Earth Lab and ESIIL Education Programs:
Teaching essential environmental data science skills to diverse student groups

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ESIIL — Earth Data Science Learning Portal

We are developing a new learning portal that will be modeled after earthdatascience.org. It is home to our ESIIL Stars textbook and the ESIIL Data Short Course. Check it out!
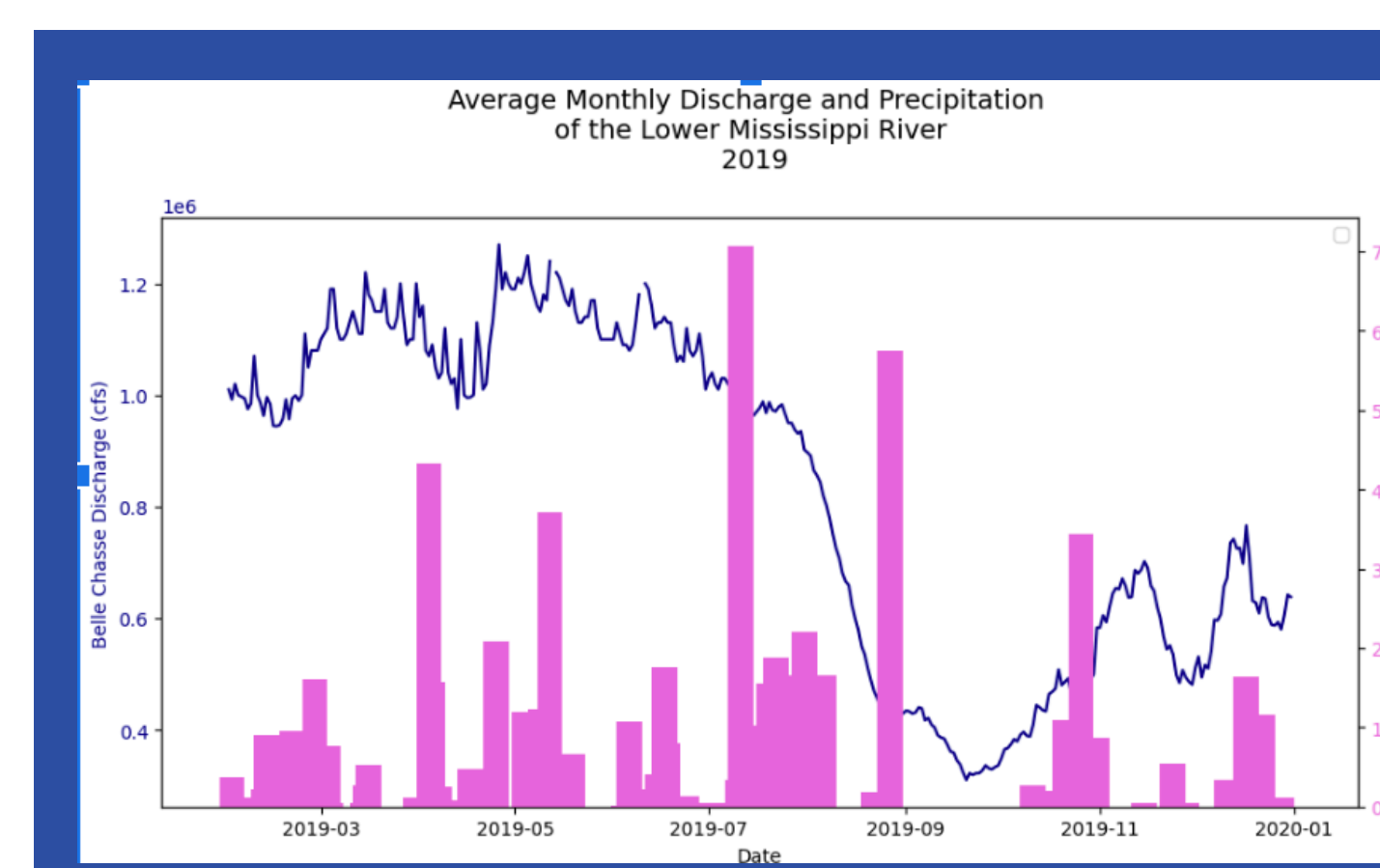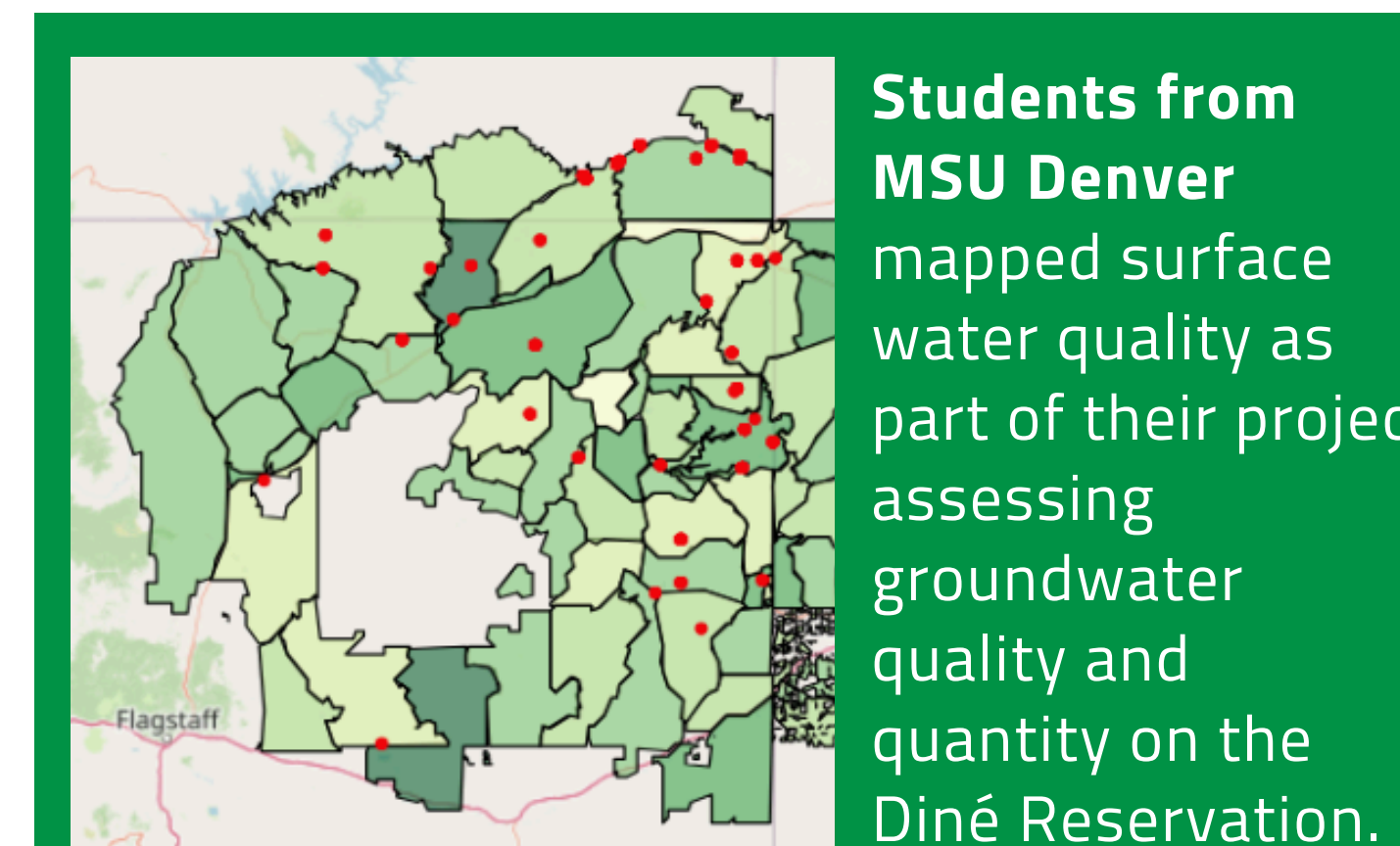
ESIIL STARS

Through a five-month internship program, undergraduate students from schools serving historically underrepresented communities in STEM learn online data skills and complete a culturally-relevant project.
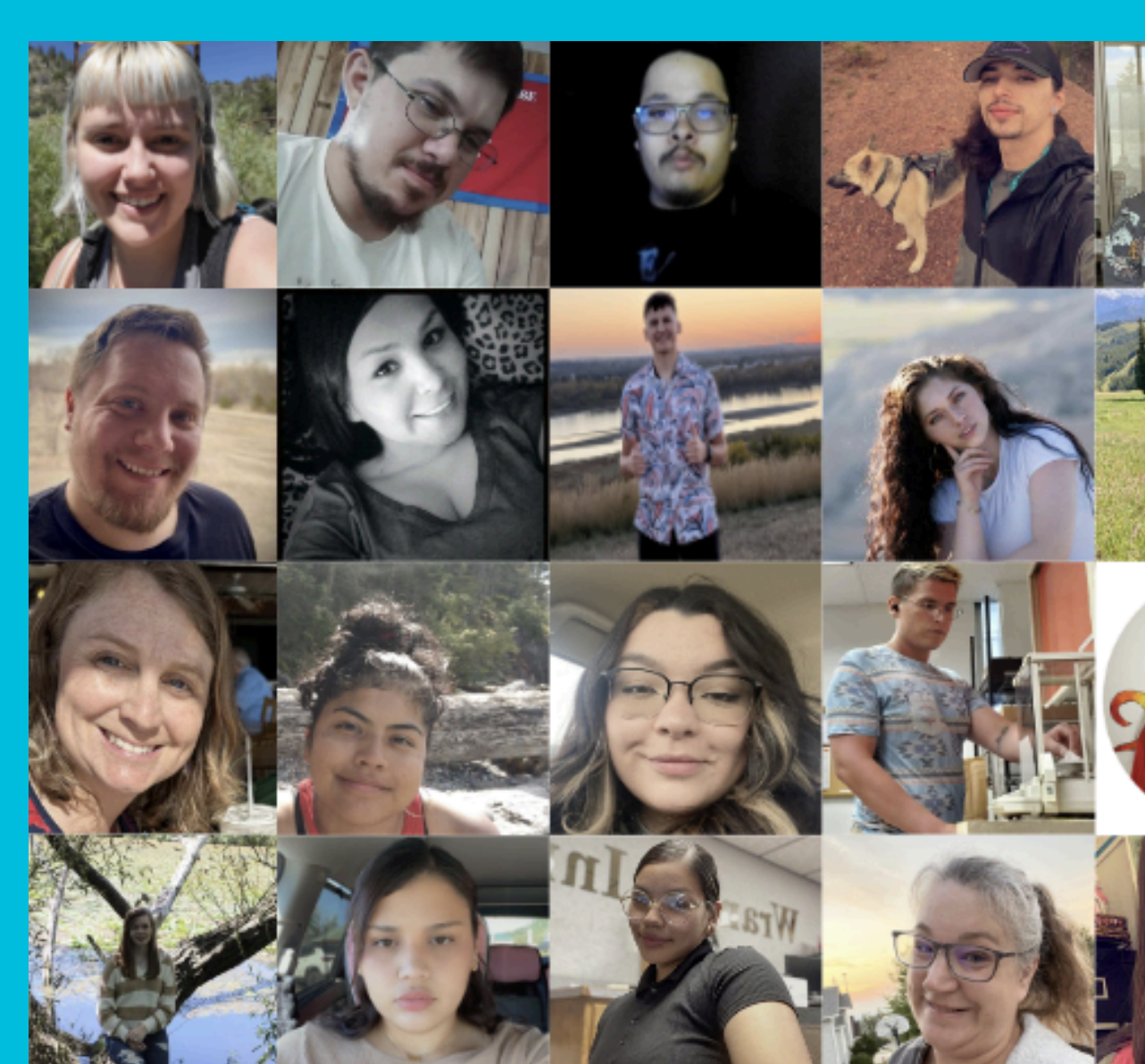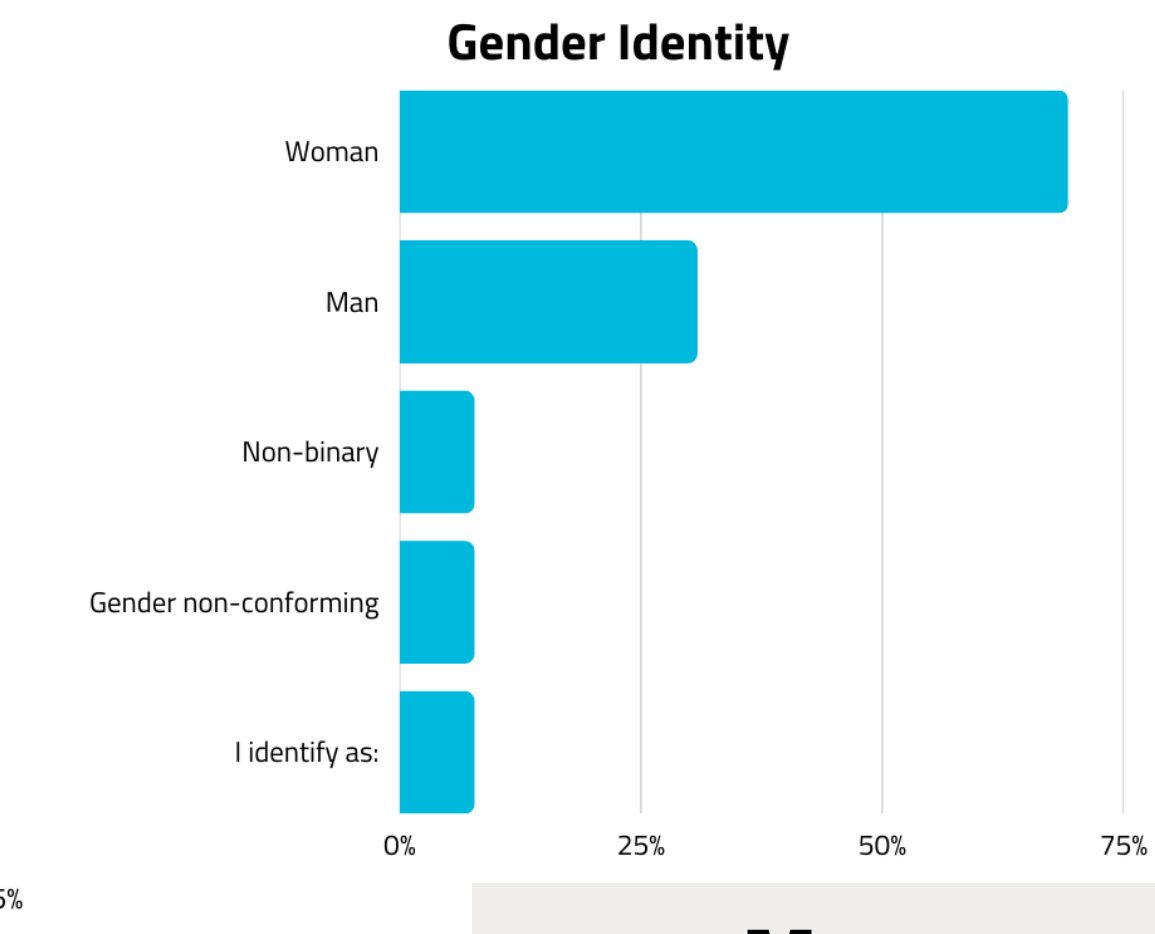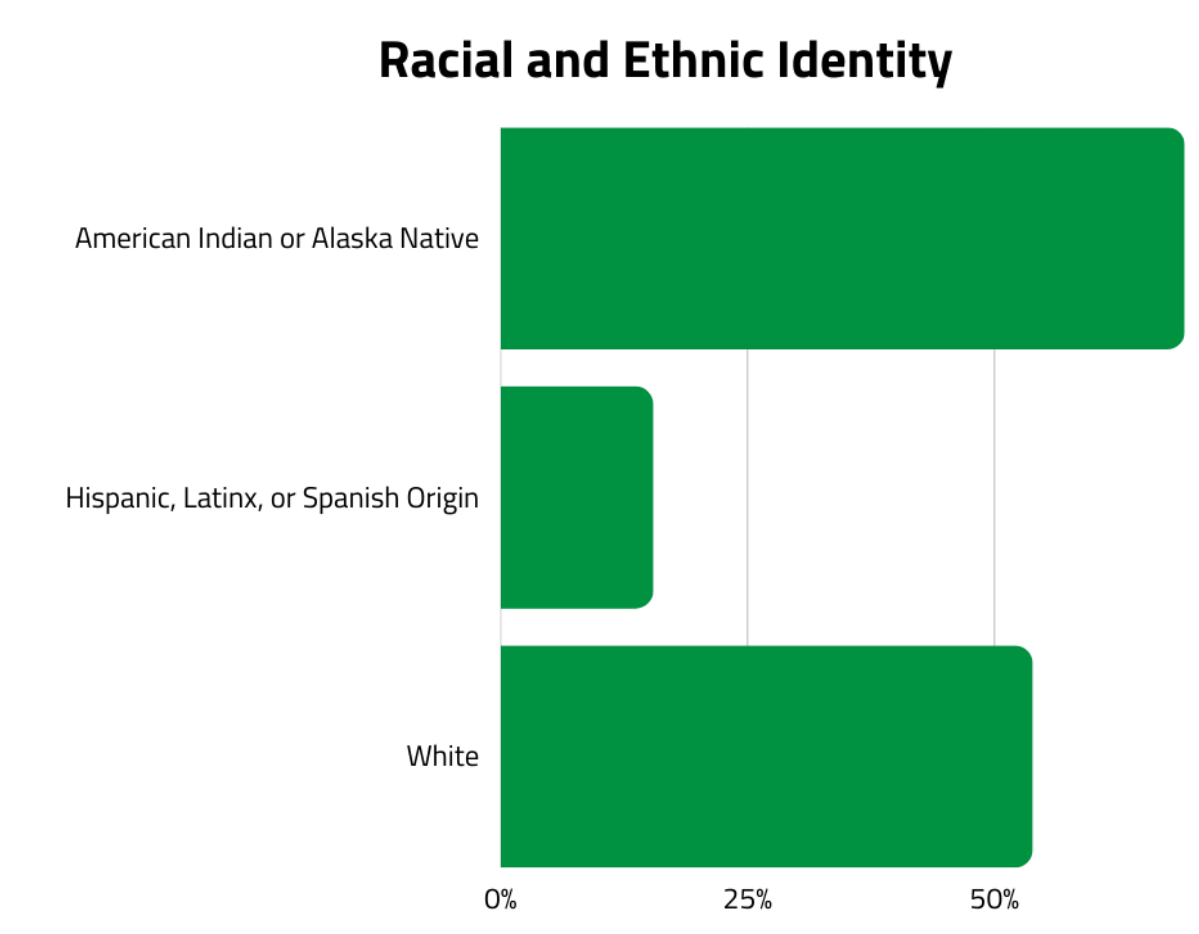
Our 2024 Cohort includes:

- 14 **students** from 3 partner institutions
- 4 **Advanced Interns**, who were Stars students in previous years, serve as mentors
- 8 **faculty** members

Students from MSU Denver mapped surface water quality as part of their project assessing groundwater quality and quantity on the Diné Reservation.

Average Monthly Discharge and Precipitation of the Lower Mississippi River 2019

Students from UTTC looked at the temporal distribution of precipitation in the Mississippi River Basin to understand how it impacts discharge and water levels. They used USGS gauge height data, precipitation data from NOAA and the Drought Monitor's regional HUC drought status.

PARTNER INSTITUTIONS

CU | Metropolitan State University of Denver | Oglala Lakota College | United Tribes Technical College

Racial and Ethnic Identity
- American Indian or Alaska Native
- Hispanic, Latinx, or Spanish Origin
- White

Gender Identity
- Woman
- Man
- Non-binary
- Gender non-conforming
- I identify as:

- 23.1% of students identify as having a disability or being neurodiverse
- 76.9% of students are full-time, 23.1% are part-time
- 61.5% of students have other commitments outside of a job and school but do not take a reduced number of course credits, 15.4% of students have other commitments that require them to take a lower number of credits than they would ideally take

More information and student projects:

## Earth Lab — CU — EARTH DATA ANALYTICS PROFESSIONAL GRADUATE CERTIFICATE

Learn more and check out previous student projects:

"I didn't like computers when I started… I had zero coding experience. This course, and the coding that I learned in it, has given me a whole new career direction. It has carved out a path for me…
-Shannon White, 2018-2019
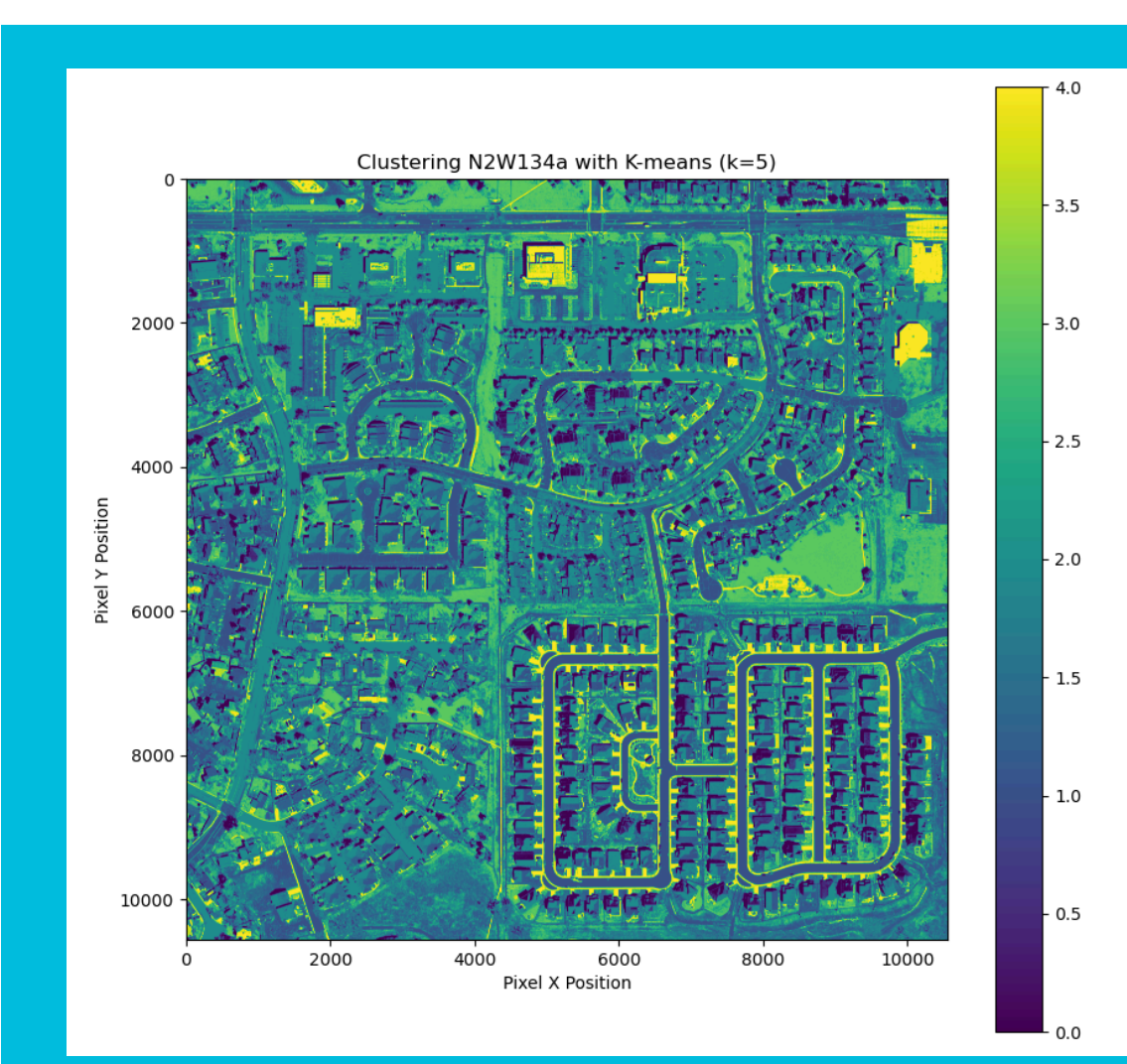
2023-2024 student **Ed Chan** used a dataset of Denver regional aerial images and a k-means clustering algorithm to classify various types of land cover in Lafayette, Colorado.
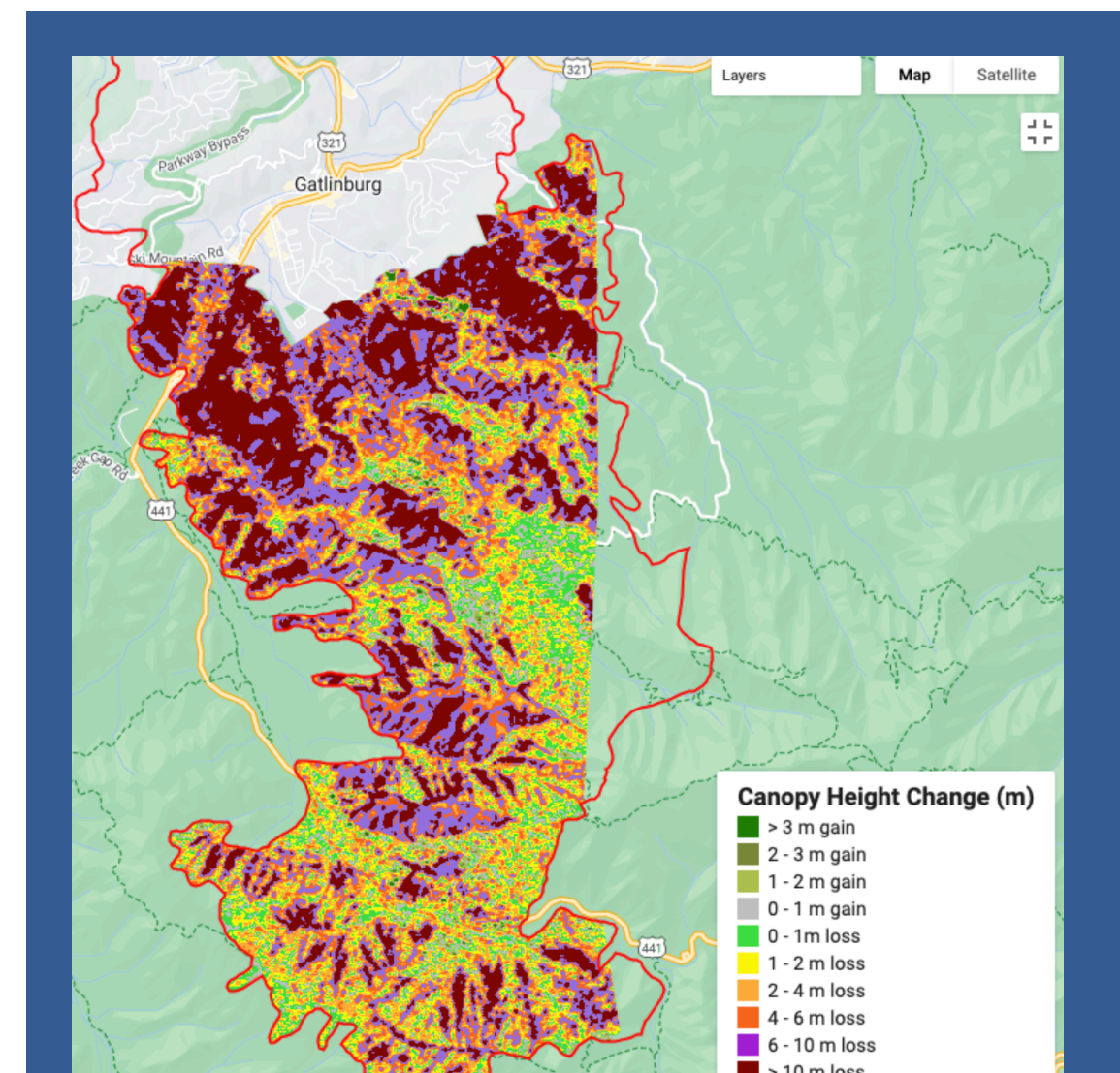
2022-2023 student **Stepan Bryleev** analyzed post-wildfire vegetation growth analysis after the Chimney Tops 2 Fire in Great Smoky Mountains National Park. He used Landsat 8 data to validate NEON data and provide a more comprehensive time series.

3 courses (9 credits)
- Earth Analytics Data Science Bootcamp
- Earth Analytics-Python
- Earth Analytics Applications

We cover…
- Reproducible scientific workflows with Python
- Geospatial data formats
- Real-world project with industry or academic mentor

Start a career as a…
- Data scientist
- Geospatial analyst
- GIS technician or specialist
- Remote sensing scientist
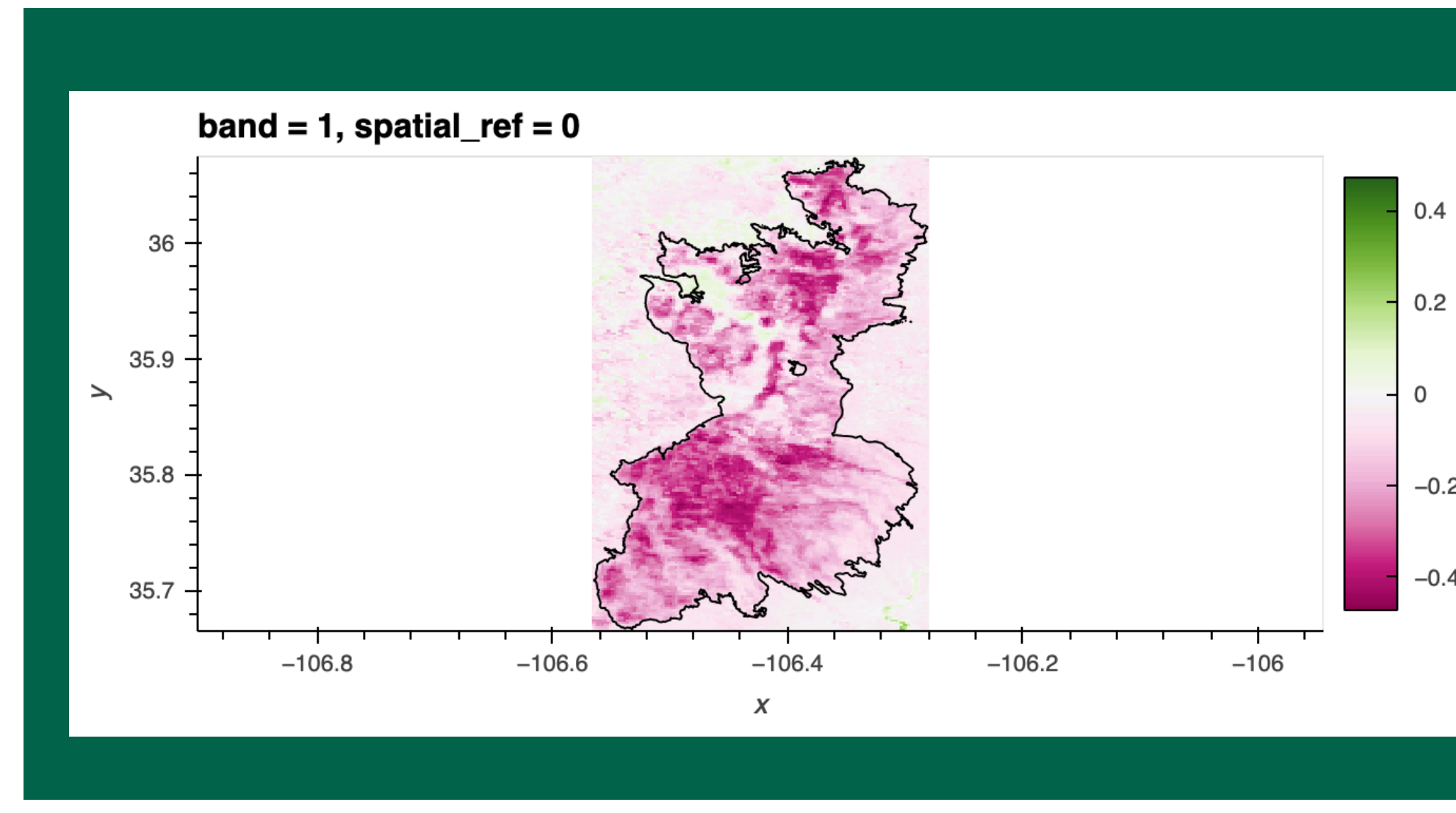
2023-2024 student **Chris Griego** used NDVI data from the National Interagency Fire Center to quantify vegetation regrowth in the years following the Las Conchas fire in New Mexico.

"The Earth Analytics courses helped to teach general approaches which are transferable to a variety of use cases. Knowing that there is so much information out there, and given the foundation we have now, I'm just excited to be able to continue to grow these skills. I'm in awe of this open source industry where people have kindly posted free tutorials on so many topics."
-Katy Sill, 2018-2019

earthdatascience.org

Our free online textbook has curricular materials, lessons, and more, and sees millions of global users annually.