Dr. Matthew G. Siebecker for Soil Chemistry Division Chair-Elect

Researcher - Teacher - Mentor

- https://www.depts.ttu.edu/pss/ESC/index.php
- https://www.casfer.us/matthew-siebecker
- https://scholar.google.com/citations?user=OTqaBhoAAAAJ&hl=en

Degrees:

- B.S. University of Massachusetts at Amherst, 2002-2006
  - Majors: Environmental Science *and* Plant and Soil Science
  - Advisors: Dr. Om Parkash; Dr. Baoshan Xing
- Ph.D. University of Delaware, 2007-2013; Environmental Soil Chemistry; Advisor: Dr. Donald Sparks

Positions:

- 2019 – Present: Assistant Professor of Applied Environmental Soil Chemistry, Department of Plant and Soil Science, Texas Tech University. Formal promotion to *Associate Professor* in September 2025.
- 2016-2018 – Postdoctoral Researcher, University of Delaware, Environmental Soil Chemistry
  - Supervisor: Dr. Donald Sparks
- 2014-2016 – Postdoctoral Researcher; University of Delaware, Chemical Oceanography
  - Supervisor: Dr. George Luther
- 2006 – Geotesting Express (Geocomp Corporation); Geotechnical Engineering laboratory, Acton, MA

About Dr. Siebecker

Dr. Siebecker's expertise includes applied and fundamental soil chemical aspects of adsorption, desorption, redox, and mineral surface precipitation. His research group focuses on understanding the underlying mechanisms (steps) that control soil contaminant and nutrient reactions with clay minerals, metal oxides, and soil organic matter. His group has focused on: fundamental reactions of potassium at the silicon and aluminum oxide interfaces; phosphorus mobility and speciation in wetland ecosystems; phosphorus behavior in soils impacted by flooding and temperature fluctuations; nitrogen and phosphorus fertilizer development as derived from wastewater treatment plants (biosolids) and animal manure; mobility and speciation of arsenic and vanadium in drinking water treatment residuals (WTRs). His expertise in instrumentation includes synchrotron-based X-ray spectroscopic techniques, and his group employs ICP-OES, ICP-MS, SEM, TEM, UV-Vis, and C/N analysis to describe soil chemical processes. In 2025, he will start a transdisciplinary project related to PFAS in Osage Nation food web and food production systems.

Dr. Siebecker believes transdisciplinary work is the cornerstone to help our society solve its most pressing issues. Another example is his collaboration with the Center for Advancing Sustainable and Distributed Fertilizer Production (CASFER), which is a National Science Foundation Engineering Research Center (NSF ERC). At CASFER, Dr. Siebecker contributes not only to the research goals but to socially important goals, such as Engineering Workforce Development (EWD). Dr. Siebecker has been fortunate to receive federal grants from the USDA to work on potassium and PFAS. He has also received funding from the Texas State Support Committee (Cotton, Inc.), as well as a The CH Foundation, located in Lubbock, TX, which supports research that has direct community impacts for rural West Texans. Lastly, his team is initiating a project related to the impacts of treated oilfield produced water on soil chemical properties. Dr. Siebecker teaches introductory soil science as well as advanced environmental soil chemistry to undergraduate and graduate students.

Leadership Activities, Service, Awards:

- 2023-2025 National Synchrotron Light Source II Proposal Review Panel member, X-ray spectroscopy panel
- 2022-2025 CASFER Testbed Leader, coordinating research efforts to test novel fertilizer technologies with Western Texas College (a 2-year community college)
- 2024 Nominated for the College's International Impact Award for research on Mesoamerican Nephropathy
- 2023 & 2024 Texas Tech College of Agricultural Sciences and Natural Resources Dean's Research Award
- 2024 College committee to provide guidance for incorporation of Outreach & Engagement activities into tenure and promotion decisions for faculty, including Lecturers and Professors of Practice
- 2023 Service Member Patriot Award from the Office of the Secretary of Defense Employer Support of the Guard and Reserve (ESGR)
- 2022 Outstanding Faculty Mentor award, nominated by undergraduate student researchers
- 2021 Faculty Search Committee Workshop for Institutional Diversity