, Metallurgy & Exploration*, 39(5), 2247-2256. doi:10.1007/s42461-022-00657-2
- Wang, X., Zhou, H., Arnott, W. P., Meyer, M. E., Taylor, S., Firouzkouhi, H., . . . Watson, J. G. (2020, March 4). Evaluation of gas and particle sensors for detecting spacecraft-relevant fire emissions. *Fire Safety Journal*, 113, 102977. doi:10.1016/j.firesaf.2020.102977
- Wang, X., Zhou, H., Arnott, W. P., Meyer, M. E., Taylor, S., Firouzkouhi, H., . . . Watson, J. G. (2019). Characterization of smoke for Spacecraft Fire Safety. *Journal of Aerosol Science*, 136, 36-47. doi:10.1016/j.jaerosci.2019.06.004