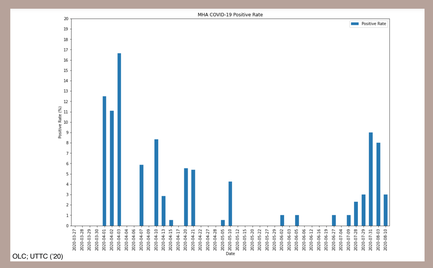
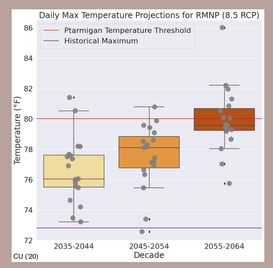
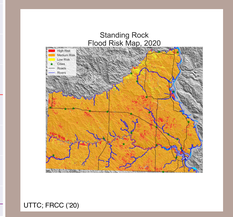
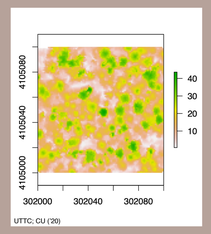
Before this program, ***I had never imagined myself working with code and raw environmental data.*** *Now I feel I have a larger and more complex way of entering the scientific community that* ***I can leverage all of these newfound skills to participate in super interesting climate research!!*** *Compared to the past I wouldn't have thought this was something I'd be capable of. – EDSC Intern*

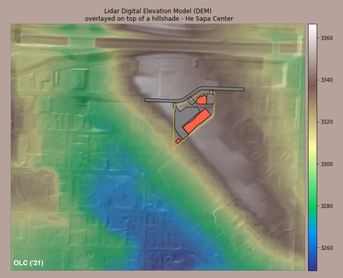
This is going to give me such an ***upper hand in any science career I choose to go into*** *… I can now understand and potentially operate those systems* ***which makes me an asset to just about any company.*** *– EDSC Intern*

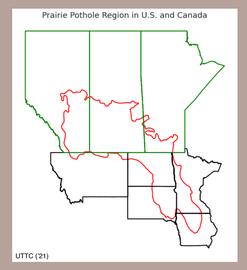


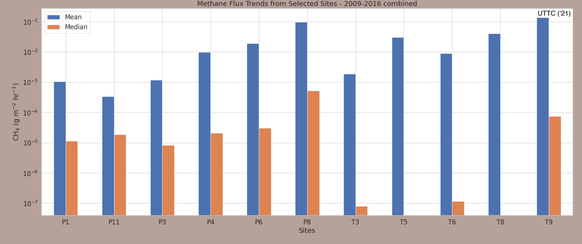


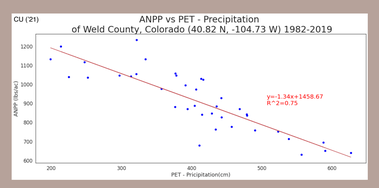


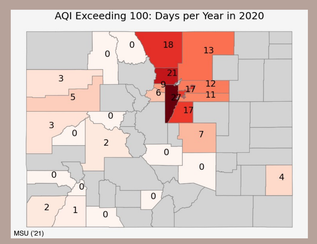


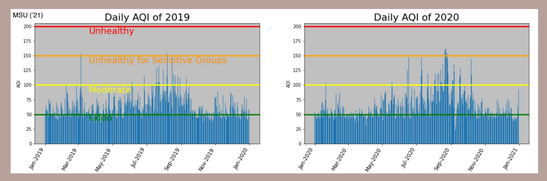


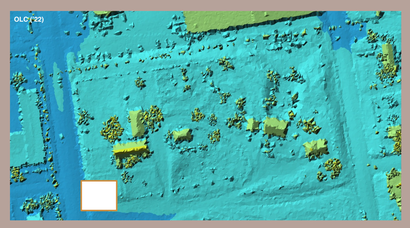


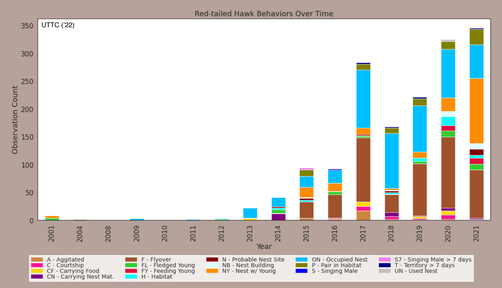


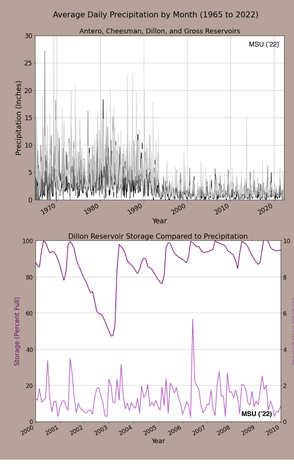


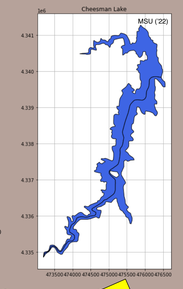


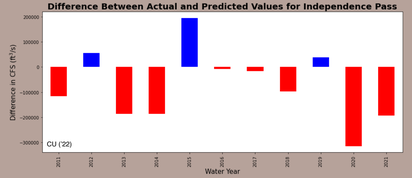


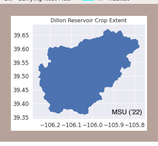


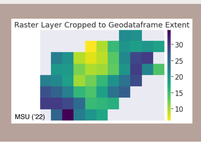












Check out *all* of the EDSC student projects here!

The Earth Data Science Corps & ESIIL Stars Programs: Models for Learning and Teaching Environmental Data Science Skills ([redacted])

Nathan Quarderer[1,2] (**Email: naqu1888@colorado.edu**), Jennifer Balch[1,2], Chelsea Nagy[1,2], Elsa Culler[1,2], Anne U Gold[2,3], Nathan Korinek[1], Katherine Halama[1], Lauren Herwehe[4], James Sanovia[2,5,6], Jason Tinant[6], Emily Biggane[7], Jess Logan[7], David Parr[8], Sylvia Brady[8], William Travis[1,9], Leah Wasser[10]

1.Earth Lab, 2.Environmental Data Science Innovation & Inclusion Lab (ESIIL), 3.CIRES Education & Outreach, 4.National Snow and Ice Data Center, 5.American Indian Higher Education Consortium, 6.Oglala Lakota College, 7.United Tribes Technical College, 8.Metropolitan State University of Denver, 9.North Central Climate Adaptation Science Center (NC-CASC), 10.PyOpenSci

The Earth & Environmental Sciences (EES) produce data at a pace and on a scale that precipitate a need for EES researchers who are equipped with the technical data analytic skills required to work with large EES data sets. There are currently limited opportunities to learn these critical earth and environmental data science (EDS) skills leading to a gap between the demand for and supply of well trained data analysts, and contributes to a lack of diversity in the workforce. Here we present two models for meeting these demands: (i) Harnessing the Data Revolution (HDR) Earth Data Science Corps (EDSC) [**NSF Award #1924337**] and (ii) the Environmental Data Science Innovation & Inclusion Lab (ESIIL) Stars Program [**NSF Award #2153040**].

Earth Data Science Corps (EDSC) [2020-2022]

- https://earthlab.colorado.edu/edsc
- 12-week paid internship (6 wks technical training; 6 wks applied group projects)
- 8 Faculty and 60 undergraduates from historically underrepresented communities
- Partnered with 2 Tribal Colleges & Universities, 1 Hispanic Serving Institution, 1 Community College
- 66% of participating students identified as female; 30% came from Indigenous communities
- Fully online/virtual (Zoom/SpatialChat)
- Curriculum is free and open (www.earthdatascience.org)
- Demonstrated significant growth across participants' technical/non-technical data science skills + sense of belonging/science identity
- Participants tackle relevant earth/environmental science challenges using Python
- Spatial data analysis and mapping tools (GeoPandas, EarthPy, rioxarray)

Check out our free + open **textbooks** and **lessons** here!

The ESIIL Stars Program [2023-2027]

- https://esiil.org/esiil-stars
- Modeled after EDSC
- 6-month paid internship
- Technical training to begin Spring 2023 followed by applied group projects in Summer 2023
- Will include advanced topics (loops; conditional statements; functions; GitHub)
- Incorporate novel data analytics approaches (AI/ML) into Earth Data Science (EDS) curriculum
- Contribute to open interactive *Introduction to Analytics in Earth Data Science* textbook
- Cloud-based teaching resources hosted through CyVerse