

**TEXAS STATE VITA****I. Academic/Professional Background**

A.

Name: Samantha M Krause

Title: Assistant Professor

## B. Educational Background

<i>Degree</i>	<i>Year</i>	<i>University</i>	<i>Major</i>
<b>Ph.D.</b>	2014-2018.	The University of Texas	Geography and the Environment

Dissertation: Wetland Agroecosystems in the Maya Lowlands of Belize: LiDAR and Multi-Proxy Environmental Change.

<b>M.S.</b>	2008-2009.	Florida State University	Geographic Information Science.
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Thesis: GIS Applications at the Blue Creek Archaeological Site, Belize

<b>B.S.</b>	2003-2007.	University of Mary Washington	Geology and Anthropology.
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Thesis: Geoarchaeology and Post-Colonial Land Use History at Stratford Hall Plantation, VA.

## C. University Experience

<i>Position</i>	<i>University</i>	<i>Dates</i>
Assistant Professor	Texas State University	Present
Lecturer	Texas State University	2019-2020
Lecturer	University of Texas	2018-2019
Teaching/Research Assistant	University of Texas	2014-2018
Lecturer	New Mexico State	2012-2014

## D. Relevant Professional Experience

2019-Present Soil Geomorphologist. Belize River East Archaeological Project, Crooked Tree, Belize.

2018-Present Soil Geomorphologist. The Makounta Voules Archaeological Project, Paphos, Cyprus.

2016-Present Research Associate. Programme for Belize Archaeological Project, Orange Walk, Belize.

2009-2019 GIS Specialist, Research Associate. The Maya Research Project, Blue Creek, Belize.

2014-2018 Soils and Geoarchaeology Laboratory Manager. The University of Texas, Austin, Texas.

2009-2014 GIS Specialist. DMG Four Corners Research, Inc. Tularosa, New Mexico.

## E. Other Professional Credentials (licensure, certification, etc.)

2017 Remote Sensing in the Subtropical Maya Region: Recent Explorations through LiDAR and Other Innovative Tools for Discovering Maya Sites, an activity of the 2017 Maya Meetings at UT Austin.

- 2016 Pedogenesis Workshop in Mexico City, a joint activity of INQUA Focus Group QUASAP and IUSS Commission on Palaeopedology, UNAM, Mexico.
- Intensive short course in Archaeological Soil Micromorphology. 7-12 November 2016. Course conducted by Dr. R Macphail, Institute of Archaeology, University College London, UK.
- NCALM Lidar Data Management Training. 2 day course at National Center for Airborne Laser Mapping, University of Houston, TX.
- Department of Statistics and Data Sciences Short Courses at UT Austin: Introduction to Python/Introduction to R

## II. TEACHING

### A. Teaching Honors and Awards:

#### B. Courses Taught:

Texas State University  
GEO 1305 - Meteorology  
GEO 4313 - Environmental Management  
GEO 4430 - Field Methods

#### UT Austin:

Introduction to Physical Geography  
Introduction to Environmental Science  
Water and Watersheds  
Process Geomorphology  
Climate Change

#### NMSU-A:

Introduction to Physical Geology  
Historical Geology

### C. Directed Student Learning (i.e. theses, dissertations, exit committees, etc.):

#### D. Courses Prepared and Curriculum Development:

GEO 1305 – Meteorology. First Time Course Preparation, Texas State University. Taught: August 2019 - December 2019.  
GEO 4313 - Environmental Management. First Time Course Preparation, Texas State University. Taught: August 2019 - December 2019.  
GEO 4430 - Field Methods. First Time Course Preparation, Texas State University. Taught: August 2019 - December 2019.

### E. Teaching Grants and Contracts

1. Funded External Teaching Grants and Contracts:
2. Submitted, but not Funded, External Teaching Grants and Contracts:
3. Funded Internal Teaching Grants and Contracts:
4. Submitted, but not Funded, Internal Teaching Grants and Contracts:

## F. Other:

Field Trip, Soils at the Freeman Center for GEO4430, Department of Geography.

Field Trip, Drone and equipment demonstration for GEO4430, Department of Geography.

## G. Teaching Professional Development Activities Attended

Teaching Online at TxState professional development course (meets SACSCOC requirements for online instructors) Summer 2020

**III. SCHOLARLY/CREATIVE**

## A. Works in Print (including works accepted, forthcoming, in press):

## 1. Books:

## a. Scholarly Monographs:

## b. Textbooks:

## c. Edited Books:

**S. Krause**, Guderjan, T., & F. Valdez. (eds) *Ancient Maya Landscapes in Northwestern Belize*. University of Florida Press (forthcoming).

## d. Chapters in Books:

2020. Beach, T., Luzzadder-Beach, S., Dunning, N., **Krause, S.** Paleocology, Soil, and Water in Maya History Chap 13, 229-249, in: Scott Hutson and Traci Ardren (eds.) *The Maya World*. Routledge.

2019. Beach, T., S. Luzzadder-Beach, **S. Krause**, and C. Doyle. An Early Anthropocene Analog: The Geomorphology and Hydrology of the Rio Bravo Watershed in the Belize Tropics. In *Paleobiodiversity and Tectono-Sedimentary Records in the Mediterranean Tethys and Related Eastern Areas*, edited by Boughdiri, M., Bádenas, B., Selden, P.A., Jaillard, E., Bengtson, P., Granier, B.R.C. Springer.

2016. Guderjan, T., **S. Krause**, S Luzzadder-Beach, T. Beach & C. Brown. Visualizing Maya Agriculture Along the Rio Hondo: a Remote Sensing Approach, in *Perspectives on the Ancient Maya of Chetumal Bay*, edited by Walker, D. University of Florida Presses.

2016. Guderjan, T., S. Luzzadder-Beach, **T. Beach**, S. Bozarth, & **S. Krause**. Chapter 2: Production of Wetland Agricultural Commodities in the Maya Lowlands. *The Value of Things*, Edited by Mathews, J.P. and Guderjan, T.H. University of Arizona Press.

## e. Creative Books:

## 2. Articles:

## a. Refereed Journal Articles:

2021 Bhattacharya, T. **S. Krause**, D. Penny, D. Wahl. Drought and Water Management in Maya

- Society. To Be Submitted to *Progress in Physical Geography*, Fall 2021.
- Damick, A., A. Rosen, **S. Krause**. Building Resilient Landscapes in a Semi-Arid Watershed: Anthropogenic and Natural Burning Histories in Mid-Late Holocene Tesuque Creek, Northern New Mexico. To Be Submitted to *Holocene*, Fall 2021.
- Garrison, T., A. Thompson, J. C. Fernandez-Diaz, **S. Krause**, S. Eshleman. The Lidar Resolution and the Maya Forest. To Be Submitted to *Progress in Physical Geography*, Fall 2021.
- Krause**, S., Beach, T. P., Luzzadder-Beach, S., Cook, D., Bozarth, S. R., Valdez Jr, F., & Guderjan, T. H. Tropical wetland persistence through the Anthropocene: Multiproxy reconstruction of environmental change in a Maya agroecosystem. *Anthropocene*, 34, 100284.
- 2020 Sekhon, N., T. Beach, **S. Krause**, S. Eshleman. Understanding climate trends in Central America through practical problem-based learning. *Journal of Geography in Higher Education*.
- 2020 Guderjan, T., J. Kwoka, C. Hanratty, T. Beach, S. Luzzadder-Beach, **S. Krause**, S. Eshleman, T. Ruhl, C. Doyle. Early Onset Anthropocene: Control of the Landscape by the Ancient Maya in Northwestern Belize. *Research Reports in Belizean Archaeology* 17. 105-117.
- 2019 Beach T., S. Luzzadder-Beach, S. **Krause**, T. Guderjan , F. Valdez, J. Fernandez-Diaz, S. Eshleman, C. Doyle. The Early Anthropocene in tropical forests: Ancient Maya wetland fields revealed from laser scanning and multiproxy evidence. *Proceedings of the National Academy of Sciences*.
- 2019 **Krause, S.**, T. Beach, S. Luzzadder-Beach, T. Guderjan , F. Valdez, S. Eshleman, C. Doyle, S. Bozarth. Ancient Maya Wetland Management in Two Watersheds in Belize: Soils, Water, and Paleoenvironmental Change. *Quaternary International*.
- 2019 **Krause, S.**, T. Beach, S. Luzzadder-Beach, D. Cook., C. Doyle, S. Eshleman., T. Guderjan. Wetland geomorphology and paleoecology near Akab Muclil, Rio Bravo floodplain of the Belize coastal plain. *Geomorphology*.
- 2018 Beach, T., D. Cook, S. Luzzadder-Beach, **S. Krause**, C. Doyle, S. Eshleman, G. Wells, N. Dunning, G. Hammond, N. Brokaw, & R. Terry. Stability and Instability on Tropical Forest, Fluviokarst Hillslopes over the Late Holocene in the Maya Lowlands. *Geomorphology*.
- 2018 Beach, T., A. Ulmer, D. Cook, M. Brennan, S. Luzzadder-Beach, C. Doyle, S. Eshleman, **S. Krause**, M. Cortes-Rincon, & R.Terry. Geoarchaeology and tropical forest soil catenas of northwestern Belize. *Quaternary International*.
- 2017 Luzzadder-Beach, S., T. Beach, T. Garrison, S. Houston, J. Doyle, E. Román, S. Bozarth, R. Terry, **S. Krause**, and J. Flood. Paleoecology and Geoarchaeology at El Palmar and the El Zotz Region, Guatemala. *Geoarchaeology*.
- 2016 Luzzadder-Beach, S., T. Beach, S. Hutson, and **S. Krause**. Sky-earth, lake-sea: climate and water in Maya history and landscape. *Antiquity*, Vol. 90, 426-442. Cambridge University Press. Number 2 journal in Archaeology
- 2015 Beach, T., S. Luzzadder-Beach, **S. Krause**, S. Walling, N. Dunning, J. Flood, T. Guderjan & F. Valdez. 'Mayacene' floodplain and wetland formation in the Rio Bravo Watershed of northwestern Belize. *The Holocene* 25: 1612-1626.

- 2015 Beach, T., S. Luzzadder-Beach, T. Guderjan, & **S. Krause**. The floating gardens of Chan Cahal: Soils, water, and human interactions. *Catena*. 132, 151-164.
- 2015 Beach, T., S. Luzzadder-Beach, D. Cook, N. Dunning, D. Kennett, **S. Krause**, R. Terry, D. Trein & F. Valdez. Ancient Maya impacts on the Earth's surface: An Early Anthropocene analog? *Quaternary Science Reviews* 124: 1-30.
- 2011 Guderjan, T. & **S. Krause**. Identifying the Extent of Ancient Maya Ditched Field Systems in the Rio Hondo Valley of Belize and Mexico: A Pilot Study and Some of its Implications. *Research Reports in Belizean Archaeology* 8:127-136.

b. Non-refereed Articles:

3. Conference Proceedings:

a. Refereed Conference Proceedings:

b. Non-refereed:

4. Abstracts:

5. Reports:

- 2019 **Krause, S.** Geoarchaeology investigations in the Western Lagoon. In *Investigations of the Belize River East Archaeology Project: A Report of the 2018 and 2019 Field Seasons*. Edited by E. Harrison-Buck. Report submitted to the Institute of Archaeology, Belmopan, Belize.
- 2017 **Krause, S.,** M. Wendel, T. Beach, S. Luzzadder-Beach. Geoarchaeological Excavations at Maya Research Program in the 2016 Field Season. *The 24<sup>th</sup> Annual Report of the Blue Creek Archaeological Project*. Edited by Thomas H. Guderjan and C. Colleen Hanratty. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize.
- 2016 **Krause S. &** Aebersold, L. 2015 Geoarchaeological Excavations at Maya Research Program. *The 23rd Annual Report of the Blue Creek Archaeological Project*. Edited by Thomas H. Guderjan and C. Colleen Hanratty. Submitted to the Institute of Archaeology, National Institute of Culture and History, Belmopan, Belize.

6. Book Reviews:

7. Essays:

8. Poems:

9. Short Stories:

10. Other Works in Print:

- 2016 **Krause, S.,** Guderjan T., Beach. T., Luzzadder-Beach, S. Sixty Years of Remote Sensing in the Maya Lowlands: A Review of Techniques and Tools. In Aebersold, L., **S. Krause** & F. Valdez (eds). *Changes in Latitudes, Changes in Attitudes: Transitions and Thresholds throughout Central America and Beyond*. Center for Archaeological and Tropical Studies Occasional Papers, University of Texas, Austin.

- 2016 Aebersold, L., **S. Krause** & F. Valdez (eds). *Changes in Latitudes, Changes in Attitudes: Transitions and Thresholds throughout Central America and Beyond*. Center for Archaeological and Tropical Studies Occasional Papers, University of Texas, Austin.

B. Works Not in Print:

1. Papers Presented at Professional Meetings:

- 2021 Reconstructing mid-late Holocene Soils Sequences and Anthropogenic Impacts within the Rio Grande Watershed, Northern New Mexico. S Krause, A. Damick. . Presentation at Annual Meeting of the Geological Society of America, Portland OR.
- How does remote sensing help inform long term soil and geomorphic changes within Belizean wetlands? S. Krause, T. Beach, S. Luzzadder-Beach, E. Harrison-Buck. Presentation at the annual meeting of the American Association of Geographers, online due to COVID-19 pandemic.
- Geoarchaeological Investigations of Wetlands and Waterways in Crooked Tree, Belize. S. Krause, T. Beach, S. Luzzadder-Beach, E. Harrison-Buck. Presentation at Annual Meeting of the Society of American Archaeology, online due to COVID-19 pandemic.
- 2020 Soil and Geoarchaeological investigations of wetlands and waterways in Crooked Tree, Belize. S Krause, T. Beach, S. Luzzadder-Beach, E. Harrison-Buck. Presentation at Annual Meeting of the Geological Society of America, online due to COVID-19 pandemic.
- 2019 Earth, Wetlands, and Fire: Late Holocene fire reconstructions from lowland swamps in Northwestern Belize. S Krause, T. Beach, S. Luzzadder-Beach, L. Aebersold., C. Doyle, S. Eshleman. Presentation at the annual meeting of the American Association of Geographers, Washington, DC.
- Discussant for the session “Archaeological Recording of Ancient Maya Water Management Features” at the annual meeting of the Society of American Archaeology, Albuquerque, NM
- 2018 The genesis and geochemistry of ancient agricultural soils within a forested wetland in northwestern Belize. S. Krause, T. Beach, S. Luzzadder-Beach, L. Morales-Sanchez, T. Guderjan. Presentation at the annual meeting of the Geologic Society of America, Indianapolis, IN.
- Canals, Sacbeob and defining space in ditched agricultural fields in the Three Rivers Region, Northwestern Belize. S. Krause, T. Guderjan, T. Beach, S. Luzzadder-Beach. Presentation at the annual meeting of the Society of American Archaeology, Washington, DC.
- Reign the Swamp! Mapping Maya Agricultural Systems in Northwestern Belize. Presentation at the annual meeting of the American Association of Geographers, New Orleans, LA.
- 2017 Paleocology and human use of wetlands in the Three Rivers Region, Northwestern Belize. S. Krause, T. Beach, S. Luzzadder-Beach, C. Doyle, T. Guderjan, L Sanchez-Morales. Presentation at the annual meeting of the Geological Society of America, Seattle WA.
- Paleocology, genesis, and human manipulation of wetlands in Northwestern Belize. S. Krause, T. Beach, S. Luzzadder-Beach, F. Valdez, C. Doyle, S. Eshleman, L. Donn Poster at the Binghamton Geomorphology Symposium, San Marcos, TX.

New Frontiers in Wetland Archaeology: Mapping Maya Agricultural Systems with Lidar. S Krause, T. Beach, S. Luzzadder-Beach, T. Guderjan, C. Doyle. Presentation at the Annual Meeting of the Society of American Archaeology, Vancouver, British Columbia, Canada.

The Importance of Maya Wetlands for Human Ecology and Environmental History: Multi-Scaler Case Studies from Northwestern Belize. S Krause, T. Beach, S. Luzzadder-Beach, T. Guderjan, C. Doyle. Presentation at the Annual Meeting of the American Association of Geographers, Boston, MA.

- 2016 Anthropogenic and natural formation patterns of soil sequences in tropical karst sinks and slopes, Northwestern Belize and Campeche, MX. S. Krause, T. Beach, S. Luzzadder-Beach, L. Aebersold. Pedogenesis Workshop in Mexico, a joint activity of INQUA Focus Group QUASAP and IUSS Commission on Palaeopedology, Mexico City.

Geochemical Analysis of Ancient Wetland Soils near the Maya Site of Akab Muklil, Belize. S Krause, T. Beach, S. Luzzadder-Beach, D. Cook, C. Doyle, S. Eshleman, G Islebe, T. Guderjan, Presentation at annual meeting of the American Association of Geographers, San Francisco CA.

Understanding Environmental Thresholds through Geoarchaeology: Case Studies from the Maya Lowlands Special Session at the annual meeting of the Society of American Archaeology annual meeting, Orlando, FL.

- 2015 Holocene Sedimentation on Alluvial Fans and Wetland Fields at Nuendorf, Belize. S. Krause, T. Beach, S. Luzzadder-Beach, T. Guderjan. Poster at the Geological Society of America annual meeting, Baltimore, MD.

Classifying Natural and Anthropogenic Wetland Features in Northwestern Belize. S. Krause, T. Beach, S. Luzzadder-Beach, T. Guderjan Presentation at the Annual Meeting of the Association of American Geographers, Chicago, IL.

Maya Wetlands: Natural and Anthropogenic. S. Krause, T. Beach, S. Luzzadder-Beach, T. Guderjan Presentation at the Annual Meeting of the Society of American Archaeology, San Francisco, CA.

## 2. Invited Talks, Lectures, and Presentations:

- 2019 Professionalism and career development lecture given to the Graduate Association of Geography and the Environment at UT Austin.
- 2018 Geoarchaeology around the world. Lecture given to the Makounta Voules Archaeological Project undergraduate students.
- Geoarchaeology: Methods and Materials. Lecture given to ANT 304, Introduction to Archaeological Studies: Prehistory (Professor: F. Valdez).
- Climate of the Maya Lowlands. Lecture and Lab (co-presented with N. Sekhon) given to GRG 333 Climate Change (Professor: T. Beach).
- 2017 “The Dirt on Dirt” What It Can Tell You and Why It Matters. (Co-presented with C. Frederick) Soils Workshop Presentation for the Texas Archaeological Research Laboratory (UT Austin J.J. Pickle Research Campus).

## 3. Consultancies:

4. Workshops:

2016 Pedogenesis Workshop in Mexico, a joint activity of INQUA Focus Group QUASAP and IUSS Commission on Palaeopedology, Mexico City.

5. Other Works not in Print:

a. Works "submitted" or "under review":

b. Works "in progress":

c. Other Works Not in Print:

C. Scholarly / Creative Grants and Contracts:

1. Funded External Grants and Contracts:

2. Submitted, but not Funded, External Grants and Contracts:

3. Funded Internal Grants and Contracts:

4. Submitted, but not Funded, Internal Grants and Contracts:

D. Scholarly / Creative Fellowships, Awards, Honors:

E. Scholarly / Creative Professional Development Activities Attended:

F. Media Recognition:

**IV. SERVICE**

A. Institutional

1. University:

2. College:

3. Department/School:

**2020-2021** Faculty advisor for Gamma Theta Upsilon (GTU)  
Graduate Committee

**2019-2020** Texas Geography Student Research Symposium (TxGSRS) Committee Member

B. Professional:

Peer Reviewer for the following journals: *Holocene*, *Geomorphology*, *Journal of Anthropological Archaeology*

Co-organizer: 2020 Sibley Conference on Ancient America The Mesoamerican Center,  
University of Texas at Austin

Vice President of the Geological Archaeology Division, Geologic Society of America



Co-editor of the Newsletter of the Geoarchaeology Interest Group, Society for American Archaeology and the Newsletter of the Geological Archaeology Division, Geologic Society of America (with R. Cajigas).

C. Community:

D. Organization Memberships:

Association of American Geographers  
Paleoenvironmental Change Specialty Group  
Geomorphology Specialty Group  
Society for American Archaeology  
Geoarchaeology Interest Group  
Geological Society of America  
Archaeological Geology Division  
American Quaternary Association

E. Service Honors and Awards:

F. Service Grants and Contracts:

1. Funded External Service Grants and Contracts:

2020 Collaborator: NSF award #1951147: An Investigation into the Governance of Village Life. (Makounta-Voules-Mersinoudhia, Cyprus)

2019 Participant/Team member: Planet Texas 2050 Past Urban Societies

INQUA Congress Fellowship Program Travel Award (Dublin, Ireland)

2018 Participant/Team member: Denise L. Gold Excavation Grant (American Schools of Oriental Research) for geomorphological survey in Cyprus

2. Submitted, but not Funded, External Service Grants and Contracts:

3. Funded Internal Service Grants and Contracts:

4. Submitted, but not Funded, Internal Service Grants and Contracts:

G. Service Professional Development Activities Attended: