

Corbin Kling  
Ph.D. Candidate  
clkling@ncsu.edu

Planetary Research Group  
Marine, Earth, and Atmospheric Sciences  
North Carolina State University

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### Education

*North Carolina State University*

**Doctorate of Philosophy**, Geology, GPA: 3.84, Expected Graduation May 2020

Dissertation Title: Investigating Pit Crater Formation Mechanisms across the Solar System

*University of Georgia*

**Master's of Science**, Geology, May 2016, GPA: 3.82

Thesis Title: Topographic Expressions of Large Thrust Faults on Mars

**Bachelor's of Science**, Geology, May 2014, GPA: 3.35

Thesis Title: Macro- and Microfossils from Terrace Deposits, Taylor Valley, Antarctica

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### Publications

**Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Wegmann, K.W., and Bohnenstiehl, D.R. (2019), Structural Analysis of Normal Faulting and Pit Crater Formation within Noctis Labyrinthus, Mars. *In preparation for J. Geophys. Res. Planets*.

**Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Bohnenstiehl, D.R., and Craddock, R.A. (2019), Formation of a Collapse Structure on the Kilauea Caldera Flank during the 2018 Eruption. *In preparation for Geology*

Klimczak, C., **Kling, C.L.**, and Byrne, P.K. (2018), Topographic Expressions of Large Thrust Faults on Mars. *J. Geophys. Res. Planets*, 123, 1973–1995. doi:10.1029/2017JE005448

Speakman, R.J., Hadden, C.S., Colvin, M.H., Cramb, J., Jones, K., Jones, T.W., **Kling, C.L.**, Lulewicz, I., Napora, K.G., Reinberger, K.L., Ritchison, B.T., Rivera-Araya, M.J., Smith, A.K., Thompson V.D. (2018), Choosing a path to the ancient world in a modern market: The reality of faculty jobs in archeology. *American Antiquity*, 83, 1, 1–12. doi:10.1017/aaq.2017.36

Craddock, R. A., Tooth, S., Zimbelman, J. R., Wilson, S. A., Maxwell, T. A., and **Kling, C.** (2015), Temporal observations of a linear sand dune in the Simpson Desert, central Australia: Testing models for dune formation on planetary surfaces, *J. Geophys. Res. Planets*, 120, 1736–1750, doi:10.1002/2015JE004892

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### Conference Abstracts

**Kling, C.L.**, Craddock, R.A., Morgan, A., Linear Dune Formation in the Simpson Desert, Australia as a Planetary Analogue. *Abstract #2920, Lunar and Planetary Science Conference*. March 2019.

**Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Wegmann, K.W., Field-based Assessment of Pit Crater Chains. *Abstract #1627, Lunar and Planetary Science Conference*. March 2019.

Chesnutt, J.M., Wegmann, K.W., Szymanski, E.D., Byrne, P.K., and **Kling, C.L.**, Landscape Evolution Comparison Between Valles Marineris, Mars, and the Rio Chama Canyon, New Mexico, USA. *Abstract #2811, Lunar and Planetary Science Conference*. March 2019

**Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Wegmann, K.W., Investigating the Formation of Noctis Labyrinthus, Mars. *Abstract #P311-3826, AGU National Conference*. December 2018.

- Mitasova, H., Petrasova, A., Petras, V., Jeziorska, J., and **Kling, C.L.**, Integration and Analysis of Diverse Lidar and UAS Surveys to Study Coastal Sand Dune Evolution and Changes in Agricultural Field Microtopography (invited). *Abstract #G53A-02, AGU National Conference*. December 2018.
- Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Wegmann, K.W., Bohnenstiehl, D.R., Spatial and Temporal Relationships of Pit Craters and Graben within Noctis Labyrinthus, Mars. *Abstract #2829, Lunar and Planetary Science Conference*. March 2018.
- Kling, C.L.**, Pierce, A.P., Mitasova, H., Petras, V., and Byrne, P.K., Evaluation of UAS-based monitoring of a Coastal Sand Dune System at Jockey's Ridge State Park, NC. *Abstract #EP31B-0351, American Geophysical Union National Conference*. December 2017.
- Stubblefield, R.K., Byrne, P.K., Wegmann, K.W., Mitasova, H., and **Kling, C.L.**, Topographic Signatures of Tectonic Landforms at Alba Mons, Mars. *Abstract #P24C-05, AGU National Conference*. December 2017.
- Kling, C.L.**, Byrne, P.K., Wyrick, D.Y., Wegmann, K.W., and Mitasova, H., The Formation of Pit Craters within Noctis Labyrinthus, Mars. *Abstract #25-11, GSA National Meeting*. October 2017.
- Stubblefield, R.K., Byrne, P.K., Wegmann, K.W., Mitasova, H., and **Kling, C.L.**, Extensional tectonics at Alba Mons: A Case Study for Regional and Local Stress Fields. *Abstract #25-10, GSA National Meeting*. October 2017.
- Kling, C.L.**, Pierce, A.P., and Byrne, P.K., Jockey's Ridge State Park, NC as a Potential Mars Dune Analogue. *Abstract #38-3, GSA Cordilleran Section Meeting*. May 2017.
- Kling, C.L.**, and Klimczak, C., Displacement-length Scaling of Large Thrust Faults on Mars. *Abstract #2888, Lunar and Planetary Science Conference*. March 2016.
- Kling, C.L.**, and Klimczak, C., Thrust Fault Displacement Distributions at the Phlegra Montes Lobate Scarp System, Mars. *Abstract #1557, Lunar and Planetary Science Conference*. March 2015.
- Kling, C.L.**, He, J., Weaver, S., Ucar, Z., Utilizing NASA Earth Observations to Monitor Long Term Hemlock Decline Caused by Invasive Hemlock Woody Adelgid in Great Smoky Mountains National Park, Southeastern Division of the American Association of Geographers Meeting. November 2014.
- Kling, C.L.**, Walker, S.E., and Bowser, S.S., Micro- and Macrofossils from terrace deposits, Taylor Valley, Antarctica. *Abstract #127-33, GSA National Meeting*. October 2013.
- Graybeal, D. B., Kiel, N. J., Dyer, E. K., **Kling, C. L.**, Perez, A. E., Sellers, R. C., Foster, N. A., Fliasher, C. J., and Swanson, S. E. Mineralogy of the Oxide Minerals in the Buck Creek Mafic- Ultramafic Complex, North Carolina. *Abstract #92-47, GSA National Meeting*. October 2012.

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### Grants, Awards, and Honors

- 2019** Geological Society of America Graduate Student Grant (\$2150)
- 2018** Geological Society of America Graduate Student Grant (\$1850)
- 2018** NASA Hyperwall Data Visualization Contest Runner-up (\$2500)
- 2017** NASA Earth and Space Science Fellowship (3 year award, \$135,000)
- 2017** National Association of Geoscience Teachers Outstanding Teaching Assistant Award
- 2017** Land 'O Lakes Prize: Drone Challenge Competitor (\$5,000)
- 2016** Second Place, AAPG Eastern Section Imperial Barrel Award Competition
- 2014** Undergraduate Geology Student of the Year, University of Georgia

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### Service

**NASA Review Panel Member:** Lunar Data Analysis Program, Discovery Data Analysis Program, Rosetta Data Analysis Program, 1x Participating Scientist Program

**Journal Reviewer:** Progress in Physical Geography, Geosphere, Icarus

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### Invited Talks

**2015** Chevron Internship Experience and Advice to Students Interested in the Petroleum Industry; UGA AAPG Chapter Meeting, October 2015

**2015** Drones Eye View of the Laki Lava Flow, Iceland; UGA Geology Department weekly Colloquium Series, November 13, 2015

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### Teaching Experience

**2016-2019** MEA451 Structural Geology and Tectonics lab instructor (NCSU)

**2018-2019** MEA465 Geology Field Camp (NCSU)

**2017** MEA110 Intro Geology lab instructor (NCSU)

**2015** GEOL4060 Structural Geology lab instructor (UGA)

**2013-2017** Assistant Field Trip Leader, Paleontology Class, Sapelo Island, Georgia (UGA)

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### Leadership

**2017-2018** President, Graduate Student Association, Marine, Earth, and Atmospheric Sciences Department, North Carolina State University

**2013-2014** Co-President, Geology Club, University of Georgia

**2013** Co-coordinator for public science outreach, Geology Club, University of Georgia

**2012-2013** Vice President, Longboarding club, University of Georgia

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### Community Science Outreach

**2013-2014** Participated in 3 outreach events to middle and elementary schools

**2012-2013** Organized eight events for elementary schools and libraries, including half day programs in Earth Science Education

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### Research/Field Experience

#### 2019

- Canyonlands National Park GSA Graduate Student Grant field work to investigate collapse structures located within the Needles District.
- Field Camp Teaching Assistant for mapping and Geomorphology portion (2 weeks) based out of Ghost Ranch, NM. Responsible also for updating mapping materials for the camp to new, higher resolution drone and satellite imagery and DEMs

#### 2018

- Craters of the Moon National Monument and Preserve fieldwork campaign. Unmanned aerial system permit granted for investigation of Pit craters and volcanic features within the Preserve to support Ph.D. work on Mars analogue pit crater field sites.
- Rio Chama Canyon fieldwork assistant for fellow Ph.D. student taking OSL and carbon samples for landslide dating of the Rio Chama river incision rate.

- Field camp Teaching Assistant for mapping and geomorphology portion (2 weeks) based out of Ghost Ranch, NM.

#### **2017**

- Continuation of Simpson Desert AU field data collection, incorporating structure-from-motion drone photogrammetry to collect topography info, as well as collecting samples from at depth within the dune cores for optically stimulated luminescence dates and geochemical analysis

#### **2016**

- ExxonMobil Bighorn Basin Field Trip, Sequence Stratigraphy and Sedimentology field course taught in the Bighorn Basin

#### **2015**

- University of Arizona Volcanology Workshop, two weeks obtaining UAS imagery of the Laki lava flow, Iceland, and learning about volcanic processes

#### **2014**

- Invited by Dr. Bob Craddock of the Air and Space Museum, Smithsonian Institution to participate in field work in the Simpson Desert, AU studying linear dune geomorphology by utilizing dGPS to collect topography data
- NASA Develop Internship, Ecological Forecasting via satellite data research projects. Hemlock tree degradation studies in the Great Smoky Mountains National Park by using Landsat 5 and Landsat 8 data to map Hemlock tree decline from 2000-2013. University of Georgia, Athens, Ga

#### **2013**

- Invited by Dr. Bob Craddock of the Air and Space Museum, Smithsonian Institution, to do field work in on the big island of Hawai'i. Field work was based out of Volcano, Hi, and focused on astrobiology and what types of organisms can use basalt to make energy.
- Learned how to use Scanning Electron Microscopy( SEM) from Dr. Sam Bowser of the Wadsworth Center, Albany, NY and had about 15 hours of SEM time.

#### **2012**

- Research leader, class project, barrier island facies of Sapelo Island, GEOL 4010 class, University of Georgia, Athens, GA. Outreach video and paper completed.
- Research assistant, Dr. Swanson and Chris Fleisher assisted Mineralogy class project working on a microprobe to get mineralogies for a Mafic, Ultramafic complex, for GEOL 3010 class, About 12 hours spent microprobing, University of Georgia, Athens, GA