

Haly L. Neely
Assistant Professor of Spatial Soil and Water Management
Dept. of Soil and Crop Sciences, Texas A&M University, College Station, Texas

Education/Training

2017 PhD Soil Science, Texas A&M University
2010 MS Soil Science, Washington State University
2008 BS Agricultural Journalism, Washington State University

Positions and Employment

2014- present Assistant Professor, Soil and Crop Sciences, Texas A&M University

Program Overview

My research and teaching program aims at developing, evaluating, and improving both strategies for collecting physical and chemical properties of soils in complex landscapes; and algorithms for land, water, and resource management based on interpretation of layered soil, water, and vegetation data. My program supports both undergraduate and graduate students' pursuits in education. I currently teach an introductory course in agricultural science titled Problem Solving in Plant and Soil Systems (SCSC 205) each Fall semester.

Significant 5 Year Accomplishments

Research: Acquired \$440,000 of which \$80,300 went to my research program. I am part of a research team that is working to improve Noah-MP land surface model through the addition of soil texture information with depth. Currently, Noah-MP only uses surface soil texture information. With the addition of accurate soil horizons, we expect to see improvements in predictions of latent and sensible heat. I have funded projects working to validate unmanned aerial vehicle (UAV) data for measurements of crop stress in multiple cropping systems, and in improving soil health under shorter time intervals through double cropping in winter wheat systems. UAVs are powerful tools for assessing desirable crop traits; however, little work has been done assessing the influence of soil properties on both the UAV-obtained data and the resulting crop production. This work is being done with the large Texas A&M University UAV team on campus. Soil health is impacted by crop rotations and management, including tillage practices. At 3 sites across Texas, multiple double-crops, including a cover crop, will be assessed for improvements to on-farm profitability and soil health properties. Other research includes calibration of surface soil moisture sensors such as the cosmic-ray soil moisture observation system (COSMOS) rover. Identifying the effect of soil type (lattice water) and vegetation would lead to a rapid, universal calibration of this transformational instrument.

Teaching: Instructed one semester of Problem Solving in Plant and Soil Systems [SCSC 205]. Supervised 3 MS students.

Publications

Ten most recent publications (5 total)

1. Neely, H.L., C.L.S. Morgan, C.T. Hallmark, K.J. McInnes, and C.C. Molling. 2016. Apparent Electrical Conductivity Response to Spatially Variable Vertisol Properties. *Geoderma* 263:168-175.
2. Neely, H.L., J.P. Ackerson, C.L.S. Morgan, and K.J. McInnes. 2014. Instrumentation to measure soil subsidence and water content in a single borehole. *Soil Sci. Soc. Am. J.* 78:1251-1257.
3. Kishne, A.Sz., C.L.S. Morgan, H.L. Neely. 2014. How much surface water can gilgai microtopography capture? *J. Hydrol.* 513:256-261.

4. Ingle (Neely), H., R. Koenig and M. Stowe. 2010. The effect of seed-row placement of conventional and polymer-coated urea on winter wheat emergence. *Comm. Soil Sci. Plant Anal.* 41:887-896.
5. Neely, H.L., R.T. Koenig, C.A. Miles, T.C. Koenig, and M.G. Karlsson. 2010. Diurnal fluctuation in tissue nitrate concentration of field-grown leafy greens at two latitudes. *Hortscience* 45:1815-1818.

Professional Experience

- Advised/co-advised 3 MS students.
- Authored/co-authored 5 peer-reviewed journal articles, and 22 scientific abstracts/presentations.
- Acquired \$440,000 of which \$80,300 went to my program.
- Courses instructed: Problem Solving in Plant and Soil Systems (SCSC 205).